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EPA

Integrating Removal and Remedial Site Assessment Investigations

Office of Emergency and Remedial Response
Hazardous Site Evaluation Division (5204G)

Quick Reference Fact Sheet

Increased efficiency and shorter response times are the primary objectives of integrating removal and remedial site assessment investigations under the Superfund Accelerated Cleanup Model (SACM). This is based on the assumption that there is duplication of effort between the programs. A critical element of SACM is a continuous and integrated approach to assessing sites. The concept of integrating removal and remedial site assessment activities was introduced in *Assessing Sites Under SACM—Interim Guidance* (OSWER Publication 9203.1-05I, Volume 1, Number 4, December 1992). This fact sheet examines areas of duplication and key differences between the two types of investigations, and describes some approaches for integrating assessments. The primary audience for this information is the site assessment community which includes EPA On-Scene Coordinators (OSCs) and Site Assessment Managers (SAMs), their counterparts in state or other federal agencies, and assessment contractors.

REMOVAL ASSESSMENTS AND REMEDIAL SITE ASSESSMENTS

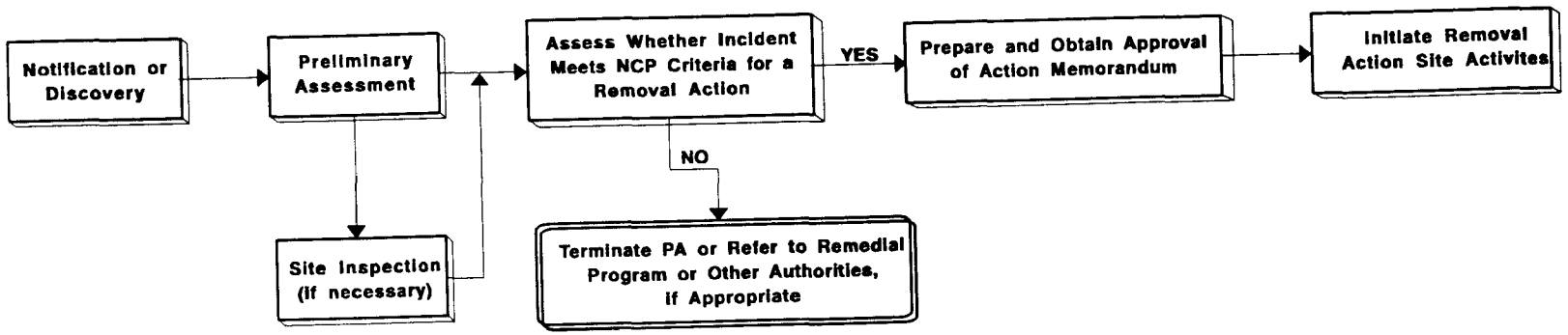
Figure 1 illustrates traditional assessment activities of the removal and remedial programs prior to SACM. Typically, when EPA is notified of a possible release (under CERCLA Section 103), the removal program determines whether there is a need for emergency response by EPA. If a response is deemed necessary, an OSC and/or a removal program contractor will visit the site. If circumstances allow, a file and telephone investigation should be initiated prior to the site visit. The OSC may decide to take samples during this initial visit or may postpone sampling. EPA can initiate a removal action at any point in the assessment process. If the OSC determines that the site does not warrant a removal action, he may refer the site to remedial site assessment or the State for further evaluation, or recommend no further federal response action.

The remedial site assessment process is similar to that of the removal program. Once a site has been discovered and entered into the CERCLIS data base, the SAM directs that a preliminary assessment (PA) be performed at the site. The focus of PA data collection is the set of Hazard Ranking System (HRS) factors that can be obtained without sampling (e.g., population within 1/4 mile). The PA includes a file and telephone investigation, as well as a site visit (the PA reconnaissance, or "recon"). The PA recon differs from the typical removal site visit because samples are not collected and observations are often made from the perimeter of the site (although some Regions prefer on-site PA recons). From the PA information, the SAM determines if a site inspection (SI) is needed (i.e., whether the site could score greater than the 28.5 needed to qualify for inclusion on the National Priorities List (NPL)). The SI would include sufficient sampling and other information to allow the SAM to determine whether the score is above 28.5. Even in cases where SI data are adequate for this decision, it may be necessary to conduct an expanded site inspection (ESI) to obtain legally defensible documentation.

