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Albuquerque Operations Office
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WM Project **39**

Docket No.

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JUN 24 1985

Mr. Leo Higginbotham
Chief, Low Level Waste and Uranium
Recovery, Recovery Projects Branch
U.S. NRC, Mail Stop 623-SS
Washington, DC 20555

Dear Mr. Higginbotham:

Enclosed is four copies of Revision B of the Vicinity Property
Management Implementation Plan (VPMIM) for your review.

Please submit any comments which you may have by July 24, 1985.
If no response has been received by this date, it will be assumed
that no comments must be incorporated and finalization may
proceed.

Any questions or concerns may be directed to Jolene Garcia of my
staff at (505) 846-1238.

Sincerely,

John G. Themelis, Project Manager
Uranium Mill Tailings Project Office

Enclosure

cc w/enclosure:
R. Sena, UMTRA
P. Stassi, JEG

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PDR WASTE
WM-39 PDR

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The objective of the manual is to establish standard procedures for all vicinity property activities, and to present a uniform system of planning and scheduling which will promote effective management by the DOE and communication between the DOE, states, tribes, participating contractors, and the public. Specifically, the objectives of the VPMIM are:

- o To describe guidelines to the project participants for conducting the various vicinity property inclusion, engineering, remedial action, and certification tasks.
- o To identify the roles of the various vicinity property participants and their responsibilities.
- o To describe the Vicinity Property Data Management System (VPDMS) which DOE and its contractors will use to assess status and radiological characteristics of individual properties.

This manual will be updated, as required. Significant changes to protocol and/or responsibilities will be provided to the states, tribes, and NRC for comment prior to final incorporation into the document.

1.3 PROJECT IMPLEMENTATION

The UMTRA Project includes responsibilities assigned to the Assistant Secretary for Nuclear Energy (ASNE), some of which have been delegated to the Albuquerque Operations Office (AL). An UMTRA Project Office (PO) AL has been established in Albuquerque, New Mexico. It is the responsibility of the PO to administer and implement vicinity property remedial actions for the UMTRA Project according to the guidelines discussed in this manual. Guidelines for remedial action at the UMTRA processing sites are discussed in other UMTRA documents.

1.3.1 Vicinity properties responsibilities

The DOE is assisted in its vicinity property efforts by a Technical Assistance Contractor (TAC), two Remedial Action Contractors (RACs) and the Inclusion Survey Contractor (ISC). In addition, the states, Indian tribes, and Nuclear Regulatory Commission (NRC) provide approvals and concurrence to DOE at various stages of the vicinity property process. The PO is also assisted in its effort by the DOE Headquarters and Grand Junction [Rev. B] Project Office. Specifically the Idaho Operations Office, through the Grand Junction Area Office, is administering RAC activities for Grand Junction and Edgemont vicinity property remedial actions and the Technical Measurements Center (TMC) in support of all DOE remedial action programs. With respect to properties, the DOE is responsible for:

- o Overall project management and outline of support contractor's scopes of work.
- o Property designation.

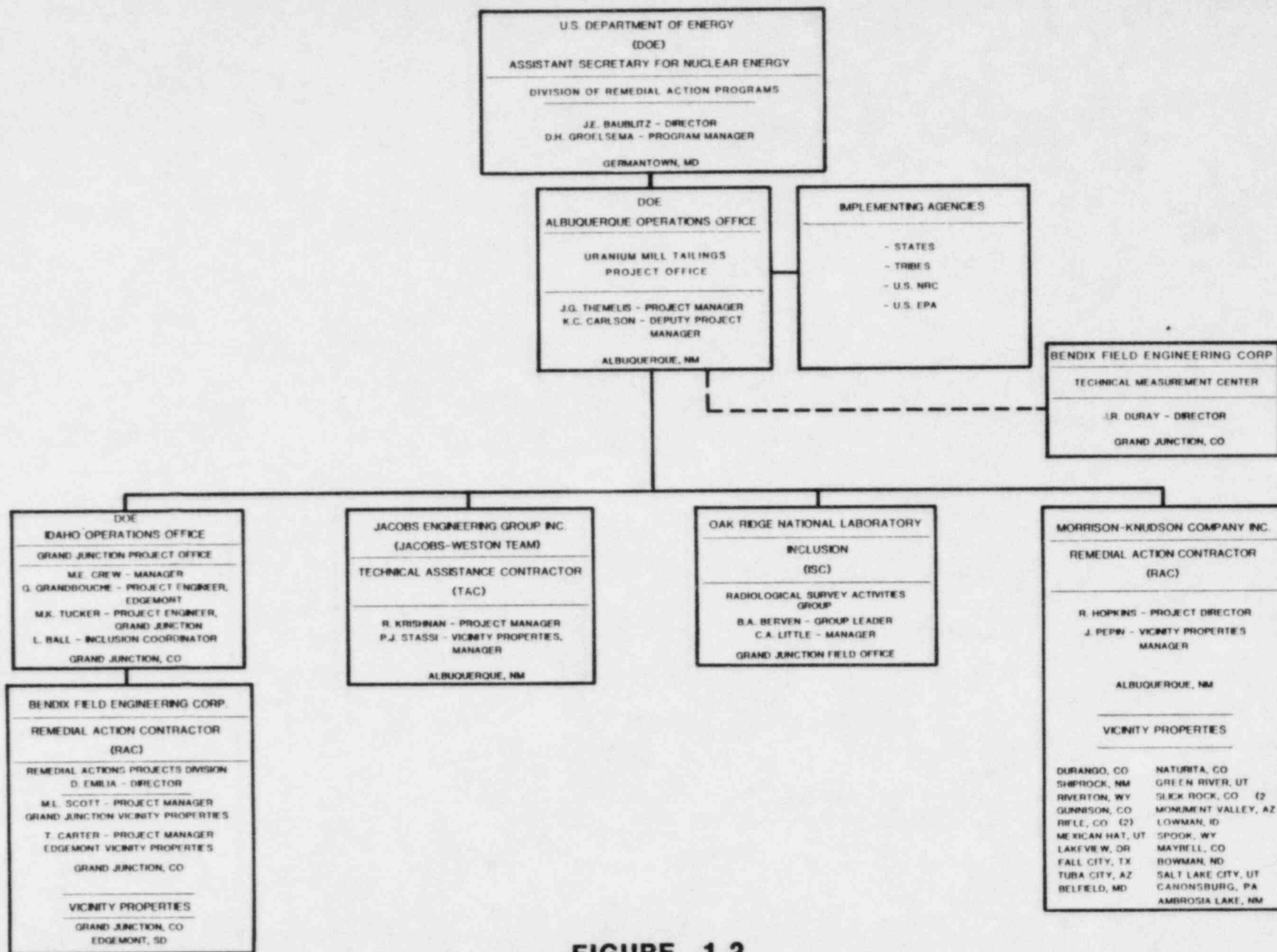


FIGURE 1.2
VICINITY PROPERTIES
ROLE IDENTIFICATION CHART

The Vicinity Properties Role Identification Chart (Figure 1.2) illustrates the relationship of the UMTRA Project participants to the PC.

1.3.2 Vicinity property tasks

The UMTRA PO has established a sequential order of events for accomplishing remedial actions on UMTRA vicinity properties. The procedures described herein are generic in nature and the sequence may change slightly depending upon the specific task or circumstance. A brief description of the established series of events is provided below. A detailed discussion of these tasks is presented in Sections 2.0 through 8.0. A flow diagram is presented in Figure 1.3.

a. Historical/baseline data use

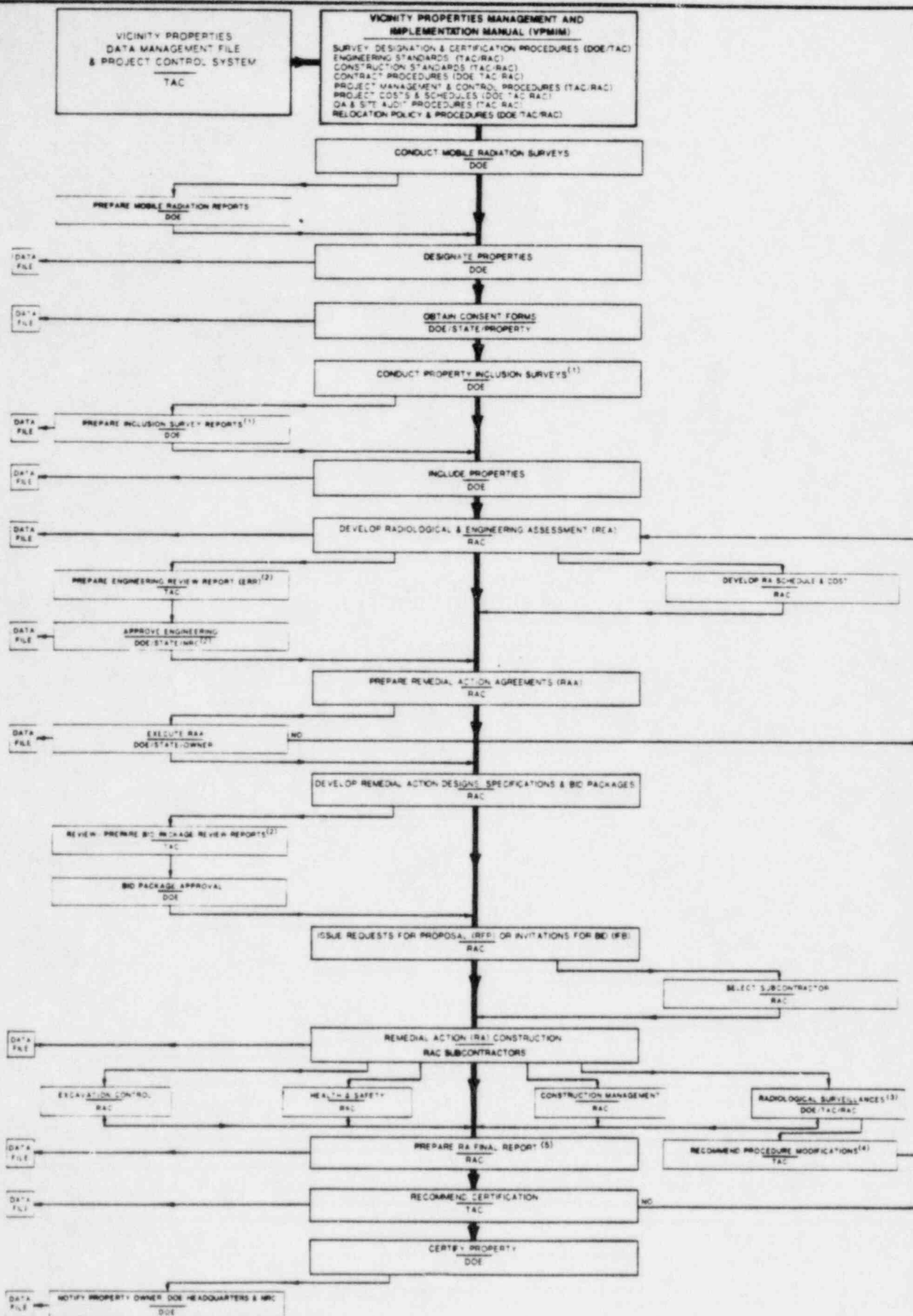
Radiological data, developed between 1970 and the present, have been used to establish a preliminary record of each vicinity property's history of contamination. These records have been documented and are stored on a computer file within the Vicinity Property Data Management System (VPDMS). The VPDMS will be utilized in the inclusion process to screen priority properties for inclusion evaluation (See Section 2.4), and to sort and select contaminated vicinity properties by geographic location. These historical data are the basis for designating vicinity properties. "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. (For a detailed description of the designation process, see Appendix A, Exhibit 1).

b. Site surveys and inclusion

Prior to beginning remedial action activities on vicinity properties, each property is evaluated to determine its eligibility for inclusion in the UMTRA Project. "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. This inclusion evaluation consists of either on-site radiological surveys, or mobile radiation surveys, complimented with detailed evaluations of the baseline radiological information [Rev. 8] (Section 2.0). This survey information will be evaluated by the Inclusion Contractor and a recommendation will be made to the DOE for inclusion or exclusion. Once a decision regarding inclusion or exclusion is made by DOE, the Inclusion Survey Contractor is required to transfer all pertinent property data to the RAC for his use in REA development.

c. Site engineering and design

Once a property has been included, a Radiological and Engineering Assessment (REA) will be developed by the RAC for



(1) DENOTES WORK CONDUCTED BY RADIATION SURVEY TEAMS

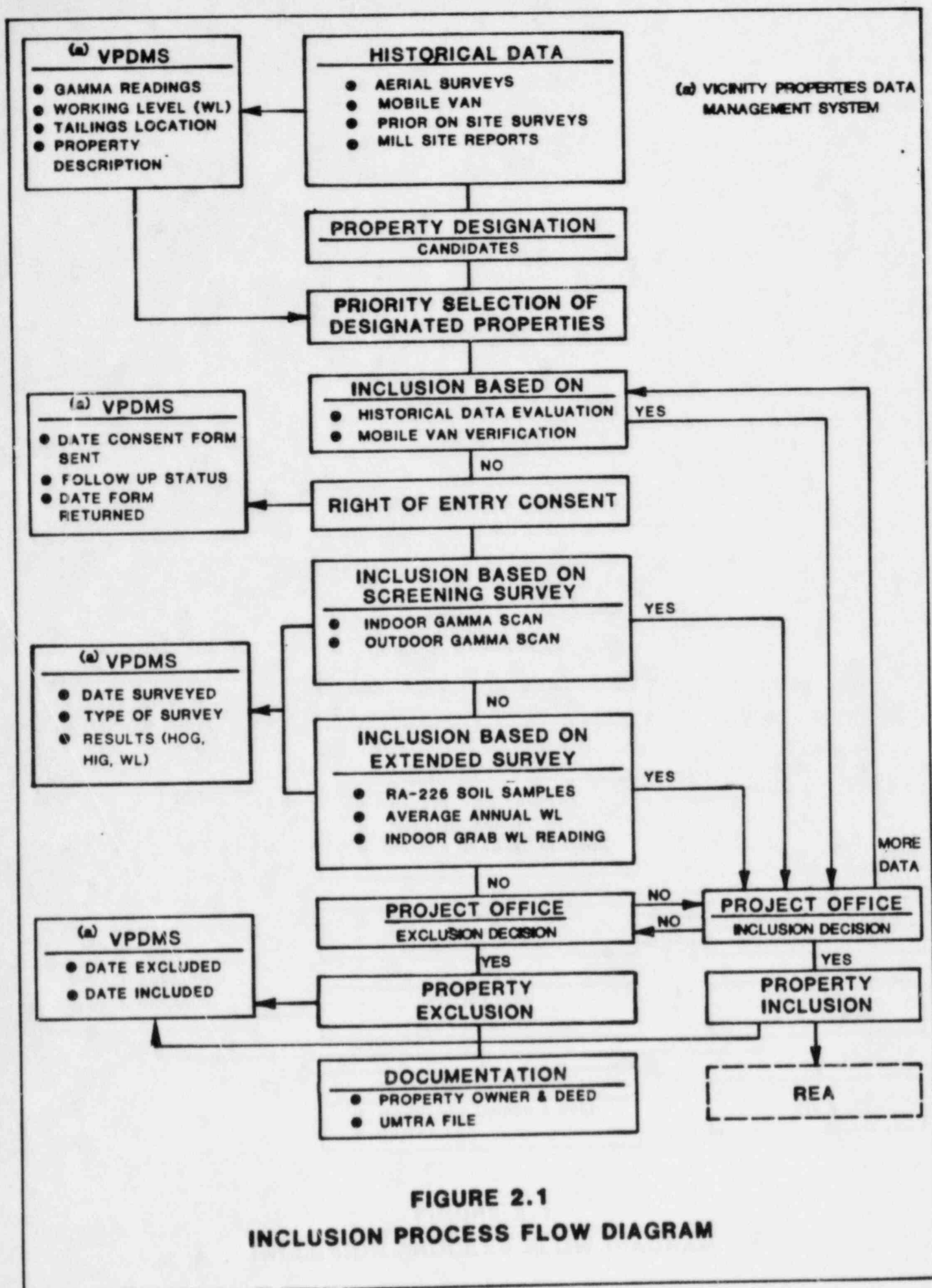
(2) FUNCTIONS: VALUE ONLY FOR EXCEPTIONALLY LARGE OR COMPLEX PROPERTY ACTIONS

(3) AUDITS WILL BE CONDUCTED ON A PERIODIC BASIS AS REQUIRED

(4) FUNCTION ONLY: VALID IF INITIAL RA DOES NOT ACHIEVE EPA CLEANUP STANDARDS (40 CFR 192)

(5) PREPARATION OF THESE REPORTS WILL INCLUDE RADIOLOGICAL MEASUREMENTS FOR VERIFICATION OF CONFORMANCE TO EPA CLEANUP STANDARDS (40 CFR 192)

**FIGURE 1.3
VICINITY PROPERTIES
FLOW DIAGRAM**



of an includable deposit and the mobile gamma scanning van confirms the continued presence of such tailings. Properties where elevated radiation levels are validated by the mobile van, and where previous survey data indicate that radiation levels exceed the EPA standards, are recommended to be included for remedial action.

2.3.2 On-site survey procedures

On-site inclusion surveys provide the additional data necessary to evaluate the designated properties which cannot be included by mobile van survey validation. First, preliminary gamma scanning measurements will be employed to expedite the overall process. When the screening measurements fail to provide adequate data for inclusion or exclusion of a property, extended measurements are made to provide additional data. Prior to the beginning of any on-site radiological surveys, consent is obtained to enter the property and to perform the required investigative work.

a. Right-of-entry

The party responsible for acquiring right-of-entry for on-site surveys is typically the ISC. In some situations, this responsibility may be shared by the respective state or tribal authority. In those situations where a property is included without entering the property boundary (i.e., mobile van validation) or where spillover contamination is observed by the RAC in the field, the RAC is responsible for acquiring the Consent Forms prior to conducting on-site surveys. The property owner is contacted by a letter from the ISC (or RAC, in those situations where the RAC is responsible for acquiring Consent Form), in which the UMTRA Project is explained and the appropriate project participants are introduced. A copy of a sample letter of notification is provided as Figure 2.2. [Rev. B] In towns outside Mesa County, the first contact may be a phone conversation or a property visit.

