Me the to MRK from Shemelis Um-39 8/5/86 UMTRA-DOE/ AL 400124.0167 United States Department of Energy **Project Plan** (MSA-143) JULY, 1986 Uranium Mill Tailings Remedial Action Project 8612030122 860805 PDR WASTE 860805 PDR

U.S. DEPARTMENT OF ENERGY

t

-

-

-

R

URANIUM MILL TAILINGS REMEDIAL ACTION (UMTRA) PROJECT

(MSA-143)

PROJECT PLAN

PREPARED BY UMTRA PROJECT OFFICE ALBUQUERQUE OPERATIONS OFFICE

REVISED JULY, 1986

1

REVISION NO. 1

1

.

347

UMTRA PROJECT PLAN CHANGE LOG AS OF APRIL 15, 1986

Previous Approv Plan (August 19	ed 83)	
Page/Line No.	Change	Explanation
1/35	Added statement extending authorized end date from 3/7/90 to 9/30/93.	Schedule risks plus interface complexities and annual budget constraints.
6/1	Added statement extending authorized end date from 3/7/90 to 9/30/93.	Schedule risks plus interface complexities and annual budget constraints.
6/1ō	Total estimated cost (TEC) increased from \$520M to \$946.2M.	Updated estimate during 1985 which included probable re- location of 7 sites and project extension. (See explanation on Page R-1-4.)
6/22	Number of estimated vicin- ity properties decreased from approximately 6000 to approximately 4500.	Estimated number of inclusions based on ORNL survey recom- mendations and inclusion rate to date. See Page 7, 2.1 Project Scope for Definition.
6/23	Stabilization-in-place at all 24 sites changed to assumed relocation for Salt Lake City, Durango, Gunnison, Grand Junction, Rifle, Lakeview, and Bowman.	Relocation of these sites has been determined as pre- ferred alternative by states and/or technical considera- tion.
6/35	States cost share increased from \$36.6M to \$64.8M.	State 10% share of new total estimated cost.
7/17	Approximate number of designated vicinity properties increased from 7,300 to 3,000.	Official designation of 3,154 was determined in February, 1984.
3/19-38	Eliminated	Project Plan word reduction.
9/1	MSA phase changed from Advanced Development to Operations.	Aporoved Key Decisions #1, #2, and #3 by the Acquisition Executive.
10/2	Auno en of entimated vicin- ity properties decreased from approximately 5000 to approximately 45.81.	Estimated number of inclusions based on ORNL survey recom- mendations and inclusion rate" to date.

A-14	Amended to eliminate contractor TEC, Sandia National Laboratories, and Technology Steering Committee and add ORNL, Bendix Field Engineering Corporation, and Mound, and renumbered as new Attachment 12.	Updated to reflect current acquisition structure.
A-15	Attachment 15 eliminated.	Project WBS master schedule is directly related to sites master schedule and is reflected in new Attachment 13.
A-16	Attachment 16 updated, and renumbered as new Attachment 13.	Reflects extension to 1993 and impact of revised TEC and budget constraints.
A-17	Attachment 17 eliminated.	Combined with sites in new Attachment 13.
A-18	Attachment 18 updated and renumbered as new Attachment 14.	Reflects current Project Office reorganization.
A-19	Attachment 19 updated and renumbered as new Attachment 15.	Reflects extension to 1993, manpower increase related to inclusion of ORNL, BFEC, and Mound, and stretchout of construction activities.

Explanation of Total Estimated Cost (TEC) Adjustments

The UMTRA TEC presented at the Energy System Acquisition Review on July 30, 1985, was \$944.3M (including Federal and State share). This TEC was based on a completion schedule of 1992 and included a funding request of \$110M and \$180M for FY 1986 and FY 1987 respectively.

The DOE Internal Review Budget (IRB) process reduced the FY 1987 funding request to \$149M. Since the FY 1986 Congressional hearings were still in process, the DOE request went forward to OMB with \$110M and \$149M for FY 1986 and FY 1987 respectively. The TEC associated with the DOE request to OMB was \$952.7M.

The FY 1986 amount appropriated for the UMTRA Project was \$95M. When coupled with the IRB mark of \$149M and lower escalation rates per guidance in the new Departmental Price Change Index of Anticipated Economic Escalation Rates for General Construction Projects (August, 1985), this resulted in the \$928.8M estimate submitted with the Draft Project Plan of December, 1985. It should be noted that these three particular estimates were based essentially on the same FY 1985 constant dollar value.

23/23-35Updated status of milestones.To conform with current status.24/1-11EliminatedProject Plan word reduct35/3Total estimated cost (TEC) increased from \$520M to \$946.2M.Uodated estimate during to include probable relived of 7 sites and project extension.25/11-25Narrative on manpower has been replaced by referral to the attach- ments on organization and staffing estimates.Manpower increase relate to stretchout of constru- activities and inclusion Mound, ORNL, and Bendix Engineering Corporation manpower.27/4-9EliminatedProject Plan word reductA-1Estimated number of vicinity properties decreased from 6,937 to 4,543.Project Plan word reductA-3Attachment *, eliminated.Previous estimate (6,937 for designated properties we stimate (4,543) is a samed included propert which are based on ORNL recommendations and incl rate to date.A-3Attachment *, eliminated.Combined in new Attachme as new Attachment 3.A 5Effects management emph on sites in conjunction WBS and new TEC.	23/25-35 24/1-11	Updated status of milestones.	To conform with current
24/1-11EliminatedProject Plan word reduct25/3Total estimated cost (TEC) increased from S520M to S946.2%.Uodatad estimate during to include probable reli- 	24/1-11		status.
25/3Total estimated cost (TEC) increased from \$520M to \$946.2M.Uodated estimate during to include probable relision of 7 sites and project extension.25/11-25Narrative on manpower has been replaced by referral to the attach- ments on organization and staffing estimates.Manpower increase relate to stretchout of constru- activities and inclusion Mound, ORNL, and Bendix Engineering Corporation manpower.27/4-9EliminatedProject Plan word reductA-1Estimated number of vicinity properties decreased from 6,937 to 4,543.Previous estimate (6,937 for designated propertie New estimate (4,543) is assumed included properties New		Eliminated	Project Plan word reduction.
 25/11-25 Narrative on manpower has been replaced by referral to the attachments on organization and staffing estimates. 27/4-9 Eliminated A-1 Estimated number of vicinity properties decreased from 6,937 to 4,543. A-3 Attachment 1, eliminated. A-4 Fiscal year (FY) break by WBS replaced by FY break by site with revised TEC, and renumbered as new Attachment 3. A.5 	25/3	Total estimated cost (TEC) increased from \$520M to \$946.2M.	Updated estimate during 1985 to include probable relocation of 7 sites and project extension.
 27/4-9 Eliminated A-1 Estimated number of vicinity properties decreased from 6,937 to 4,543. A-3 Attachment ⁻, eliminated. A-4 Fiscal year (FY) break by WBS replaced by FY break by site with revised TEC, and renumbered as new Attachment 3. A-5 Eliminated Project Plan word reduct Previous estimate (6,937 for designated properties New estimate (4,543) is assumed included properties which are based on ORNL recommendations and included properties of the second prope	25/11-25	Narrative on manpower has been replaced by referral to the attach- ments on organization and staffing estimates.	Manpower increase related to stretchout of construction activities and inclusion of Mound, ORNL, and Bendix Field Engineering Corporation manpower.
 A-1 Estimated number of vicinity properties decreased from 6,937 to 4,543. A-3 Attachment ⁻, eliminated. A-4 Fiscal year (FY) break by WBS replaced by FY break by site with revised TEC, and renumbered as new Attachment 3. A 5 	27/4-9	Eliminated	Project Plan word reduction.
 A-3 Attachment ⁻, eliminated. Combined in new Attachme A-4 Fiscal year (FY) break by WBS replaced by FY break by site with revised TEC, and renumbered as new Attachment 3. A 5 	A-1	Estimated number of vicinity properties decreased from 6,937 to 4,543.	Previous estimate (6,937) was for designated properties. New estimate (4,543) is for assumed included properties, which are based on ORNL survey recommendations and inclusion rate to date.
A-4 Fiscal year (FY) break by WBS replaced by FY break by site with revised TEC, and renumbered as new Attachment 3. A 5	A-3	Attachment `, eliminated.	Combined in new Attachment 10.
	A-4	Fiscal year (FY) break by WBS replaced by FY break by site with revised TEC, and renumbered as new Attachment 3.	Reflects management emphasis on sites in conjunction with WBS and new TEC.
A-5 FY break changed to reflect Reflects new TEC and com revised TEC and include old Attachment 6 on stat Federal and state share, funding requirements. and renumbered as new Attachment 4.	A-5	FY break changed to reflect revised TEC and include Federal and state share, and renumbered as new Attachment 4.	Reflects new TEC and combines old Attachment 6 on state funding requirements.
4-9 First action under pro- cassing sites changed to read "Characterization Option Selection," and renuncered as new Attachments 7a and 7b. Reflects current philoson on site functional workf on site functional workf	4-3	First action under pro- cassing sites changed to read "Characterization Option Selection," and renumbered as new Attachments 7a and 7b.	Reflects current philosophy on site functional workflow.
	12	Attachment 12 eliminated.	Combined with new Attachment 10.
Actachment 12 eliminated. Combined with new Attachm 10.			

