

VERIFICATION AND CERTIFICATION PROTOCOL  
FOR THE  
OFFICE OF ENVIRONMENTAL RESTORATION  
FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM  
AND  
DECONTAMINATION AND DECOMMISSIONING PROGRAM  
(Revision 3, November, 1990)

801 - Independent verification programs

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## I. INTRODUCTION

This protocol outlines the procedures for the verification and certification of remedial action projects performed under the Formerly Utilized Sites Remedial Action Program (FUSRAP) and projects performed under the Decontamination and Decommissioning (D&D) Program within the U.S. Department of Energy (DOE) Office of Environmental Restoration (EM). The ultimate goal of any remedial action or D&D action is to ensure that resulting radiological and chemical conditions at the site or facility are in compliance with established criteria, standards and/or guidelines and that the public and environment are protected. The procedures contained in this protocol provide the means for DOE to ensure this goal is met.

The concepts of verification and certification have been used by DOE for many years to allow release of facilities for use without radiological restrictions. The purpose of the certification process is to ensure that:

- o final site or facility conditions meet the cleanup objectives
- o specific data and information are collected and assembled to understand the actions taken and document the final conditions
- o the documentation is archived and made available to the public

The detail and specific requirements of the certification process are outlined in this protocol. The majority of the elements of the certification process are implemented by the responsible DOE field office and its contractors, including collection of the post-cleanup data, preparation of documentation, and coordination with the U.S. Environmental Protection Agency, State and regional authorities. The DOE field office is responsible for the documentation of the certification effort and recommendation for certification; DOE Headquarters makes the final determination that certification is complete and that the site may be released from EM.

An integral part of this certification process is the concept of verification. Verification is an independent evaluation of the final site or facility conditions to assure that the cleanup criteria, standards, and/or guidelines are appropriately applied and met. The purpose of independent verification is to validate the accuracy and completeness of field measurements and the credibility of the procedures followed, resulting in an independent assessment of resulting site conditions versus project plans and release criteria prior to project closeout. The Decontamination and Decommissioning Branches of the Eastern, Northwestern, and Southwestern Areas Programs Divisions and the Off-

Site Remediation Branch of the Eastern Area Programs Division are the DOE Headquarters (HQ) organizations within EM that implement and directly manage the independent verification effort as part of the certification process for D&D and FUSRAP projects. While data collected during independent verification may be used to supplement the certification data, such data are not a substitute for complete certification data, which the DOE field office and its contractors must collect.

All FUSRAP remedial action and D&D actions conducted by the EM organization are subject to independent verification. The size of the verification effort will vary from site to site and will typically involve document and procedure reviews, split sample analysis, and spot check surveys. A number of factors including type of cleanup, complexity of the operation and various site specific issues may be taken into consideration in determining the scope and intensity of the verification activity for a specific site or facility.

Because much of the data for both the verification and certification efforts is obtained before and during project operations, it is essential that the requirements be considered at the beginning of projects and that these requirements be integrated into the overall project schedule. This will ensure timely completion of verification and certification documentation activities prior to project closeout.

The following common terminology is used in this protocol to describe organizational responsibilities:

Administrative Record refers to the file which EPA requires for Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) actions taken under section 104 or 106 of CERCLA. It includes all documents that form the basis for the selection of the response action. For Federal facilities the lead agency (DOE, in this case) shall establish the administrative record. EPA may furnish documents which the federal agency shall place in the administrative record file to ensure that it is complete. The administrative record is properly archived for permanent retention as a public record.

Certification refers to the process that ensures that the resulting radiological and chemical conditions at the remedial action or D&D site (or facility) are in compliance with established criteria, standards, and/or guidelines and that the public and environment is protected.

Certification Docket refers to the documentation resulting from the certification process. This documentation is archived for permanent retention as a public record.

DOE Headquarters refers to the responsible program office residing in the appropriate division and branch within the EM organization, which in the case of FUSRAP is the Eastern Area Programs Division, Off-Site Remediation Branch.

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<sup>1</sup>These HQ elements are generally referred to as the program offices for simplicity.

Field Office refers to one of eight DOE Operations Offices or an element of a DOE Operations Office (area office, site office, or project office) responsible for management of site and/or project activities. In the case of FUSRAP, the responsible field office is the Oak Ridge Operations Office, Former Sites Restoration Division (successor to the Technical Services Division).

Independent Verification Contractor (IVC) refers to a contractor managed by HQ responsible for validation of the cleanup and certification process activities conducted by the Remedial Action Contractor (RAC) and field office.

Radiological Contractor refers to a contractor (or an element of the RAC) responsible for providing radiological (or chemical) survey support to the remedial action contractor collecting the data required to support operations and certification.

Remedial Action refers to all response actions (including interim actions) taken to effect cleanup at DOE sites and their vicinity properties.

Remedial Action Contractor (RAC) refers specifically to the contractor responsible for conducting either the D&D operation or the remedial action, which in the case of FUSRAP is the Program Management Contractor;

Validation refers to the review of laboratory data packages to determine whether, and to what extent the reported analytical data conform with the objectives of the sampling QA/QC Plan.

Verification refers to the independent assessment by DOE Headquarters that site conditions following cleanup by the RAC and field office meet approved project plans and release criteria.

## II. VERIFICATION AND CERTIFICATION

### A. GENERAL

The verification and certification process is integrated with the overall remedial action or D&D process and begins in the early stages of the project. The verification and certification process begins with project data collection during the site characterization phase and proceeds through final closeout of the project. Successful completion of verification is required for completion of certification, which in turn allows project closeout. Although verification and certification activities begin prior to the start of physical cleanup activities, the bulk of the verification and certification effort is conducted during and after the physical completion of remedial action or D&D operation.

While specific details may change from project to project, the generic steps of a remedial action or D&D project can be summarized as:

The site identification and characterization phase consisting of actions taken to locate the site, to assemble background information and operations data, and to gather site information required to perform engineering studies and environmental analyses supporting selection of a course of action;

The environmental and engineering studies phase consisting of actions taken to assure compliance with environmental regulations, selection of the appropriate course of action; completion of remedial designs, and project planning and procurement activities;

The remedial action or decontamination and decommissioning operations phase consisting of performance of cleanup and required restoration activities according to project plans; and

The certification phase consisting of final project documentation and closeout activities resulting in the release of the site.