The letter stipulates the need for a signed right-of-entry Consent Form before any site survey work can be accomplished, and identifies a contact within the state and DOE if the property owner desires to learn more about the project or has specific questions. The letter makes clear that right-of-entry is requested for the DOE, its representatives, and the state for inclusion surveys and remedial action, if remedial action is required. The tenants of the property are also contacted by the property owner, if the owner and the tenant are not the same party. If it is not feasible for the owner to notify the tenant, tenant consent will be obtained by the ISC or RAC.

A right-of-entry Consent Form is attached to each notification letter. This legal document outlines the rationale, approach, and authority for the inclusion and, if required, remedial action survey. Sample consent documents for inclusion surveys or engineering surveys are shown in Appendix A for reference.

After permission is granted to perform the survey, a schedule is established by the DOE, ISC, or RAC, dependent upon who requires property access and for what reason.

The time estimated to complete this right-of-entry process is between four and six weeks, beginning with the transmittal of a Consent Form letter to an individual property owner. After initial contact with the property owner/tenant and prior to the signing of the right-of-entry agreement, a specified amount of follow-up by the responsible agency, RAC, or ISC may be required. **[Rev. B] A follow-up will take the form of a series of telephone conversations or a property visit.** The degree to which property owners are recontacted is left to the discretion of the party responsible for this interface. For general guidance, however, the amount of effort expended to obtain a signed Consent Form is recommended to be limited to three or four contacts/interviews whenever possible. Those properties for which consent cannot be obtained after the specified effort is expended are recorded by the ISC as delayed properties, and are consequently rescheduled for survey and remedial action at a later date.

Once a Consent Form is obtained, procedures outlined in the DOE Summary Protocol for identification, characterization, and inclusion of vicinity properties (September, 1983), and in Appendix A are followed.

b. Right of Entry for "spillover contamination"

[Rev. B] All properties on which contaminated materials exist must have a complete radiological survey. These surveys are required in order to certify that these properties have met EPA Standards. Therefore, the RAC shall be responsible for acquiring right of entry for site surveys when spillover contamination is found. The sample Consent Form shown in Appendix A, Exhibit 3, may be used under the following conditions.

1. RAC is in the process of performing radiation surveys at an officially included vicinity property as part of their development of a Radiological and Engineering Assessment.
2. RAC suspects that an immediately adjacent but non-included property is contaminated with residual radioactive materials which spilled over to that property at the time the included property was filled, graded, etc.
3. RAC has reason to believe that cleanup, if any, of the contamination on the immediately adjacent property will only involve open lands and not structures.

[Rev. B] Spillover properties in Grand Junction will be assigned new property numbers by the Grand Junction Project Office (GJPO). All remaining spillover properties will obtain new property numbers from the TAC. These numbers will be documented in memo form and sent to the TAC, RAC, DOE and the file.

2.3.3 Inclusion reports

Data from on-site surveys which are supported by mobile van validation survey results are submitted in inclusion reports [Rev. A] with the property portfolio to the DOE, by the Inclusion Survey Contractor. Inclusion reports shall also be transmitted by the ISC to the RAC, with a copy of the inclusion/exclusion recommendation and the property access consent form. This information shall be used by the RAC for advanced planning only. These reports include the following information, as a minimum:

- o Radiological data and analytical results from on-site and mobile van surveys.
- o Descriptions of physical conditions at the property.
- o Suitable site drawings indicating measurement locations and placement of structures on the property.
- o Description of involvement of tailings material on the property.
- o Description of other types of contamination on the property.
- o Recommendation for inclusion or exclusion.

The final decision for inclusion or exclusion will be made by the DOE after evaluating information in the inclusion survey reports.

The property will be officially included or excluded by the DOE, by means of a form memo (Figure 2.3). [Rev. A] If a property is a spillover inclusion, the form letter in Figure 2.6 shall be used. This memo will be placed in the property portfolio. The PO will transfer portfolios of included properties to the RAC for action, and portfolios of excluded properties will be retained by the PO for archiving.

Once a decision has been made, notification will be sent by the DOE to property owners and the states or tribes. Copies of the form letter for inclusion and exclusion are provided in Figures 2.4 and 2.5, respectively.

[A]

Date _____

TO: Official Location Folder

SUBJECT: INCLUSION OF VICINITY PROPERTY INTO THE URANIUM MILL TAILINGS
REMEDIAL ACTION PROGRAM

LOCATION NO. _____

ADDRESS: _____

In accordance with provisions of the Uranium Mill Tailings Radiation Control Act of 1978 (PL95-604), the subject property has been evaluated against the Environmental Protection Agency Standards for Remedial Action at Inactive Uranium Processing Sites (40 CFR Part 192). This evaluation was accomplished by the DOE Remedial Action Contractor. DOE has reviewed these evaluation results and has determined that there are residual radioactive materials on the property either in excess of the EPA standards or contiguous with deposits on an adjacent included property. Thus, in accord with Section 102(e)(2) of the above-referenced Act, the subject property is hereby included in the Uranium Mill Tailings Remedial Action Project by the Department of Energy.

(Name of Inclusion Official)
(Title)

The DOE Remedial Action Contractor, in conjunction with work on the included adjacent property, is authorized to perform remedial action as required to bring this property into conformance with the EPA standards.

(Name of Contracting Officer
Representative)

Enclosure: Official File

cc: State Representative

Figure 2.6 Form Spillover Inclusion Memo

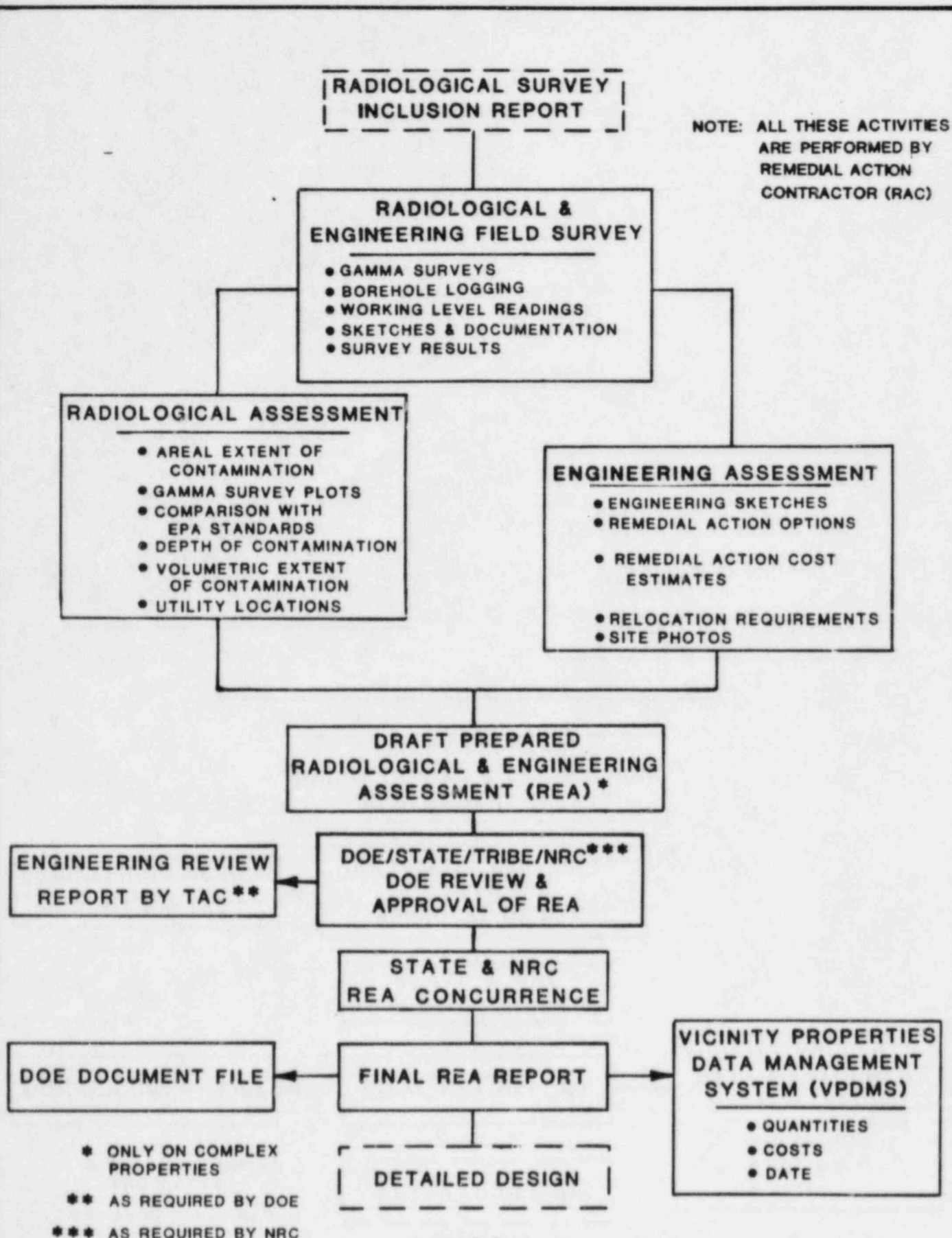


FIGURE 3.1
RADIOLOGICAL & ENGINEERING ASSESSMENT (REA)
FLOW DIAGRAM

- o Develop a detailed description of existing conditions at each site to ensure accuracy of restoration activities.

Typical information derived from the engineering assessment also includes, utility locations, legal property boundaries, and property photographs.

3.2.3 Use of supplemental standards

The application of supplemental standards, as a form of remedial action, will be recommended by the RAC if the radiological and engineering assessments indicate a need for such an application. [Rev. B] This recommendation should be made in the REA if possible. If the application of supplemental standards is not deemed appropriate until remedial action has begun, the RAC should receive verbal authorization from the DOE, followed by a formal letter request. A guideline to the use of these standards is provided in the following text.

The application of supplemental standards is permitted by 40 CFR Part 192.22 for situations where application of the control or cleanup standards would a) pose a clear and present risk of injury to workers or the public notwithstanding reasonable measures to limit damage, b) directly produce environmental harm that is clearly excessive compared to the health benefits to persons living on or near the site, now or in the future, c) result in an estimated cost of remedial action which is unreasonably high relative to the long-term benefits, and the remedial radioactive materials do not pose a clear, present, or future hazard, or d) result in an unreasonably high cost of cleaning up a building relative to the benefits. In addition, supplemental standards may be applied where there is no known remedial action.

When the on-site survey reveals the presence of uranium or thorium in greater concentrations than radium at a site, supplemental cleanup criteria will also be used. Supplemental criteria for natural, depleted, or enriched uranium and thorium-232, as established by the NRC, were published in the Federal Register, Vol. 46, [Rev. B] No. 205, p. 52061, October 23, 1981. These criteria are applied to concentrations averaged over 100-square-meter areas, in the same manner as the Ra-226 criterion provided in the EPA standards.

Utilization of the EPA supplemental standards requires that when applying supplemental standards, remedial actions shall come as close to meeting the applicable control or cleanup standards as possible. When radionuclides other than Ra-226 are present in sufficient quantities to constitute a significant radon hazard, the supplemental standards require that remedial actions, in addition to satisfying the control or cleanup standards, reduce such other residual radioactivity to levels that are as low as reasonably achievable.

The implementing agencies are instructed in 40 CFR Part 192 to determine when and where to apply supplemental standards. The EPA allows for two types of procedures for implementing supplemental standards. In the first procedure, general determinations concerning remedial actions that will apply to all locations with specified characteristics may be made. In the second procedure, a site-specific analysis and application of supplemental standards will be presented to the private owners and occupants and comments solicited. Where the implementing agencies agree to generic classifications of properties or situations and associated supplemental standards, no additional procedural requirements are necessary other than to periodically inform the Environmental Protection Agency (EPA) of their application.

The implementing agencies may apply supplemental standards when they determine that certain uses or placements of tailings have not resulted in an adverse impact on the occupants of the properties nor is it anticipated that these tailings will create health or environmental problems in the future. Situations that may warrant the consideration of a supplemental standard include:

- o Tailings have been placed around water, gas, or sewer lines under public thoroughfares or easements.
- o Tailings have been used as a constituent in concrete or asphalt.
- o Tailings have been used as a foundation base for public statues or monuments.
- o Tailings have been used as a base for hard-surface public roads or railroad berms.
- o Tailings have been placed in acceptable waste repositories.
- o Tailings exist in cemeteries.

The Radiological and Engineering Assessment containing the recommendation for application of supplemental standards will be reviewed by the concerned implementing agencies and owners and occupants. After comments are received from all interested parties, DOE, with the concurrence of the implementing agencies, will make the decision and proceed with the remedial action. A copy of the final report will be sent to the interested implementing agencies.

3.2.4 Reviews, approvals, and distribution

Once the radiological assessment and engineering assessment are complete, the REA is produced for DOE, [Rev. A] NRC, and state or tribal review and approval. [Rev. A] A recommended REA **Approval Form is provided in Appendix B.** The REA includes site descriptions, results of radiological and engineering survey work,

estimates of costs for remedial action alternatives, identification of the need for dislocation, reimbursement, and a discussion of the recommended option, and a justification for application of supplemental standards, if appropriate. All REAs are identified by DOE vicinity property number, as designated by [Rev. B] either the TAC or DOE-GJPO (See Appendix G.2). A typical Table of Contents and format outline for an REA report are provided in Appendix B. [Rev. B] Draft REAs for complex properties will be submitted by the RAC to the TAC and DOE. Upon approval, final REAs will be issued. REAs for non-complex properties will be submitted in their final form, without a draft version. In certain non-complex cases, detailed designs are to be submitted with the REA. (Note: The characteristics that define complex properties vary from site to site.)

[Rev. A] In addition to review of REAs, the TAC will periodically survey REA survey activities performed at vicinity properties by the RAC. These surveys will be performed following the responsibilities presented in Section 5.4.1 of this manual.

3.3 REMEDIAL ACTION AGREEMENT (RAA)

A RAA is a legal agreement that is entered into by the DOE, the state, and the owner of an included property. The agreement outlines the intent of PL95-604 and contains the following key provisions:

- o Right of Entry authorized by the property owner.
- o Title to Residual Radioactive Materials transferred to the DOE.
- o Remedial Action as planned and agreed to.
- o Restoration of the property to the original condition by the DOE contractors.
- o Release of Liability by the property owner for results of remedial action.
- o Binding Effect of the RAA transferred to subsequent owners.
- o Lessee/Sublessee Consent to be acquired by the property owner.
- o Notice to Subsequent Purchasers of the property.
- o Dislocation and Reimbursement requirements.

The RAA is appended with a description of the remedial action plan based upon the selected remedial action option presented in the final REA. If required by the property owner, final designs will be incorporated by reference in the remedial action plan appendix and copies provided to the owner. Other RAA appendices include a property map, legal description, and owner acceptance form. [Rev. B] The RAA will be submitted by the RAC to the property owner for signature and approval. The RAA will then be routed to the state and the DOE. An agreement number assignment shall be made to the RAA by the DOE.

A generic UMTRA Project Remedial Action Agreement is provided in Appendix C and a flow diagram of the process is shown in Figure 3.2.

3.3.1 DOE intent

The RAA must be signed by the state, DOE, and the vicinity property owner (and acknowledged by all tenants). Whenever possible, the RAA for complex properties with more than two options will be executed prior to the detailed design. The agreements will include all restoration and remedial action requirements (including owner/tenant dislocation and reimbursement requirements).

Typically, RAAs will be executed using the forms prescribed in this manual with little or no negotiation. The DOE, in consultation with the state, may authorize its representatives to negotiate the contents of the remedial action plan appendix. Unique or complicated issues will be negotiated by DOE and State personnel with the owner. If execution of an agreement for a property is significantly delayed due to a property owner's disagreement with DOE policy or other significant reasons, the RAA will be so noted and the property will be rescheduled for a latter phase of the remedial action.

3.3.2 Dislocation and reimbursement

In a limited number of situations, performing remedial action and executing an RAA requires the dislocation of property occupants and/or personal property. This dislocation may be temporary or permanent, depending upon the nature of the remedial action required. In addition to dislocation, remedial action may require monetary reimbursement to the property owner/occupant, for costs or expenditures incurred by the owner/occupant, as a consequence of remedial action. A dislocation and reimbursement requirement on a property is identified in the RAA and definitized in the RAA.

DOE provides dislocation and reimbursement to property owners and/or tenants as necessary during the performance of remedial action. All dislocation and reimbursement requirements are evaluated and approved by the DOE. In determining the dislocation and reimbursement support to be provided by DOE, each situation is evaluated against the guidelines described below.

These guideline criteria emphasize first the need for detailed evaluation of alternatives prior to a determination of a requirement for either dislocation or reimbursement. Alternatives to dislocation and reimbursement to be considered shall include, but not be limited to:

- o Area phasing of construction to minimize disruption of home or business.
- o Time phasing of construction to maximize off-hour remedial action activities.

Figure 3.2 Remedial action agreement (RAA) flow diagram

- o Delay of remedial action on a given property until a time when the need for dislocation can be minimized or eliminated, weighed in relation to property priority.

The objective of these evaluations is to minimize the need for occupant dislocation and associated costs.

a. Dislocation

Dislocation is allowed for a property occupant only if the approved remedial action will disrupt activities on the property to the extent that effective and safe utilization of the property, for business or residence, is not possible. The normal inconvenience typically associated with remodeling activities is not considered as a basis for dislocation.

Typical dislocation costs to be paid by the DOE when necessary include: temporary housing, moving fees, per diem, extra utilities, and other miscellaneous costs incurred solely as a consequence of dislocation. In all cases, dislocation will be temporary unless the subject property is acquired by the DOE.

Situations requiring dislocation are identified in the REA. The recommendation includes a selection of one of the following options and an estimate of the associated costs.

