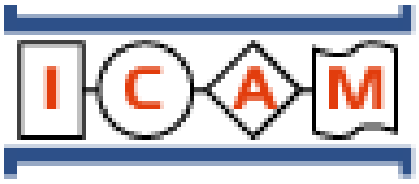


Integrity Compliance Audit Manager
SBIR Phase I Final Report
February 9, 2005

FINAL PROJECT SUMMARY REPORT

PROJECT IDENTIFICATION INFORMATION

1, BUSINESS FIRM & ADDRESS
AECsoft USA, Inc.
5433 Westheimer Road, Suite 925
Houston, TX 77056

2. DOT SBIR PROGRAM - Research Topic No.: 04-RS2
Research Topic Title: Innovative Safety and Reliability Technologies for Pipeline System Integrity Management Pipeline Integrity Management Software Tools

3. DOT CONTRACT NUMBER - DTRS57-04-C-10046

4. PERIOD OF PERFORMANCE - September 9, 2004 thru February 9, 2005

PROJECT TITLE

Pipeline Integrity Process – Management/Audit System (PIPe-MAS)
(Renamed as of 1/1/05 to Integrity Compliance Audit Manager (ICAM))

SUMMARY OF COMPLETED PROJECT

The data in this report shall NOT be released outside the Government without the permission of AECsoft USA, LLC for a period of four years from the completion date of February 9, 2005.

- Identify the Purpose of the Research - The primary purpose of this research was three fold:
    a. To confirm the industry need for an application to support the process management requirements of 49 CFR 192
    b. To study various technologies to ensure that a commercial application with the functionality required by industry could be developed
    c. To determine the commercial potential of the concept relative to the requirements of industry and the time lines imposed by the OPS for auditing compliance per the Pipeline Safety Improvement Act, 2002

- Provide a Brief Description of the Research Carried Out - Each of the primary objectives were successfully completed within the time allotted for the SBIR Phase I grant, summarized as follows:
    a. Conferences, seminars, industry meetings, polling and were performed to ensure that industry in fact, did understand the new approach the OPS was taking in terms of the requirement for process management.
    b. Two primary database formats (Oracle and SQL) were investigated as platforms from a performance perspective and numerous potential components of a database schema and their inter-relations were proposed and discussed with industry to ensure the ICAM development would provided the required functionality.
    c. Discussions were held with a least 10 transmission pipeline operating companies of various s sizes to confirm the commercial potential of the ICAM project.

SUMMARY OF COMPLETED PROJECT (con't)

- Describe the Research Findings and/or Results - All the findings were extremely positive and the timing would seem to be spot on in terms of the time to market for a functional process management tool for transmission pipeline operators of all sizes.
    a. As the OPS has been saying for 2 years now, "If it was not documented, it did not happen". We believe that industry is finally getting the message and although they are struggling with understanding the nature of process management, our objective with ICAM is to create a configurable application that can easily be adopted to ANY operating companies processes regardless of the size, complexity or frequency.
    b. Multiple versions of a functional database schema have been developed and reviewed with industry to ensure that all the requirements per both the operators and the OPS were managed. The creation of workflows, activities and tasks, all revolving around the HCA segments with ownership, evaluation and approval functionality was worked and reworked resulting in a final version 6.2.3 that additionally includes threat analysis, risk ranking, hierarchal assignment, the OPS Protocols and the flexibility to utilize the system for process management above and beyond said protocols to improve operational efficiency.
    c. The ICAM concept was overwhelmingly accepted as a solution to the OPS requirements in terms of process management. Research has shown that at least 1 other company is developing along the same lines. ICAM is being developed with input from Panhandle Eastern Pipe Line Company and will be the platform of choice for both Panhandle and Cross Country as of this writing. These organizations have agreed to provide co-funding for future development to bring the ICAM application to the market.

- Describe the Potential Applications of the Research - The research has resulted in a complete understanding of the requirements to complete an application that will not only support the OPS position on Integrity Management audits, but will help operators manage other processes to allow for a safer operation of transmission pipeline in America.

APPROVAL SIGNATURES

1. PRINCIPLE INVESTIGATOR / PROJECT DIRECTOR: Tom Ren
2. PRINCIPLE INVESTIGATOR / PROJECT DIRECTOR: _____
3. DATE: February 9, 2005

Integrity Compliance Audit Manager
SBIR Phase I Final Report

1. Research Objectives / Industry Requirements

    a. To confirm the industry need for an application to support the process management requirements of 49 CFR 192
        i. Industry Requirements – Industry has embraced the OPS requirement for process management and realizes the need for the use of technology to do so. As such discussions with both tier one and tier two transmission operating companies has validated the need for a product such as ICAM. Specifically the ICAM application must be scalable, configurable and user friendly.
        ii. Benefits - Benefits to the Operating Company are:
            1. Auditable, Defensible & Automated
            2. Customizable to support IMP
            3. Provides change management record tracking
            4. Provides a vehicle for communication to various stake holders based on specific and secure roles
            5. Does NOT require IT involvement
            6. Server w/ web based software connected to intranet
            7. May be securely accessed by field personnel in the event the workflow is directed outside the office
            8. May be securely accessed by third party consultants in the event the workflow is directed outside the office
            9. Supports ANY size organization with ALL workflow options and is adaptable as plans change
            10. Easily administered once the initial workflow has been created
            11. Tracks the OPS Gas protocols for audit
            12. Survives personnel changes and guarantees continuity of integrity plan

    b. To determine the commercial potential of the concept relative to the requirements of industry and the time lines imposed by the OPS for auditing compliance per the Pipeline Safety Improvement Act, 2002
        i. OPS Audit –As of the public meeting in Atlanta, the OPS has indicated that the inspection schedule will begin as early as July of 2005 with anywhere from 9-12 audits targeted. The OPS has continually reinforced the notion that the existence and implementation of process will be the focus of the audits. It would seem that with the influence of CYCLA, whose history is in the nuclear industry, the OPS has determined that the best way to ensure pipeline integrity is to take this process management approach.

ii. OPS Report Requirements – The OPS has indicated a desire to inspect process records through a breadth and width, wide enough to show that the operators are in fact managing their processes. ICAM will allow for reporting by HCA per protocol, activity and task or by protocol, activity and task across all HCA segments.

1. OPS will "verify" an operator's compliance status with respect to each requirement. In order to perform this verification, ***OPS will inspect the operator's documented processes and procedures in order to determine if a program has been established that complies with rule requirements.***
2. In addition, ***OPS will inspect an operator's implementation records to determine if the operator is effectively implementing its programs and processes.***
3. The purpose of the OPS verification/inspection is not to perform a quality check of every integrity related activity. ***The OPS inspection is conducted in the form of an audit***.
4. As a result, the OPS inspection will typically perform an inspection of selected operator records sufficient in breadth and depth to give the inspection team adequate understanding regarding the degree of an operator's commitment to compliance with applicable requirements and/or the degree to which the operator's program has been effective with respect to achieving compliance. OPS may use any number of inspection or audit techniques to identify potential compliance issues. Program documents may be inspected to determine if adequate processes have been developed and documented to the degree necessary for competent professionals to understand and effectively implement the process with results that are consistent and repeatable. For example, one technique that might be used by the inspection team is a "vertical slice" in which a specific covered segment or pipeline system is selected to perform a detailed inspection of every aspect of integrity management, thus following a specific example through the entire process of integrity management. Based on those reviews, OPS will identify potential non-compliances with rule requirements. OPS can not and will not certify nor conclude that an operator is in full compliance with rule requirements, even if the inspection does not identify any areas of non-compliance. Operators are wholly responsible for compliance with regulations.

c. ICAM Functionality – ICAM has been designed to allow for the creation of unlimited workflow processes with each supported by any number of activities and task as required by the specific operators SOP or O&M. Additionally, ICAM will provide for the optional tracking of ownership, evaluation and approval down to the task level. Tasks may jump between internals and external parties, time lines and reminders may be set, scheduled activities may be monitored and at every level, the operator has the option to require evaluation and/or approval and the management of documented data. The creation of the ICAM allows each operator a tool that will be utilized to link their Standard Operating Procedures (SOP) to specific the requirements of the OPS for verification. The application will support the OPS protocols with functionality that includes, routing, notification, evaluation, approval, document management, event management and exception management, through an automated workflow process.

i. Manage the process requirements per the OPS protocols
ii. Manage the workflows created as part of your IMP
iii. Help manage internal process more efficiently
iv. Provide for the tracking of
    1. Responsibility
    2. Accountability
    3. Authority

2. Research Carried Out /Work Completed To Date

a. Conferences, seminars, industry meetings, polling and were performed to ensure that industry in fact, did understand the new approach the OPS was taking in terms of the requirement for process management.

b. Two primary database formats (Oracle and SQL) were investigated as platforms from a performance perspective and numerous potential components of a database schema and their inter-relations were proposed and discussed with industry to ensure the ICAM development would provided the required functionality.
    1. Database Schema – Various different database schemas have been discussed and designed with additional functionality being added with each version. Additionally, the means by with all of the data elements need to interact not only for internal process but to ensure that all activity data pursuant to a specific HCA is tracked, has been revised multiple times with each stage requiring approval of the integrity personnel at Panhandle Energy.
    2. Developed and revised versions of the database schema before finalizing the components and relationships to address the operators requirements
        a. HCA information
            i. Threats

ii. Assessment Types
iii. Risk and Ranking

b. Hierarchy
   i. 10 levels of designation to ensure each task specifically reflects the HCA affected
   ii. Users / User Groups
      1. For assignment of ownership, evaluation and approval

c. Workflow
   i. OPS Protocol Elements
   ii. Others as required by operator SOP

d. Activity
   i. OPS Protocol Elements
   ii. Others as required by operator SOP

e. Task
   i. Types
   ii. Branching
   iii. Scheduling

f. Library
   i. To facilitate replication of similar tasking

c. Graphical User Interface – Only two versions of the GUI have been created to date with version 2 still under review. In the latest version we have combined the administrative functionality whereby the creation of and editing of workflows, activities and tasks may be accomplished from the same screen. The same process is also being implemented for the assignment of ownership, evaluation and approval at the workflow, activity and task level.
   i. Administrative
      1. Creation of workflows, activities and tasks
      2. Assignment of RAA – Responsibility, Accountability and Authority
      3. Management of users / user groups
   ii. Workflow Owner
      1. Assignment of Activity RAA
   iii. Activity Owner
      1. Assignment of Task RAA
      2. Scheduling of tasks associated with a given activity
   iv. Task Owner
      1. Completion of task

2. Supporting documentation
3. Supporting findings

d. Discussions were held with a least 10 transmission pipeline operating companies of various sizes to confirm the commercial potential of the ICAM project.
    i. Operators - Panhandle Eastern and Cross Country have agreed to become the anchor clients for ICAM and as such have driven the requirements to specifically meet their SOP which in most cases seems to exceed that of industry. Additionally numerous other operators have been deposed to determine their perspective on the need for and desired functionality of such an application. These companies include: Duke, BG&E, Enbridge, Gulf South, Houston Pipeline, ATMOS energy, Dominion, Vectren

e. OPS - Informal meetings have been held with both OPS and state regulators to determine the validity of the concept with a 100% approval rating. The existence of such an application will not only help the operators to manage process, it will allow for the OPS to perform audits with more efficiency, more consistency and in a cost effective manner. No longer will it take a team of 3-5 inspectors 2-3 weeks for an audit. A 2 man team will be able to determine the existence and effectiveness of the operators processes in a matter of days.

3. Research Results / Deliverables

a. All the findings were extremely positive and the timing would seem to be spot on in terms of the time to market for a functional process management tool for transmission pipeline operators of all sizes.

b. As the OPS has been saying for 2 years now, “If it was not documented, it did not happen”. We believe that industry is finally getting the message and although they are struggling with understanding the nature of process management, our objective with ICAM is to create a configurable application that can easily be adopted to ANY operating companies processes regardless of the complexity or frequency.

c. Six versions of a functional database schema have been developed and reviewed with industry to ensure that all the requirements per both the operators and the OPS were managed. The creation of workflows, activities and tasks, all revolving around the HCA segments with ownership, evaluation and approval functionality was worked and reworked resulting in a final version 6.2.3 that additionally includes threat analysis, risk ranking, hierarchal assignment, the OPS Protocols and the flexibility to utilize the system for process management above and beyond said protocols to improve operational efficiency.

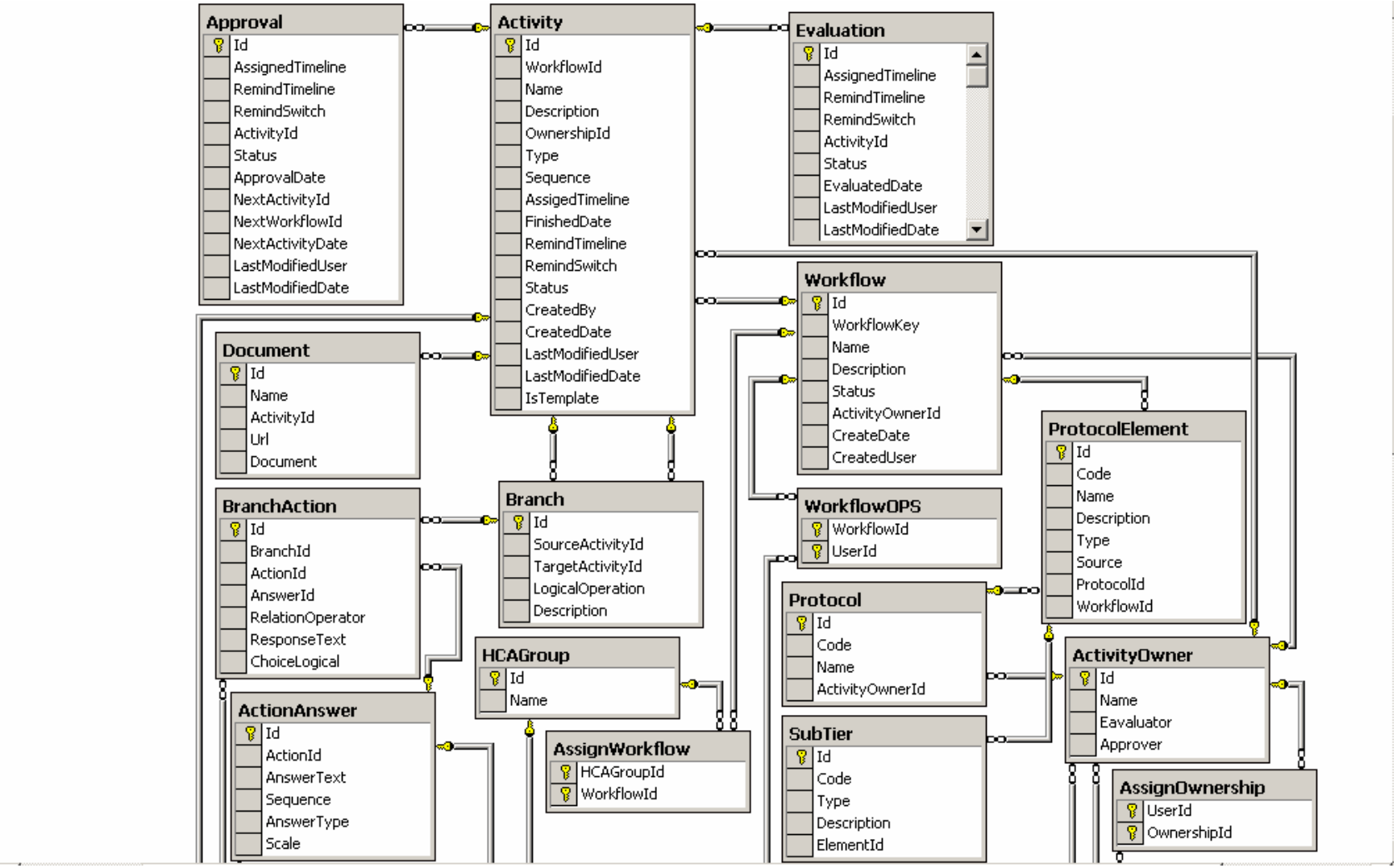
d. The primary deliverable detailed in the response to the SBIR Grant was a working prototype of the application. As the requirements of industry dictated, the focus was moved to the creation of a final database and GUI that would serve as the basis of the application. Following this, the logic and coding to connect the database to the GUI and the creation of a smart reporting tool will take place followed by testing.

e. Appendices
   i. Appendix "A" – Various Versions of the Database Schema
   ii. Appendix "B" – Early Administrative Functionality
   iii. Appendix "C" – Various Screen Shots of Proposed GUI Functionality
   iv. Appendix "D" – Proposed Process for Assignment of Responsibility, Accountability & Authority
   v. Appendix "E" – Sample Workflow to be Incorporated into ICAM (Includes activities, tasks with decision branching)
   vi. Appendix "F" – Request for SBIR Phase II Consideration

4. Summary
   a. The ICAM concept was overwhelmingly accepted as a solution to the OPS requirements in terms of process management. Research has shown that as many as 3 other companies are developing along the same lines. ICAM is being developed with input from Panhandle Eastern Pipe Line Company and will be the platform of choice for both Panhandle and Cross Country as of this writing. These organizations have agreed to provide co-funding for future development to bring the ICAM application to the market.
      i. Ongoing Developmental Steps
         1. Database-GUI Logic / Coding
         2. Testing
      ii. SBIR Phase II Consideration