This protocol emphasizes the project activities during and after the remedial action or D&D operations phase, when most verification and certification activities are performed. Attachments 1 and 2 are verification checklists for the field office and RAC, and the IVC, respectively. These checklists are intended to be used as general reminders of when interaction with the RAC or IVC is required. Certain project data and information generated in each phase become subject to verification and a part of the final certification docket. Some examples of this information include: site designation and authority reviews, remedial action and D&D plans, environmental (NEPA, CERCLA) documentation, excavation/decontamination control measurements, supportive sampling and analysis (with chain-of-custody information), and post-remedial action or project completion reports, all of which are essential to provide a record of cleanup activities and a source of data for the certification process. In the final certification phase, the essential data from all project phases, along with the verification report, are collected and assembled into a certification docket by DOE field office personnel.

Figure 1 is a conceptual diagram of the certification process and its relationship to the remedial action phase. The three major activities related to certification are: 1) decontamination measurements, 2) independent verification, and 3) certification docket preparation; they are discussed in detail below. Section B describes the decontamination measurements activities, while Section C and Section D describe independent verification by DOE and by others, respectively. Section E provides a detailed description of the certification docket preparation process.

An understanding of the relationships in Figure 1 between these three major activities is important. The excavation/decontamination activities associated with remedial action must be supported by decontamination measurements to gauge completeness and control. This information becomes available for independent verification, and in summary fashion is an important component of the certification docket, since it documents project completeness. In addition, Figure 1 illustrates that the independent verification activity is a subset of the certification process, and that information from verification activities provides feedback to the remedial action activity.

## B. REMEDIAL ACTION MEASUREMENTS SUPPORTING CERTIFICATION

Following completion of the environmental and engineering studies phase, the remedial action or D&D project operations are initiated and conducted by the RAC, i.e., excavation, decontamination, stabilization and disposal. The radiological contractor and/or RAC supports these operations by performing excavation/decontamination control measurements, sampling, and analysis. This process is documented through field logs, analysis records, and chain-of-custody documentation. Reports shall be generated to summarize radiological and chemical contaminant conditions and cleanup progress or completion. This information becomes a part of the certification docket (and as applicable, the administrative record). An administrative record is required for all remedial action projects conducted under the CERCLA process in addition to a certification docket. The administrative record provides legal documentation of the response action selected. The certification docket documents the completion of the response action and is used to obtain approval, as necessary, for project closeout or delisting. The administrative record is complete when all the documents that form the basis for the selection of the response action have been compiled. The activities, related to the certification docket, culminate in preparation of the post-remedial action report. This portion of certification is performed by the RAC and radiological contractor under the direction of the DOE field office.

Excavation/decontamination control measurements are used by RAC or radiological contractor field personnel to guide the remedial action or D&D and to make the preliminary determination as to the extent of the excavation and/or decontamination required. For cases of soil contamination, upon completion of each planned segment (or operable unit) of a remedial action the on-site contractor will take representative samples for analysis. If these analyses confirm that the remedial action criteria have been achieved, final closeout of site operations can proceed, upon agreement by the IVC. The IVC may schedule a site visit to take independent samples or arrange for split samples from the radiological contractor and/or RAC. If the samples indicate that additional actions are required, the remedial action contractor will be

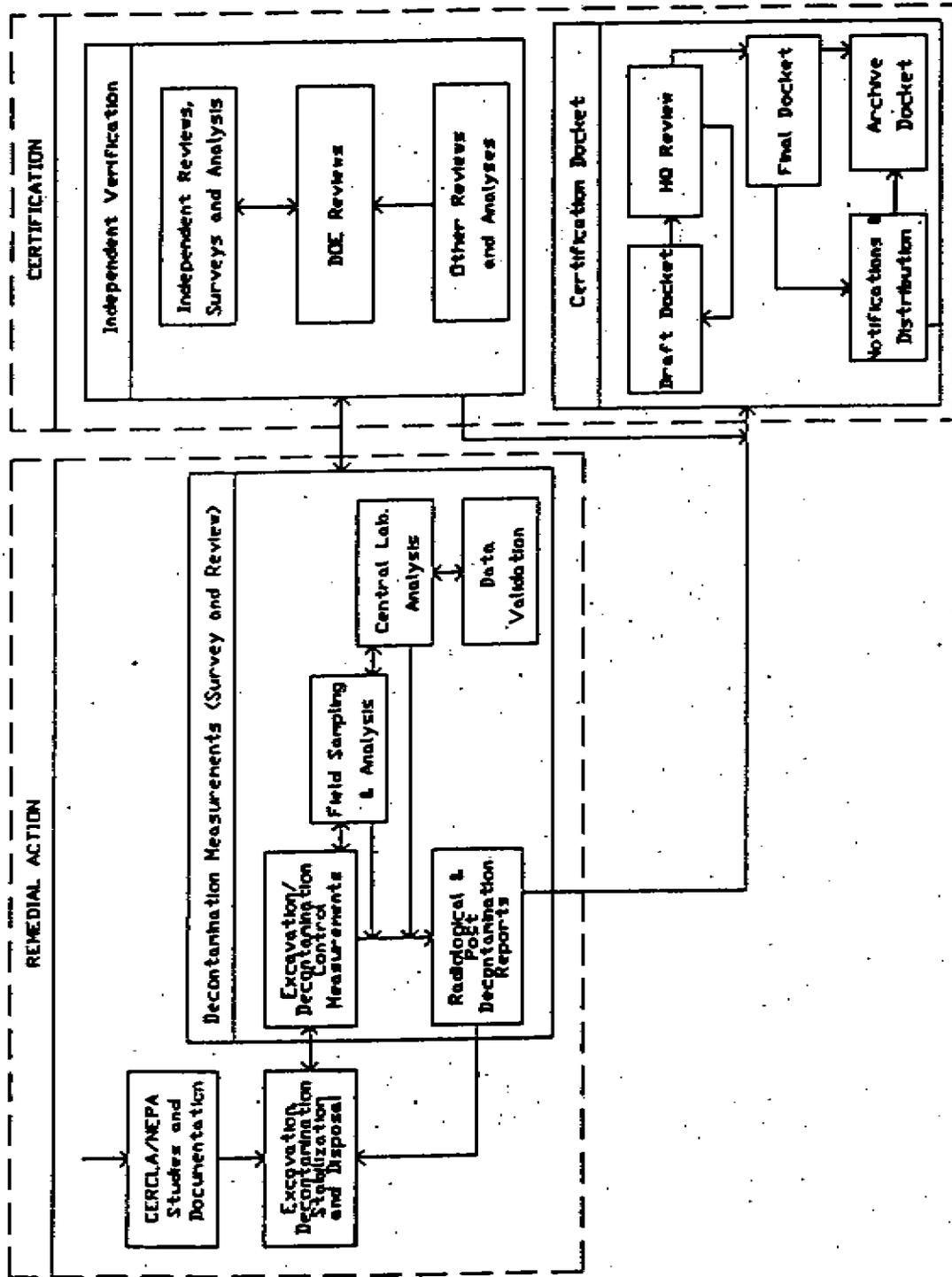


FIGURE 1. Conceptual Diagram of Certification and Its Relationship to the Remedial Action

informed of the requirements and will take appropriate action. Finally, if actions involve the release of materials or salvageable equipment off-site, or the disposal of contaminated materials off-site, the radiological contractor or RAC must develop and implement procedures to ensure that only acceptable material is released from the site in accordance with DOE Orders, all applicable or relevant and appropriate requirements (ARARs), and site operating procedures.