Option 1: Dislocation to furnished housing during remedial action. Under this option, the DOE or its representatives supplies furnished housing. No allowance for food costs are made. Utility transfer costs are paid. All agreed-to costs are paid directly by the DOE or its representative.

Option 2: Dislocation to living quarters of owner's or tenant's choice during remedial action. The owner or tenant pays the costs associated with this option and is reimbursed by DOE. Reimbursements include the actual cost, or a reasonable rental rate normally paid in the area for housing, whichever is less. Telephone and utility transfer costs are also reimbursed. No allowance for food costs are made. Expense report forms are supplied by DOE or its representative and submitted to the DOE on a monthly basis by the property owner or tenant.

Option 3: Dislocation for brief periods (less than 2 weeks) to motel lodging. The owner or tenant pays for his/her costs and is reimbursed for lodging, phone (excluding long distance) and food costs. If money advances are required, a formal request form is submitted by the party being relocated, at least two weeks prior to the move. **[Rev. B] Reimbursement rates for temporary dislocation cover actual expenses, not to exceed the maximum rate as specified in DOE Order 1500.20. Receipts shall be required. The maximum rates as of October 1984 are as follows:**

<u>Head of Household</u>	<u>Dependents</u>	<u>Dependents Under 12</u>
\$ 50.00	\$ 33.33	\$25.00 [Rev. B]

Expense report forms are supplied to the property owner or tenant by DOE or its representative and are submitted to the DOE at the end of relocation activities.

b. Reimbursement

Reimbursement is allowed for those property owners or tenants who incur undue expenses or loss of business solely as a consequence of remedial action, and where dislocation is either not practical or is more expensive than reimbursement. Normally these reimbursements are required only for commercial properties. These expenses may include, but are not limited to: utility costs, lease or mortgage payments, or other normal costs of doing business. Typically, the DOE will not reimburse property owners or tenants for business revenues which are projected to have been lost during remedial action. Reimbursement for loss of profits may be allowed in those situations where analysis indicates that this loss of profits represents the same cost to the owner as maintaining the business in an operating mode during the time of remedial action.

All dislocation and reimbursement requirements are identified in each property's RAA. These requirements are approved by the DOE and states/tribes when appropriate. All expenses must be in accordance with the guidelines as specified in this manual.

3.3.3 Property modifications

The RAC is responsible for preparing designs and RAAs that meet the requirements of the EPA standards and for assuring restoration of the affected property to its original condition. In some situations, the restoration of a property to its original condition is not possible or practical. In those situations, modifications to conventional restoration plans included in the RAA are permissible. The following general guidance is provided regarding these types of modifications:

- o Landscape, structure, furniture, and any other appurtenances to a vicinity property, which have been damaged or destroyed by remedial action will be replaced with material of equal value, quality, or use. In lieu of replacement, the owner may be compensated for such damage or destruction in amount equal to the DOE-estimated cost of replacement.
- o A property owner is entitled to request and receive modifications to existing landscape, structure, furniture, or appurtenances as long as the cost of engineering and construction required to provide the modification is equal to

or less than the cost of restoring the property to its original condition. These arrangements are discouraged.

- o Portions of structures or utilities having code violations and directly affected by remedial action will be restored so that code deficiencies are corrected. This includes replacing utilities deteriorated by tailings material.

All modifications to normal restoration activities are approved by the DOE prior to inclusion in the RAA and formal agreement with the property owner. Any modifications to the approved remedial action plan described in the RAA must be approved by DOE.

3.4 REMEDIAL ACTION FINAL DESIGN

Following approval of the final REA, the RAC will prepare bid packages including detailed design drawings, technical specifications, and contract requirements. For complex properties with more than two options and expected high design costs, an executed RAA will be required before final design is initiated. A single bid package may include the drawings and specifications for several vicinity properties. A discussion of general guidelines for developing bid packages is provided in the following sections and illustrated in Figure 3.3. Detailed guidance on this procedure is provided in Appendix D.

3.4.1 Design drawings and contract specifications

a. Design drawings

Design drawings are those drawings required to describe in detail the original condition of the property and the proposed remedial action. Design drawings are a part of each bid package. The following information is developed by the RAC for each property:

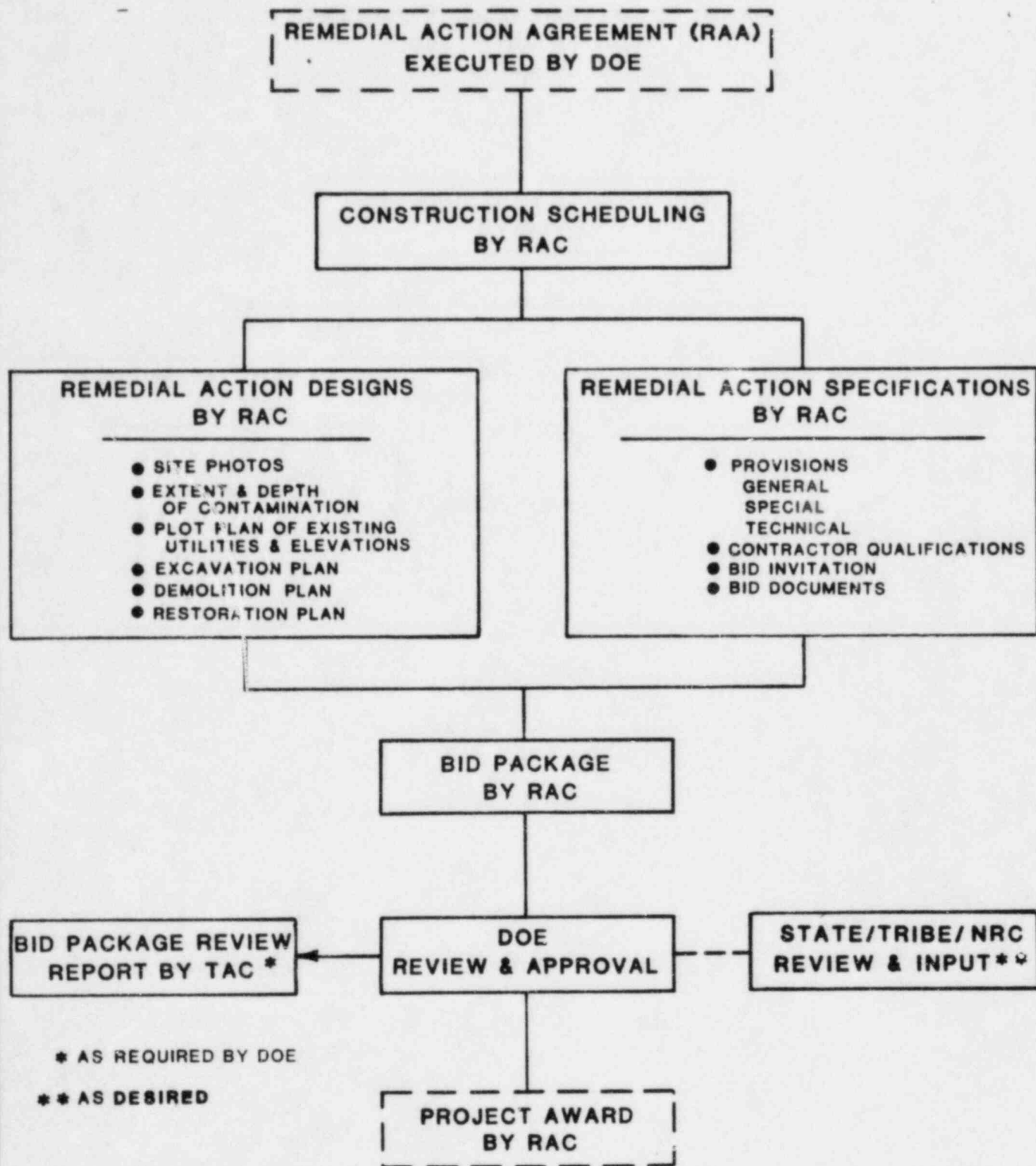
- o Existence and depth of contamination.
- o Excavation plan including utilities.
- o Interior demolition plan.
- o Restoration plan (interior and exterior).

The number of drawings required to illustrate this information varies with the size and complexity of each property's remedial action requirements.

Each drawing is provided with both a signature and title block. The block has a designated space for RAC and DOE signatures and for an approval date. All drawings identify the subject property by DOE identification number. Names and addresses may be used on design drawings or bid packages, however, distribution of such information should be limited to Project contractors and subcontractors.

As part of the bid package preparation effort, the RAC develops engineering cost estimates.

Figure 3.3 Remedial action final design flow diagram



**FIGURE 3.3
REMEDIAL ACTION FINAL DESIGN
FLOW DIAGRAM**

b. Contract specifications

Contract specifications for vicinity property remedial actions include contract provisions and bid documents which provide requirements for compliance with Federal, DOE, state, tribal, and local regulations, and all approved UMTRA Project Plans, including this manual. Contract requirements are a part of each bid package.

3.4.2 Bid package

The remedial action technical specifications are combined with the final design drawings for a property, or a group of properties, and submitted by the RAC to DOE for approval. The combined set of materials makes up a complete design package. Each design package identifies the vicinity properties by DOE number. In selected situations, the DOE requires the TAC to review draft bid packages and to submit a BPRR to the PO. The TAC evaluates the drawings and specifications for conformance to all UMTRA plans and the approved REA. Upon concurrence, final bid packages will be issued for bids by the RAC to obtain competitive bids from construction subcontractors.

3.5 SCHEDULING AND SEQUENCING

The RAC develops engineering design and construction schedules. Schedules are reviewed by the DOE with assistance from the TAC. The objective is to establish remedial action schedules that allow the higher priority sites to be completed first, in the most cost effective manner possible.

Where possible, the highest priority properties within a given block or neighborhood are grouped together with lower priority properties for execution of fieldwork. To accomplish this, the VPDMS and other data sources are used to screen included properties on the basis of location and recorded radiological measurements. This approach permits the RAC to plan and schedule remedial action in an efficient manner and to utilize the subcontractor's work force and equipment safely and expeditiously. The ISC schedules inclusion surveys based upon guidance received from DOE, and as required to maintain a volume of available properties for the RAC's REA development.

The TAC performs effectiveness audits on selected properties during all phases of the remedial action and following property restoration. The schedules for these audits are developed by the TAC and approved by DOE. The TAC assists DOE to assure proper integration of the RAC and ISC activities appropriately with the Project's overall activities. The TAC is also responsible for notifying DOE and assisting in monitoring contractor's progress against approved schedules and milestones. A Vicinity Properties Master Schedule is developed by the TAC to accomplish the schedule integration activity. Periodic Master Schedule forecasts are completed by the RAC, TAC, and ISC. These forecasts are input to the TAC and reported to DOE and contractors so that progress and problems with the overall Project schedule can be identified by DOE and all contractors.

A subcontract is awarded by the RAC to the selected construction subcontractor to perform the specified remedial action project. This subcontract may involve work at a single property or a group of properties. Competitively awarded firm-fixed price subcontractors shall be utilized to the maximum extent possible. The contract for remedial action shall be in the form of a lump sum bid for specified work, utilizing unit prices for variable items such as excavation and backfill. Any variance from competitively awarded firm-fixed price subcontracts will require the advance written approval of the Contracting Officer.

4.3 CONSTRUCTION MANAGEMENT

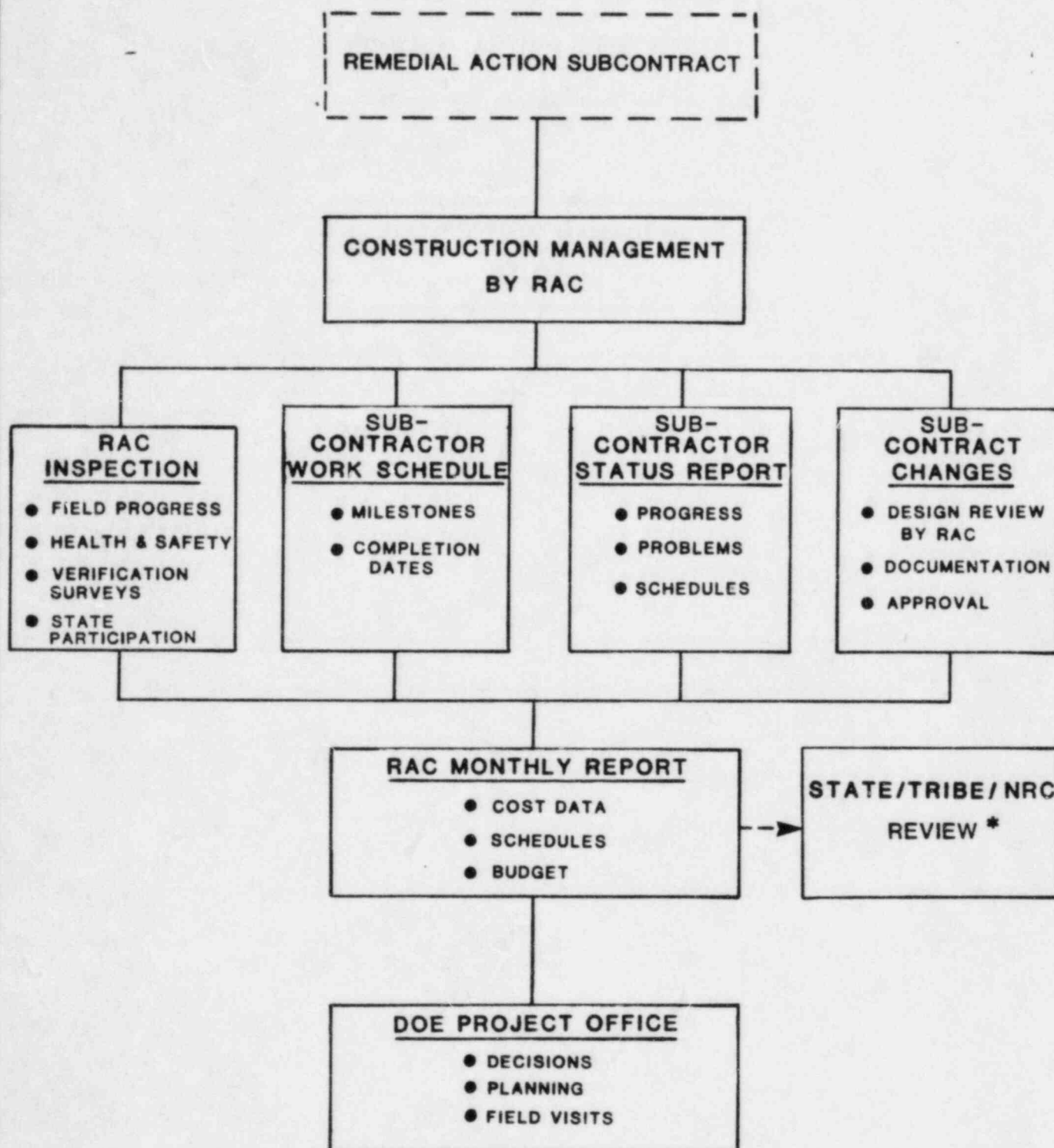
This section is intended to describe the construction management controls required to ensure that UMTRA remedial actions are carried out in accordance with Project standards and requirements. A flow diagram of generic tasks required to accomplish vicinity properties construction management is presented in Figure 4.2.

4.3.1 Remedial action

[Rev. B] Principle guidance in regard to the required extent of remedial action is that for each vicinity property, outdoor and indoor remedial action will reduce radium in soil concentrations and working level readings to the levels acceptable by the EPA. However, when applied in the field, many interpretations of the EPA standards evolve. Therefore, the following general guidance is provided to assist in structural remedial action:

- o When excavating away from structures, all tailings in excess of the 5 pCi/gm above background for the top 15 cm. of material, and in excess of 15 pCi/gm above background below the top 15 cm. shall be removed since their removal may uncover larger hidden deposits. Averaging techniques over 100 square meters (15 cubic meters volume) should only be utilized when tailings removal would result in excessive costs. Our experience to date indicates that, in most cases, characterizing tailings so as to average over 100 square meters will actually cost as much or more than the actual removal of the materials themselves.
- o When working around or underneath structures and around underground utilities routed to structures, the aforementioned logic should also be applied. However, if there are contaminated materials which are measured not to exceed the EPA soil standards of 5 pCi/gm and 15 pCi/gm above background but exceed normal background, consideration should be given to removing these materials. This is recommended in certain situations so that we may be assured that completed remedial actions performed underneath or around structures will meet the EPA indoor radon daughter concentration (RDC) standard. It would be much more costly to have to perform remedial action twice

Figure 4.2 Construction management flow diagram



* IF DESIRED

**FIGURE 4.2
CONSTRUCTION MANAGEMENT
FLOW DIAGRAM**

[Rev. B]

on properties that do not meet the RDC standard after the first remedial action than to remove certain additional small quantities of contaminated materials to assure compliance during the first remedial action.

There are situations in which even after remedial action performed on structures is believed to be complete, working level readings may still be elevated above applicable EPA working level standards. In an effort to reduce the frequency of this situation, the following guidelines are provided:

- o Perforated piping systems (i.e., subfloor vents) shall be engineered and installed under floors which are removed as part of interior tailings removal. Utilization of a partial or full system shall be based upon good engineering judgment.
- o These subfloor vent systems are to be capped just above the finished floor level. During the collection of verification or certification measurements, if elevated radon measurements are found to still exist, the vent is to be uncapped and extended through the roof to vent out the excess radon. If radon levels are acceptable, the vent should remain capped.

The purpose of these systems is to vent the radon out through the roof of the structure rather than let the underfloor radon infiltrate into the structure. Installation of the system described above should reduce the number of structures requiring reworking after remedial action are completed.

It must be noted that the guidance does not cover all remedial action situations. For further assistance on specific applications of the EPA standards, contact the UMTRA Project Manager.