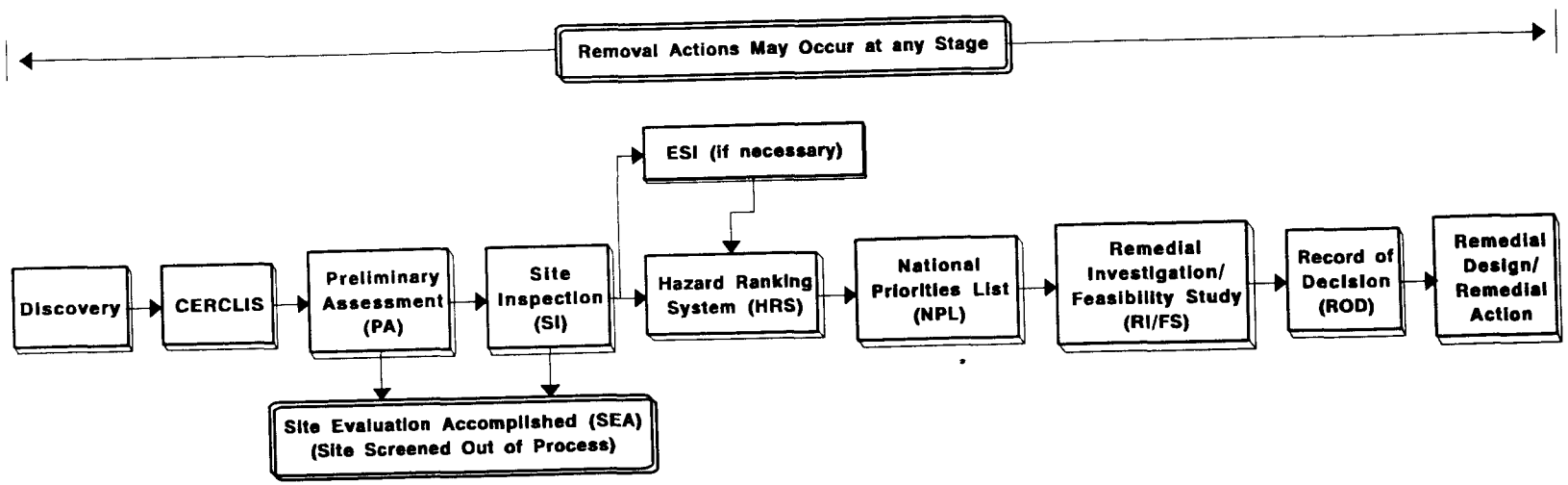
In general, the remedial site assessment process is more structured than the removal assessment and operates on a less intensive schedule. The remedial site assessment process is focused on collecting data for the HRS, while Removal assessments are based on whether site conditions meet National Contingency Plan (NCP) criteria for a removal action.

Figure 1: Traditional Assessment Processes

REMOVAL PROGRAM



REMEDIAL PROGRAM



INTEGRATING ASSESSMENT ACTIVITIES

While there are differences in objectives between removal and remedial assessments (i.e., NCP removal criteria versus HRS), many of the same factors are important to both programs: the potential for human exposure through drinking water, soils, and air pollution; and threats to sensitive environments such as wetlands. Similarities in the activities required by both assessments—telephone and file investigations, site visits or PA recons, removal or SI sampling visits—suggest that the activities can be consolidated. The challenge of integrating assessments is to organize the activities to enhance efficiency.

The basic goals of an integrated assessment program under SACM are:

- Eliminate duplication of effort.
- Expedite the process. At a minimum, avoid delays for time-critical removal actions or early actions (see *Early Action and Long-Term Action Under SACM— Interim Guidance*, OSWER Publication 9203.1-05I, Volume 1, Number 2, December 1992, for details on early and long-term actions).
- Minimize the number of site visits and other steps in the process.
- Collect only the data needed to assess the site appropriately.

The last point is critical to enhancing efficiency since not all sites need to be assessed in depth for both removal and remedial purposes. Integrating assessments does not mean simply adding together the elements of both assessments for all sites—efficient decision points must be incorporated into the integration process. The elements deemed necessary for an integrated assessment depend on the particular needs of a specific site and could involve similar, additional, or slightly different activities from traditional removal or remedial site assessments.

Figure 2 shows an approach for integrating the two assessments and indicates ways to eliminate unnecessary data collection. The most important features of the approach are the combined notification/site discovery/screening function; the single site visit for both programs; phased file searches as appropriate; and integrated sample planning and inspection. This approach is detailed below.