A representative number of the remedial action soil samples are sent to a central laboratory for final sample confirmation by the RAC or radiological contractor. The results of these analyses will be compared with the field data to ensure compliance with the remedial action criteria. Compliance with criteria for decontamination and release of equipment, structures or buildings is demonstrated by field measurements including wipe samples of surfaces, beta/gamma measurements and other appropriate measurements. Surface contamination and beta/gamma measurements will be taken to ensure compliance with the DOE and EPA guidelines or standards referenced therein. As appropriate, representative samples will be taken from the air, water, and residue samples that were analyzed in the field and used to support the confirmation of the site's condition. Again, as appropriate, samples are sent to a central laboratory for confirmatory analyses. It is important that all analytical data are validated to determine the quality and usefulness of the data. All analytical efforts should include specific quality assurance and quality control requirements, which should set forth acceptance criteria for final data. The quality control results are reviewed by independent laboratory chemists and/or statisticians to ensure that the data are of acceptable quality.

These activities will also include the review of radiological data by appropriate organizations within the DOE field office and the review of chemical contamination data by EPA regional personnel for National Priorities List (NPL) sites. The results of the RAC or radiological contractor surveys and confirmatory analyses shall be documented and included as part of the post-remedial action or final project report. Drafts of these reports shall be provided to the DOE field office, the IVC, and the HQ program office for review within 3 months of completion of the remedial action. The final report is published about one month following receipt of comments, presuming DOE and IVC comments and issues are resolved within a 3-week period. The final report is distributed to DOE and, as appropriate, to Federal, State, and local agencies. Distribution to other parties and the general public is made with issuance of the Certification Docket, when appropriate.

If chemical contamination is present, and the site is remedied pursuant to CERCLA, the post-remedial action report should contain the documentation necessary to support deletion of the site from the National Priorities List (NPL). In such instances the report should contain, at a minimum:

- 1) a brief description of outstanding construction items from the prefinal inspection and an indication that the items were resolved,
- 2) a synopsis of the work defined in the Statement of Work for the project and certification that this work was performed,

- 3) an explanation of any modifications to the work in the Statement of Work and a discussion of why these were necessary for the project,
- 4) certification that the remedy is operational and functional, and
- 5) documentation necessary to support deletion of the site from the NPL.

### C. INDEPENDENT VERIFICATION BY DOE

All independent verification activities will be managed by the HQ program office. An IVC will be assigned by HQ early in the project planning phase to conduct any required independent measurements, sampling and analyses, and to review remedial action plans and procedures and other documents concerning the establishment of cleanup limits and the application of ALARA and Applicable or Relevant and Appropriate Requirements (ARARs) as required by DOE guidelines and DOE Orders.

Figure 2 is a general flow chart of activities within the certification process, showing the principal activities with emphasis on the certification phase of the project. The bottom row of blocks in Figure 2 represents the activities associated with the independent verification contractor.

The first block in the bottom row of Figure 2 represents all IVC activities during the characterization and planning phases. Initially, the independent verification contractor reviews relevant information from site characterization, environmental compliance reports, engineering, and project planning documents to ensure that the project release criteria (radiological as well as chemical) and specific procedures are adequate to demonstrate compliance with DOE requirements. It is extremely important that the IVC be integrated into the early planning stages of the project. Adequate early planning and close cooperation between the IVC and the RAC will ensure that the verification process proceeds smoothly through project completion. The RAC will provide the IVC with copies of draft characterization reports, decommissioning plans, project plans, and site-specific residual radioactivity pathways analyses for review in parallel with HQ review. The IVC staff will utilize this information to develop a general understanding of the project and to review proposed site survey procedures, equipment, and project release criteria for land, structures and equipment. Comments on these documents or procedures are provided directly to the project from the IVC for resolution prior to finalization of documents and subsequent initiation of remedial action activities. The RAC will provide the IVC with copies of these documents when final, incorporating IVC and DOE comments.

Remedial actions and D&D operations involve activities to cleanup or stabilize radioactively and chemically contaminated land and structures. Remedial actions and D&D operations are conducted to ensure that no user of the site

