U.S. Army Corps of Engineers

Formerly Used Defense Sites Program

FUDS

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FINAL Cost-To-Complete (CTC) Estimate

Handbook

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Cost-To-Complete Estimate Handbook for the Formerly Used Defense Site (FUDS) Program

1. Introduction

1.1. This ***Handbook*** was developed for U.S. Army Corps of Engineers (USACE) personnel at all levels engaged in the development, review, and archiving of Cost-to-Complete (CTC) estimates for Formerly Used Defense Sites (FUDS) projects. These estimates are used as the basis for the environmental liabilities reported in the Army's financial statements for the FUDS Program. This ***Handbook*** contains the most relevant and current information needed by USACE Divisions and Districts regarding the CTC process. The Financial Management Regulation (FMR) definition of CTC is: "the estimated costs of the remaining current year (CTC_CY) plus estimated costs of budget year and beyond (CTC_BY)." This Handbook provides instructions to develop, review, and archive the CTC_BY portion of the FMR CTC.

2. Background

2.1. According to Public Law 101-576, "Chief Financial Officers Act of 1991," each executive agency shall prepare and submit to the Director of the Office of Management and Budget (OMB) a financial statement for the preceding fiscal year. The Chief Financial Officer (CFO) Act requires financial statements prepared by an agency to be audited by the Inspector General in accordance with applicable generally acceptable government auditing standards and further requires the Inspector General to submit a report to the head of the auditing agency.

2.2. Environmental liabilities and disposal liabilities are reported on Note 14, "Environmental Liabilities and Environmental Disposal Liabilities," of the Department of Defense (DoD)-wide and the individual Service-wide balance sheets. Contingent liabilities are reported as part of Note 16, "Commitments and Contingencies." Environmental liabilities include estimated amounts for future cleanup of contamination resulting from waste disposal methods, leaks, spills, and other past activities that have created a public health or environmental risk.

2.3. Environmental cost estimators normally prepare CTC_BY estimates that satisfy the FUDS Planning, Programming, Budgeting and Execution Process (PPBE). Army management uses the budgetary estimates to report environmental liabilities on the Army financial statements. Because environmental budgetary estimates are used for financial statement reporting, the estimates are subject to financial management and accounting standards and are subject to audit. Financial management and accounting standards require supporting documentation for cost estimates.

3. Statutory Requirements

3.1. Chief Financial Officers (CFO) Act

3.1.1. In 1990, Congress passed the CFO Act that calls for the federal government to establish a foundation of basic financial management practices that are common and considered vital in the private sector. It directs the OMB to provide overall direction and leadership to the executive branch on financial management matters by establishing financial management policies and requirements.

3.1.2. The purpose of the CFO Act is to improve general and financial management practices in the federal government by requiring the development of an integrated financial management system, including financial reporting and internal controls. The Act also established a pilot project whereby certain agencies, including the Army, were also required to prepare auditable, commercial-style financial statements for the Fiscal Year (FY) 1992. The OMB extended this requirement through FY1995. The Government Management Reform Act, discussed below, continued the requirement for the Army to produce auditable financial statements beyond FY1995.

3.2. Government Performance and Results Act (GPRA)

3.2.1. While the CFO Act established the foundation for improving management and financial accountability among the agencies, the GPRA of 1993 is aimed more directly at improving an agency's program performance. The GPRA forces a shift in the focus of federal agencies away from such traditional concerns as staffing and activity levels toward a single overriding issue – results.

3.2.2. The GPRA requires first that agencies consult with Congress and other stakeholders to clearly define agency missions. It requires that agencies establish long-term strategic goals, as well as annual goals. Agencies must then measure their performance against their goals and report the results to the public. Within the environmental arena, the Army's performance is measured against the Department of Defense Goals for the Defense Environmental Restoration Program (DERP).

3.3. Government Management Reform Act (GMRA).

3.3.1. In 1994, Congress passed the GMRA, requiring all federal agencies, including the Army, to annually produce auditable financial statements beginning in FY1996. As the accounting service for DoD agencies, the Defense Finance and Accounting Service (DFAS) prepares the Army's Financial Statements. The Inspector General, DoD (DoDIG), is responsible to audit the Army's financial statements in accordance with applicable generally accepted government accounting standards and submit a report to the Auditor General, Department of the Army.

3.4. Federal Financial Management Improvement Act (FFMIA)

3.4.1. The FFMIA of 1996 advanced federal financial management by ensuring that federal financial management systems can and do provide reliable, consistent disclosure of financial data. Further, the FFMIA required these management systems to accomplish this on a basis that was uniform across the federal government, was consistent from year-to-year, and used professionally-accepted accounting standards.

3.4.2. The FFMIA built on the GMRA requirement for agencies to publish annual audited financial reports. It provided the basis for ongoing use of reliable financial information in program management and in oversight by the President, Congress, and the public.

3.4.3. The FFMIA impacted the Army in the following ways:

3.4.3.1. The Army is required to implement and maintain systems that comply substantially with:

3.4.3.1.1. Federal financial management system requirements.

3.4.3.1.2. Applicable federal accounting standards, and

3.4.3.1.3. The Standard General Ledger at the transaction level.

3.4.3.2. DoDIG is required to report on the Army's compliance with the three above requirements as part of financial statement audit reports.

3.4.3.3. The Army is required to determine, based on the audit report and other information, whether it's financial management systems (the FUDS Management Information System [FUDSMIS] for the FUDS Program) complies with the FFMIA. If it does not, the Army is required to develop remedial plans and file them with OMB.

4. **Reporting Guidance**

4.1. DoD Financial Management Regulation (FMR)

4.1.1. DoD Regulation 7000.14-R, "DoD Financial Management Regulation," Volume 4, Chapter 13, prescribes accounting policies and principles for measuring and recognizing DoD liabilities associated with the disposition of property, structures, equipment, munitions, and weapons. It also prescribes policy for measuring and recognizing the environmental liabilities associated with the containment, treatment, or removal of contamination that could pose a threat to public health and the environment, corrective actions, the future closure of facilities on active installations; and environmental response actions at operational test and training ranges on active installations. It also prescribes the accounting policy for accrued environmental restoration costs for general property, plant, equipment, and stewardship of land. It provides policy for accrued environmental restoration cost for properties with potentially responsible parties (PRP).

4.2. DoD Management Guidance for the DERP.

4.2.1. The guidance provides program implementation information for environmental restoration at active installations, facilities subject to Base Realignment and Closure, and Formerly Used Defense Sites. This document also provides requirements for CTC_BY[1] estimates and financial reporting of environmental restoration liabilities that use Environmental Restoration funds.

4.3. Engineer Regulation (ER) 200-3-1, Formerly Used Defense Sites (FUDS) Program Policy.

4.3.1. The FUDS ER 200-3-1 establishes the overarching USACE policy for management and execution of the FUDS program and takes precedence over previous USACE FUDS program policy and guidance. This regulation provides policy and guidance within USACE for the planning, programming, budgeting, execution, management, and reporting of all activities associated with FUDS properties and projects.

4.3.2. Chapter 6 of ER 200-3-1 establishes criteria and standards for development, review, and reporting of CTC_BY estimates that support project management and upward reporting for the FUDS Environmental Restoration Liability, budget submittals, the Annual Report to Congress (ARC), and the DoD In-Progress Reviews.

5. Environmental Liabilities

5.1. Overview.

5.1.1. Federal agency environmental liabilities are a vital and necessary requisite for producing a complete and auditable financial statement. The business processes contained in this document, in tandem with appropriate environmental liabilities guidance, provide a methodology and blueprint to correctly and appropriately value and categorize environmental liability-related data. Once these requirements are implemented, environmental liabilities estimates become auditable and readily accessible for financial reporting.

5.2. Definition

5.2.1. Liabilities are a normal aspect of conducting business. Rarely does a transaction occur that is liquidated on the spot as takes place in a cash or barter transaction. Instead, one party provides goods or services in exchange for a promise of payment in the future. The liability must be recorded, even if funds are not available. If that payment is likely to take place within the next 12 months, it is a current liability. If that payment is more likely to take place beyond the next 12 months, then it is a non-current liability. Current liabilities include those

[1] The term CTC_BY refers to CTC in the DERP Manual.

unliquidated obligations from the preceding five years that are subject to payment in the next 12 months[2]. See Figure 1.

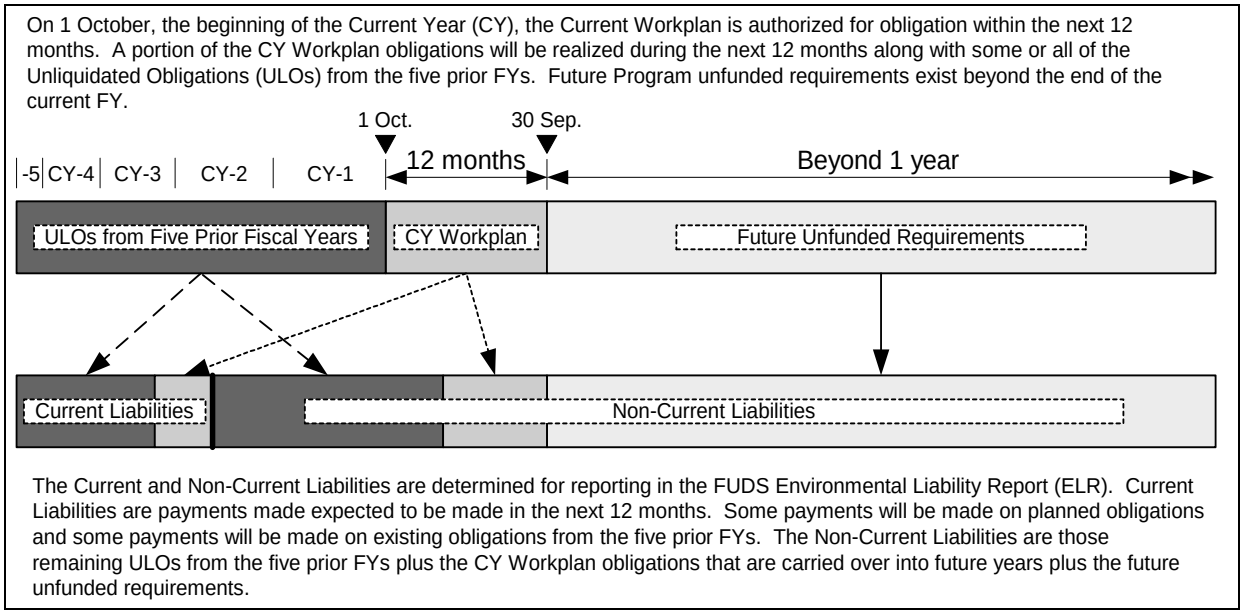

Figure 1. Determination of Current and Non-Current Liabilities.

5.2.2. Environmental liabilities include estimated amounts for future cleanup of contamination resulting from waste disposal methods, leaks, spills, and other past activities that have created a public health or environmental risk. Neither budget activities nor the availability of funding is a determining factor in recognizing environmental liability. Environmental liability estimates and reporting are mandatory regardless of whether the liability appears in budgets or requires future funding.

5.3. Reporting of Environmental Liabilities.

5.3.1. Each fiscal year, the Deputy Assistance Secretary of the Army (Financial Operations) issues a request for the actual liabilities, including current and non-current, and contingent liabilities in the area of environmental restoration, non-environmental, Judgment Fund, and all other liabilities not reported via automated systems. DoD guidance requires the Army and USACE to calculate the CTC estimate for each DERP cleanup program category[3] and

[2] Funds are available for the purpose of making expenditures for 5-years following the end of the fiscal year in which the funds were available for obligation. Unliquidated obligations (ULO) are incurred when orders are placed, contracts awarded, services received, and other similar transactions occur during a fiscal year that will require payments during the same or a future fiscal year.

[3] The Defense Environmental Restoration Program (DERP) established three program categories: the Installation Restoration Program (IRP) category, the Military Munitions Response Program (MMRP) category, and the Building Demolition/Debris Removal (BD/DR) program category. Under the IRP category, FUDS reports the Hazardous, Toxic, and Radioactive Waste (HTRW) and the Containerized HTRW project liabilities. FUDS MMRP projects, to include munitions of explosive concern (MEC) and munitions constituents (MC) are reported under the DERP MMRP category. FUDS BD/DR projects are reported under the DERP BD/DR program category.

use these values as the basis for the environmental liability reported in the Note 14. Quarterly updates are also provided to Army and Office of the Secretary of Defense (OSD).

5.3.2. FUDS environmental liabilities submitted to Army and DoD are separated into two values, representing current and non-current liabilities, and include the following:

5.3.2.1. FUDS Project Level Liabilities. These liabilities are associated with the planning, programming, and execution of response actions at FUDS projects. These liabilities are submitted as two sets of values; one for HTRW, CON/HTRW and BD/DR projects and the other for MMRP and MMRP Chemical Warfare Materials (CWM) projects. CTC_BY estimates supporting these liabilities are developed, reviewed, and entered into FUDSMIS using the procedures in this ***Handbook***.

5.3.2.2. FUDS Property Level Liabilities. These liabilities are associated with conducting the property level Preliminary Assessment, developing the Inventory Project Report (PA/INPR), and costs associated with community relations that benefit the FUDS property, including the Restoration Advisory Board (RAB) and the Technical Assistance for Public Participation (TAPP) costs. These FUDS property level liabilities are developed and entered into FUDSMIS by USACE District personnel.

5.3.2.3. FUDS Program Level Liabilities. These liabilities include Management and Support (M&S) funds supporting HQUSACE, Divisions, Districts, and the Environmental and Munitions Center of Expertise; FUDS contribution to the Defense and State Memorandum of Agreement (DSMOA); FUDS support to the Department for Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR); and centrally funded FUDS initiatives such as the FUDS Information Improvement Program (FIIP). These program-related liabilities are estimated based on a combination of current, known, and estimated costs and are entered into FUDSMIS under "Program Management and Support" by HQUSACE personnel.

5.3.3. CTC estimates and the values reported in the annual financial statements for environmental liabilities must be able to withstand an audit. The CTC reported consists of both the CTC_CY and the CTC_BY. The CTC_CY is consistent with and supported by Corps of Engineers Financial Management System (CEFMS). The CTC_BY is consistent with the entries into FUDSMIS. To ensure that the estimate documentation and FUDSMIS entries support the financial statements, FUDSMIS was revised to facilitate the entry of CTC_BY estimate data into the Project Life Cycle Plan (LCP), to record the results of the quality reviews performed, to store the CTC_BY estimate as an attachment to the FUDS Project, and to place controls on when and how changes to the LCP can occur during the year. These are explained in the following sections of this ***Handbook***.

6. Cost-to-Complete for Budget Year and Beyond (CTC_BY) Estimates

6.1. An Overview of the CTC Process.

6.1.1. CTC_BY estimates are used for several purposes, including: to support the planning, programming, budgeting and execution process; to estimate environmental liabilities;

to track cost avoidance measures implemented by the USACE; and to report future program requirements. Because CTC_BY estimates are used to estimate the environmental liabilities of the FUDS Program, they are subject to financial management and accounting standards and to subsequent financial audit.

6.1.2. CTC_BY estimates form a portion of the environmental liabilities reported in the USACE Annual Financial statement in compliance with the CFO Act. The CTC_BY estimates must comply with DoD FMR 7000.14-R which requires documentation of data sources, methods of estimating, and management review of CTC_BY estimates. The FMR stipulates that CTC_BY estimates are subject to audit. Therefore, information used to develop CTC_BY estimates for the USACE environmental cleanup programs is subject to audit by the DoDIG.

6.1.3. USACE guidance requires USACE Districts to prepare annual CTC_BY estimates for all FUDS Projects that have not reached project completion. These projects are identified in FUDSMIS as CEYNYA[4] coded FUDS projects that do not have the Project Closeout milestone date completed and have phases requiring further action**. Note: HQUSACE has determined that a Project Closeout (PCO) phase can only be included in a CTC estimate and programmed in the budget year only when the project has been established as No DoD Action Indicated (NDAI). See Appendix B of this Handbook for more information.**

6.1.4 Internal management controls are used throughout the CTC_BY estimate development process to ensure that estimate development, quality reviews, and reporting of the FUDS environmental liabilities are completed in a manner that produces accurate and timely reporting of the financial transactions. These controls document that the estimates reported have been developed in accordance with ER 200-3-1 and this handbook.

[4] CEYNYA is an acronym referring to the status of a FUDS project within FUDSMIS. CEYNYA projects are those on a FUDS eligible FUDS property that are included in the Inventory Project Report (INPR), recommended by the District for inclusion in the FUDS program, and ultimately approved by the Division or HQUSACE. Refer to ER 200-3-1, Appendix B for a discussion of the INPR process. Only CEYNYA projects are reported in the FUDS Environmental Liability Report.

6.2. Responsibilities.

Table 1 below identifies the office elements and individuals responsible for the preparation, review, approval, and validation of CTC estimates.

Table 1 – Roles and Responsibilities for the Preparation, Review, Approval, and Validation of CTC Estimates.

Role	Responsible Office Element	Responsible Individual	Comment
Prepares CTC Estimate	USACE District Project Delivery Team (PDT).	PDT Team Member assigned by the USACE FUDS Project Manager (PM).	The PDT is a multidisciplinary team brought together to support the USACE District PM for the purpose of executing the FUDS project. Membership on the team includes cost estimators, Contractors, the Environment and Monitions Center of Expertise (EM-CX), or others trained in auditing principles and experienced in developing CTC estimates.
Conducts Quality Control (QC) Review	USACE District QC team.	USACE District FUDS PM supported by PDT members.	The PM is the lead for QC on the FUDS Project. This is part of the broader role of the PM, as PDT lead, with responsibility of all aspects of project planning, programming, budgeting, execution, and reporting. If a PM has not been assigned to a project, then a member of the PDT must be assigned to complete the QC.
Conducts Supervisory Review (SR)	USACE District FUDS Program Manager (PgM)	USACE District FUDS Program Manager (PgM)	The PgM is the functional equivalent of the supervisor of the PM, and as such, performs the SR of each FUDS project estimate.[5]
Conducts Quality Assurance (QA) Review	USACE Division	USACE Division FUDS Program Manager (PgM)	The Division FUDS PgM performs a QA Review of the estimating process; may be supported by the EM-CX.
Approves Estimates	Headquarters USACE (CEMP-DE)	HQUSACE FUDS Program Manager	HQUSACE FUDS PgM approves estimates used for reporting the FUDS environmental liabilities.
Validates Estimates	Assistant Chief of Staff for Installation Management (ACSIM)	Director of Environmental Programs	ACSIM collects and validates environmental liabilities submitted by USACE; checks to determine if all necessary program aspects are identified and reported.

[5] As the result of **FUDS Transformation**, the district PgM will reside in the Program and Project Management District (PPM) and will be responsible to perform the Supervisory Review for all FUDS Projects within the Division. **FUDS Transformation** allows the option for the Division to perform the district-level Program Management role for their districts. In this case, the RBC would assign a single lead within their Project Management District(s) to perform the Supervisory Review.

6.3. Schedule.

Table 2 below establishes the annual schedule for CTC_BYestimate development and update. Deviations from this schedule will be authorized by HQUSACE.

Table 2 – FUDS Schedule of CTC_BY Estimate Development and Update.

ACTIVITY	Completion Date
Districts review default estimate development responsibilities and modify as appropriate.	3rd Friday in October
Divisions review District estimate development responsibilities and modify as appropriate.	4th Friday in October
Districts/EM-CX complete estimate update/development	14January
Districts complete Quality Control Review	1February
Districts complete Supervisory Review	1 March
Divisions, assisted by EM-CX, complete Quality Assurance	31 March
Districts and Divisions complete their Program Development Requirements in accordance with CEMP-DE Program Development Instructions. The LCP Phase Totals for the CTC_BY are monitored by divisions and changes can be made with approval from divisions.	1 April – 1 July
Divisions, assisted by EM-CX submit After Action Report to HQUSACE.	31 July

6.4. Assignment of Estimate Development Responsibility.

The review of the assignment of estimate development responsibility for a fiscal year occurs within FUDSMIS. FUDSMIS initially assigns a "default" estimate preparation responsibility for all approved projects that have not achieved "Project Completion" to the USACE District, the EM-CX, or as Indexed. The District Program Manager must review the default assignments to determine if the project estimate development responsibility has been assigned appropriately. The CTC Project Assignment screen in FUDSMIS is updated nightly to reflect projects added or deleted. Figure 2 shows the review of the estimate development assignment process in FUDSMIS.

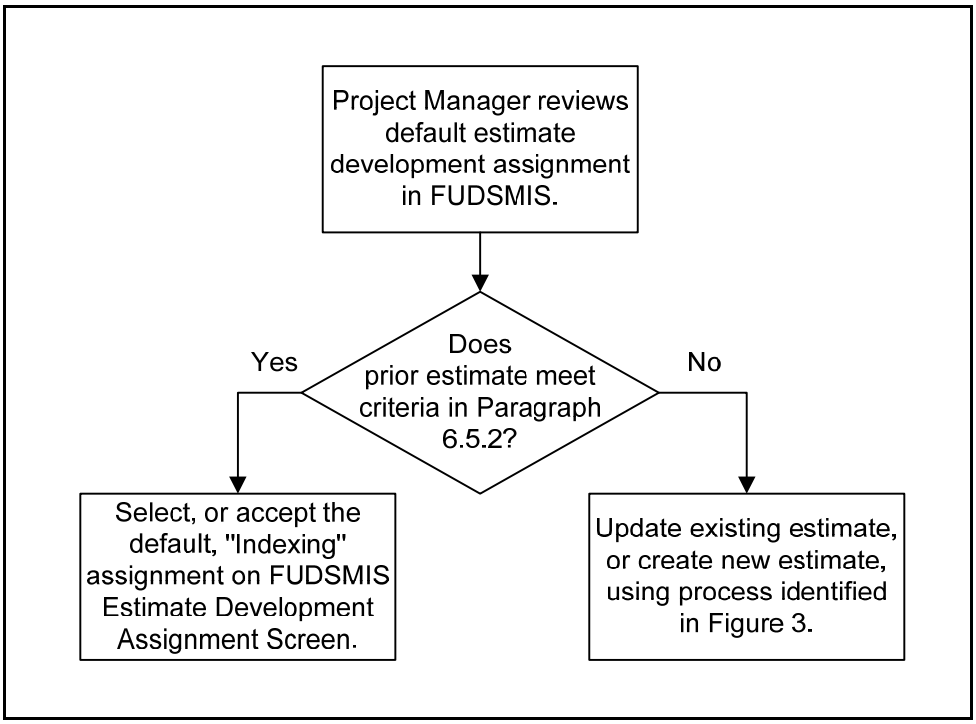

Figure 2. Review of the Default Estimate Development Assignments in FUDSMIS.

6.4.1. *Indexed Default Estimate Assignment*. Estimate development responsibility is assigned to Indexed by default for all project categories when the project meets the requirements outlined in section 6.5.2. The District is required to evaluate all index assigned projects.

6.4.2. *EM-CX Default Estimate Assignment.*

6.4.2.1. Projects assigned to the EM-CX by default are "pre-decisional" MMRP and MMRP/CWM projects. "Pre-decisional" projects are characterized as having the Decision Phase as Underway or Future. As above, the Decision Phase is the Remedial Investigation/Feasibility Study (RI/FS) or Engineering Evaluation/Cost Analysis (EE/CA) for MMRP and MMRP/CWM projects. By USACE policy, *Remedial Action Cost Engineering and Requirements (RACER)* will be used by the EM-CX to develop CTC estimates for these "pre-decisional" projects (see ER 200-3-1). Also, defaulted as assigned to the EM-CX are new HTRW, CON/HTRW, and BD/DR projects being established which have not been previously funded.

6.4.2.2. The district is responsible to evaluate the EM-CX defaulted estimate assignments. HQUSACE has stipulated estimates for "pre-decisional" MMRP and MMRP/CWM projects not suitable for Indexing will be developed by the EM-CX. Divisions and Districts cannot modify these EM-CX default estimate assignments without HQUSACE approval. To obtain approval, an email requesting a change must be sent by the Division to the MMRP Team Lead at HQUSACE. All other project categories can be reassigned from the EM-CX to the District through coordination with the EM-CX.

6.4.3. *District Default Estimate Assignment.*

6.4.3.1. For the remaining projects, post decisional MMRP and CWM, all previously funded HTRW, CON/HTRW and BD/DR, and all PRP Projects that did not default to Indexed, estimate development responsibility is assigned to the District. Post Decisional projects are the projects with a completed the RI/FS or EE/CA for MMRP and MMRP/CWM projects.

6.4.3.2. The District is responsible to evaluate the status of all **District** defaulted projects and either accept the default assignment, change the responsibility to the EM-CX (see additional information in paragraphs 6.4.3.3 and 6.4.3.4 below), or (if the requirements of 6.5.2. are met) assign the project as Indexed.

6.4.3.3. Before making an estimate preparation assignment to the EM-CX for a project, Districts should carefully consider where the project is in the decision process and if the project has activities currently being completed. For instance, if a HTRW project has a completed or nearly completed RI/FS, it is appropriate for the District to prepare the estimate because of the information they already have knowledge of regarding what has been accomplished and the future direction of the project. This level of knowledge must be the basis for developing the estimate and most often a detailed bottom-up estimate using software such as MII should be used. In these cases, use of parametric software or means will likely not produce the most comprehensive estimate. The same can be said of a BD/DR or CON/HTRW project with a completed or nearly completed Removal Design (RmD).

6.4.3.4. If a District changes the assignment of estimate development responsibility to the EM-CX for projects, the District must coordinate with their EM-CX Point of Contact (POC). If a district assigns a project that is in the CY workplan, project funds will be required to be provided to the EM-CX for estimate development. For all projects that are assigned to the EM-CX, the District is responsible to provide the EM-CX with all project information required to develop the estimates. Projects that have the assignment changed to the EM-CX from the default of district or index must be completed before the 4th Friday in October.

6.4.4. *Finalizing Estimate Development Responsibility*.

6.4.4.1. After District FUDS Program Managers have reviewed and/or changed the project estimate development assignments, the District Program Manager is required to "finalize" the assignments within FUDSMIS. This is completed by selecting the "Finalize" function on the project assignment screen in FUDSMIS. If the District FUDS Program Manager does not finalize the project assignments prior to the applicable date shown in Table 2, FUDSMIS will automatically finalize the list

6.4.4.2. Division FUDS Program Managers will either accept or override the District assignments in FUDSMIS. , If the Division assigns a project to the EM-CX that is in the CY workplan, project funds will be required to be provided for estimate development. Once the Division finalizes the estimate assignments by selecting the "Finalize" function in FUDSMIS, the list will be considered "approved." If the Division FUDS Program Manager does not finalize the project assignments prior to the applicable date shown in Table 2, FUDSMIS will automatically finalize the list.

6.4.4.3. After District and Division finalization, changes in estimate development assignment can only be made by coordination between the Division, District, and the EM-CX. The EM-CX will annotate in the Comments field specifics of the change, including who requested the revision and the reason why.

6.4.4.4. The estimate assignment screen in FUDSMIS is always viewable to review assignments or to check the status of projects. FUDSMIS updates the estimate assignment screen nightly. If a project is added to or deleted from the estimate assignment screen, FUDSMIS will automatically email the appropriate District and Division FUDS Program Managers and the EM-CX that such action has occurred. Due to EM-CX time and resource constraints, projects added to the assignment list late in the process and prior to the April Program Objective Memorandum (POM) exhibits download may remain uncosted until the next estimate development cycle. These uncosted projects will not be included in the POM Distribution calculation, the current year environmental liability report, or the BY Annual Workplan (AWP).

6.5. Development of Estimates.

6.5.1. General. The following paragraphs outline the personnel and steps required to prepare a CTC project estimate.

6.5.1.1. The District FUDS PgM or PM, as head of the Project Delivery Team (PDT), leads a multidisciplinary team brought together to support the planning, programming, budgeting, execution, and reporting for the FUDS project. Membership on the team should encompass all disciplines needed for project performance.

6.5.1.2. The PgM or PM will assign estimate development responsibility to a member of the team or will determine if a project is suitable for Indexing. The team member assigned estimate development responsibility could be an in-house Cost Engineer, a contractor, a USACE EM-CX member, or others that are knowledgeable of the project, trained in auditing principles, and experienced in developing CTC_BY estimates. Estimates will be developed and/or updated in current year dollars.

6.5.1.3. Project estimates must include references and background information for the property and project for which the estimate is being developed. To accurately represent the Government's environmental liability, the estimate must include documentation on phases selected, technologies included in each phase, quantities selected, and any assumptions made in developing the estimate.

6.5.1.4. Appendix B of this ***Handbook*** contains the guidance document entitled ***"Instructions For Developing FUDS CTC Estimates."*** These Instructions provide guidance, directions, and systematic procedures for developing CTC_BY estimates. While these instructions were written for estimates developed in RACER, they are applicable to estimates developed using other methods as well. Following these instructions will allow Districts to develop estimates that are creditable, defensible, and able to pass the Quality Control (QC) Review, Supervisory Review (SR), and Quality Assurance (QA) Review discussed below.

6.5.1.5. USACE Districts must prepare annual CTC_BY estimates for all approved FUDS projects that have not reached project completion, as defined in Paragraph 6.1.3 above. In certain cases, where USACE has actively sought required regulatory concurrence and is awaiting action by the lead regulatory agency, or may be seeking project closeout through another project a CTC estimate is not required. In these cases, no further USACE action is anticipated and the project shall be recorded as NDAI in FUDSMIS. For these instances, the FUDSMIS Project level Current Status field (located in the project comments screen) will be used to annotate this status by inserting a statement explaining why project closeout has not been recorded in FUDSMIS. Below is an example statement:

> *"The District has actively sought regulatory concurrence for this project and is awaiting action by the lead regulatory agency. USACE has determined no environmental liability exists for this project and therefore, no CTC estimate was developed."*

This step however, will not be used for Projects for which USACE has not actively sought regulatory concurrence. For these projects, Districts may develop a PCO phase estimate and include this project in the District's QC Review and SR process. The following bullets summarize use of a PCO in the CTC estimate:

- PCO phase allowed (but not required) if the project is NDAI'd and regulatory concurrence has not been sought
- PCO phase only allowed in CY and/or BY if there is a CTC estimate

6.5.2. Indexing of Estimates Previously Completing the Three Tiered Review Process

6.5.2.1. Indexing of estimates refers to the process of applying a multiplier to the phase level in-house and contract amounts that were entered into FUDSMIS in a prior year to adjust the costs to current year dollars[6]. In a new fiscal year, only the CTC_BY that was developed in a prior year are Indexed. For example, during FY10, USACE will use a multiplier to adjust the FY11 and beyond portions of the CTC estimate that were developed and entered into FUDSMIS in FY09 or prior to change the existing amounts to current year dollars. Project costs in the approved CY Workplan will not be adjusted, because these costs are not included in the CTC_BY. The concept of Indexing is discussed in the FMR (Volume 4, Chapter 14 - September 2002 Section 140104), which states:

> *"Cost estimates shall be revised when there is evidence that significant change in the cost estimates have occurred, (e.g., changes in scope, ownership, regulation, or technology). As a minimum, the long-term cost estimates shall be adjusted (upward or downward) annually, through indexing, to maintain them on a current cost basis (i.e., as if acquired in the current period)."*

[6] Estimates are always developed and entered into FUDSMIS in current year dollars in the fiscal year when the estimate was prepared. The phase cost multiplier is obtained from the Office of the Under Secretary of Defense and applied to all phase costs for FUDS projects assigned as Indexed.

6.5.2.2. Although Indexing has the potential to reduce the effort associated with estimating the environmental liability of a project, it can only be considered for projects having the following characteristics:

- The estimate previously prepared must have met the standards contained in this ***Handbook*** for estimate development, quality review, and archiving, and is documented in FUDSMIS.

- The site conditions upon which the previously completed estimate was developed must continue to reflect the project and there must be no new information that would require revision to the estimate.

- The project LCP has not been modified since the prior estimate development, quality review, and uploading to FUDSMIS.

- There are no dollars planned in the Budget Year[7] and the Budget Year plus one.

- The estimating tool that was used to prepare the project CTC estimate has not been significantly changed.

6.5.2.3. HQUSACE (CEMP-CED) will obtain and provide the multiplier used to adjust the phase level costs for all Projects assigned as Indexed. This multiplier will be applied electronically within FUDSMIS. In addition, FUDSMIS will provide documentation of the Indexing process on the Estimate Assignment Screen.

6.5.2.4. If Projects have been Indexed for several years, the District should critically review the Project to ensure conditions haven't changed that would require the existing estimate be revised or a new estimate prepared.

6.5.2.5. Indexing can only occur within FUDSMIS using the multiplier provided by HQUSACE and the process described in this ***Handbook***.

6.5.3. Indexing of the FUDSMIS LCP Data.

6.5.3.1. As discussed in paragraph 6.5.2.2, not all projects are suitable for Indexing. For those that are, the process of Indexing will use the CTC information from the previous year's submittal as a basis for revising the LCP data in FUDSMIS. Indexing will occur within FUDSMIS in late March each year and will consist of replacing the phase level in-house and contract amounts for the budget year and all outyears with new values changed by the designated Indexing multiplier.

6.5.3.2. Since the FUDSMIS LCP data will change but the estimate documentation (i.e., the estimate, QC Review Checklist, and SR Checklist) will not, FUDSMIS will provide a

[7] The default assignments are determined in July of the current year, therefore definition of budget years is based upon the current year in July.

narrative description of the Indexing process that is available from the Estimate Assignment Screen. The FUDSMIS narrative and this ***Handbook*** will provide the basis and rationale for Indexing.

6.5.4. Estimates Developed by the EM-CX.

6.5.4.1. Estimates assigned as EM-CX will be prepared by EM-CX cost engineers or by contracts awarded by the EM-CX. In-house EM-CX or contract estimators will request specific information from the District FUDS Program Manager that will be the basis for estimate development. Estimates will include all appropriate project phases for the project category as required by the ER 200-3-1.