4.3.2 Remedial action control

Various methods of maintaining control of remedial action activities shall be employed by the RAC. The level of control shall be commensurate with the size and complexity of each activity. These methods may include but are not limited to those listed below.

a. Subcontractor training

The RAC may train subcontractors in remedial action excavation control. The subcontractor should undergo such training and pass a comprehensive field test before the RAC can delegate authority of this excavation control task to the subcontractor, during actual UMTRA remedial action.

b. Daily observations

A RAC representative may make daily visits to each active vicinity property. During this visit the RAC representative reviews the progress, quality, and substance of the work; investigates and identifies observed, suspected, or potential health and safety problems; and assists the subcontractor in verifying the removal of tailings material through radiation monitoring during critical times of tailings removal. All observations shall be documented in a permanently-bound log book.

c. Schedules

The remedial action contract may require the construction subcontractor to submit a work schedule to the RAC. Depending on the size and complexity of the remedial action, the work schedule varies in detail. The schedule can be broken down by major activities and indicates the start and completion dates for these activities. These schedules are updated on a regular basis throughout the project and are available for DOE review.

d. Subcontractor status report to RAC

The subcontractor may submit weekly site status reports to the RAC. The level of report complexity varies with the control level of the project. Required items include, but are not limited to: work accomplished, completed milestones, problems encountered, scheduled work for next report period, the percentage of work scheduled for completion and the percentage of work actually completed.

e. Changes to the work

Changes to the work may require modification of approved drawings or specifications included in bid packages. These changes are required to handle unforeseen field conditions affecting the remedial action, and additional related work requested by affected vicinity property owner(s).

Any proposed changes in remedial action design which are identified by the subcontractor during the implementation (construction) phase of remedial action will be reviewed and approved by the RAC prior to implementation. Review and approval of potential design changes will be performed to assure that changes are consistent with conditions of the RAA. Potential design changes identified in the field will be brought to the attention of the RAC within 24 hours.

All design changes are to be fully documented in writing. DOE and state/tribe concurrence will be required if changed conditions warrant a modification to the RAA. Non-emergency changes are prepared in writing by either the construction contractor or the on-site RAC resident engineer. Emergency changes are documented immediately, followed by a formal request providing full detail of the change. All changes are to be processed in accordance with approved contracting procedures.

f. RAC status report to the PO

The RAC will submit monthly management reports to the PO including a summary of the vicinity property work accomplished. These reports include discussions of activities for vicinity properties at each processing site location in terms of costs, schedule, and budget. These reports will be available for review by DOE Division of Remedial Action Projects, states, tribes, and NRC. In addition, the RAC shall have available for review a bound daily log book summarizing daily inspection activities.

4.4 HEALTH AND SAFETY

The Vicinity Property Health and Safety program includes the assessment, control, and inspection functions necessary to ensure that the remedial action workers and the general public are protected from the hazards associated with the removal and transportation of uranium mill tailings from vicinity properties. This program is implemented in the field by the RAC.

The RAC is responsible for implementing a Health and Safety program prior to initiation of remedial action, to assure the DOE that conditions specified in the UMTRA Project Environmental, Health, and Safety Plan are complied with during remedial action.

The TAC is responsible for periodically reviewing the RAC's Health and Safety procedures and implementation of procedures and for reporting results to DOE. General guidance for the implementation of the RAC's Health and Safety plan, as derived from the UMTRA Project Environmental, Health, and Safety Plan, is provided in the following sections and in Figure 4.3.

4.4.1 Regulations and standards

Remedial action subcontractors and the RAC shall comply with all applicable Federal, state, and local health and safety regulations and standards as outlined in the UMTRA Project Environmental, Health, and Safety Plan, (DOE-ALO-6) environmental regulations, and other permit requirements.

Figure 4.3 Health and safety program flow diagram

4.4.2 General program requirements

a. Personnel training

All personnel working on vicinity properties remedial action will successfully complete a health, safety, and radiological training course appropriate to their jobs. The training will be administered and documented by the RAC.

The program includes discussions of radiological and safety procedures, emergency procedures, and the biological effects of radiation exposure. Each worker shall pass a written and/or oral exam, and the results shall be documented.

Visitors and workers who visit vicinity properties infrequently to perform transient tasks in contaminated areas may forego training as long as they are accompanied by trained personnel. In some situations, non-escorted visits are permitted with specific approval from appropriate RAC personnel.

b. Personnel records

A work-related radiation exposure history is maintained by the RAC for each employee who works in a controlled area. The RAC is also responsible for recording and reporting recordable injuries. Records of employee's exposure to radioactive or toxic materials or other harmful physical agents are maintained by the RAC and archived in accordance with DOE retention requirements once the project is completed.

c. Complaints

A system for handling complaints is employed by the RAC such that employees can report to the RAC Project Manager any conditions or practices which they consider detrimental to their safety or health, or which they believe are in violation of applicable standards. In addition, site workers shall be able to report severe health and safety hazards directly to the DOE or the U.S. Department of Labor on Form EV-628.

A central file is maintained by the RAC of formal employee health and safety complaints and their disposition. This file will be transferred to the DOE Operations Office upon completion of the Project's remedial action.

d. Occupation safety and health posting

The RAC will post DOE Form EV-627, "Occupational Safety and Health Protection" and other appropriate occupational safety and health forms at a central location during remedial action.

e. Audit programs

An internal audit committee is implemented by the RAC to periodically review operations and safety-related procedures. A report of this review, recommendations, and follow-up is kept in the project files and is available for DOE review.

The TAC performs periodic field inspections of the RAC's health and safety activities. The purpose of these inspections is to assist DOE in assuring that the RAC Health and Safety program is being implemented in the field as approved. The results of these surveys are reported by the TAC to the PO in the form of Health and Safety Survey Reports (HSSRs). These reports are available for review by the DOE Division of Remedial Action Projects, states, tribes, and NRC.

4.4.3 Radiation control, decontamination, and monitoring

a. Controlled areas

Work areas at vicinity properties will be controlled where necessary to minimize exposure of the local population to radiation. Controlled areas include, but are not limited to, work areas which meet the following conditions:

- o Exposed surface contamination exceeds 200 pCi/g of Ra-226.
- o The estimated external gamma dose to any individual in that work area exceeds 500 millirem/year.
- o Airborne concentrations of radionuclides exceed quantities provided in 10 CFR 20, Appendix B, Table II, Column 1.

Prior to leaving a property at the end of a work shift, access to contaminated material will be prevented through the use of fencing, tarping, or other suitable means. Smoking, drinking, and eating are prohibited in controlled areas.

Controlled areas defined above will be conspicuously marked at points of potential access with a sign or signs indicating that radioactive material is present. Other posting and labelling requirements set forth in 10 CFR 20 will be followed.

b. Personnel and equipment monitoring

All personnel that have been in contact with contaminated material in a controlled area will be monitored with a hand-held detector capable of measuring 500 dpm/100 sq cm prior to leaving the controlled area for breaks, or at the end of the work shift. Personnel contamination may not exceed background levels by a statistically significant amount.

If contamination is found on a worker's clothing, and cannot be removed by brushing, the clothing will be removed, bagged, laundered, and monitored again by the RAC before being returned to the subcontractor for use. Coveralls will be provided by the RAC as a temporary replacement for the contaminated clothing.

Contaminated body surfaces will be washed at the nearest Project change facility and will be remonitored. If skin contamination is evident after washing, the RAC's health and safety supervisor will be consulted for further decontamination and assessment.

The RAC is responsible for assuring that all tools and equipment leaving the site for unconditional use after being in contact with contaminated material are monitored, and if necessary, decontaminated to levels specified in the UMTRA Project Environmental, Health, and Safety Plan. All vehicles will be monitored as they exit contaminated areas, and decontaminated as described below:

- o Exterior surfaces, such as tires, tailgates, and sideboards on trucks, will be cleaned of all visible soil and monitored before leaving a vicinity property. If the potential exists for contacting material averaging more than 200 pCi/g of Ra-226, tires and cab interiors of haul trucks and other equipment will be monitored to meet decontamination limits of 1000 and 5000 dpm/100 sq cm for removable and total activity, respectively. Additional spot checks will be made of other potentially contaminated surfaces.
- o For vehicles potentially in contact with material averaging less than 200 pCi/g, instructions in the UMTRA Project Environmental, Health, and Safety Plan will be followed.
- o Vehicles and equipment being released for use at another job site will be monitored and, if necessary, decontaminated to meet limits for unrestricted use, as provided in the UMTRA Project Environmental Health and Safety Plan.

If wash water is required to remove contaminated material from the equipment, the decontamination pad at the disposal site may be used. If equipment is transported from a property to the processing site for decontamination, measures will be taken to ensure that no removable contamination is exposed and spread in the process. Wash water from decontamination efforts will be contained and sampled to ensure compliance with release criteria prior to release off the site.

c. Protective clothing and change facilities

Protective clothing will be available from the RAC for all workers at properties having significant quantities of

soils contaminated above 200 pCi/g of Ra-226. The need for using this clothing shall be determined by the RAC health physicist. Clothing may include coveralls, gloves, and shoe covers.

A suitable change facility including lockers and a shower will be provided by the RAC at a central location for workers who must wear protective clothing or who require decontamination.

d. Dosimetry and bioassay

All individuals working at vicinity properties and who may spend more than 40 hours in any three consecutive months in a controlled area, are required to wear a thermoluminescent (TLD) dosimeter.

When sufficient data are accumulated, the DOE will evaluate the results and consider relaxing this requirement. A revised requirement for dosimetry may be applied at that time. If sufficient data are accumulated which indicate that this requirement may be released, an alternate requirement may be applied with approval from DOE.

A urinalysis bioassay program for workers will be developed commensurate with the hazard as indicated by air sampling data and the potential for inhalation and ingestion of measurable quantities of radioactive material. Workers included in the urinalysis bioassay program who show positive results will be immediately resampled, and considered for additional bioassay upon termination of employment.

e. Transport of contaminated material

The RAC will comply with the applicable state or Federal regulations regarding the transportation of contaminated material. The RAC will make a site-specific determination of the levels of radioactivity associated with tailings and tailings contaminated material. If levels do not exceed 2000 pCi/g, the material does not meet the Department of Transportation's definition of "Radioactive Material," as provided in 49 CFR, and trucks are not required to be placarded.

As a minimum, all trucks hauling contaminated material from a vicinity property will be maintained in safe operating condition and will be tarped for transit. Before leaving a vicinity property, all visible contaminated material will be removed from the exterior of the truck by brushing. Particular attention will be given to the truck tires, tailgate, and exterior of the dump box. All trucks utilized to haul contaminated material will be inspected and approved by the RAC health physics personnel. Trucks which have the potential for leaking material during transport will not be approved.

f. Air and water monitoring and respiratory protection

For vicinity properties where, in the judgement of the RAC's health physicist and in accordance with the UMTRA Health and Safety Plan, a problem with dust generation exists, radioactive and nonradioactive particulate sampling and analysis will be conducted in work areas by the RAC according to the following schedules:

- o In those work areas where large volumes of contaminated material exist, at an activity level of 50 pCi/g of Ra-226 or greater, a set of grab samples for radionuclides will be taken and the need for continuous monitoring will be determined by the RAC.
- o In those work areas where the average 8-hour dust loading is expected to reach 50 percent of the threshold limit value, a nonradioactive particulate sampling program will be required.
- o In work areas where contaminated soils are excavated in poorly ventilated areas, representative radon daughter concentration measurements will be required.

The samples will be taken in the areas of greatest dust generation on the highest activity material. The sampling will be conducted to ensure compliance with the UMTRA Project Environmental, Health, and Safety Plan, and OSHA Standards.

Respiratory protection is required and a valid fit test performed when sampling indicates that a need for protection against radioactive particulates, dust, asbestos, or other hazards exists. All open excavations will be wet down to minimize the potential need for respiratory protection.

In addition to work-space air sampling, vicinity properties having large volumes of soils contaminated to levels averaging 100 pCi/g of Ra-226 or more, and where the potential exists for measurable increases in airborne radioactivity, will require environmental monitoring. Grab sampling and analyses for Ra-222 and particulate radionuclides will be conducted by the RAC at points around the property boundaries during periods of major remedial action activities. Continuous monitoring will be conducted if grab sample analyses indicates a potential for exceeding acceptable levels, as indicated in the UMTRA Project Environmental Health and Safety Plan.

Properties where contaminated materials average less than 100 pCi/g of Ra-226, and where the potential exists for increased airborne radioactivity, will be evaluated by the RAC health physics staff to determine environmental monitoring requirements. This evaluation considers soil moisture, planned work activities, and wind conditions at the properties.

Environmental sampling locations may be selected to serve one property, or a group of closely situated properties which

are being worked concurrently. Gross activity measurements of air particulates will be compared to the limit for Th-230, 8×10^{-14} micro Ci/ml.

Surface water and waste water from remedial actions will be retained at each property. Prior to release from the property, potentially contaminated water will be sampled and analyzed for Th-230 and Ra-226. Releases are permitted if concentrations do not exceed limits provided in 10 CFR 20, or in state or local regulations, whichever is most restrictive.

4.5 EXCAVATION CONTROL

As excavation proceeds, trained field personnel will monitor the levels of contamination in the excavation area by means of a hand-held scintillometer. The cut-face and bottom of the excavation pits will be scanned with a hand-held gamma scintillometer to estimate when the contamination exceeding the applicable EPA standards has been removed. Random soil samples may also be taken to determine the extent of contamination remaining. Prior to backfilling the excavated area, either gamma measurements will be taken or soil samples will be composited over the area of concern and analyzed. Observed anomalies will be investigated for potential deposits which exceed the EPA standards.

Gamma measurements will first be taken over the areas of concern and will be compared to the exclusion criterion in Appendix A. [Rev. B] If the criterion is not exceeded, the excavation will be backfilled with surveyed (clean) backfill material. Areas of excavation filled with unsurveyed material must be surveyed after restoration. If the criterion is exceeded soil samples will be required to verify conformance to standards. Samples will be counted to determine the relationship of the field contamination levels to the EPA standards (i.e., 5 pCi/g in top 15-cm surface layer or 15 pCi/g for those 15-cm layers below the top 15-cm layer). Further details on this verification procedure are provided in Appendix E.

5.0 REMEDIAL ACTION CLOSEOUT AND DOCUMENTATION

5.1 INTRODUCTION

Field inspections and analyses must be performed after the completion of remedial action to determine the effectiveness of excavation, or other remedial action, and to demonstrate that the radiation levels at vicinity properties do not exceed the relevant EPA standards. Reports are required to document the findings of these inspections and analyses.

The following sections and Figure 5.1 describe the generic guidelines for the RAC to verify compliance with EPA standards, and for the TAC to determine the effectiveness of remedial action.

5.2 VERIFICATION OF COMPLIANCE WITH EPA STANDARDS

The excavation of contaminated material shall be controlled to minimize costs as well as to ensure that the remedial action has been completed so as to comply with the applicable EPA standards. Radiological measurements will be made and documented both before and after property restoration. [Rev. B.] (Note: Working level (WL) measurements only need to be taken after remedial action if: 1) previous WL measurements have not been taken, or 2) previous WL measurements have been taken, and the results of those measurements exceed EPA standards.) Both sets of measurements are the responsibility of the RAC or its subcontractors. Detailed procedures for making these measurements are provided in Appendix E. A summary description of the procedure follows.

5.3 COMPLIANCE VERIFICATION PROCESS

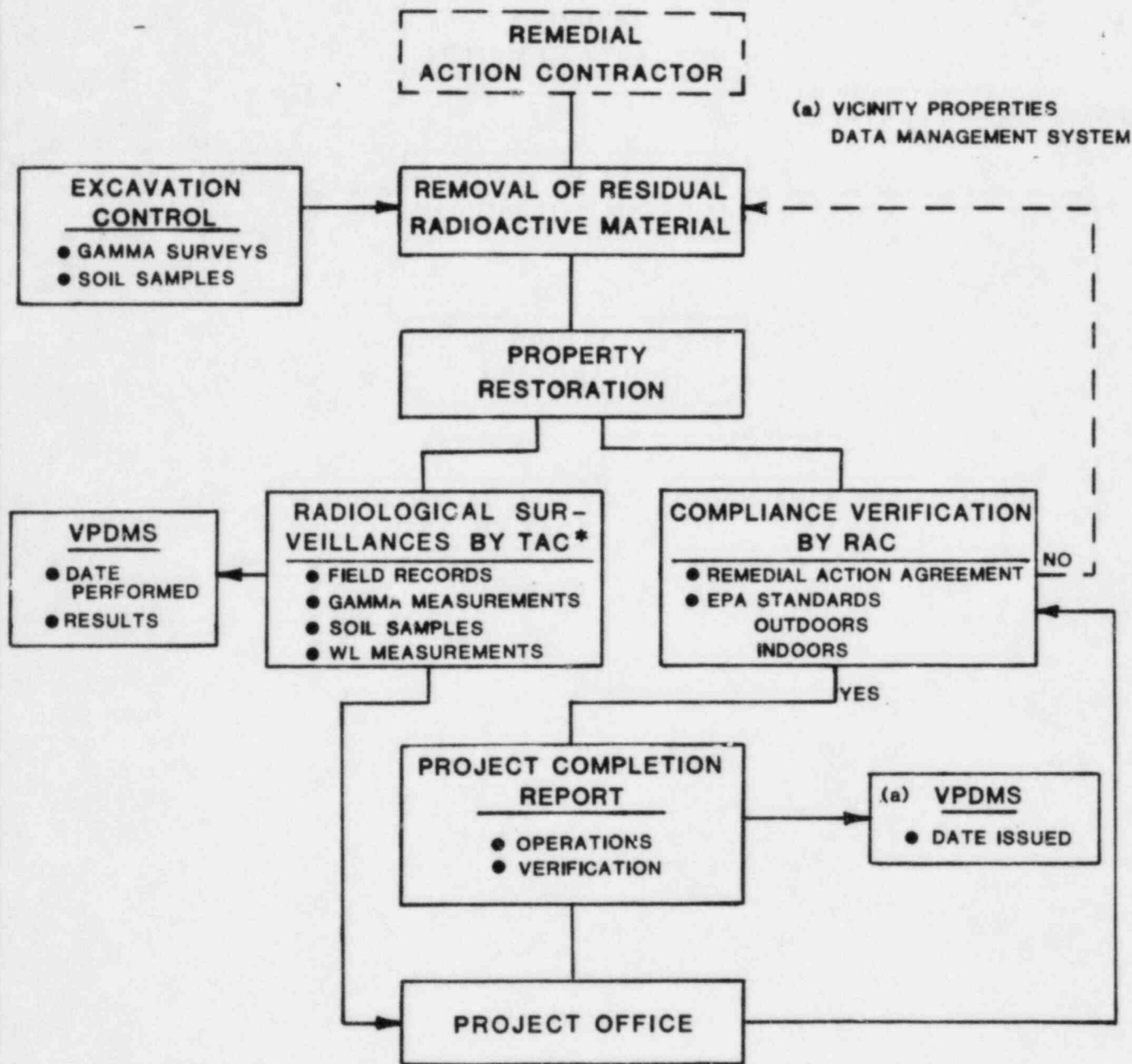
The compliance verification process requires measurements and assessments by the RAC to demonstrate that the applicable standards for remedial action have been met prior to reconstruction and restoration. Compliance with two sets of performance requirements must be satisfied to demonstrate compliance. The first set of requirements are those engendered in the Remedial Action Agreement with the property owner, describing the physical condition of the property upon restoration and the owner's relocation requirements. The second set of performance requirements are the EPA standards for Cleanup of Land and Buildings Contaminated with Residual Radioactive Materials from Inactive Uranium Processing Sites (40 CFR 192, Subpart B).