Since the December Draft Project Plan was submitted, the FY 1986 appropriations of \$95M has been reduced to \$91.4M by the Gramm-Rudman-Hollings Legislation. The IRB mark for FY 1987 of \$149M has been replaced by a Presidental Request to Congress of \$126M. Based on the prospect of serious deficit-reduction efforts by Congress and necessarily lower funding profiles, the Department is requesting an extension to September 30, 1993, to complete the project. The current TEC of \$946.2M and new Master Schedules are included in the revised

.

TABLE OF CONTENTS

I

1

1

1

1.0	MISSI0 1.1 1.2 1.3	N·NEE Miss Proj Proj 1.3. 1.3.	D A ion ect ect 1 2 3	ND Nei Ob, Bai Per Sci Cor	08J ed jec sel rfo hed st	tin in rm ula Ob	TIV ves anc e O jec	ES · · · · · · · · · · · · · · · · · · ·	Obj ect	iec.iv.		 ve				· · · · · · · ·						• • • • • •					• • • • • • •	1 1 2 2 2 5 5
2.0	TECHNI 2.1 2.2	CAL Proj Proj Techi 2.2. 2.2.	LAN ect nic. 1 2 3	Sco al J Teo Pro Wor	 App chn oje 'k	roi oli ct Bre		· · · · · · · · · ·	tat es.	us St				••••••	• • • • • •	••••••		• • • • • •				••••••	•••••	• • • • • •	•••••			7738899
3.0	RISK AS 3.1 3.2 3.3 3.4 3.5 3.6	SSESSI Backg Inst 3.2. Vicin Site Techr Envir	MENI grou itut 1 2 hity According	T AN ind. tior Ins NEP Pr quis Dgy.	ID nal sti op sit	MIT Instant	tio tie tie 1.	AT rf na tui s	ING ace 1 I tio	nti na 	er: 1	SUF fac Int	RES 	· · · · · · · · · · · · · · · · · · ·	uncace				· · · · · · · · · · · · · · · · · · ·									11 11 11 13 14 14 15
4.0	MANAGEN 4.1 4.2 4.3 4.4 4.5	MENT A Orgar Decis Proje Proje Proje	APPR niza sion ect ect	ROAC atio Par Man Vul	H. na tio ner	1 R gat cip eme rab	lesi ion int il	ns. Co	nsi 	bi 	1 : :	tie Sys		· · · · · · · · · · · · · · · · · · ·	• • • • • •			• • • • • •	• • • • • •	• • • • • •		• • • • • •	• • • • • •	• • • • • •	• • • • • •		• • • • • •	17 17 17 18 19 20
5.0	ACQUISI	TION	STR	ATE	GY																							21
6.0	PROJECT 6.1 6.2	SCHE Backg Statu	DUL Irou Is.	.E . ina.	•••••••••••••••••••••••••••••••••••••••					•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•		23 23 23
7.0	RESOURC 7.1 7.2 7.3	ES PL Costs Manpo Facil	AN. wer iti	 es.	• • • •	• • • •			• • • •		• • • •	• • • •	• • • •	•	•	• • •	• • •	•	•	•	•		•	•	• • •	•	•	25555
3.0	CONTROL	LED I	TEM	s.																								27
9.0	SCHEDUL	ED 0E	CIS	ION	19()IN	TS.																					29
10.0	SUBMICS	LONS	410	AP.	930	WA	1.5.																					31
REFERS	aces .																											33
ATTACH	MENTS																											

Page

The overall objectives of the UMTRA Project are:

- o To obtain the cooperation of the affected states, Indian tribes, and property owners in accomplishing the mission of the Program.
- To carry out a public participation program that encourages public input into the Project decision-making process.
- To evaluate the economic feasibility of reprocessing the tailings for the recovery of minerals prior to stabilization.
- To develop uranium mill tailings stabilization and disposal technology for use by Project participants, and to transfer this technology to the private sector for use at active uranium processing sites.
- o To assure that environmental factors are adequately addressed in the selection and implementation of remedial actions and that provisions of the NEPA, as implemented by Council on Environmental Quality Regulations (CEQ), and DOE guidelines (DOE, 1981), are satisfied.
- o To plan, design, and perform remedial actions at the designated inactive uranium processing sites and vicinity properties in a safe and environmentally sound manner that brings these properties and the final disposal sites, if different from the processing sites, into compliance with the EPA standards and in accordance with applicable Federal and state law.
- o To obtain licenses from the NRC for long-term, post-remedial action surveillance and maintenance of the tailings disposal sites, and to conduct short-term surveillance and maintenance until such time as responsibility is turned over to the long-term custodial agency.

1.3 PROJECT BASELINE

In addition to the project objectives discussed above, accomplishment of the UMTRA Project mission will be governed by a set of performance, schedule, and cost objectives which form the project baseline. These baseline criteria are identified below.

1.3.1 Performance Objectives

EPA Standards

The primary performance objectives for remedial actions are the EPA standards, which provide the basis for remedial action planning, scheduling, and estimating of costs. The EPA standards for performing cleanup and disposal of the uranium mill tailings for open lands, structures, and disposal sites are summarized below.

1.1 MISSION NEED

The mission of the Uranium Mill Tailings Remedial Action (UMTRA) Project is explicitly stated and directed in the Uranium Mill Tailings Radiation Control Act of 1978 (Public Law 95-604, 42 USC 7901), hereinafter referred to as the "Act."

Title I of the Act authorizes the Department of Energy (DOE) to undertake remedial action at designated inactive uranium processing sites (Attachments 1 and 2) and associated vicinity properties containing uranium mill tailings and other residual radioactive materials derived from the processing sites. The purpose of the remedial actions is to stabilize and control such uranium mill tailings and other residual radioactive materials in a safe and environmentally sound manner to minimize radiation nealth hazards to the public. The principal health hazards and environmental concerns are: (1) the inhalation of air particulates contaminated as a result of the emanation of radon from the tailings piles and the subsequent decay of radon gaughters; and (2) the contamination of surface and ground waters with radionuclides or other chemically toxic materials.

Remedial actions undertaken by DOE pursuant to the Act are to be accomplished in cooperation with the affected states and Indian tribes and with the concurrence of the Nuclear Regulatory Commission (NRC). Such remedial actions are to be performed in accordance with standards promulgated by the Environmental Protection Agency (EPA) (40 CFR part 192) and with applicable Federal and state law. Before the remedial actions can be initiated, DOE must complete the environmental analyses, documentation, and public review required by the National Environmental Policy Act (NEPA) of 1969 (42 USC 4321-4347). In selecting remedial actions, DOE is required to examine the economic feasibility of reprocessing the tailings to extract valuable minerals.

The Act authorizes DOE to establish cooperative agreements with the affected states and Indian tribes. DOE is to pay 90 percent of the remedial action costs, with the states to pay the remaining ten percent. For sites on Indian lands, 100 percent of the costs for remedial action will be some by the Federal Government.

In accordance with the provisions of the Act, the authority of DOE to perform the remedial actions terminates seven years after promulgation of the EPA standards - March 7, 1990. Oue to schedule risks plus interface complexities and related costs, DOE submitted a legislative initiative to extend the authorization of the project to September 30, 1993. This blan assumes the enactment of this proposed extension.

A Federal agency, not yet designated, will perform long-term surveillance and maintenance of sites used for the final disposal of residual radioactive materials, pursuant to a license to be issued by the NRC. Title to such disposal sites will vest in the Federal Government. The implementation guidelines for the EPA standards call for hydrologic ' and geologic assessments at each site.

Additional Guidelines

The EPA standards provide the primary performance objectives for the UMTRA Project; however, the following additional guidelines will also serve as operational standards in the performance of project activities.

- O Health and Safety. A health and safety program has been established for the UMTRA Project to assure that all remedial actions will be performed in a manner that will protect the health and welfare of the workers and the general public. The health and safety program is set forth in the UMTRA Project Environmental, Health, and Safety Plan (DOE, 1985) and will be supplemented by site-specific health and safety plans prior to performance of remedial actions. The site-specific plans will provide for maintenance of a comprehensive monitoring program during scheduled periods of work to measure levels of contamination and radiation exposure. The plans will also identify the hazards of the remedial action operation, describe and analyze the adequacy of the measures taken to eliminate, control, or mitigate identified hazards, and analyze and evaluate potential accidents and their associated risks.
- O Quality Assurance. The UMTRA Project has established a project level quality assurance program to assure that all project activities are performed satisfactorily in accordance with DOE Order 5700.6a. The UMTRA Project Quality Assurance Plan (DOE, 1984) sets forth the mechanisms and delineates the responsibilities for ensuring the integrity of UMTRA Project operations.
- O Technical Considerations. The residual radioactive materials at any processing site may be moved to a new disposal site, if unacceptable ground-water or surface-water intrusion, or other significant threat to the stability of the pile at its present location, is identified.
- <u>Statutory Guidelines</u>. The remedial action process takes into consideration the applicable Federal and state laws currently identified. Any additional laws determined to be pertinent during the design and permitting process shall be incorporated into the remedial action process.
- O Surveillance and Maintenance. The Project will include in its planning the long-term surveillance and maintenance activities required to confirm attainment of the EPA standards and NRC licensing requirements. Although costs for long-term surveillance and maintenance (i.e., after the Project is terminated) of the sites are not included in the Project cost estimate, it is inherent in the EPA standards and NRC licensing process that such a program may be required for some period of time following completion of remedial actions and Project termination.