Figure 2.  
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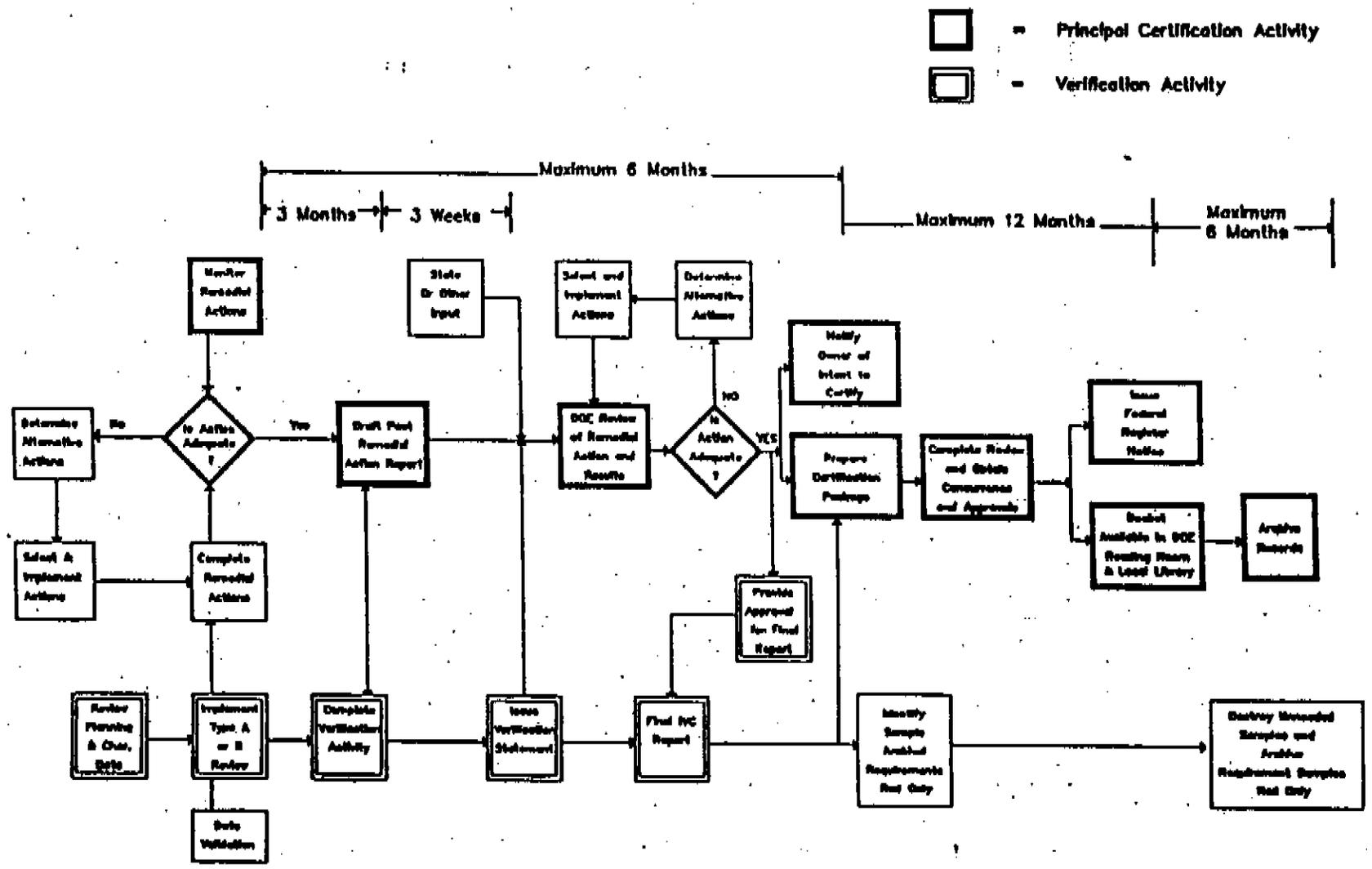


FIGURE 2. General Flow Chart for Certification Process

would receive radiation doses in excess of limits found in DOE Orders, e.g., DOE 5400.5 (Reference 1), DOE Guidelines (Reference 2), OSHA regulations (40 CFR 1910), and other criteria applicable to the project under CERCLA (i.e., ARARs). The criteria for cleanup of structures and equipment differ from those used for the cleanup of land or soil. Criteria used in the decontamination of structures and equipment are primarily surface contamination guidelines and external gamma exposure limits. Maximum permissible concentrations of radionuclides in the air and radon daughter limits are also used. For open areas or vacant land, allowable soil concentration guidelines are used as remedial action criteria. Soil concentrations are derived on a site-specific basis using pathways analysis techniques, with the exception of radium and thorium. As a result of the differences in the types of criteria and guidelines applied to structures, equipment, and open land cleanup, the requirements for verification sampling and analyses vary, depending upon application.

The level of verification required will be determined by the HQ program office with input from the IVC, based on a review of project characterization and planning documents. Off-site or vicinity property remedial actions may be verified in groups where so recommended by the IVC and approved by DOE. These independent evaluations will further verify that there is adequate information to demonstrate that the remedial action was accomplished in accordance with standards and criteria appropriate for each site. The IVC is responsible for the scope of its field investigations and will prepare a generic plan or document outlining the procedures to be used during verification activities. The plan is submitted to HQ for approval and the appropriate field office for information. Thereafter, the IVC provides the appropriate field offices and the HQ program office with a brief outline of site specific plans for each of the sites based on the review of the draft project planning documents. The outline will reference the generic plan and note special concerns. The generic plan will describe the types of verification actions that may be taken and the reasons for applying certain procedures to the specific site. The IVC may conduct two types of verification procedures at a site or group of properties.

Type A verifications will include review of remedial action plans, release criteria, procedures, final survey documentation and final project documentation, and if appropriate, will perform analysis of some split samples.

Type B verifications will include on-site visit(s) and survey(s) involving direct measurements and sampling and/or split sample analyses, as necessary, in addition to review of plans, release criteria, procedures, final survey documentation and final project documentation.

The primary purposes of both types of verifications are to confirm the adequacy of the procedures and methods used by remedial action contractors and to verify the results of the remedial action activities. In the field, the IVC may increase or decrease the independent verification survey on the basis of field data. The IVC will provide the field office with a site-specific plan of activities that the RAC must consider when preparing the final project baseline schedules.

With the initiation of remedial action or D&D operations, independent

verification activities continue as an integral part of remedial action (or D&D operations) and post-remedial action activities, utilizing much of the data collected for site certification.

The IVC will prepare monthly reports for HQ and provide short trip reports briefly documenting all field activities. These reports will indicate the areas investigated (total area covered by the remedial action and area covered by the verification) and any problems or concerns. All discrepancies will be identified along with field resolution of the problems. If these issues can not be resolved in the field or by further coordination between the IVC and RAC, the trip report should identify the issue as one that requires DOE action. While the trip reports should be very brief, they should clearly indicate the frequency and magnitude of discrepancy or anomalies so that DOE can determine if they are incidental or indicative of problems in the remedial action or D&D effort.

Appendix I outlines the procedures used by the IVC for independent verification of remedial action activities and those procedures used for correction of any deficiencies identified during the verification process. Field offices through their management function are responsible for assuring that the projects successfully integrate verification activities consistent with this protocol.

During the operations phase of the project, the field office shall send copies of project quarterly or monthly progress reports to the IVC. These reports will indicate whether plans or schedules were changed that would affect the site conditions or the conduct of the verification surveys. The IVC will identify in the site specific plan areas that will be surveyed and will schedule site visits as necessary prior to restoration of an area or following remedial action. The RAC will provide the IVC with at least 72-hours notice prior to initiating the final phases of any remedial actions (e.g., startup of treatment systems, backfill of excavations, painting or restoration) of these selected areas. Open communication between the project staff and the IVC staff will avoid delays in remedial action due to such interim survey activities.

Upon completion of remedial action and field verification activities, the field office will provide copies of the draft post-remedial action report to the IVC for review in parallel with the HQ program office. The field office staff shall resolve all HQ and IVC comments prior to issuing the final report.