Notification/Site Discovery/Screening

This "one door" notification process is a combination of the current removal and remedial program notification/discovery. All remedial and removal program discovered sites are screened for possible emergency response. The screening step would determine whether there is time for a file search prior to the initial site visit.

(Classic) Emergency

If an emergency is identified, the response would be implemented immediately. Emergency responses require immediate sampling and removal actions and allow little or no time for file or telephone investigations prior to site activity.

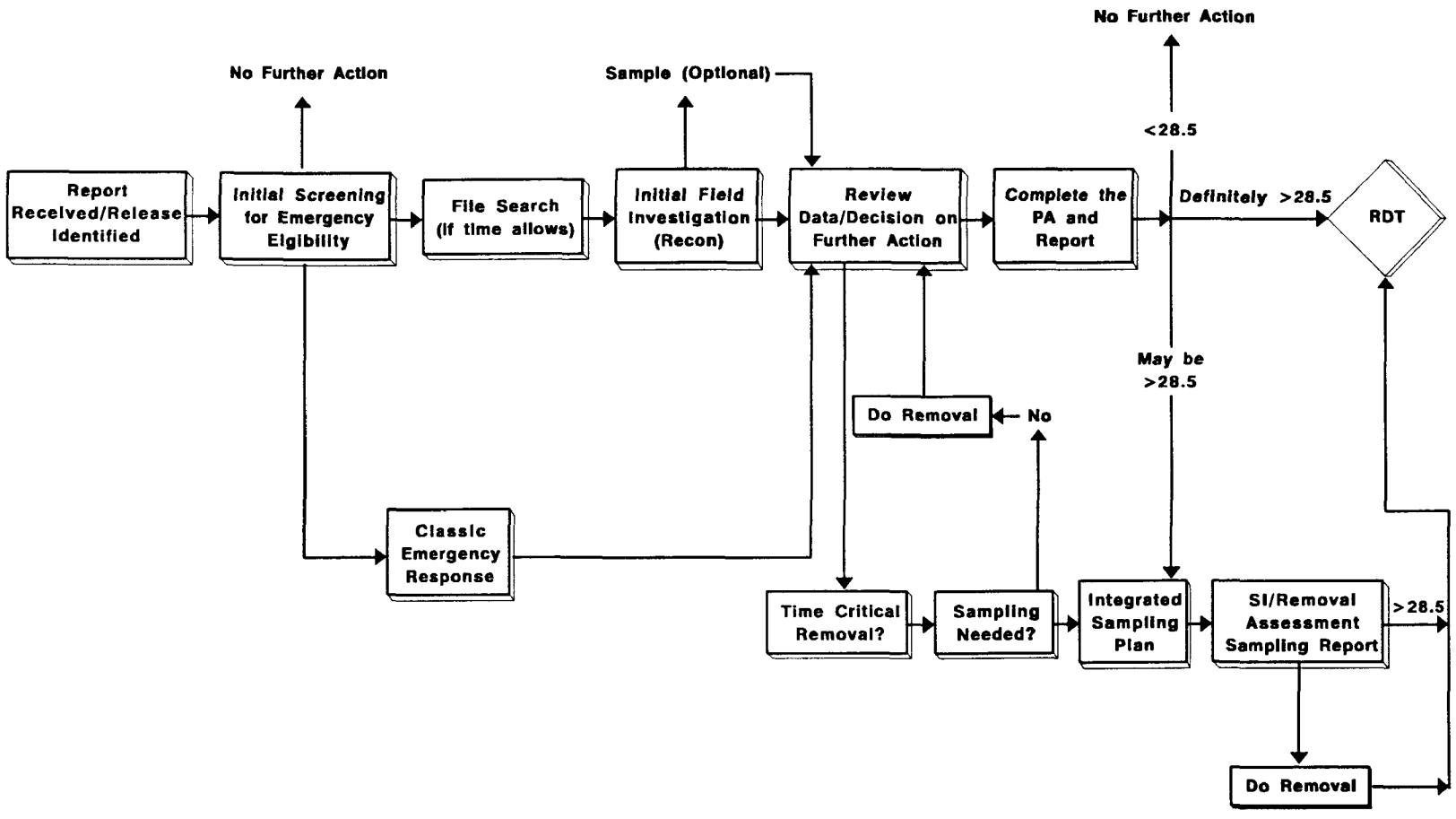
File Search

The integrated file search includes all elements of the current removal assessment file search. All file search elements should be thoroughly documented to serve the needs of both programs. Table 1 lists data elements that are commonly a part of the file search. The timing of the file search relative to the initial site visit would be determined during the notification/screening step.