 Standards for the Control of Residual Radioactive Materials from Inactive Processing Sites

Control shall be designed to:

- (a) Be effective for up to one thousand years, to the extent reasonably achieved, and, in any case, for at least 200 years, and,
- (b) Provide reasonable assurance that releases of radon-222 from residual radioactive material to the atmosphere will not:
 - Exceed an average release rate of 20 picocuries per square meter per second, or
 - (2) Increase the annual average concentration of radon-222 in air at or above any location outside the disposal site by more than one-half picocurie per liter.
- (2) Standards for Cleanup of Land and Buildings Contaminated with Residual Radioactive Materials from Inactive Uranium Processing Sites

Remedial actions shall be conducted so as to provide reasonable assurance that, as a result of residual radioactive materials from any designated processing site:

- (a) The concentration of radium-226 in land averaged over any area of 100 square meters shall not exceed the background level by more than--
 - 5 pCi/g, averaged over the first 15 cm of soil below the surface, and
 - (2) 15 pCi/g, averaged over 15 cm thick layers of soil more than 15 cm below the surface.
- (b) In any occupied or habitable building--
 - (1) The objective or remedial action shall be, and reasonable effort shall be made to achieve, an annual average (or equivalent) radon decay product concentration (including background) not to exceed 0.02 WL. In any case, the radon decay product concentration (including background) shall not exceed 0.03 WL, and
 - (2) The level of gamma radiation shall not exceed the background level by more than 20 microroentgens per nour.

EPA determined that the most appropriate course of action would be to require site-specific analyses of potential future contaminant discharge and a case-by-case evaluation of the significance of such a discharge. The Act does not contain funding authorization, but indicates that Project funds are to be included in annual authorization and appropriation acts. The Act provides that the affected states pay ten percent of remedial action costs. For purposes of DOE-state cost-sharing, the remedial action costs are final design and construction costs for both processing site and vicinity property remedial actions, as well as land acquisition costs. It is estimated that the affected states' share will be \$64.8 million in escalated dollars over the life of the project. Attachment 4 presents the projected state funding requirements.

1

-127

1.3.2 Schedule Objective

The Project schedule objective, pursuant to the provisions of the Act, is to accomplish the remedial actions within seven years from the date of promulgation of the EPA standards. EPA issued cleanup standards effective March 7, 1983, which establishes March 7, 1990 as the date for completion of all remedial actions (EPA, 1983). However, due to increased costs and annual budget constraints, during submission of the FY 1987 Budget DOE submitted a legislative initiative to extend the end date to September 30, 1993. This Project plan is based upon the extended schedule.

Attainment of the schedule objective is contingent upon several factors, the most important of which are:

- Successful completion of state/tribe cooperative agreements.
- Timely authorization/appropriation of funds by Congress and the states in accordance with the UMTRA Project Baseline Resources Plan.
- o Timely completion of the NEPA requirements.
- o Timely concurrences on the part of the states, Indian tribes, and the NRC.
- o Timely disposal site acquisition by the states.

1.3.3 Cost Objective

The Project cost objective is to accomplish the remedial actions within the total estimated cost of \$946.2 million (escalated 1986 dollars). Attachment 3 presents a summary of total estimated costs by Fiscal Year (FY) through Project completion, and includes state funding as well as Federal. The Project total estimated cost is predicated on several key assumptions:

- o The EPA standards.
- Twenty-four inactive uranium processing sites and approximately 4500 included vicinity properties.
- Stabilization in place at all sites with the exception of Salt Lake City, Ourango, Gunnison, Grand Junction, Rifle, Lakeview, and Bowman.
- o Timely inclusion of vicinity properties.
- Project funding in accordance with the Baseline Resources Plan (Attachment 4).
- o The valiaity of the DOE-prescribed price change indices.

sites. The final determination as to the extent and type of remedial action required for each site will be based on the EPA standards, the environmental impacts of the alternative actions, the potential for reprocessing the tailings, and the physical conditions of the site. However, the contaminated materials at the Salt Lake City site will be relocated to a disposal site near Clive, Utah; and current plans call for relocating the tailings at Durango, Grand Junction, Rifle, Lakeview, and Bowman to alternate disposal sites.

2.2 TECHNICAL APPROACH

2.2.1 Technology Status

As a result of the research and technology development (R&TD) program sponsored by the UMTRA Project, and other related research efforts, the technology available for remedial actions has been enhanced significantly over the past several years. Major technical improvements have been achieved in the key areas of:

- o Radon barrier design.
- o Evaluation and prediction of contaminant migration.
- o Evaluation of long-term stability.

Field and laboratory testing of earthen and asphaltic radon barrier cover systems have shown them to be effective and to be capable of meeting the EPA standards. Research has identified controlling parameters and provided both theoretical and empirical bases for the design of cost effective cover systems. The EPA standards require that remedial actions be based on predicted cover effectiveness, and the models developed under the UMTRA R&TD Program will provide the basis for such predictions.

2.2.2 Project Phases

The Project has been phased and baselined against key decision milestones, with the remedial action process for each UMTRA Project site to be accomplished as shown in Attachments 5 and 6. The process begins with planning and design development and proceeds through NEPA analysis, remedial action plans, engineering design, remedial actions, certification and licensing, and surveillance and maintenance. The typical functional workflow for both an inactive uranium processing site and a vicinity property is depicted in Attachments 7a and 7b.

The UMTRA Project is currently in the Operations Phase of the DOE Major Systems Acquisition process. Key Decision #1 was confirmation of the Project Mission Need and approval of the original Project Plan by the Acquisition Executive. The Remedial Action Plan and Detailed Engineering Design for the first site, Canonsburg, provided the basis for the Acquisition Executive's Key Decisions #2 and #3 (see Attachment 5) to proceed with the Opera-

2.1 PROJECT SCOPE

One of DOE's first responsibilities was to designate the inactive uranium processing sites at the 22 locations cited in the Act, together with any other processing sites meeting the Act's definition of processing sites. Data collected by preliminary radiological and engineering assessments were used by the DOE Assistant Secretary for Environmental Protection (ASEP) to designate 25 sites in November, 1979. Following site designation and in conjunction with the EPA, DOE/ASEP ordered the sites designated for remedial action on the basis of the assessed potential health effects. One site, Baggs, Wyoming, included in the original designation of 25 sites was subsequently determined to be ineligible for remedial action under the Act, and was deleted from the Project scope. (See Attachment 1 for a listing of the 24 designated inactive uranium processing sites, their priorities, and the estimated amount of contaminated materials at the sites; and Attachment 2 for a map showing the geographical locations of the sites).

The Act also authorizes the cleanup of properties in the vicinity of the processing sites which have become contaminated with radioactive materials derived from these sites. Based on currently available data, approximately 8000 properties show some evidence of such contamination. These properties were designated on February 2, 1984. "Designated" properties are those which have been identified by baseline surveys as being contaminated to some degree by tailings and consequently are candidates for UMTRA inclusion. "Included" properties are those properties, both designated and undesignated, which have been found to be contaminated with residual radioactive contamination in excess of EPA standards. Subsequently, based on more detailed on-site radiological surveys, a determination will be made as to whether the level of contamination exceeds that permitted by the EPA standards, making the property eligible for inclusion in the program. Based on surveys conducted to date it is estimated that approximately 4500 will be found eligible for inclusion.

By enactment of Public Law 97-415 (January 4, 1983), the Act was amended such that DOE is also to perform remedial actions at vicinity properties in Edgemont, South Dakota. (The Edgemont processing site is to be cleaned up under Title II of the Act by the Tennessee Valley Authority pursuant to NRC license.)

In January, 1983, the Assistant Secretary for Nuclear Evergy (ASNE) assumed responsibility from ASEP for conducting radiological assessment studies of processing sites and vicinity properties and for inclusion of eligible vicinity properties at the designated processing sites.

Engineering assessments nave been performed for all 24 sites. The assessments represented the initial effort to define present site conditions and problems, identify alternative remedial actions, and determine the scope and estimated cost of remedial action alternatives. The assessments include consideration of stabilization of tailings at the present sites and removal of tailings to alternative disposal sites and are being subplemented, as necessary, by additional data-gathering activities at the



tions Phase of the project. Key Decision #4 will be the approval of the completed remedial action and licensing of the last site, with a determination to terminate the Project and commence long-term surveillance and maintenance.

The control points and associated program decisions are reflected in Section 10.0, Scheduled Decision Points.

2.2.3 Work Breakdown Structure

The UMTRA Project Work Breakdown Structure is shown in Attachment 8. Level 1 represents the overall Project, Level 2 contains the major Project work elements, and Levels 3 and 4 reflect detailed tasks by site that must be accomplished to achieve the Project objectives.