6.5.4.2. Pre-decisional MMRP projects assigned to the EM-CX will be developed using the Military Munitions Response data in FUDSMIS. These estimates will be developed using the approved set of assumptions contained in the latest version of the Rules and Assumptions Document.

6.5.4.3. The EM-CX will develop the CTC estimates for MMRP/CWM projects and will provide the updated estimates to the District who must perform the QC Review and SR and make the appropriate entries into FUDSMIS.

6.5.4.4. EM-CX developed estimates will be provided to the Districts for their QC Review and SR. District QC Review comments will be addressed by the EM-CX and, if necessary, the estimates will be revised. Once the estimates have passed the QC Review, the project estimate will be uploaded and attached to FUDSMIS by the EM-CX using the FUDSMIS utilities, referenced in paragraph 6.9.5.

6.6. Cost Estimating Systems – How to select the correct estimating tool.

The use of automated cost estimating systems enhances the efficiency, accuracy, and credibility of CTC estimates. Automation assists in the standardization of estimating procedures and provides estimates that are easily reviewed, revised, and adapted to new projects or situations. However, automation is just the use of a computerized technique that must not replace professional cost engineering knowledge or judgment. The cost estimator should always be knowledgeable of the systems' capabilities and limitations in relation to a project. The cost estimator must be especially careful when using models and when adapting cost estimates to new projects to ensure that there are neither duplications nor omissions in the estimate. Output should be checked for reasonableness, and assumptions and methodology should be verified and documented. The best automated system is not a replacement for sound estimator judgment. Available cost estimating software programs to develop FUDS CTC_BY estimates are discussed below.

6.6.1. *Remedial Action Cost Engineering and Requirements (RACER).*

6.6.1.1. *RACER* is parametric estimating software that can be used to develop estimates for all project phases, from characterization through final closeout. At a minimum, *RACER* must be used to develop FUDS CTC_BY estimates for FUDS HTRW and MMRP projects before the

decision document is finalized and for CON/HTRW and BD/DR projects before the design is completed.

6.6.1.2. *RACER* was accredited in accordance with DoD Instruction 5000.61, Modeling and Simulation Verification, Validation, and Accreditation (VV&A). *RACER* provides an automated, consistent, and repeatable method to estimate and document the program costs for environmental cleanup of contaminated sites, and to provide a reasonable cost estimate for program funding consistent with the information available at the time of the estimate preparation.

6.6.1.3. *RACER* is used primarily to develop budgetary cost estimates in the early stages of project response actions when details are limited or not available. *RACER* uses generic cost models of cleanup systems based on historical project information and technologies to develop costs for response actions. These tailored models are then quantified and pricing is updated in accordance with the budget year costing data using a commercial environmental unit price book as a base. *RACER* will estimate costs for studies, design, remedial action, operation and maintenance, and long-term management. The most recent version of *RACER* should be used by USACE when developing FUDS CTC_BY estimates, unless otherwise approved by HQUSACE. All estimates created in *RACER* must be completed by a person who has been properly trained.

6.6.2. *Micro Computer-Aided Cost Engineering System (MII)*. MII is the standard detailed cost estimating system used by all District Cost Engineering offices. Primarily, it is used for cost estimates where detailed design information is available. MII includes a Unit Price Book (UPB) database that contains cost information on more than 21,000 unit price line items for construction labor, equipment, and material. All estimates created in MII must be completed by a person who has been properly trained.

6.6.3. *Excel Spreadsheets*. Excel is used for both less complex projects and for CWM projects for which models do not exist in *RACER*. Since the structure of an Excel spreadsheet is not standardized, risk exists that the estimates will not be properly constructed or documented. Documentation, in the form of notes and explanation, must be entered into cells in the spreadsheet to support the requirements to be replicable and traceable from the source document as well as provide narratives to support unit prices, quantities, and formulas. Because of these limitations, Excel spreadsheets should only be used for simple projects where the sophistication of *RACER* or MII is not appropriate or for CWM projects where *RACER* models are not available.

6.7. An Overview of the Quality Review of CTC_BY Estimates.

6.7.1. The FUDS Engineer Regulation 200-3-1, paragraph 7-1, requires that each Division develop a Division Quality Management Plan (QMP) for property, project, and phase information. The Districts' quality management processes are components of the Division QMP. Specifically, the CTC_BY estimate process is required to be an element of the Division QMP.

6.7.2. Districts use the Division QMP, to identify the details and frameworks of building quality into their process of developing FUDS Project CTC BY estimates. They then develop the CTC_BY estimates according to the plan, adapting to changing conditions and modifying

their plans to ensure CTC estimate development quality objectives are met. Districts perform independent QC Reviews and SRs of **each** estimate to ensure that the stated quality objectives are being met. The intent of the QC Review is to examine the estimate from a technical point-of-view, to ensure that the estimate is properly prepared; reflect what is known about the project; is representative of the project; and, ensure that the person developing the estimate is qualified by experience and training. The intent of the SR is to ensure the estimate includes only appropriate future costs and is accurately reflected in the LCP in FUDSMIS.

6.7.3. Divisions conduct periodic in-progress and QA Reviews to evaluate the District's QC processes, to share lessons learned, and to facilitate continuous improvement. During these reviews, Divisions use management oversight and verification to identify obstacles preventing Districts from developing quality CTC_BY estimates. Divisions systematically analyze the District's processes to identify problems affecting the development of CTC_BY estimates. Specific corrective actions are taken to remove these barriers and to incorporate improvements leading to a refinement of the overall quality of the CTC_BY estimates.

6.7.4. This ***Handbook*** provides the basic framework upon which the QC Review and SR are conducted. Offices performing the QC Review and/or SR should develop and use a QC Plan that identifies roles and responsibilities for estimate assignment, development, review, archiving, and other relevant steps. The Qualification Statements for EM-CX personnel are included in Appendix D of this ***Handbook*** and should be appended to the District's QC Plan if EM-CX personnel are directly involved in the development or review of estimates for a District.

6.7.5. The QC Review and SR will be completed and recorded within FUDSMIS. The questions contained in these two reviews along with instruction on how to answer the questions are included in Appendix C. Following completion of each review, the reviewer will electronically sign their form in FUDSMIS to signify their agreement with the findings represented on the forms.

6.7.6. Following the successful completion of the QC Review, SR, and QA Review, and until the download within FUDSMIS for the POM Exhibits during the first week in April each year, FUDSMIS will be used to monitor changes in the BY and beyond portion of the LCP. If the District attempts to add or delete phases or change phase amounts in the BY and beyond portion of the LCP by $1,000 or more, FUDSMIS will advise that doing so will invalidate the QC, SR, and QA. If the District continues with the change in FUDSMIS, the existing CTC_BY estimate must be revised or a new estimate prepared, the QC Review conducted, the phase cost data entered into FUDSMIS, the new or revised estimate attached to FUDSMIS, and the SR and QA conducted for the new or revised estimate.

6.7.7. Successful completion of the QC, SR, and QA Reviews for each FUDS project estimate is critical. Only those approved FUDS projects that have successfully passed the QC Review, the SR, and the QA Review process prior to preparation of the POM exhibits in early April will be: (a) used to determine the initial fiscal allocation of FUDS funding to each Division for updating the Future Year Defense Plan/Life Cycle Plan (refer to ER 200-3-1, paragraph 6-1.1.2.2), (b) included in the approved BY Annual Workplan, and (c) reported in the current year FUDS Environmental Liability Report.

6.7.8. Figure 3 illustrates the framework of estimate assignment, preparation, and review for new and revised estimates where Indexing is not an appropriate option.

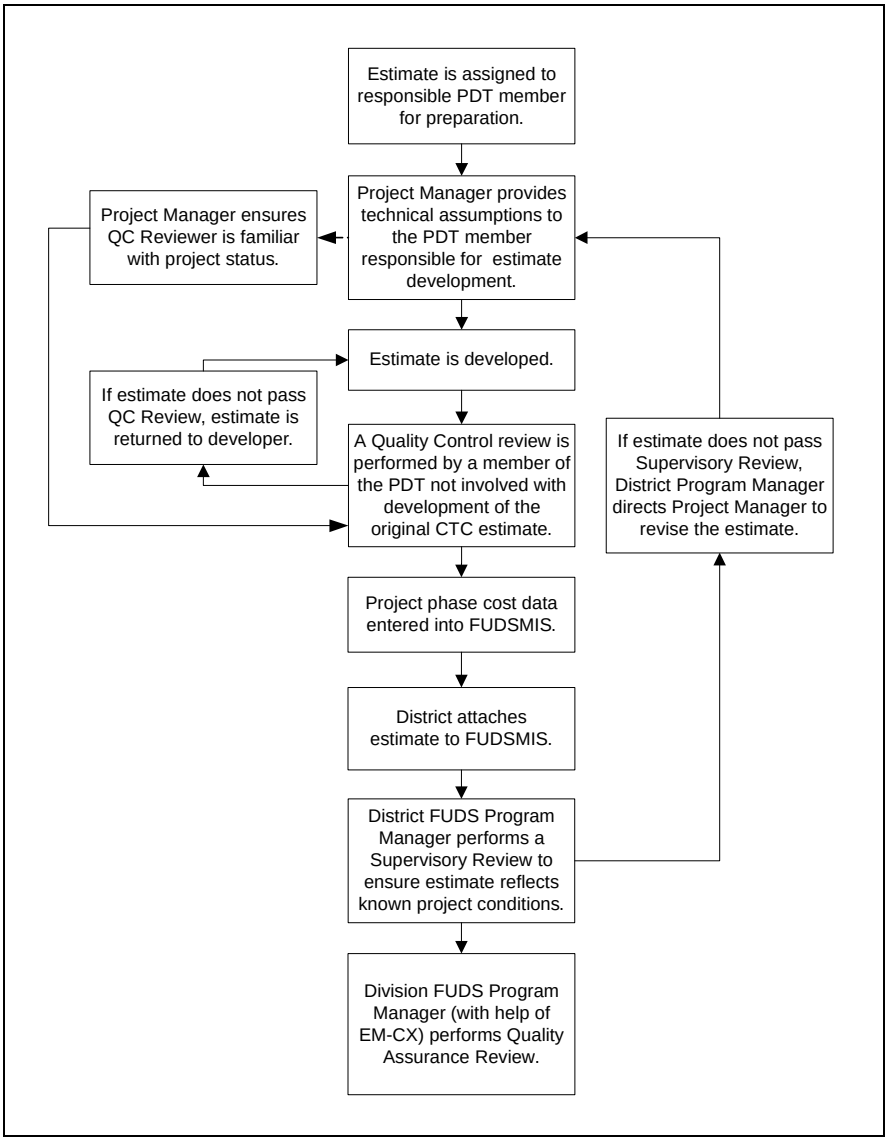

Figure 3. Framework of Estimate Assignment, Preparation, and Review for New and Revised Estimates where Indexing is not an Option.

6.8. Quality Control (QC) Review Functionality within FUDSMIS.

6.8.1. The PgM or PM is responsible to ensure quality in the developed estimate. When a project manager has not been assigned to a project, the District PgM will assume these duties. As head of the quality control team, the PM will assign responsibility for the QC Review to an

independent member of the PDT not involved with the development of the original estimate. The QC Reviewer will review the estimate from a technical point-of-view to ensure that the estimate is properly prepared and the person developing the estimate is qualified by both education and experience. This education must include successful completion of the estimating software courses and of a FUDS Environmental Liability training that is offered annually through the EM-CX, and the results recorded in FUDSMIS[8]. The PM must ensure the QC Reviewer is current with the status and other issues related to the project and is designated as a QC Reviewer within FUDSMIS. FUDSMIS contains a table (managed by the EM-CX) of USACE personnel that have successfully completed the FUDS Environmental Liability Training and will limit the QC Review to be performed only by personnel in this table. Contact the EM-CX to add or delete names in the table.

6.8.2. A Quality Control Review screen is available in FUDSMIS to record the responses to the questions shown in Appendix C of this ***Handbook***. Entering the CTC estimate into FUDSMIS occurs following successful completion of the QC Review. Successful completion of the QC Review is a predecessor requirement before the PM can perform the SR on the project estimate. Refer to Appendix C for more information concerning the QC Review questions.

6.8.3. The QC Review must be completed according to the schedule shown in Section 6.3, Table 2 above to allow for completion of the SR and QA, which are dependent on the successful completion of the QC Review.

6.9. Entering LCP Data and Archiving the CTC Estimate.

6.9.1. Following the successful completion of the QC Review, the District must upload the phase cost information from the estimate into FUDSMIS and attach the estimate in FUDSMIS. Phase cost data can be manually or electronically entered into the LCP of FUDSMIS. Currently, RACER estimates are the only estimates that can be electronically uploaded to the LCP by using the Estimate Documentation Report (EDR) and FUDS Post Processor (PP) Utility discussed in paragraphs 6.9.5.1 and 6.9.5.2..

6.9.2. The LCP must be populated for the Budget year and beyond with phase totals that are in current year dollars, match the estimate, and has passed the QC Review. Therefore, the user must make sure that the phase cost and total cost in FUDSMIS match the supporting estimate that will be attached in FUDSMIS (see paragraph 6.9.3.). Differences between the FUDSMIS LCP and the supporting estimate must be less than $1,000 (to account for rounding) at the phase level in order for the project to pass the Quality Review criteria.

6.9.3. The next step is attaching a single file to FUDSMIS that contains the estimate that will be used for audit purposes. A copy of this estimate may be placed in the district's project files for informational purposes once all the steps of the CTC process are completed. The type of file to be attached to FUDSMIS will vary with the software that is used to develop the estimate.

[8] FUDSMIS can only be used to record the completion of environmental liability training for individual having rights to access the FUDSMIS database. Contact the ACE/IT Enterprise Service Desk (ESD) to obtain these rights

6.9.3.1. For estimates developed with ***RACER***, attach the ***RACER*** EDR that matches the CTC_BY estimate entered in the LCP. The EDR should be created using the EDR and FUDS Post Processor Utility. The typical naming convention for the file will contain the nine digit property number, two digit project number, current year, and a hash-val number appended to the end (example: C03DE0064_02_FY09_CTC~123077.1164.rtf). This hash-val number is computer generated and unique to each EDR and plays an important role in the Supervisory and QA review processes. When the estimate is attached in FUDSMIS the system recognizes this hash-val number, and automatically answers question 2 of the SR and question 1 of the QA review. It is important that the user not change or delete this hash-val number from the file name. This is further explained in Appendix C, paragraph entitled, "**Entering LCP Data and Archiving of the CTC Estimate."**

6.9.3.2. Estimates not developed in ***RACER*** must also be attached to FUDSMIS. FUDSMIS will only allow file types with doc, rtf, xls, and pdf[9] file extensions to be attached. These non-***RACER*** estimates must display project costs by phase with a total project CTC amount and meet the standards outlined in Appendix B of this ***Handbook*** that contains the guidance document entitled ***"Instructions For Developing FUDS CTC Estimates."***

6.9.4. To allow information to be organized in FUDSMIS, Districts must use the following file naming convention for the estimates attached to FUDSMIS:

PropNum_ProjNum_FY<Insert Current Fiscal Year>_CTC.(xls)(doc)(pdf)(rtf)

The following correct naming convention is an example for an estimate developed in Microsoft Excel:

C02NJ0084_02_FY09_CTC.xls

6.9.5. The following utilities are available for use by Districts to expedite and facilitate the processes discussed above:

6.9.5.1. ***Estimate Documentation Report and FUDS Post Processor Utility.*** This stand-alone utility is available which will quickly generate *RACER* Estimate Documentation Reports for attaching to FUDSMIS along with the xml file for uploading to the FUDSMIS LCP using the *RACER* to FUDSMIS Upload Utility. To operate the utility, the user selects a *RACER* database containing one or more *RACER* estimates to be archived in FUDSMIS. Once the database is selected, individual EDRs along with the xml file are created. The individual EDR files will be named automatically in accordance with the FUDSMIS file naming convention with a hash-val number appended on the end. A hash-val number is a computer generated number that is used to facilitate uploading of the costs and assisting in the Supervisory and QA Reviews. This is discussed further in Appendix C. The xml file must be used to upload phase costs in the LCP prior to attaching the EDR file to FUDSMIS for archiving purposes. The benefit of using this stand-alone utility to create the xml file in lieu of the xml file that is created within *RACER* is that the stand-alone utilities guarantees that the project and phase level total amounts for these

[9] Files with these extensions are created by Microsoft Word (doc and rtf), Microsoft Excel (xls), and Adobe Acrobat (pdf) applications.

EDR and xml files match. In addition, part of the SR and QA Review questions will be completed automatically, as discussed in paragraph 6.9.3.1 and Appendix C of this ***Handbook***.

6.9.5.2. *RACER CTC to FUDSMIS Upload Utility*. FUDSMIS provides the capability to electronically upload to the Project LCP phase cost information in the xml file produced by the EDR and FUDS Post Processor Utility discussed above. The FUDSMIS utility allows the user to browse to locate the xml file on their computer containing the *RACER* data to be uploaded. Once the xml file has been located, the upload utility will replace the existing phase cost data in the LCP with the data in the *RACER* upload file. The phase costs in the upload file will be proportionately placed in the same year(s) as shown in the existing project LCP plan. Prior to uploading to the LCP, the utility will perform quality checks to ensure the estimate includes appropriate phase names and phase types for the category of FUDS project.

6.9.5.3 *FUDSMIS Estimate Attachment Utility*. An electronic copy of each estimate supporting the LCP must be attached to FUDSMIS for archiving purposes. These files must be uploaded to FUDSMIS using a utility within FUDSMIS. After opening the utility, the user will be asked to identify a folder on the user's computer where the files to be uploaded are located. These files must be named in accordance with the naming convention described in 6.9.4 above. Any file that is not appropriately named will be rejected.

6.10. Supervisory Review (SR).

6.10.1. SR is performed by the District FUDS Program Manager (PgM) after the QC Review is complete, the estimate data has been entered into the LCP, and the estimate has been attached to FUDSMIS. The FUDS PgM must conduct the SR within FUDSMIS. Within the District, the FUDS PgM is the functional equivalent of the supervisor of Project Managers executing FUDS projects. In this capacity, the FUDS PgM has familiarity with the projects being reviewed and has equivalent education and experience qualifications of the PM. This education must include successful completion of the FUDS Environmental Liability (EL) training that is offered annually through the EM-CX and recorded in FUDSMIS[10]. FUDSMIS contains a table (managed by the EM-CX) of USACE personnel designated as the District FUDS PgM and alternates. FUDSMIS will limit the SR to be performed only by personnel in this table and that have successfully completed an FUDS EL Training.

6.10.2. Successful completion of the SR requires all questions to be answered as 'Yes' on the SR screen in FUDSMIS. Answering SR questions as 'No' will automatically remove the previously completed QC Review. This will necessitate the estimate be corrected and the QC Review and SR to be performed again. There are either two or three questions to be answered for the SR. If the LCP entries vary more than 10% from the previous year's entries, FUDSMIS will calculate this difference and will add Question 3 to the SR form. The definition of greater than 10% change is as follows: Current estimate for BY and beyond varies by 10% from the previous estimate for the BY+1 and beyond. Refer to Appendix C of this Handbook for details on SR question explanations.

[10] FUDSMIS can only be used to record the completion of environmental liability training for individual having rights to access the FUDSMIS database. Contact the ACE/IT Enterprise Service Desk (ESD) to obtain these rights.

6.10.3. Following the successful completion of the QC Review and SR, FUDSMIS will continuously monitor for changes in the BY and beyond portion of the LCP. If the District attempts to add or delete phases or change phase totals in the BY and beyond portion of the LCP by more than $1,000, FUDSMIS will advise that doing so will remove the QC Review and SR. If the District continues with the change in FUDSMIS, the entire CTC process must be performed again. This includes revising the CTC_BY estimate, conducting the QC Review, entering the new the phase cost data into FUDSMIS, attaching the revised CTC_BY estimate to FUDSMIS, and conducting the SR on the revised estimate.

6.11. Quality Assurance (QA) Review.

6.11.1. Following the successful completion of the QC Review and SR the USACE Division will perform a QA Review of the estimate development process for their Districts. Within the Division, the FUDS Program Manager bears the responsibility for this effort, but is often assisted by the EM-CX.

6.11.2. The QA Review will consist of the following:

6.11.2.1. Performing a review of each District's projects to verify that each project has a CTC_BY estimate attached to FUDSMIS that is consistent with the BY and out portion of the LCP in FUDSMIS. To successfully pass this review, the difference between the estimate and the BY and out portion of the LCP at the phase level must be less than $1,000.

6.11.2.2. Performing a detailed review of the District's estimate development process on selected individual estimates. This will be achieved by reviewing and testing a statistically representative percentage of each District's project estimates to ensure the estimates meet estimating standards, are documented, provide an audit trail, and that the estimate preparers are properly trained and experienced. The QA Review will identify actual or potential weaknesses that are to be addressed before the start of the CTC_BY estimate development in the following year. The results of the QA Review will be recorded and archived in FUDSMIS. Appendix E contains the EM-CX QA Plan and QA questions for performing the QA Review.

6.11.3. The preliminary results of the QA Review will be available in FUDSMIS as the QA Reviews are completed and prior to the data call for the Divisions' and Districts' examination. This will allow the Divisions and Districts to take appropriate actions to successfully complete the CTC process.

6.11.4. Following completion of the QA Review, an After Action Report will be developed containing the findings of the process review. The completed Report will be provided to HQUSACE and attached to FUDSMIS.

6.11.5. Qualification statements for EM-CX personnel involved in the QA Review are provided in Appendix D.

6.12. Use of the CTC_BY Estimates to Support the Planning, Programming, and Budgeting (PPB) and the preparation of Program Objective Memorandum (POM), the Environmental Liability Report (ELR), and the Annual Report to Congress (ARC).

6.12.1. The submission of the POM, ELR, and ARC hinges on the successful completion of the CTC Process outlined in this ***Handbook***. Each project within FUDSMIS is considered to have successfully completed the CTC process when the following have been accomplished:

- The QC Review was successfully completed and recorded in FUDSMIS.
- The CTC_BY Estimate supporting the BY and beyond portion of the LCP was attached to FUDSMIS.
- The SR was successfully completed and recorded in FUDSMIS.
- The QA Review was successfully completed and recorded in FUDSMIS.

6.12.2. FUDSMIS designates each project meeting the requirements in 6.12.1 as "QSA." Only those projects so designated[11] will be included in the planning, programming, and budgeting toward establishment of the official FYDP/LCP used for preparing the POM, BES, PB, Official AWP, ELR, and ARC.

6.13. Monitoring of the QSA'd CTC_BY Project Phase Totals in FUDSMIS during the Program Development Period.

6.13.1. The FUDS Program Development period is from early April through early July each year. At the beginning of this period, FUDSMIS will physically move non-QSA'd projects from the LCP to a temporary table during the Program Development period. In this way, only QSA'd projects will remain in the LCP for programming and budgeting. Additionally, FUDSMIS will prevent changes to projects' LCP phase totals supported by a QSA'd CTC_BY without Division approval. The purpose of preventing changes to the LCP for the BY and beyond without division approval is to ensure the CTC_BY remains properly supported. At the end of the Program Development period, HQ will instruct ERDC to download a copy of the LCP and assign a Data Call Identification (DCID) number.

6.13.2. During the Program Development period, FUDSMIS will prevent the addition or deletion of phases or changes to the phase total amounts by $1,000 or more in the BY and beyond for the projects designated as "QSA." However, the District Program Manager may request to change the CTC_BY for a project during the Program Development Period in FUDSMIS by contacting the Division Program Manager. The Division Program Manager may allow the change and enable the LCP for the project to be changed. See Appendix C, "FUDSMIS Cost to Complete (CTC) Process Navigation and Instructions," for detailed FUDSMIS instructions.

[11] FUDS Project CTC estimates do not include costs for FUDS pseudo projects. FUDSMIS uses pseudo projects to manage and track expenses for property level non-response activities, such as the Preliminary Assessment (PA), Restoration Advisory Boards (RAB), Technical Review Committees (TRC), Technical Assistance for Public Participation (TAPP), and Management and Support (M&S). Estimates for pseudo projects are based on historical information and the project manager's experience. Pseudo projects are not identified in the Inventory Project Report. Refer to ER 200-3-1, Appendix F.

6.13.3. Division Program Managers may, in rare cases, allow Districts to revise the CTC_BY for QSA'd Projects during the Program Development period. These instances will not be the norm and must be reserved for exceptional circumstances that mandate action. If the Division Program Manager allows a revision resulting in a change in a phase total amount exceeding $1000, the Project will be removed from the LCP table. When the revised CTC_BY, based on a properly prepared estimate, is entered into FUDSMIS, the Project will have to successfully pass the QC Review, SR, and QA Review in FUDSMIS in order to be added back into the LCP table. Due to the timing of these exceptions, the District will perform the QC Review and SR and the Division FUDS Program Manager with assistance from the EM-CX will conduct the QA Review.

6.13.4. Following the early July download of the POM balanced LCP (DCID'd LCP), the QSA'd CTC will not be monitored, allowing Divisions and Districts to revise the Project costs as deemed necessary.

6.14. Archiving the FUDSMIS Data Set.

6.14.1. As stated above, in early July each year, a copy of the LCP table is used to report the environmental liability of the FUDS program for that year. The FUDS environmental liability reported at this time is subject to future audits. Therefore, it is critical that the data which supports the Project liabilities contained in this ELR is archived so that it can be easily retrieved for review by auditors.

6.14.2. Archiving will be accomplished by storing the following information on the FUDSMIS database in a secure location such that the data cannot be modified but yet can be retrieved to support audits:

- Project Estimate Development Assignment List
- LCP Table
- CTC Estimates attached to FUDSMIS for archiving
- The results from the Quality Control, Supervisory, and Quality Assurance Reviews
- Records supporting EL and *RACER* Training and Administrative Records
- The current version of the FUDS ER 200-3-1, FUDS Program Policy
- The current version of this ***FUDS Cost-To-Complete Handbook***,
- Training materials used to conduct the EL and *RACER* Training
- The current version of the *RACER* Software and other related software utilities
- The MMRP Rules and Assumptions Document
- After Action Report

7. Points of Contact.

The following personnel are the primary points of contact for CTC estimate preparation, review, and overall coordination at HQUSACE and the EM-CX.

7.1. HQUSACE.

Julian Chu
HQUSACE FUDS Program Manager
CEMP-DE
202-761-1869

7.2. Environmental and Munitions Center of Expertise.

Kate Peterson – Overall FUDS Program Support /Outyear MMRP Projects Estimates
EM-CX FUDS Program Manager
CEHNC-CX-EC
402-697-2610

Rick Osborn – Overall CTC Support
EM-CX Cost Engineer Team Lead
CEHNC- CX-EG
402-697-2426

Points of Contact for Divisions and Districts:

Rick Osborn – For NAD, NWD, POD, and SWD,Divisions and Districts
EM-CX Cost Engineer
CEHNC-CX-EG
402-697-2426

Terry Tomasek – For LRD, SAD, AND SPD and Divisions and Districts
EM-CX Cost Engineer
CEHNC-CX-EG
402-697-2590

Kim Respeliers - For NAD, NWD, POD, and SWD,Divisions and Districts
EM-CX Cost Engineer
CEHNC-CX-EG
402-697-2464

Jeff Lester – For SPD, SAD, and LRD Division and Districts
EM-CX Cost Engineer
CEHNC-CX-EG
402-697-2575

Jim Peterson – For SPD Division and Districts
EM-CX Cost Engineer
CEHNC-CX-EG
402-697-2656

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Appendix A

References

A-1 United States Statutes.

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Appendix B

Instructions for Developing FUDS CTC Estimates

These Instructions provide directions and systematic procedures for developing and updating CTC estimates with the *RACER* software. Following these instructions will facilitate development of estimates that are creditable, defensible, and able to pass the Quality Control, Supervisory, and Quality Assurance Reviews. Further, in order to use the *RACER* Post Processor and Batch Upload Utilities, **the phase naming conventions and other requirements outlined in these Instructions must be strictly followed**.

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APPENDIX B
INSTRUCTIONS FOR DEVELOPING FUDS CTC ESTIMATES

1.0 Purpose

In an effort to aid the districts in developing creditable and more defensible estimates for the FUDS program, the following instructions are provided. These instructions include step-by-step procedures and requirements for developing Cost to Complete (CTC) estimates with the RACER software. RACER software is released yearly with enhanced functionality; therefore, some of the functionality and screens may have been modified since the completion of this document. The intent of this document is to enhance the estimating process to help the districts pass future audits of the FUDS program.

2.0 Updating Previously Developed Estimates for Projects to Current Year Dollars

A previous year's estimate is often used as the starting point for completing a CTC estimate for the current budget year. This estimate, must at least, always be updated to reflect current year pricing. In addition, some of these previously developed estimates will undergo more extensive changes in order to update them to reflect current project conditions. The following instructions will provide information on how to update a previously developed estimate to current year dollars and to incorporate more extensive changes. Revisions made to the estimate should be accomplished in accordance with Section 3 below for developing an estimate.

For project estimates created in MCACES, EXCEL or formats other than RACER, the details of the estimate must be reviewed to determine if the escalation factor from the year the estimate was created to the current year is applicable, and if applicable, the escalation factor must be applied to the estimate. Escalation factors are provided from HQUSACE. These estimates must also include the documentation features listed in Section 3 with regards to property, project, and phase descriptions,

For RACER-developed estimates, an escalation factor does not need to be applied if the estimate is "updated" using the most current version of RACER. Updating an estimate in RACER re-prices the estimate in current year dollars by re-pricing all the RACER assemblies used in the estimate to the current pricing that is incorporated in the RACER assembly database.

To update previous year RACER estimates, the estimator must open the existing database in the most current version of RACER or import the estimates into the most current version of RACER. The RACER system will first upgrade the estimates. Upgrading essentially makes the estimate

viewable within the new version of RACER and does not update prices at this point. After the upgrade process is complete, the estimator will be prompted to price level the estimates as shown in Figure 1. The estimator has the choice to close this prompt and price level at a later date; although, performing the price level at this time is recommended. The estimator also has the choice to price level all the estimates at once or select only certain estimates to price level. When the estimator chooses the estimates to be price leveled, the RACER system will re-calculate all the assemblies in the estimate with the new costs database. Once this is completed the estimate will be in current year dollars.

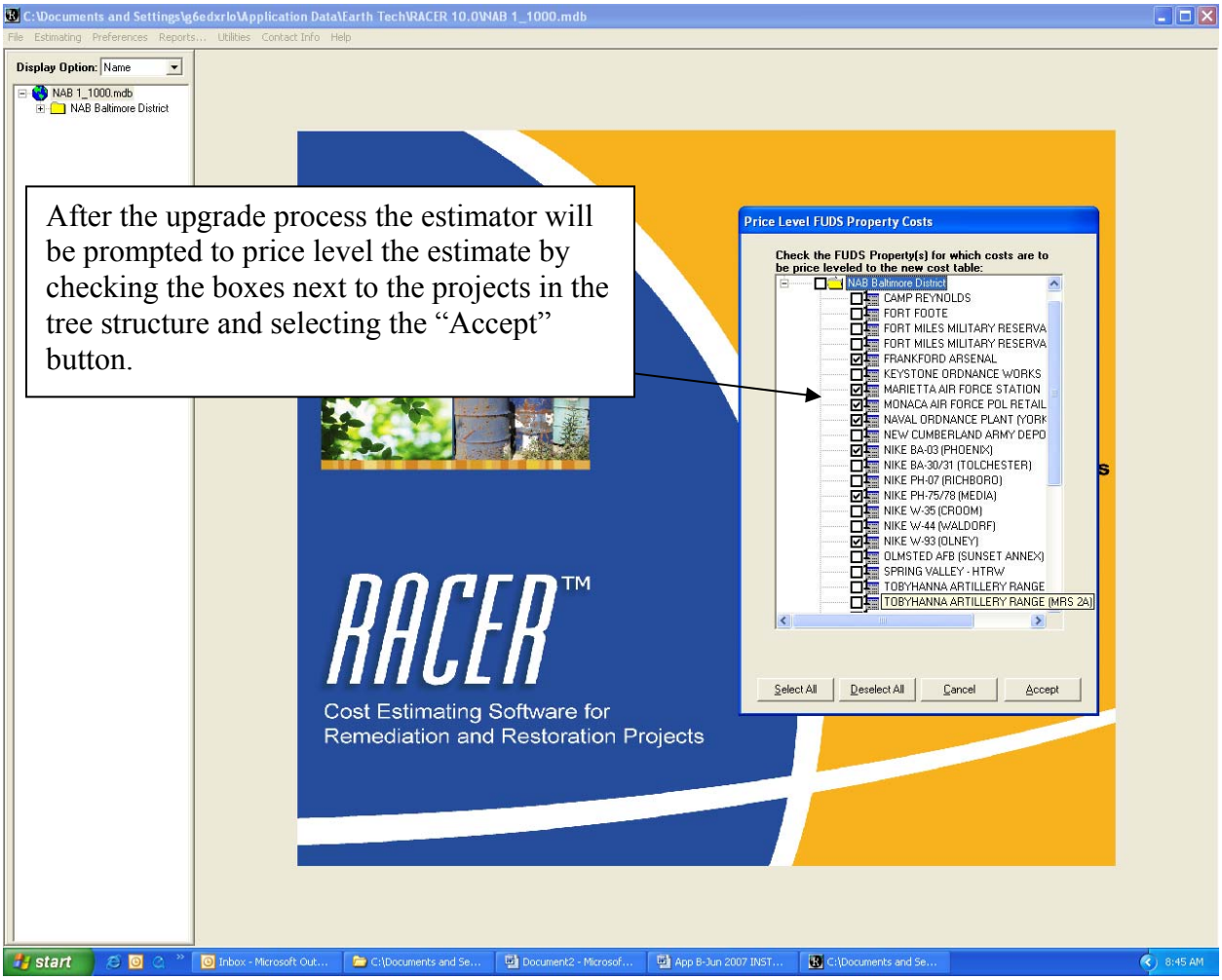

Figure 1. Screen shot showing Price Level prompt

In addition to updating project estimates to current year dollars, an estimate may require additional updating to capture model changes. At times within RACER, models may have changed from previous versions, and to capture these changes requires unique update procedures. A complete list of models that have changed within RACER will be noted in the "What's New" section of the RACER Help Manual. The changes to models will not be incorporated in the estimates until the particular model is re-run. When updating a previous estimate the model changes should be reviewed to determine if the changes should be incorporated into the estimate.