Appendix "A"
Various Versions of the Database Schema

12/7/04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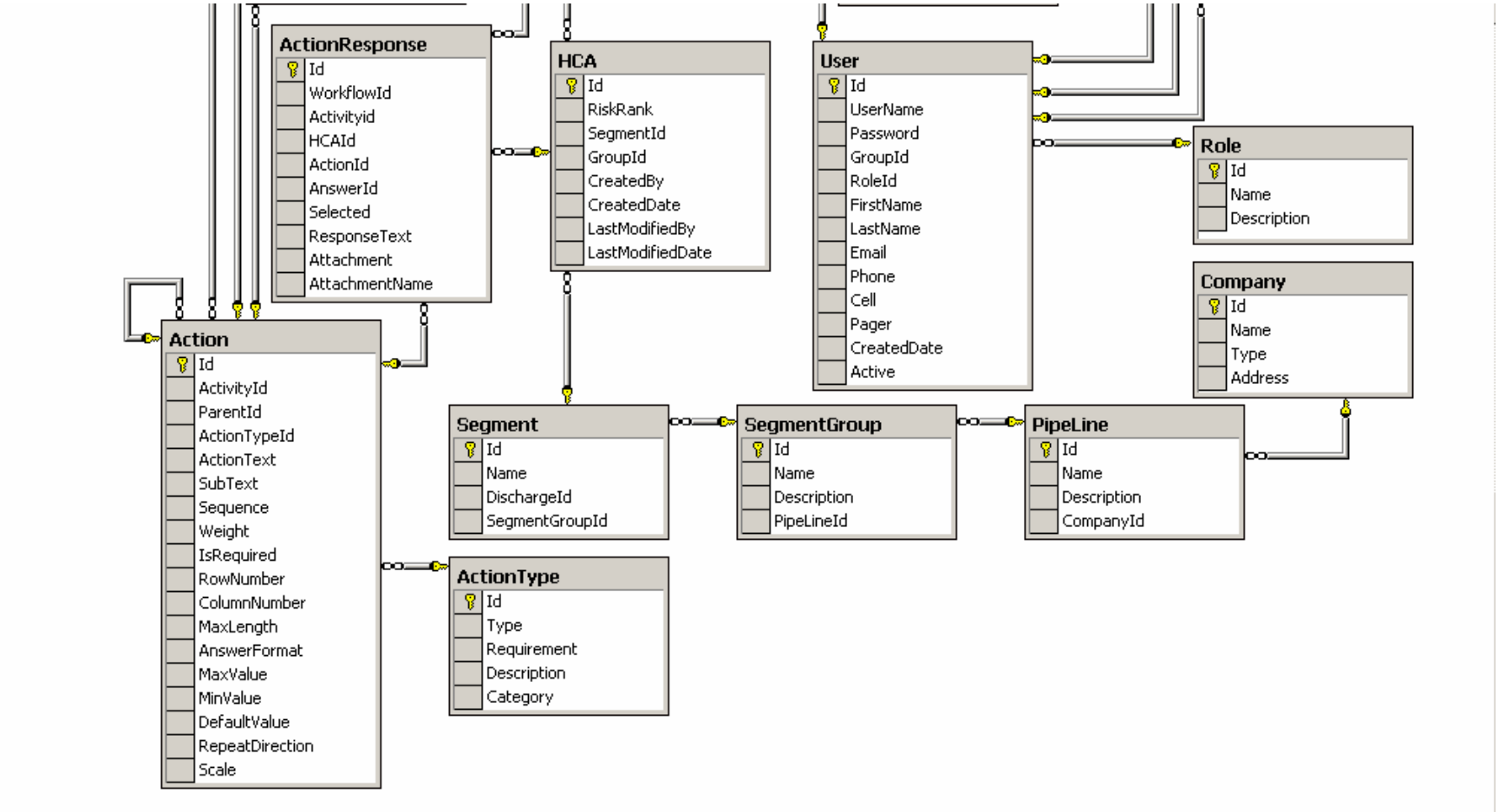
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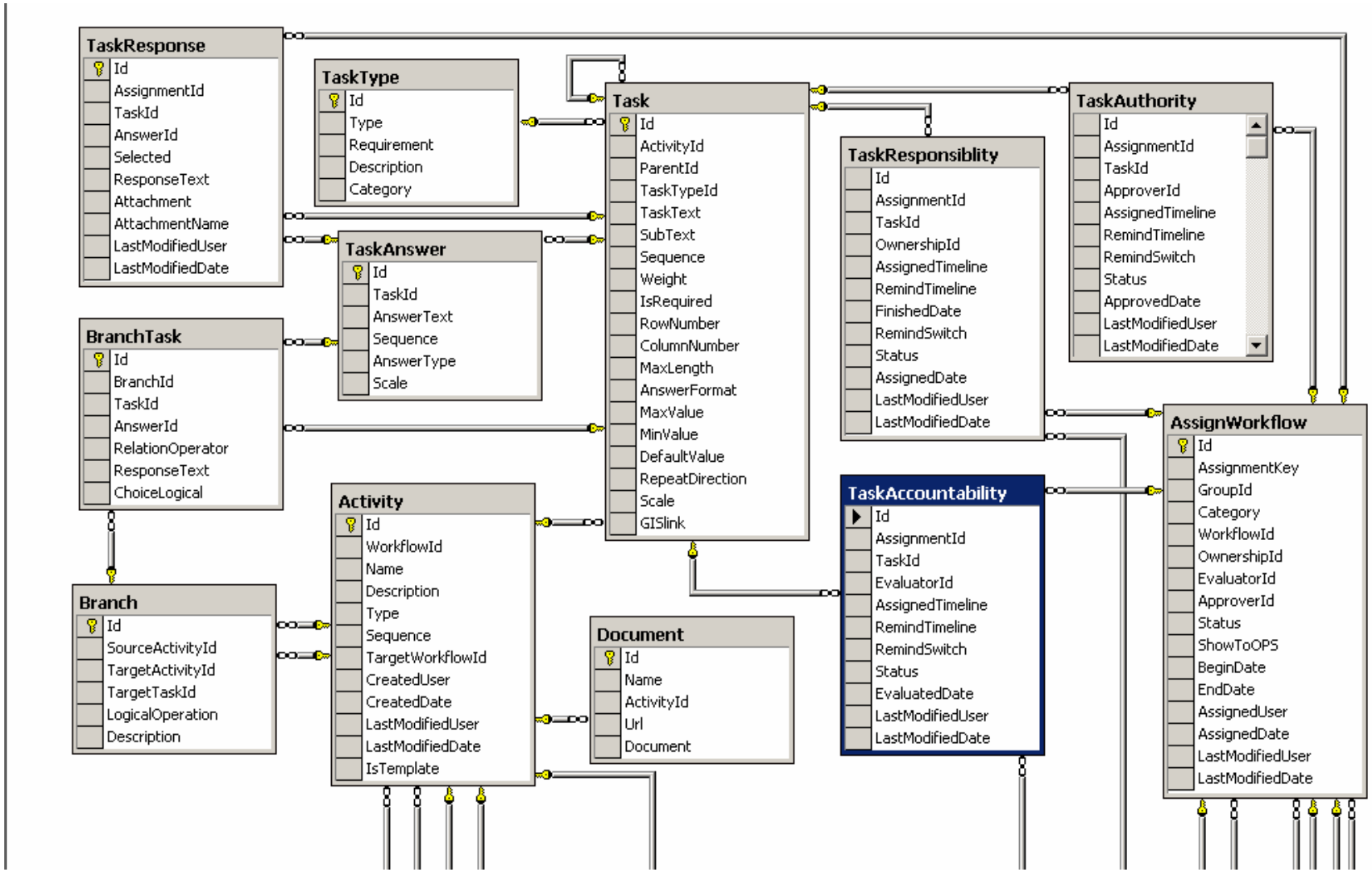
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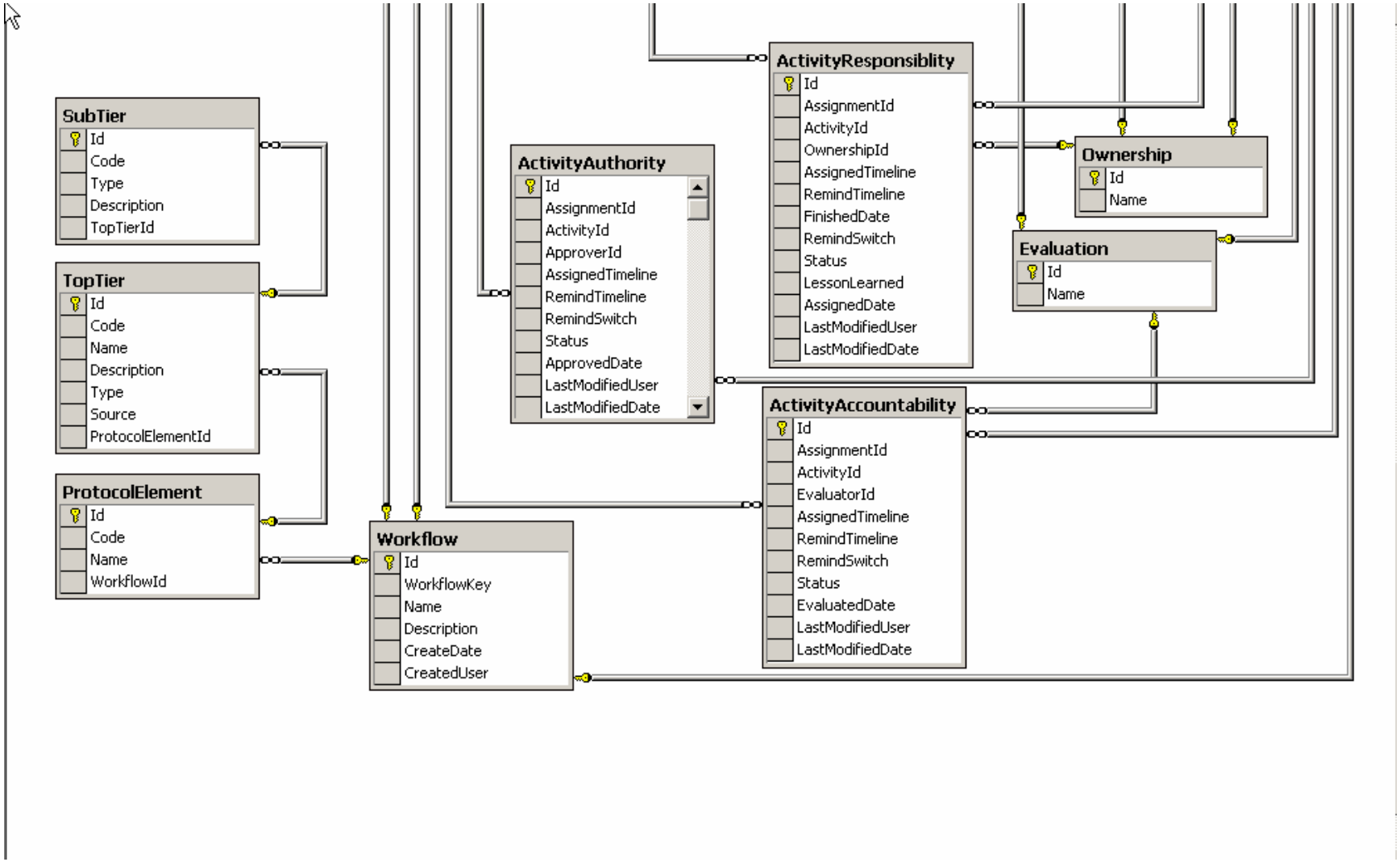
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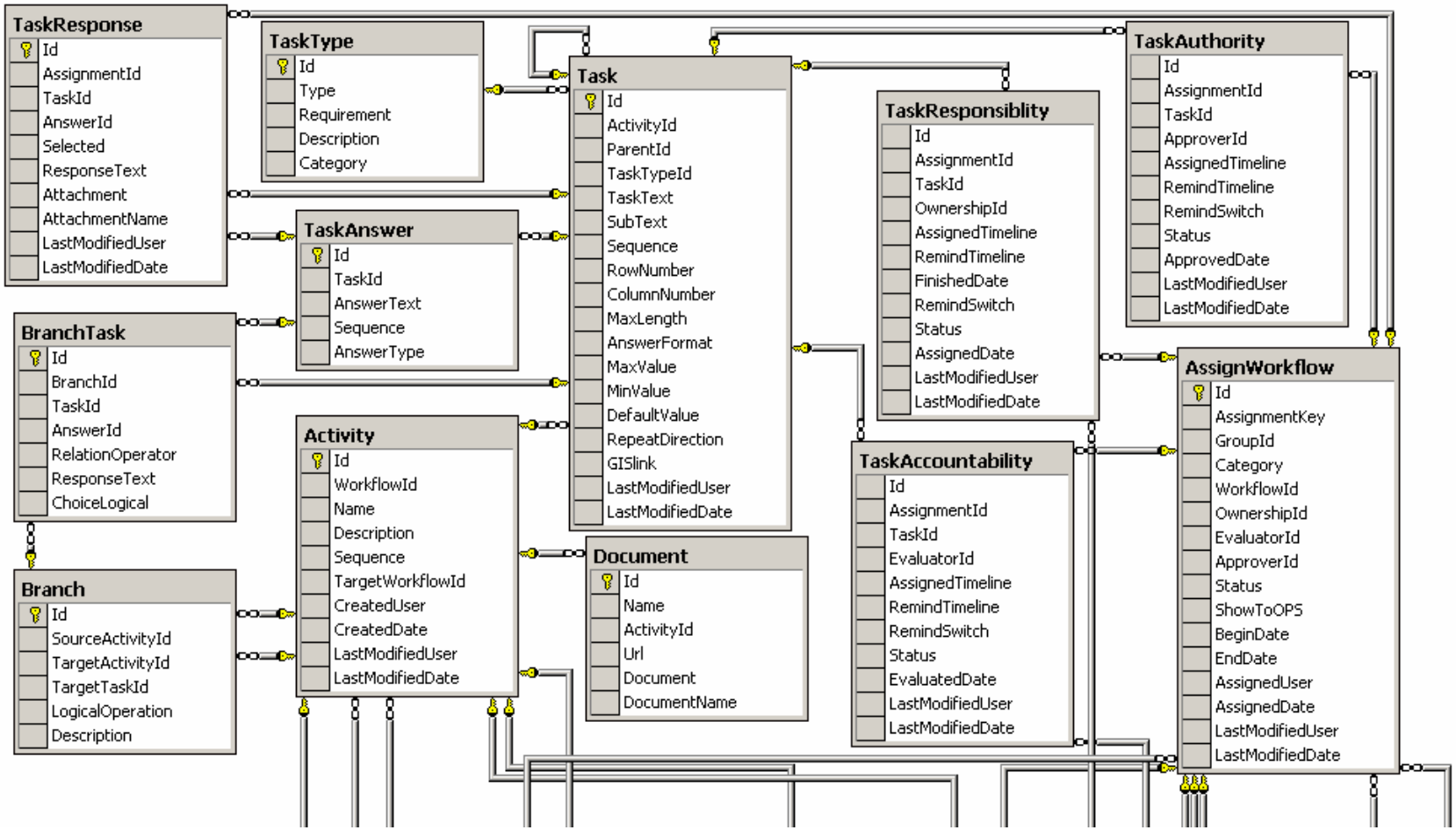
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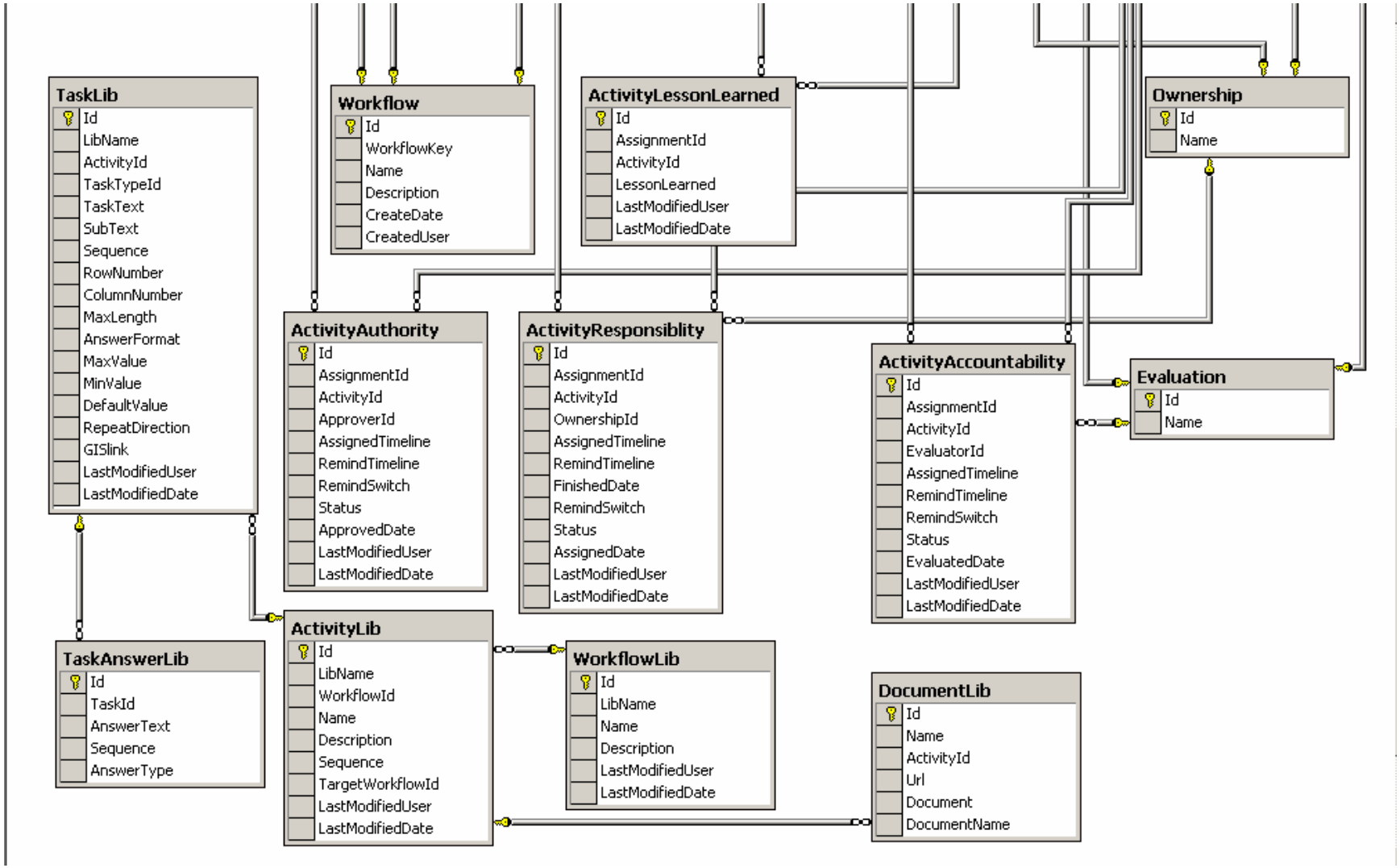
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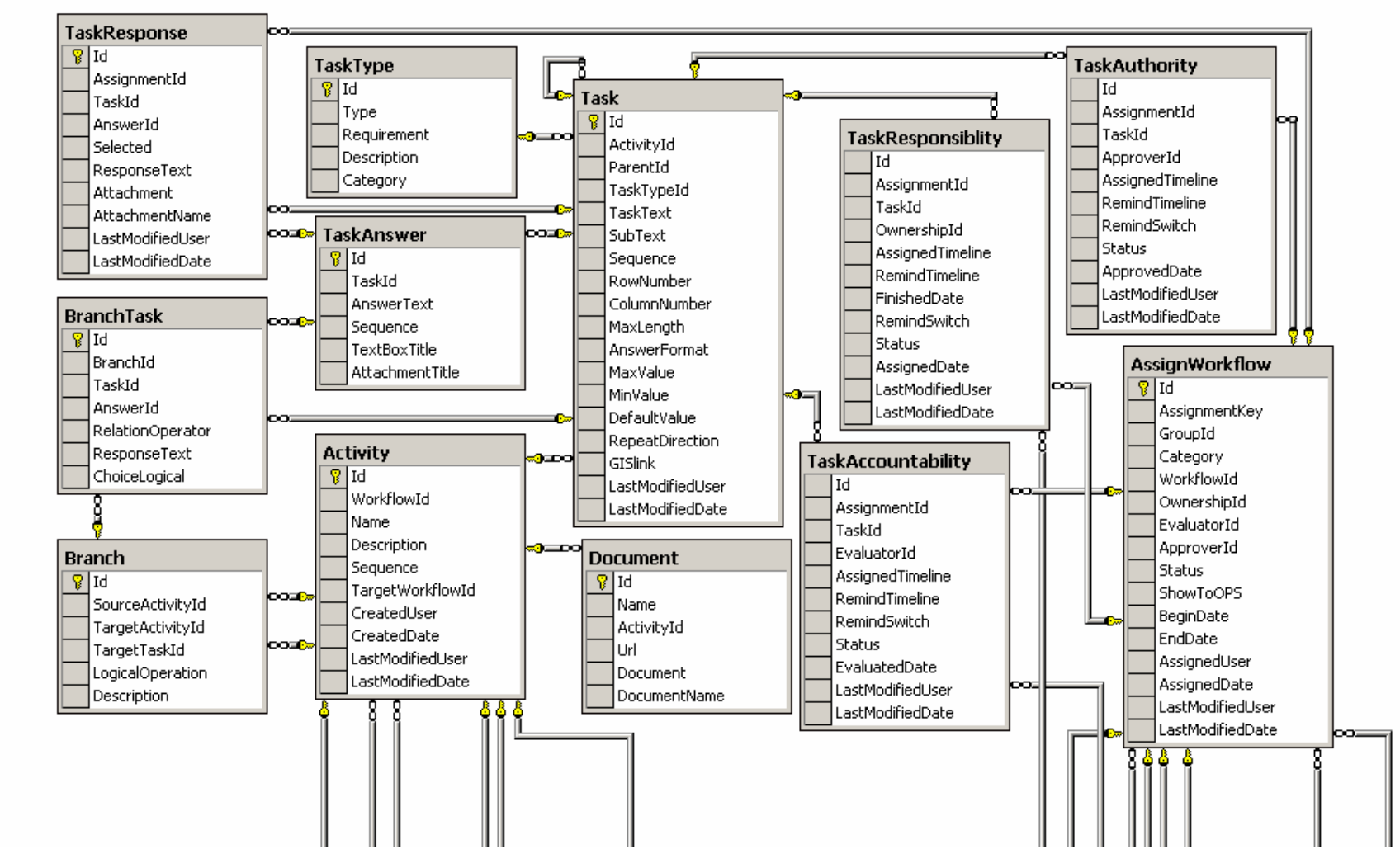
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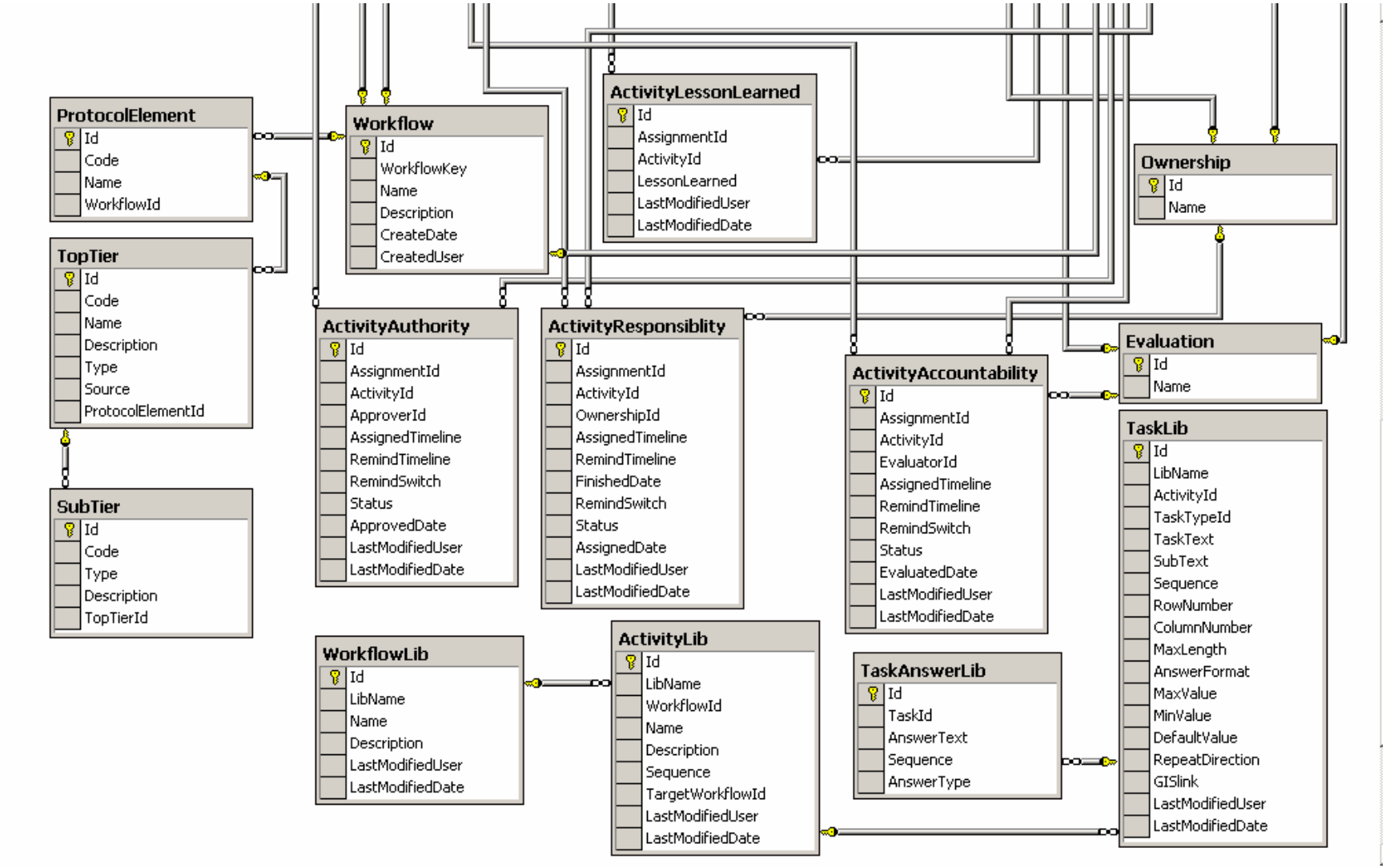
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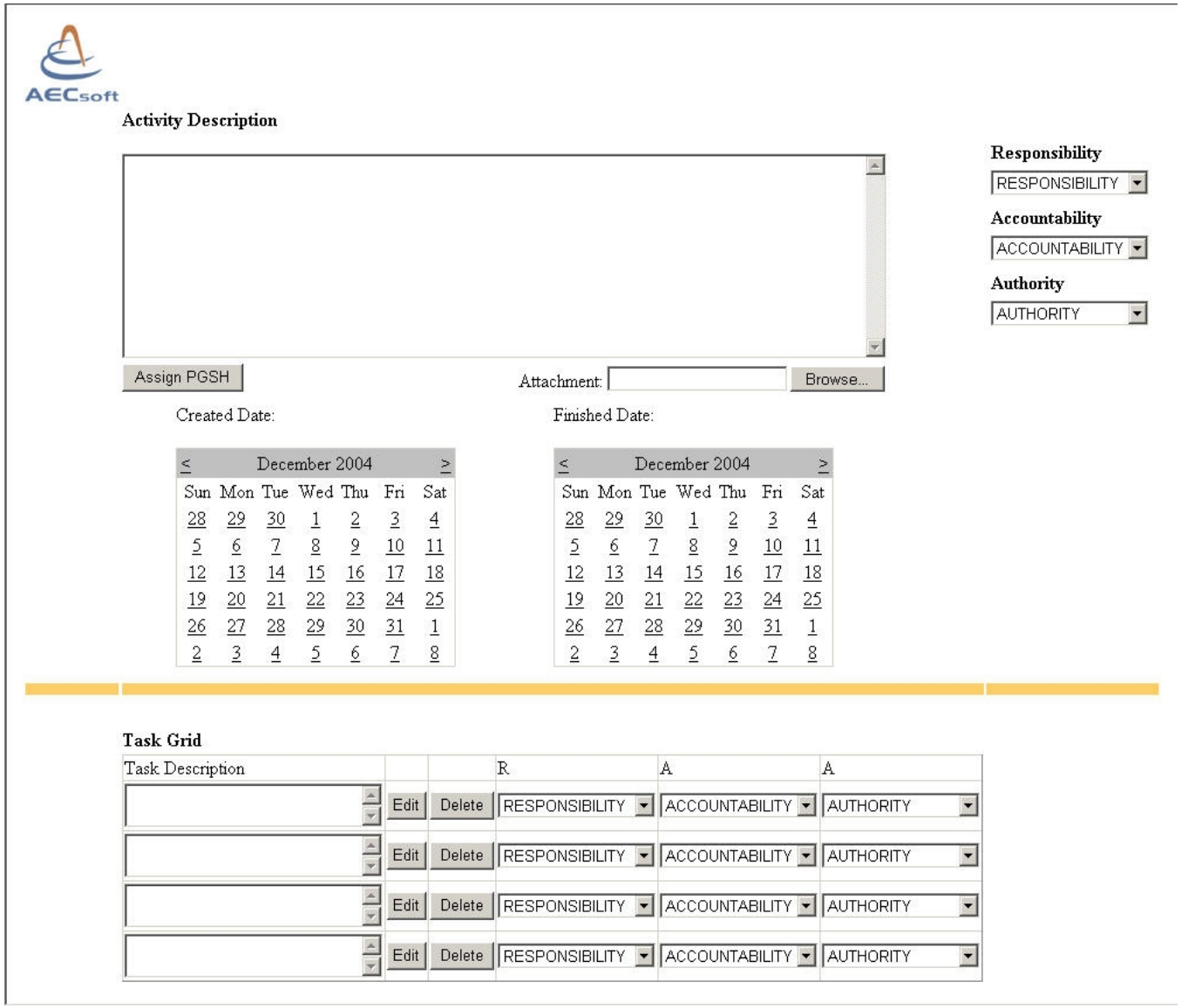
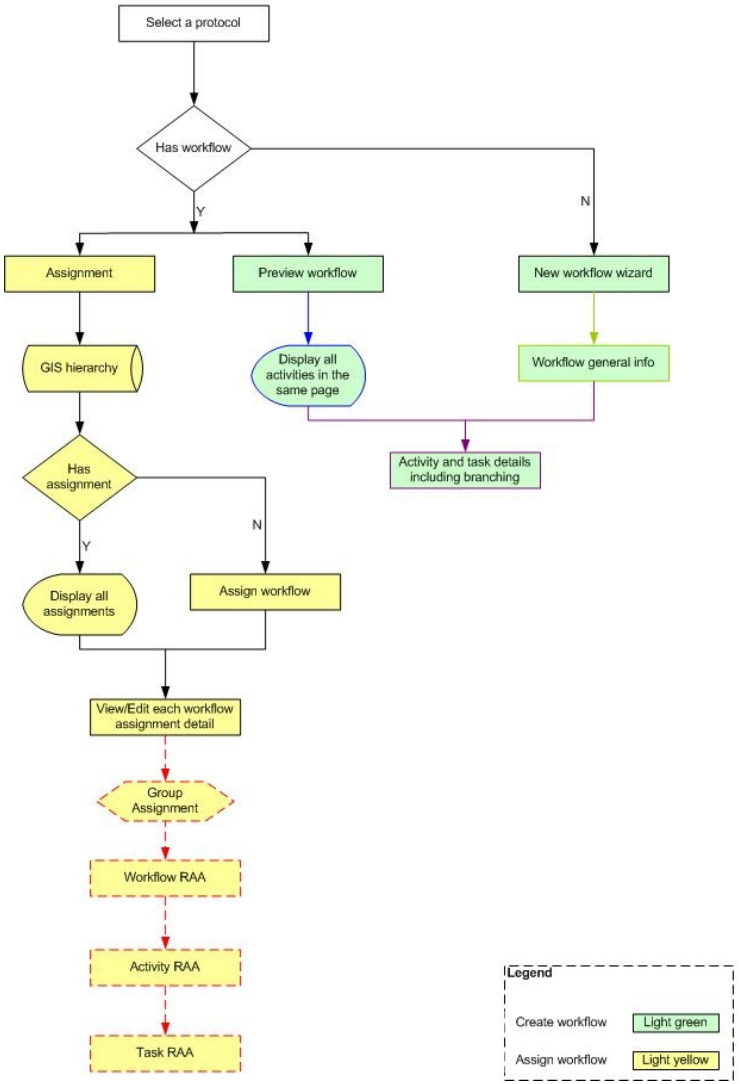
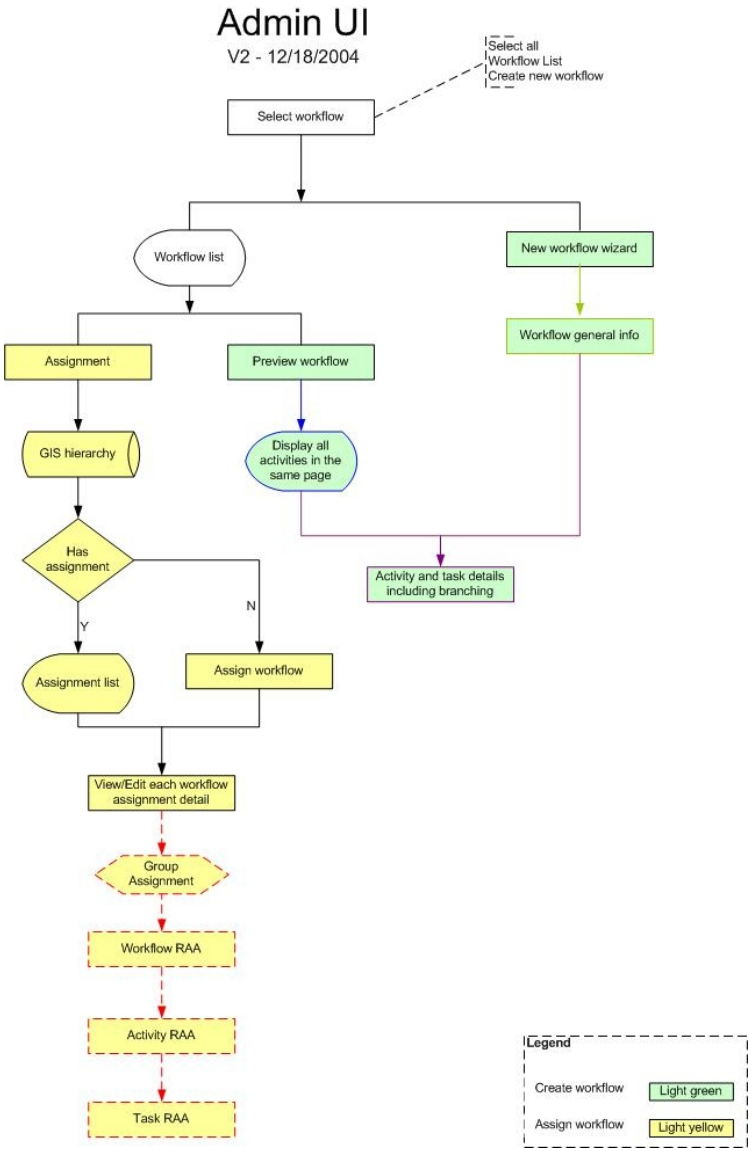
LessonLearned
LastModifiedUser
LastModifiedDate
Ownership
Id