- o Concurrence in reprocessing for mineral recovery.
- o Concurrence in the remedial action option selected.
- Concurrence in a decision that remedial actions at a processing site are complete.
- o Issuance of an NRC license for long-term site maintenance.

To facilitate the various NRC concurrences required by the Act, the Project Office has implemented a policy of close coordination from the earliest phases of the planning process concerning cooperative agreements, acquisition of processing or disposal sites, and selection and performance of remedial actions. In July, 1985 the DOE and NRC entered into a Memorandum of Understanding (MOU) in order to provide for an orderly process for executing their respective statutory responsibilities under Title I of the UMTRCA. It is contemplated that such process will minimize or eliminate unnecessary duplication of effort, will facilitate and expedite reviews and concurrences, and will promote the accomplishment of the objectives of Title I of the UMTRCA within reasonable timeframes.

The Act requires state and Indian tribal involvement in the following areas:

- Consultation and notification regarding site designation; and
- o Execution of the cooperative agreement providing for costsharing (as appropriate), acquisition of sites, participation in the selection and performance of the remedial action, rights-of-entry and owner consents.

Public perception of the health problems existing at the tailings sites and public acceptance of the proposed remedial actions may be deciding factors for state and Indian tribal concurrences with the proposed remedial actions, including concurrences regarding the location of disposal sites.

As in the case of NRC's involvement, the highest risk for potential impact, as a result of the state and Indian tribe institutional interface, is with Project schedules. However, the extent to which states and Indian tribes participate in the selection and performance of the remedial action could also impact the total estimated cost of the Project as well as the performance of the remedial actions.

To mitigate the risks inherent in the DOE's interaction with the states and the Indian tribes, the Project Office has taken steps to establish a working relationship, under cooperative agreements, with appropriate state and tribal staffs. The Project Office has also implemented a policy of close coordination and concurrence with the states and the Indian tribes to provide for an effective interface.

3.0 RISK ASSESSMENT AND MITIGATING MEASURES

3.1 BACKGROUND

The UMTRA Project involves managing 22 major construction projects (24 processing sites) and approximately 4500 smaller construction activities (vicinity properties) which creates a dynamic Project environment with considerable cost, schedule, and performance vulnerability. Furthermore, requirements of the Act, the NEPA, the number and level of Project participants, and the technological considerations inherent to the mission compound the Project complexity.

The major risk areas associated with accomplishment of the Project are identified in Attachment 9 and characterized with respect to their potential impact on the Project. Risks outside the Project span of control such as possible changes to the enabling statute or funding shortfalls have not been addressed. It should be noted, however, that to achieve the baseline Project schedule, the funding profile set forth in Attachment 4 must be sustained. Further, the affected states must provide timely reimbursement to DOE for their share of the remedial action costs.

The discussion which follows describes each major risk area within the Project span of control and identifies actions being taken to mitigate the potential impacts.

3.2 INSTITUTIONAL INTERFACES

The UMTRA Project's institutional environment is for the most part determined by the provisions of the Act. However, the requirements of the NEPA process introduce significant institutional interfaces as well. The overall risk with respect to institutional interfaces is assessed to be in the high category. The following paragraphs summarize the inherent cost, schedule, and performance vulnerabilities of the Project with respect to its institutional interrelationships and describe the steps being taken to mitigate the risks.

3.2.1 Institutional Interfaces Under the Act

The Act identifies the roles and responsibilities of the DOE in regard to the NRC, the EPA, the states, Indian tribes, and the public. These relationships and their impact on the Project are discussed below.

The Act requires NRC involvement as follows:

- Consultation in the designation of sites and establishment of site boundaries.
- Concurrence in cooperative agreements with the states and Indian tribes.
- o Concurrence in land acquisicion and disposal decisions.

Many of the steps being taken to mitigate the cost, schedule, and performance risks inherent to the institutional interfaces required by the provisions of the Act will be effective in reducing the Project's vulnerabilities in the NEPA-related institutional interfaces. The Project's policy of close coordination and concurrence with other involved entities, and the implementation of the Project's public participation program, are also intended to mitigate the institutional interface risks inherent in the NEPA process.

3.3 VICINITY PROPERTIES

One of the most significant considerations affecting accomplishment of the Project mission is the workload and costs associated with the vicinity properties (approximately thirty percent of the total Project cost estimate is related to vicinity property work). At this time there are <u>uncertainties as to the number</u> of properties, the extent of contamination, and the complexity of remedial action required at each location.

The Project plans, schedules, and cost estimates are based on the best currently available data that approximately 4500 vicinity properties are to be included and that the identification of the properties shall be accomplished according to schedules that are compatible with Project site schedules. Attention will be given to reviewing and improving this estimate periodically.

The potential impacts of the risks produced by the uncertainties associated with vicinity properties are assessed as being low on performance, high on cost estimates, and high on schedules. The projected impact on schedules is due primarily to the uncertainties concerning the number of vicinity properties, the quantities of contaminated materials at the properties, the complexities of the remedial actions required, and the anticipated rate of vicinity property inclusions.

3.4 SITE ACQUISITION

Prior to site acquisition the Project has need for access to the processing sites for remedial action planning and design development. In the majority of the cases, rights-of-entry have been negotiated by AL with the persons owning interests in the processing sites. In a few cases, the lack of such rights-of-entry has impeded Project planning and design activities; however, experience to-date has shown the risk to the Project in connection with this phase of site acquisition to be low.

The Act requires that cooperative agreements with affected states include provisions for state acquisition of disposal sites, which may be the processing site. Acquisition of the disposal sites may pose significant difficulties and risks affecting project schedules and costs, since some site owners may not be willing sellers. In such cases, state condemnation actions will be necessary, which for some states may require state legislative action. Other factors contributing to the cost and schedules vulnerability of the Project with respect to site acquisitions include: courtdetermined values in excess of appraised values, property mineral values, In November, 1983 the Project Office initiated States/Tribes liaison meetings to improve communication among the Project participants. The meetings, held about twice a year, bring together representatives from DOE, the states and tribes, NRC, EPA and DOE's contractors to review overall project status, plans, concerns and issues.

The Act encourages DOE to hold public hearings in the affected states relative to the following items:

o Site designation and prioritization;

o Selection of remedial actions; and

o Execution of cooperative agreements.

In addition, the NEPA requires public involvement in connection with environmental documents. The public participation is designed to provide public input into the Project Office decisionmaking process. The potential for adverse impact on Project costs, schedules, or performance arises in the possibility of public opposition to the UMTRA Project decisions.

The Project has implemented a coordinated information and public participation program as a means of communicating Project objectives and plans with members of the public. The program also serves to mitigate the high risk impacts associated with possible public misunderstanding of and/or opposition to the program. An UMTRA Project Public Participation Plan has been published to outline the Project Office approach to achieve compliance with public participation provisions of the Act and the NEPA. A Public Information Plan has also been published which details UMTRA Project policy for the dissemination of information to the public by means of various forums and media. In addition, under the cooperative agreements, affected states and Indian tribes have the prerogative of appointing local citizen task forces to interact with DOE and the state for the purpose of information exchange. For example a number of these groups have been established at Salt Lake City, Utah; Canonsburg, Pennsylvania; Durango and Grand Junction, Colorado; Shiprock, New Mexico; and Lakeview, Oregon.

3.2.2 NEPA Institutional Interface

Development and approval of the environmental documentation for UMTRA Project activities involves interaction with the NRC, the Department of Interior (DOI), the EPA, state and local governments. Indian tribes, and the general public. The time required for public meetings, environmental document review, and public comment presents the potential for adverse impact on Project schedules. Expansion of data-gathering efforts to satisfy institutional concerns could also impact both the cost and schedule for completion of NEPA activities. Additionally, public perceptions may give rise to potentially savere opposition during the NEPA procass, thus extending the overall schedule for completion of the project. Conceptual Design (state/tribe and NRC) also provide a systematic means of assuring that the environmental risk of proposed remedial actions is minimized.

From this context, the risk of adverse environmental impact resulting from UMTRA Project activities is assessed as low. Accordingly, the potential for impact on Project cost, schedule, and performance as a result of potential adverse environmental impact is also assessed as low.

As with any construction-type activity, there are health and safety risks present in regard to UMTRA Project operations. Additionally, since the Project involves residual radioactive materials, there are additional concerns with respect to low-level radiation exposure. Steps have been taken to mitigate these risks and are set forth in the UMTRA Project Environmental, Health, and Safety Plan. As a result of the mitigating measures which nave been taken in regard to health and safety risk, the potential for adverse health and safety impacts on Project cost, schedules, and performances is assessed to be very low. dependence on state resources for acquisition actions, and the time required for condemnation proceedings. Risk in site acquisition is estimated to be high for schedule and cost impact and low for performance.

Efforts planned to mitigate state site acquisition vulnerability include the identification of sufficient lead times for initiation of site acquisition activities, performance of independent property appraisals, and coordination of site-related activities with affected property owners.

In some cases DOE may acquire a disposal site through withdrawal of public lands from the DOI. Administrative land withdrawals under DOI procedures cannot exceed a 20-year period. In such cases, DOE may need to initiate legislative withdrawals, which will necessitate extensive time and effort by the Project.