Within four months after the completion of a remedial action, the IVC will issue a verification statement and provide copies to the HQ program office and the appropriate field office. In cases where vicinity properties were grouped and verifications were only completed on selected properties, the verification statement is written to cover all the properties in the group on the basis of the results of the selected properties. Upon receipt of this verification statement, the field office will send an interim letter (notification of intent to certify) to each property owner of the site or sites, in cases involving vicinity properties. This action is not required when the owner of the site is DOE.

The results of the independent verification process are summarized by the IVC in a final report which is reviewed by the HQ program office and distributed

to the responsible field office, and, as appropriate, State and other Federal agencies. The IVC report is a part of the final certification docket. If actions involve the release of materials off-site, the IVC review and report will include an assessment of procedures and, if applicable, spot checks of material prior to release. This verifies that the procedures used by the RAC ensure that only acceptable material is released from the site. In addition to the final report, representative samples from the remedial action survey and the verification survey will be properly labeled, retained and archived for an appropriate period (see Appendix II). The samples are not discarded until such time as the final certification package for the site is completed, undergoes review, and radiological samples are archived following an appropriate period of availability locally and at the DOE public document reading room (see Appendix II).

Throughout the planning, implementation, reporting and archival activities associated with this process, the IVC and RAC will make every effort to resolve scheduling conflicts that may arise and expedite information exchange and on-site activities. Procedures to handle minor discrepancies in the field shall be developed and agreed upon by the IVC and the RAC. The appropriate field office and HQ program office shall be notified, as far in advance of the verification report as possible, of any scheduling or technical problems that cannot be resolved by the IVC and the RAC. Resolution of problems shall be expedited to insure that the remedial actions or D&D operations are adequate and verification process is satisfied.

If it is determined by the IVC there is inadequate or insufficient data to demonstrate that the remedial action or D&D was successfully completed or that the technical data and supporting information or procedures are not adequate to allow certification of site, such findings will be reported to the HQ program office immediately. The appropriate field office, with assistance from HQ will review the problems and take appropriate steps to have deficiencies corrected or resolve issues raised by the IVC. The 4 month maximum time period from completion of remedial action to notification of the owner by DOE is not in effect in cases where adequacy of certification data is in question. The time limitation is back in effect once issues are resolved.

#### D. INDEPENDENT VERIFICATION BY OTHERS

Upon request made to DOE in advance of the initiation of remedial actions, certain Federal, State and Local agencies may be given the opportunity to perform independent measurements and analyses or to analyze split samples taken during site characterization operations. These agencies may also be given the opportunity to review RAC or radiological contractor measurements, sample collection and preparation, and analytical procedures, and the resulting data. Other groups desiring to implement such actions may do so by application through their State or local government. These verification activities are independent of the verification activities managed by EM. If any conflicting results are found, DOE will work with the agencies to resolve the issues.

## E. CERTIFICATION OF SITE CONDITIONS

The certification of site conditions upon completion of remedial action or D&D is a DOE responsibility shared by the HQ program office and responsible field office. The formal certification process is initiated following an affirmative decision by DOE on the adequacy of the remedial action, represented by the decision block in the middle of Figure 2. The decision is based primarily upon data from the project presented in the post-remedial action and project completion reports, and results and recommendations from the verification process presented in IVC reports by DOE and other agencies. In practice, the decision making process is carried out in conjunction with the verification process and the initial phases of preparation of a draft certification docket.

The conceptual time line chart (Figure 3) shows the interrelationships and sequence of actions to be completed during the certification process. However, no attempt has been made to establish specific time frames for completion of actions identified in order to provide sufficient flexibility to accommodate the varied complexity of remedial action and D&D projects and the variation in responsiveness of other Federal, state and local agencies to the document review process. However, every effort should be made to expedite each step in the process in order to respond to the needs of the owners, reduce the propensity for loss of records and reports and the expertise of individuals with direct knowledge of the process.

The principal activities of the certification phase, shown by highlighted blocks following the decision block in Figure 2, are: 1) preparation of the certification docket, 2) concurrent individual and public notifications, 3) the review process, 4) distribution of the final certification docket, 5) archiving of the docket (as appropriate) as a public record, and 6) if facility involved chemical contamination, entering the certification docket as part of the Administrative Record for the site.

A draft certification docket is prepared by the responsible field office for each completed remedial action. The docket may be prepared by phase, if the remedial action is conducted in phases, and may include groups of vicinity properties as appropriate. However, in these cases, the docket should indicate the sites or actions completed and that they are only a part of the total action required. References to any previous dockets and schedules for future actions, if appropriate, are included. A docket will include records, reports and narrative as indicated in Figure 4.

In parallel with preparation of the draft certification docket, the field office provides the property owner with interim notification of the DOE's intent to certify the remedial action within four months after completion of the remedial action.