Name
ActivityAuthority
Id
AssignmentId
ActivityId
ApproverId
AssignedTimeline
RemindTimeline
RemindSwitch
Status
ApprovedDate
LastModifiedUser
LastModifiedDate
ActivityResponsiblity
Id
AssignmentId
ActivityId
OwnershipId
AssignedTimeline
RemindTimeline
FinishedDate
RemindSwitch
Status
AssignedDate
LastModifiedUser
LastModifiedDate
ActivityAccountability
Id
AssignmentId
ActivityId
EvaluatorId
AssignedTimeline
RemindTimeline
RemindSwitch
Status
EvaluatedDate
LastModifiedUser
LastModifiedDate
Evaluation
Id
Name
TaskLib
Id
LibName
ActivityId
TaskTypeId
TaskText
SubText
Sequence
RowNumber
ColumnNumber
MaxLength
AnswerFormat
MaxValue
MinValue
DefaultValue
RepeatDirection
GISlink
LastModifiedUser
LastModifiedDate
WorkflowLib
Id
LibName
Name
Description
LastModifiedUser
LastModifiedDate
ActivityLib
Id
LibName
WorkflowId
Name
Description
Sequence
TargetWorkflowId
LastModifiedUser
LastModifiedDate
TaskAnswerLib
Id
TaskId
AnswerText
Sequence
AnswerType