3.5 TECHNOLOGY

The most significant Project performance objective is attainment of the EPA standards at the sites and associated vicinity properties. The Project R&TD Program has contributed to the accomplishment of this objective, primarily through tasks designed to ascertain the effectiveness, integrity, and longevity of tailings containment systems under normal and abnormal conditions. Knowledge of the tailing characteristics and the effectiveness and cost of tailings containment technology has improved significantly over the past several years and attainment of the EPA standards can be predicted with confidence.

Given the status of technology and the promulgated EPA standards, the impact of the technological risk in the Project is assessed to be medium for cost baselines, and low for the performance and schedule baselines. These assessments are used since currently available technology and tecnniques can be used to stabilize and contain uranium mill tailings, although site specific NRC and state requirements may cause estimated costs to increase. The Project's R&TO Program has contributed significantly to the mitigation of performance risk in the application of tailings impoundment and containment technology to the activities of the UMTRA Project.

3.0 ENVIRONMENTAL, HEALTH, AND SAFETY

The environmental, health, and safety risks associated with UMTRA Project activities occur during the remedial action phases of the Project and are predominantly construction-related or occur as the result of the construction.

The environmental consequences of UMTRA Project activities are identified in the NEPA documentation prepared for each site, and all concerns over possible risk to the environment will be addressed in the final environmental documents for the sites. The presumption is that performance of remedial action will present less environmental risk than if no action were taken at all, and that the process of preparing the environmental documentation provides a means of assuring that all mitigating measures are considered. The concurrences required for the Remedial Action Plan/Site Project Charter (formally Project Management Agreement) approved in June, 1980, and amended in 1980, 1982, and 1986. The Project Charter defines the purpose of the Project, the mission of the AL Project Office, responsibilities and authorities of headquarters organizations and AL, reporting relationships, resources, and project management control system. Table 1 of the Project Charter delineates agency responsibilities under the Act, Table 3 presents the division of DOE responsibilities, and Table 4 identifies the major UMTRA Project planning documents which require NE approval. AL has been delegated authority to manage and execute UMTRA Project functions within established procurement, real estate, and other operational approval thresholds.

Responsibility for AL management of the UMTRA Project has been assigned to the UMTRA Project Manager. The UMTRA Project Manager is John G. Themelis who is supported by: the Project Office staff; AL staff matrix support; Jacobs Engineering Group, Inc., the Technical Assistance Contractor; Morrison-Knudsen Company, Inc., Bendix Field Engineering Corporation, and the State of Utah, as Remedial Action Contractors; and other selected contractors. The Project Office is responsible for the management of the Project and its contractors in accordance with overall program policy and guidance provided by DOE headquarters.

The Project Office is responsible for:

- Coordination of activities with Indian tribes, state and local governments, and the public.
- o Negotiation of cooperative agreements.
- Development of disposal and stabilization technology for uranium mill tailings.
- o Operation of the Project management control system.
- o Management of the NEPA process.
- Management of the selection and implementation of remedial action activities.
- o Procurement and management of project participants.
- o Acquisition of necessary licenses and permits.
- o Operation of the surveillance and maintenance program through Project termination.

The Project Office is assisted in meeting these responsibilities by AL matrix support from procurement, public affairs, quality assurance, project management, legal, safety, finance, budget, and engineering personnel.

4.3 PROJECT PARTICIPANTS

The UMTRA Project Office is supported by two major contractors: a Technical Assistance Contractor (TAC) and a Remedial Action Contractor (RAC). The TAC develops and implements site characterization; monitors

4.1 ORGANIZATIONAL RESPONSIBILITIES

The Act assigns responsibility for legislative implementation of the Act to several Federal entities. Attachment 10 presents a graphical summary of the various organizational responsibilities provided for in the Act, and the paragraphs below elaborate on the specific assignments.

The EPA, in accordance with the provisions of the Act, has promulgated standards for remedial actions at inactive uranium processing sites. The standards were published January 5, 1983, and became effective March 7, 1983.

The NRC's responsibilities under Public Law 95-604 are extensive, as outlined in Section 3.2.1.

Responsibilities of other non-DOE Federal entities for provisions of the Act include: consultation by the DOI concerning sites on Indian lands and the possible use of public lands for disposal sites; and a determination by the Department of Justice (DOJ) regarding liability of owners and operators of the designated sites for remedial action costs.

Within the DOE, three organizations have been assigned responsibilities called forth in the Act: the Office of General Counsel (OGC); the Office of Environment, Safety and Health (EH); and the Office of Nuclear Energy (NE). The respective responsibilities of these organizations are summarized below.

OGC is responsible for providing program legal assistance relative to implementation of the Act, for the preparation of model cooperative agreements to be executed with states and Indian tribes, and for the drafting of memoranda of understanding between DOE and other Federal agencies when necessary.

EH is responsible for providing occupational safety, environmental and quality assurance overview for the program, and for review and approval of NEPA documents.

The remaining UMTRA Project functions at DOE headquarters are the responsibilities of NE. NE is responsible for designation of the processing sites and associated vicinity properties, for characterization of the sites as to health effects, performance of radiological surveys, and certification of completion of remedial actions. NE is also responsible for: accomplianment of remedial actions at the processing and disposal sites and vicinity properties; investigation of the feasibility of reprocessing of the tailings; development of stabilization technology; compliance with NEP4 requirements; negotiation and execution of cooperative agreements with the affected states and Indian tribes; and surveillance and maintenance of the sites after remedial actions are completed.

4.2 DECISION DELEGATIONS

The UMTRA Project has been designated as a Major Systems Acquisition (MSA) activity (MSA-143), with day to day management assigned to AL in the

- o <u>Technical Baseline</u>. The technical baseline evolves from the EPA standards, applicable Federal and state laws, and the like, to the remedial action plans and engineering designs that detail the remedial actions.
- O Schedule Baseline. The schedule baseline is based on the proposed DOE extension to 1993. The scheduling system incorporates these requirements and consists of a hierarchy of schedules that start at the Project level and extend down to contractor schedules used for time-phasing detailed work packages.
- o Cost Baseline. The cost baseline is based on the Project cost estimate summarized in this Project Plan. The Project Office controls cost through management of the total estimated cost and through modified application of the DOE Cost and Schedule Control Systems Criteria (CSCSC) for the TAC and the RAC. This control technique will result in the following actions: reconciliation and agreement on the cost baseline by all project participants; minimization of changes to the approved baseline; controlled communication among project participants; trend analysis reporting; and maintenance of a consistent approach to evaluating and processing changes.
- o Funding Baseline. The UMTRA Project funding baseline is predicated on the cost baseline and is provided through the annual AL Approved Funding Program. Control of contingency funds rests with the UMTRA Project Manager. Any changes to the Project funding baseline will result in corresponding changes to the other baselines in accordance with the change control procedures.

Cost and schedule thresholds for project control are described in Section 8.0, Controlled Items.

4.5 PROJECT VULNERABILITY ASSESSMENT

An analysis of the general control environment, the inherent risk, and the control safeguards for the UMTRA Project has been performed and resulted in an overall assessment of moderate vulnerability.

A program is in effect to ensure that proper controls exist. This program reduces Project vulnerability by development of appropriate organizational checks and balances and administrative controls for the Project Office. technology development; prepares NEPA documentation; develops site remedial action concepts; prepares site Remedial Action Plans, conceptual designs, and design criteria; reviews detailed designs prepared by the RAC; certifies performance of remedial actions; coordinates site licensing; and conducts surveillance and maintenance activities at disposal sites. The TAC is also responsible for development and implementation of Project-level programs for health and safety, quality assurance, and public participation. The RAC performs preliminary and detailed engineering for the vicinity properties, detailed engineering for the processing sites, and construction and inspection necessary for the conduct of remedial action work. The RAC is also responsible for on-site health and safety and administers site radiation monitoring efforts.

4.4 PROJECT MANAGEMENT CONTROL SYSTEM

The Project management control system is based on the Project Work Breakdown Structure (PWBS) shown in Attachment 8 which outlines and integrates all facets of the project activities. The system comprises six major elements.

- Work definition. Ensures that all project work is identified and defined to the PWBS and is planned, scheduled, and budgeted prior to authorization.
- Work authorization. Provides control of the initiation of work and changes to previously authorized work.
- Work scheduling and control. Provides for establishing an approved project master schedule, implementing milestone monitoring and updating, ensuring systematic and in-depth impact analyses, and providing systematic and consistent change control.
- Acquisition strategy. Identifies planned procurement and contracting activities (including acquisition of land or interests in land), defines the relationships and responsibilities of all project participants, and provides for realistic contingency planning.
- Management reporting and reviews. Uses the DOE Uniform Contractor Reporting System to establish a standard procedure for collecting and integrating essential cost, manpower, schedule, and technical information for managing contractual performance.
 - Change control. Assures that change control procedures are developed and implemented for orderly control and management and that project baseline integrity is maintained.