Results of both verification exercises shall be documented by the RAC in Property Completion Reports for each property.

5.3.1 Remedial Action Agreement verification

After the completion of the remedial action, the RAC must inspect the property and prepare a Property Completion Report describing the physical condition of the property. This report compares the initial condition of the property with the restored con-

Figure 5.1 Remedial action project closeout and
documentation flow diagram



* PERFORMED ON A SELECTED NUMBER OF PROPERTIES

FIGURE 5.1
REMEDIAL ACTION PROJECT CLOSEOUT AND DOCUMENTATION
FLOW DIAGRAM

dition. If the inspection, as documented, indicates that the property has been returned to its original condition, the owner/tenant is requested to sign a statement indicating satisfaction with the condition of the property (this statement is attached to the original RAA as Appendix C).

If the inspection reveals discrepancies between pre- and post-remedial action physical conditions, beyond those agreed to in the RAA and documented in pre-remedial action photographs, the subcontractor is directed by the RAC to make necessary repairs within a given time frame. Upon satisfactory completion of this repair, the owner is again requested to sign Appendix C of the RAA indicating satisfaction with the property condition.

The signature of the owner to the RAA Appendix completes the Remedial Action Agreement verification process.

5.3.2 EPA standards verification

The surveys made to verify compliance with the EPA standards, once excavation is completed, are performed by the RAC on all properties. Details of the standards verification survey are provided in Appendix E. A summary description follows:

a. Standards verification outdoors

Prior to backfilling excavations made to remove contaminated material, the bottom and sides of the excavation are first surveyed with a hand-held scintillometer. Elevated gamma levels at the sides and bottom of excavations will be further investigated for indications of additional contamination. If the average gamma levels, over 100-meter² areas at the bottom of the excavation, do not exceed the screening measurement exclusion criterion in Appendix A, the standards are considered to have been met. If the exclusion criterion is exceeded, soil samples are required to verify conformance to the standards. Composite soil samples shall be taken from the bottom of the excavation and samples will be analyzed for Ra-226 concentrations in the field. A certain percentage of these samples (approximately 10 percent) will be split by the RAC and sent to the RAC's laboratory for quality assurance analyses. All samples shall be archived until the property is certified. Archiving shall be at the respective processing sites in accordance with DOE-approved procedures. The results of soil analysis, averaged over a 100-m²-area are compared to the EPA Standards to verify the success of the remedial action work. Once verification is complete, backfilling of the excavation can be conducted.

b. Standards verification in occupied or habitable buildings

A tiered analysis system is used to verify compliance with the indoor EPA standards. Measurements are made and compared to indoor standards for gamma levels and radon daughter concentrations. A detailed description of this procedure is provided in Appendix E.

5.4 RADIOLOGICAL SURVEILLANCES

The TAC will periodically survey remedial actions performed at vicinity properties prior to reconstruction to check the accuracy of radiological measurements included in the RAC's Property Completion Reports. Audit results will be provided to the Project Office for review, and action if necessary. [Rev. B] This task will also be periodically performed at vicinity properties where the RAC is performing REA field surveys and the ISC is performing inclusion surveys.

5.4.1 Responsibilities

At the request of the DOE, the TAC provides a team to review verification records and to perform on-site measurements and collect samples using procedures and methods similar to those used by the RAC. Analyses of split samples collected by the RAC are performed to assure accuracy of analytical methods. These audits are conducted on selected vicinity properties during remedial action, and follow the detailed procedures provided in Appendix F. Properties are selected for these audits based on differing physical and radiological conditions.

Data from Radiological Surveillances are used to provide statistically significant assurance that remedial actions are being conducted effectively and to supplement certification data, if required.

A Vicinity Property Audit Report (VPAR) is submitted by the TAC to the Project Office following each audit. The VPAR includes information from the radiological surveillance discussed here and from the construction Quality Assurance Audit discussed in Section 7.0. The reports contain the results of measurements and sample analyses, and an assessment of the quality of radiological measurements. The percentage of properties being audited will vary each year and will be partially dependent upon the results of past audits.

The VPARs are available for review by the DOE Division of Remedial Action Projects, states, tribes, and NRC.

5.5 VICINITY PROPERTY COMPLETION REPORTS

[Rev. B] The RAC shall transmit all Property Completion Reports, with the official property portfolio, to the DOE PO for certification, with a copy to the TAC Vicinity Property Manager (VPM). Upon receipt, the TAC will log the completion report date and the date of receipt into the Certification Tracking System (CTS). The VPM will assign reviews to the Radiological Services (RS) group of the TAC and will provide a schedule for completion of the review.

[Rev. B] The TAC RS will review all Property Completion Reports for adequacy and compliance with the EPA standards. The RS group will complete a review form, Exhibit 4, Appendix E, for each property. The recommendation will be logged into the CTS with the date of the recommendation. All of the TAC's recommendations are transmitted to the DOE PO for approval.

The Property Completion Report includes an Operations Summary and a Verification Summary for each property included in the project. A generic Vicinity Property Completion Report format is provided in Figure 5.2.

5.5.1 Operations summary

The Operations Summary documents the remedial action undertaken, the expenditure of funds required to perform it, and a summary description of the work performed at the site, including the expected and actual amounts of material removed. It will also identify the construction subcontractor, present the actual budget and schedule, list the forecast and actual costs, and the completion date of remedial action.

5.5.2 Verification section

The Verification Section documents the effectiveness of remedial action and demonstrates that the property has been restored in compliance with the applicable EPA standards and that property restoration has been conducted in a manner acceptable to the property owners. This section includes the results of each property's inclusion survey reports (pre-remedial action measurements) and the results of the RAC's verification survey (post-remedial action measurements). In addition, the location, concentration, and volume of any contamination left on a property is documented in this section of the report. [Rev. B] For properties which exceed the radon working level standard because of natural background, soil samples should be taken, analyzed, and results included in the completion reports to verify whether tailings or natural material are causing the elevated working levels. Reporting of all radiological data in these reports shall be in the same units of measurement stipulated by the EPA Standards for cleanup of vicinity properties.

5.6 CERTIFICATION

Certification is a process by which the DOE PO utilized field data and makes a determination that remedial action has been performed at a vicinity property in compliance with the EPA standards. Excavation control and verification data from the RAC, and radiological surveillance data by the TAC, are evaluated to determine if there is reasonable assurance that contamination does not exceed limits provided in 40 CFR 192.12. The certification process is summarized in Figure 5.3.

Figure 5.2 Vicinity property completion report format

<u>Section</u>		<u>Page</u>
1	SUMMARY	
2	OPERATIONS SUMMARY.	
2.1	Abstract of Remedial Action Plan	
2.2	Previously Unidentified Contamination.	
2.3	Unanticipated Items During Remedial Action	
2.4	Application of Supplemental Standards.	
2.5	Remedial Action Statistics and Costs	
2.5.1	Material Quantities	
2.5.2	Remedial Action Costs	
2.5.3	Remedial Action Schedule.	
3	VERIFICATION SUMMARY.	
3.1	Radiological Survey Data.	
3.1.1	Pre-Remedial Action Surveys	
3.1.2	Post-Remedial Action Surveys.	
3.1.3	Owner's Acceptance.	
3.2	Recommendation for Certification	
	REFERENCES.	

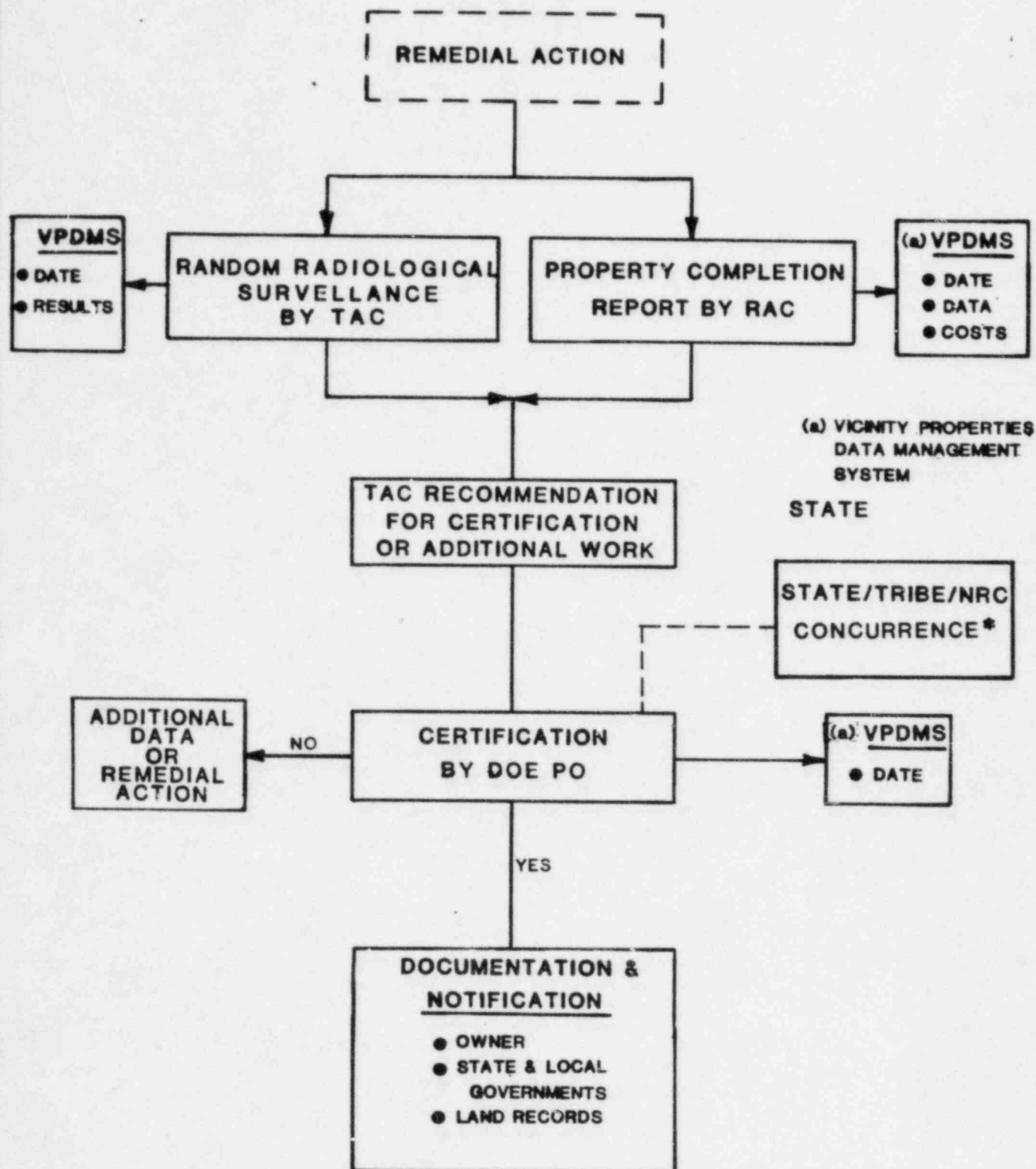
LIST OF FIGURES (typical)

<u>Figure</u>	<u>Title</u>	<u>Page</u>
2-1	Drill Hole Locations and Estimated Extent of Contamination	
3-1	Pre-Remedial Action Gamma Survey Results.	
3-2	Extent of Excavation and Post-Excavation Soil Sample Activities	
3-3	Post-Remedial Action Radiological Survey.	

LIST OF TABLES (typical)

<u>Table</u>	<u>Title</u>	<u>Page</u>
3-1	Certification Summary Table	

Figure 5.3 Certification flow diagram



* AS REQUIRED

FIGURE 5.3
CERTIFICATION FLOW DIAGRAM

5.6.1 Responsibilities

Data and information submitted by the RAC in Completion Reports are reviewed by the TAC, and evaluated for completeness, accuracy, and compliance with the EPA standards. Additional analyses of archived samples may be necessary, in those instances where supplemental data are required to recommend certification. These data, and pertinent data from Radiological Surveillances, will be submitted to the Project Office with recommendations regarding certification of the property. The DOE PO will review the TAC recommendations and other available data to make a decision on certification of each property.

[Rev. B] If a property requires additional remedial action or measurements for certification, the DOE [PO will send a letter, Exhibit 1 (Appendix E) with a copy of the TAC review form, and the property portfolio to the RAC directing them to perform the required action so the property can be certified. In addition, a letter, Exhibit 2 (Appendix E) will be sent to the property owner informing him that additional work will be required on his property.

The RAC will submit, to the DOE PO, an addendum to the Property Completion Report that documents the completion of the required additional action. A copy of the addendum is transmitted to the TAC VPM who assigns review to the TAC RS group.

The TAC reviews the addendum and provides a new recommendation to the DOE PO. The date the additional action was completed and the date of the new TAC recommendation are logged into the CTS.

These steps are repeated until the property is certified.

5.6.2 Certification notices and property record documentation

[Rev. B] If a property is to be certified, a certification letter, Exhibit 3 (Appendix E) is prepared by the TAC and transmitted to the DOE PO for signature and transmittal. The letter will be sent, by DOE PO, to the property owner with a copy to the RAC, TAC, and State or tribe representative. The property owner will also receive an abbreviated copy of the Property Completion Report. The DOE will transmit the official property portfolio to the TAC for archiving in the Project Document Control System (PDCS). The procedure for this archiving will be presented in the detailed procedure manual for document archiving, which is in preparation at this time by the TAC.

The DOE [Rev. B] PO must comply with property record documentation requirements stipulated in Public Law 95-604, Section 104. Specifically, the following requirement applies:

"In the case of each processing site designated under this title other than a site designated on Indian land, the State shall take such action as may be necessary, and pursuant to

regulations of the Secretary under this subsection, to assure that any person who purchases such a processing site after the removal of radioactive materials from such site shall be notified in an appropriate manner prior to such purchase, of the nature and extent of residual radioactive materials removed from the site, including notice of the date when such action took place, and the condition of such site after such action. If the State is the owner of such site, the State shall so notify any prospective purchaser before entering into a contract, option, or other arrangement to sell or otherwise dispose of such site. The Secretary shall issue appropriate rules and regulations to require notice in the local (R) land records of the residual radioactive materials which were located at any processing site and notice of the nature and extent of residual radioactive materials removed from the site, including notice of the date when such action took place."

To date, the DOE has not developed the required regulations. Upon promulgation of these regulations, this section of the VPMIM will be revised to indicate the effect of these regulations.

5.7 DOCUMENT TRANSFER AND ARCHIVE

Once a property has been certified or otherwise closed-out, the RAC is responsible for transferring a complete property portfolio to the Project Document Control System located in the Project Office. (See Section 6.3). The portfolio includes the property's Consent Form, Inclusion/Exclusion Report, DOE Inclusion/Exclusion Decision, Property owner notification letters, REA, RAA, detailed design, Completion Report, certification notice, and any other relevant correspondence or notes on the property. The files are archived in accordance with DOE retention requirements. These records are available for review by the NRC, states, and tribes upon request.

6.0 PROJECT CONTROLS AND DATA MANAGEMENT

6.1 INTRODUCTION

Vicinity property activities are performed and administered by contractors and DOE organizations located in various regions of the country. The UMTRA Project Office is responsible for ensuring that the vicinity property activities are conducted by the various Project participants in a consistent and effective manner and for developing a system for recording information and tracking the progress of activities on individual vicinity properties. To fulfill this responsibility a system has been implemented which employs computerized project controls, the UMTRA Project Vicinity Properties Data Management System (VPDMS). The system has been designed to provide storage, manipulation, and reporting functions on vicinity properties. The TAC is responsible for maintaining the VPDMS system and for incorporating the data inputs from the ISC, RAC, DOE, PO, the states/tribes, and the TAC itself.

In addition, the Project Document Control System (PDCS) has been established by the PO. This central document control center for filing and archiving various pieces of important information on each vicinity property is located in the PO. All Project documents and selected vicinity property reports are transmitted to, and filed in, this system throughout the duration of the Project. The TAC is responsible for the implementation and maintenance of this system.

The VPDMS provides information on each vicinity property and summary information on groups of properties associated with the individual processing sites. Reports are generated and submitted to DOE, the states, tribes, and other appropriate project participants. The system is also used to plan and forecast vicinity property remedial action activities, to estimate budgets and expenditures, to coordinate remedial action tasks, and to provide a flow of information between the various project participants.

6.2 VPDMS DESCRIPTION

6.2.1 General

The VPDMS is managed and controlled from the UMTRA Project Office in Albuquerque, New Mexico. The system has the capability to store and manipulate four basic categories of information:

- o Property radiological and engineering assessments.
- o Contractor schedules and progress.
- o Costs associated with engineering and remedial action.
- o Owner/tenant information.