Appendix "B"
Early Administrative Functionality

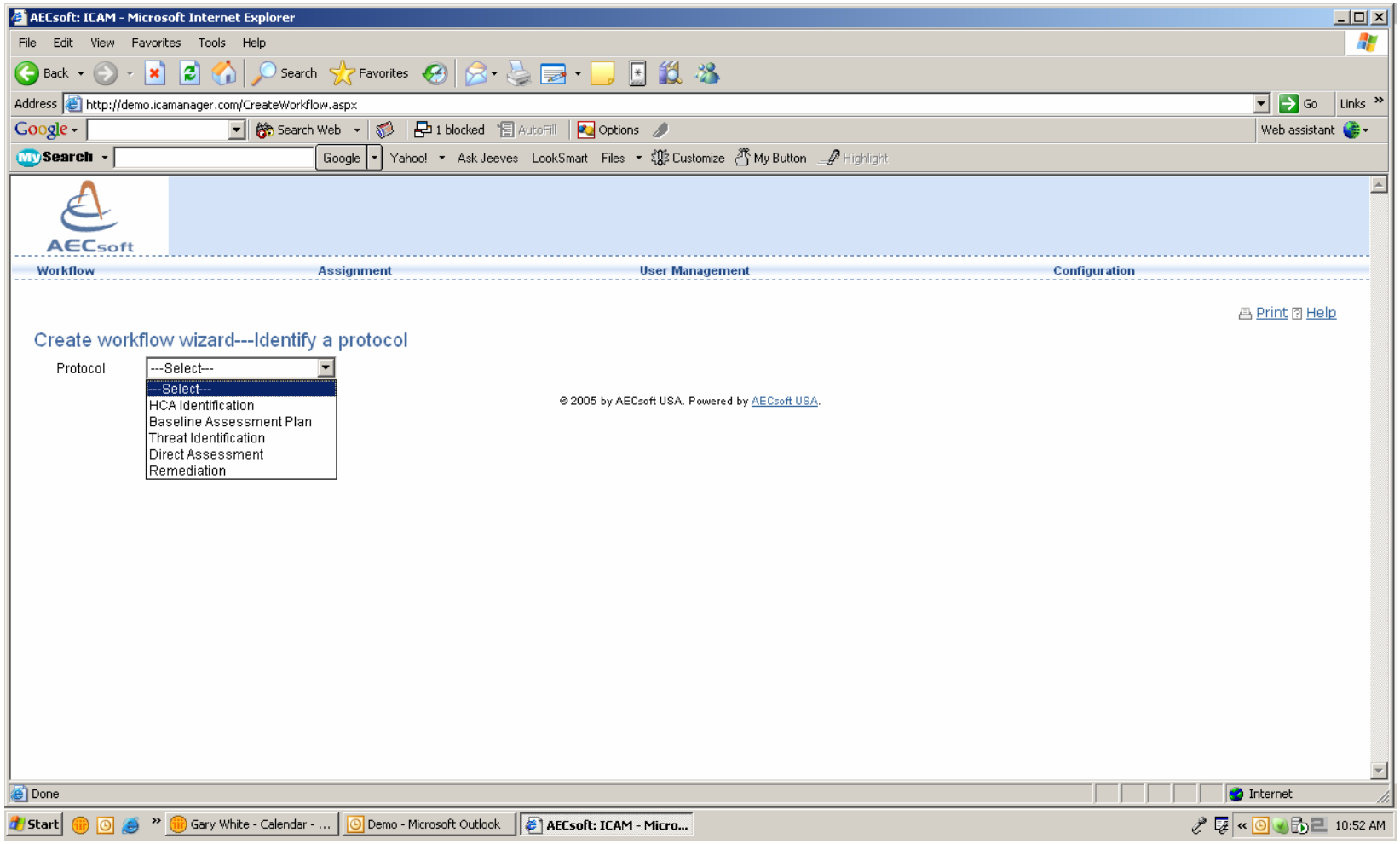

AECsoft
Activity Description
Responsibility
RESPONSIBILITY
Accountability
ACCOUNTABILITY
Authority
AUTHORITY
Assign PGSH
Attachment:
Browse...
Created Date:
Finished Date:
< December 2004 >
Sun Mon Tue Wed Thu Fri Sat
28 29 30 1 2 3 4
5 6 7 8 9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30 31 1
2 3 4 5 6 7 8
Task Grid
Task Description
R
A
A
Edit
Delete
RESPONSIBILITY
ACCOUNTABILITY
AUTHORITY

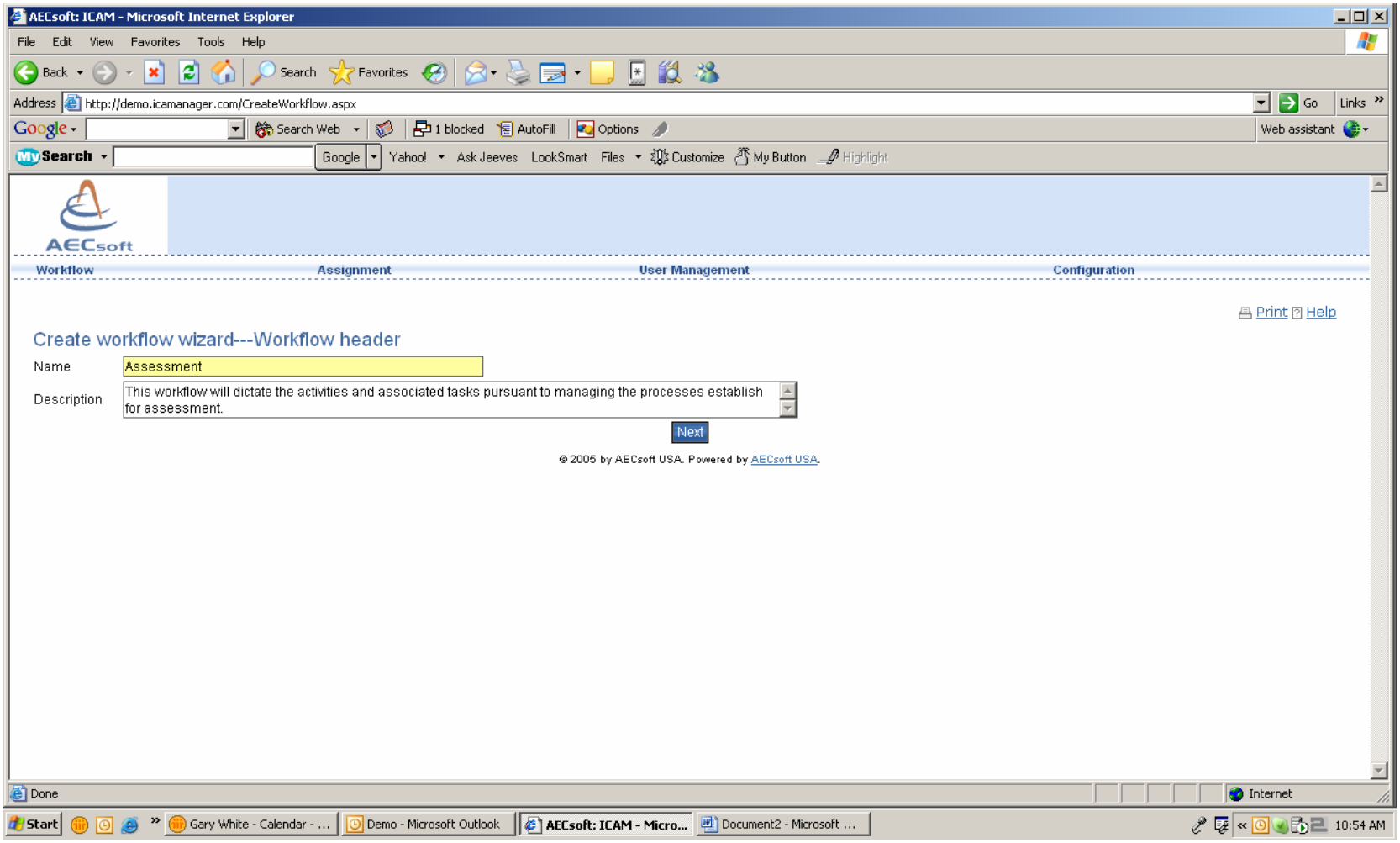
Admin
Friday, December 17, 2004

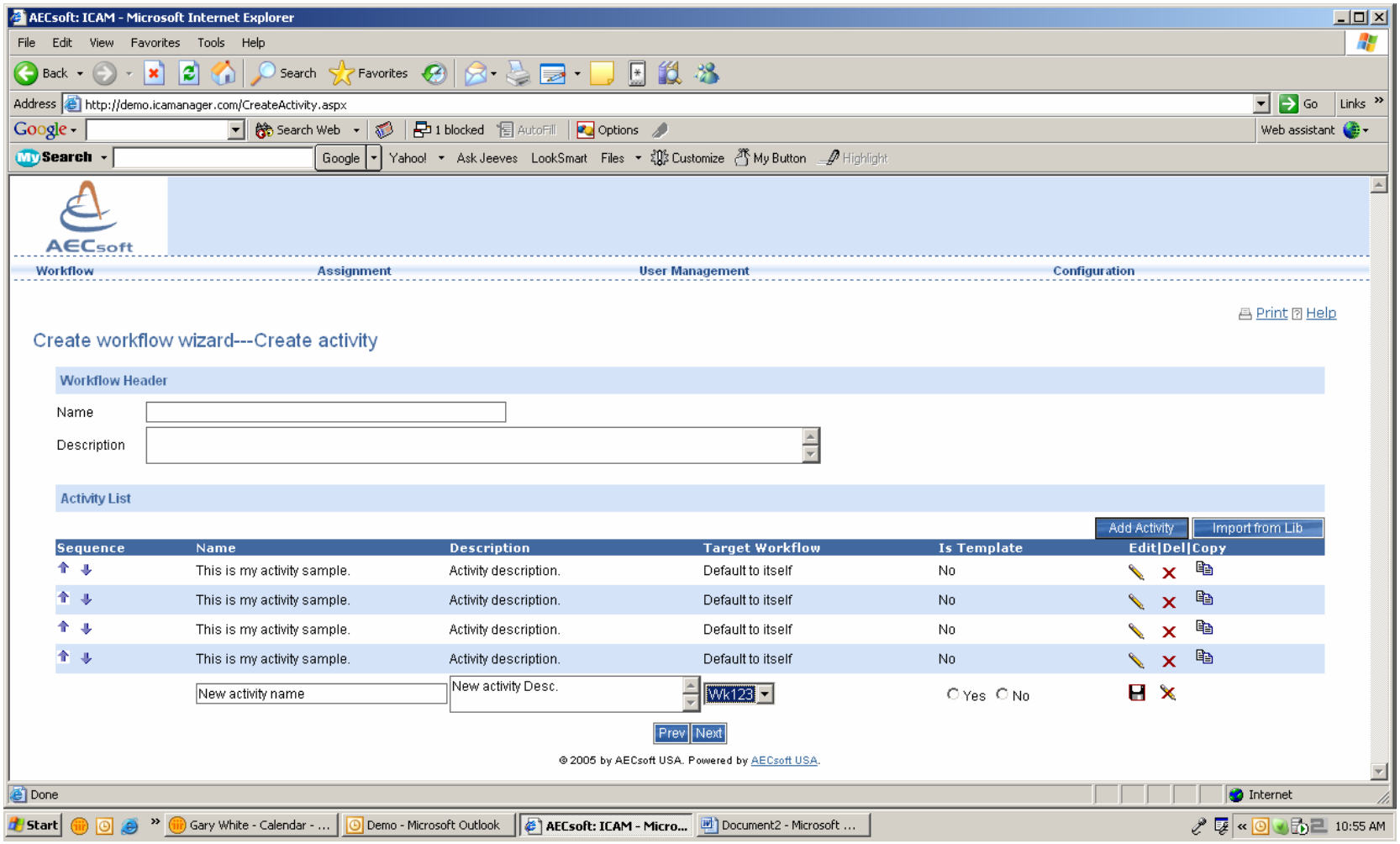


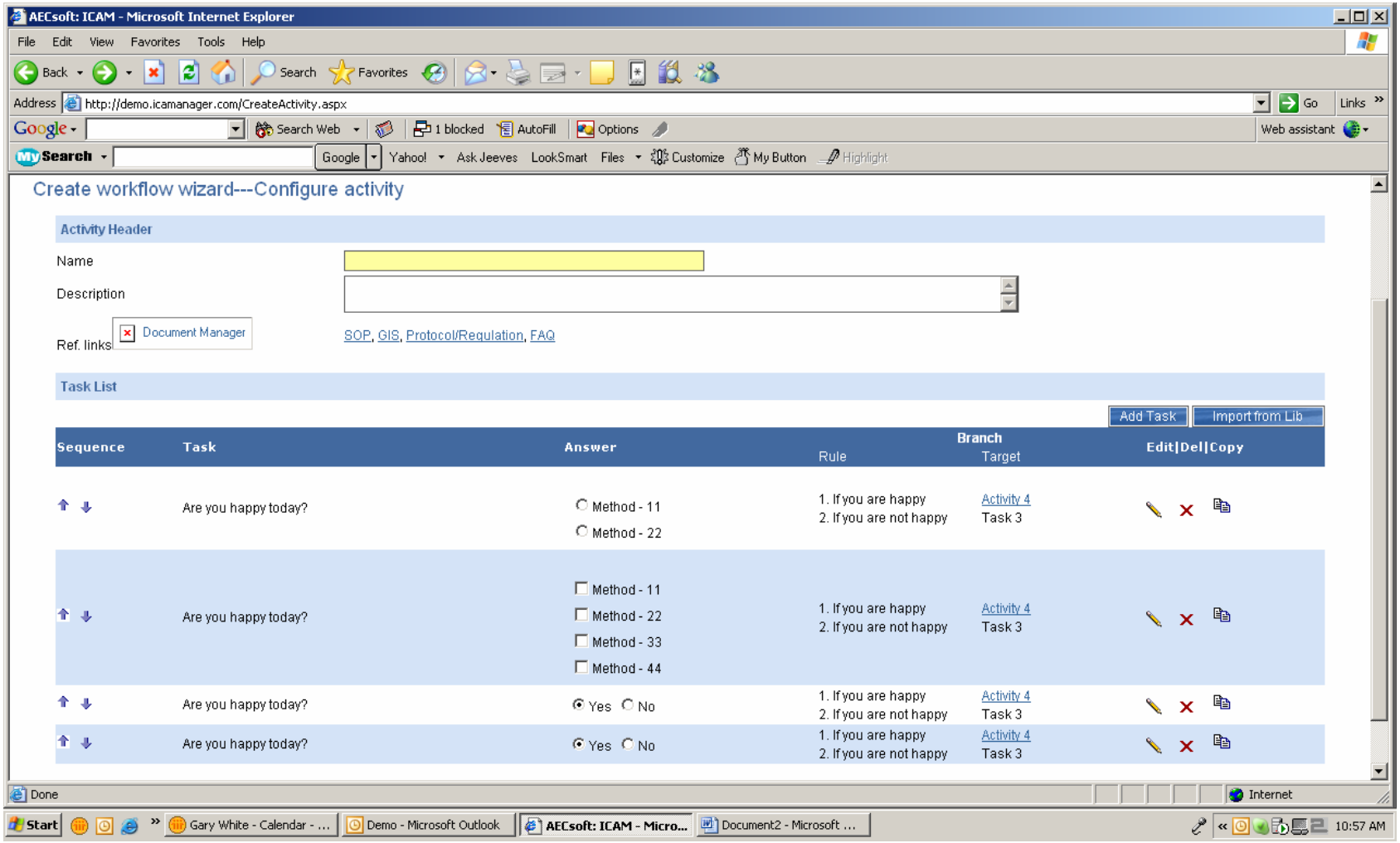

Admin UI
V2 - 12/18/2004
Select all
Workflow List
Create new workflow
Select workflow
Workflow list
New workflow wizard
Workflow general info
Assignment
Preview workflow
GIS hierarchy
Display all activities in the same page
Has assignment
Activity and task details including branching
N
Y
Assignment list
Assign workflow
View/Edit each workflow assignment detail
Group Assignment
Workflow RAA
Activity RAA
Task RAA
Legend
Create workflow
Light green
Assign workflow
Light yellow