Project progress is measured against technical, cost, and schedule baselines (discussed below) that are established by the UMTRA Project Office and approved by the Program Manager. The UMTRA Project Office uses the baseline data to develop detailed work plans for the Project and its participants. Attachment 11 identifies the baseline documents (the Quality Assurance Plan; Environmental, Health, and Safety Plan, and the like), used for management of the Project. The purpose of having a TAC and RACs is to assure an independent assessment of both the TAC prepared conceptual design (by the RACs) and the RACs prepared final design (by the TAC). Through its planning and management support efforts, the TAC provides for overall Project integration by assisting the DOE in developing and implementing Project-level plans and schedules. Project management authority is retained in the Project Office along with the responsibility for Project control and overall technical management. The RACs provide for on-site management of the remedial actions under the direction of the Project Office engineers who serve in a liaison capacity. The TAC also manages all UMTRA Project environmental activities and assists the Project Office in coordinating data-gathering and site characterization efforts.

The acquisition strategy also identifies: (1) cooperative agreements as the vehicles for DOE-state cost snaring, state/Indian tribe participation, and site acquisition; (2) an UMTRA Project Technology Steering Committee to coordinate the activities of the R&TD Program; and (3) the contracting structure for vicinity property remedial actions.

In this manner the acquisition structure was designed to provide a balanced and integrated basis for achieving the Project objectives. Attachment 12 summarizes the current status of the acquisition strategy.

5.0 ACQUISITION STRATEGY

In accordance with DOE policy, a business strategy group is used to develop the Project acquisition strategy. The initial acquisition strategy adopted took into consideration the overall Project environment, functional missionoriented requirements, and institutional interrelationships. Consideration was also given to the objectives of maximizing competition and maintaining contractual flexibility, and obtaining the optimal balance of overall coordination, integration, and management responsibility between project participants.

The acquisition strategy initially developed provided for three primary participants; a NEPA contractor, a technical assistance contractor, and a remedial action contractor. The NEPA contractor's activities have subsequently been transferred to the technical assistance contractor. The responsibilities of each are summarized below.

Tecnnical Assistance Contractor (TAC)

- o Technology development support.
- o Environmental data gathering.
- o Remedial action impact characterizations.
- o NEPA document preparation.
- o Environmental activities management.
- o Site conceptual designs and remedial action plans.
- o Site surveillance and maintenance.
- o Planning and management support in the areas of:
 - Health and safety
 - Quality assurance
 - Licensing and certification
 - Project control
 - Public participation
 - Document control

Remedial Action Contractors (RACs)

- a Engineering design.
- o Remedial actions.
- o Construction management.
- o Site health and safety.
- a disa quality assurance.



6.1 BACKGROUND

UMTRA Project schedules will consist of a hierarchy of schedules that start at the Project level and extend down to schedules used for timephasing of detailed work by Project participants. Each of the lower tier schedules will be compatible with the Project Master Schedule, with key milestones traceable from the top level schedule to lower tier schedules. Vicinity properties remedial actions are scheduled to be completed prior to completion of remedial action of the associated processing sites, since residual radioactive materials removed from such vicinity properties should be included with material from the processing site when final stabilization is accomplished.

The Project scheduling hierarchy is as follows:

- o UMTRA Sites Master Schedule (Attachment 13).
- o Individual site schedules.
- o Contractor supporting schedules.
- o Specific critical element schedules.

All schedules have been aligned to provide for completion of remedial actions by September 30, 1993.

6.2 STATUS

Several Key Project milestones have been accomplished since the establishment of the Project Office in early FY 1980, including the following:

- o Award of the TAC contract.
- o Award of the RACs contracts.
- o Publication of first EIS.
- o Initiation of processing site remedial action at four sites.
- o initiation of vicinity property remedial action at seven sites.



7.1 COSTS

The Project total estimated cost is estimated to be \$546.2 million in escalated dollars. This estimate is based on the current UMTRA Sites Master Schedule and is subject to change, if this schedule is impacted. (Attachment 3 presents the project total cost estimate by site and fiscal year for the duration of the project. Attachment 4 shows the Baseline Resources Plan for Federal and state funding associated with the UMTRA Sites Master Schedule).

7.2 MANPOWER

Project Office staffing will be phased to correspond to the scheduled accomplishment of the project mission. Attachment 14 depicts the UMTRA Project Office organization and Attachment 15 presents UMTRA Project staffing estimates for key participants.

7.3 FACILITIES

Title I of the Act requires that affected states acquire disposal sites unless the disposal sites are acquired directly by DOE in accordance with Section 106. The title to state-acquired disposal sites will be transferred to the Federal Government upon completion of remedial actions at the sites.



3.0 CONTROL!ED ITEMS

Selected performance, cost, and schedule parameters have been established for baseline control and performance measurement. The following documents will be baselined and can be changed only through formal change control (refer to Section 4.0):

CONTROL BASELINE

DOCUMENT

erformance	Project Management Agreement Project Plan
	Environmental Documents Remedial Action Plans Remedial Action Designs
ost	Project Plan (TEC)

Project Schedule and Cost Estimate (PS/CE) Report

Schedule

Project Charter Project Plan (UMTRA Sites Master Schedule) PS/CE Report (Site Schedules)

The thresholds for cost and schedule performance assessment reporting are established uniformly on a site basis. Any difference between a site's planned and actual performance which exceeds plus or minus 15 percent or schedule slippage of 30 days, shall be addressed. Notification and explanation of cost and schedule variances exceeding these thresholds shall be provided in a variance analysis to be included in the quarterly Project Managers Progress Report (PMPR) to DOE Headquarters. In addition to the thresholds identified for cost and schedule, any change required in performance objectives shall also be reported to DOE Headquarters in the PMPR.



9.0 SCHEDULED DECISION POINTS

The following decision points are established for the Project:

DECISION POINT	DATE	AUTHORITY
Key Decision #1 - Confirmation of the Project Mission Need and Approval of the Project Plan	3rd Utr FY '83 (accomplished)	DOE/Acquisition Executive
Key Decision #2 - Approve First Remedial Action Plan (RAP). Proceed to Engineering Development	4th Qtr FY '83 (accomplished)	DOE/Acquisition Executive
Key Decision #3 - Approve Engineering Design for First Site. Proceed to Remedial Operations	4th Qtr FY '83 (accomplished)	DOE/Acquisition Executive
Key Decision #4 - Terminate Project and Commence Long- Term DOE Site Maintenance and Surveillance	4th Qtr FY '93	DOE/Acquisition Executive

The Acquisition Executive key decisions #2 and #3 were based on planning for the Canonsburg site, as the lead site for the UMTRA Project. Following key Decisions #2 and #3, the Remedial Action Plan/Site Conceptual Designs for the subsequent sites will be submitted for approval to the Director, Division of Uranium Mill Tailings Projects. Key decision #4 will follow completion of remedial action and certification for the last site(s).



This UMTRA Project Plan is submitted by: Themelis. Project Manager + min James A. Turi, Director Division of Uranium Mill Tailings Projects Raymond G. Romatowski, Manager. Albuquerque Operations Office William R. Voigt, Jr., Director, Office of Remedial Action and Waste Technology

The plan identifies the mission and objectives of the project, outlines the technical and managerial approach for achieving them, and summarizes the performance, cost, and schedule baselines which have been established to guide operational activity. Project schedules are aligned for completion of UMTRA Project remedial actions by September 30, 1993, at a total estimated cost of \$946.2 million (escalated 1986 dollars). Approval will be required by the Acquisition Executive if the scope of the project is changed, or if the Total Estimated Cost increases by 15 percent, or if the schedule slips by six months.

Approved:

James W. augnan, Jr. Ac Assistant Secreta Nuclear Energy Programs

Martha O. Hesse, Acquisition Executive, Assistant Secretary, Management and Administration

REFERENCES

- CEQ (Council on Environmental Quality). <u>Regulation for Implementing the</u> <u>Procedural Provisions of the National Environmental Policy Act</u>, 40 CFR Parts 1500-1508.
- DOE (U.S. Department of Energy), 1985. UMTRA Project Environmental, Health and Safety Plan, UMTRA-DOE/AL-150224.0006, prepared by the U.S. Department of Energy, UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico.
- DOE (U.S. Department of Energy), 1984. UMTRA Quality Assurance Plan, UMTRA-DOE/AL-400325, prepared by the U.S. Department of Energy, UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico.
- DOE (U.S. Department of Energy), 1981. Final Guidelines for Compliance with the National Environmental Policy Act, 45 FR 20694 - 20701 (March 28, 1981).
- EPA (U.S. Environmental Protection Agency) 1983. Final Environmental Impact Statement for Remedial Action Standards for Inactive Uranium Processing Sites (40 CFR Part 192), EPA 520/4-82-013; 1 and 2, Washington, D.C.

.