Property assessment information consists of: radiological measurements made before and after remedial action, an identification of the tailings location and property occupancy, and an assessment of the type of remedial action required.

Task schedules and progress are assessed by recording forecast and actual dates of completion for the milestone activities on each property. These milestones include Consent Forms, site surveys, property inclusions, REAs, RAAs, remedial action bid packages, remedial action construction, Completion Reports, and property certification.

Costs recorded include those associated with three categories: Engineering and Management (including development of REAs, detailed design of the approved remedial action option, technical and management support); Remedial Action (including construction, health physics observations and construction monitoring during remedial action); and Dislocation/Reimbursement (including owner/tenant dislocations or reimbursement). Further details regarding the composition of the VPDMS can be found in Appendix G.

6.2.2 System inputs

All of the pertinent information, both forecast and actual, is provided by the Project participants responsible for the respective actions. A summary of the input requirements for the VPDMS is presented in Figure 6.1.

Forecast schedule information is input by the RACs, the ISC, and the TAC on a periodic basis and is incorporated into the Vicinity Properties Master Schedule. This information indicates expected and actual completion or initiation of significant milestone activities. The Master Schedule is made for only those activities expected to occur in the six months following the date of forecast. Significant milestones will be determined by the PO.

Actual completion dates are logged by the RAC, the ISC, the TAC, and the states/tribes, and are reported to the VPDMS on a monthly basis by means of data entry sheets. A blank VPDMS data entry sheet is presented in Appendix G for reference. The TAC is responsible for providing all input formats and coordinating all data entry activities with the project participants, to ensure accurate and effective data processing. Entry of data into the VPDMS is conducted by TAC personnel in the Albuquerque, New Mexico, Project Office.

6.2.3 System outputs

Pre-formatted reports are generated from the VPDMS on a monthly basis. These reports are designed to provide a summary of data to satisfy the PO's information requirements. The report formats are illustrated and discussed in Appendix G. In addition to these reports, the VPDMS is capable of sorting, selecting, and listing the properties and associated data in various formats.

Figure 6.1 Project controls and data management flow diagram

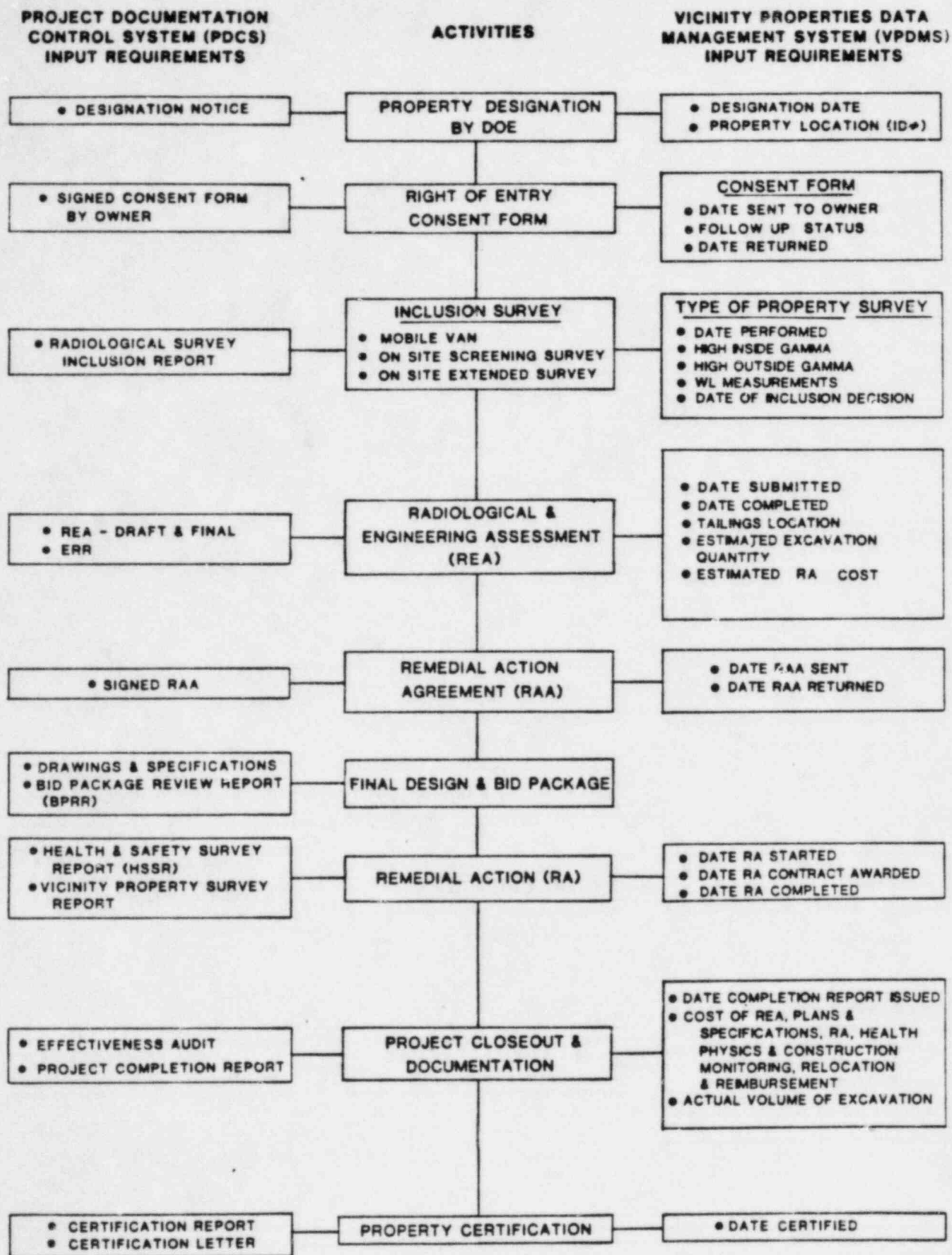


FIGURE 6.1
PROJECT CONTROLS & DATA MANAGEMENT FLOW DIAGRAM

6.2.4 Data use

The VPDMS reports will be produced by the TAC and delivered to the PO with recommendations for action as required. The reports are subsequently distributed to the UMTRA Project participants and states/tribes as requested or as the PO determines appropriate. Other information that may be useful to the various project participants can be produced by the TAC on an as-needed basis. As the project progresses, it is intended for as-needed information to be available for retrieval from "satellite" computer terminals, located at the various project and contractor offices.

Information generated by the VPDMS is used by the project participants and states/tribes to keep abreast of project status, to facilitate progress, and to respond to public concerns on a property-specific basis. Care should be taken by all parties receiving the VPDMS outputs to limit circulation of information regarding property ownership and location. This information is for use by Project participants, states/tribes, and subcontractors only.

6.3 PDCS DESCRIPTION

The UMTRA PDCS provides a centralized repository of project information and an effective means of retrieving information as the need arises. The system has been developed and is maintained by the TAC. The system capabilities include:

- o Document acquisition that ensures all project-related records enter the system files.
- o Computerized retrieval of system documentation using multiple search and cross-referencing parameters.
- o Filing and storage practices that protect project records from loss or damage.
- o Library and reference service.
- o Microfilm generation and retrieval capabilities.

The PDCS is fully described in the UMTRA Project Document Control System Manual, which further describes the practices used for acquiring, tracking, controlling, retrieving, and retiring all records and documents relevant to the management, support, and performance of the UMTRA Project. All data input requirements relative to vicinity property activities are illustrated in Figure 6.1.

7.0 QUALITY ASSURANCE (QA)

7.1 INTRODUCTION

The UMTRA Project requires implementation of the current UMTRA Quality Assurance Plan (UMTRA DOE/AL-185) on all vicinity property remedial action activities. The RAC develops a Quality Assurance Program Plan (QAPP) and submits this plan to DOE for approval. The purpose of the QAPP is to assure the PO that all vicinity property activities are documented and performed in accordance with approved UMTRA Plans. The QAPP describes the means the RAC employs for maintaining records, performing inspections, testing, and reporting to the PO. All contractor QAPPs are available for review by the DOE Division of Remedial Action Projects, states, tribes, and NRC.

Vicinity properties QA overview assistance is provided to the PO by the TAC. This function involves assisting in the review of the RAC QAPP, advising the PO in matters of QA, and performing periodic audits of individual RAC activities. The purpose of the QA overview function is to provide the PO with objective evidence that vicinity property remedial actions are being conducted in accordance with the intent of the UMTRA QA Plan.

A brief description of guidelines for vicinity property QA activities is provided in the following text. These activities are summarized in Figure 7.1.

7.2 INSPECTIONS AND LOGS

[Rev. A] The RAC will include in their daily construction logs quality assurance information. These logs will be developed in the appropriate format and maintained by the RAC at the site. The logs must provide complete and factual evidence that required inspections and tests have been performed. The information documented includes, but is not limited to:

- o Nature of deficiencies requiring corrections.
- o Corrective actions taken or to be taken.

Health physics information will be documented daily as required in an appropriate format, not in the construction log.

As part of these logs, the RAC will include a statement that all materials, tests, and monitoring activities are in compliance with UMTRA plans, and contract plans and specifications, except as noted.

7.3 RECORDS

The RAC is responsible for the generation, retention, and retrieval of legible records which provide objective evidence of conformance to the specified quality assurance requirements of the vicinity property QAPP. These records will be completed, signed, and dated by authorized personnel. The records will include but are not limited to:

Figure 7.1 Quality assurance flow diagram

- o Soil compaction test reports.
- o Equipment and instrument calibration records.
- o Soil test reports.
- o Access control log.
- o Test and inspection reports.
- o Dosimetry measurement records.
- o Concrete cylinder test reports and charts.
- o Field radiological measurement logs.
- o Concrete placement reports.
- o Personnel records
- o As-built drawings.
- o Approved specifications.

If, during the course of the remedial action at vicinity properties, records become lost or damaged and if replacement or restoration is not practical, action will be taken by the RAC to ensure the quality of redocumentation.

7.4 QA AUDITS

Audits are periodically conducted by the PO and the TAC to verify that the procedures, equipment, and systems called for in the respective QAPPs are being implemented by the RAC. In addition, Radiological Surveillances are conducted on a selective basis by the TAC to assure that methods used in remedial action are acceptable and to assure that EPA Standards have been conformed to (Section 5.4). Records and procedures are inspected during this audit exercise. Duplicate measurements and samples may also be taken. The results of the audits are documented by the TAC and are transmitted to the PO in Vicinity Property Audit Reports (VPARs).

All VPARs are available for review by the DOE Division of Remedial Action Project, states, tribes, RAC, and NRC.

8.0 PUBLIC INFORMATION

8.1 INTRODUCTION

To promote public understanding of the UMTRA Project, information will be disseminated in a timely manner. All appropriate information will be supplied to Federal, state, and local officials, the media, special interest groups, and the general public. All UMTRA participants, both Federal and contractor employees, will follow the established procedures and methods for public information on all aspects of the project.

UMTRA publications regarding public information and participation are available through the DOE AL, Office of Public Affairs. Because of the nature of vicinity properties, the majority of which are private residences and commercial businesses, the DOE has instituted a policy of strict confidentiality regarding the names and addresses of property owners. Under no circumstances is this information to be released without prior approval of the UMTRA Project Office.

However, one of the major objectives of the UMTRA Project is to encourage as much public participation in the decision-making process as possible. In order to accomplish this objective, all persons, DOE, and contractor, involved with the program must be made aware of the necessity to answer questions concerning the project accurately and promptly. UMTRA Project information is not classified and an open information policy will be followed.

8.2 POLICY

The UMTRA Project operates under an open information policy in accordance with DOE policy, the Freedom of Information Act, the Privacy Act, and the Uranium Mill Tailings Radiation Control Act of 1978. All questions about the project, subject to the following guidelines, should be answered accurately and promptly.

8.2.1 Field employees

Vicinity property remedial actions will be an ongoing concern throughout the duration of the UMTRA Project. Project employees in the field will be highly visible to the public, and may be approached at any time by members of the press or interested citizens with questions regarding their activities.

All field employees will receive a briefing from their supervisor explaining DOE policy and guidelines, with appropriate information on sensitive areas in their portion of the project, proper method of referral to supervisors, and method of obtaining or assisting others to obtain information on the project.

The DOE will provide sufficient quantities of generic fact sheets and site-specific fact sheets to the vicinity property contractor for distribution to all interested parties. Field manage-

ment personnel will have a sufficient quantity of these fact sheets readily available for any person who has questions or is interested in the Project. Supervisors should have a copy of the "Public Information Plan," UMTRA-DOE/AL-184, and the "Public Participation Plan," UMTRA-DOE/AL-10.

8.2.2 Guidelines

Questions should be answered factually and in a straight forward manner subject to the following exceptions:

- o If the question concerns procurement, information should not be released containing proprietary data or plans with respect to the evaluation of bids and proposals. Refer these questions to the DOE UMTRA Project Office, (505) 844-3941.
- o In the case of inquiries concerning the location, purchase or use of properties in a given vicinity, no release of names or addresses of owners should be given without prior authorization.
- o Questions concerning the removal of tailings from one site to another should be answered only with approved statements. Answer should stress that the state, tribe, NRC, and DOE must agree on the site, that environmental documentation must be prepared prior to the removal, and that the public will have or had the opportunity to participate in the decision-making process by attending meetings and by submitting written comments. Also, all remedial actions under the UMTRA Project must meet EPA standards.
- o Questions concerning DOE policy should be referred to the DOE Albuquerque Operations Office, Office of Public Affairs, (505) 844-6938.

Give copies of the fact sheets to any person who has a question or is interested in the Project.

When talking to members of the news media, refer them, if possible, to the DOE Albuquerque Operations Office, Office of Public Affairs. Avoid expressing personal views about the project, other projects, or the agency.

Requests to present programs on the community level should be coordinated in advance with the DOE Office of Public Affairs. Appropriate printed materials should be used in conjunction with presentations.

8.2.3 Staff contact

The RAC will designate a staff contact to coordinate information dissemination activities. The designated staff contact will be readily available to handle all specific inquiries and public

functions which may occur and will be well versed in all aspects of vicinity property remedial action procedures.

8.2.4 Site tours

From time to time, Federal, state and local officials, and project personnel will tour vicinity property sites during remedial action construction and after remedial action is completed. Tours will be conducted as required so as to keep officials fully apprised of project status and the effort being expended to perform remedial action at the vicinity property sites.

8.2.5 Community action

Project participants, with DOE approval, will be encouraged to speak or give presentations at the community level. Church groups, civic organizations, or neighborhood clubs in the general area of the vicinity properties will be especially interested in remedial action schedules and procedures. In addition, personal briefings for local officials and community leaders will be held as required regarding the progress of vicinity property remedial action.

8.3 SCOPE

This guidance applies to all UMTRA participants, both Federal and contractor employees, funded by DOE. It also may apply to participating state and local agencies, either by agreement or as a statement of policy by the DOE regarding public participation in the project.

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LIST OF ACRONYMS

AEC	U.S. Atomic Energy Commission
AL	The Albuquerque Operations Office of the DOE located in Albuquerque, New Mexico.
ALARA	As low as reasonably achievable.
ANSI	American National Standards Institute
BPRR	Bid Package Review Report developed by the TAC on UMTRA vicinity properties.
CDH	The Colorado Department of Health
DOT	U.S. Department of Transportation
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
ERR	Engineering Review Report developed by the TAC on UMTRA vicinity properties.
FUSRAP	Formerly Utilized Sites Remedial Action Program
GJPO	Grand Junction Project Office [Rev. B]
GJRAP	Grand Junction Remedial Action Program
ISC	Inclusion Survey Contractor
LLD	Lower limit of detection
NEPA	National Environmental Policy Act
NRC	U.S. Nuclear Regulatory Commission
ORNL	Oak Ridge National Laboratory
ORO	Oak Ridge Operations Office
OSHA	Occupational Safety and Health Administration
PADER	Pennsylvania Department of Environmental Resources
PDCS	Project Document Control System
PIC	Pressurized Ion Chamber
PO	The UMTRA Project Office, located in Albuquerque, New Mexico.
RS	Radiological Services [Rev. B]

APPENDIX A
INCLUSION CRITERIA AND PROCEDURES

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A.1 INTRODUCTION

Initial guidance for the Inclusion Process is provided in the "Summary Protocol, UMTRAP Vicinity Properties, Identification - Characterization - Inclusion" (Exhibit 1). That document describes the activities which are essential to identify and characterize vicinity properties so they may be considered for remedial action as part of the UMTRA Project. In order to minimize the cost and effort required to achieve that goal, the Summary Protocol also prescribes a specific sequence in which to conduct survey activities, and conditions under which survey activities may be terminated.

This appendix is intended to supplement Exhibit 1 by providing detailed procedures for use in performing on-site inclusion surveys. Section A.2 describes acceptable methods and instrumentation for on-site surveys, and Section A.3 provides criteria for evaluating survey data. The procedures described in these sections, when applied in concurrence with guidance in the Summary Protocol, will provide an efficient means of determining a designated property's eligibility for inclusion in the UMTRA Project.

A.2 ON-SITE SURVEY PROCEDURES

In accordance with the Summary Protocol, properties for which existing data and mobile van survey validation efforts are inadequate to permit a determination for inclusion, must be scheduled for on-site surveys. Prior to any on-site work, a Consent Form must be signed by the owner, and the tenant where applicable. When the signed form is returned, the work is scheduled, taking into account reasonable requests from the owners and tenants.

[Rev. B] The extent of an inclusion survey is guided by a decision matrix designed to minimize the effort necessary to make a defensible inclusion/exclusion recommendation.

Figure A.2.1 summarizes the various levels of activity on the property required to limit or extend a survey.

The minimum effort required on an inclusion survey is a complete indoor gamma scan. During the scanning, if any room of a building averages more than 20 microR/h above background, then a recommendation of inclusion can be made and the survey ends. If a inclusion recommendation cannot be made, a complete outdoor gamma scan of the entire property is required. If any 100 M² area outdoors averages more than 20 microR/h above background, an inclusion recommendation ends and the survey ends.