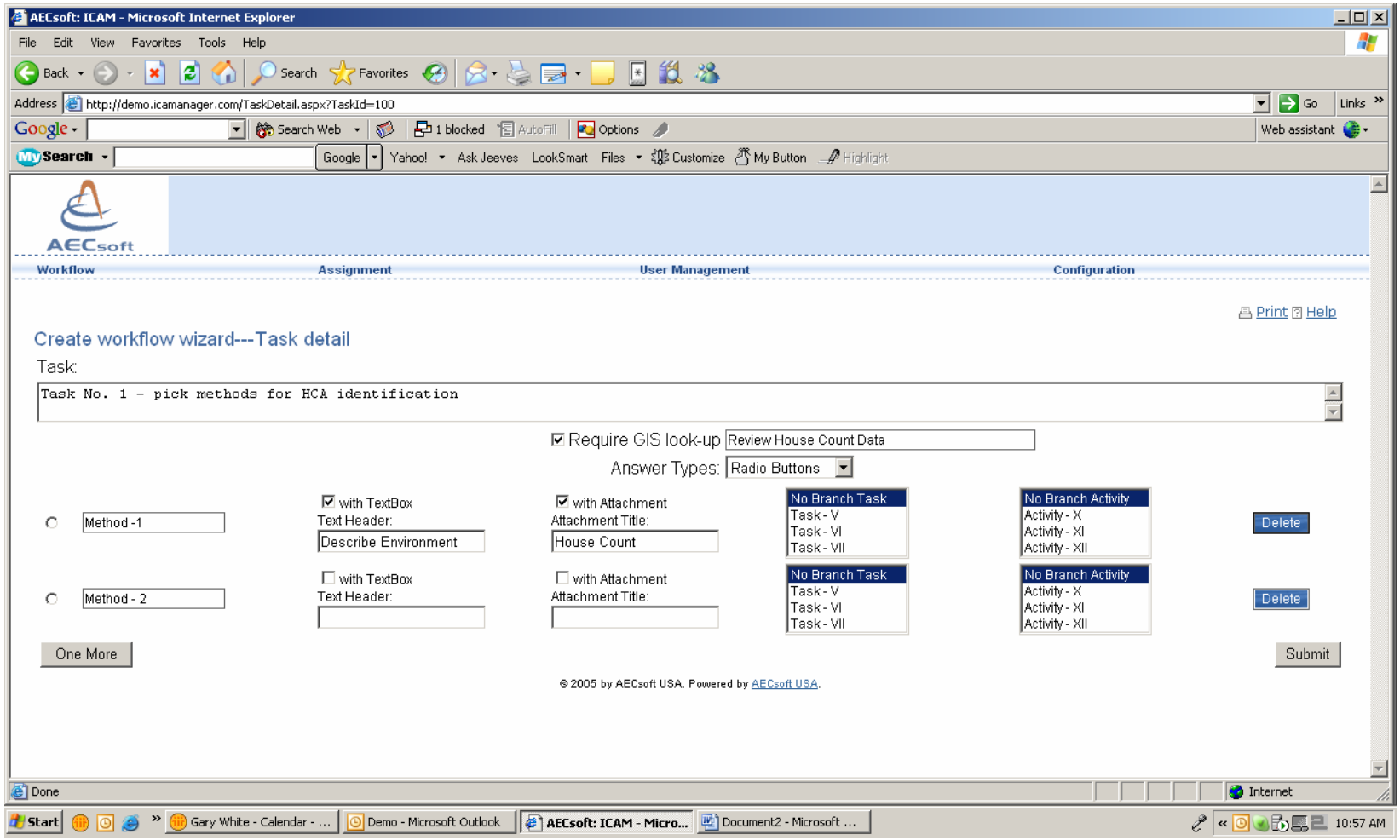
Appendix "C"
Various Screen Shots of Proposed GUI Functionality

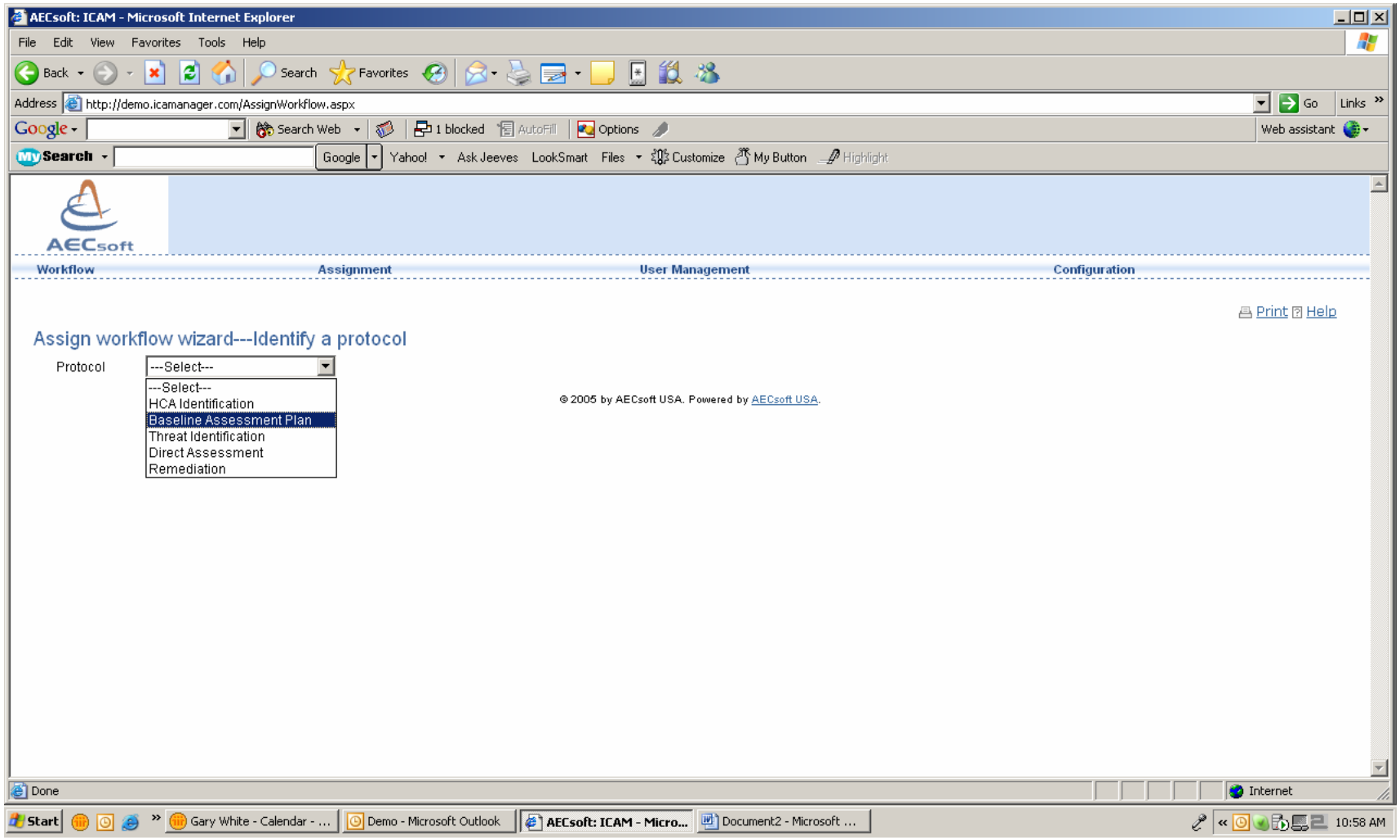

AECsoft: ICAM - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://demo.icamanager.com/CreateWorkflow.aspx
Go Links
Google Search Web 1 blocked AutoFill Options Web assistant
MySearch Google Yahoo! Ask Jeeves LookSmart Files Customize My Button Highlight
AECsoft
Workflow Assignment User Management Configuration
Print Help
Create workflow wizard---Identify a protocol
Protocol ---Select---
---Select---
HCA Identification
Baseline Assessment Plan
Threat Identification
Direct Assessment
Remediation
© 2005 by AECsoft USA. Powered by AECsoft USA.
Done
Internet
Start
Gary White - Calendar - ...
Demo - Microsoft Outlook
AECsoft: ICAM - Micro...
10:52 AM

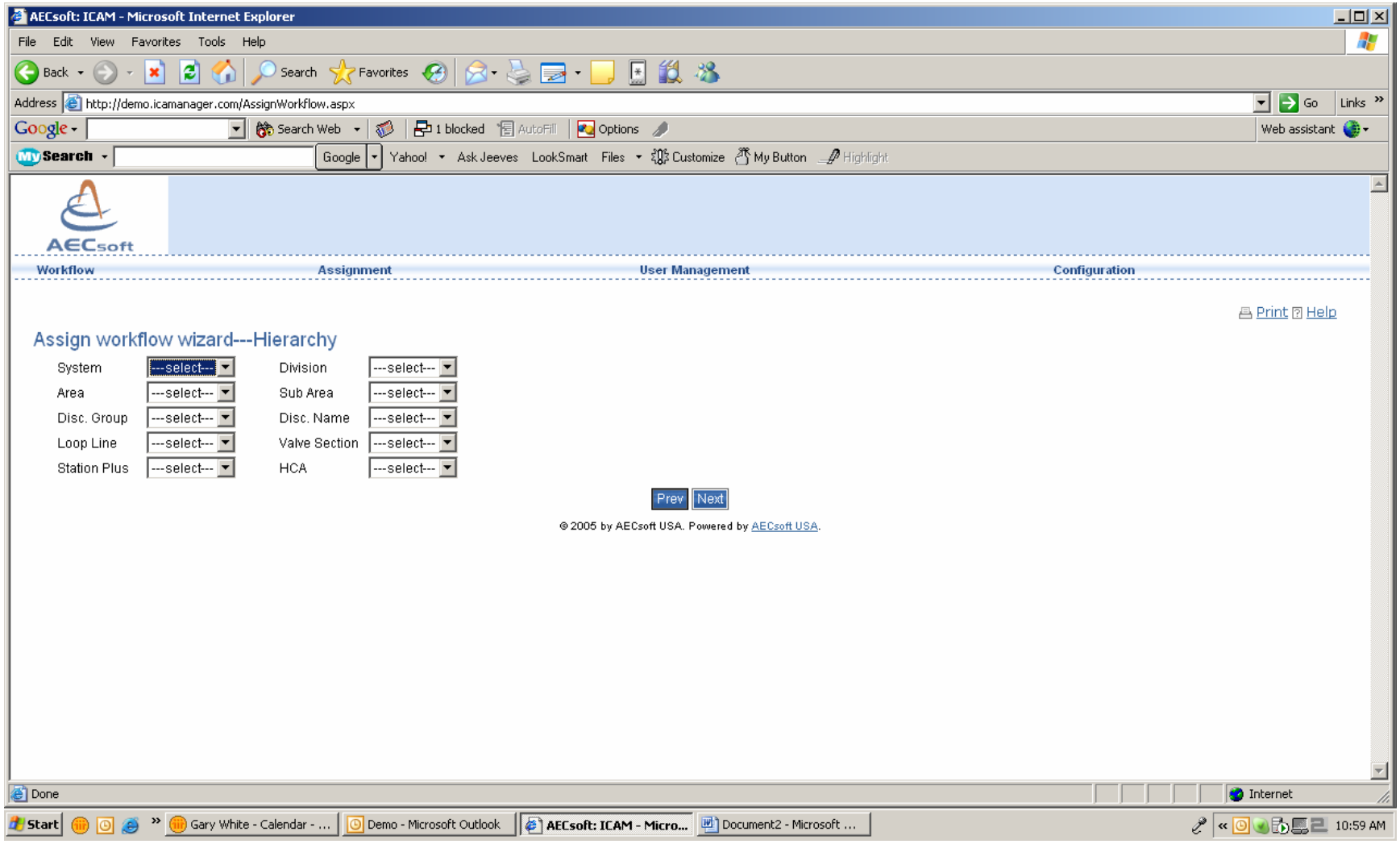

AECsoft: ICAM - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://demo.icamanager.com/CreateWorkflow.aspx
Go Links
Google Search Web 1 blocked AutoFill Options Web assistant
MySearch Google Yahoo! Ask Jeeves LookSmart Files Customize My Button Highlight
AECsoft
Workflow Assignment User Management Configuration
Print Help
Create workflow wizard---Workflow header
Name
Assessment
Description
This workflow will dictate the activities and associated tasks pursuant to managing the processes establish for assessment.
Next
© 2005 by AECsoft USA. Powered by AECsoft USA.
Done
Internet
Start
Gary White - Calendar - ...
Demo - Microsoft Outlook
AECsoft: ICAM - Micro...
Document2 - Microsoft ...
10:54 AM

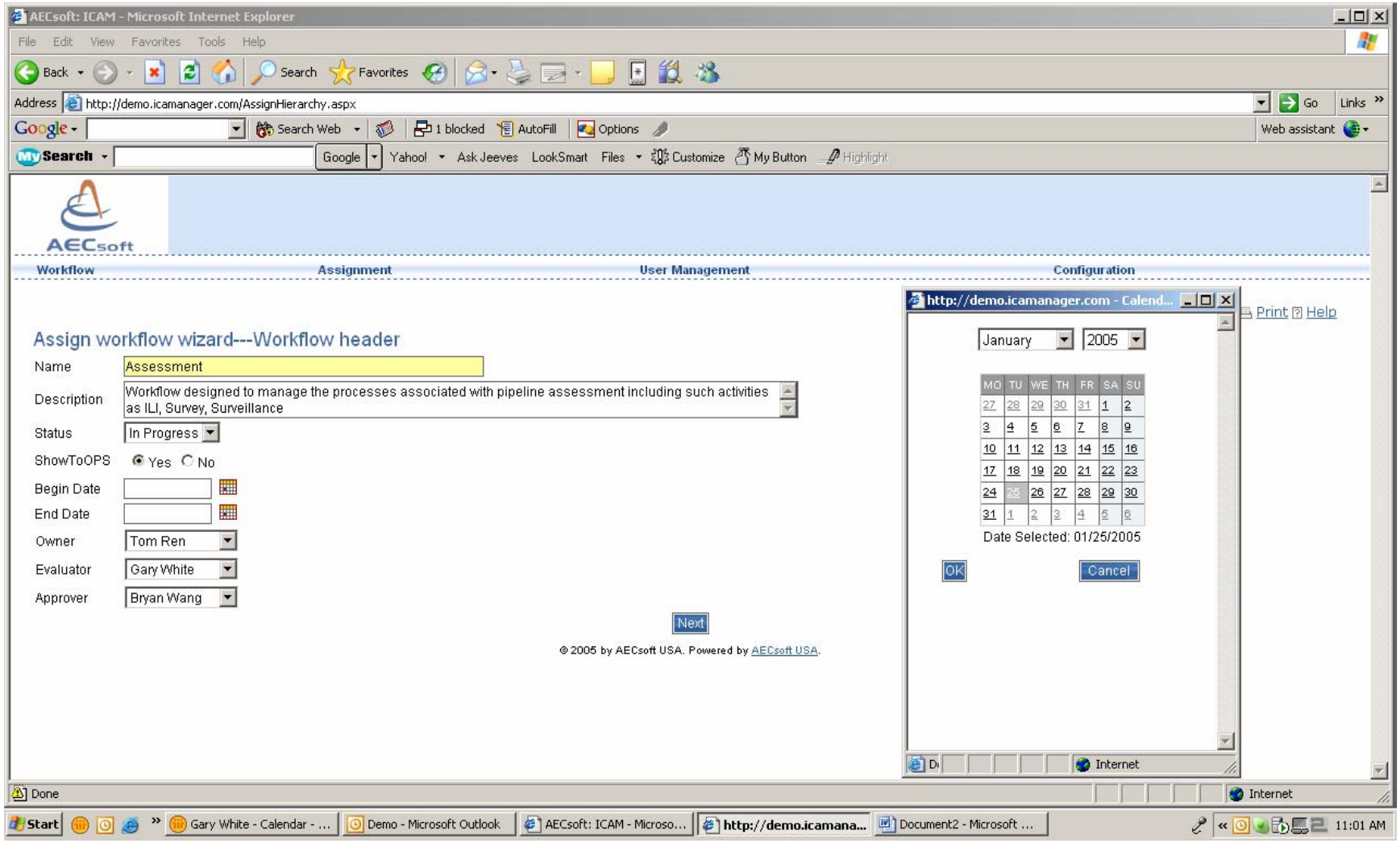

AECsoft: ICAM - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://demo.icamanager.com/CreateActivity.aspx
AECsoft
Workflow Assignment User Management Configuration
Print Help
Create workflow wizard---Create activity
Workflow Header
Name
Description
Activity List
Add Activity Import from Lib
Sequence Name Description Target Workflow Is Template Edit|Del|Copy
This is my activity sample. Activity description. Default to itself No
This is my activity sample. Activity description. Default to itself No
This is my activity sample. Activity description. Default to itself No
This is my activity sample. Activity description. Default to itself No
New activity name
New activity Desc.
Wk123
Yes No
Prev Next
© 2005 by AECsoft USA. Powered by AECsoft USA.
Done
Internet
Start
Gary White - Calendar - ...
Demo - Microsoft Outlook
AECsoft: ICAM - Micro...
Document2 - Microsoft ...
10:55 AM