UMTRA PROJECT PLAN

H

ATTACHMENTS

1 - 15

TABLE OF CONTENTS

1

1

P

		Page
1.	Processing Sites and Priorities	A-1
2.	UMTRA Project Inactive Uranium Processing Site Locations	A-2
3.	Total Site Cost Summary	A-3
4.	UMTRA Project Baseline Resources Plan	A-4
5.	UMTRA Project Phases and Key Decisions	A-5
6.	UMTRA Project Phasing	A-6
7a.	UMTRA Project Functional Workflow	A-3
7b.	Generalized UMTRA Remedial Action Flow Chart	A-9
8.	UMTRA Project Work Breakdown Structure	A-10
9.	UMTRA Project Risks and Impact Assessment	A-11
10.	UMTRA Program Organization and Interfaces	A-12
11.	UMTRA Project Document Responsibilities	A-13
12.	UMTRA Project Acquisition Structure	A-14
13.	UMTRA Sites Master Schedule	A-15
14.	UMTRA Project Office Organization	A-16
15.	UMTRA Project Staffing	A-17

ATTACHMENT 2 UMTRA PROJECT INACTIVE URANIUM PROCESSING SITE LOCATIONS



PROCESSING SITES AND PRIORITIES

DESIGNATED P. DEESSING SITES	STATE	PRIORITY (*)	TAILINGS AREA ACRES	TONS OF CONTANT	MINATED MATERIALS (000) OTHER MATERIALS	ESTIMATED NO. OF VICINITY PROP.
1 Monument Valley (**)	Arizona	Low	30	1,100	314	0
2 Juba (ity (**)	11 12010	Medium	33	800	790	1
3 Duranus	Colorado	High	14	1,555	605	102
A Grand hunchion	00101000	High	60	1,900	1,273	3,648
5 Gunnison		High	32	540	435	9
6 Maybell		Low	80	2,600	1,025	0
7 Naturita		Medium	23		344	39
8 Ritle		High	32	2,700	444	242
9 Ola Rifle		High	11	350	230	0
10 Slick Rock (NE)		LOW	6	37	321	3
11 Slick Rock (UC)		LOW	19	350	314	0
12 Lowman	Idaho	Low	10	83	103	8
13. Ambrosia Lake	New Mexico	Medium	105	2,600	1,323	0
14 Shinrock (**)		High	72	1,650	1,575	15
15. Beltield	North Dakota	LOw			72	5
16. Bowman		Low			97	1
17. Lakeview	Oregon	Medium	30	130	400	6
18. Canonsburg	Pennsylvania	High			455	121
19. Falls City	Texas	Medium	150	2,500	738	10
20. Green River	ULah	t.Ow	9	123	176	39
21. Mexican Hat (**)		Medium	68	2,200	677	10
22. Salt Lake City		High	100	1,880	1,523	109
23. Spouk	Wyoming	Low	5	187		1
24. Riverton		High	_72	900	848	20
		1	TOTALS 961	24,190	14,082	

A-1

Edgemont Vicinity Properties

South Dakota

TOTAL 4,543

154

*Based on Health Hazard **Processing Site on Tribal Lands



ATTACHMENT 4 UMTRA PROJECT BASELINE RESOURCES PLAN

							•								
SITE	FY '79-80	FY '81	FY '82	FY '83	FY 'BA	FY '85	FY '86	FY '87	FY '88	FY '89	FY '90	FY '91	FY '92	FY 193	TOTAL
CANER	1115.00	2.82.00	5142.00	6537.00	11056.00	12617.82	3675.83	216.84	382.51	374.27	112.49	3.8.75	193.12	214.79	15548.13
SALT LAKE CITY	960.00	2767.00	4494.00	3451.00	5866.00	19697.82	30873.42	24613.04	3531.61	239.63	194.39	115.35	187.27	198.59	977228.91
DIPALO	450.00	3/0.00	930.00	954.00 990 00	1943.00	2116.62	2109 24	3/50.35	UL.CCA	10001 77	450.67	115.5	193.12	203.19	2311.0
RINIGN	421.00	291 00	753.00	771 00	872 00	1341 82	1526 01	100.00	12947 04	10724.27 10725.27	731 A3	TT JJ	223.00	273 67	3/247.07 3/145 A7
GRAND LINETION	447.00	291.00	634.00	2172.00	3618.00	8611.82	20199.44	4495A.41	59531.36	57159.46	59441.70	17361.67	1804.30	448.52	313879.06
RIFLE	620.00	291.00	631.00	291.00	237.00	1473.82	1785.10	2098.78	11401.55	22831.35	15386.73	5633.23	276.53	293.24	63249.92
RIVERTON	448.00	291.00	£3.00	761.00	1228.00	2135.82	342.20	3152.18	16077.73	9946.99	725.05	367.71	257.51	273.07	36.59.26
TLBA CITY	45.00	322.00	335.00	463.00	200.00	1636.82	1964.18	4189.50	5271.21	2123.26	649.80	356.68	223.85	207.90	18378.20
MEXICAN HAT	435.00	322.00	35.00	531.00	181.00	1339.83	1843.55	3506.39	11460.67	8915.47	654.53	457.35	323.36	363.06	30448.20
LAKEVIEN	4.Б.00	VI. II	363.00	214.00	615.00	1668.63	5987.94	9454.16	1268.13	629.20	255.49	£6.68	239.95	211.00	22020.38
AMEROSIA LAKE	435.00	322.00	35.00	188.00	0.00	1207.83	1763.70	3492.34	11297.24	5352.61	525.89	287.73	185.81	197.03	26590.17
NATURITA	435.00	322.00	35.00	188.00	0.00	977.83	2301.62	2147.19	1540.51	893.26	4228.40	4917.67	645.28	628.40	19560.16
FALLS CITY	617.00	322.00	363.00	214.00	0.00	623.83	2816.34	1212.09	3740.92	9645.75	10962.45	5463.81	301.42	319.63	36462.25
GATEN KIVER	4.54.00	322.00	363.00	214.00	0.00	5/7.83	1067.80	1996.40	568.28	137.19	436.23	7261.94	7337.69	496.42	21213.44
BO FID DADA MAN	433.00	112 00	363.00	429.00	0.00	507.83	1105 17	1005 70	3/2.90	140.53	260.21	6011.00	12042.11	41.6A	10107.00
MAYIAT I	472 00	701 00	725.00	188.00	0.00	487 83	977 %	1552 95	147 49	575 10	5051 M	10518 97	1221 91	440.57	73147.09
LOUNN	17 00	321.00	363.00	214 00	0.00	TA AT	752 23	1811 44	A10 02	147 71	3/38.04	AN 95	5401 55	261 96	17787.91
STOX	432.00	321.00	35.00	188.00	0.00	35.63	72.21	1680.32	525.24	164.23	454.05	1524.HD	1410.33	440.56	10563.57
MONIMENT WALLEY	432.00	321.00	363.00	214.00	0.00	1060.83	898.39	162.12	246.38	165.71	5613.46	6423.08	118.53	125.69	16134.17
EDGEMONT	0.00	0.00	0.00	276.00	1481.00	778.63	2343.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4879.54
TOTALS	11555.00	11754.00	18381.00	21671.00	29152.00	64439.00	97129.17	135495.02	160297.35	140872.74	108490.06	102095.48	38541.81	6286.55	946160.17
The second s								1							
							1. 2-								
						200	一代课	he line							
							11. 40	· • . • . •							
								4							
							1.10								

ect Phase	Activity	Description	Product	Decision
NCED DEVELOPMENT				
ANNING	Update of preliminary engineering and environmental assessmenta	Perform additional measurements to estimate the extent of contami- nation and environmental hazards.	Preliminary enginecring reports	Are engineering and environmental data sufficient to choose and juntify proposing an option?
	Reprocessing evaluation	Evaluate the technical feasibility and economic viability of reprocessing the mill tailings.	Expressions of interest from commercial re- processors	Is reprocessing economically and technically viable?
SIGN DEVELOPMENT	Develop remedial action and disposal options	Develop options for remedial action including preliminary schedules, costs, risk and benefit assessment. Two princi- pal options will be evaluated: stabilization-in-place or off- site disposal. Several off- site disposal alternatives may be evaluated.	Remedial Action Concept Paper	
PA PROCESS	Environmental assess- ment	Conduct required research or field tests to obtain environ- mental data and characterize the impacts of remedial operations.	Environmental Assessement Report	Is an EIS needed for the preferred option?
	Detailed environmental impact analysis	Prepare an EIS and make available for public and NKC review.	Environmental Impact Statement; Record of Decision	Should the preferred option be implemented?