To re-run a model, the user will have to go into a secondary parameter screen, change a secondary parameter selection and then change it back in order to activate the "accept" button. It's critical that the user change a secondary parameter and not a required parameter, because if a required parameter is changed the RACER model will change any secondary parameter(s) back to its original default. Once the accept button is activated select accept, save and close the model. As an alternate method, the user may choose to re-run a model by re-entering **all** the required and secondary parameters. This method is usually forced by the system when a model goes through extensive changes. Meaning that when a project is upgraded from an older version into the new the version; the models are no longer compatible and must be re-run to calculate costs for that model. Typically, during the upgrade process, the system will save as many parameter inputs as possible and input them into the appropriate fields of the revised model. For a list of those models please refer to the 'What's New' section of the RACER Help file.

When revising previous estimates they should be reviewed to ensure they meet the requirements in Section 3 below for developing estimates. Although Section 3 focuses on using RACER to develop the estimates, the documentation requirements listed in this section are still required for other estimating methods.

3.0 Instructions for Developing CTC Estimates

The following are general instructions for developing more creditable and defensible RACER CTC estimates. This document outlines specific requirements that must be incorporated in the RACER estimates in order for electronic uploading of the estimate into FUDSMIS. These specific requirements are shown in ***'bold Italic'***. To create the necessary files from the RACER estimate to electronically upload estimates to FUDSMIS, it is recommended that the estimator use the external post processor called Estimate Documentation Report and FUDS Post Processor (EDR/PP) Utility. RACER contains a similar utility that will create the same files; however, the external utility is the recommended choice because it has better capability. The Post Processor is a utility feature that provides the district a report, which shows the estimate phase costs and their associated start dates as determined from the estimate. The Post Processor also provides an electronic "xml" file that can be used to upload phase costs into FUDSMIS. Please ensure the RACER estimates incorporate these ***'bold Italic'*** requirements below so they will be compatible with running the post processor.

- **RACER Preferences:** - The Preference feature must be utilized when developing estimates in RACER. The specific preferences that must be utilized are the **Level Names, Level Two Types, and the Markup Templates**. Preferences in RACER must be modified or imported to ensure correct FUDS nomenclature is used for the level names and that the correct project categories are added to the level two types. The Level Names in the preference in RACER are as follows: Level One will be called "***FUDS Property***", Level Two will be called "***Project***" and Level Three will be called "***Phase***". Level Two Types include the following selections: ***MMRP, HTRW, CON/HTRW, BD/DR, PRP/MMRP, and PRP/HTRW***. Also, the RACER Preference menu is where the user can develop new Markup Templates to be used in estimate development.
- Paragraph 3.3, Table 2 provides an example of suggested phase markup percentages for contingencies and owners costs, which should be incorporated into a FUDS Markup

Template and used in the CTC estimates. If a district has specific Markup Templates created to support their district, however, they can be utilized as well. The main point is that the RACER default Markup Template cannot be used because it does not include contingencies. The EM-CX has developed two suggested markup templates; one for estimating only the PCO phase and, the other to be used for estimating all other phases. The FUDS specific Preferences and Markup Templates can be obtained from the EM-CX for import into RACER. If the import file is needed, contact Rick Osborn at (402) 697-2426.

- **Folder Names** – Folders (Level 0 in the RACER hierarchy) will be named using the three-letter abbreviation for the USACE District. Example: Omaha District would be 'NWO'.
- **Level Names** – As described above, the default names for the first three RACER estimating levels will be standardized as follows as a result of importing the preferences into RACER or manually changing the level names:
    - Level 1 – FUDS Property
    - Level 2 – Project
    - Level 3 – Phase

3.1 RACER Level One CTC Estimate Requirements

- ***The "FUDS Property" field must be the nine digit number assigned to the property as identified in FUDSMIS and Figure 2.***
- ***The "FUDS Property Name" field must be identical to that identified in FUDSMIS.***
- The "Property" category field input will be <none>.
- "Location Modifiers" will be the state and closest city or installation the project is in or near. If a match cannot be found, then the state average can be used. If for some reason the estimator changes the default location factors, documentation for the basis of the change must included in the description field. However, it is recommended that these modifiers not be changed.

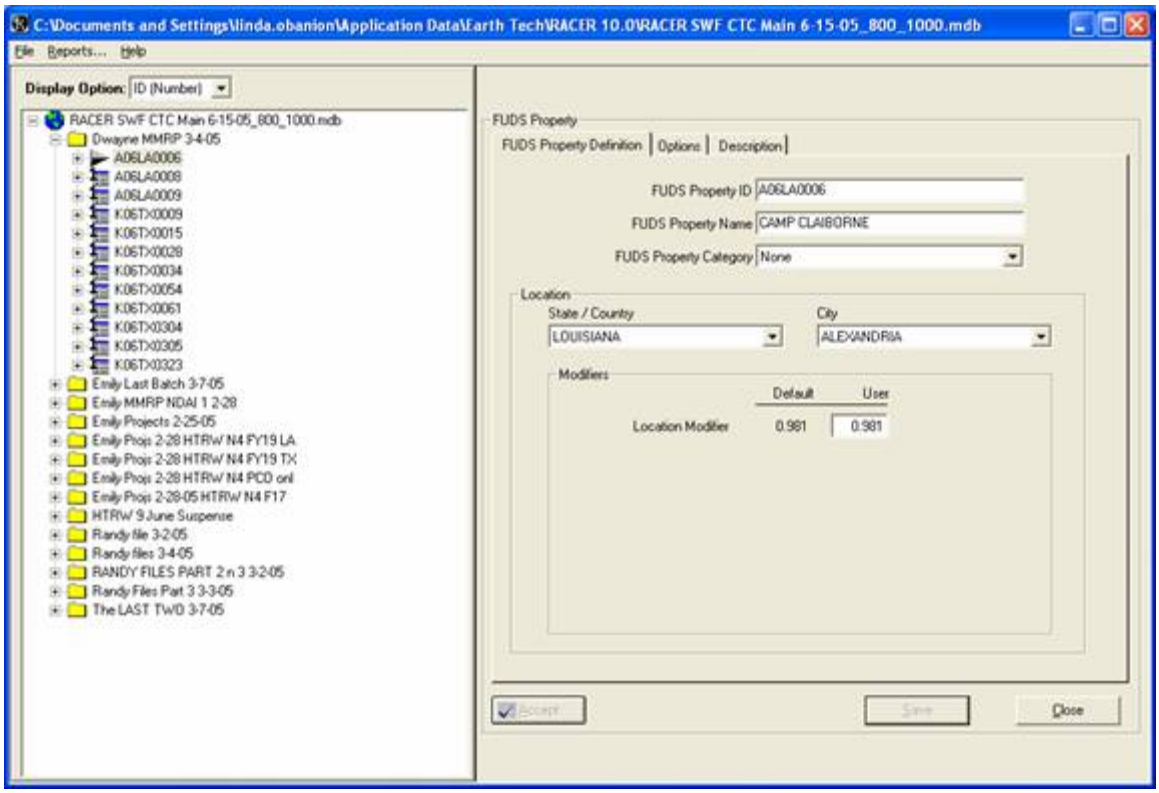

Figure 2. Level 1 RACER Screen (FUDS Property Definition tab)

- "Cost Database" field will utilize <System Costs> or <Modified System Costs> selection in RACER and will reflect the most current cost database year (see Figure 3).
- "Reporting Option" field will use the <Fiscal Year> reporting option.

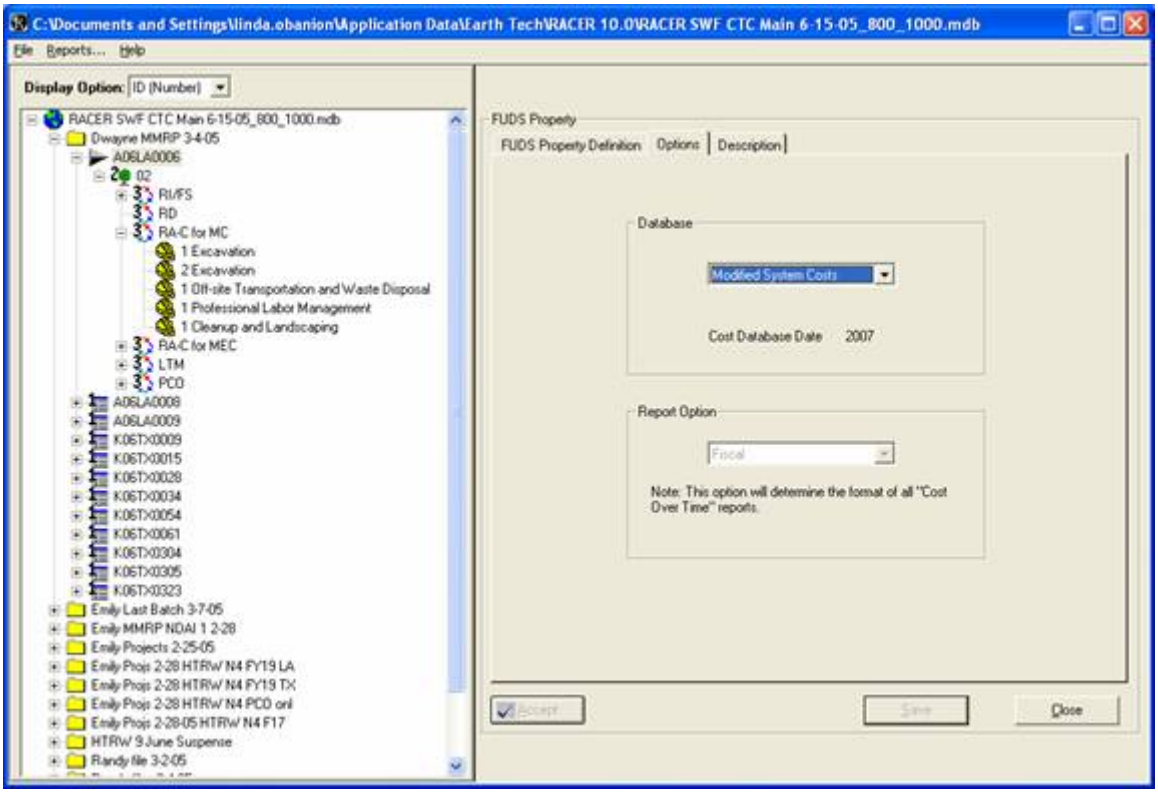

Figure 3. Level 1 RACER Screen (Options tab)

- The "Description" field must contain property level documentation to include various aspects of the property, Figure 4. Much of the information needed to fill out the property description can be obtained from the INPR, FUDSMIS, or other appropriate documents. Required Information that will be captured in the Description field are:
    - A brief narrative that describes the property history
    - Location of property
    - Criteria for selection of the location modifier if not an exact match, and if for some reason the estimator changes the default location factor, documentation as to the basis for the change must be included in the description field, and
    - Other instructions, if any, provided by the District PM

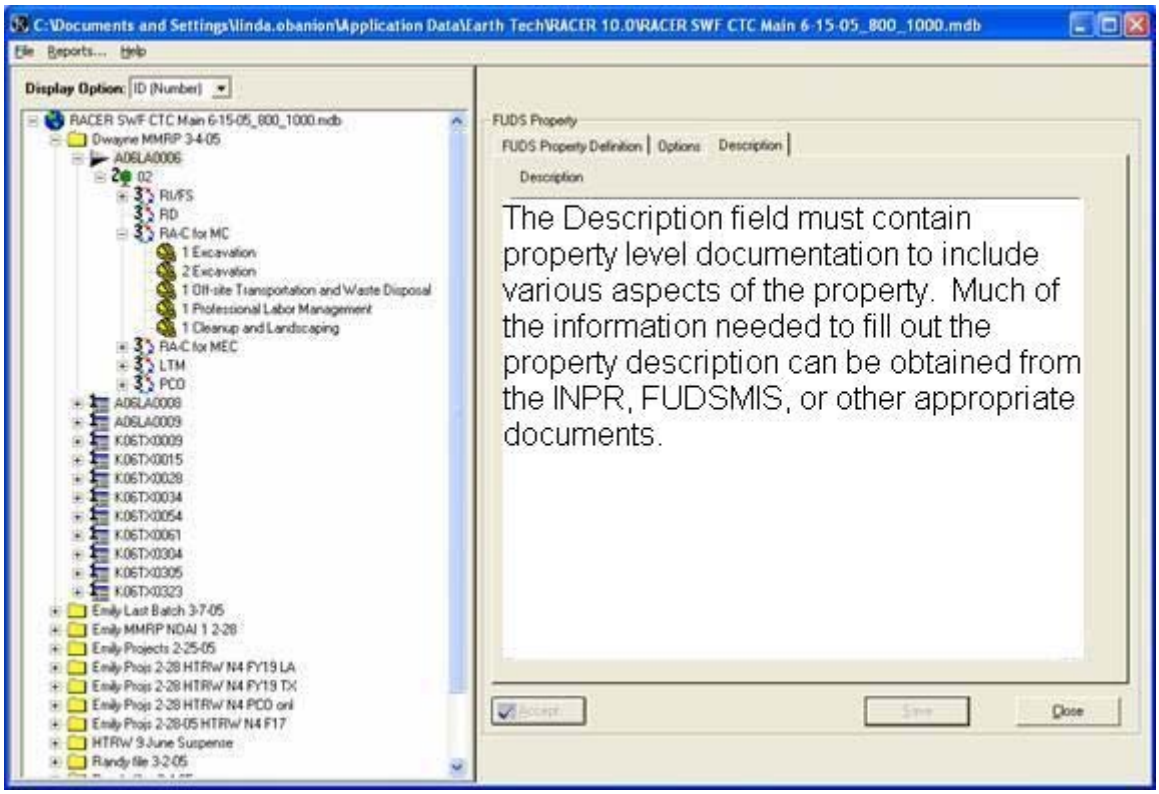

Figure 4. Level 1 RACER Sreen (Description tab)

3.2 RACER Level Two CTC Estimate Requirements

Within RACER there are two ways to create a new estimate, either manually or through the use of templates. In either case, the RACER fields and screen shots shown below are examples of what must be filled out to make the estimate fully documented. The screen shots are based on using the "manual" method to setup the estimate. If the "template" method is used, the basic screens will look the same, and required information will also be the same. The only difference is that when using the template method, the phase names will be established with the correct FUDS nomenclature for the user which is why the template method is better to use to set-up a new estimate.

For the screen shot in Figure 5 the following are instructions on filling out the screen:

- ***The "Project ID" field must be the two-digit number assigned to the project as identified in FUDSMIS.***
- ***The "Project Name" field must be as identified in FUDSMIS.***
- ***The "Project Type" field input must be that of the type of project being estimated as identified in FUDSMIS (MMRP, HTRW, CON/HTRW, BD/DR, PRP/MMRP, and PRP/HTRW).***
- A Primary Media/Waste type must be selected from the RACER list.
- A Secondary Media/Waste type can be selected if appropriate for the project, but this field is not required to be filled out.
- A Primary Contaminate type must be selected from the RACER list.
- A Secondary Contaminant type can be selected if appropriate for the project, but this field is not required to be filled out.
- The user must select a method for building the estimate. As stated above, the two choices are 'manual' and 'template'. The template method is recommended because it brings in the correct phase names, and the appropriate phases for the user. If an estimate was initially developed without using the template method the user will not have the option in RACER to switch to the template method during revisions of that estimate.

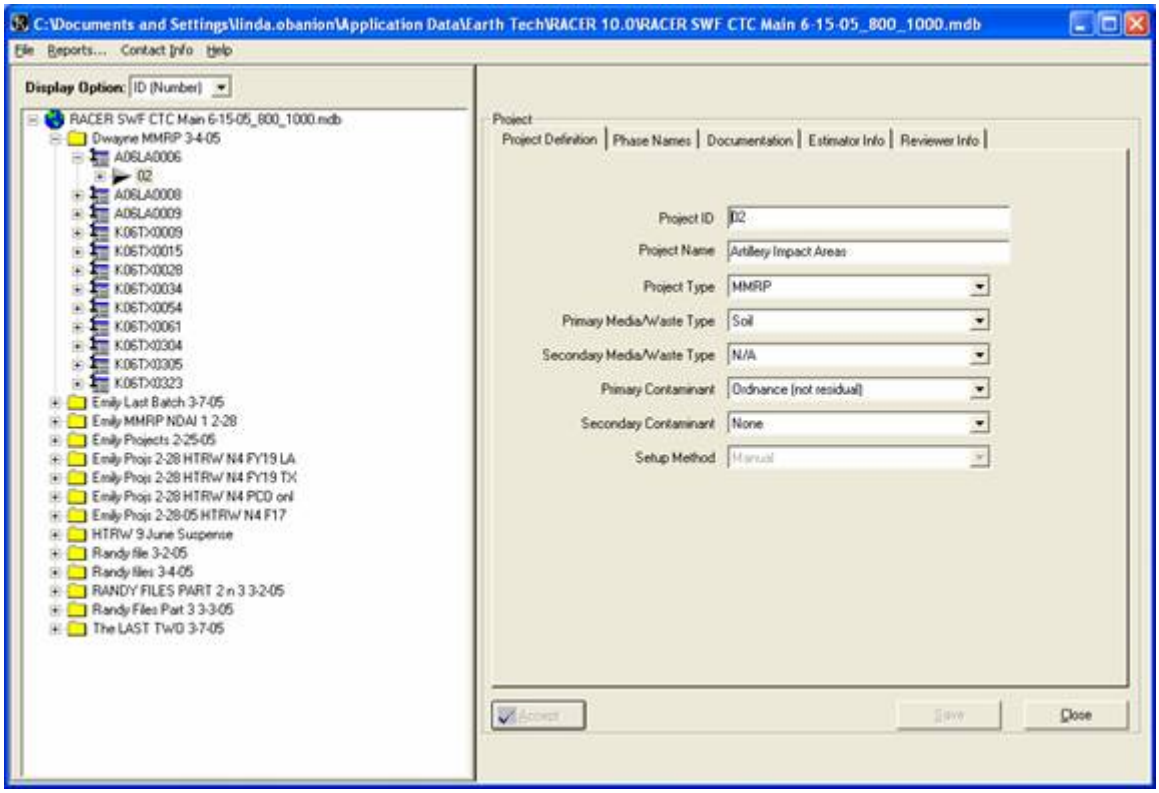

Figure 5. Level 2 RACER Screen (Project Definition tab)

Level two of the RACER hierarchy is also where the user establishes which phases to include in the estimate, Figure 6. Project estimates will include only those phases relevant to the type and status of the project being estimated. The user should coordinate with the project manager to see which phases are applicable for the project being estimated. Table 1 below, shows the FUDS

nomenclature for phase names as compared to the standard RACER phase names. If the "manual" method is chosen to create the estimate, these FUDS phase names will have to be entered at level three of the estimate. Again, if the "template" method is used, the correct phase names will be defaulted for the user depending on the project category. However, the user will have to decide which phases are applicable to the project. For example, if the SI phase is complete then it should not be included in the CTC estimate and the Pre-Study phase type as shown above should be blank in the standard template.

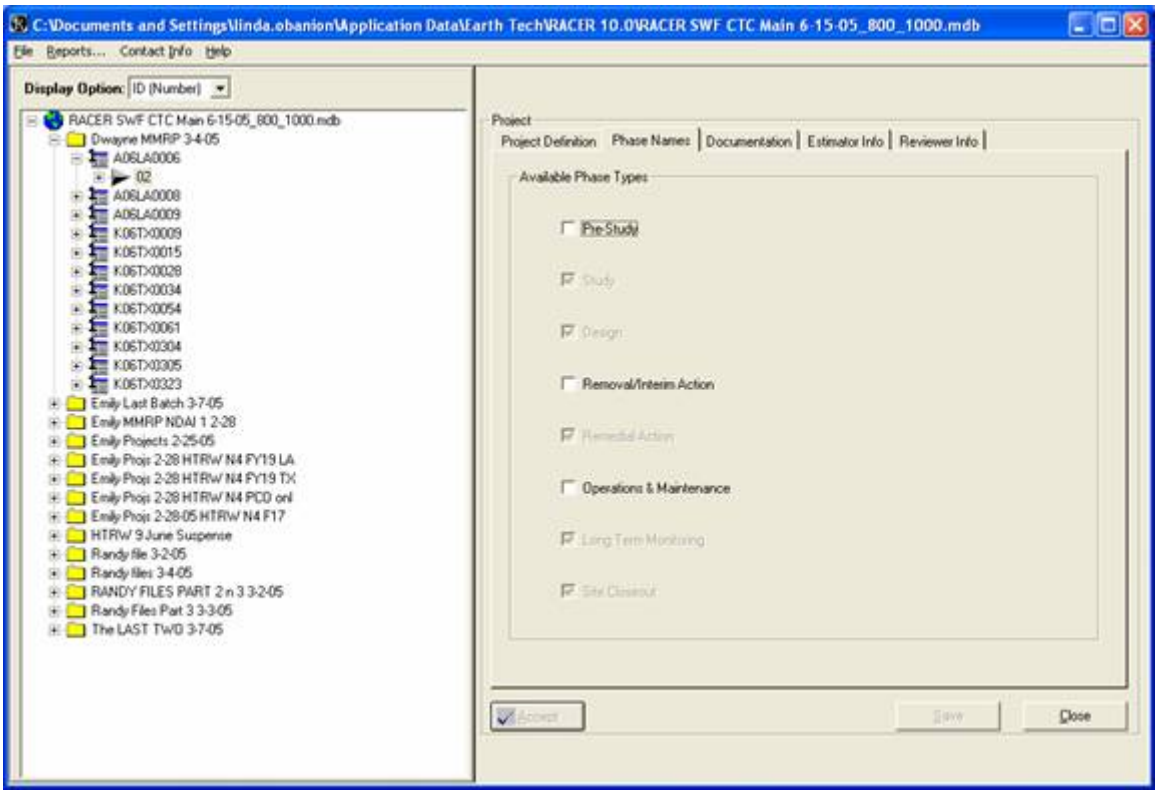

Figure 6. Level 2 RACER Screen (Phase Names tab)

Table 1. Phase Naming Conventions

FUDS Program Phase	RACER Phase
SI	Pre Study
RI/FS	Study
EE/CA	Study
RD	Remedial Design
RmD	Remedial Design
RA-C	Remedial Action
RmA-C	Interim/Removal Action
IRA	Interim/Removal Action
RA-O	Remedial Action Operation
LTM	Long Term Monitoring
PCO*	Site Close Out

*PCO phase is only included in the CTC estimate for the budget year. ***Do not include the PCO phase beyond the budget year.***

The "Documentation Tab" must contain project level information to document specific aspects of the project, and the estimate being developed.

- The required data elements that must be captured in the Description field are specific information describing the project history, media and contaminants being remediated, assumed approaches, and any other project specific information that supports the estimate. This information can be obtained from the INPR, FUDSMIS, other appropriate documents, and interviews with the technical support team. Reasons for the change from the last reported estimate must also be included in the description field. The following are typical examples of changes that should be documented:
  - A phase was completed, therefore removed from the estimate.
  - A phase was added due to changed conditions. Explain the changed conditions.
  - The technologies within a phase were added, deleted or modified due to changed conditions.
  - The project estimate was updated to current year dollars and no other changes were made
- The 'Support Team' field must include District Program and or Project Managers, Technical personnel names and telephone numbers and any other persons that had input into developing the estimate.
- The 'References' field must include which documents were used to help develop the estimate. This could include such documents as INPR, Site Inspection reports, RI/FS Reports, etc. Interviews with PMs and technical experts may also be documented here.

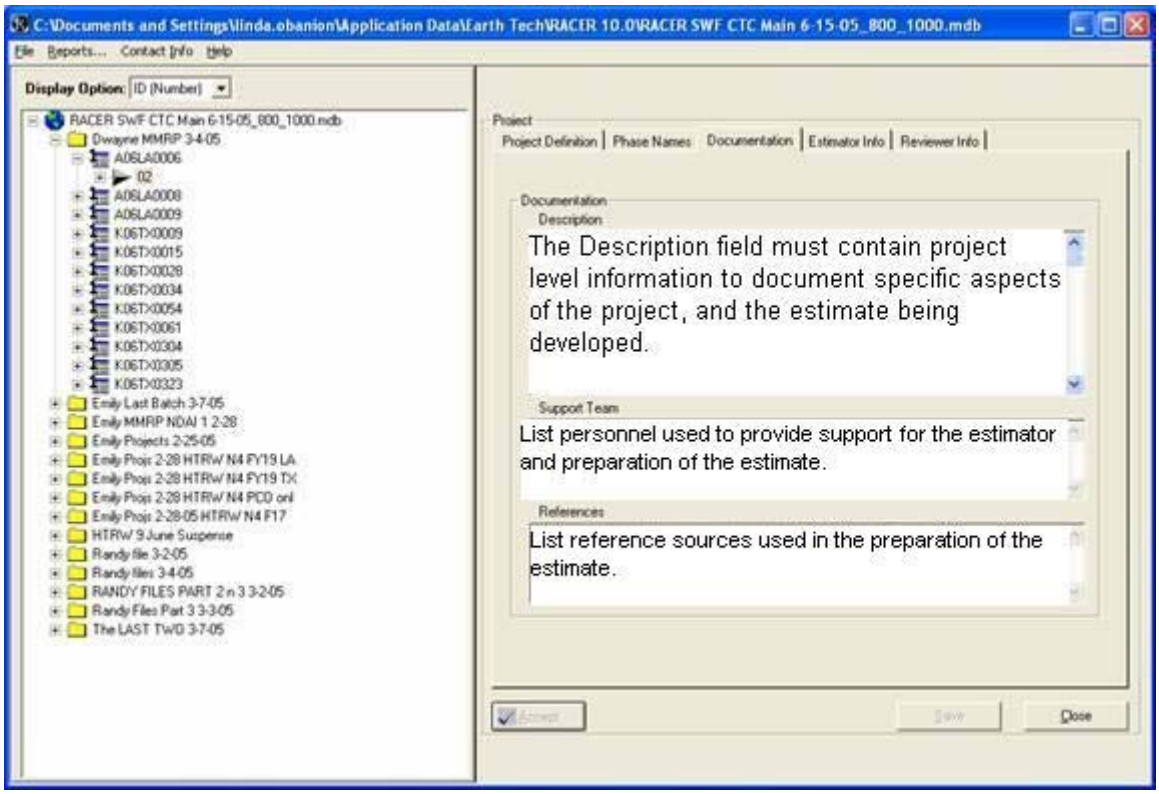

Figure 7. Level 2 RACER Screen (Documentation tab)

The Estimator Info tab above must be filled out in order to proceed in the development of the estimate, Figure 8. For those users that develop multiple estimates this information can be stored in a menu selection called "Contact Info". This information can be automatically populated in the Estimator Information tab by selecting the "Use Contact Information" button from the main RACER screen. Only one set of contact information can be stored at this menu selection.

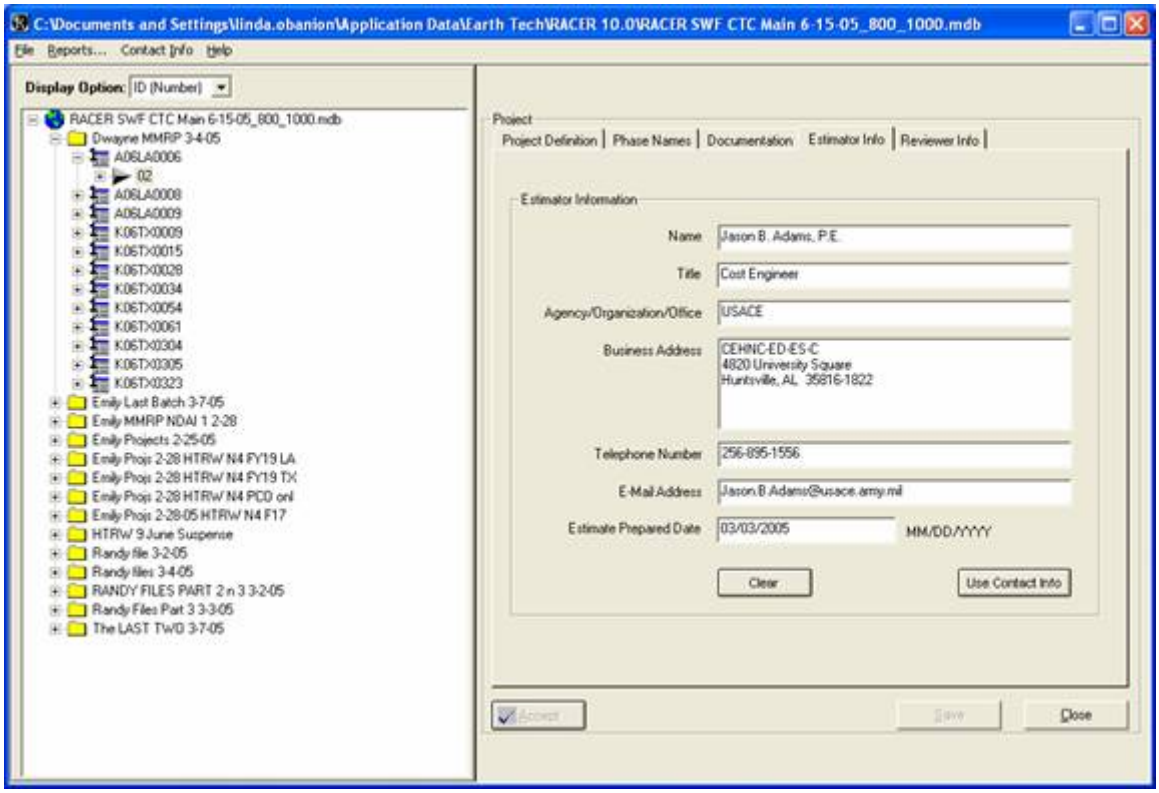

Figure 8. Level 2 RACER Screen (Estimator Info tab)

The Reviewer Information tab, Figure 9, is not a required tab to be populated. This tab was designed to be filled out after the estimate is complete for performing a peer review. If this tab is filled out, it does not count for the actual QC review process of the estimate that is recorded in FUDSMIS. There are checks built into the RACER system to ensure that the estimator information and reviewer information are not one and the same. The reviewer can store their contact information on their copy of RACER and populate the reviewer tab the same way.

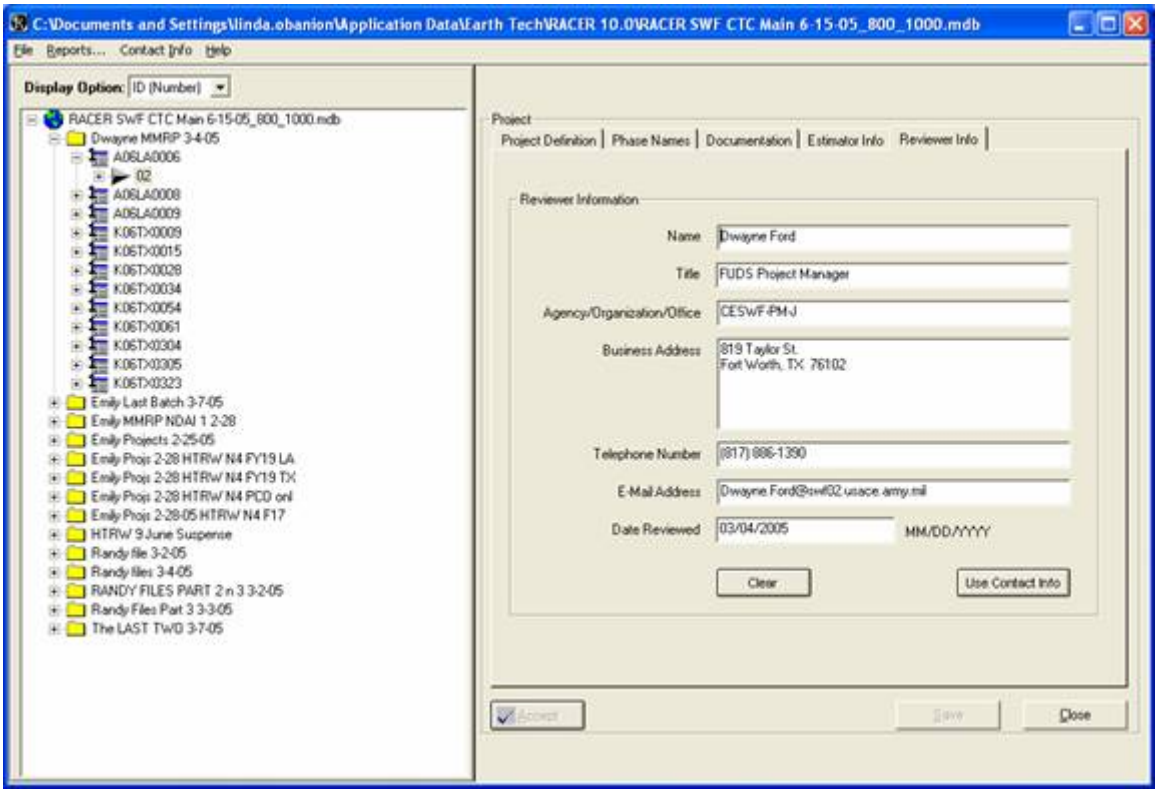

Figure 9. Level 2 RACER Screen (Reviewer Info tab)

3.3 RACER Level Three CTC Estimate Requirements

The Level 3 "Phase Screen," Figure 10, requires the following areas to be filled out:

- ***The "Phase Type Name" – The phase name for this field must be exactly in accordance with the abbreviations shown in Table 1 above for each phase being estimated. The phase name cannot be spelled out and the abbreviations must include the hyphenations and back slashes where applicable. If the template method is used, these phase names will be populated for the user. If older versions of the estimates are used, check the phase names to ensure they are correct.***
- The "Description" field is a mandatory entry field and must be used to document various aspects of the phase being estimated. The user will be prompted by the system to update this field whenever making changes to this screen and/or technologies within the phase. The comment field should include:
    - Description of what is being estimated in a particular phase.