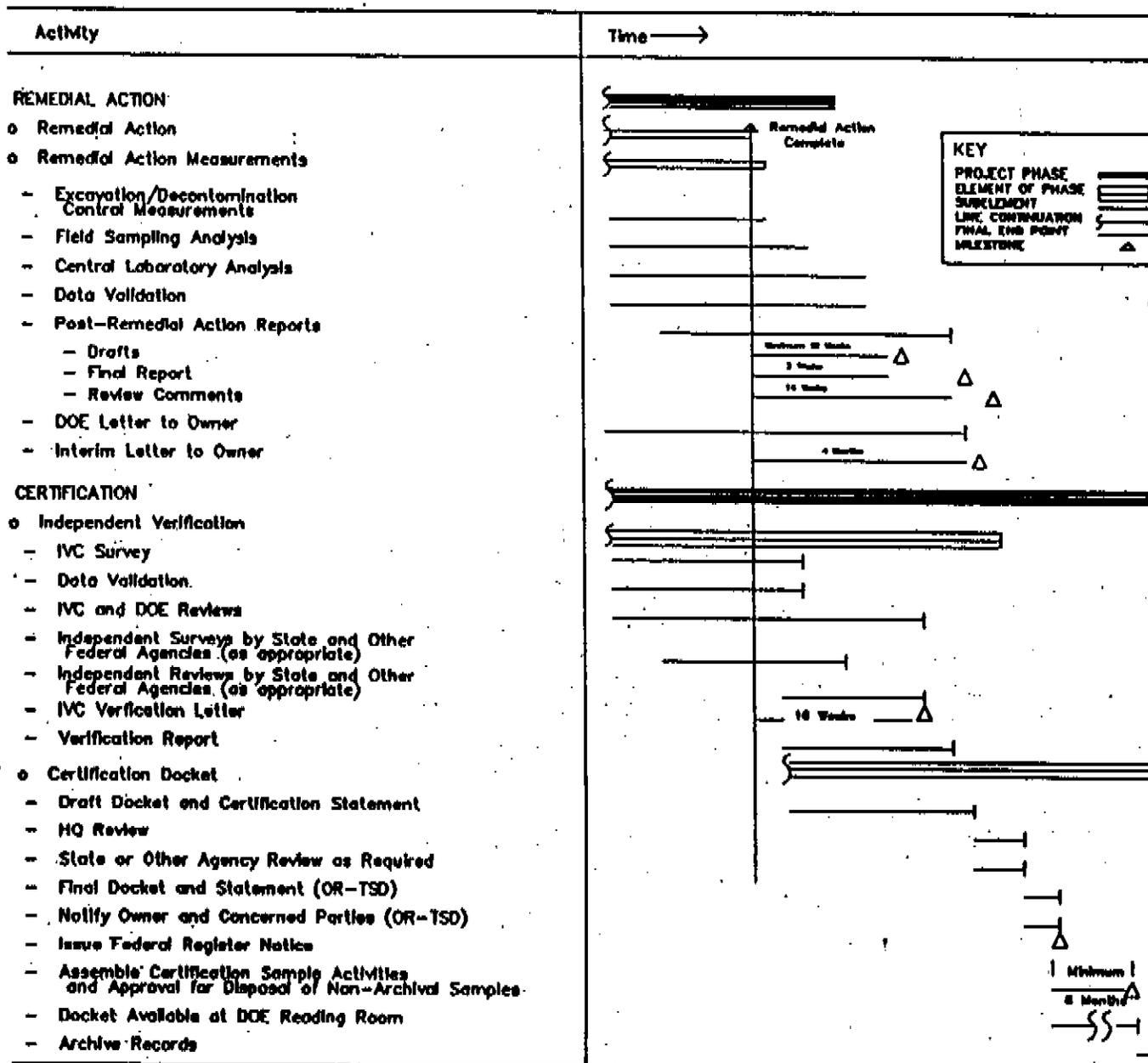


Figure 3.  
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FIGURE 3. Conceptual Time Line Chart—Relationships of Relative Dates for the Certification Process

## FIGURE 4 - CERTIFICATION DOCKET CONTENTS AND OUTLINE

### A. Introduction to the Docket

1. Purpose and Contents of the Docket
2. Property Identification (general description and drawings for property being certified)

### B. Exhibit I - Summary of Activities at the Specific Site

1. Site History (DOE use; ownership history and use; and previous FUSRAP or D&D activities at site)
2. Site Description (past and current)
3. Radiological (and Chemical where appropriate) History and Status (survey and monitoring information, and criteria for determining need for remedial action or D&D)
4. Selection of Remedial Action or Decommissioning and Decontamination Activity (option selected; criteria for the action; cost-benefit and/or cost effectiveness analysis; and health effects evaluation, where appropriate)
5. Summary of the decontamination (what was done; waste volume and waste types; disposition of equipment and salvageable materials; costs; disposal; and occupation and public exposures)

### C. Exhibit II - Documents Supporting the Certification of the Site

These include but are not limited to:

1. Decontamination or Stabilization Criteria,
2. Designation or Authorization Documentation,
3. Characterization Reports,
4. NEPA/CERCLA Documents,
5. Agreements (with owner, State, and so forth)
6. Post-Remedial Action Survey and Monitoring Report,
7. Verification Report and Interim Verification Letter to the Owner,
8. State, County, and Local Comments on Adequacy of Remedial Action (and others as appropriate),
9. Recommended Restrictions and Actions Taken to Implement them,
10. Federal Register Notice, and
11. Approved Certification Statement.

### D. Exhibit III - Diagram and/or Figures or Tables Supporting the Certification

### E. Other Relevant Documents

The sequence of activities for assembly of the certification docket and sign-off is outlined below (note that the Federal Register notice is not required for sites remaining under DOE ownership):

1. The field office transmits to the HQ program office within EM a draft certification docket, including a transmittal memorandum to the Director of the Office of Environmental Restoration (EM-40) from the appropriate EM Division Director recommending certification, the draft Federal Register notice, and certification statement with appropriate signature block for the Director of the Office of Environmental Restoration;
2. The HQ program office reviews and revises the draft Federal Register notice and draft certification statement. Comments on the certification docket are transmitted to the field office;
3. The HQ program office prepares a transmittal memorandum with appropriate concurrence block and sends the draft Federal Register notice to the Office of General Counsel (GC-11) and Office of Organization and Management Systems (AD-122.2) for review and concurrence;
4. The HQ program office resolves comments from GC-11 and AD-122.2 and revises the Federal Register notice and certification statement accordingly. Comments are retained for later reference;
5. The HQ program office transmits the original and three copies of the Federal Register notice and certification statement to EM-40 for signature.
6. The Director of the Office of Environmental Restoration signs the original plus three duplicate copies of the Federal Register notice and certification statement, and returns the originals and copies to the HQ program office.
7. The HQ program office transmits the original and two signed duplicate copies, along with a copy of the concurrences by GC-12 and AD-122.2, to AD-122.2 through GC-12 for publication in the Federal Register. The other signed duplicate copy of the notice and certification statement, along with the original concurrences by AD-122.2 and GC-11, are retained in the program files. A copy of the signed Federal Register notice and certification statement is transmitted to the field office for inclusion in the final certification docket.
8. The field office inserts copies of the signed memorandum, the certification statement and the Federal Register notice into the certification docket, finalizes references to the date of certification by EM-40 as appropriate, and binds the docket. Relevant documents and documents referenced in Exhibit II of the bound docket are assembled.
9. The field office makes distribution, as appropriate, to the administrative record, to the local public document room, State, or other Federal agencies, as required, of the docket and referenced published documents. Seven copies of the bound docket, along with the referenced published documents are sent to the HQ program office for HQ distribution.

Coordination with other federal, State or Local agencies regarding any required land record annotations or similar actions is the responsibility of

the field office. The land record may be used to establish a permanent record of the certification process and to record that either the radiological and/or chemical requirements have been achieved for release of the site, or that restrictions are required for access or continued use of the site. When use restrictions are required, the field office is responsible for insuring that a mechanism is in place to implement the restrictions.

Upon completion of the docket, and publication of the Federal Register notice, five copies of the certification docket containing a complete historical review of the remedial action, the certification statement, and the final project reports are transmitted to the DOE Public Document room at Washington, DC by the HQ program office for a suitable period of time before it is permanently archived.