UMTRA PROJECT PHASING

ATTACHMENT 6

UMTRA PROJECT PHASING (Page 1 of 2) ľ

ATTACHMENT 5 UMTRA PROJECT PHASES & KEY DECISIONS



ATTACHMENT 7 A UMTRA PROJECT FUNCTIONAL WORKFLOW

UMTRA ACTIVITIES FLOW DIAGRAM



UMTRA PROJECT PHASING (continued)

Project Phase	Activity	Description	Product	Decision
REMEDIAL ACTION PLAN	Remedial action planning	Prepare a detailed plan including cost estimate, work plans, environmental protection requirements, schedules, and conceptual design.	Remedial Action Plan	MSA Key Decision 2 Should the project proceed into engineering development 2
ENGINEERING DEVELOPMEN	TT			
SITE ACQUISITION	Acquire disposal site and processing site where appropriate	Acquire fee simple title (including mineral rights and surface mineral value) or withdraw from public domain (except Indian lands).	Real estate purchase agreements	
DESIGN	Detailed engineering	Prepare the technical specifi- cations, plans, procedures, and drawings for the remedial action and tailings disposal.	Technical specifi- cations, baseline cost estimate and schedule	MSA Key Decision 3 Should the project proceed inco remedial operations?
TENTIONS				
SITE REMEDIAL ACTIONS	Remedial operations	Contractor will implement the remedial action as outlined in the technical specifications, plans, procedures, and drawings.	Stabilized sites and site comple- tion reports	
LICENSING	Obtain NRC license for disposa! site	Prepare a site characterization plan and submit an NRC license application including a safety analysis and NEPA documentation.	Docketing of cense applica- t.on	Is the site configuration and safety analysis acceptable?
MAINTENANCE 6 SURVEILLANCE	Implement monitoring	Provide for radiological monitor- ing and site maintenance to ensure the site remains environmentally sound.		MSA Key Decision 4 Terminate project and commence long-term maintenance and

ATTACHMENT 8

URANIUM MILL TAILINGS REMEDIAL ACTIONS (UMTRA) PROJECT

WORK BREAKDOWN STRUCTURE



U.S. DEPARTMENT OF ENERGY



- 2 CHART IS BASED ON THE PHEPAHATION OF AN ENVIRONMENTAL ASSESSMENT ENVIRONMENTAL HIP ACT STATEMENT PHEPAHATION WILL ADD SIX (DEMONTHS TO THE PHOCESS AND DELAY SUBSEQUENT STEPS BY THAT AMOUNT.
- 3. HE MEDIAL ACTION CONSTRUCTION WILL GENERALLY REQUIRE TWO (2) FULL CONSTRUCTION SEASONS, LARGER SITES MAY HE QUIRE ADDITIONAL YIME.
- 4. COLOR BAR THICKNESS DENOTES RELATIVE DEGREE OF
- 5 THE STEPS AND ACTIVITIES AND TIME REQUIRED ARE BASED ON CUMININT STATUTES, REGULATIONS, COOPERATIVE AGRICEMENTS, POLICY AND PRACTICE. SPRING 1985



United States Department of Energy

Uraniun Mill Tailings

UMTRA

Remedial Action Program

ORGANIZATIONAL STRUCTURE



ATTACHMENT 9 UMTRA PROJECT RISKS AND IMPACT ASSESSMENT

.

	MAJOR RISK AREAS AND IMPACTS									
PROJECT BASELINES	INSTITUTIONAL INTERFACES	VICINITY PROPERTIES	SITE ACOUISMON	TECHNOLOGY	ENVIRONMENTAL HEALTH & SAFETY					
SELECTION/PERFORMANCE REMEDIAL ACTION CONCEPTS NEPA DOCUMENTATION REMEDIAL ACTION PLANS REMEDIAL ACTION DESIGNS	HIGH IMPACT	LOW IMPACT	LOW IMPACT	LOW IMPACT	LOW IMPACT					
COSTS PROJECT TOTAL COST ESTIMATE STATE COST SHARE	HIGH IMPACT	HIGH IMPACT	MODERATE IMPACT	LOW IMPACT	LOW IMPACT					
SCHEDULES PROJECT MASTER SCHEDULE PROCESSING SITE SCHEDULE VICINITY PROPERTY SCHEDULE SITE SCHEDULES	HIGH IMPACT	HIGH IMPACT	HIGH IMPACȚ	LOW IMPACT	LOW IMPACT					

UMTRA PROJECT ACQUISITION STRUCTURE

STRUCTURE COMPONENT	CONTRACTOR	CONTRACT IDENTIFICATION	CONTRILI TYPE	AWARD DATE	TERMS .	COMMENT	
Technical Assistance Contractor	Jacobs Engineering Group Inc.	AL 14086	CPFF	3-25-82	36 Mos.*	Negotialed and tunded via discrete term task agree- ments. Includes options for CPAF conversion.	
Remedial Action Contractor	Morrison-Knudsen Co., Inc.	AL 18796	CPFF	4-18-83	36 Mus.*	Negotiated and funded via discrete term task agree- ments.	
Cooperative Agreements	Colorado Utah Pennsylvania North Dakota Idaho Navajo Tribe New Mexico Oregon Texas Wyoming South Dakota Navajo-Hopi Tribe	AL 16257 AL 16309 AL 19487 AL 20536 AL 20535 AL 16258 AL 20533 AL 20533 AL 20534 AL 20532 AL 19454 AL 23867 AL 26731	CA CA CA CA CA CA CA CA CA CA CA CA	10-19-81 3-30-83 9-05-80 2-23-83 3-11-85 10-07-83 9-27-85 7-24-84 3-31-86 1-30-84 5-22-84 10-07-83	 84 Mos. 	Sole source awards for 84 months. All except Navajo and Hopi Tribes include provisions for 10 percent cost sharing. All include provisions for site acquisition, remedial action plan concurrence, and site access agree- ments.	
Inclusion Survey Contractor	Oak Ridge National Laboratories	OR ENG26	CR	N/A	N/A	Funded through work package authorization.	
GRJ/EDG Vicinity Properties	Sendix Field Engineering Group	GJ U1664	CR	N/A	N/A	Funded through work package authorization.	
Radon Monitoring	Monsanto	DP 00053	CR	N/A	N/A	Funded through work package authorization.	

*With 2-24 month options. Not later than date.

ATTACHMENT 11 UMTRA PROJECT DOCUMENT RESPONSIBILITIES

	NE	EH	PO	TAC	RAC
MANAGEMENT DOCUMENTS					
Project Charter	A/P		р		
Project Plan	A		p		
Project Management Plan	A		p		
Project Work Breakdown Structure	R		A/P		
Contractor Management Plan			A	р	p
Contractor Procedures			R	A/P	A/P
Project Surveillance & Maintenance Plan	А		A	P	I
PROJECT PROCEDURES					
Change Control Procedures	R		A	Ρ	I
Public Information Plan	R		A	ρ	Î
Public Participation Plan	R		A	p	i
Quality Assurance Plan	R	R	A	P	Ť
Environmental Health and Safety Plan	R	R	A	p	ī
Vicinity Properties Management &					
Implementation Manual	R		A	р	I
Plan for Implementating EPA					
Standards at UMTRA Sites	R		A	р	I
Key Programmatic Steps and					
Activities for Implementing					
the UMTRA Program	R		А	р	T
Processing Site Certification Plan	A		A	P	Î
TECHNICAL DOCUMENTS					
Site Characterization Reports	R		Δ	P	p
Comparative Analysis of Disposal					
Sites Alternatives Report	R		А	p	
Environ. Assess./Impact Statement	A/R*	A	R	P	
Remedial Action Plan	A		A	P	T
Detailed Design			A	R	D
Site Certification Reports	R		A	P	P
Site Surveillance and Maintenance Plans	R		A	P	
Site License Application	R		A	p	
SCHEDULE AND COST ESTIMATE DOCUMENTS					
Headquarters Controlled Milestones	A/P		R/I	I	I
Project Sites Master Schedule	A		F	ī	ī
Contractor Schedules			A	p	p
Project Schedule & Cost Estimate Report	С		A	Р	I
Preliminary Design Estimate			A	I/R	p
Definitive Design Estimate			А	I/R	Ρ
WE - UMIKA Program Utrice		A - /	Approve		
en - Office of Environment, Safety and Health		R - F	Keview		
TAC - UMIRA Project Uffice		P - 1	repare		
TAC - Technical Assistance Contractor		C - (Loncur		
RAL - Remedial Action Contractor		[-]	Input		

*Reviews all documents and approves Records of Decisions.

UMTRA PROJECT OFFICE ORGANIZATION



PROCESSING SITES	FY 1983	FY 1984	FY 1985	FY 1986	FY 1987	FY 1988	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993
ANONSBURG	7772	in lugar	1012013010	101201040	10 20 30 40	10120130140	14203040	10 20 30 40	10 20 0 0 0	10 20 30 40	10 20 30 4
ALT LAKE CITY	mmm	777775		-							
	mmm	77/72	1								
HIPHOCK											
URANGO	1111111	1111111									
UNNISON	111111			<i>cum</i>							
RAND JUNCTION . PS	22222		1 177777	12 min	[
RAND JUNCTION . VP	1										
IFLE - 2	2222222	Z	VIIIII	VIIIII	1111						
IVERTON	VIIIII	mm	mm	VIIII							
UBA CITY	VIIIIII	EZ.	TITTE	ATTER T							
EXICAN HAT	7777777		TITTE	VIALD	[
AKEVIEW	7777	07777	177775								
MAROSIA LASE	777	terrer.	TTTL	11115	P						
ATURITA	7777			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,							
	1777							L			
ALLS CITY	1222			VIIIII							
HEEN HIVEH	2777				12mm						
LICK HUCK - 2					2Amm						
ELFIELD	1///				22. mar				C		
OWMAN	2224			222222	Maria						
AYBELL	2223			1.1111	22.00						
OWMAN	222			mm	2274				-	[
POOK	2222			ZITT	22/ aun						
ONUMENT VALLEY	777773		VIIIIII	11111							
			PS - PRO	CESSING							

.

.

ATTACHMENT 15

UMTRA PROJECT STAFFING



*UMTRA PROJECT AUTHORIZED POSITION