Exclusion can be recommended if no 100 M² area outdoors and no room in the building averages greater than background plus one standard deviation (one sigma). For levels of gamma exposure between background plus one sigma and background plus 25 (20 indoors) microR/h, extended measurements are dictated.

Extended measurements consist of soil sampling and/or indoor RDC measurements. For purposes of inclusion survey simplicity, soil samples are always taken before RDC measurements.

If Ra-226 concentrations in soil samples exceed 5 or 15 pCi/g for surface or (1-15-cm) subsurface (>15 cm) samples, respectively, then inclusion is warranted. Exclusion is warranted if soil samples are less than 5 and 15 pCi/g for surface and subsurface samples, respectively, and if interior extended measurements are not dictated.

If RDC measurements are needed, the exclusion/inclusion criteria are in terms of working levels (WL). Instantaneous RDC of <0.01 WL and annual average RDC values of <0.02 WL result in exclusion recommendations. Inclusion results from grab or annual average concentrations of 0.04 and 0.02 WL, respectively. Inconclusive grab RDC measurements (between 0.01 and 0.04 WL) result in a requirement for annual average measurements to be made.

If contamination is noticed by the RAC in the field, extending onto a property adjacent to the one being assessed or at which remedial actions are being performed, the RAC can make a recommendation for inclusion on the spillover property and thereby expedite the principal inclusion survey procedure. The inclusion/exclusion recommendation should be made to the DOE inclusion official and should contain data to substantiate the recommendation. Prior to making this recommendation, the RAC must obtain consent to gain access to the spillover

[Rev B]

Figure A.2.1 Guidelines to the extent of radiological inclusion surveys

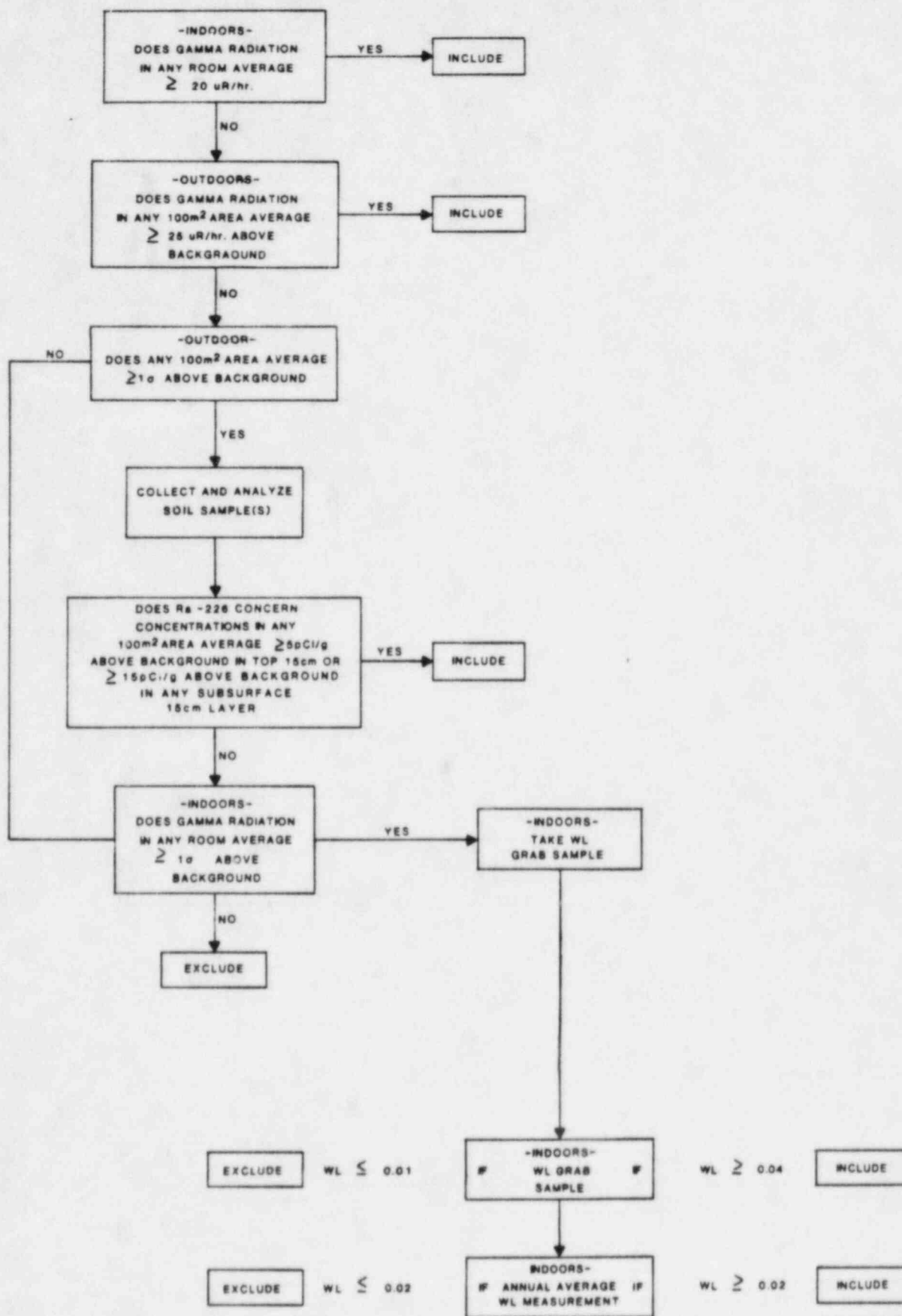


FIGURE A.2.1
GUIDELINES TO EXTENT OF RADIOLOGIC INCLUSION SURVEYS

property and must survey the suspected deposits to verify its location and extent. A sample Consent Form for this use is provided in Appendix A, Exhibit 3 for reference.

A.2.1 INDOOR GAMMA SCANNING MEASUREMENTS [Rev. B]

An indoor gamma scan is performed on properties where such a survey is required for inclusion. Every room in the lowest habitable level of each building, and other rooms as necessary, is first totally gamma scanned using a portable gamma scintillometer. During the scan, the gamma survey probe is moved slowly and kept as close to the floor and accessible wall surfaces as possible. Any significant changes in gamma radiation levels above background, indicated either by visual changes in the instrument rate meter, or audible changes in the pitch of the instrument headphones, are noted as being anomalous. The location of anomalous readings will be recorded and biased readings will be taken in these areas. Additionally, discrete gamma exposure rates will be measured at several locations in the anomalous area at the floor surface or at a height of 3 feet above the floor. Contaminated portions of rooms larger than 2000 square feet may be gridded on 10-foot or smaller intervals and measurements made at grid points (smaller rooms may be gridded at the discretion of the survey team).

The range of gamma radiation levels measured at 3 feet from the floor and walls in each room of the lowest habitable levels of the structure will be documented. If the average of measurements in any one room (or four grid points in large rooms) exceeds the inclusion criterion of 20 microR/hr above background, the property is recommended for inclusion. Those properties for which indoor screening measurements fall between the inclusion and exclusion criteria, and which have not already been included with outdoor screening measurements, are forwarded for extended measurements.

A.2.2 OUTDOOR GAMMA SCANNING MEASUREMENTS

A gamma scan is performed where necessary outdoors on a property using a portable gamma scintillometer. Gamma scanning is a process by which the gamma radiation detector is used to methodically cover the entire ground surface while changes are observed in the ambient gamma radiation level. During gamma scanning, the gamma survey probe is moved slowly and kept as close to the surface as possible. Any significant changes in gamma radiation levels above background, indicated either by visual changes in the instrument rate meter or in the pitch of audio responses in the instrument headphones, are noted as being anomalous. The range of gamma radiation levels observed is documented and locations of anomalous areas are noted.

Areas where anomalies exist are investigated further by a more detailed survey to determine the extent of contamination in those areas, in relation to EPA standards. During the screening measurements, the relationship of contamination to EPA standards is established by comparing average gamma values, over 100 meters², to the inclusion criterion in

Section A.3 (this criterion has a correlation to Ra-226 concentrations in soil). Specifically, average gamma values in anomalous areas are derived for each 100 meter² contaminated area on the property, taking gamma exposure measurements at 3-foot elevations. A reproducible grid may be established to accomplish this averaging task if the ISC feels it is useful or if it is necessary to find the area of contamination at a later date.

If grids are used to verify the average gamma exposure rates or the locations of contamination, the grids should be established over portions of the property where gamma radiation levels greater than two standard deviations (or 30 percent), above background are observed. Grid intersections should be on 10-foot or smaller intervals for properties located in residential or otherwise developed areas. Alternate grid spacing is allowed in large windblown or otherwise remote areas if, in the view of the ISC the extent of contamination can be adequately assessed for inclusion purposes.

Inclusion is recommended for any property with any 100 square-meter area with an average gamma exposure greater than 25 microR/hour above background. Extenuating factors (i.e., shielding by asphalt cover or clean overburden) must be taken into account, thereby permitting inclusion of properties with areas averaging less than 25 microR/hr above background. This determination is left to the discretion of the ISC. If the gamma radiation levels for each 100-square-meter area averages less than one standard deviation (or 30 percent) above the mean background level for the region, the property may be recommended for exclusion. Properties with average gamma values in between the inclusion and exclusion levels, are scheduled for extended survey.

A.2.3 OUTDOOR EXTENSIVE MEASUREMENTS

Soil samples will be collected for laboratory analysis, or in-situ measurements will be performed as part of a representative sampling procedure. Analyses must be for Ra-226, except where uranium, thorium, or other radionuclide contamination is prevalent.

The ISC will determine from site conditions whether contamination appears to be buried, or is surficial. If surficial contamination is evident, surface soil sampling will proceed. If analysis of surficial contamination is inadequate for inclusion, and buried material is apparent, subsurface measurements will be performed. Techniques for evaluating tailings deposits greater than and less than 15 cubic meters are recommended below.

Deposits of less than 15 cubic meters

On properties where the volume of contamination is estimated to be less than 15 cubic meters, one of two techniques can be used to determine whether the deposit is includable. If reasonable, soil samples or in-situ measurements can be taken using grid spacing of 10 feet or less. The values must then be weighted to represent the average concentration of that deposit, over a 15-cubic-meter volume.

A second technique for averaging deposits of less than 15 cubic meters over that same volume is to apply a total activity formula. This technique requires the total activity of a deposit to be calculated and compared against the total activity of a 100 square meter by 15-cm deep (15-cubic-meter) volume contaminated to EPA standards. Assuming a soil density of 2.3 g/cc and average concentration of Ra-226 over 100 meters², the total activity of a subsurface deposit contaminated with an average Ra-226 concentration equal to the EPA standard of 15 pCi/g is:

$$100\text{m}^2 \times 0.15\text{m} \times 15 \text{ pCi/g} \times 2.3 \text{ g/cc} \times 10^6 \text{ cc/m}^3 \times 10^{-9} \text{ mCi/pCi} = 0.52 \text{ total mCi}$$

For a surface deposit contaminated with an average Ra-226 concentration equal to the EPA standard of 5 pCi/g, in areas with a soil density of 2.3 g/cc, the total activity is 0.17 mCi.

To apply this calculation in the field, the average concentration of Ra-226 over the area of contamination, the volume of contamination, and the soil density must be determined and these values used in the total activity formula. The formula's product is then compared to the threshold maximum total activity value to determine whether the deposit is includable. As an example, a deposit of 9.6 cubic meters (80 square meters area x 0.12 meters depth) with an average Ra-226 concentration of 9 pCi/g and a soil density of 2.3 g/cc, would have a total activity of 0.20 mCi. Since this value exceeds the maximum total activity value for surface contamination of 0.17 mCi, and the deposit is less than 0.15 meters deep, the deposit is includable.

This averaging technique should only be used in areas of contamination less than 100 square meters and in those areas where tailings have been distributed along deep, narrow channels or otherwise unusually shaped deposits.

Deposits of 15 cubic meters or greater volume

For deposits estimated to be in excess of 15 m³ in volume, composite samples collected in the contaminated area will be prepared so they represent an average over each 100-square-meter area. Sampling intensities will be determined by the spacing in the area to be sampled, and will vary according to two basic plans:

- o A composite sample will be prepared by taking aliquots from each grid point of eleven contiguous grid sections, for properties gridded on 10-foot centers. The aliquots will be taken for each 100-square-meter area at a depth intervals of 15 cm. Measurement results from each composite sample will represent an average over a 15-cm-thick layer and a 100-square-meter area.
- o For remote properties, sampling based on a subset of all 100 square-meter areas may be employed. The sampling intensity and

grid size is left to the best judgement of the ISC and approval from the Implementing Agencies.

Subsurface soil measurements are performed to adequately characterize the contaminated portion. When feasible or useful, they may be performed at grid intersections in areas where anomalies have been detected. Measurements are taken at 15-cm intervals at depths below the top 15-cm layer of soil using downhole gamma logging with results correlated to Ra-226 concentrations, or by analyzing samples collected through a hollow-stem auger. Other measurement methods with equivalent sensitivity may be substituted.

A.2.4 INDOOR EXTENSIVE MEASUREMENTS

For properties where the results of indoor gamma screening measurements are between inclusion and exclusion criteria (Table A.1.1), indoor radon daughter concentration (RDC) measurements are performed for each habitable structure on the property. The EPA standard for indoor RDCs is stated in terms of an annual average, and a one-year monitoring period is thus implied. Long-term RDC measurements are normally required to provide an estimate of the annual average. However, it may be desirable to perform grab sampling first, provided that the data have been correlated with annual average measurements from Radon Progeny Integrating Sampling Units (RPISU) (Langner et al., 1983, and Young et al., 1983). **[Rev. B] The Eberline WLM-1 is an acceptable instrument to be used in indoor WL measurements for grab sample use.** To correlate grab sample results with annual average values, a separate set of evaluation criteria is required, which is provided in Section A.3.

Conditions shall be standardized prior to grab sampling for RDC measurements in any structure.

Standardized conditions are as follows:

- o Recent outside measurements of Rn-222 concentrations have not exceeded 2 pCi/l.
- o Wind speeds in the area have not exceeded 10 mph for the preceding 4 hours.
- o Doors, windows, and openings in the structure have been closed for the preceding 12 hours.
- o Ventilation systems which introduce outside air into the structure have not operated during the preceding 12 hours.

Samples are collected at least 18 inches above the floor from the lowest habitable area in the structure, or the location of the highest expected RDC. Samples are analyzed by the Modified Kusnetz method, or any method with comparable sensitivity and accuracy of measurement. The analyses are compared to the criteria in Section A.3.

Habitable structures which can not be included or excluded by RDC grab samples and comparison to values in Section A.3 are further

evaluated by making long-term RDC measurements. RPISUs are used to measure RDCs during one-week periods, separated by periods of 4 to 8 weeks to provide data for a full year. Six samples are collected and analyzed unless interim results indicate with mathematical certainty that the standard will, or will not, be met. Final measurements may be omitted if the outcome is ascertained with fewer samples.

As with RDC grab measurements, RPISU samples will be collected at the lowest habitable location in the structure or other locations suspected of demonstrating the greatest RDC.

The ISC may use other sampling methods and analytical techniques providing the following criteria are met:

- o The accuracy and precision of the new method are equal to, or better than, that of the RPISU method. For radon concentration measurements, an equilibrium factor of 0.5 should be used to convert results to RDCs unless a measured factor is available.
- o The new method is approved by an advisory panel consisting of members appointed by the DOE Project Office.

The annual average RDC measurement is the final step in the inclusion survey process. All properties shall be included or excluded by this or previously described techniques.

A.3 EVALUATION CRITERIA FOR INCLUSION SURVEY DATA

Criteria for evaluating inclusion survey data are derived from the EPA standards (40 CFR 192.12), and are to be applied to the inclusion survey results from indoor gamma, outdoor soil, and annual average RDC measurements. To facilitate the inclusion process, criteria are also established for evaluating data from outdoor gamma surveys, and indoor RDC grab samples, which are measurements not directly relatable to EPA standards.

The justification for the outdoor exposure rate limit of 25 microR/hr above background is based on empirical data relating to gross gamma measurements and Ra-226 concentrations in soil. The references for this justification are provided in Exhibit 1. The RDC grab sample criteria for inclusion (0.04 WL), and exclusion (0.01 WL), are derived from the results of two studies where data from grab samples were correlated with annual average measurements using RPISUs (Langner et al., 1983 and Young et al., 1983). Similar results were obtained in both studies, and the criteria selected represent an average of both results, rounded to the nearest 0.01 WL.

Evaluation criteria for all survey activities are provided in Table A.1.

Table A.3.1 Inclusion criteria

SCREENING MEASUREMENTS

Recommendation	Gamma measurements (microR/h)	
	Outdoor ^c	Indoor ^b
Inclusion	>25 above background	>20 above background
Comprehensive measurement required	between background +1 sigma and 25 microR/h above background	between background +1 sigma and 20 microR/h above background
Exclusion	< background +1 sigma ^d or 30% above background	< background +1 sigma ^{d, e}

EXTENDED MEASUREMENTS

Recommendation	Ra-226 concentration in soil (pCi/g) ^{a, c}		Indoor RDC ^(WL)	
	Surface soil (0-6 inches)	Subsurface soil ^f	Grab	Annual Avg.
Inclusion	>5	>15	>0.04 ^g	>0.02 ^g
Annual average radon measurements required	--	--	from 0.01 to 0.04	
Exclusion	<5 ^e	<15	<0.01	<0.02

^aRadiation levels in excess of background levels.

^bAveraged over any room.

^cAverage over an area of 100 square meters.

^dThe standard deviation of the mean for background values measured in the region of interest.

^eExclusion is valid only if no elevated gamma levels or other evidence of tailings have been observed in or near the structure, and subsurface contamination is not indicated.

^fAverage over any 15 cubic meter volume of soil.

^gCombined with evidence of the presence of tailings.