## References

1. DOE Order 5400.5, Radiation Protection of the Public and the Environment
2. The U.S. Department of Energy Guidelines for Residual Radioactivity at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program sites (Rev. 2, March 1987).
3. ORNL/TM-8600 "Procedures Manual for the ORNL Remedial Action Survey and Certification Activities (RASCA) Program."

## APPENDIX I

### Procedure for Independent Verification of Remedial Action/D&D and Correction of Discrepancies Identified

#### INTRODUCTION

Independent verifications will be carried out for remedial action (FUSRAP) and D&D sites and vicinity properties in order to provide additional assurance that the authorized limits for the remedial action have been achieved. The FUSRAP remedial action activities are managed by the DOE Oak Ridge Operations Former Sites Restoration Division (OR/FSRD). D&D activities are managed by DOE field offices assigned responsibilities for separate sites and activities. On-site verification surveys are carried out for some vicinity properties, or properties where independent surveys are requested by the owner, State or Local officials. The procedure for conducting and reporting the independent verification is described below.

#### INDEPENDENT VERIFICATION PROCEDURE

The Independent Verification Contractor (IVC) will perform all or some of the following verification activities as described in the separate subsections that follow:

- o Review of Remedial Action
- o Site Visits
- o Gamma Scanning and Discrete Measurements
- o Other Direct Measurements
- o Soil Samples
- o Air and Water Samples
- o Comparison of Results
- o Corrective Action for Discrepancies
- o Verification for Post-Remedial Action Report

The number of these activities and the detail to which they are conducted will depend on the type of verification activity being implemented. Type A verifications in general will include the review of the radiological and remedial action contractor results and, in some cases, an analysis of split samples. Where necessary to confirm results after the restoration, a visit to the site may be warranted.

Type B verification will be more thorough and may include all of the above verification activities depending on the site conditions and magnitude of the action. The verification letter and report are prepared for both types of verifications.

#### Review of Remedial Action

The remedial action contractor (RAC) will provide all site designation and characterization reports, remedial action plans, progress reports, and survey data pertaining to the specific site of interest to the IVC for review. These reviews will be conducted as part of Type A verifications, to plan the Type B verification surveys, and to determine whether the remedial action plans were changed during the course of remedial action in the manner which would affect

the site conditions or the conduct of the verification survey. Post-remedial action data is also provided to and reviewed by the IVC for both Type A and Type B verifications. The post-remedial action data will be provided to the IVC in a timely manner such that review of the information is completed and the verification letter sent within 3 months of the completion of remedial action.

### Site Visits

A visit will be scheduled to a selected vicinity property or site undergoing remedial action or D&D prior to restoration or immediately following the remedial action. Every effort will be made to establish an open communication by both the IVC and the remedial action contractor to avoid interruption or delay of the construction schedule. The IVC will notify the field office and/or the RAC of those vicinity properties and site areas which will be sampled or surveyed for verification prior to closure. The field office or the RAC, as appropriate, will notify the IVC at least 72-hours prior to initiating final closure activities at these selected sites. The notice may be given on the basis of a group of properties, not necessarily for each vicinity property. The IVC is responsible to accomplish any verification survey and sampling without interfering with the construction schedule providing at least a 72-hour advance notice is given. The IVC will prepare a brief trip report for each site visit to summarize its findings and any issues or problems. The reports are submitted to the HQ program office.

### Gamma Scanning and Discrete Measurements

A gamma scan and possibly a set of discrete measurements will be performed on either excavated vicinity properties or site areas. The survey is performed to the site characterization and remedial action survey grids and will be performed in accordance with ORNL/TM-8600 (Reference 3), its equivalent, or other guidance approved by the DOE. The exposure rates are recorded on a map of the property or site area for comparison with the data taken by the remedial action contractor. This map is compared with the authorized limits.

### Other Direct Measurements

Beta-gamma and alpha measurements performed, as required, in areas, structures, and/or equipment affected by the remedial action or decontamination, are incorporated with previous project related surveys. These measurements and scans are performed in accordance with procedures in Reference 3, or its equivalent. For chemical contamination, wipe samples will be taken from contaminated equipment and structures, and direct field measurements will be taken as necessary to ensure the remedial action has achieved the desired results. The results are recorded on maps, drawings, or tables of the structures, equipment, or areas and compared to criteria.

### Soil Samples

Typically, about five verification soil samples are taken from a selected excavated vicinity property or site area on a systematic pattern. The number may change according to the size of the vicinity property or site area and the nature and extent of contamination. The soil samples are generally obtained from the surface (0-15 cm. depth) or subsurface (15-30 cm. depth and/or

subsequent 15 cm. layers) of the decontaminated area. These soil samples are analyzed by the IVC for the radionuclides and chemical species specified in the project plan and will be compared with the authorized limits for the site. If no soil samples are taken for radiological tests from a property or area by the IVC, an independent analysis is performed by the IVC using selected soil samples taken from the RAC or radiological contractor's archive. The samples are selected and analyzed in accordance with the procedures in Reference 3, its equivalent, or other guidance approved by DOE.

### Air and Water Samples

Representative verification samples of air or water are collected and analyzed when determined necessary through reviews of the site data. A sufficient number of samples are collected at discrete locations by the IVC to confirm the RAC results and verify compliance with the appropriate criteria. The samples are collected and analyzed in accordance with procedures in Reference 3, its equivalent, or other guidance approved by DOE.

### Comparison of Results

Procedures for comparison of IVC results to those of the RAC and/or radiological contractor should be presented in the IVC's project plan. In general, comparison of split samples is done on a sample to sample basis. The IVC and RAC or radiological contractor results should agree within the expected statistical deviations of the analysis methods used. IVC survey results (direct measurements, sampling and analysis) are compared to the remedial action contractor results on the basis of the sampling and analysis consideration. All samples must be independently verified to conform with quality control requirements. Only those samples meeting quality control requirements may be used in the comparison of results.

### Corrective Action for Discrepancies

If the IVC verification survey or sample analyses show that any result is above authorized limits for the remedial action (a discrepancy), a corrective action to resolve this discrepancy is taken by the field office or the RAC. The IVC will notify the HQ program office and the appropriate field office of the discrepancy as soon as possible. The field office will make a determination on additional cleanup action required or will seek an exception as specified in the DOE Guidelines. The field office is responsible for implementation of further cleanup actions by the RAC. The IVC will re-verify the property or site area after corrective action. The corrective action and any exception will be recorded in a corrective action section of the final report or closeout report prepared by the RAC. Whether or not the discrepancy is resolved in the field, the IVC must report it in its trip reports for the specific survey.