- Rationale and References for technology and quantity selections/changes for the phase.
- Any unique or special site specific considerations that have a significant effect on the CTC estimate.

- The "Approach" field will include the approach used depending on the technologies being estimated (i.e. if the Excavation and Off-site T&D technologies are chosen, then the approach would be "ex-situ").
- The "Phase Start Date" should be the anticipated start date for the phase being estimated. As estimates are updated these dates may need to be modified. When establishing phase dates the estimator should use logical sequencing for each phase. Typically, one would not schedule RA-C before the SI, etc.

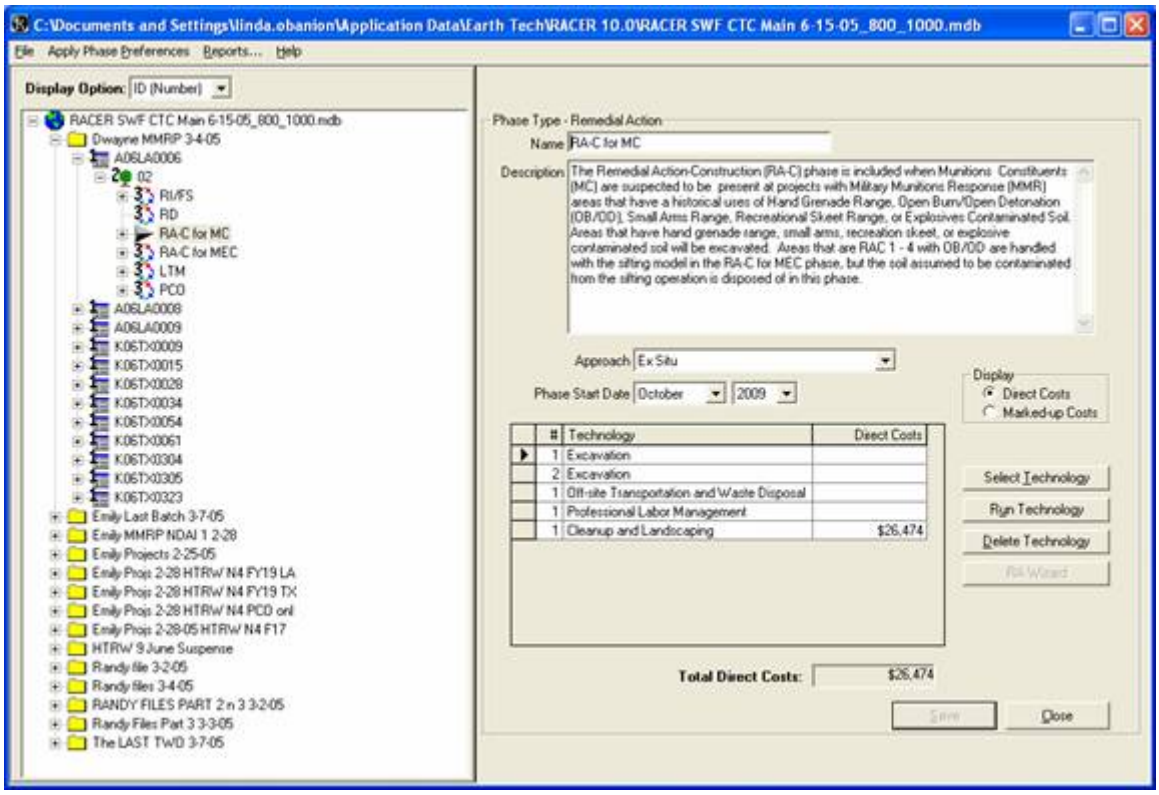

Figure 10. Level 3 RACER Screen (Phase Screen)

To apply a Phase Markup Template, the user must select a from a menu selection titled 'Apply Phase Preferences' located at the top of the level 3 phase screen, Figure 11. As stated in Section 3.0, two suggested markup templates have been created by the EM-CX for FUDS projects. The district does have the option to develop their own Markup Template if they feel the percentages used in the CX-developed templates are not adequate. The CX-developed Markup Templates are based on the basic RACER default markups for Professional Labor Overhead, Field Office Overhead, Subcontractor Profit, and Prime Profit. Where the CX-developed templates differ from the RACER default template is in the allowance for contingencies and owners cost. Both CX-developed Markup Templates contain 15% for Contingencies and 0% for Owner costs for

the PCO phase because the PCO phase typically represents district costs for establishing regulatory concurrence for the project. These percentages are shown below in Table 2.

To add or change "Rate Groups" and "Technology Markup" the user will also access the preference menu at this phase screen. However, for the purposes of the FUDS program estimates RACER default settings are recommended to be used for these items. Any changes to these items should be documented at the level 3 description field.

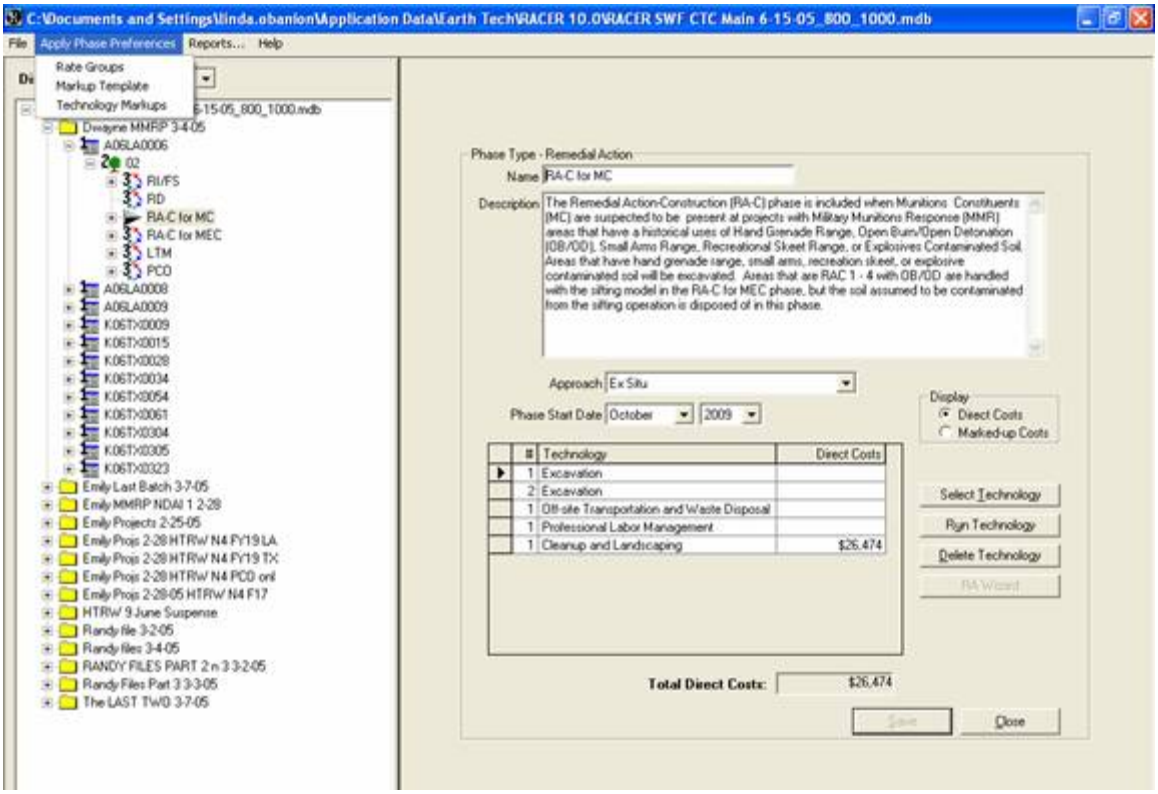

Figure 11. Level 3 RACER Screen (Apply Phase Preferences)

Table 2. Risk/Contingency Allowances by Phase

FUDS Phase	Risk/Contingencies	Owner Cost
PA	15.00%	11.00%
SI	15.00%	11.00%
RI/FS	15.00%	11.00%
EE/CA	15.00%	11.00%
RD	15.00%	11.00%
RmD	15.00%	11.00%
RA-C	15.00%	11.00%
RmA-C	15.00%	11.00%
IRA	15.00%	11.00%
RA-O	15.00%	11.00%
LTM	15.00%	11.00%
PCO	15.00%	0%

3.4 RACER Level 4 (Technology Level) CTC Estimate Requirements

Each technology includes required parameters, and may also include secondary parameters. The parameter inputs should reflect the current project documents as closely as possible when developing the CTC estimate..

Each RACER technology has a "Comments tab," Figure 12. This field is intended to document how the required parameters were determined. Applicable data elements that will be captured in the comment field are:

- Rationale for required parameter selections and secondary parameter modifications (i.e., if the excavation model is used, show in the comments, how you derived at the quantity to be excavated, etc).
- Explain any changes and/or additions to assembly items.
- List any quotes used for pricing.
- Statement about duration of any cost element that reflects cost over time (i.e., RA-O phase, and the Monitoring and Natural Attenuation technologies).
- Any unique or special site specific considerations that have a significant effect on the technology being estimated.

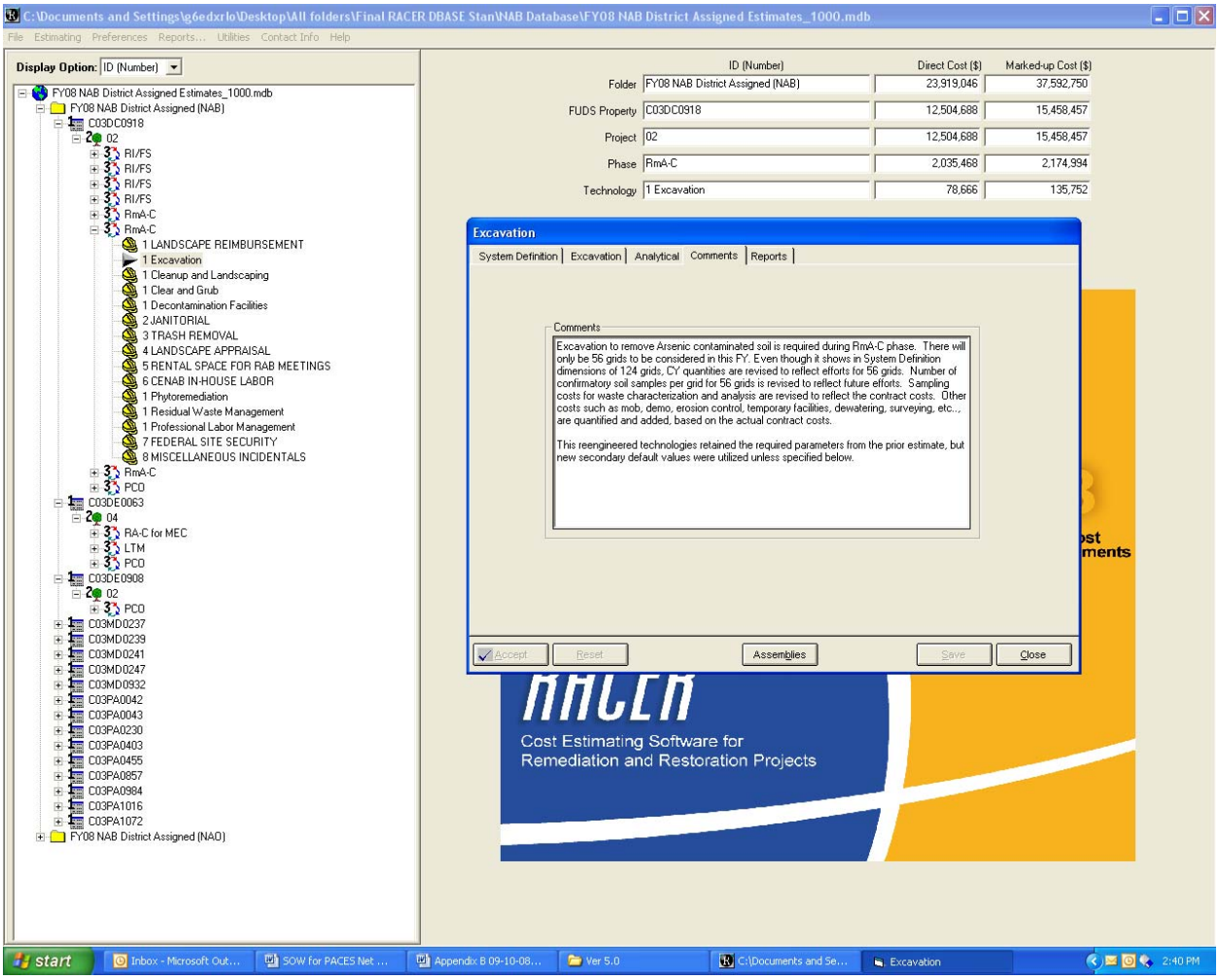

Figure 12. Level 4 RACER Screen (Technology tabs)

4.0 PRP Project Estimate Preparation

CTC estimates are also required to be reported for PRP projects; therefore, an estimate with the appropriate phases as outlined in the FUDS ER must be developed. The estimates associated with PRP projects typically center on district 'level of effort' costs associated with negotiation/litigation support, and are normally estimated and programmed in the Project Negotiation (PN) Phase. Occasionally though, other phases may need to be included in estimates for those costs for which the ER-FUDS account is responsible under signed agreements. These costs should be included in the estimate and programmed in the appropriate phases as directed by the FUDS Program Manager. When cases like this occur, the cost estimating team should consult the FUDS Program manger to ensure all costs and correct phases are included. Again, cases like this are not the norm, so estimates for PRP projects typically include costs for the PN and PCO phases. The typical costs that are included in a PRP cost estimate are as follows.

- Costs for project management, attorney, technical, contracting, etc. hours required for research, coordination etc. Provide a brief explanation of duties performed for the level of effort to support the staff hours.
- Cost for Limited Testing that may be required during negotiations.

Typically, PRP project estimates are prepared using methods other than RACER. Some PRP project estimates are developed using Excel software. When developing an estimate in Excel it is important to include the appropriate documentation requirements that are listed above in Section 3, and shown in Table 3:

Table 3. Excel Spreadsheet PRP Example Estimate
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5.0 NDAI Project Estimate Preparation

Projects that have been established as NDAI and require regulatory concurrence, but have not achieved this concurrence usually require a CTC estimate. The estimate must only include the PCO phase to allow the district to plan for and pay for the activities to achieve this concurrence. The activities that can be included in the PCO phase are coordination with regulators and can only be programmed in the current year or budget year. **Do not plan for the PCO phase beyond the Budget Year for any estimate.** If an NDAI project that requires regulatory concurrence does not have a PCO phase estimate, the PM must provide an explanation in FUDSMIS of why the district is not planning to obtain the concurrence. Examples of explanations of why a NDAI project does not have a PCO Phase:

- Regulators will not provide concurrence
- Project was combined with another project. Provide other project name and number

6.0 Estimates Developed With Other Resources

In some other cases, MCACES software and contractor-owned estimating methods, etc. are used to support CTC FUDSMIS entries. When these types of estimates are used, the documentation requirements are the same as detailed in Section 3 and should be incorporated into the estimate (See the EXCEL Example in Section 4). Ensure the property and project numbers are clearly documented in the estimate. Regardless of the type of estimate, it is critical that the FUDSMIS Cost to Complete data be traceable to the estimate and that estimate is traceable to the project.

7.0 FUDS Phase Estimating Methodology

The following information is provided to help the estimating team to better understand the FUDS estimating methodology for the different project phases and their intent. Also provided are typical RACER technologies for each phase that might be included in the RACER estimate. The list of technologies shown for each phase is not all inclusive and is meant as only a guide for possible technologies to consider when developing the CTC estimate. It is the estimating team's responsibility to ensure that all costs are covered for each phase estimated by selecting the appropriate technologies. For more detailed information covering the FUDS project phases, and how they work within the CERCLA, and non-CERCLA process see Chapter 4 of the FUDS ER.

Site Inspection (SI) Phase –
The SI phase is not intended as a full-scale study of the nature and extent of contamination or explosives hazards. Rather, the objectives of the remedial SI are to: (1) Eliminate from further consideration those releases that pose no significant threat to public health or the environment; (2) Determine the potential need for removal action; (3) Collect or develop additional data, appropriate for HRS scoring by EPA; and (4) Collect data, as appropriate, to characterize the release for effective and rapid initiation of the Remedial Investigation/Feasibility Study (RI/FS). Sampling for the SI should be limited in nature to confirm the presence of contamination, not to determine nature and extent of contamination. When developing the SI phase estimate in RACER some typical technologies the estimator may want to include depending on the particular project are:

- Site Inspection
- Well Abandonment
- Residual Waste Management
- Groundwater Monitoring Wells

Remedial Investigation/Feasibility Study (RI/FS) Phase –
The Remedial Investigation (RI) is intended "to adequately characterize the site for the purpose of developing and evaluating effective remedial alternatives" [40 CFR 300.430(d)]. In addition, the RI provides information to assess the risks to human health, safety, and the environment that were identified during risk screening in the SI. "The primary objective of the Feasibility Study

(FS) is to ensure appropriate remedial alternatives are developed, evaluated, and an appropriate remedy selected" [40 CFR 300.430(e)]. The RI and FS should be conducted in an integrated manner. When developing the RI/FS phase estimate in RACER some typical technologies the estimator may want to include depending on the particular project are:

- Remedial Investigation
- Feasibility Study
- Well Abandonment
- Residual Waste Management
- Groundwater Monitoring Wells

Remedial Design (RD) and Removal Design (Rm-D) Phases –
The design phase is estimated to capture the costs for designs, plans, specifications, and bid documents for conducting the remedial or removal action. The RD phase should be estimated and programmed for HTRW and MMRP projects, where as the RM-D phase should be estimated and programmed for CON/HTRW and BD/DR projects. Typically, when using RACER to develop design costs for the CTC estimates the percentage method is used. The design phase must be programmed before the Remedial Action - Construction (RA-C) or Removal Construction (RmA-C) phases.

Remedial Action - Construction (RA-C) Phase –
The RA-C phase represents that part of the project to construct a remedy in place (RIP) to remediate the contaminated media. Many times during the CTC development the study phases have not been completed so assumptions have to be made as to what remedy might be used for the project. These assumptions can be derived from historical data from similar projects, or recommendations from the Project Managers and/or Project Engineers. If a Record of Decision/Decision Document (ROD/DD) exists that selects a remedy for the project, the CTC estimate must be developed based on that decision. It is the estimating team's responsibility to include only those costs that represent a RIP for the RA-C phase. Any costs beyond that point, such as monitoring, should be included in the Remedial Action Operation (RA-O) phase. ***If the selected remedy is Natural Attenuation, these costs must be captured in the RA-O phase.***
Remedial actions that do not allow unlimited use and unrestricted exposure must be reviewed no less than every 5 years after the start of the remedial action, or more frequently if required by the ROD/DD. The five year review costs should be captured in the RA-C phase only when the RIP cannot be established within 5 years. The requirement for five-year reviews applies to all HTRW, MMRP, and CON/HTRW projects (except for CON/HTRW projects involving only petroleum) where the implemented response does not allow for unlimited use and unrestricted exposure. Five year review costs can extend into the RA-O and/or the Long Term Management (LTM) phases if required. When developing the RA-C phase estimate in RACER, some typical technologies the estimator may want to include depending on the particular project are:

- Primary technologies that relate directly to the remedial treatment train as determined by the estimating team
- Well Abandonment
- Site Closeout and Documentation
- Residual Waste Management

- Groundwater Monitoring Wells

Removal Action - Construction (RmA-C) Phase –
The RmA-C phase is estimated and programmed for CON/HTRW and BD/DR projects and the cost must represent that part of the project to perform the removal action. BD/DR and petroleum CON/HTRW projects address conditions that are not regulated under CERCLA or the NCP and, therefore, do not follow the CERCLA process for response actions as do HTRW and MMRP projects. Many times during the CTC development the design phase has not been completed for these projects so assumptions have to be made as to what the removal action might be for the project. These assumptions can be derived from historical data from similar projects, or recommendations from the Project Mangers and Project Engineers. It is the estimating team's responsibility to include all costs that represent the removal action for the RmA-C phase. When developing the RmA-C phase estimate in RACER, some typical technologies the estimator may want to include depending on the particular project are:

- Primary technologies that relate directly to the removal action as determined by the estimating team
- Well Abandonment
- Site Closeout and Documentation
- Residual Waste Management

Remedial Action Operation (RA-O) Phase –
The RA-O phase involves operation, maintenance, and monitoring for the remediation system and project site to include Monitoring Natural Attenuation (MNA), until remedial action objectives in the ROD or Decision Document (DD) are achieved. The RA-O phase may also include implementation, and management/maintenance of Land Use Controls (LUC) if part of the selected remedy. Periodic monitoring reports are routinely prepared during this phase to document performance of the remediation system. Five year reviews are also allowed to be estimated during this phase if needed. In the past, some estimates were developed and costs programmed concurrently for the RA-O, RA-C and LTM phases. Based on guidance in the ER, Paragraph 4-4.7, Figure 4-3, the phases now will be estimated and programmed separately***. In other words, the RA-O phase should now be estimated and programmed after the completion of the RA-C phase, and the LTM phase should be estimated and programmed after the completion of the RA-O phase.*** When developing the RA-O phase estimate in RACER some typical technologies the estimator may want to include depending on the particular project are:

- Operation and Maintenance
- Monitoring
- MEC Monitoring (MMRP projects)
- Site Closeout and Documentation
- Natural Attenuation
- Five Year Review
- Well Abandonment
- Residual Waste Management
- Administrative Land Use Controls

Long-Term Management (LTM) Phase –
LTM activities may be required for some projects following the RA-O phase. Typically, estimates include this phase for a maximum of 30 years. The types of tasks to include in this phase are, monitoring beyond the RA-O phase, 5 year reviews as required for the duration of LTM, any land use control measures, and preparation of phase closeout documents as required. When developing the LTM phase estimate in RACER some typical technologies the estimator may want to include depending on the particular project are:

- Monitoring
- MEC Monitoring (MMRP projects)
- Site Closeout and Documentation
- Five Year Review
- Well Abandonment
- Residual Waste Management
- Administrative Land Use Controls

Project Closeout (PCO) Phase –

The PCO phase was created in the FUDS program for the District to program funds to seek regulatory concurrence on HTRW, CON/HTRW, MMRP and PRP projects. Historically, the estimating philosophy was to include this phase in the CTC estimates and was allowed to be programmed in the future for these project types. The estimating philosophy for when this phase is estimated and programmed is being changed as per FUDS ER requirements (refer to Table 4-4, footnote 8 of the ER). ***This phase will only be included in the CTC estimate when this action will take place in the budget year and when the project has been established as NDAI.*** The types of activities to include in estimate for this phase are those costs that the district will incur while seeking the regulatory concurrence such as meetings with the regulators, preparation of coordination letters, project closeout documents, and other miscellaneous district costs. Do not include such tasks as sampling and analysis, monitoring, etc. These types of tasks should already have been completed prior to establishing the project as NDAI. If for some reason more project oriented tasks are required to establish PCO the District FUDS PM should coordinate with Division FUDS PM to address this issue before including them in the PCO phase estimate. When developing the PCO phase estimate in RACER, the typical technology the estimator may want to include:

- Site Closeout and Documentation Model.

Project Negotiation (PN) Phase –
The PN phase is estimated and programmed for PRP/HTRW and PRP/MMRP projects. Refer Section 4.0 of this document for requirements of this phase and PRP projects estimates in general.

Interim Removal Action (IRA) Phase–
The IRA phase is estimated and programmed for Time-Critical Removal Actions (TCRA). A TCRA is a removal action for which less than six months of planning time is available before on-

site activities must begin. TCRAs may be conducted for both HTRW and MMRP projects and can only be performed during the current and budget years. The development of CTC estimates and programming of the cost data in FUDSMIS must adhere to this requirement. When developing the IRA phase estimate in RACER the typical technologies the estimator may want to include are similar to those shown in the RA-C phase.

Engineering Evaluation and Cost Analysis (EE/CA) Phase –
The EE/CA phase is estimated and programmed for MMRP projects that have been determined to have Non-Time-Critical Removal Actions (NTCRA). In order for this Phase to be estimated there must be an EE/CA Approval Memorandum on file for the project. The intent of the EE/CA is to characterize the site sufficiently to substantiate a removal action, satisfy administrative record requirements, perform removal actions to the extent practicable, and contribute to the efficient performance of any anticipated long-term remedial action with respect to the release concerned. When developing the EE/CA phase estimate in RACER the typical technologies the estimator may want to include are similar to those shown in the RA-C and RI/FS phases.

Appendix C

FUDSMIS Cost to Complete Process Navigation and Instructions

Districts will complete the Quality Control Review and record the results of their review of CTC estimates for FUDS Projects using screens in FUDSMIS as described in this Appendix.

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Appendix C
FUDSMIS Cost to Complete (CTC) Process Navigation and Instructions

1.0 Purpose

This appendix is intended to provide detailed step by step navigation procedures and instructions for understanding and tracking the FUDS CTC process in FUDSMIS. Specifically, the instructions address FUDSMIS menu choices to be selected for conducting CTC process functions including required CTC estimate reviews, estimate uploading and attachment procedures into FUDSMIS, distribution into the FUDSMIS Life Cycle Plan (LCP), and CTC training procedures.

2.0 Welcome to FUDSMIS:

The 'Welcome to FUDSMIS' screen, Figure 1, shown below is the user portal to many applications within FUDSMIS. Selecting the "CTC Process" link will allow the user to view the CTC project list, upload project costs, attach estimates, and perform quality reviews as required. In order for the user to access the 'Welcome to FUDSMIS' screen, they must first have the necessary permissions to enter FUDSMIS. If the user does not have this right, they can request it through the ACE-IT Enterprise Service Desk (ESD).

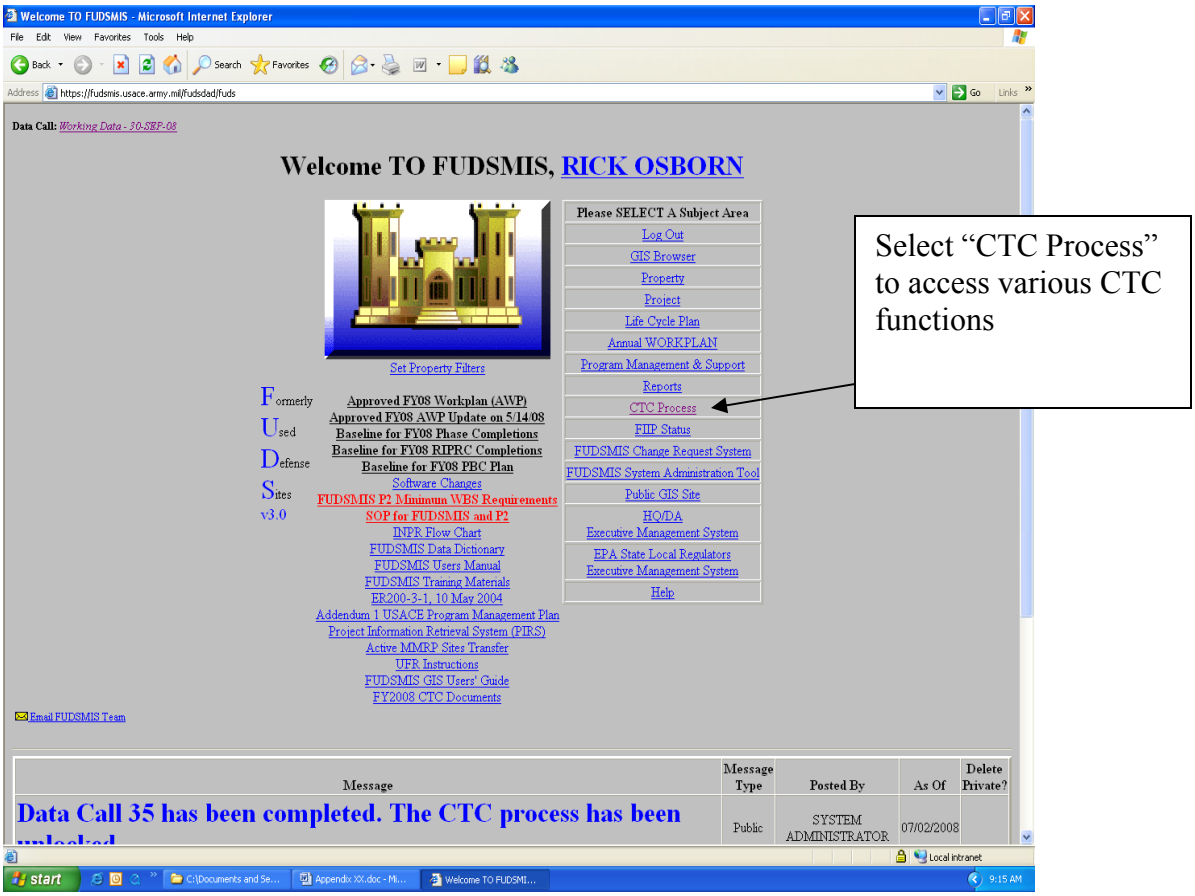


Figure 1. FUDSMIS Welcome Screen

2.1 FUDSMIS CTC Process Screen

Once the user selects the CTC Process link a screen will appear with several choices displayed (number of choices vary depending on user permissions granted). Figure 2 below is an example of the screen. Each applicable link will be explained; specifically, the CTC Project Assignment Screen, RACER CTC to FUDSMIS Data Upload Utility, Attach CTC Estimate Supporting Documentation, Environmental Liability/FUDS CTC Process Training, and Division Unlock of the LCP (this link only appears when the projects are frozen, see Figure 15).

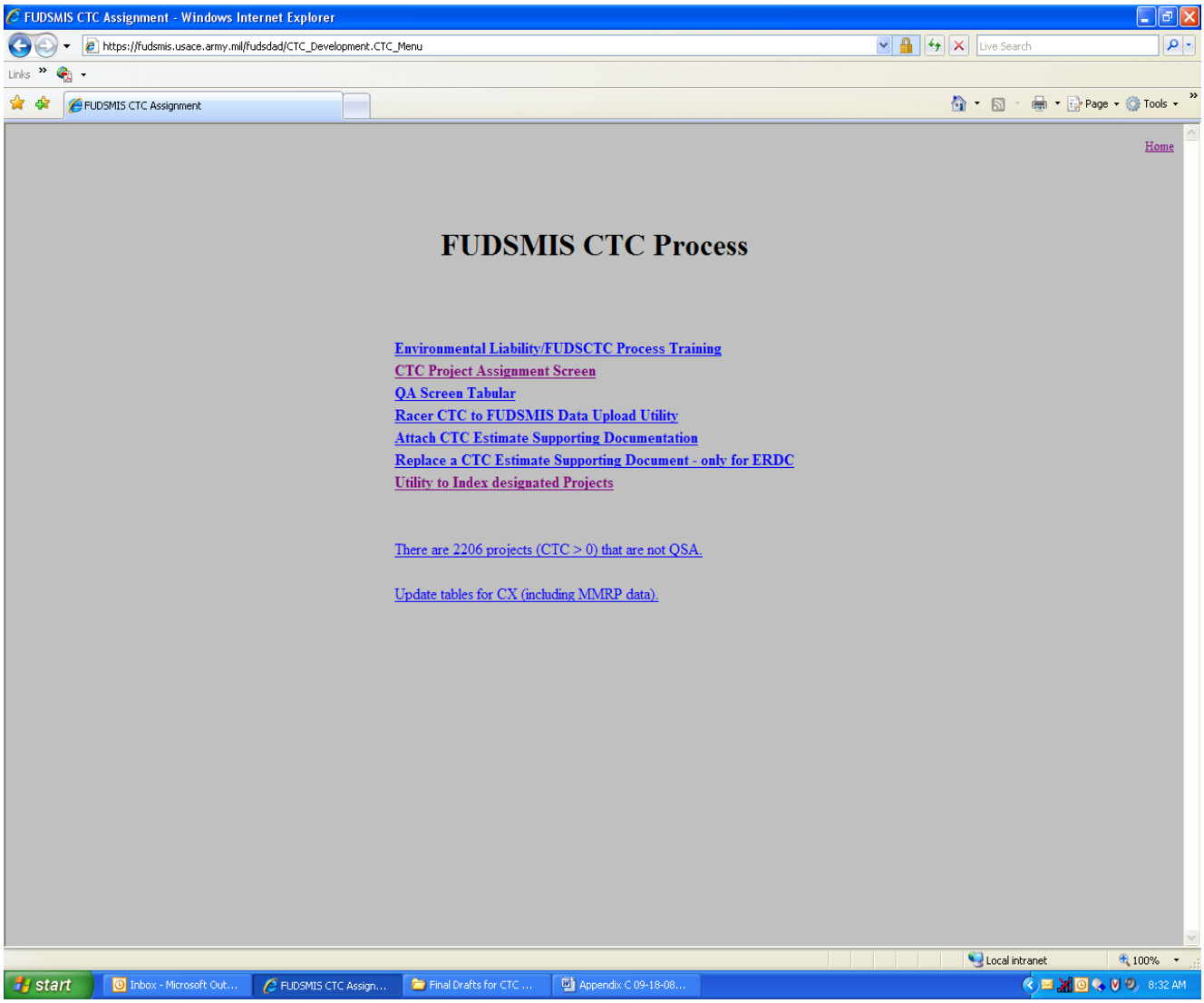


Figure 2. CTC Process Screen

2.2 CTC Project Assignment Screen:

At the Project Assignment Screen, Figure 3, the user can view the list of projects that require a CTC action, change estimating responsibilities, access and complete the quality control, supervisory, and the quality assurance reviews. To change the estimate assignment responsibility the user must first have proper permissions. The user must select the project number which will direct them to a screen where the assignment change can be made (see Figure 4).