Table 1: File Search and Telephone Investigation

Elements Common to Both Programs
• Regulatory program file search (e.g., RCRA, water, state) • Site access information and property ownership • Site history, industrial processes • Substances used at site • Past releases (substances, locations, impacts) • Latitude and longitude • Topographic maps
Generally Removal Assessment Only
• Potentially responsible party (PRP) search • Treatment technology review

Figure 2: Integrated Assessment



Initial Field Investigation/PA Recon

The integrated site visit combines elements of both the removal assessment field visit and the remedial PA recon. Because removal and remedial program site visit activities are similar, only a small increase in effort would be required to meet the needs of both programs. Documentation needs of remedial site assessment might require slight revision of removal assessment procedures. For example, one might need to document the distance to the nearest residence, in addition to locating any contaminated residential properties; for removal assessment needs, one might need to assess the extent of contamination. The assessment team will need to gain site access approval for the site visit, in contrast with current remedial PA recons performed from the perimeter in some Regions. Table 2 lists elements that are commonly part of the screening site visit.

Sample (Optional)

Integrated assessment sampling should follow the current removal assessment approach, except that HRS data needs should be considered in selecting sample locations and laboratory analyses. The emphasis, however, is on removal assessment needs.

Review Data/Decide Further Action

Both removal and remedial programs would jointly recommend a course of action, taking into consideration any previous removal actions. A site might undergo either a continuation of the removal assessment, a remedial site assessment PA, or both concurrently. Alternatively, a time-critical removal action could be performed prior to deciding whether the site should undergo a PA. Completing the PA might be expedited in order to determine early in the process whether remedial site assessment requirements should be included in sampling plans. When planning the site inspection, the Region may also want to consider the effect of a removal action on the HRS score (see *The Revised Hazard Ranking System: Evaluating Sites After Waste Removals*, OSWER Publication 9345.1-03FS, October 1991).

Complete the PA

Collect any information needed for the remedial site assessment that was not part of the earlier file search, and calculate the preliminary HRS score. For sites assigned the SEA (site evaluation accomplished) designation, also complete the PA report. Depending on circumstances and the Region's approach, the PA report might be included as part of a comprehensive PA/SI report for sites scoring above 28.5. Table 3 lists typical data elements of this activity. If after the PA it is evident that a site is likely to qualify for the NPL, the site would be referred to the Regional Decision Team (RDT). (See *SACM Regional Decision Teams—Interim Guidance*, OSWER Publication 9203.1-05I, Volume 1, Number 5,

Table 2: Data Elements of the Site Visit

Elements Common to Both Programs
• Current human exposure identification • Sources identification, including locations, sizes, volumes • Information on substances present • Labels on drums and containers • Containment evaluation • Evidence of releases (e.g., stained soils) • Locations of wells on site and in immediate vicinity • Runoff channels or pathways • Location of site or sources relative to surface waters • Nearby wetlands identification • Nearby land uses (e.g., residential, schools, parks, industrial) • Distance measurements or estimates for wells, land uses (residences and schools), surface waters, and wetlands • Public accessibility (e.g., site fence) • Blowing soils and air contaminants • Photodocumentation • Site sketch
Generally Removal Assessment Only
• Petroleum releases (eligible) • Fire and explosion threat • Urgency of need for response • Response and treatment alternatives evaluation • Greater emphasis on specific pathways (e.g., direct contact) • Sampling
Generally Remedial Site Assessment Only
• Perimeter survey (in some Regions) • Number of people within 200 feet • Some sensitive environments (e.g., endangered species habitats) • Review all pathways

Table 3: Data Elements Needed to Complete the PA

- Population within 1 and 4 miles
- All private and municipal wells within 4 miles
- Depth to ground water (sometimes also collected for removal assessment)
- Local or regional geology and climate
- Distance to surface water measured (removal assessment only estimates distance)
- Fisheries along a 15-mile surface water migration pathway
- Sensitive environments along a 15-mile surface water migration pathway
- Size of wetlands
- Preliminary HRS score

December 1992, for details on the composition and role of the RDT.)