### Verification for Post-Remedial Action Report

After the completion of the post-remedial action activities (surveys, reviews, laboratory analyses, etc.), a verification letter and report are prepared by the IVC for each vicinity property or site. The authorized limits for the site and the background levels of radiation are compared to the verification results. The verification letter will address the comparative results of the

verification activities and include a statement of verification. The verification report will include the field and laboratory analyses results and any anomalies that were noted during the independent verification survey and any reverification survey. Appropriate tables and a listing of results will be included as well as illustrations of the area surveyed; (i.e., soil sample locations and identifications, gamma levels, chemical contamination levels, etc). In the case of the Type A verifications the report will summarize the basis for the IVC's finding of the adequacy of the action (or discrepancy) and reference supporting data or reports. The conclusion of the verification report, whether Type A or B verification, is a finding of whether the data are sufficient to establish that the authorized limits for the remedial action were met and a statement of any exceptions.

Where data are available, the post-remedial action report may include (summarize) the findings of the verification report or, as appropriate, reference the verification report and/or letter. However, the data collected by the RAC should be sufficient to support certification on its own.

## APPENDIX II

### Verification and Certification Sample Maintenance and Archiving Process

All radiological samples collected by the remedial action contractor (RAC) and the independent verification contractor (IVC) for the purposes of verification and certification at a specific site or property will be logged and maintained by them until the certification process is complete.

Six months following the issuance of the Federal Register notice of certification and the availability of the docket in the public document room, the certification/verification sample archival process will be initiated. At that time or thereafter, the IVC will assemble, log, and archive a representative number (as defined below) of samples at least 500 g. per sample, if possible) to be maintained by the IVC over a 5-year period. These samples will be held as evidence of the adequacy of the remedial action/D&D project and to backup the certification docket. All other samples must be disposed of (in an appropriate manner) by the contractors following the establishment of the sample archives for the particular site and/or vicinity properties.

The majority of the archival samples are expected to be derived from the IVC collection of samples; however, the IVC will review their samples and those of the RAC and radiological contractor to determine if any of their samples should be consolidated into the archives.

The IVC will provide the RAC with guidelines and specific directions regarding samples required for the archive from their inventory. The remedial action contractor is responsible for the correct labeling, packaging, and transmittal of these samples to the IVC and for providing information accurately identifying the locations where the samples were derived. Guidance is available in documents prepared or referenced in the generic verification plan by the IVC. The IVC will assume the chain-of-custody for all samples relinquished by the RAC.

The IVC will take similar actions with their samples and will consolidate the two sets of samples into one group with common keys and legends identifying the sampling locations. These samples are then archived by the IVC. The IVC may then take steps to approximately dispose of any excess samples and will notify the RAC that they are free to do the same. The archived samples will be held for a minimum period of five years and the IVC will notify the DOE program office and obtain approval prior to disposal of the archived samples.

#### Sample Selection

The selection of samples for the archives is done in a systematic manner. Approximately 10 percent, but not less than five samples, of all certification or verification samples taken for each site, vicinity property, or each group of properties will be archived. Proper care shall be taken to ensure that adequate samples are taken from each site. Grouping of vicinity properties for the purpose of sample archiving is permissible in cases where many small vicinity properties are located near one another, contamination removed from

*Sample*  
the area is of a similar nature, or the remedial actions were completed during the sample construction period or season without any significant interruptions. Samples from a site and vicinity properties which are contiguous with the site and were decontaminated during the same period may also be included in the same sample selection process and archived together.

In general, samples will be selected out of the total sample population with the only restriction being that the samples should provide representative area cross section of the site or properties being certified.

For cases where some special circumstances exist, a greater number of samples may be selected to better represent the post-remedial action conditions at the location of interest. Examples of such locations include:

- o Areas that had exceptionally high concentration of radionuclides prior to remedial action;
- o Areas that were the subject of some conflicts, question, or discrepancies between DOE and other groups, including owners, state agencies, other Federal agencies, or local groups;
- o Areas at which the IVC and the radiological contractor data initially disagree or area where the independent verification survey identified discrepancies that had to be resolved; and
- o Areas for which exception to the designated site criteria were requested.

The number of samples archived is proportional to the area of the site. If the area of concern covered a large area (several hundred square meters) and was not uniform in nature (varied isolated depths, varied concentrations and radionuclide make-up) extra samples would be represented.

**CHECKLIST FOR FIELD OFFICE AND RAC COORDINATION WITH IVC**

\_\_\_ Provide documentation of technical aspects of project to IVC for comment. Documentation includes but is not limited to the following:

- \_\_\_ Decommissioning Plan
- \_\_\_ Annual Environmental Monitoring Reports
- \_\_\_ Readiness Review Documentation
- \_\_\_ Project Plan
- \_\_\_ Preliminary Assessment/Site Investigation
- \_\_\_ Remedial Investigation
- \_\_\_ Feasibility Study
- \_\_\_ Site Characterization Plans
- \_\_\_ Site Release/Cleanup Criteria
- \_\_\_ Risk Assessment

\_\_\_ Provide quarterly or monthly progress reports to the IVC.

\_\_\_ Provide IVC with at least 72 hour notice prior to closure of selected areas identified by IVC for site visits.

\_\_\_ Provide IVC with draft Post-Remedial Action Report.

## VERIFICATION CHECKLIST FOR IVC

\_\_\_\_ Review and provide comments to the DOE field office or the RAC on specific sections of planning documents covering the activities required for certification. Examples of such activities include pathways analyses, establishment of cleanup criteria, sampling techniques, and procedures for release of scrap equipment. The following documentation should be reviewed, as appropriate:

- \_\_\_\_ Decommissioning Plans
- \_\_\_\_ Annual Environmental Monitoring Reports
- \_\_\_\_ Readiness Review Documentation
- \_\_\_\_ Project Plan
- \_\_\_\_ Site Characterization Plans
- \_\_\_\_ Site Release/Cleanup Criteria

\_\_\_\_ Prepare input into determination of type of verification required.

\_\_\_\_ Prepare a generic plan outlining procedures to be used for verification activities.

\_\_\_\_ Provide DOE-HQ, field office and RAC with a brief outline for site-specific plans for each site based on draft project planning documents, noting specific concerns.

\_\_\_\_ Identify in a site-specific plan the areas that will be surveyed and schedule site visits.

\_\_\_\_ Prepare monthly reports for DOE-HQ.

\_\_\_\_ Provide DOE-HQ with brief trip reports documenting field activities.

\_\_\_\_ Review and comment on draft Post-Remedial Action Report.

\_\_\_\_ Issue Verification Statement (if applicable).

\_\_\_\_ Issue Final Report.