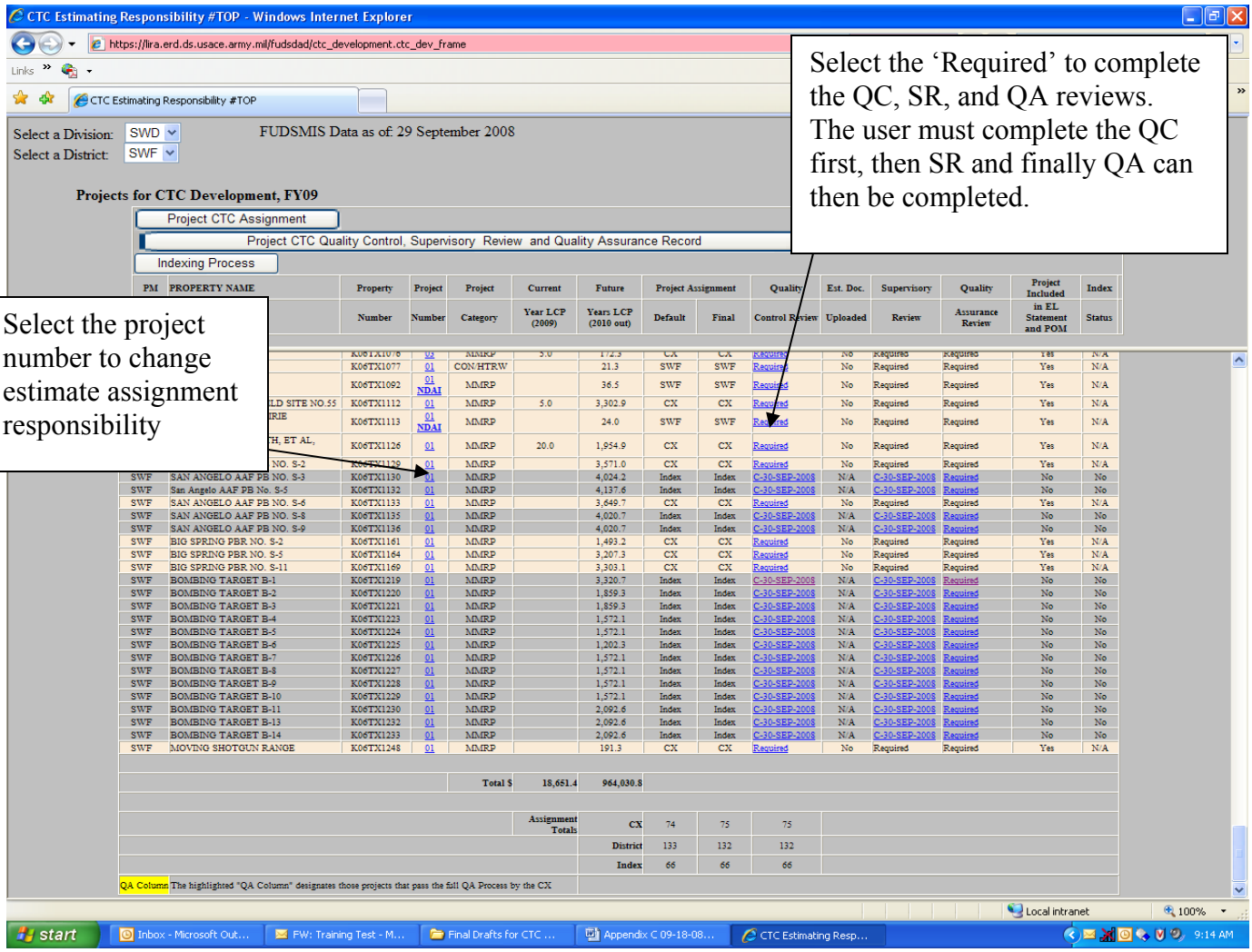


Figure 3. Project Assignment Screen

2.3 CTC Estimate Assignment Screen:

This Estimate Assignment screen, Figure 4, will give the user information about the project including which phases are still open for the project This will help with estimate preparation so as to not include any phases in the estimate that are already closed. When making the assignment change the user must choose one of the available choices (District, CX, or Index). A reason for the change must be documented in the text field before saving and closing.

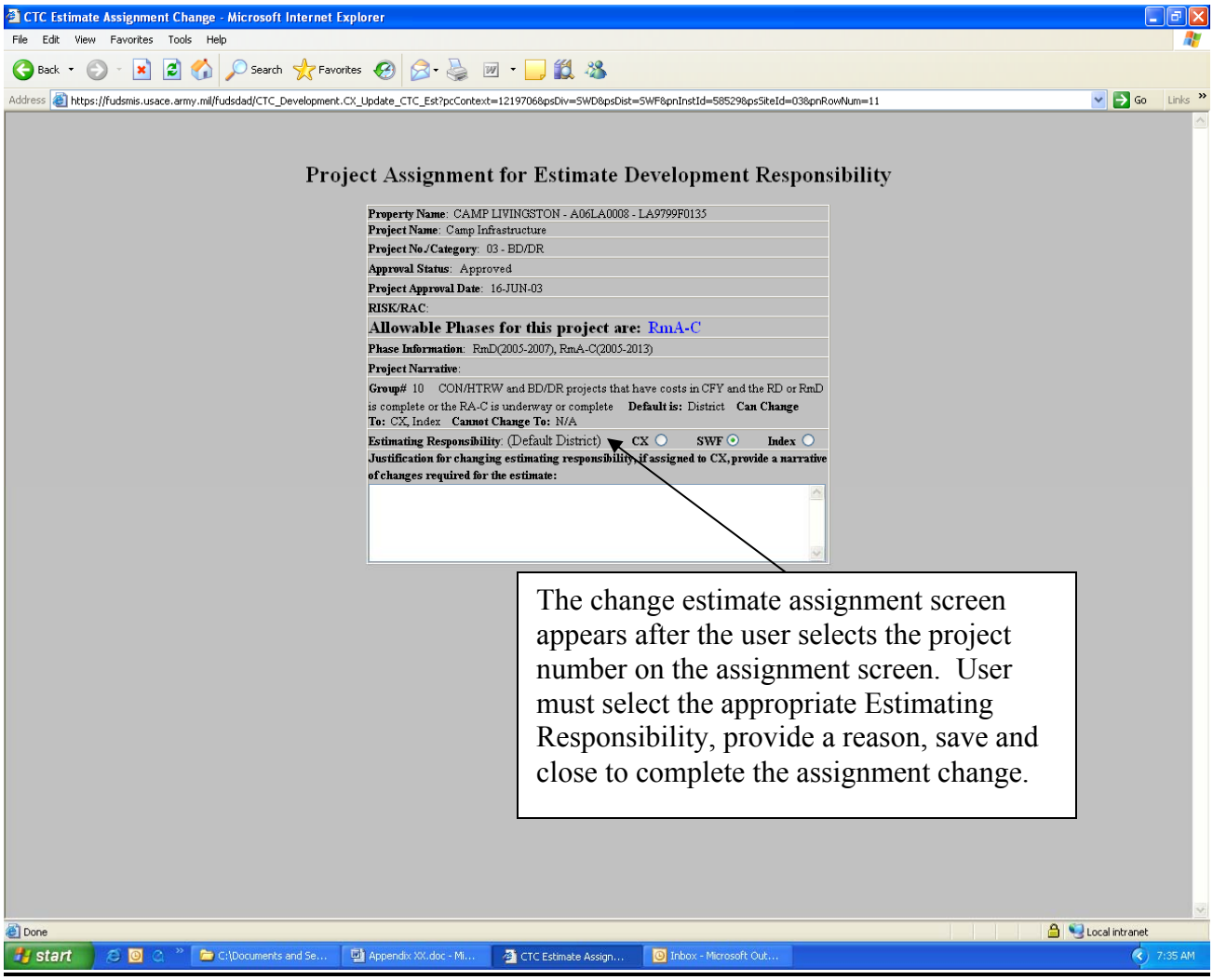


Figure 4. Estimate Assignment Screen

2.4 Quality Control Review:

The Quality Control (QC) review is the first review to be completed by the district and should be conducted prior to uploading any new costs in FUDSMIS. The user must access the QC form at the project assignment screen by selecting the blue highlighted "Required" link (as shown in Figure 3 above).

When the QC form is displayed in FUDSMIS (Figure 5), the user will see a table of costs titled "Data Reported Last FY." These costs represent what was reported last FY. Do not confuse these costs with the new estimate costs. This table was designed to help the reviewer answer question one by providing a variance range to easily determine if the new cost estimate has changed by more than 10%. The main intent of the QC review is to ensure the estimate is technically sound, accurate and to determine that the estimate is reflective of the project by answering the 6 questions on the screen. Table 1 below lists the QC questions and provides the rationale to answer each of them.

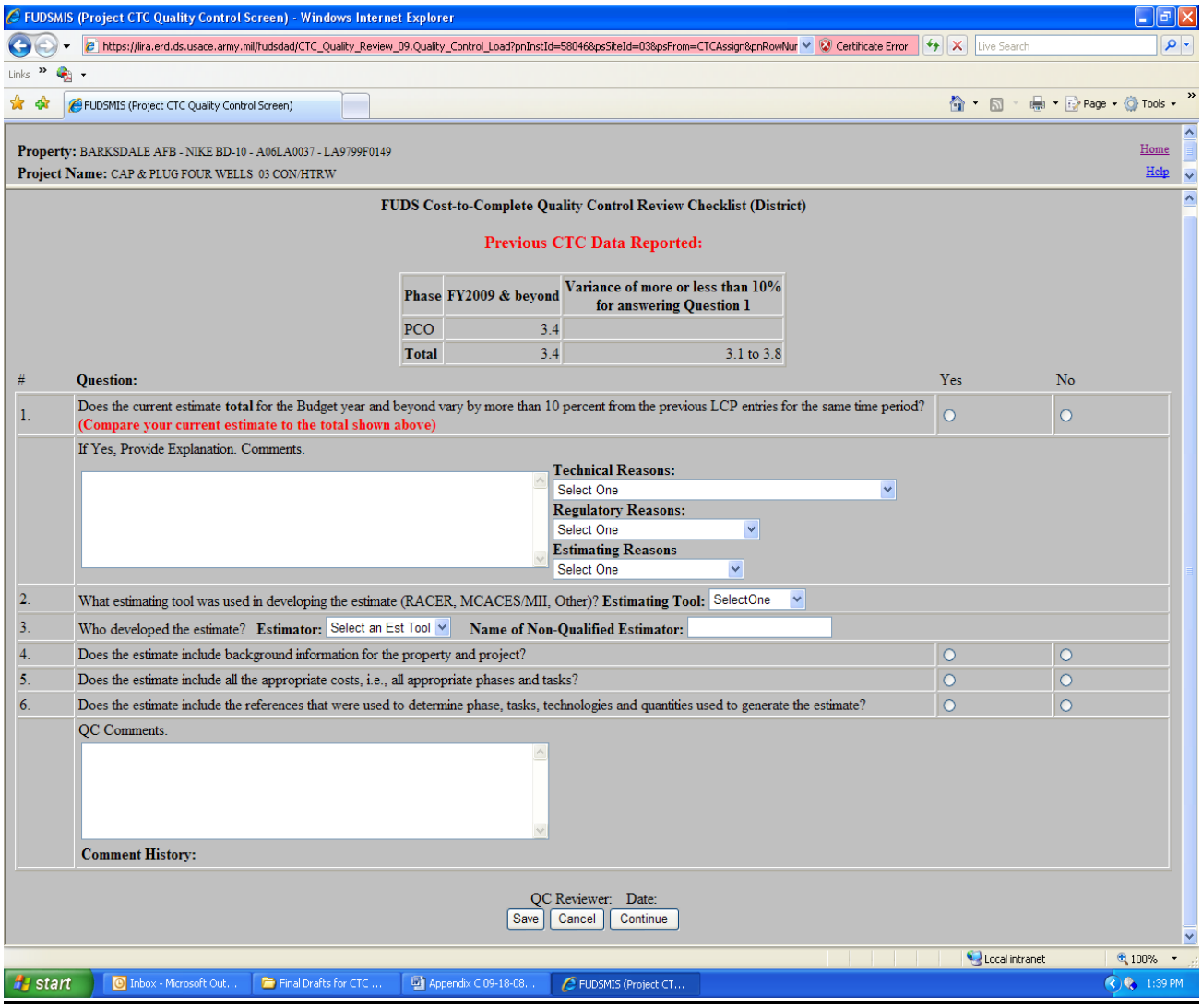


Figure 5. Quality Control Review Screen

Table 1. Questions for the Quality Control Review in FUDSMIS

No.	Question	Possible Answers	How to Answer this Question
1	Does the current estimate <u>total</u> for the Budget year and beyond vary by more than 10 percent from the previous LCP entries for the same time period? (Compare your current estimate to the total shown above)	Yes/No	A table will be available at the top of the QC Review Screen in FUDSMIS that provides the phase amounts and the total amount for the estimate being reviewed. The table will also provide the total amount currently in the Project LCP for the same period addressed in the estimate. If the current estimate varies by more than 10%, either up or down, from the amount currently in the LCP, answer the question with a "YES" and provide reasons from the drop down lists provided. If the estimate is within 10% of the amount currently in the LCP in FUDSMIS, answer the question with a "NO" and do not select reasons from the drop down lists.
	If the answer to Question 1 is **"YES,"** provide reasons from three drop-down lists: • Drop down list of **<u>Technical Reasons</u>** for change in the estimate: o Phase Completion o Phase Added o New Information on Contaminants o New Information on Area or Volume of Contaminated Media o Technical Approach • Drop down list of **<u>Regulatory Reasons</u>** for change in the estimate: o Revised Regulatory Requirements o New Regulatory Requirements • Drop down list of **<u>Estimating Reasons</u>** for change in the estimate: o Database Update or Correction o Omission of cost data Provide comments:		If Question 1 is answered with a "YES," the QC Reviewer can select reasons from three drop-down lists. At least one reason from one list must be selected, but the QC Reviewer may a select a reason from all three lists, if appropriate. If Question 1 is answered with a "NO," no reasons are to be provided. A "Comment" field is available for the QC Reviewer to provide comments on actions taken.
2	Was the estimating method (i.e., parametric or detailed) appropriate for the type of project? (e.g., Was RACER used for projects without a Decision Document?)	Yes/No	If the type of estimating method is appropriate for the status of project, answer the question with a "YES," otherwise answer the question with a "NO."

No.	Question	Possible Answers	How to Answer this Question
3	Was the person or persons developing the estimate qualified by training and experience to use the estimating tool?	Yes/No	If the person that developed the estimate has been trained in the estimating tool and has the necessary experience, answer the question with a "YES," otherwise answer the question with a "NO."
4	Does the estimate include background information for the property and project?	Yes/No	If the estimate contains sufficient information to document the estimate as required by Appendix B, answer the question with a "YES," otherwise answer the question with a "NO."
5	Does the estimate include all the appropriate costs? (i.e., all appropriate phases and tasks included?)	Yes/No	If the estimate contains all appropriate costs, answer the question with a "YES," otherwise answer the question with a "NO." "All appropriate costs" means all required phases and all appropriate tasks to properly estimate the environmental liability of the project.
6	Does the estimate include the references that were used to determine phase, tasks, technologies, and quantities used to generate the estimate?	Yes/No	If the estimate contains the necessary references required to provide the basis for developing the estimate, answer the question with a "YES," otherwise answer the question with a "NO."

2.5 Entering LCP Data and Archiving of the CTC Estimate:

Following the successful completion of the Quality Control Review, the District must upload the phase cost information contained in the estimate to FUDSMIS and attach the estimate to FUDSMIS. For RACER generated estimates, phase cost data can be electronically uploaded into the FUDMIS LCP through the use of the "RACER to FUDSMIS Upload Utility," and the "FUDSMIS Estimate Attachment Utility." Both of these links are accessed on the FUDSMIS CTC Process screen, Figure 2. The following information outlines the steps involved for using these utilities to electronically enter RACER estimate phase costs in the LCP and to attach the required estimate.

First the user must understand the files needed, and how they are created in order to get the cost data and reports to FUDSMIS. The user must first use a stand alone utility known as the 'Estimate Documentation Report and FUDS Post Processor Utility' to create the required RACER CTC estimate files to be uploaded into FUDSMIS. This utility was developed to facilitate preparation of reports, and a cost upload file, known as the "xml" file.

For each RACER database, the utility creates and saves Estimate Documentation Reports (EDR) in rich text (rtf) format, and creates xml files for upload of phase costs into FUDSMIS. When the EDRs are created, the utility adds the correct name to the file to make the estimates ready for archiving to FUDSMIS. The typical naming convention for the file will contain the nine digit property number, two digit project number, current year, and a hash-val number appended to the end (example: C03DE0064_02_FY09_CTC~123077.1164.rtf). This hash-val number is basically computer language unique to each EDR and plays an important role in the Supervisory and Quality Assurance review processes. When the estimate is attached in FUDSMIS the system recognizes this hash-val number, and automatically answers questions 2 and 1 respectively for the Supervisory and Quality Assurance reviews. It is important that the user not change or delete this hash-val number from the file name.

This utility can process as many projects to create the needed files as chosen by the user within a particular RACER database. Once the files are created the user must access FUDSMIS to input the data in the system. Once the user is in FUDSMIS they must select the link titled “CTC Process” from the main FUDSMIS screen, and then follow the step in Section 2.6.

2.6 Selecting the RACER CTC to FUDSMIS Data Upload Utility Screen

The user must select "RACER CTC to FUDSMIS Data Upload Utility" as shown in Figure 6 to start the process to upload the xml file with the screen shown in Figure 7.

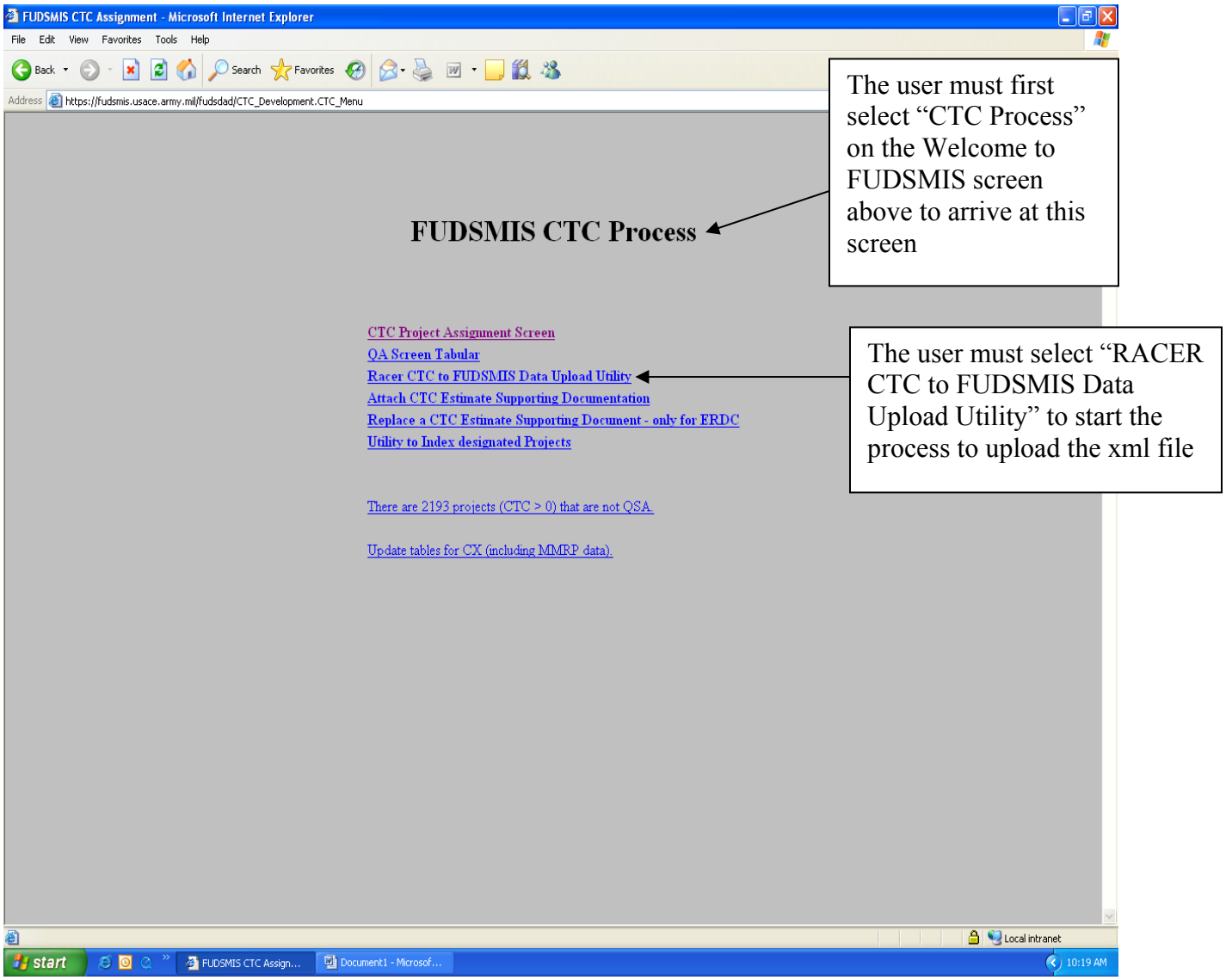


Figure 6. CTC Process Screen

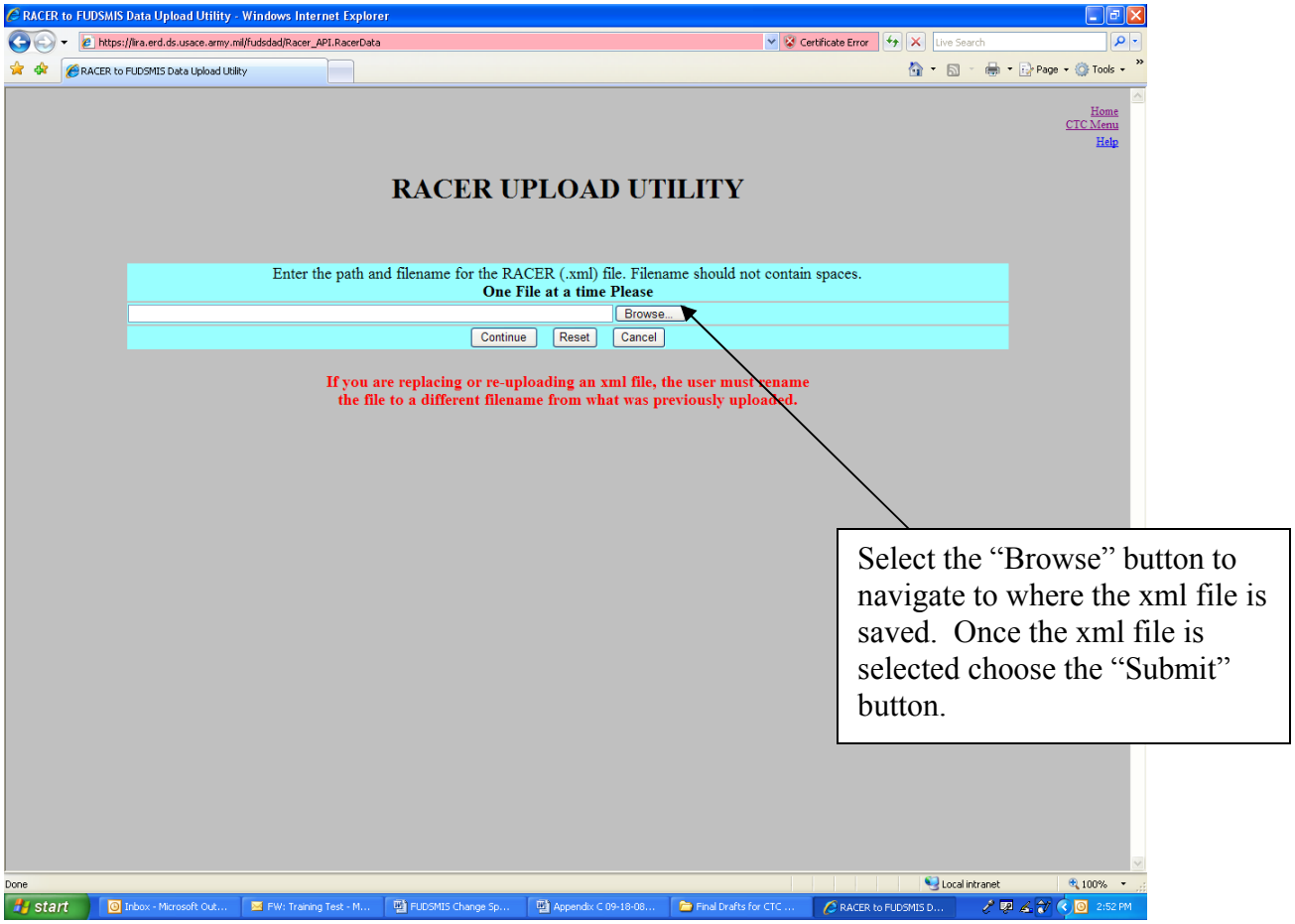


Figure 7. RACER Upload Utility Screen

The user must select the xml file they want to upload into FUDSMIS. Select the 'Browse' button and browse to where the xml file is saved and select it. One caution though, must be realized by the user. If the xml file name has previously been uploaded the user must make a minor change in that file name in order to be able to upload it again. FUDSMIS will **not allow** the same name for an xml to be uploaded twice. Once the user has chosen the xml to upload select the "Submit" button. Selecting the submit button at this time does not immediately enter the costs in FUDSMIS but instead takes the user to the screen below where they can view the costs before they are actually entered.

However, if there are any errors in the upload file, the system will detect these for the user, and will not allow any of the projects in the file to be uploaded and the entire upload process will be aborted. All errors must be corrected before any data can be uploaded. The user can view these errors by selecting "View Rejects" shown in the screen below. The report will show the user which projects have errors, and what those errors are. If this happens, the user must go back into the RACER estimate, fix the appropriate errors, and re-run the Estimate Documentation Report and FUDS Post Processor utility to create a new xml file and new Estimate Documentation Reports.

After errors (if any) are corrected, the FUDSMIS screen in Figure 8 gives the user the opportunity to view the costs in a report by selecting the "View Estimate" link before

uploading the costs into the system. When selecting this link the user will see all the projects and their associated phase costs that were included in the xml file displayed in Figure 9.

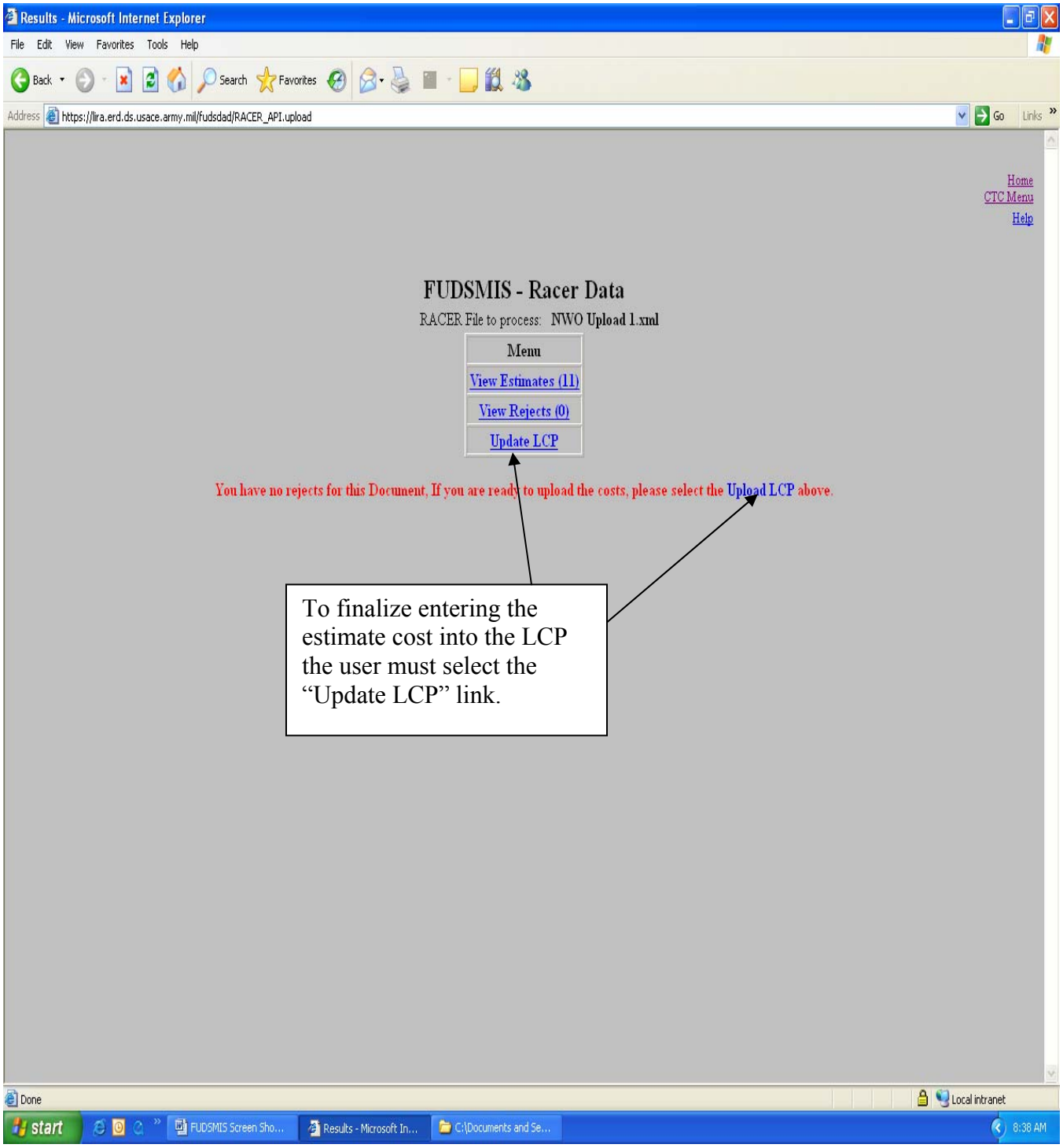
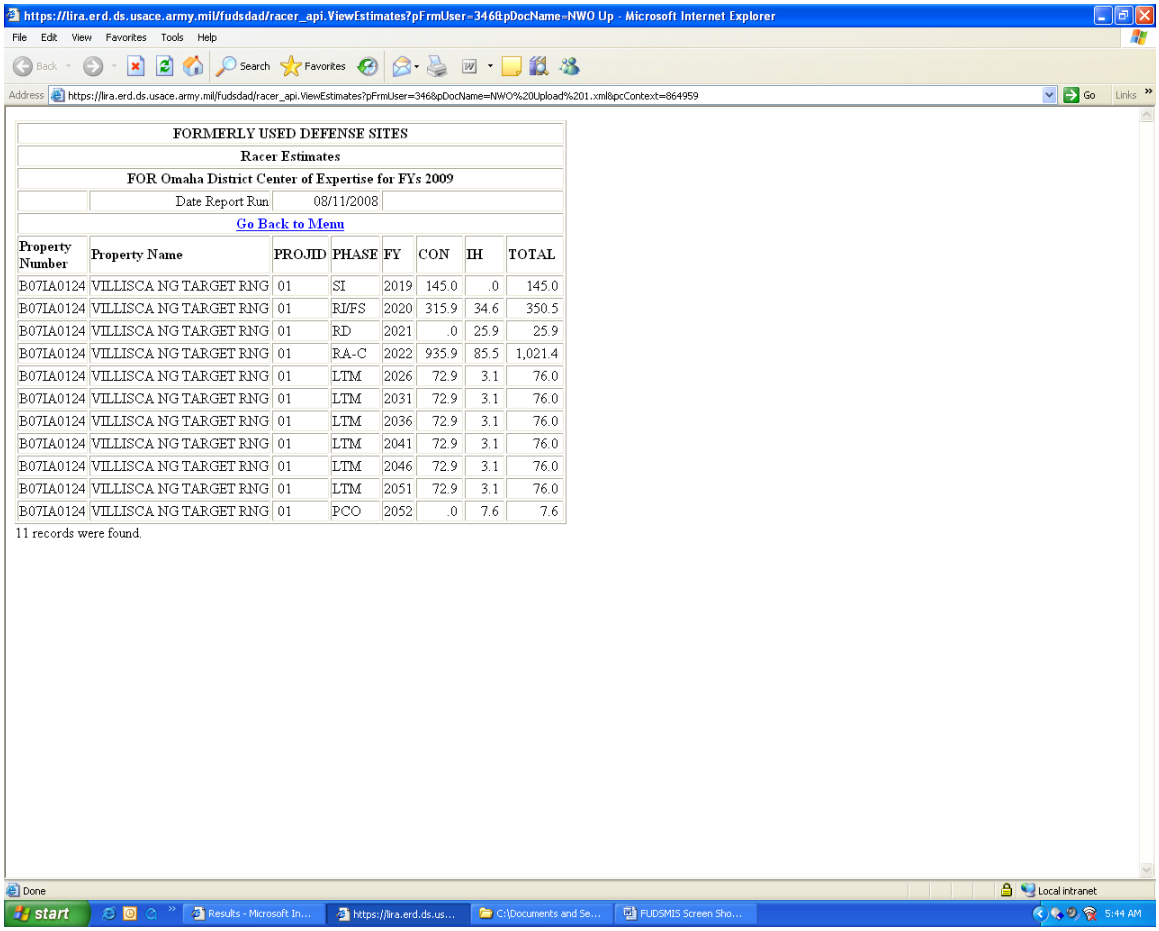


Figure 8 FUDSMIS Screen to update the LCP



FORMERLY USED DEFENSE SITES

Racer Estimates

FOR Omaha District Center of Expertise for FYs 2009

Date Report Run 08/11/2008

Go Back to Menu

Property Number	Property Name	PROJID	PHASE	FY	CON	IH	TOTAL
B07IA0124	VILLISCA NG TARGET RNG	01	SI	2019	145.0	.0	145.0
B07IA0124	VILLISCA NG TARGET RNG	01	RI/FS	2020	315.9	34.6	350.5
B07IA0124	VILLISCA NG TARGET RNG	01	RD	2021	.0	25.9	25.9
B07IA0124	VILLISCA NG TARGET RNG	01	RA-C	2022	935.9	85.5	1,021.4
B07IA0124	VILLISCA NG TARGET RNG	01	LTM	2026	72.9	3.1	76.0
B07IA0124	VILLISCA NG TARGET RNG	01	LTM	2031	72.9	3.1	76.0
B07IA0124	VILLISCA NG TARGET RNG	01	LTM	2036	72.9	3.1	76.0
B07IA0124	VILLISCA NG TARGET RNG	01	LTM	2041	72.9	3.1	76.0
B07IA0124	VILLISCA NG TARGET RNG	01	LTM	2046	72.9	3.1	76.0
B07IA0124	VILLISCA NG TARGET RNG	01	LTM	2051	72.9	3.1	76.0
B07IA0124	VILLISCA NG TARGET RNG	01	PCO	2052	.0	7.6	7.6

11 records were found.