BIBLIOGRAPHY

- Langner, G.H., J.C. Pacer, V.G. Johnson, and M.A. Gillings, 1983. Evaluation of Methods for the Estimation of Indoor Radon Daughter Concentrations for Remedial Action Programs, GJ/TMC-04(83) prepared by Bendix Field Engineering Corporation, Grand Junction, Colorado for the U.S. Department of Energy, Nuclear Energy Programs, Division of Remedial Action Projects, Grand Junction Area Office, Grand Junction, Colorado.
- Young, J.A., P.O. Jackson, V.W. Thomas, 1983. Radiological Surveys of Properties Contaminated by Residual Radioactive Materials from Uranium Processing Sites, NUREG/CR-2954, PNL-4264, prepared by Battelle Pacific Northwest Laboratory for the U.S. Nuclear Regulatory Commission, Washington, D.C.

CONSENT FOR ACCESS TO CONDUCT SURVEYS
AND ENGINEERING STUDIES

VICINITY PROPERTY NO.:

PROPERTY ADDRESS:

PROPERTY PARCEL NUMBER OR DESCRIPTION:

I (We) acknowledge that I (We) own the property described above, and grant permission to employees, contractor and subcontractor personnel, and other representatives of the U.S. Department of Energy to enter upon the property at a reasonable time or times during the next 12 months to conduct radiation surveys to determine the nature and extent of any radioactive material that might be present. In addition, permission is given to perform engineering assessments, if necessary, to evaluate the remedial measures that might be taken, as well as to evaluate the extent of the work required and the cost.

(I) (We) understand that DOE's responsibility for any damage or disturbance to (my) (our) property caused by its activities shall be any backfilling, seeding, sodding, landscaping, rebuilding or repair of the property required to restore it to a condition comparable to its apparent physical condition immediately prior to entry upon the property.

I (We) understand that the DOE and the State of _____ are not obligated to perform remedial action upon the property. I (We) understand that no remedial action shall be performed until the DOE, the State, and the property owner have entered into a separate written agreement setting forth terms, conditions, and plans for remedial action.

I (We) understand that the DOE has the right to disclose to the public, in the form of technical data and reports, the results of its data-gathering on the above-described property.

- ☐ I grant access for the conduct of surveys and engineering studies as provided in this Consent-for Access.

Signature of Owner(s)_____
Date

- ☐ I have decided not to participate in the UMTRA Project.

Signature of Owner(s)_____
Date

OWNER DATA:

Owner(s) Name_____
Owner(s) Address

Home Phone _____

Business Phone _____

EXHIBIT A-3

SPILOVER CONTAMINATION
CONSENT FORM

Property Address: _____
Property Description: _____

(I) (We) acknowledge that we own, lease, or rent this above-described property and (I) (We) consent to the entry upon such property by U.S. Department of Energy (DOE) employees and contractor personnel at a reasonable time or times during the next _____ days to conduct radiation surveys in order to determine the nature and extent of any uranium mill residues and to perform engineering assessments, as required, in order to evaluate remedial measures that might be performed by DOE and the State of _____ under their ongoing cooperative remedial action program. (I) (We) understand that DOE shall be responsible for any damage or disturbance to (my) (our) property caused by its activities and that such responsibility shall be limited to backfilling, seeding, sodding, landscaping, rebuilding or repair of the property to a condition comparable to its apparent physical condition immediately prior to entry upon the property. (I) (We) further understand that DOE and the State are not obligated to perform remedial action upon (my) (our) property and that no such remedial action shall be performed until DOE, the State, and (I) (we) have entered into a separate written agreement specifying the terms and conditions of and plans for remedial action.

OWNER SIGNATURES

Address: _____

Telephone: _____

Date: _____

TENANT SIGNATURES

Address: _____

Telephone: _____

Date: _____

RADIOLOGICAL AND ENGINEERING ASSESSMENT (REA) Review Form



DOE Location No. _____ Rev. No. _____

RAC	<p>PRIORITY: <input type="checkbox"/> ROUTINE <input type="checkbox"/> URGENT DATE _____</p> <p>REQUESTED RESPONSE BY _____</p> <p>COMMENTS:</p> <p>_____ VP MANAGER DATE _____ CONT. ON ATTACHED SHEET NO. _____</p>
TAC	<p>DATE RECEIVED _____</p> <p><input type="checkbox"/> RECOMMEND APPROVAL <input type="checkbox"/> RECOMMEND APPROVAL AS NOTED BELOW <input type="checkbox"/> DO NOT RECOMMEND APPROVAL AS NOTED BELOW</p> <p>COMMENTS:</p> <p>_____ TAC DATE _____ CONT. ON ATTACHED SHEET NO. _____</p>
STATE	<p>DATE TRANSMITTED _____</p> <p><input type="checkbox"/> APPROVED <input type="checkbox"/> APPROVED AS NOTED <input type="checkbox"/> NOT APPROVED AS NOTED</p> <p>RESPONSE DATE _____ ATTACHED RESPONSE ON SHEET NO. _____</p>
NRC	<p>DATE TRANSMITTED _____</p> <p><input type="checkbox"/> APPROVED <input type="checkbox"/> APPROVED AS NOTED <input type="checkbox"/> NOT APPROVED AS NOTED</p> <p>RESPONSE DATE _____ ATTACHED RESPONSE ON SHEET NO. _____</p>
TRIBE	<p>DATE TRANSMITTED _____</p> <p><input type="checkbox"/> APPROVED <input type="checkbox"/> APPROVED AS NOTED <input type="checkbox"/> NOT APPROVED AS NOTED</p> <p>RESPONSE DATE _____ ATTACHED RESPONSE ON SHEET NO. _____</p>
DOE-UMTRA	<p>DATE RECEIVED _____</p> <p><input type="checkbox"/> APPROVED <input type="checkbox"/> APPROVED AS NOTED <input type="checkbox"/> NOT APPROVED AS NOTED</p> <p>COMMENTS:</p> <p>_____ DOE VP MANAGER DATE _____ SHEET NO. 1 OF _____</p>


REA REVIEW COMMENTS						DATE
PROPERTY NO.:		BY:		PAGE ____ OF ____		
CMT NO.	PAGE	SECTION	COMMENTS	RESOLUTION		

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[Rev. B]

Exhibit 1, Sample Letter to RAC of Notification for
Additional Work

Exhibit 2, Sample Letter to Owner of Notification for
Additional Work

Exhibit 3, Sample Letter of Certification

Exhibit 4, Sample Certification Review Forms

EXHIBIT E-1

RE: Vicinity Property No. _____
Address: _____

(RAC)
Address
City, State (Zip Code)

Dear _____:

Attached is one copy of the certification review form prepared by the TAC and the property portfolio. DOE is in agreement with this review, therefore this property will require some additional work to bring it into conformance with the EPA standards.

(RAC) _____ is to execute the additional work outlined in the attached review in order to bring this property in compliance with the EPA standards. Upon completion of this additional action an addendum to the property completion report must be submitted by your staff with the property portfolio to DOE in order for this property to be certified as soon as possible.

If there are any questions, please contact _____ (Name) _____ of my staff.

Sincerely,

(Name)
Contracting Officer Representative
Uranium Mill Tailings Project Office

SAMPLE LETTER TO RAC OF NOTIFICATION FOR ADDITIONAL WORK

EXHIBIT E-2

RE: Vicinity Property No. _____
Address: _____

(Property Owner)
(Owner's Address)

Dear (Owner's Name) :

Under the Uranium Mill Tailings Radiation Control Act of 1978, Public Law 95-604, the Department of Energy (DOE) and its contractors have completed remedial action at the property address listed above. Review of all available data indicates your property has been cleaned up to the Environmental Protection Agency (EPA) Standards (40 CFR Part 192) and is therefore certified by the DOE as being in compliance with EPA standards.

Attached, for your records, is a copy of the Completion Report on your property. This report documents the cleanup of the residual radioactive materials that were removed from your property.

Should you have any questions regarding the project or your property, please write to me at the above address, or call (Name) of my staff at (505) (Number). Your cooperation in assisting us in the successful accomplishment of this work has been greatly appreciated.

Sincerely,

(Name) , Project Manager
Uranium Mill Tailings Project Office

Attachment
cc: State Representative, w/o attachment

SAMPLE LETTER TO OWNER OF CERTIFICATION

EXHIBIT E-3

RE: Vicinity Property No. _____

Address: _____

(Property Owner)
(Owner's Address)

Dear (Owner's Name) :

Under the Uranium Mill Tailings Radiation Control Act of 1978, Public Law 95-604, the Department of Energy (DOE) and its contractor, RAC have recently performed remedial action activities on your property.

In order to confirm and document that your property has been cleaned up to the standards established by the Environmental Protection Agency (EPA), representatives of (RAC) will again be contacting you to discuss the additional action that is required on your property. These additional activities will be performed as quickly as possible so as not to interfere with your daily routine any more than is absolutely necessary.

Should you have any questions regarding the project or your property, please write me at the above address, or call (Name) of my staff at (Number) . Your cooperation in assisting us in the successful completion of of this work has been greatly appreciated.

Sincerely,

(Name), Project Manager
Uranium Mill Tailings Project Office

NOTIFICATION FOR ADDITIONAL WORK

VICINITY PROPERTY CERTIFICATION REVIEW
FOR COMPLIANCE WITH RADIOLOGICAL STANDARDS

Property No. _____ Qty. of soil removed: _____ (yd³) RA Contractor _____
 Address _____ Reviewer _____ Subcontractors _____
 _____ Date _____

CERTIFICATION REQUIREMENT	COMPLIANCE			COMMENTS (Reference page in completion report)
	Yes	No	N/A	
I. SOIL EXCAVATION				
1. Were soil samples collected/analyzed? (List quantity of surface and sub-surface samples).				
2. Did grid intervals equal 10 feet or less? (List grid size and quantity of grids sampled).				
3. * Did grid locations duplicate prior survey locations?				
4. Were data to be averaged presented?				
5. Were adequate spatial averaging techniques clearly demonstrated?				
6. Were alternative measurements performed? (List types of measurement, range, and average of results).				

* Not required for certification.

VICINITY PROPERTY CERTIFICATION REVIEW
FOR COMPLIANCE WITH RADIOLOGICAL STANDARDS
(Continued)

CERTIFICATION REQUIREMENT	COMPLIANCE			COMMENTS (Reference page in completion report)
	Yes	No	N/A	
7. Were all contaminated areas sampled after excavation?				
8. Were soil concentrations averaged over 100 m ² less than:				
o 5 pCi/g plus background (surface)?				
o 15 pCi/g plus background (subsurface)?				
II. INDOOR GAMMA SCAN				
1. Were assessment measurements taken in every room and every habitable building?				
2. Were small rooms scanned and large rooms (2000 sq ft) gridded at intervals of 10 ft. or smaller?				
3. Were verification measurements taken at locations of prior maximum readings?				

VICINITY PROPERTY CERTIFICATION REVIEW
FOR COMPLIANCE WITH RADIOLOGICAL STANDARDS
(Continued)

CERTIFICATION REQUIREMENT	COMPLIANCE			COMMENTS (Reference page in completion report)
	Yes	No	N/A	
II. INDOOR GAMMA SCAN (Continued)				
4. Were instrument readings corrected to indicate microR/hr? (List range and average of readings).				
5. After remedial action, was the average value for each room or 2000 sq-ft-area less than 20 microR/hr above background?				
6. If any reading exceeded 20 microR/hr above background, was it satisfactorily investigated to ensure no tailings involvement?				
III. INDOOR RDC MEASUREMENTS				
1. If RDC measurements were performed during assessment surveys, were they repeated after remedial action was completed?				
2. If tailings were excavated near the structure, or around utilities into the structure, were RDC measurements performed after remedial action?				

VICINITY PROPERTY CERTIFICATION REVIEW
FOR COMPLIANCE WITH RADIOLOGICAL STANDARDS
(Continued)

CERTIFICATION REQUIREMENT	COMPLIANCE			COMMENTS (Reference page in completion report)
	Yes	No	N/A	
III. INDOOR RDC MEASUREMENTS (Continued)				
3. If grab samples were used for verification, were acceptable procedures used?				
4. Were grab sample results less than 0.01 M? (List range and average of results).				
5. If annual average measurements were used for verification, were acceptable procedures followed?				
6. Were annual average RDC results less than EPA M standards? (List range and average of results).				
IV. OTHER VERIFICATION MEASUREMENTS				
1. If adequate indoor RDC and gamma data are not presented, were additional measurements taken indoors?				
2. Were acceptable procedures used?				

VICINITY PROPERTY CERTIFICATION REVIEW
FOR COMPLIANCE WITH RADIOLOGICAL STANDARDS
(Continued)

CERTIFICATION REQUIREMENT	COMPLIANCE			COMMENTS (Reference page in completion report)
	Yes	No	N/A	
IV. OTHER VERIFICATION MEASUREMENTS (Continued)				
3. If Rn-222 samples were analyzed, were results less than 2.0 pCi/l?				
4. If surface contamination measurements were taken, were results less than:				
o 20 dpm/100 sq cm for removable activity?				
o 200 dpm/100 sq cm for total activity?				
5. Were sufficient measurements taken to supplement the RDC and gamma data?				
V. SUPPLEMENTAL STANDARDS				
1. If all contaminated areas at the property were not cleaned up, were supplemental standards (40 CFR 192 Subpart C) applied?				
2. Was the application of supplemental standards in accordance with the Plan for Implementing EPA Standards?				

VICINITY PROPERTY CERTIFICATION REVIEW
FOR COMPLIANCE WITH RADIOLOGICAL STANDARDS
(Concluded)

CERTIFICATION REQUIREMENT	COMPLIANCE			COMMENTS (Reference page in completion report)
	Yes	No	N/A	
V. SUPPLEMENTAL STANDARDS (Continued)				
3. Did appropriate state or Federal agencies concur in this application of supplemental standards?				
VI. SITE AUDIT RESULTS				
1. If a site audit has been performed at this property, were the results satisfactory?				
2. If the contractor's efforts were evaluated at other properties, were the results satisfactory?				
V. CERTIFICATION				
1. Is this property recommended for certification as meeting the EPA standards for residual radioactive material? If not, why?				

EXHIBIT E-2

RE: Vicinity Property No. _____
Address: _____

(Property Owner)
(Owner's Address)

Dear (Owner's Name) :

Under the Uranium Mill Tailings Radiation Control Act of 1978, Public Law 95-604, the Department of Energy (DOE) and its contractors have completed remedial action at the property address listed above. Review of all available data indicates your property has been cleaned up to the Environmental Protection Agency (EPA) Standards (40 CFR Part 192) and is therefore certified by the DOE as being in compliance with EPA standards.

Attached, for your records, is a copy of the Completion Report on your property. This report documents the cleanup of the residual radioactive materials that were removed from your property.

Should you have any questions regarding the project or your property, please write to me at the above address, or call (Name) of my staff at (505) (Number). Your cooperation in assisting us in the successful accomplishment of this work has been greatly appreciated.

Sincerely,

(Name) , Project Manager
Uranium Mill Tailings Project Office

Attachment
cc: State Representative, w/o attachment

SAMPLE LETTER TO OWNER OF NOTIFICATION FOR ADDITIONAL WORK

EXHIBIT E-3

RE: Vicinity Property No. _____
Address: _____

(Property Owner)
(Owner's Address)

Dear (Owner's Name) :

Under the Uranium Mill Tailings Radiation Control Act of 1978, Public Law 95-604, the Department of Energy (DOE) and its contractor, RAC have recently performed remedial action activities on your property.

In order to confirm and document that your property has been cleaned up to the standards established by the Environmental Protection Agency (EPA), representatives of (RAC) will again be contacting you to discuss the additional action that is required on your property. These additional activities will be performed as quickly as possible so as not to interfere with your daily routine any more than is absolutely necessary.

Should you have any questions regarding the project or your property, please write me at the above address, or call (Name) of my staff at (Number). Your cooperation in assisting us in the successful completion of of this work has been greatly appreciated.

Sincerely,

(Name), Project Manager
Uranium Mill Tailings Project Office

SAMPLE LETTER OF CERTIFICATION

G.2 VICINITY PROPERTY NUMBER ASSIGNMENTS

[Rev. B] During the previous years, vicinity properties have been assigned numbers by various contractors and agencies for purposes of identification and tracking. Over a period of time, modifications to the previously surveyed properties, and revised property ownership, have required the DOE to renumber certain properties prior to inclusion in the UMTRA Project.

The official repository for vicinity property status, property ownership, tenant, and summary radiological information is in the Vicinity Property Data Management System (VPDMS). This system should be used by all contractors and other participants as the reference document for vicinity property number assignments. The TAC has authority to assign all property numbers on the Project, except for those properties in Mesa County, Colorado. The Colorado Department of Health and DOE-Grand Junction Area Office have been given authority to provide property numbers in Mesa County. The guidelines for property number assignments are provided as follows:

- o Property number assignments shall utilize previous property numbers assigned by DOE Headquarters, EPA, CDM, PWL, et., whenever practical.
- o Separate property numbers shall be assigned to each property address, or otherwise legally distinguishable parcel of land, whenever possible. The rationale for this guideline is to allow for a separate number assignment on each parcel of land, which is now or is probably in the future, under individual ownership, and subsequently, subject to individual Remedial Action Agreements.
- o All new number assignments shall be made prior to inclusion, when possible. Any spillover properties found in the field shall be identified by memorandum to the DOE, and included under separate DOE property identification number. Whenever possible the Inclusion Survey Contractor (ISC) should identify the need for reassignment of property numbers, and include the recommended number reassignment in the Inclusion/Exclusion Recommendation Report.
- o All new number assignments shall be documented through a Memorandum to File. Copy of this information should be provided to the DOE Project Office and the TAC for inclusion in the VPDMS.
- o When property numbers which have been previously assigned are reassigned for the appropriate reason(s), the previously assigned numbers will be archived via Memorandum to File, and will be recalled only by special request. The TAC will track all number assignments and will recall this information when requested. The property number used and reported, by UMTRA Project contractors and agencies in future Project transmittals, will be the newly assigned number.
- o All DOE property identification numbers will be preceded by a two-letter site designation and followed by a two-letter property classification code (i.e., ED 00905-RS).

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