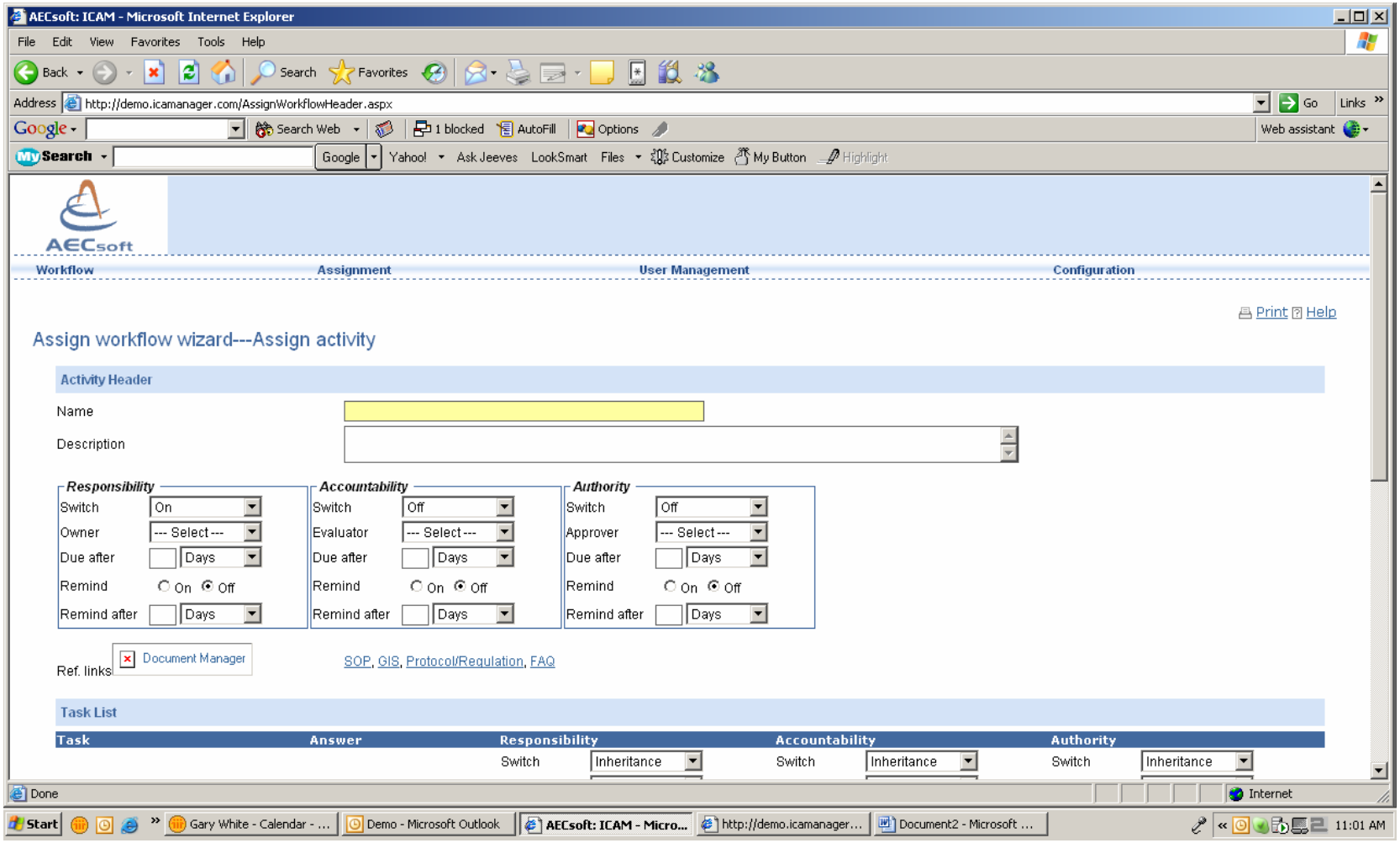

AECsoft: ICAM - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://demo.icamanager.com/CreateActivity.aspx
Create workflow wizard---Configure activity
Activity Header
Name
Description
Ref. links
Document Manager
SOP, GIS, Protocol/Regulation, FAQ
Task List
Add Task
Import from Lib
Sequence
Task
Answer
Branch
Rule
Target
Edit|Del|Copy
Are you happy today?
Method - 11
Method - 22
1. If you are happy
2. If you are not happy
Activity 4
Task 3
Method - 33
Method - 44
Yes
No
Done
Internet
Start
Gary White - Calendar - ...
Demo - Microsoft Outlook
AECsoft: ICAM - Micro...
Document2 - Microsoft ...
10:57 AM

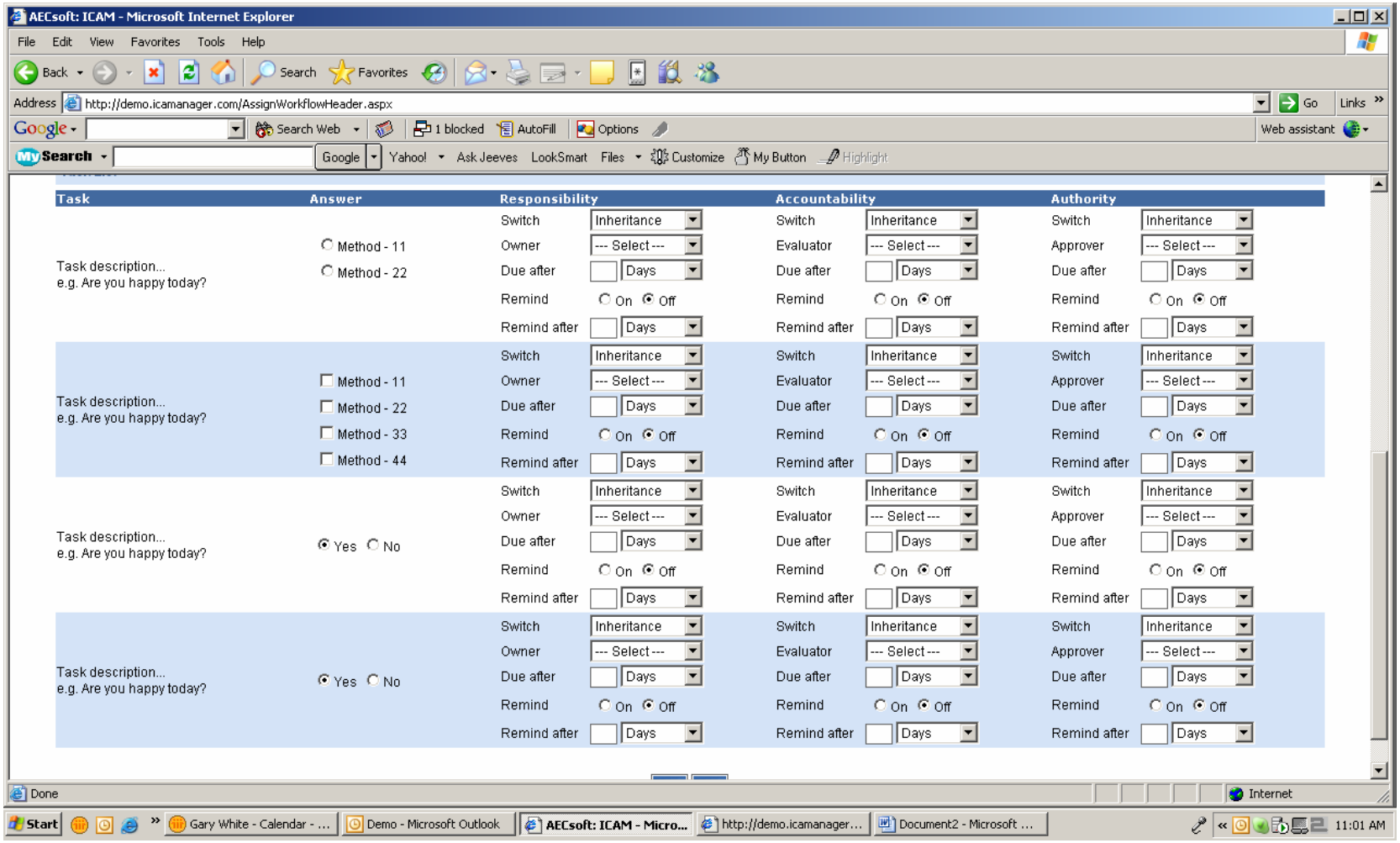

AECsoft: ICAM - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://demo.icamanager.com/TaskDetail.aspx?TaskId=100
Go Links
Google Search Web 1 blocked AutoFill Options Web assistant
MySearch Google Yahoo! Ask Jeeves LookSmart Files Customize My Button Highlight
AECsoft
Workflow Assignment User Management Configuration
Print Help
Create workflow wizard---Task detail
Task:
Task No. 1 - pick methods for HCA identification
Require GIS look-up Review House Count Data
Answer Types: Radio Buttons
Method -1
with TextBox
Text Header:
Describe Environment
with Attachment
Attachment Title:
House Count
No Branch Task
Task - V
Task - VI
Task - VII
No Branch Activity
Activity - X
Activity - XI
Activity - XII
Delete
Method - 2
with TextBox
Text Header:
with Attachment
Attachment Title:
No Branch Task
Task - V
Task - VI
Task - VII
No Branch Activity
Activity - X
Activity - XI
Activity - XII
Delete
One More
Submit
© 2005 by AECsoft USA. Powered by AECsoft USA.
Done
Internet
Start
Gary White - Calendar - ...
Demo - Microsoft Outlook
AECsoft: ICAM - Micro...
Document2 - Microsoft ...
10:57 AM


AECsoft: ICAM - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://demo.icamanager.com/AssignWorkflow.aspx
Go Links
Google Search Web 1 blocked AutoFill Options Web assistant
MySearch Google Yahoo! Ask Jeeves LookSmart Files Customize My Button Highlight
AECsoft
Workflow Assignment User Management Configuration
Print Help
Assign workflow wizard---Identify a protocol
Protocol ---Select---
---Select---
HCA Identification
Baseline Assessment Plan
Threat Identification
Direct Assessment
Remediation
© 2005 by AECsoft USA. Powered by AECsoft USA.
Done
Internet
Start
Gary White - Calendar - ...
Demo - Microsoft Outlook
AECsoft: ICAM - Micro...
Document2 - Microsoft ...
10:58 AM

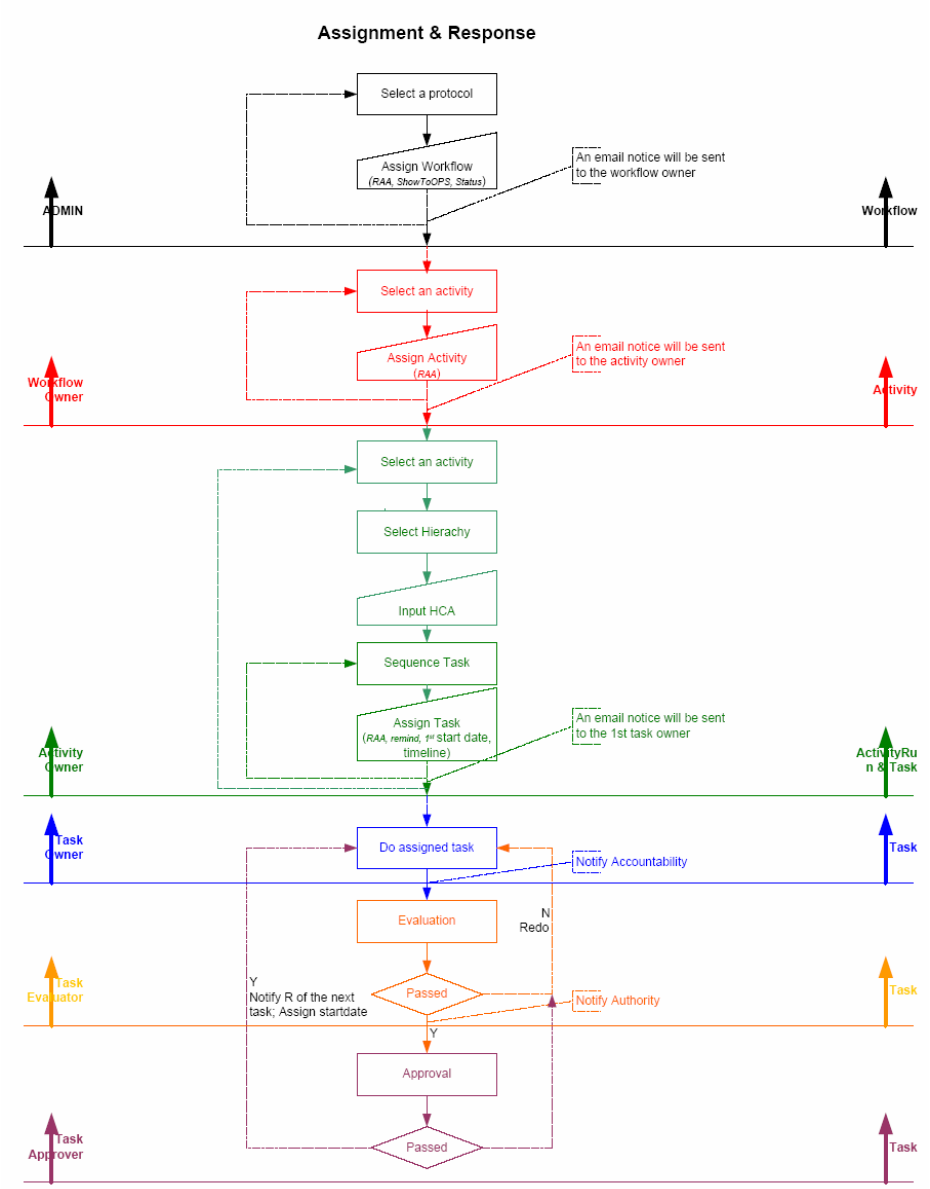

AECsoft: ICAM - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://demo.icamanager.com/AssignWorkflow.aspx
Go Links
Google Search Web 1 blocked AutoFill Options Web assistant
MySearch Google Yahoo! Ask Jeeves LookSmart Files Customize My Button Highlight
AECsoft
Workflow Assignment User Management Configuration
Print Help
Assign workflow wizard---Hierarchy
System ---select--- Division ---select---
Area ---select--- Sub Area ---select---
Disc. Group ---select--- Disc. Name ---select---
Loop Line ---select--- Valve Section ---select---
Station Plus ---select--- HCA ---select---
Prev Next
© 2005 by AECsoft USA. Powered by AECsoft USA.
Done
Internet
Start
Gary White - Calendar - ...
Demo - Microsoft Outlook
AECsoft: ICAM - Micro...
Document2 - Microsoft ...
10:59 AM

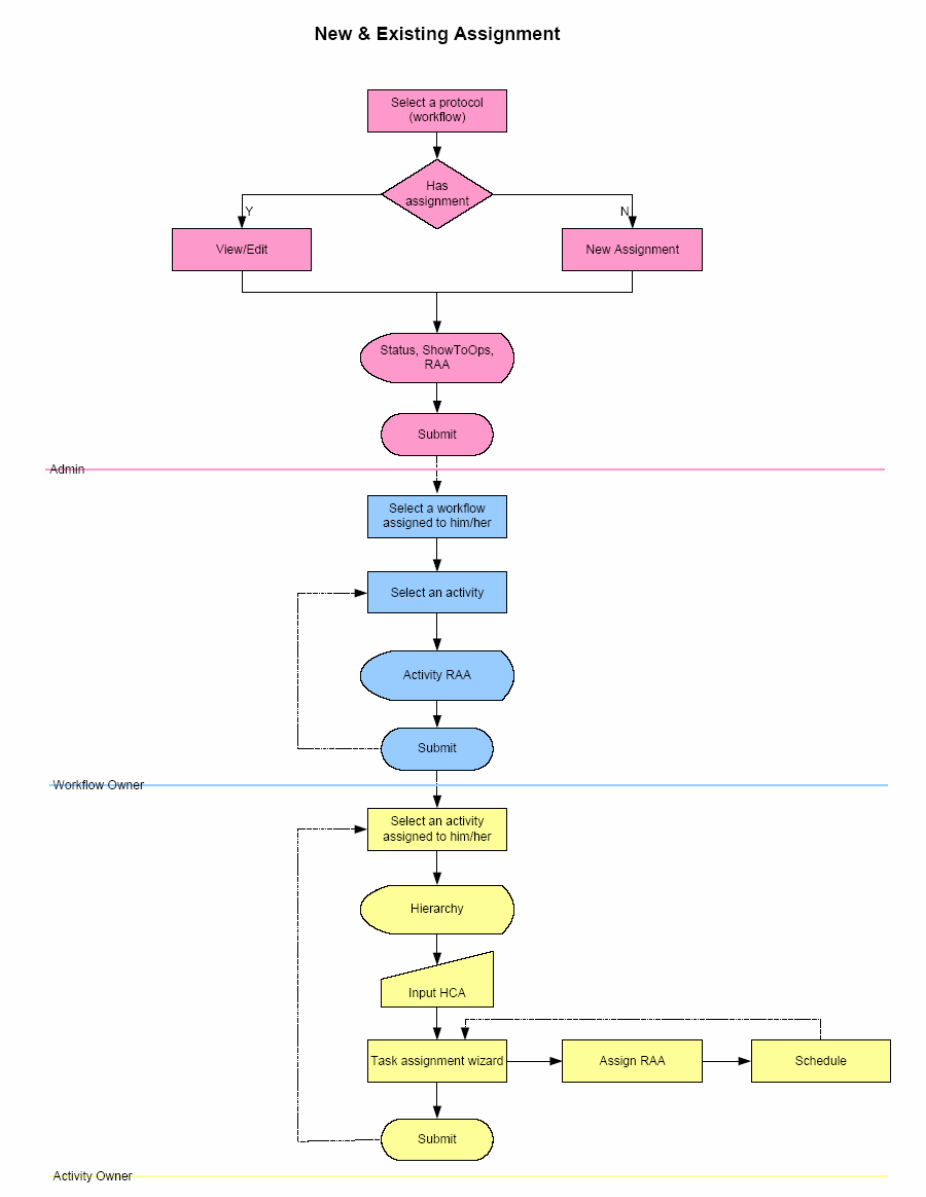

AECsoft: ICAM - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://demo.icamanager.com/AssignHierarchy.aspx
Go Links
Google Search Web 1 blocked AutoFill Options Web assistant
MySearch Google Yahoo! Ask Jeeves LookSmart Files Customize My Button Highlight
AECsoft
Workflow Assignment User Management Configuration
http://demo.icamanager.com - Calend...
Print Help
Assign workflow wizard---Workflow header
Name Assessment
Description Workflow designed to manage the processes associated with pipeline assessment including such activities as ILI, Survey, Surveillance
Status In Progress
ShowToOPS Yes No
Begin Date
End Date
Owner Tom Ren
Evaluator Gary White
Approver Bryan Wang
January 2005
MO TU WE TH FR SA SU
27 28 29 30 31 1 2
3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
31 1 2 3 4 5 6
Date Selected: 01/25/2005
OK Cancel
Next
© 2005 by AECsoft USA. Powered by AECsoft USA.
Internet
Done
Internet
Start
Gary White - Calendar - ...
Demo - Microsoft Outlook
AECsoft: ICAM - Microso...
http://demo.icamana...
Document2 - Microsoft ...
11:01 AM