Figure 9. Projects and Their Associated Phase Costs Included in the Uploaded xml File

The report displays the phase costs and year distribution for those costs by how they were programmed within the RACER estimate. The report also displays what portion of the RACER estimate was split into 'In-house' and 'Contract' costs. Distribution of costs shown in this report however, does not reflect how the costs will be entered in FUDSMIS for projects that have existing costs in the LCP. The upload rule built into FUDSMIS will schedule the new costs to be proportionately distributed into the years where the phase costs are currently programmed in FUDSMIS. This was specifically designed this way so as to not disrupt the current spreading within the LCP. However, for projects with first time cost data entered into the LCP, the RACER cost distribution will be used to schedule costs into FUDSMIS.

Once all errors have been fixed and the user is satisfied with the phase costs, the user must select the "Update LCP" link to complete the process of uploading the costs into the LCP as shown above. Again, once this link is selected, the new RACER estimate phase costs are distributed into the years of the FUDSMIS LCP where the phases are currently programmed.

Upon selection of the Update LCP link, the system will display all the projects in the file to be uploaded into FUDSMIS. The user has the option of uploading all of them, or specifically selecting one or more projects to be upload. Once the projects are selected,

the costs for those projects will be uploaded into FUDSMIS. A message will appear to notify the user that the upload was successful.

2.7 Archiving the Estimate in FUDSMIS:

Once the costs have been successfully loaded into the LCP for the projects, the estimates must be attached in FUDSMIS. To begin attaching the estimates in FUDSMIS, the user must return to the FUDSMIS CTC Process screen and select 'Attach CTC Estimate Supporting Documentation' link, Figure 10.

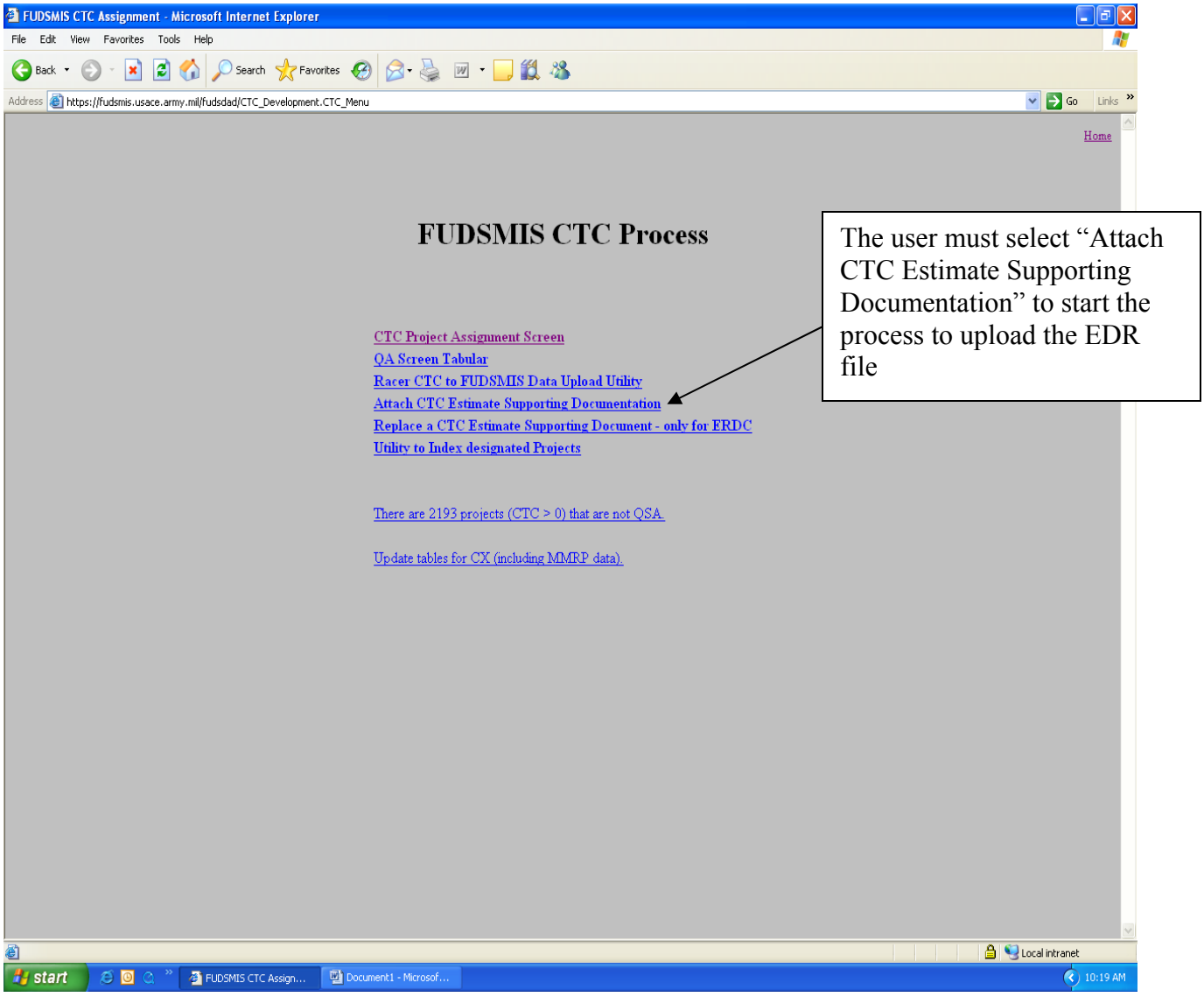


Figure 10. CTC Process Screen

After selecting the 'Attach CTC Estimate Supporting Documentation' link, the user will be taken to the screen shown in Figure 11. Here the user can browse to where the estimate files are saved and select up to 20 estimates files to be attached at one time. The

screen provides the user with helpful information as to the correct naming convention for the files to be attached. If these naming rules are not followed, the file will not be uploaded. Again, if the estimate file was created with the Estimate Documentation Report and FUDS Post Processor Utility' the file to be attached will be named correctly by the utility. Once the user has selected the files to be attached, the user must select the 'Attach' button to attach the estimates. Once this has been completed the user will receive a report showing which files were uploaded.

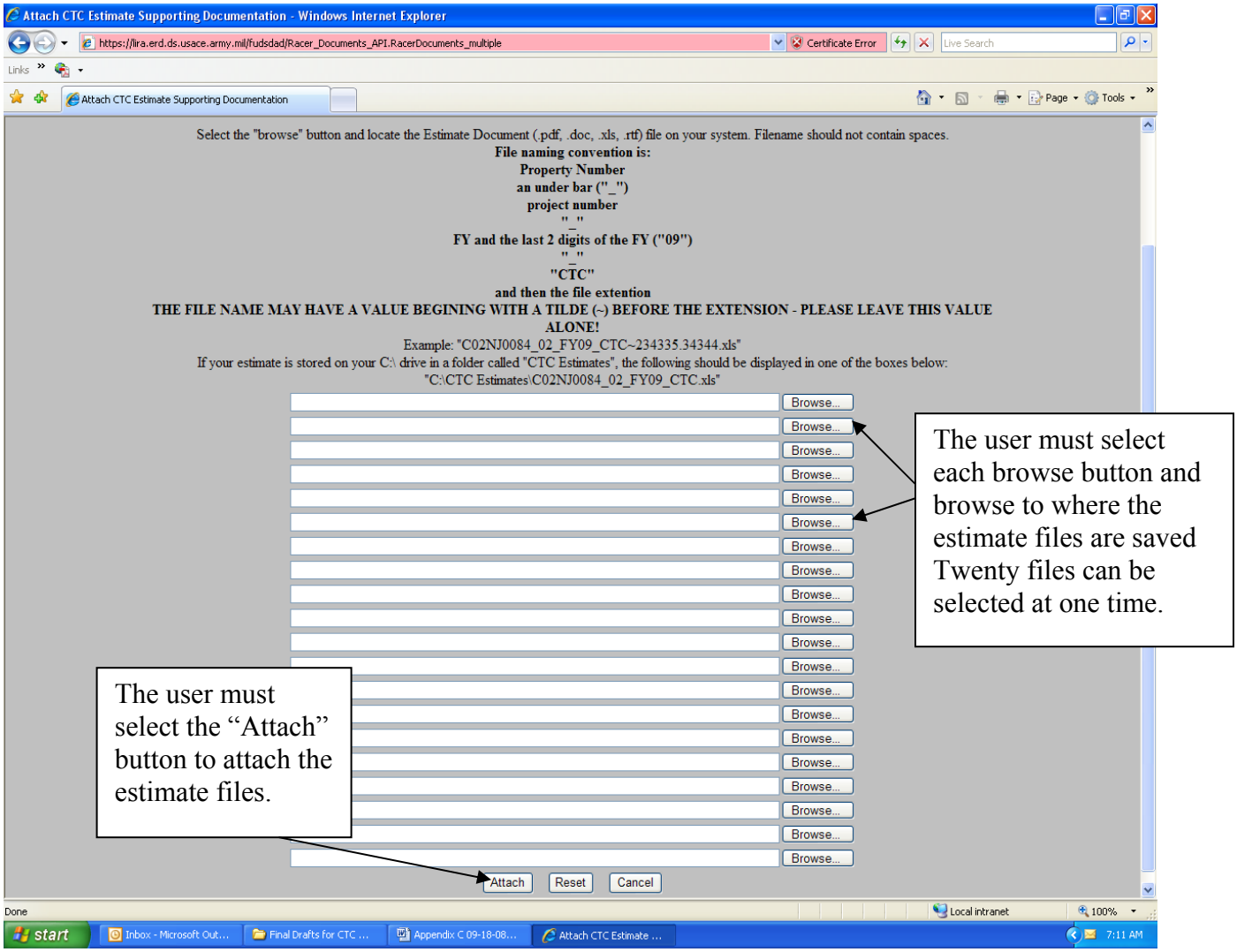


Figure 11. Attach CTC Estimate Supporting Documentation Screen

The screen shot in Figure 12 shows the report detailing which estimate files were successfully uploaded and/or which were not. If there were errors in attaching the files, they will be shown in this report. Those files that did not have errors during the process were attached and those that did were not attached. The user must go back and fix the naming convention of those files that had errors and repeat the process.

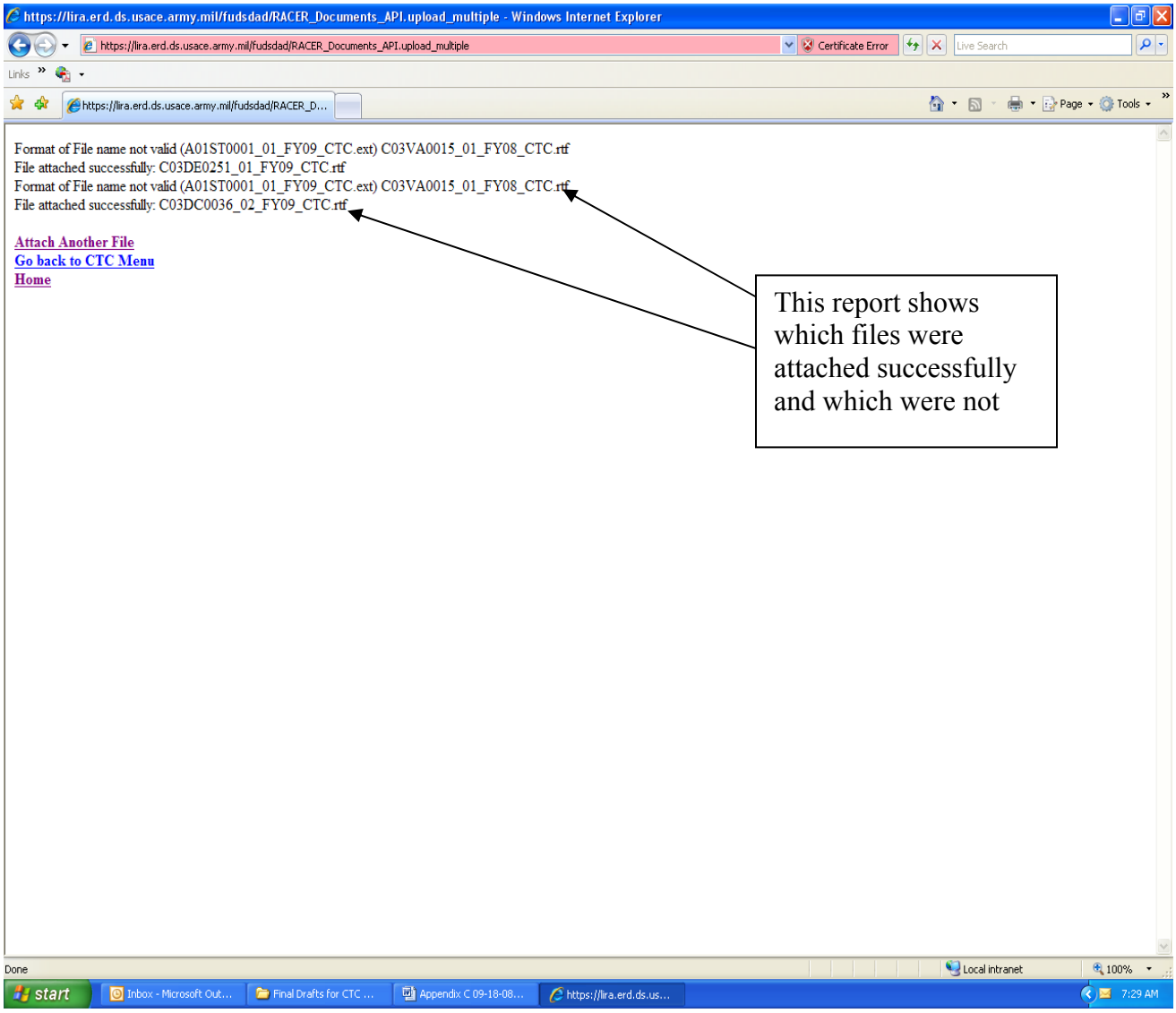


Figure 12. Screen detailing the Success of Estimate Upload

3.0 Supervisory Review:

The Supervisory review (SR) is the second review to be completed in the CTC process, and cannot be completed until the project has passed the QC review. Once the project has passed the QC review and the estimate and required documentation has been uploaded, the 'Required' link in the SR column of the project assignment screen will become highlighted in blue, which indicates the project is now ready for SR. The user must select the 'Required' link to open the SR form. When the SR form is displayed in FUDSMIS (Figure 13) the user will see 2 tables of cost, one titled "Phase Completion Data from Working Data" and the other titled "LCP Entries from Working Data." The first table represents phase costs and completion dates that have been incurred on the project to date. The second table represents the phase costs and totals that were entered into FUDSMIS based on the new estimate. The reviewer has the capability to look at the new estimate by selecting the "View Estimate Documentation" link.

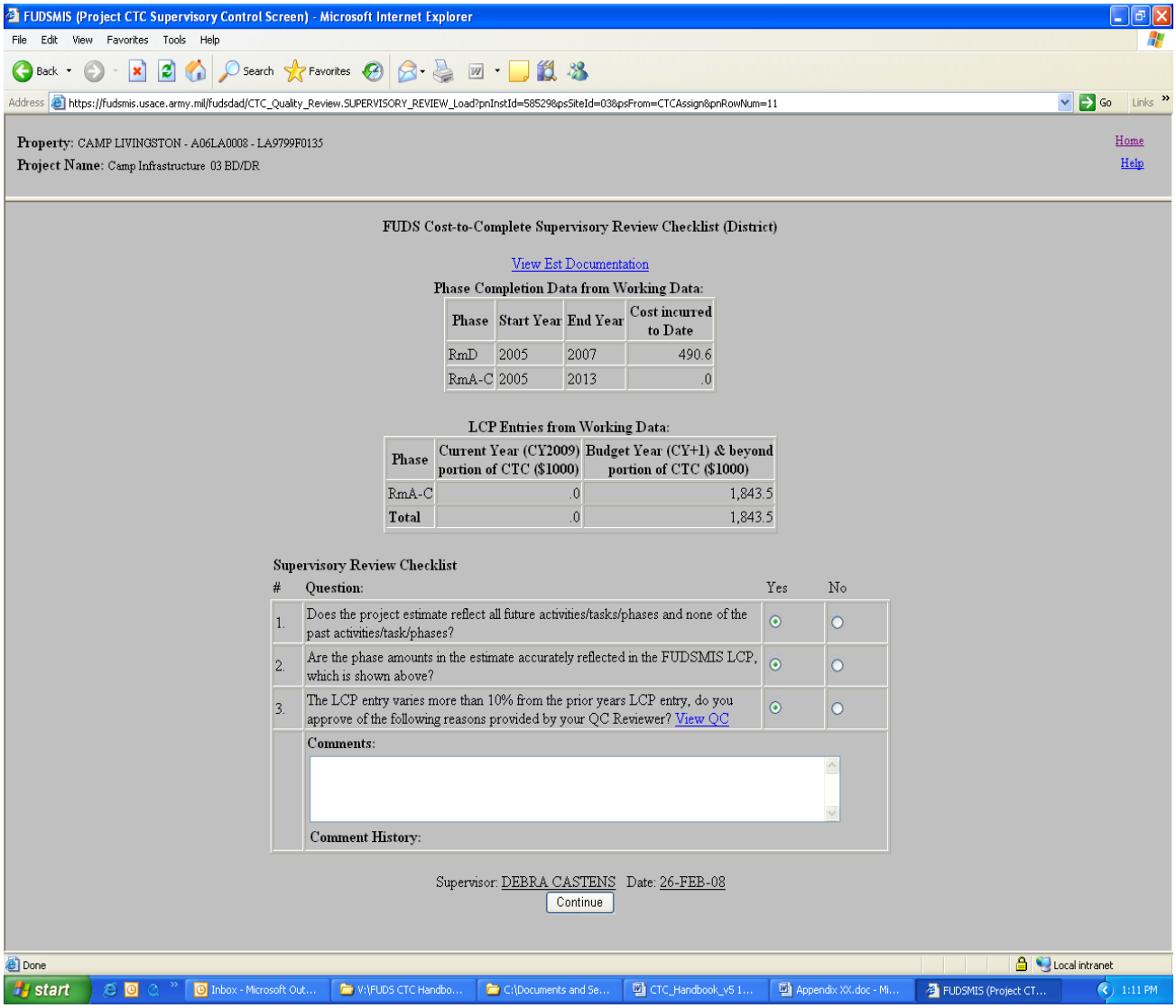


Figure 13. Supervisory Review Screen

The SR form will have either 2 or 3 questions depending if the estimate varied from last year by more than 10%. If during the QC review it is documented that there was a change by more than 10% the third SR question will be included. Table 2 below details the questions and provides some suggestions to help answer those questions. The intent of the SR is to ensure that the estimate uploaded and attached in FUDMIS match, and to ensure that QC review was completed properly.

While performing the SR the reviewer will notice sometimes that question 2 is already answered as 'Yes'. This is because the costs were electronically uploaded, and the xml file and EDR were created using the Estimate Documentation Report and FUDS Post Processor Utility. The reviewer also has the capability to look at the QC form by selecting the "View QC" link. When question 3 appears on the SR form the reviewer must go back and look at the QC screen to verify that the documented reason for change is accurate.

Table 2

No.	Question	Possible Answers	How to Answer this Question
1	Does the project estimate reflect all future activities/tasks/phases and none of the past activities/tasks/phases?	Yes/No	To answer this questions with a "YES," the estimate must contain only work planned for the BY and out in the LCP and must not include any work already accomplished in the current year or prior years. It these conditions are not met, answer the question with a "NO."
2	Are the phase amounts in the estimate that is attached to FUDSMIS accurately reflected in the FUDSMIS LCP, which is shown above?	Yes/No	This question is to ensure that the amounts in the estimate have been entered accurately into FUDSMIS. To answer this question "YES," the estimate and FUDSMIS must contain the same phases and the phase totals must be within $100 ($0.1 K in FUDSMIS). It these conditions are not met, answer the question with a "NO."
3	The LCP entry varies more than 10% from the prior years LCP entry, do you approve of the following reasons provided by your QC Reviewer?	Yes/No	This question is to ensure that the reviewer goes back to assess the reason for change that was documented during QC is adequate and reflects the actual change. To answer this question "YES," the reviewer must go back to the QC screen, read the description for change and assess that it is reflective of the overall major changes. If these conditions are not met, answer the question with a "NO."

4.0 Quality Assurance Review:

The Quality Assurance (QA) review is a Division-led task supported by the EM-CX. The QA review was designed to ensure that the estimates attached in FUDSMIS match the LCP amounts and to verify that the CTC process is being followed. The following is a summary list of the checks made during the QA review process:

- Compare FUDSMIS cost data entry with final CTC estimate
- Ensure archiving of permanent files to FUDSMIS was completed
- Review estimate development
- Prepare a QA Summary Report

The QA review is the last review in the process and cannot be completed until the project has passed both QC and SR reviews. The QA process includes an electronic check for all projects to ensure the LCP cost entries do not change once they are entered in the system, and the process allows for a detailed review of a random sample of projects. Once the project has passed the QC and SR reviews, the 'Required' link in the QA column of the Project Assignment Screen will become highlighted in blue, which indicates the project is now ready for QA. The QA screen, Figure 14, will show two tables; one titled "Data Reported Last FY," and the other titled "LCP Entries From Working Data."

These tables are provided to help the reviewer assess and see the changes from last year's estimate compared to the new cost estimate. The detailed QA review consists of 7 questions as shown in Table 3 below. The reviewer can also view the estimate from the QA screen by selecting the "View Estimate Documentation" link. Also included on the screen is a section where the Division FUDS Program Manager has the capability to override any QA assessments made by the EM-CX. For instance, if there was a situation where the QA reviewer failed any of the QA questions and the issue was not resolved, the Division has the option to override the QA review completed by the EM-CX. When this happens, the Division reviewer must enter an explanation in the comments field to describe the override reason.

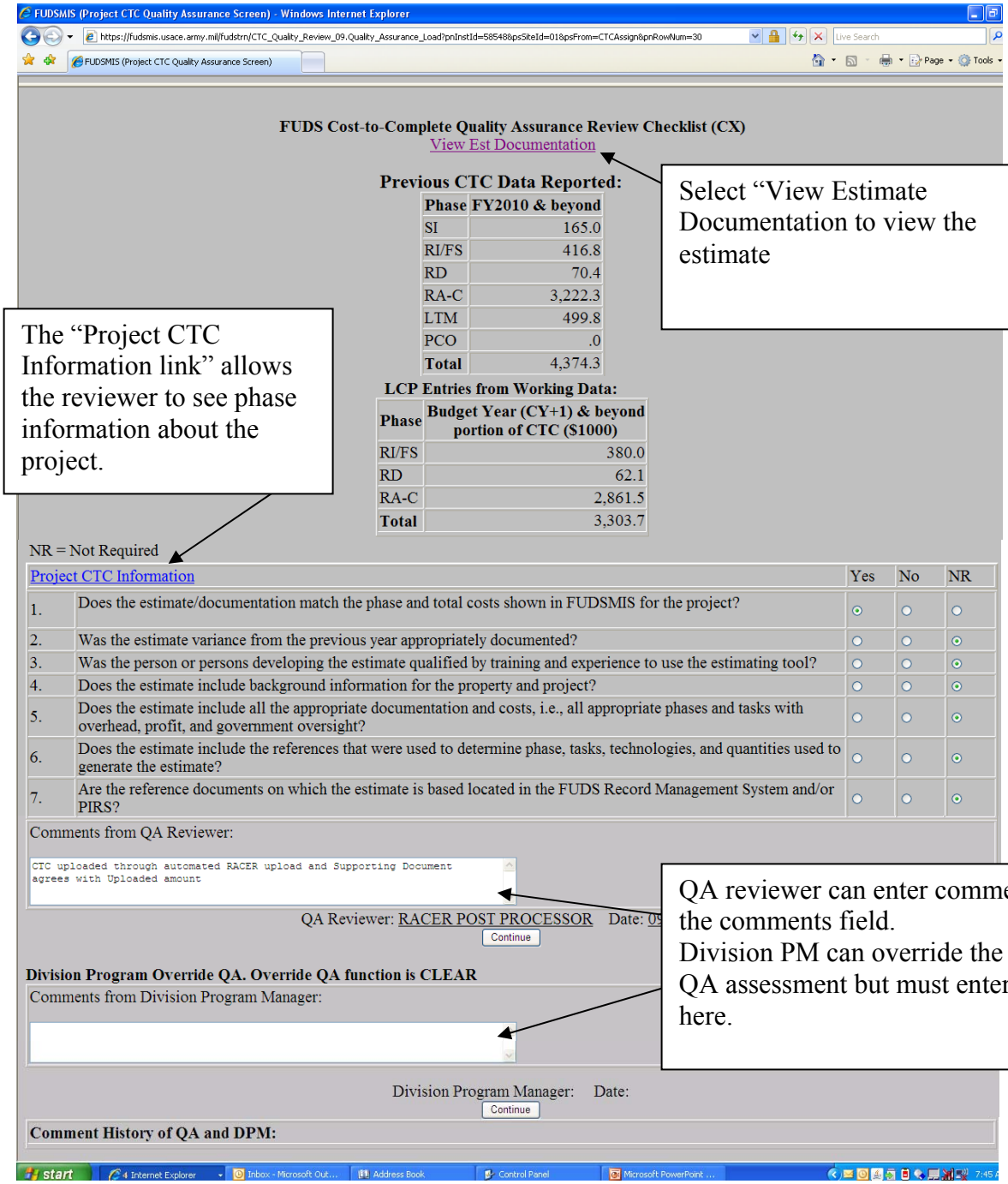


Figure 14. Quality Assurance Review Screen

Table 3

FUDS Cost-to-Complete Quality Assurance Review		
#	**Question**	**Rationale to answer the question**
1.	Does the estimate/documentation match the phase and total costs shown in FUDSMIS for the project?	To ensure that the costs reported for the FUDS Environmental Liability Report are supported by the project estimates stored in FUDSMIS.
2.	Was the estimate variance from the previous year appropriately documented?	To ensure the estimate variance was appropriately documented in order to provide reasons to DOD for fluctuations.
3	Was the person or persons developing the estimate qualified by training and experience to use the estimating tool?	To determine if personnel qualified by training and experience are developing and reviewing the FUDS CTC estimates. Qualified personnel include persons who have attended FUDS CTC Process/EL training in the past year and have attended RACER training in the past.
4	Does the estimate include background information for the property and project?	To ensure each project estimate contains appropriate background information. Background information should include documentation on the following: • The FUDS property and project; • Name of estimator; • Members of the Support Team; • Reasons for change from the last reported estimate; and • Any unique or special site conditions.
5	Does the estimate include all the appropriate documentation and costs, i.e. all appropriate phases and tasks with overhead, profit, and government oversight?	To ensure that the project estimate includes all FUDS EL costs associated with completion of the project. Documentation must be provided on how estimate input parameters were determined. This may include: • The rationale for technology and quantity selections; and • The rationale for required parameter selections and secondary parameter modifications.
6	Does the estimate include the references that were used to determine phase, tasks, technologies, and quantities used to generate the estimate?	• To ensure each estimate documents all references used to prepare the estimate.

FUDS Cost-to-Complete Quality Assurance Review		
#	Question	Rationale to answer the question
7	Are the reference documents on which the estimate is based located in the FUDS Record Management System and/or PIRS?	• To ensure each document referenced in the estimate is available for review

5.0 FUDSMIS Process for Unlocking LCP Once it Has Been Frozen

During early April to early July the LCP is frozen which is known as the "Soft Lock Period." If the District wants to change a phase by more than $1,000 in the LCP for future years (BY and beyond), the Division will need to submit a form in FUDSMIS identifying the project to be changed and the reason for change. The Division will select the link, "**Division Unlock of LCP**" located in the FUDSMIS CTC Process screen, Figure 15.

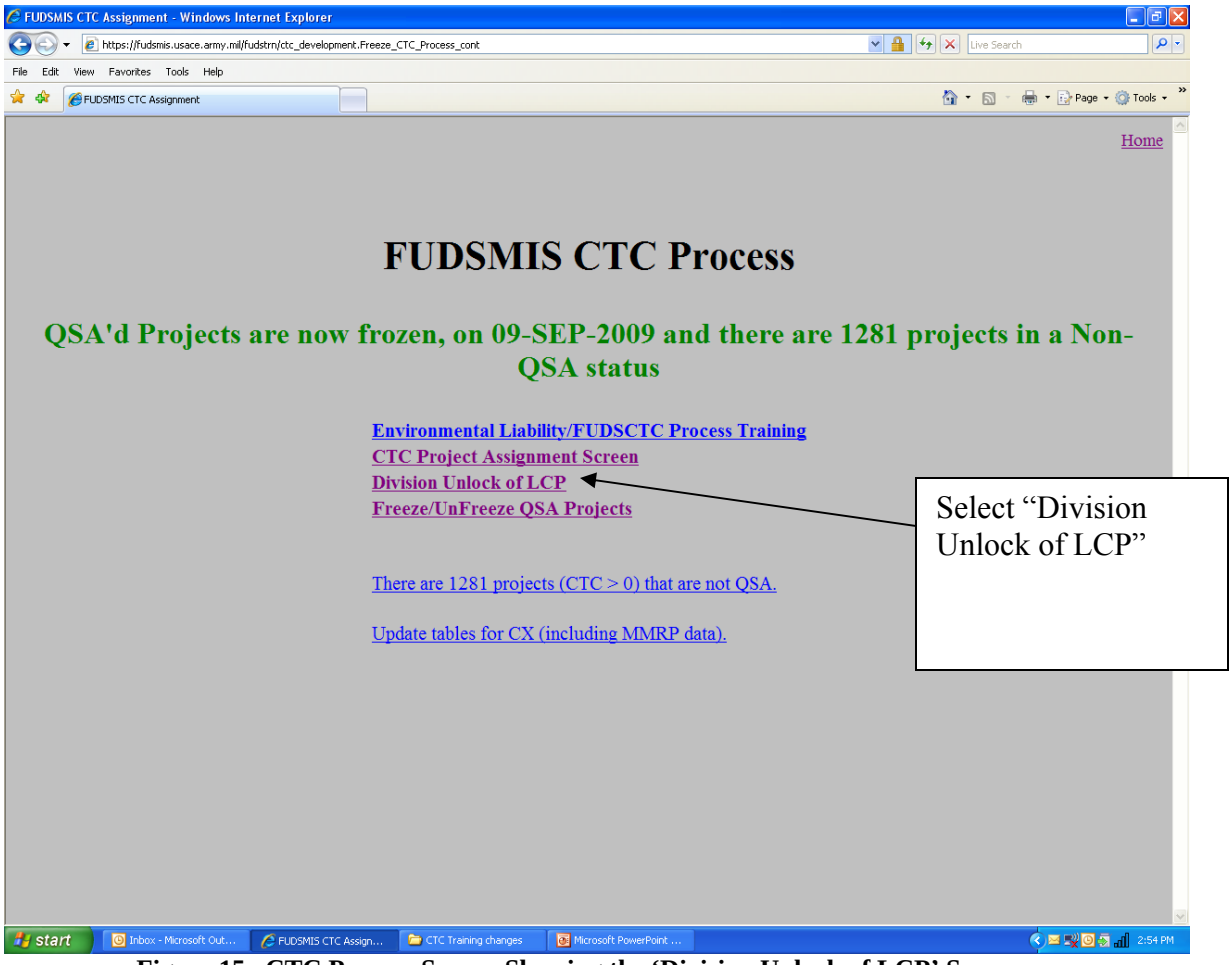


Figure 15. CTC Process Screen Showing the 'Division Unlock of LCP' Screen

The link will take the user to a screen where they will be able to select a District , the Property and Project number, Figure 16. The user will also be able to select a 'Reason for Change' with the following choices from a dropdown list:

- There is a significant error in the estimate development
- Moving current year proposed costs into future years
- Moving future costs into current year
- Projects being NDAI'd

The user is required to enter text in the comment field to further explain the choice for the 'Reason for Change'. The user will then hit a 'Submit button' to save and sign the form.

When this process is complete this will only unlock the LCP for the one project that was designated by the Division. This project will be highlighted in green on the Project Assignment List screen to identify that it has been unlocked. FUDSMIS will electronically generate an e-mail and send it to HQUSACE, Division, District, and the EM-CX identifying that the project was unlocked.

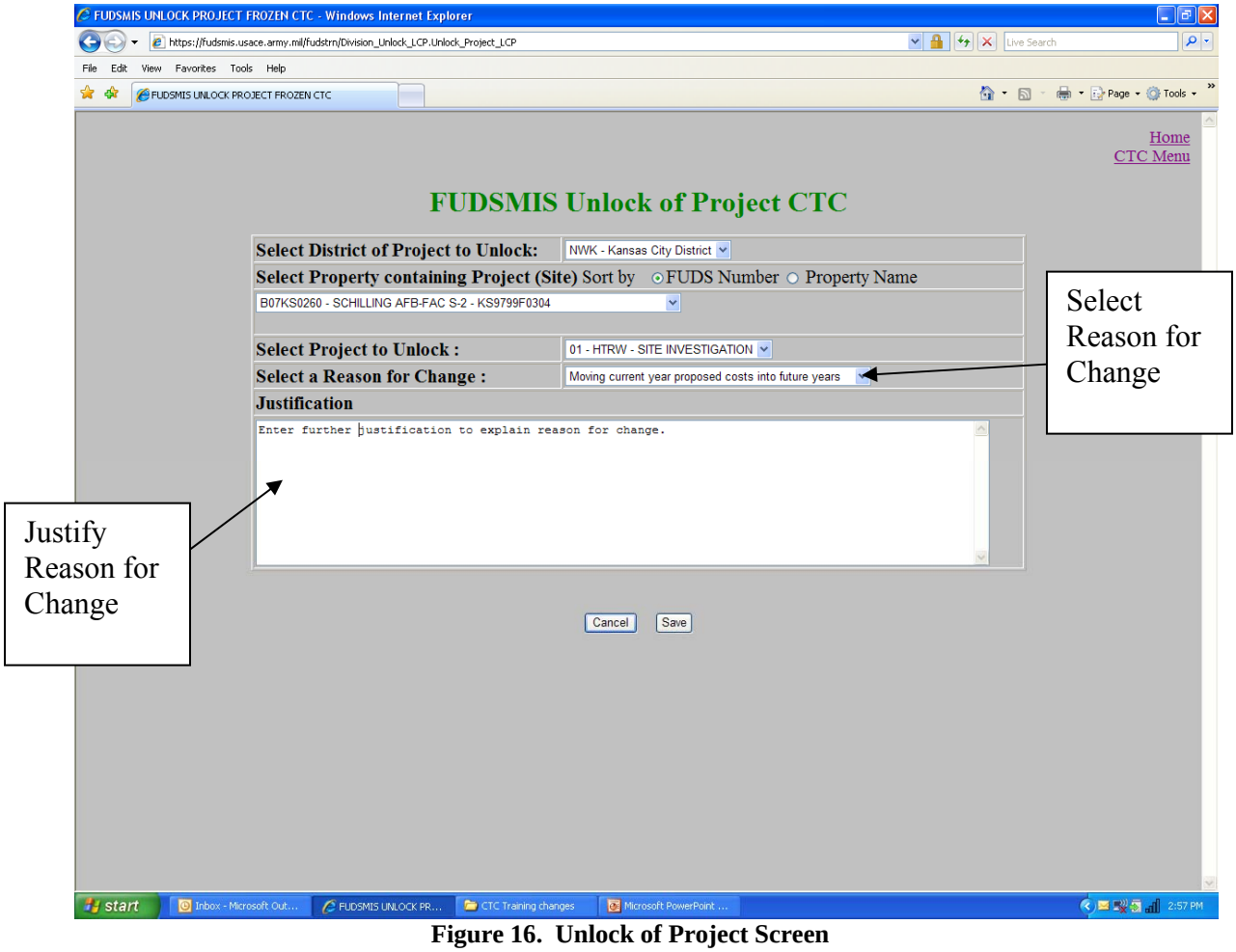
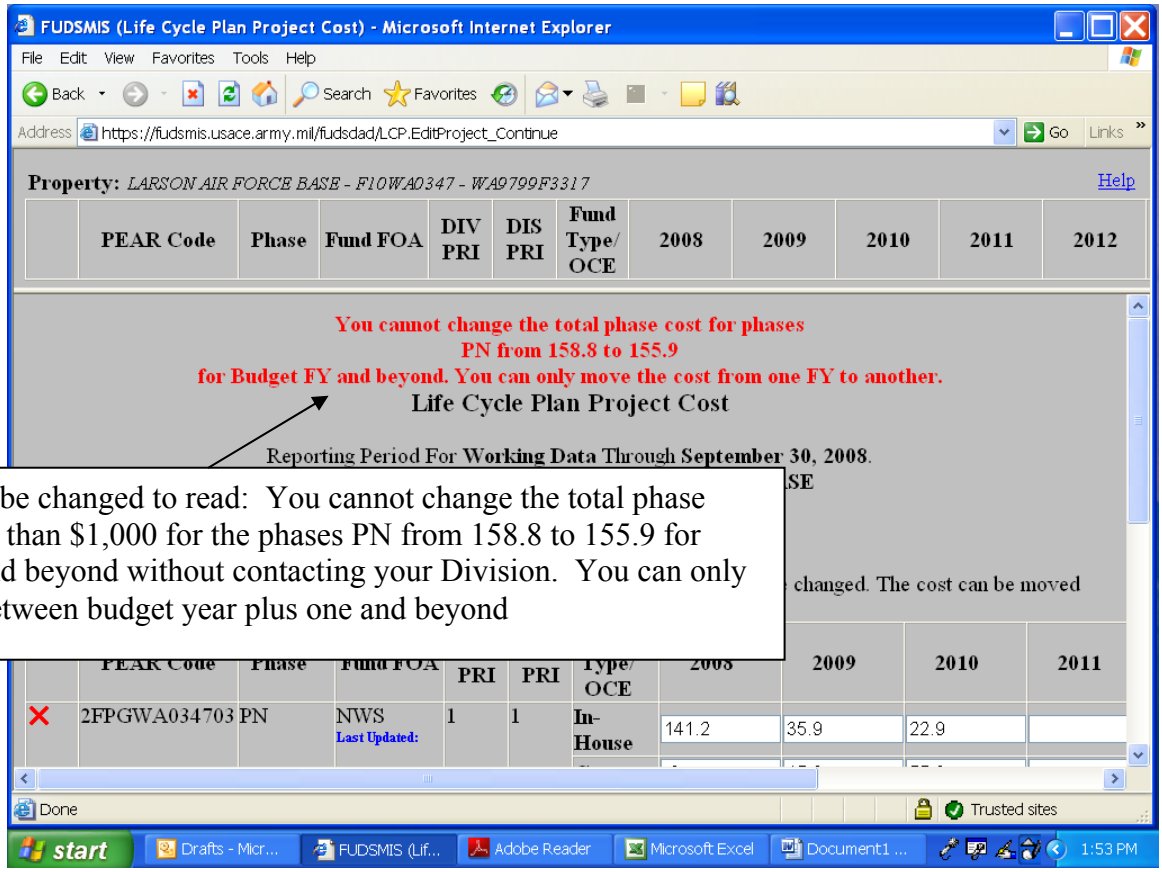


Figure 16. Unlock of Project Screen

When the user changes the LCP for the project after the un-locking FUDSMIS will automatically delete the QC, SR and QA reviews and also remove the attached estimate. At this point the estimate will have to be revised and resubmitted along with completing the three tiered review process. The Division is responsible for completing the QA form in FUDSMIS for projects that are unlocked after the freeze. Once the project has successfully gone through the QA process the project will become locked again and the green highlight will be removed from the project assignment screen.

If the user tries to change the LCP before the Division unlocks it, the user will receive a warning message at the LCP Project Cost screen (Figure 17). Stating that the phase amount cannot be changed by more than $1,000 without contacting the Division and that costs can only be moved between the budget year plus one and beyond. See the example below.



The note will be changed to read: You cannot change the total phase costs by more than $1,000 for the phases PN from 158.8 to 155.9 for Budget FY and beyond without contacting your Division. You can only move costs between budget year plus one and beyond

Figure 17. Warning Message in the LCP Project Cost Screen

6.0 EL/CTC Process Training

On the 'Welcome To FUDSMIS' screen, in the box titled 'Please SELECT a Subject Area" there is a link called '**Environmental Liability/FUDSCTC Process Training'** (Figure 19).

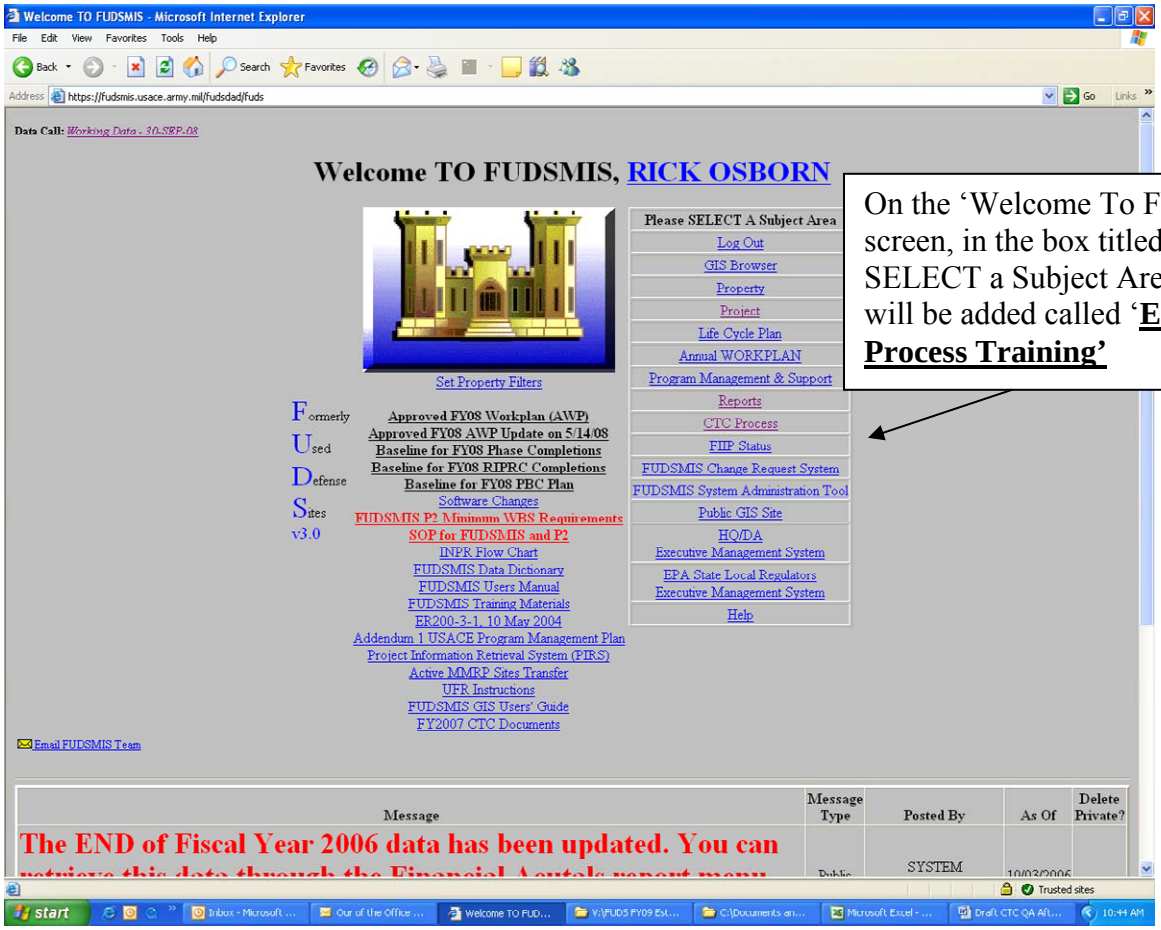


Figure 18. Welcome Screen in FUDSMIS

When EL/CTC Training is selected it will open a screen that has a choice to View Training Slides. The slides will be displayed on the screen with required reading text Each screen that displays a slide will have a '**NEXT'** button to continue to the next slide and a '**BACK**' button. Once the last slide is read and the '**NEXT**' button is selected on the last slide the user will be taken to a screen asking the user to take the test
Each test screen will have one test question with its associated multiple answers (radio button format). The user will select the answer by selecting the radio button. Each test screen will have a '**SUBMIT'** button to submit the users answer; a '**NEXT**' button to go no to the next questions; and a '**BACK TO TRAINING SLIDES'** button to return the training slides.

When the user selects the **'SUBMIT'** button the system will tell the user if the answer was correct or incorrect When the user selects the **'BACK TO TRAINING SLIDES'**

button the system will take the user back to the slide that pertains to the question being asked. When the user comes to the last test question and submits the final answer the user will be taken to a screen that will display their test results. The test results will show the user which questions were answered correctly and those that were not answered correctly. The user will be given the option to return to each test question answered incorrectly and re-do those questions to improve their score.

Once the users have successfully completed the test, a '**Print Certificate'** button will be displayed for the user to print their training certificate.

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Appendix D

EM-CX Qualification Statements

The following are qualification statements for EM-CX personnel that should be appended to the District's Quality Control Plan if EM-CX personnel are to be directly involved in the development or QC review of estimates for a specific District.

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APPENDIX D

Qualification Statements
For
Environmental and Munitions Center of Expertise

Quality Assurance Reviewers

Katherine M. Peterson
Qualifications for QA Review of FUDS CTC Estimates
1 October 2009

Position: Environmental and Munitions Center of Expertise, Environmental Compliance and Management Division, Civil Engineer

Certifications:

- Professional Engineer, State of Nebraska
- Tri-Service Certified Cost Engineer

Education and Training:

- Bachelor of Science, Civil Engineering with a Construction Management Option, University of Wyoming, 1987
- Certified as Trained in RACER
- Certified as Trained in RACER Train the Trainer
- Certified as Trained in MCACES
- FUDS CTC Training
- Network Analysis and Scheduling

Professional Experience:

2007-Present. EM-CX Environmental Compliance and Management Division-FUDS Program Manager

- Responsible for managing the EM-CX FUDS program
- Writes policy guidance for HQUSACE for the nationwide FUDS program
- Manages the FUDS budget for CEHNC

1994-2007. HTRW-CX Environmental Cost, Compliance, and Technology Branch

- Responsible for assisting with the development of HTRW cost engineering policy / guidance.
- Member of the Tri Services Automated Cost Engineering Systems (TRACES) Unit Price Book Committee and the Remedial Action Cost Engineering Requirements (RACER) Technical Users Group and Steering Committee.
- Review District FUDS CTC estimates.
- Provide training to District employees on the FUDS CTC cost estimate preparation process.
- Provide RACER training to District employees.

1988-1994. Cost Engineering Branch, Omaha District

- Major responsibilities at the District included preparation of cost estimates from military, civil, and HTRW design packages.

Contact Information:

U.S. Army Corps of Engineers
Environmental and Munitions Center of Expertise
Environmental Compliance and Management Division CEHNC-CX-EC
Omaha, NE 68102
(402) 697-2610 (v)
(402) 697-2613 (fax)
E-mail: katherine.m.peterson@usace.army.mil

Rick L. Osborn
Qualifications for QA Review of FUDS CTC Estimates
1 October 2009

Position: Environmental and Munitions Center of Expertise, Environmental Engineering & Geology Division, Cost Engineer Team Lead

Certifications:

- Tri-Service Certified Cost Engineering Technician

Education and Training:

- Associate Degree in Arts and Sciences from Iowa Western Community College in 1978
- Certified as Trained in RACER
- Certified as Trained in RACER Train the Trainer
- Certified as Trained in MII

Professional Experience:

- 23 years experience in the cost engineering field. Development of various estimates for military construction, civil works, and HTRW projects for the Omaha District. Serves as EM-CX Team lead for FUDS cost engineering initiatives.

- Responsible for assisting Districts and Divisions with HTRW cost engineering policy/guidance issues, HTRW cost estimate review, and updating/maintaining cost engineering software and databases.

- Other duties include training the RACER estimating software and mentoring District cost engineers on the development of budgetary estimates used in the various Corps wide supported programs.

- Member of the RACER Users Group which performs annual reviews, testing and updates of the software.

Contact Information

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Environmental Engineering & Geology Division
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(402) 697-2613 (fax)
E-mail: rick.l.osborn@usace.army.mil

Jeffrey L. Lester
Qualifications for QC Review of FUDS CTC Estimates
1 October 2009

Position: Environmental and Munitions Center of Expertise, Environmental Engineering & Geology Division, Cost Engineer

Certifications:

ACI Concrete Field Testing Tech – Grade 1
Certified Mobile Crane Inspector
Certified in many of the construction trades

Education and Training:

- 40 hour Hazwopper
- Trained in RACER
- Trained in MII
- Environmental Liability Trained
- First Aid & CPR

Professional Experience:

2008 to Present: Environmental Engineering & Geology Branch

- Provide Technical Review, Assistance and Coordination for HTRW projects.
- Provide/Support Training and Guidance for Environmental missions and programs.
- Represent the CX at Committees, Workshops and Conferences.
- Member of the Tri Services Automated Cost Engineering Systems (TRACES) Unit Price Book Committee and the Remedial Action Cost Engineering Requirements (RACER) Technical Users Group and Steering Committee.
- Member of the RACER User Group which performs annual reviews, testing and updates of the software.
- Replaced RACER line items with TRACES Cost Book items, developed new TRACES Cost Book items, and reviewed the HTRW items for the TRACES Cost Book

1996-2008: Fort Crook Area Office, Offutt A.F.B.

- Worked as Construction Representative, Omaha District with Estimating and Negotiating, with experience on HTRW, Civil, and Military Construction.

1990-1996: Cost Engineering Branch, Omaha District

- 6 years experience in the cost engineering field. Development of various estimates for military construction, civil works, and HTRW projects for the Omaha District.

1983–1990: Designed subdivisions, performed qty take-offs for costing, and design.

Contact Information:

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(402) 697-2613(fax)
E-Mail: jeffrey.l.lester@usace.army.mil

Terry Tomasek
Qualifications for QA Review of FUDS CTC Estimates
1 October 2009

Position: : Environmental and Munitions Center of Expertise, Environmental Engineering & Geology Division, Industrial Hygienist

Education and Training:

- Bachelor of Science, Chemistry, University of Nebraska-Omaha, 1974
- Certified as Trained in RACER
- Certified as Trained in RACER Train the Trainer

Professional Experience:

2005-Present Environmental Engineering & Geology Division

- Industrial Hygienist performing Cost Engineering functions.

1988-2005 HTRW-CX Environmental Health and Safety Branch

- Assist in the Review of FUDS CTC QC estimates.
- Provide technical assistance to Corps of Engineers Districts on Health and Safety issues.
- Technical expert on asbestos for the Corps of Engineers.

1985-1988. Veterans Administration

- Head of the Fire, Safety and Health Program at the V.A. Hospital in Omaha, NE.

1974-1985. Department of Labor

- Industrial Hygienist with the US Department of Labor - OSHA.

Contact Information:

U.S. Army Corps of Engineers
Environmental and Munitions Center of Expertise
Environmental Engineering & Geology Division
CEHNC-CX-EG
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(402) 697-2590 (v)
(402) 697-2613 (fax)
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Kimberly S. Respeliers
Qualifications for QA Review of FUDS CTC Estimates
1 October 2009

Position: Environmental and Munitions Center of Expertise, Environmental Engineering & Geology Division, Chemical Engineer

Education and Training:

- Bachelor of Science & Engineering, Chemical Engineering, University of Iowa, 2005
- Certified as Trained in RACER
- FUDS CTC Training
- Environmental Liability Training

Professional Experience:

2009-Present: Environmental Engineering & Geology Division

- Review District FUDS CTC estimates.
- Develop and/or Revise FUDS CTC estimates
- Develop FUDS Guidance Documents
- Member of the RACER User Group which performs annual reviews, testing and updates of the software

2003-2009: Omaha District, Environmental Sciences, Geotechnical Engineering and Sciences Branch

- Supported FUDS Projects as a Project Delivery Team member, serving as Chemist and Chemical Engineer and performing RI/FS, EE/CA, CTC Estimates, Management Action Plans and other deliverables.
- Provided oversight for FUDS and Air Force Projects
- Supported Missouri River Recovery efforts by performing Environmental Condition of Properties and Environmental Assessments (EAs)
- Supported Air Force with NEPA efforts at Buckley AFB with EAs and Environmental Baseline Surveys.

Contact Information:

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Environmental Engineering & Geology Division
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E-mail: kimberly.s.witt@usace.army.mil

Stanley L. Hanson
Qualifications for QA Review of FUDS CTC Estimates
1 October 2009

Position: Consultant Senior Cost Engineer

Certifications:

- Professional Engineer (PE): Nebraska, 1979-Present (Civil Engineering), E-4756
- Certified Cost Engineer (CCE): DOD Tri-Services Cost Engineering Certification Board, 1996-2005

Education and Training:

- University of Nebraska at Omaha: M.S., Civil Engineering, 1978
- Iowa State University: B.S., Construction Engineering, 1970
- MCACES Composer and MCACES Gold
- Advanced MCACES Gold
- Remedial Action Cost Engineering Requirements (RACER)

Professional Experience:

- **2005-Present:** Consultant for the U. S. Army Corps of Engineers, Environmental and Munitions Center of Expertise, replaced RACER line items with TRACES Cost Book items, developed new TRACES Cost Book items, and reviewed the HTRW items for the TRACES Cost Book, Developed and reviewed FUDS CTC estimates.
- **2005:** Consultant for Project Time & Cost Inc, provided estimating services for a large Department of Energy project.
- **2004-2006:** URS Corporation, provided peer review of construction cost estimates for various Corps of Engineers projects. Also participated as cost engineer for value engineering studies for embassy upgrade projects for the Department of State.
- **1995-2004:** U.S. Army Corps of Engineers, HTRW Center of Expertise, developed cost estimating guidance for Hazardous, Toxic, and Radioactive Waste projects, and served on national technical development and review teams for MCACES cost estimating software, the Unit Price Book cost database, and CostRisk cost contingency and risk analysis software.
- **1988-1995**: U.S. Army Corps of Engineers, Missouri River Division, reviewed construction estimates, provided oversight of subordinate offices' cost estimating procedures, and served on national technical development and review teams for MCACES cost estimating software, the Unit Price Book cost database, and CostRisk cost contingency and risk analysis software.
- **1970-1988:** U.S. Army Corps of Engineers, Omaha District, prepared and reviewed construction cost estimates for military and civil works construction projects.

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(402) 290-4940 (cell)
E-mail: stanley_l_hanson@msn.com

Jim Peterson
Qualifications for QA Review of FUDS CTC Estimates
1 October 2009

Position: Environmental and Munitions Center of Expertise, Environmental Engineering & Geology Division, Civil Engineer

Certifications:

- Professional Engineer, State of Minnesota
- Former Tri-Service Certified Cost Engineer

Education and Training:

- Bachelor of Science, Engineering, University of North Dakota, 1971
- Certified as Trained in RACER
- Certified as Trained in MCACES
- FUDS CTC Training

Professional Experience:

2007-Present: Environmental Engineering & Geology Division

- Review District FUDS CTC estimates.
- Develop and/or Revise District FUDS CTC estimates
- Develop FUDS Guidance Documents

2006-2007: Contractor (as needed) for EMCX Environmental Cost, Compliance, and Technology Division

- Review District FUDS CTC estimates.
- Develop and/or Revise District FUDS CTC estimates.

2005-2006: Consultant for Project Time & Cost Inc.

- Provided estimating services for development of Line Items for the TRACES Cost Book

1989-2004: HTRW-CX Environmental Cost, Compliance, and Technology Branch

- Responsible for development of HTRW cost engineering policy / guidance.
- Member of the Interagency Cost Engineering Steering Committee and the Remedial Action Cost Engineering Requirements (RACER) Technical Users Group and Steering Committee.
- Developed and Reviewed District FUDS CTC estimates.
- Provided training to District employees on development of FUDS CTC cost estimates. Provided Cost Engineering and RACER training to more than 300 District employees nationwide.

1971-1989: Various Districts throughout USACE.

- Major responsibilities at the Districts included preparation of cost estimates from military, civil, and HTRW design packages, and Project Management positions developing Engineering Documents.

Contact Information:

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Appendix E

USACE Center of Expertise Quality Assurance (QA) Plan for FUDS Cost-to-Complete Estimates

This document describes the Quality Assurance procedures that will be followed by the EM-CX during the annual CTC estimate QA Review process for FUDS.

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Appendix E

USACE Environmental & Munitions Center of Expertise Quality Assurance (QA) Plan

For the

Formerly Used Defense Sites (FUDS) Cost-To-Complete (CTC) Estimates

October 2009

U.S. Army Corps of Engineers

Environmental and Munitions Center of Expertise

1 Introduction

USACE FUDS Divisions are responsible for performing a Quality Assurance (QA) Review of the Cost-to-Complete estimate for the Budget Year and beyond (CTC_BY) development process for their assigned Districts. Within the Division, the Division Formerly Used Defense Sites (FUDS) Program Managers (PgM) will lead this effort, often assisted by the USACE Environmental and Munitions Center of Expertise (CEHNC-EM-CX). In addition, ER 200-3-1, Appendix E, requires the USACE EM-CX to perform an independent QA Review of queried estimates. This document describes the QA procedures that will be followed by the CX during the annual CTC estimate QA Review process for FUDS.

2 Purpose

The QA review is a component of the quality review process performed on all projects which require a FUDS CTC estimate. The QA review includes a comparison of CTC_BY cost data entry with the final CTC estimate attached to FUDSMIS, and reviewing the CTC "Estimate Development". The QA review is designed to help ensure that the FUDS CTC process was followed which will aid in passing an audit.

3 QA Project Delivery Team

3.1 QA Team Leader

Mr. Rick Osborn (CEHNC-CX-EG, 402-697-2426) is the CX Team Leader in coordination with the each Division Program Manager for this effort. The Team Leader establishes quality criteria that must be met by the QA Review Team.

3.2 QA Reviewers

The following individuals may perform QA Reviews for the CTC effort:

- Rick Osborn, CEHNC-CX-EG, (402) 697-2426
- Kate Peterson, CEHNC-CX-EC, (402) 697-2610
- Terry Tomasek, CEHNC-CX-EG, (402) 697-2590
- Jeff Lester, CEHNC-CX-EG, (402) 697-2575
- Kim Respeliers, CEHNC-CX-EG (402) 697-2464
- Jim Peterson, CEHNC-CX-EG, (402) 697-2656
- Stan Hanson, Contractor
- Each Division Program Manager

The EM CX maintains the QA reviewer list within FUDSMIS. Only those individuals identified as QA reviewers will be allowed to conduct QA reviews. All QA reviewers must participate in the annual "Environmental Liability and CTC Process Training" to be eligible to conduct QA reviews.

4 Overview of QA Review:

The QA review is a two-tiered review. The first tier is completed on 100% of the projects. The second tier is only on a statistical sample of the projects.

4.1 First Tier of QA Review

The first tier involves performing a review of each District's projects to verify that each project has a CTC_BY estimate attached to FUDSMIS that is consistent with the BY and out portion of the LCP in FUDSMIS. To successfully pass this review, the difference between the estimate and the BY and out portion of the LCP at the phase level must be less than $1,000 per phase.

4.2 Second Tier of QA Review

The second tier involves performing a detailed review of the District's estimate development process on selected individual estimates. This will be achieved by reviewing a statistically representative percentage of each District's project estimates to ensure the estimates meet estimating standards, are documented, provide an audit trail, and that the estimate preparers are properly trained and experienced.

4.3 Individual QA Summary Report

The EM CX will provide a report that summarizes the QA effort and results to each Division. This report will include the list of projects included in both tiers of review and summarize the findings with recommendations.

5 Recording QA Review Results

All QA review results are recorded in FUDSMIS. A project is eligible for QA review after the Quality Control and Supervisory Reviews have been completed.

5.1 First Tier QA Review

Only the first question on the QA review will be answered Yes or No to complete the first tier QA review on 100% of the projects. If the question is answered Yes, and the remaining questions are recorded as Not Reviewed (NR), then the QA for the project is considered completed. If the question is answered No, the QA review will be recorded as Underway and will not proceed to complete unless the project LCP or attached estimate is modified to match and Question 1 will be verified and answered Yes.

5.1.1 In some cases Question 1 is electronically answered Yes, and the other 6 questions are answered as "NR" to complete the QA form. This happens when RACER is used to develop the estimate, and the Estimate Documentation Report Post Processor (EDR/PP) utility is used to create an xml file and the Estimate Documentation Report. When the two files are created using the EDR utility it provides a hash-val designation for the EDR. FUDSMIS is coded to recognize

this so when the xml file is uploaded and the estimate is attached in FUDSMIS the system automatically completes the QA form in FUDSMIS.

5.1.2 For estimates that do not use the EDR/PP utility to create the upload files (xml and EDR) the QA form is **not** electronically filled out for the QA reviewer. In these cases, the QA reviewer will open the estimate attached in FUDSMIS and compare each phase cost and total cost in the estimate with the phase and total costs **in** the FUDSMIS LCP to ensure that they all match within a $1,000 variance. Question 1 will then be appropriately answered either 'Yes' or 'No' and the remaining question will be answered as 'NR'. If Question 1 is answered as 'No' QA comments will be coordinated with the District/Division to eventually ensure the estimate passes Question 1 of the first tier QA review.

5.2 Second Tier QA Review

A representative sample of projects (reference section 6) will be reviewed further for technical adequacy and to ensure the CTC estimate development adheres to the current CTC Handbook. Questions 2 – 7 will be recorded for this review. If questions 2 – 6 are answered Yes, and question 7 is answered either Yes or No, then the technical QA review will be considered complete. If any one of questions 2-6 are answered No, the technical QA will be considered Underway, and the division and district will be informed of the technical issue and will be provided the opportunity to rectify the issue. Once rectified, the QA review will be completed again and recorded appropriately. Reference Section 6.2 below for the detailed approach.

6 Tier 2 QA Review of CTC Estimates

6.1 Project Selection for Tier 2 QA Review of Estimates

A representative sample of Approved[1] projects will be selected for the Technical QA Review. The project selection will include:
(1) Specific projects which the Divisions request,
(2) Projects with the following criteria:

- Projects with CTC costs equal to or greater than $50,000,000
- Projects with PCO costs exceeding $25,000
- Projects that have RI/FS Phase costs exceeding $10,000,000
- Projects that have Phase durations greater than 10 years (excludes RA-O or LTM)
- Projects that have underwater cleanup

(3) Randomly selected projects

The goal is to perform QA on approximately 10% of each District's projects from FUDSMIS. The QA Team Leader will assign review responsibilities for each project to QA team members.

[1] "Approved" refers to the FUDSMIS data element that indicates the Property and Project are designated as "CEYNYA"

QA Review will not be conducted by the same person who has either assisted in the development or QC Review of the project estimate.

6.2 Detailed Approach for Addressing Technical QA Questions

The technical QA review of the selected estimates will focus on the technical quality to ensure the estimates meet the estimating standard that require traceability and replicability of the costs included in the FUDS Environmental Liability Report (ELR). The QA Reviewer will review the project estimate attached in FUDSMIS. All 7 QA questions will be answered Yes or No for each project estimate reviewed to determine the adequacy of the estimate development. A No answer to any of the questions (except question 7) will result in failure of the QA. The QA results will then be coordinated with the Division and District to determine if the estimate must be corrected to properly address all No answers and the QA review repeated.

The following table outlines the QA questions that are included in the QA review with the rational in determining how to answer the question.

FUDS Cost-to-Complete Quality Assurance Review			
#	**Question**	**Rationale to answer the question**	**Passing Qualifications**
1.	Does the estimate/documentation match the phase and total costs shown in FUDSMIS for the project?	To ensure that the costs reported for the FUDS Environmental Liability Report are supported by the project estimates stored on FUDSMIS.	Open the estimate attached in FUDSMIS and compare each phase cost and total cost in the estimate with the phase and total costs in the FUDSMIS LCP to ensure that each phase does not vary by more than $1,000.
2.	Was the estimate variance from the previous year appropriately documented?	To ensure the estimate variance was appropriately documented in order to provide reasons to DOD for fluctuations.	• The estimate includes an explanation of why the estimate changed from last year. • The QC review explains the 10% variance adequately. • Documented notes are clear for the current estimate.
3	Was the person or persons developing the estimate qualified by training and experience to use the estimating tool?	To determine if personnel qualified by training and experience are developing and reviewing the FUDS CTC estimates. Qualified personnel include persons who have attended FUDS CTC Process/EL training in the past year and have attended RACER training in the past.	The estimator must attend FUDS CTC Process/EL training & one of the following: • The estimate is in RACER and the estimator has attended RACER training within the past three years. • The estimate is completed by either the MM or the CWM design center. • The estimate is in MII and the estimator has attended MII training. • The estimate is in Excel or Word. Experience using Excel or Word cannot be monitored and is N/A. Check that estimator identified in the FUDSMIS QC form is the estimator shown in the estimate documentation.

FUDS Cost-to-Complete Quality Assurance Review			
#	**Question**	**Rationale to answer the question**	**Passing Qualifications**
4	Does the estimate include background information for the property and project?	To ensure each project estimate contains appropriate background information. Background information should include documentation on the following: • The FUDS property and project; • Name of estimator, • Members of the Support Team; • Reasons for change from the last reported estimate; and • Unique or special site conditions.	• The attached estimate includes historical Property and Project information from the INPR or other relevant project documents. • The documentation includes: – Estimator's name, – Names and contact information of support team members, – Reasons for change from the last reported estimate, – Any unique or special site conditions that would affect the estimate, (i.e., remote/ hard to reach locations, significant rock excavation, PPE Level B or A, etc.)