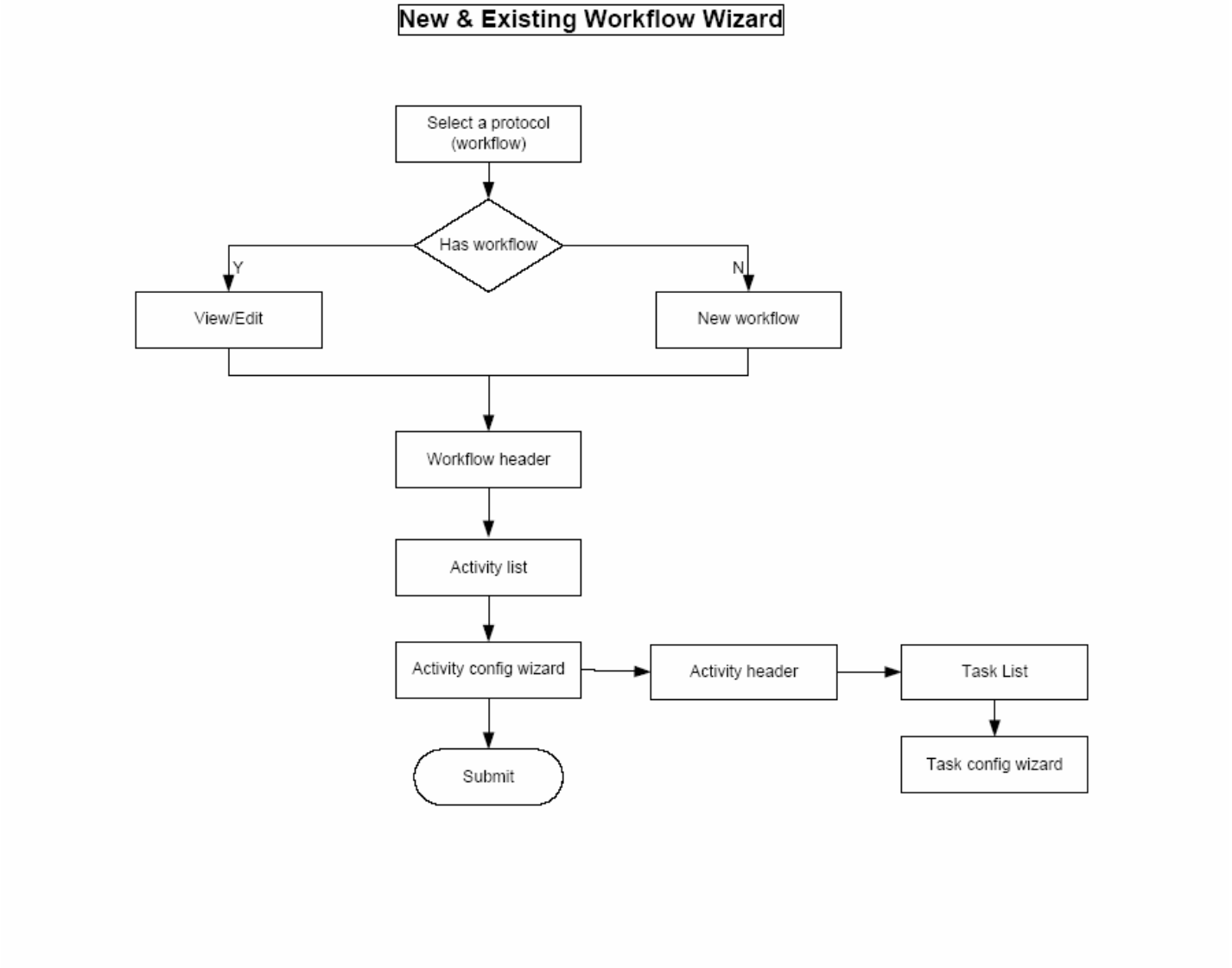

AECsoft: ICAM - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://demo.icamanager.com/AssignWorkflowHeader.aspx
Go Links
Google Search Web 1 blocked AutoFill Options Web assistant
MySearch Google Yahoo! Ask Jeeves LookSmart Files Customize My Button Highlight
AECsoft
Workflow Assignment User Management Configuration
Print Help
Assign workflow wizard---Assign activity
Activity Header
Name
Description
Responsibility
Switch On
Owner --- Select ---
Due after Days
Remind On Off
Remind after Days
Accountability
Switch Off
Evaluator --- Select ---
Due after Days
Remind On Off
Remind after Days
Authority
Switch Off
Approver --- Select ---
Due after Days
Remind On Off
Remind after Days
Ref. links Document Manager
SOP, GIS, Protocol/Regulation, FAQ
Task List
Task Answer Responsibility Accountability Authority
Switch Inheritance Switch Inheritance Switch Inheritance
Done
Internet
Start
Gary White - Calendar - ...
Demo - Microsoft Outlook
AECsoft: ICAM - Micro...
http://demo.icamanager...
Document2 - Microsoft ...
11:01 AM


AECsoft: ICAM - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://demo.icamanager.com/AssignWorkflowHeader.aspx
Task
Answer
Responsibility
Accountability
Authority
Switch
Owner
Due after
Remind
Remind after
Inheritance
--- Select ---
Days
On
Off
Evaluator
Approver
Task description...
e.g. Are you happy today?
Method - 11
Method - 22
Method - 33
Method - 44
Yes
No
Done
Internet
Start
Gary White - Calendar - ...
Demo - Microsoft Outlook
AECsoft: ICAM - Micro...
http://demo.icamanager...
Document2 - Microsoft ...
11:01 AM

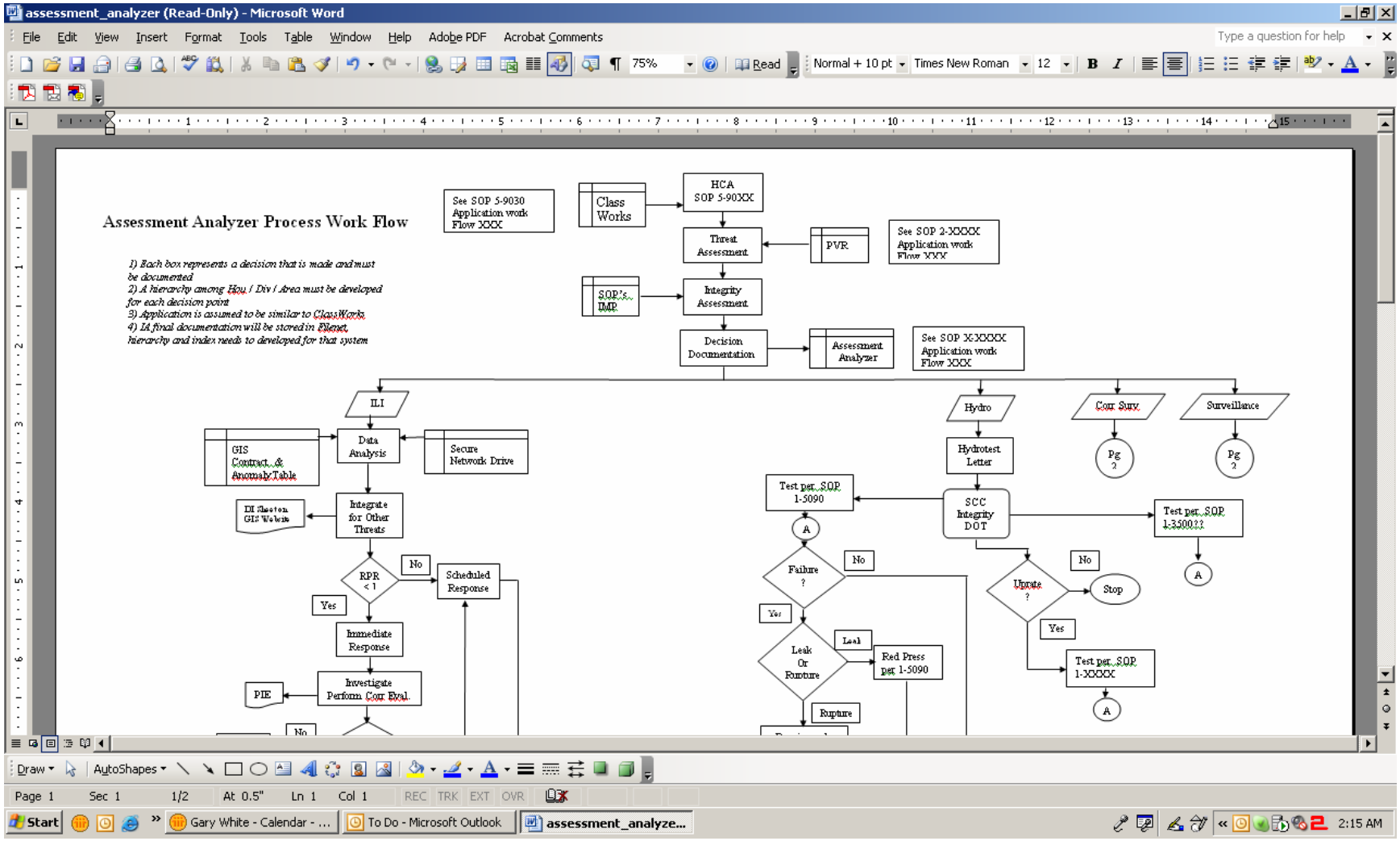
Appendix "D"
Proposed Process for Assignment of Responsibility, Accountability & Authority

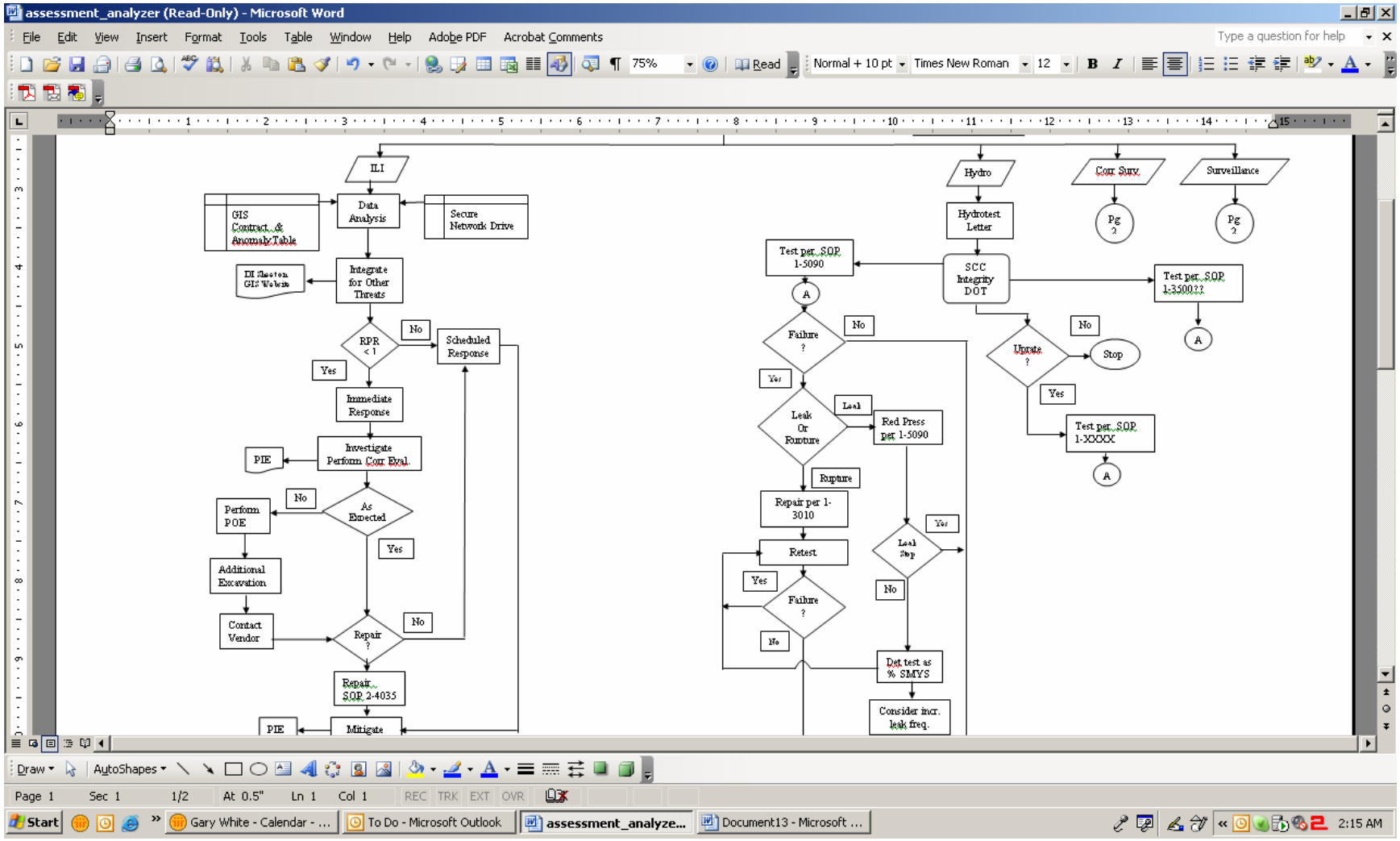

Assignment & Response
Select a protocol
Assign Workflow
(RAA, ShowToOPS, Status)
An email notice will be sent to the workflow owner
ADMIN
Workflow
Select an activity
Assign Activity
(RAA)
An email notice will be sent to the activity owner
Workflow Owner
Activity
Select an activity
Select Hierachy
Input HCA
Sequence Task
Assign Task
(RAA, remind, 1st start date, timeline)
An email notice will be sent to the 1st task owner
Activity Owner
ActivityRun & Task
Task Owner
Do assigned task
Notify Accountability
Task
Evaluation
N
Redo
Task Evaluator
Y
Notify R of the next task; Assign startdate
Passed
Notify Authority
Task
Y
Approval
Task Approver
Passed
Task

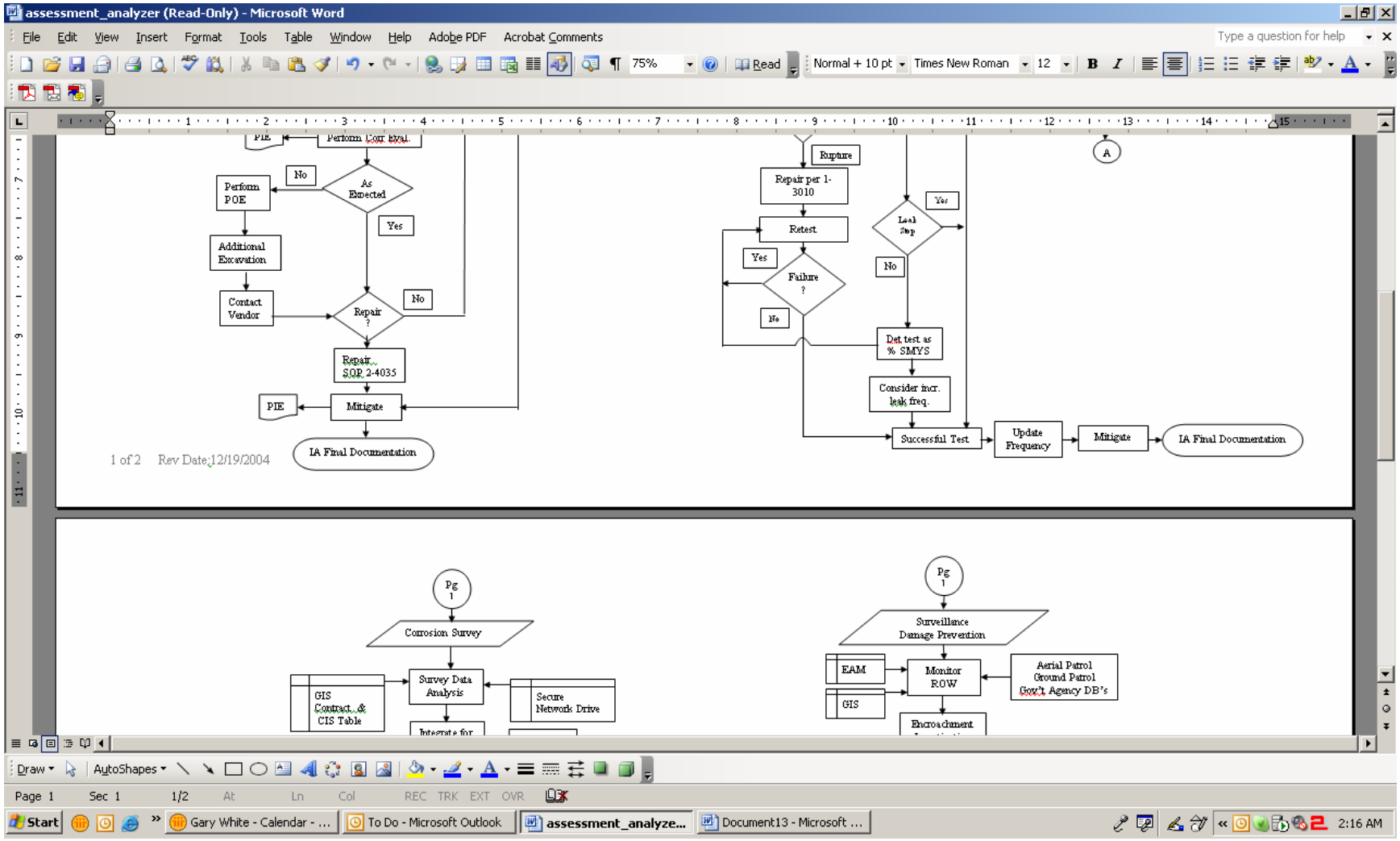

New & Existing Assignment
Select a protocol (workflow)
Has assignment
Y
N
View/Edit
New Assignment
Status, ShowToOps, RAA
Submit
Admin
Select a workflow assigned to him/her
Select an activity
Activity RAA
Submit
Workflow Owner
Select an activity assigned to him/her
Hierarchy
Input HCA
Task assignment wizard
Assign RAA
Schedule
Submit
Activity Owner