FUDS Cost-to-Complete Quality Assurance Review			
#	**Question**	**Rationale to answer the question**	**Passing Qualifications**
5	Does the estimate include all the appropriate documentation and costs, i.e. all appropriate phases and tasks with overhead, profit, and government oversight?	To ensure that the project estimate includes all FUDS EL costs associated with completion of the project. Documentation must be provided on how estimate input parameters were determined. This may include: • The rationale for technology and quantity selections; and • The rationale for required parameter selections and secondary parameter modifications.	• CTC estimate includes all the required phases, or documents why required phases were not included. • If markups differ from the standard FUDS markup template provided, explanations are documented in the estimate for the variance. • Documentation is provided on the rationale used to arrive at remediation technologies if they differ from the decision document. • Any modifications to the required or secondary parameter selections must be explained in the estimate. • Check that the most currently available documents are being used (i.e. if FUDSMIS shows that the SI is complete check that this document is being used to establish the estimate)
6	Does the estimate include the references that were used to determine phase, tasks, technologies, and quantities used to generate the estimate?	To ensure each estimate documents all references used to prepare the estimate.	• Treatment methodology and quantities are documented in the referenced documents. If quantities are not in the referenced documents, but they appear reasonable the estimate can be accepted. • Documented references were used to prepare the estimate.

FUDS Cost-to-Complete Quality Assurance Review			
#	**Question**	**Rationale to answer the question**	**Passing Qualifications**
7	Are the reference documents on which the estimate is based located in the FUDS Record Management System and/or PIRS?	To ensure each document referenced in the estimate is available for review. Answering this question "No" does not constitute failure of the QA. This question is merely for information purposes.	• All documents referenced in the estimate are available in the FUDS Record Management System and/or PIRS. Answering this question "No" does not constitute failure of the QA. This question is for information purposes to determine which documents need to be added.

7 Division Override

The Division FUDS PM is the lead for the QA review effort for each project within their Division. The Division PM can override the CX QA results for any project in their Division. This override must be documented in FUDSMIS on the QA review form. If the QA review for a project is overwritten, the project will be eligible for upward reporting in the ELR.

8 A Summary Report

The CX will provide a narrative analysis of the QA review of the CTC process in the "Quality Assurance Review After Action Report" to each Divsion. The report will provide an assessment of the major components of the District's CTC process with analysis on the total number of projects, project dollar totals, and number of projects that either met or did not meet the CTC requirements. The CX will provide the assessment to HQUSACE of the overall CTC estimating process at a national level, with an information copy to the Divisions and Districts.

Appendix F

DAIM-ZA Memorandum, 18 November 2004, Subject: Improving the Reporting of Financial Liabilities.

The following Department of Army memorandum established specific review and quality assurance/quality control responsibilities for each cleanup program. It further required immediate implementation to ensure CTC efforts during FY2005 provided for sound and audible estimates.

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DEPARTMENT OF THE ARMY
ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
600 ARMY PENTAGON
WASHINGTON, DC 20310-0600

DAIM-ZA

NOV 1 8 2004

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Improving the Reporting of Environmental Liabilities

1. References:

a. Memorandum, Department of the Army, Office of the Assistant Chief of Staff for Installation Management, 30 Jul 04, SAB.

b. Environmental Liabilities Required To Be Reported on Annual Financial Statements (Report No. D-2004-080), Inspector General, Department of Defense, dated 5 May 04.

2. Reference 1a transmitted the Correction Action Plans developed to address deficiencies in the reporting of environmental liabilities documented by the DOD Inspector General (ref 1b). Deficiencies noted in the DODIG report included the need to conduct and document supervisory review of cost-to-complete estimates and the need for consistent quality control (QC) and quality assurance (QA) procedures to ensure our estimates are complete and auditable.

3. The enclosed matrix (Responsibilities for Cost-to-Complete and Financial Liabilities) establishes specific review and QA/QC responsibilities, for each of the cleanup programs, to be implemented by your organizations in future cost-to-complete development efforts. Where the specific office listed in the table does not match the existing installation or command structure of your organization, an equivalent office should be used to conduct the assigned function.

4. We must implement these review procedures immediately to ensure cost-to-complete development efforts during fiscal year 2005 provide sound and auditable estimates of our environmental liabilities.

5. The point of contract is Mr. James Daniel, DAIM-EDC, (703) 601-1590, e-mail James.Daniel@hqda.army.mil.

Encl

for LARRY J. LUST
Major General, GS
Assistant Chief of Staff
for Installation Management

Printed on Recycled Paper

DAIM-ZA
SUBJECT: Improving the Reporting of Environmental Liabilities

DISTRIBUTION:
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CHIEF, NATIONAL GUARD BUREAU, ATTN: NGB-ARE (LT COL WALTER), ARLINGTON HALL, 111 SOUTH GEORGE MASON DRIVE, ARLINGTON, VA 22204-1382

OFFICE OF THE ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT, BASE REALIGNMENT AND CLOSURE DIVISION, ATTN: DAIM-BO (MR. HOOD), NC1/PRESIDENTIAL TOWERS, ROOM 9652, 2511 JEFFERSON DAVIS HIGHWAY, ARLINGTON, VA 22202

COMMANDER,
HQ, US ARMY MATERIEL COMMAND, ATTN: AMCPE-I (MR. DRUMHELLER), 9301 CHAPEK ROAD, FORT BELVOIR, VA 22060-5527
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US ARMY MILITARY DISTRICT OF WASHINGTON, 103 THIRD AVE, BUILDING 42, (ANSP-IS-EV/MR. BRUMBACK), FT LESLEY J. MCNAIR, DC 20319-5058
US ARMY SURFACE DEPLOYMENT AND DISTRIBUTION COMMAND, ATTN: MTPAL-FE (MR. DOUTHIT, ROOM 11N67), HOFFMAN BLDG II, 200 STOVALL STREET, ALEXANDRIA, VA 22332-5000
US ARMY SPACE AND MISSILE DEFENSE COMMAND, ATTN: SMDC-OP, P.O. BOX 15280, ARLINGTON, VA 22215-0280
COMMANDER, US ARMY CORPS OF ENGINEERS, ATTN: CEMP-R (MR. LUBBERT), 441 G STREET NW, WASHINGTON, DC 20314
US ARMY ENVIRONMENTAL CENTER, ATTN: SFIM-AEC-CD (COL DE PAZ), ABERDEEN PROVING GROUND, MD 21010-5401
OFFICE OF THE DIRECTOR, US ARMY INSTALLATION MANAGEMENT AGENCY, ATTN: SFIM-AR-Z (COL ALDRIDGE), 2511 JEFFERSON DAVIS HIGHWAY, TAYLOR BLDG (NC3), ARLINGTON, VA 22202

CF:
ASSISTANT SECRETARY OF THE ARMY (FINANCIAL MANAGEMENT AND COMPTROLLER), ATTN: OASA(FM&C) (MR. PETER LANGEVIN), 109 ARMY PENTAGON, WASHINGTON, D.C. 20310-0109

INSTALLATION SUPPORT MANAGEMENT AGENCY ATLANTA FIELD OFFICE, ATTN: DAIM-BO-A (MR. VICTOR BONILLA), BLDG. 701, FT MCPHERSON, GA 30330-000
(CONT)

DAIM-ZA
SUBJECT: IMPROVING THE REPORTING OF ENVIRONMENTAL LIABILITIES

CF: (CONT)
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HQ, US ARMY TANK-AUTOMOTIVE & ARMAMENTS COMMAND, G-3/G-4, ATTN: AMSTA-CS-N/MAILSTOP-412 (MS. KATHLEEN DERBIN), 6501 E. 11 MILE ROAD, WARREN, MI 48397-5000
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HQ, US ARMY COMMUNICATIONS-ELECTRONICS COMMAND, ATTN: AMSEL-LE (MR. JOE COCCO), BUILDING 1209 1E, FORT MONMOUTH, NJ 07703-5000
US ARMY RESERVE COMMAND ATTN: AFRC-ENV (MR. GRICIUS), 1401 DESHLER STREET SW, FORT MCPHERSON, GA 30330-2000

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IMA SOUTHEAST REGION, ATTN: (SFIM-SE-E/MR. RUDY STINE), 1593 HARDEE AVE S.W., BLDG 171, FORT MCPHERSON, GA 30330-1057
IMA SOUTHWEST REGION, ATTN: (SFIM-SW-E/MR. GREGG CHISLETT), 1204 STANLEY RD, STE 9, FORT SAM HOUSTON, TX 78234-5009

Responsibilities for Cost-to-Complete and Financial Liabilities

ACTIONS	Army DERP Active / Excess Installations	Base Realignment and Closure and Excess Installations CC	Formerly Used Defense Sites	Compliance-Related Cleanup (Special Installations)
Develop CTC Estimates	Installation RPM (AEC for NGB)	BRAC Environmental Coordinator	USACE District Project Manager	Installation CC - RPM
Supervisory Review	DPW / BRAC Fld Ofc Env Lead *	BRAC Field Office Env Lead	USACE District Program Manager	Dir. of Public Works or Equivalent
Quality Control	USAEC Cleanup Division **	USAEC Cleanup Division	USACE District QC Team	MSC or MACOM Envmtl Chief
Quality Assurance	USAEC Cleanup PM Branch	USAEC Cleanup PM Branch	USACE Division FUDS Mgr ***	USAEC Cleanup PM Branch
Approval	USAEC Program Manager	BRAC Division Env & Rsce Mgr	USACE HQ FUDS Program Mgr	MACOM Environmental Chief
Validation	ACSIM Dir Envir. Prgm	ACSIM BRAC Division Chief	ACSIM Dir Envir. Prgm	MACOM Envir. Chief / Acq PM

ACTIONS	Compliance-Related Cleanup (IMA CONUS and OCONUS)	Compliance-Related Cleanup (NGB)	Massachusetts Military Rsvn Compliance-Related Cleanup (AEC/NGB)	Compliance-Related Cleanup (USAR RRC/Installation)
Develop CTC Estimates	Installation CC - RPM	Installation CC - RPM	PM MMR	Installation/RRC CC - RPM
Supervisory Review	DPW/Dep Garrison Cmdr	Facilities Mgt Officer / Ch of Staff	USAEC Deputy to the Cmdr	DCS Engineer/DPW
Quality Control	IMA Region Env Chief	NGB Envir. Prog. Div. Cleanup Br.	USAEC Cleanup Division	IMA ARD Envir. Chief
Quality Assurance	USAEC Cleanup PM Branch	USAEC Cleanup PM Branch	USAEC Cleanup PM Branch	USAEC Cleanup PM Branch
Approval	IMA Environmental Chief	NGB Environmental Chief	NGB Environmental Chief	IMA Environmental Chief
Validation	ACSIM Dir Envir. Prgm	ACSIM Dir Envir. Prgm	ACSIM Dir Envir. Prgm	ACSIM Dir Envir. Prgm

ACTION DESCRIPTIONS

Develop Cost-to-Complete Estimates: Staff prepares site level cost to complete estimates using RACER or engineered estimates. Estimates must be auditable. Data is entered into database of record (i.e. AEDB-R, AEDB-CC, FUDSMIS).
Supervisory Review: Supervisor of staff preparing CTC estimate must review the estimate and sign off on the Supervisory Review Checklist. * Dep. Environmental Chief for NGB.
Quality Control: Reviews estimates for completeness. Checks if assumptions are valid. ** Includes NGB AEC Liaison for NGB installations.
Quality Assurance: Randomly selects certain estimates for thorough review. Checks to see if estimates are auditable. *** May use Center of Expertise.
Approval: Cleanup Program Managers have to approve estimates used for reporting their program's environmental liabilities.
Validation: ACSIM collects and validates environmental liabilites submitted by each cleanup program. Checks to see if all necessary program aspects are identified and reported.

Enclosure

GLOSSARY
Acronyms and Abbreviations.

Acronym	Meaning
ACSIM	Assistant Chief of Staff for Installation Management
AR	Army Regulation
ARC	Annual Report to Congress
ATSDR	Agency for Toxic Substances and Disease Registry
AWP	Annual Workplan
BD/DR	Building Demolition and Debris Removal
BDI	Budget Development Instructions
BES	Budget Estimate Submission
BY	Budget Year
CEFMS	Corps of Engineers Financial Management System
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFO	Chief Financial Officer
CFR	Code of Federal Regulations
CON/HTRW	Containerized/Hazardous, Toxic, and Radioactive Waste
CTC_BY	Cost-to-Complete for Budget Year and Beyond
CTC_CY	Cost-to-Complete for Current Year
CTC	Cost-to-Complete
CWM	Chemical Warfare Materials
CY	Current Year
DA	Department of the Army
DERP	Defense Environmental Restoration Program
DFAS	Defense Finance and Accounting Service
DoD	Department of Defense
DoDIG	Department of Defense Instruction
DSMOA	Defense and State Memorandum of Agreement
DUSD(I&E)	Deputy Under Secretary of Defense for Installation and Environmental
EE/CA	Engineering Evaluation and Cost Analysis
ELR	Environmental Liability Report
EM-CX	Environmental and Munitions Center of Expertise
EO	Executive Order
ER	Engineer Regulation
ER	Environmental Restoration
ER-FUDS	Environmental Restoration – Formerly Used Defense Sites
FIIP	FUDS Information Improvement Program
FFMIA	Federal Financial Management Improvement Act
FMR	Financial Management Regulation
FPMI	FUDS Program Management Indicators

Acronym	Meaning
FUDS	Formerly Used Defense Sites
FUDSMIS	Formerly Used Defense Sites Management Information System
FY	Fiscal Year
FYDP	Future Years Defense Plan
GMRA	Government Management Reform Act
GPRA	Government Performance and Results Act
HQ	Headquarters
HQDA	Headquarters, Department of the Army
HQUSACE	Headquarters, USACE
HTRW	Hazardous, Toxic, and Radioactive Waste
INPR	Inventory Project Report
IR	Installation Restoration
IRA	Interim Removal Action
IRP	Installation Restoration Program
LCP	Life-Cycle Plan
M&S	Management and Support
MC	Munitions Constituents
MCACES	Micro Computer Aided Cost Engineering System
MEC	Munitions and Explosives of Concern
MII	Micro Computer-Aided Cost Engineering System
MM	Military Munitions
MM CX	Military Munitions Center of Expertise
MMRP	Military Munitions Response Program
MRA	Munitions Response Area
MRS	Munitions Response Site
NCP	National Oil and Hazardous Substance Pollution Contingency Plan (a.k.a., National Contingency Plan)
NDAI	No DoD Action Indicated
NPL	National Priority List
OADUSD (CL)	Office of the Assistant Deputy Under Secretary of Defense (Environmental Cleanup)
ODUSD(I&E)	Office of the Deputy Under Secretary of Defense (Installations and Environment)
OMB	Office of Management and Budget
OSD	Office of the Secretary of Defense
PA	Preliminary Assessment
PCO	Project Closeout
PDI	Program Development Instruction
PDT	Project Delivery Team
PgDT	Program Delivery Team
PgM	Program Manager

Acronym	Meaning
PIRS	Project Information Retrieval System
PL	Public Law
PM	Project Manager
PMP	Project Management Plan
POC	Point of Contact
POM	Program Objective Memorandum
PPBES	Planning, Programming, Budgeting, Execution System
PRESBUD	President's Budget
PRP	Potentially Responsible Party
QA	Quality Assurance
QC	Quality Control
QMP	Quality Management Plan
QSM	Quality System Manager
RAB	Restoration Advisory Board
RA-C	Remedial Action Construction
RACER	Remedial Action Cost Engineering and Requirements
RA-O	Remedial Action Operation
RC	Response Complete
RD	Remedial/Removal Design
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RIP	Remedy-in-Place
RmD	Remedial Design
SFFAS	Statement of Federal Financial Accounting Standards
SR	Supervisory Review
TAPP	Technical Assistance for Public Participation
ULO	Unliquidated obligations
UPB	Unit Price Book
USACE	U.S. Army Corps of Engineers
USC	United States Code
VV&A	Verification, Validation, and Accreditation

Terms.

Budget Estimate Submission (BES).
This is each service's 2-year budget proposal based on PDM. The first two budget years of the POM are the service's budget estimate submission, although all other POM years' fiscal data are summarized and included.

Budget Year (BY) Annual Workplan (AWP).
This is CEMP-DE's draft work directive for BY execution. The draft quarterly obligation or execution plan of the PRESBUD (BY program of the Future Years Defense Plans [FYDP]) is the initial draft BY AWP. This BY AWP will be updated each time the POM and BES are updated. Upon HQDA approval in October after Congressional authorization and appropriation of the PB, this becomes the Current Year (CY) annual workplan.

Center of Expertise (CX).
A CX is a USACE organization that has been approved by HQUSACE as having a unique or exceptional technical capability in a specialized subject area that is critical to other USACE commands. These services may be reimbursable or centrally funded.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).
Congress enacted CERCLA, commonly known as Superfund, on 11 December 1980. This law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.

Cost-to-Complete (CTC)
This is the estimated costs of the remaining current year (CTC_CY) plus estimated costs of budget year (BY) and beyond (CTC_BY).

Cost-to-Complete (CTC_BY)
This is the estimated costs of budget year (BY) and beyond (CTC_BY).

Cost Recovery.
Cost recovery involves money received from private parties to compensate DoD for its costs in response action activities for which the private party bears some responsibility. Cost recovery amounts involve completed response action activities and are available for redeposit to the ER-FUDS account for use on other FUDS projects.

Current Liability.
These are liabilities incurred that will be covered by available budgetary resources (i.e., current year and six prior years) encompassing not only new budget authority but also other resources available to cover liabilities for specified purposes in a given year which includes unliquidated obligations.

Current Year (CY) Annual Workplan (AWP).
This is CEMP-DE's official work directive based on the CY appropriated budget for Divisions and Districts to execute. It consists of all CY line items in the official FYDP.

Defense Environmental Restoration Program (DERP).
Congressionally authorized in 1986, DERP promotes and coordinates efforts for the evaluation and cleanup of contamination at Department of Defense installations and Formerly Used Defense Sites. (10 USC 2701 et. seq.)

Determination of Eligibility.
This is an activity conducted by USACE exclusively to determine if a property and project are eligible under the FUDS Program. Information gathered during the determination of eligibility, along with recommendations for further action, if appropriate, is reported in the Inventory Project Report (INPR).

DoD Goals for the DERP.
Formerly called the Defense Planning Guidance (DPG), the DoD Goals for DERP contains the Secretary of Defense's long-range goals and fiscal guidance. It is a major link between Planning and Programming.

DoD's Updated BES and the President's Budget (PRESBUD).
BES will be updated based on the Program Budget Decision. The first budget year of the updated BES is the PRESBUD. OMB assembles the one-year PRESBUD to be submitted to Congress.

Engineering Evaluation/Cost Analysis (EE/CA).
An EE/CA is prepared for all non-time-critical removal actions as required by Section 300.415(b)(4)(i) of the NCP. The goals of the EE/CA are to identify the extent of a hazard, to identify the objectives of the removal action, and to analyze the various alternatives that may be used to satisfy these objectives for cost, effectiveness, and implementability. (EP 75-1-3)

Formerly Used Defense Sites (FUDS) Property.
A FUDS is defined as a facility or site (property) that was under the jurisdiction of the Secretary of Defense and owned by, leased to, or otherwise possessed by the United States at the time of actions leading to contamination by hazardous substances. By the Department of Defense Environmental Restoration Program (DERP) policy, the FUDS program is limited to those real properties that were transferred from DoD control prior to 17 October 1986. FUDS properties can be located within the 50 States, District of Columbia, Territories, Commonwealths, and possessions of the United States.

FUDS Accrued Environmental Restoration Liability.
Cost to conduct environmental restoration activities to correct past contamination problems at Formerly Used Defense Sites properties.

FUDS Project.
A FUDS Project is a unique name given to an area of an eligible FUDS property containing one or more releases or threatened releases of a similar response nature, treated as a discrete entity or consolidated grouping for response purposes. This may include buildings, structures, impoundments, landfills, storage containers, or other areas where hazardous substance are or have come to be located, including FUDS eligible unsafe buildings or debris. Projects are categorized by actions described under installation restoration (HTRW and CON/HTRW), military munitions response program, or building demolition/debris removal. An eligible FUDS Property may have more than one project.

FUDSMIS.
The FUDS Management Information System (MIS) is the corporate information system that supports planning, programming, budgeting, annual workplan development, execution, and reporting requirements for the FUDS program.

Future Years Defense Plans (FYDP).
This contains executable project actions to match available dollars provided in the POM for the current year and subsequent six program years. The FYDP is a series of proposed annual funded workplans that contains all eligible projects and all phases of work identified by Divisions and Districts for all eligible FUDS properties. It is also DoD's master plan database. It contains resourcing decisions made through PPBS. DoD uses it for internal analysis and Congress uses it during review of budget requests. FYDP is a continuous process and is constantly updated based on POM Exhibits, BES, and PRESBUD. However, regularly scheduled updates occur three times during each PPBS cycle:

- After the submission of the services' POM.
- After the submission of the services' BES.
- After the President submits his budget to Congress reflecting any final adjustments made to the DoD budget.

Inventory Project Report (INPR).
The report resulting from the determination of FUDS eligibility. The INPR includes data as well as a recommendation for further action and guides investigators through further site studies. The INPR documents whether DoD is responsible for contamination at a FUDS.

Liability.
A probable and measurable outflow of resources arising from past transactions or events. (*DoD Management Guidance for the DERP*)

Life Cycle Cost (LCC).
CTC plus prior year actual expenditure plus prior year unliquidated obligations.

Life-Cycle Plan (LCP).
The LCP contains all historical data (FY84 through prior year) and CTC plan (CY through Time-to-Complete [TTC]). The official LCP contains the POM balanced FYDP.

Military Munitions.
All ammunition products and components produced for or used by the U armed forces for national defense and security, including ammunition products or components under the control of the Department of Defense, the Coast Guard, the Department of Energy, and the National Guard. The term includes confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes and incendiaries, including bulk explosives and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components thereof. The term does not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components, except that the term does include non-nuclear components of nuclear devices that are managed under the nuclear weapons program of the Department of Energy after all required sanitization operations under the *Atomic Energy Act* of 1954 (42 USC 2011, et seq.) have been completed. [*10 USC 2710(e)(3)(A)*]

Munitions and Explosives of Concern (MEC).
This term, which distinguishes specific categories of military munitions that may pose unique explosives safety risks, means:

- Unexploded ordnance (UXO), as defined in 10 USC 2710 (e)(9);
- Discarded Military Munitions (DMM), as defined in 10 USC 2710 (e)(2); or
- Munitions constituents (e.g., TNT, RDX) present in high enough concentrations to pose an explosive hazard.

Munitions Constituents (MC).
Any materials originating from unexploded ordnance, discarded military munitions, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions. [10 USC 2710(e)(4)]

Munitions Response Area (MRA).
Any area on a defense site that is known or suspected to contain UXO, DMM, or MC. Examples are former ranges and munitions burial areas. An MRA comprises one or more munitions response sites.

Munitions Response Site (MRS).
A discrete location within an MRA that is known to require a munitions response.

National Oil and Hazardous Substance Pollution Contingency Plan (NCP).
Revised in 1990, the NCP provides the regulatory framework for responses under CERCLA. The NCP designates the Department of Defense as the removal response authority for ordnance and explosives hazards.

No DoD Action Indicated (NDAI).
This is a Formerly Used Defense Sites (FUDS) where USACE has made a programmatic decision that the property or project conforms to the following:

- It is not eligible for consideration under the FUDS program.
- It is categorically excluded from the FUDS program
- The hazards found were not the result of DoD actions on or before 17 October 1986, pose no threat to human health or safety or the environment and, no additional environmental restoration activities are required.

Non-current Liabilities
These include liabilities incurred for which revenues or other sources of funds necessary to pay the liabilities have not been made available through congressional appropriations or current earnings of the reporting entity (i.e., non-current liability equals to the program CTC minus the current-year program funding).

Planning, Programming, Budgeting, and Execution System (PPBES).
Army's system that mirrors the DoD's PPBS.

Potentially Responsible Parties (PRP).
A PRP is defined in CERCLA Section 107 as any person related to a property that is a:

- Current owner or operator.
- Past owner or operator at the time of disposal of any hazardous substance, pollutant, or contaminant.
- Person who arranges for disposal, treatment, or transport for disposal or treatment of hazardous substances.
- Transporter who has selected the site for the disposal of a hazardous substance.

Potentially Responsible Party/Hazardous, Toxic, and Radioactive Waste (PRP/HTRW) Project.
A FUDS where HTRW cleanup requirements exist and parties other than DoD are potentially responsible parties for the hazardous substances, pollutants, or contaminants.

Potentially Responsible Party/Military Munitions Response (PRP/MMRP) Project.
A FUDS where MMRP cleanup requirements exist and parties other than DoD are potentially responsible parties for disposal of the MMRP materials.

Preliminary Assessment (PA).
The Preliminary Assessment is a limited-scope investigation that collects readily available information about a project and its surrounding area. The PA is designed to distinguish, based on limited data, between sites that pose little or no threat to human health and the environment and sites that may pose a threat and require further investigation. The PA also identifies sites requiring assessment for possible emergency response actions. If the PA results in a recommendation for further investigation, a Site Inspection is performed. Refer to the EPA publication *Guidance for Performing Preliminary Assessments Under CERCLA*, September 1991, for additional information.

Program Budget Decision (PBD).
This is a comptroller driven, appropriation-oriented decision upon review and analysis of the services' BES.

Program Decision Memorandum (PDM).
This is DoD's decision document designed to provide each service feedback on how closely its POM meets the DoD Goals for the DERP and to provide each service a baseline for developing BES and PB.

Program Management.
Component of the PMBP undertaken by all USACE echelons to manage programs. It consists of the development, justification, management, defense, and execution of programs within available resources, in accordance with applicable laws, policies, and regulations, and includes accountability and performance measurements. Under program management, programs, projects, and other commitments are aggregated for oversight and direction by the organization's senior leadership. Program management takes project management to a greater level of interdependence and broadens the corporate perspectives and responsibilities.

Program Manager.
Program managers integrate program information and facilitate management. Program managers and Program Management Team members keep higher echelons of the customer's organization updated on all work USACE is performing on their behalf, and assist customers in accessing USACE resources across organizational boundaries. Program managers are responsible for making accurate program projections necessary to support workload analysis at the local, regional, and national level. (ER 5-1-11)

Program Objective Memorandum (POM).
This is the memorandum that documents each service's proposals for resource allocation for six program years to meet fiscal constraints contained in the DoD Goals for the DERP and each service's objectives.

Project Delivery Team (PDT).
The PDT is a multi-disciplined project team lead by the Project Manager with responsibility for assuring that the project stays focused, first and foremost on the public interest, and on the customer's needs and expectations, and that all work is integrated and done in accordance with a PMP and approved business and quality management processes. The PDT focuses on quality project delivery, with heavy reliance on partnering and relationship development to achieve better performance. The PDT shall consist of everyone necessary for successful development and execution of all phases of the project. The PDT will include the customers, the PM, technical experts within or outside the local USACE activity, specialists, consultants/contractors, stakeholders, representatives from other Federal and state agencies, and higher level members from Division and Headquarters who are necessary to effectively develop and deliver the project actions. The customer is an integral part of the PDT. (ER 5-1-11)

Project File.
The body of documents that contains the rationale and justification for the selection of the response action and that supports FUDSMIS data and Cost-to-Complete estimates. It contains all documents in the Administrative Record file as well as additional supporting documentation not included in the Administrative Record file due to issues such as privacy, financial confidentiality, etc.

Project Management.
The application of knowledge, skills, tools, and techniques to project activities to meet or exceed defined expectations.

Project Management Business Process (PMBP).
The fundamental USACE business process used to deliver quality projects. It reflects the USACE corporate commitment to provide "customer service" that is inclusive, seamless, flexible, effective, and efficient. It embodies communication, leadership, systematic and coordinated management, teamwork, partnering, effective balancing of competing demands, and primary accountability for the life cycle of a project.

Project Management Plan (PMP) (PgMP for Programs).
A living document used to define expected outcomes and guide execution and control of project (or program) actions. Primary uses of the PMP are to facilitate communication among participants, assign responsibilities, define assumptions, and document decisions. Establishes baseline plans for scope, cost, schedule, safety, and quality objectives against which performance can be measured, and to adjust these plans as actual performance dictates. The project delivery team develops the PMP.

Project Manager (PM).
The PM is responsible for management and leadership of a project during its entire life cycle, even when more than one USACE District or activity is involved. The PM will generally reside at the geographic District but can be elsewhere as needed. The PM and PDT are responsible and accountable for ensuring the team takes effective, coordinated actions to deliver the completed project according to the PMP. The PM manages all project resources, information and commitments, and leads and facilitates the PDT towards effective development and execution of project actions. (ER 5-1-11)

Quality Assurance (QA).
An integrated system of management activities involving planning, implementation, assessment, reporting, and quality improvement to ensure that a process, item, or service is of the type and quality needed to meet project requirements defined in the PMP.

Quality Control (QC).
The overall system of technical activities that measures the attributes and performance of a process, item, or service against defined standards to verify that they meet the stated requirements established in the PMP; operational techniques and activities that are used to fulfill requirements for quality.

Quality Management.
Processes required to ensure that the actions at the project would satisfy the needs and objectives for which it was undertaken, consisting of quality planning, QA, QC, and quality improvement.

Quality Management Plan (QMP).
A document that describes a quality system in terms of the organizational structure, policy and procedures, functional responsibilities of management and staff, lines of authority, and required interfaces for those planning, implementing, documenting, and assessing all activities conducted.

Quality System Manager (QSM).
The FUDS Program Manager at a geographic Military Division or District designated as the principal manager within the organization having management oversight and responsibilities for quality management process of the FUDS program at that level.

Remedial or Remedial Action (RA).
Those actions consistent with permanent remedy taken instead of or in addition to removal actions in the event of a release or threatened release of a hazardous substance into the environment, to prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health, welfare or the environment. The term includes, but is not limited to, such actions at the location of the release as storage; confinement; perimeter protection using dikes, trenches, or ditches; clay cover; neutralization; cleanup of released hazardous substances and associated contaminated materials; recycling or reuse; diversion; destruction; segregation of reactive wastes; dredging or excavations; repair or replacement of leaking containers; collection of leachate and runoff; on-site treatment or incineration; provision of alternative water supplies; and any monitoring reasonably required to assure that such actions protect the public health, welfare, and the environment. The term includes the costs of permanent relocation of residents and businesses and community facilities where the President determines that, alone or in combination with other measures, such relocation is more cost-effective and environmentally preferable to the transportation, storage, treatment, destruction, or secure disposition off-site of hazardous substances, or may otherwise be necessary to protect the public health or welfare. The term includes off-site transport and off-site storage, treatment, destruction, or secure disposition of hazardous substances and associated contaminated materials. (*DoD Management Guidance for the DERP*)

Remedial Action-Construction (RA-C).
The period during which the final remedy is being put in place. The end date signifies that the construction is complete, all testing has been accomplished, and that the remedy will function properly. (*DoD Management Guidance for the DERP*)

Remedial Action-Operations (RA-O).
The period during which the remedy is in place and operating to achieve the cleanup objective identified in the Record of Decision or equivalent agreement. Any system operation or monitoring requirements during this time shall be termed RA-O. (*DoD Management Guidance for the DERP*)

Remedial Design (RD).
A phase of remedial action that follows the remedial investigation/feasibility study and includes development of engineering drawings and specifications for a site cleanup.

Remedial Investigation/Feasibility Study (RI/FS).
An in-depth study designed to gather the data necessary to determine the nature and extent of known contamination at a site, assess risk to human health and the environment, and establish criteria for cleaning up the site. During the FS, the RI data are analyzed and remedial alternatives are identified. The FS serves as the mechanism for the development, screening, and detailed evaluation of alternative remedial actions.

Remedy In Place (RIP).
Designation that a final remedial action has been constructed and implemented and is operating as planned in the remedial design. An example of a remedy in place is a pump-and-treat system that is installed, is operating as designed, and will continue to operate until cleanup levels have been attained. Because operation of the remedy is ongoing, the site cannot be considered Response Complete. (*DoD Management Guidance for the DERP*)

Removal or Removal Action.
The cleanup or removal of released hazardous substances from the environment. Such actions may be taken in the event of the threat of release of hazardous substances into the environment, such actions as may be necessary to monitor, assess, and evaluate the release or threat of release of hazardous substances, the disposal of removed material, or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release. The term includes, in addition, without being limited to, security fencing or other measures to limit access, provision of alternative water supplies, temporary evacuation and housing of threatened individuals not otherwise provided for, action taken under section 9604(b), and any emergency assistance which may be provided under the *Disaster Relief and Emergency Assistance Act* [42 USC 5121 et seq.] The requirements for removal actions are addressed in 40 CFR §§300.410 and 300.415. The three types of removals are emergency, time-critical, and non time-critical removals. (*DoD Management Guidance for the DERP*)

Response Action.
A CERCLA-authorized action involving either a short-term removal action or a long-term removal response. This may include, but is not limited to, removing hazardous materials, containing or treating the waste on-site, and identifying and removing the sources of ground water contamination and halting further migration of contaminants.

Response Complete (RC).
The remedy is in place and required remedial action-operations (RA-O) have been completed. If there is no RA-O phase, then the remedial action-construction end date will also be the RC date. (*DoD Management Guidance for the DERP*)

Restoration Advisory Board (RAB).
A Restoration Advisory Board (RAB) is a forum for the discussion and exchange of information between representatives of the Department of Defense (DoD), regulators, state and local governments, tribal governments, and the affected community. RABs provide an opportunity for stakeholders to have a voice and actively participate in the review of technical documents, to review restoration progress, and to provide individual advice to decision makers regarding restoration activities at FUDS Properties and Projects.

Site Inspection (SI).
Activities undertaken to determine whether there is a release or potential release and the nature of associated threats. The purpose is to augment the data collected in the PA and to generate, if necessary, sampling and other field data to determine the presence, type, distribution, density, and location of hazardous substances or military munitions.

Technical Assistance for Public Participation (TAPP).
The TAPP is a DoD program that allows USACE to contract for independent technical assistance to Restoration Advisory Boards and Technical Review Committees based on community member requests for assistance in interpreting scientific and engineering issues related to FUDS property restoration activities.

Time-Critical Removal Action (TCRA).
A TCRA is a response to a release or threat of release that poses such a risk to public health (serious injury or death), or the environment, that clean up or stabilization actions must be initiated within 6 months.