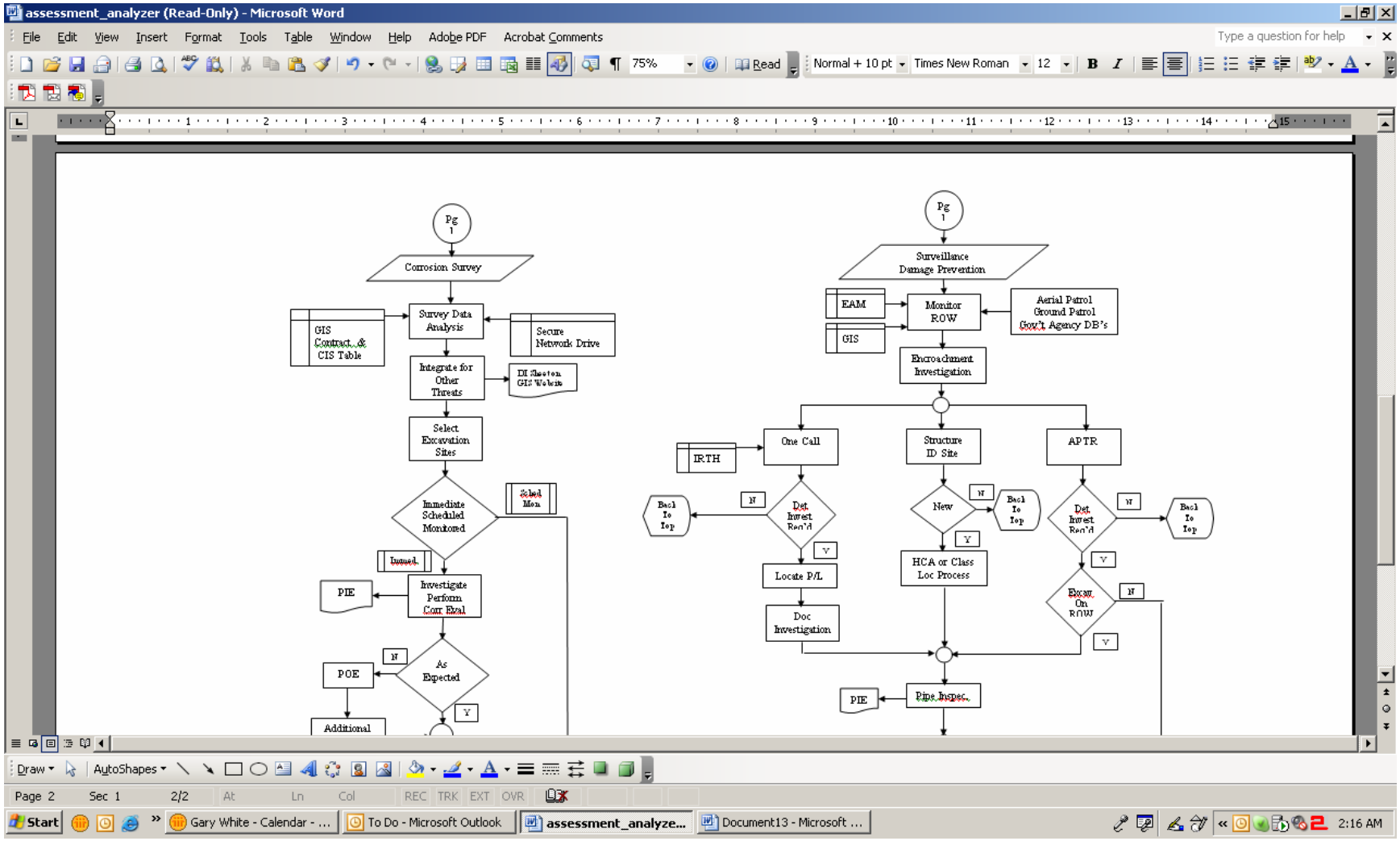

New & Existing Workflow Wizard
Select a protocol (workflow)
Has workflow
Y
N
View/Edit
New workflow
Workflow header
Activity list
Activity config wizard
Activity header
Task List
Task config wizard
Submit

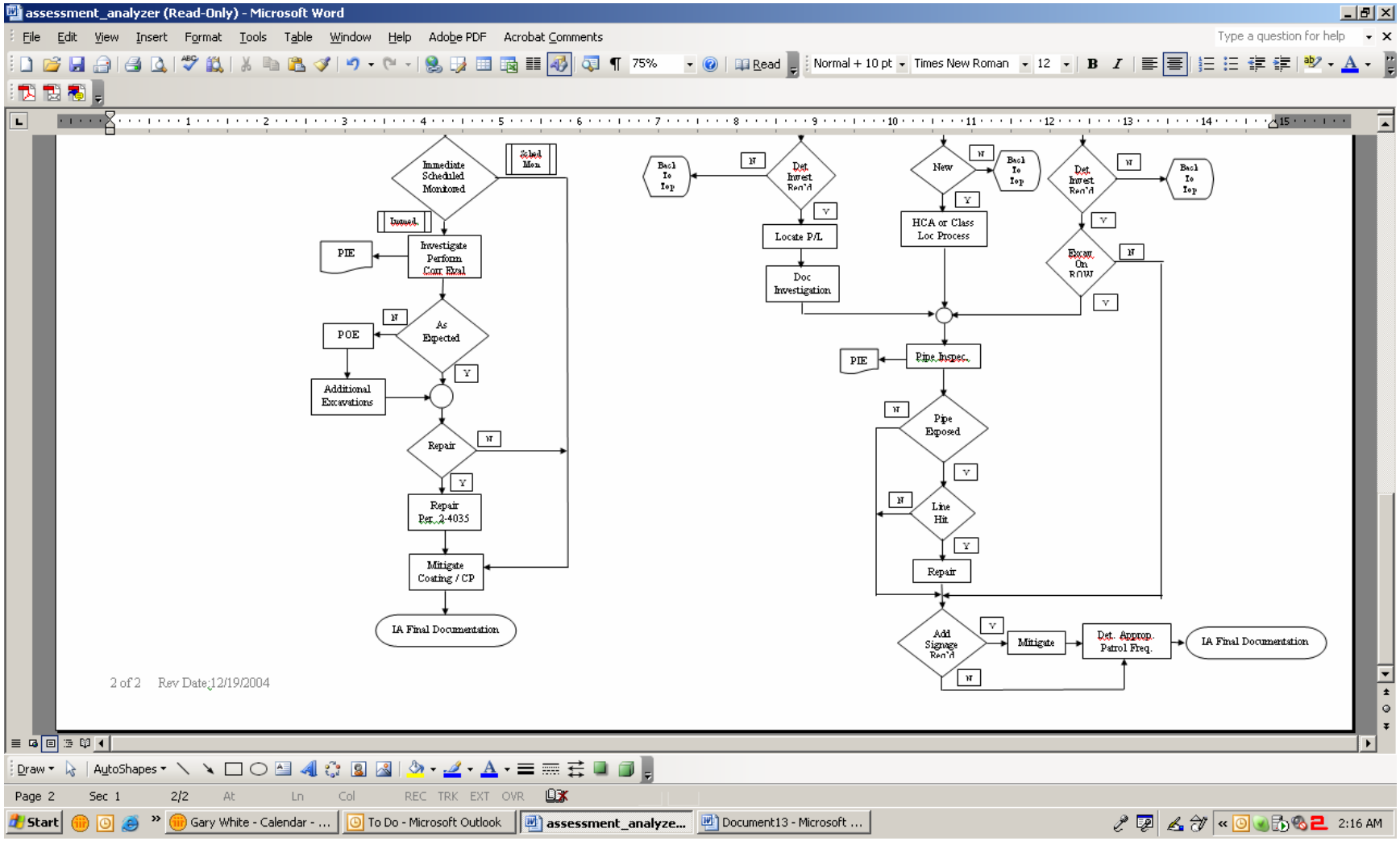
Appendix "E"
Sample Workflow to be Incorporated into ICAM
(Includes activities, tasks with decision branching)


assessment_analyzer (Read-Only) - Microsoft Word
Assessment Analyzer Process Work Flow
1) Each box represents a decision that is made and must be documented
2) A hierarchy among Hou / Div / Area must be developed for each decision point
3) Application is assumed to be similar to ClassWorks
4) IA final documentation will be stored in Fileet hierarchy and index needs to developed for that system
See SOP 5-9030 Application work Flow XXX
Class Works
HCA SOP 5-90XX
Threat Assessment
PVR
See SOP 2-XXXX Application work Flow XXX
SOP's IMP
Integrity Assessment
Decision Documentation
Assessment Analyzer
See SOP X-XXXX Application work Flow XXX
ILI
GIS Contract & Anomaly Table
Data Analysis
Secure Network Drive
Integrate for Other Threats
RPR < 1
No
Yes
Scheduled Response
Immediate Response
Investigate Perform Corr Eval.
PIE
Hydro
Hydrotest Letter
Corr Surv.
Surveillance
Pg 2
Test per SOP 1-5090
SCC Integrity DOT
Test per SOP 1-3500??
A
Failure ?
Leak Or Rupture
Leak
Red Press per 1-5090
Rupture
Uprate ?
Stop
Test per SOP 1-XXXX
Draw
AutoShapes
Page 1 Sec 1 1/2 At 0.5" Ln 1 Col 1
Start
Gary White - Calendar - ...
To Do - Microsoft Outlook
assessment_analyze...
2:15 AM


assessment_analyzer (Read-Only) - Microsoft Word
File Edit View Insert Format Tools Table Window Help Adobe PDF Acrobat Comments
Type a question for help
Normal + 10 pt Times New Roman 12
ILI
GIS Contract & Anomaly Table
Data Analysis
Secure Network Drive
Integrate for Other Threats
RPR < 1
No
Scheduled Response
Yes
Immediate Response
Investigate Perform Corr Eval.
PIE
As Expected
No
Perform POE
Yes
Additional Excavation
Contact Vendor
Repair ?
No
Repair SOP 2-4035
PIE
Mitigate
Hydro
Corr Surv
Surveillance
Hydrotest Letter
Pg ?
Pg ?
Test per SOP 1-5090
SCC Integrity DOT
Test per SOP 1-3500??
A
Failure ?
No
Yes
Uprate ?
No
Stop
Yes
Leak Or Rupture
Leak
Red Press per 1-5090
Test per SOP 1-XXXX
A
Rupture
Repair per 1-3010
Retest
Yes
Failure ?
No
Leak Rep
Yes
No
Det test as % SMYS
Consider incr. leak freq.
Draw AutoShapes
Page 1 Sec 1 1/2 At 0.5" Ln 1 Col 1 REC TRK EXT OVR
Start
Gary White - Calendar - ...
To Do - Microsoft Outlook
assessment_analyze...
Document13 - Microsoft ...
2:15 AM


assessment_analyzer (Read-Only) - Microsoft Word
File Edit View Insert Format Tools Table Window Help Adobe PDF Acrobat Comments
Type a question for help
Normal + 10 pt Times New Roman 12
Perform POE
No
As Expected
Yes
Additional Excavation
Contact Vendor
Repair ?
No
Repair SOP 2-4035
PIE
Mitigate
IA Final Documentation
1 of 2 Rev Date:12/19/2004
Rupture
Repair per 1-3010
Retest
Yes
Failure ?
No
Leal Stop
Yes
No
Det test as % SMYS
Consider incr. leak freq.
Successful Test
Update Frequency
Mitigate
IA Final Documentation
A
Pg 1
Corrosion Survey
GIS Contract & CIS Table
Survey Data Analysis
Secure Network Drive
Pg 1
Surveillance Damage Prevention
EAM
GIS
Monitor ROW
Aerial Patrol
Ground Patrol
Gov't Agency DB's
Encroachment
Draw AutoShapes
Page 1 Sec 1 1/2 At Ln Col REC TRK EXT OVR
Start
Gary White - Calendar - ...
To Do - Microsoft Outlook
assessment_analyze...
Document13 - Microsoft ...
2:16 AM


assessment_analyzer (Read-Only) - Microsoft Word
Pg 1
Corrosion Survey
GIS Contract & CIS Table
Survey Data Analysis
Secure Network Drive
Integrate for Other Threats
Select Excavation Sites
Immediate Scheduled Monitored
Sched Mon
Immed.
PIE
Investigate Perform Corr Eval
POE
As Expected
N
Y
Additional
Pg 1
Surveillance Damage Prevention
EAM
GIS
Monitor ROW
Aerial Patrol Ground Patrol Gov't Agency DB's
Encroachment Investigation
IRTH
One Call
Structure ID Site
APTR
Det Invest Req'd
Back To Top
New
HCA or Class Loc Process
Locate P/L
Doc Investigation
Excav On ROW
PIE
Pipe Inspec.
Draw
AutoShapes
Page 2 Sec 1 2/2
Start
Gary White - Calendar - ...
To Do - Microsoft Outlook
assessment_analyze...
Document13 - Microsoft ...
2:16 AM


assessment_analyzer (Read-Only) - Microsoft Word
Immediate Scheduled Monitored
Sched Mon
Immed.
PIE
Investigate Perform Corr Eval
As Expected
N
Y
POE
Additional Excavations
Repair
Repair Per 2-4035
Mitigate Coating / CP
IA Final Documentation
Det. Invest Req'd
Back To Top
Locate P/L
Doc Investigation
New
HCA or Class Loc Process
Excav. On R/O/W
Pipe Inspec.
Pipe Exposed
Line Hit
Add Signage Req'd
Mitigate
Det. Approp. Patrol Freq.
2 of 2 Rev Date:12/19/2004

Appendix "F"
Request for Phase II Consideration

1. Abstract
    a. Phase II funding will be utilized along with co-funding from industry to completed the coding and logic required to connect the database and the GUI that were developed in Phase I. Additionally, these funds will go toward the testing and development in alternate platforms such as Oracle. Finally, development will begin on a mapping tool that will allow ICAM to query existing databases in order to ultimately integrate activity data with the pipeline data.

    b. Demonstrations are already being scheduled using the prototype developed in Phase I. A number of Tier 1 transmission pipeline operators have expressed interest in using a system like ICAM. We are also in discussion with a number of potential implementation partners such as RCP.

2. Significance
    a. Development and commercialization of ICAM will be significant in that its use will allow operators to manage their processes in an auditable fashion pursuant to the OPS requirements. The processes that may be managed include not only those mandated by the OPS Inspection Protocols but others that will increase the operator's internal efficiency. From the OPS perspective, the audits to be performed will require less man power, time and expense.

3. Quality of Design & Development Plan
    a. Phase I resulted in the creation of the graphical user interface for the various roles including administration and end users such as workflow, activity and task managers. The other deliverable from Phase I was the database design that has been blessed by industry as having all the components necessary to address the current requirements, with the proper interaction rules to allow for all activity to be viewed by the hierarchal location of the asset down to the HCA level.

b. Phase II will complete the application through the development of the logic and code necessary to connect the GUI to the database, provide for testing a trouble shooting, include redevelopment into alternate platforms and address the future potential of the system through interaction with existing databases to allow for total integration of both activity and pipeline data sets. Additionally various implementation options will be explored and defined.

4. Commercialization Plan
    a. A complete Sales & Marketing plan will be developed that will include the following components:
    b. Branding
    c. Market size by Tier
        i. Tiers based on miles of transmission piping
    d. Market size by Type
        i. Transmission
        ii. LDC
    e. Market size by Alliance
        i. Consulting / Implementation Firms
        ii. Peripheral Software Providers
    f. Price points by market segment
    g. Implementation options
        i. License
        ii. Lease
        iii. ASP Model

5. Budget Justification
    a. Considering the existence of co-funding we are only requesting 50% of the total funds required to complete ICAM and take it to market. Our goal is to obtain $150,000 in co-funding with the same amount being matched by the SBIR. As of this writing we have $50,000 committed and expect the remaining amounts to be available within 60 days.