Integrated Sampling Plan

This combines planning for the current screening level SI (see section 2.1 of the *Guidance for Performing Site Inspections Under CERCLA*, OSWER Directive 9345.1-05, 1992) and any removal sampling activities not already addressed by the initial visit. When it appears that a remedial action will be appropriate, and the site looks like a candidate for NPL listing, a Remedial Project Manager (RPM) should join the OSC and SAM in sample planning to incorporate the objectives of any potential long-term actions at the site. For applicable sites, this will enhance the efficiency of progressing from assessment to remediation, or starting a remedial investigation prior to NPL proposal. Likewise, sample planning should anticipate the needs of any possible engineering evaluation/cost analysis (EE/CA) that might be needed for subsequent non-time-critical removal actions.

SI/Removal Assessment Sampling

This is a single sampling event designed to meet the needs of both programs, where appropriate. Along with the site visit and the file search, integrating sampling would improve efficiency. Table 4 describes differences in emphasis between removal and remedial site assessment sampling approaches which need to be considered when developing a joint sampling plan.

RDT Decisions

The RDT determines the course of action needed to address a site, based on the outcome of the site assessment PA, SI/removal assessment, and any time-critical removal actions. This can include proposing to list the site on the NPL; conducting an early action; starting the remedial investigation (RI) early; or combining the RI with the data collection needed for listing.

ESI/RI

One option open to the RDT is to start the RI as soon as it is apparent that the site will qualify for the NPL (e.g., after a PA), even if further documentation is needed for NPL rulemaking. The needs of NPL listing and the RI can be integrated into a single sampling plan to give a headstart to a long-term action.

Flexibility in Approach

Figure 2 addresses the most likely approaches for screening site assessments; in fact, the approach will vary according to the site and other factors. Time-critical removal actions can occur at any time. Enforcement, community relations, and remedial planning considerations can be factored into data collection as needed at any point along the process.

OTHER CONSIDERATIONS

Methods of recording or documenting information vary between programs. Documentation is a major consideration for both programs, but the HRS requires a specific data set. In order for a common data element to be used by both programs, HRS documentation needs to be addressed.

Timing and duration of the activities also need to be considered by Regional personnel who are setting up integrated assessments. One critical timing consideration involves the step "complete the PA." At some sites this can proceed on a routine schedule, but if a Region decides that sampling is needed to

Table 4: Site Inspection/Removal Assessment Sampling

Remedial Site Assessment Emphasis
• Attribution to the site • Background samples • Ground water samples • Grab samples from residential soils • Surface water sediment samples • HRS factors related to surface water sample locations (e.g., floodplains, watershed area) • Fewer samples on average (10-30) than removal assessment • Strategic sampling for HRS • Contract Laboratory Program (CLP) usage (no separate funding for analytical services) • Full screening organics and inorganics analyses • Definitive analyses • Documentation, including targets and receptors (e.g., maps, census data) • Computing HRS scores • Standardized reports
Removal Assessment Emphasis
• Sampling from containers • Physical characteristics of wastes • Treatability and other engineering concerns • On-site contaminated soils • Composite and grid sampling • Rapid turnaround on analytical services • Field/screening analyses • PRP-lead removal actions • Goal of characterizing site (e.g., defining extent of contamination) • Focus on NCP removal action criteria

determine whether to undertake a time-critical removal action, the PA should be completed before developing the integrated sampling plan. Otherwise, the remedial site assessment sampling needs may not be appropriately factored into the sampling plan. By collecting enough data to develop a preliminary HRS score, the Region can determine whether the site may be eligible for the NPL and whether it is worthwhile to collect HRS-related samples. The PA report can be combined with an SI report at a later time, if appropriate.

An integrated sampling approach implies the need for a coherent approach to sample analysis. Some general principles should be followed to avoid major problems. Analytical data must be suitable for NPL purposes. Analytical services should include the appropriate reporting requirements to allow for data validation at a later date, if necessary. Table 5 lists some data quality considerations for analytical data used to support an HRS score.

The focus of this fact sheet is on the technical integration of assessments at sites where there is a potential for no action, early actions, or long-term actions. In some cases, the Region will rule out the need for one of those, and the assessment process under SACM will be similar to a traditional removal or remedial site assessment.

Integration of assessments under SACM will reduce duplication of effort at sites by addressing them with a single assessment approach which incorporates the objectives of both programs as applicable to each site. Integration of assessments is an efficient blending of similar procedures which may be appropriate at some sites and meets the objectives and needs of both programs.

Table 5: Analytical Data Quality Needs For HRS Observed Releases

- Sampling procedures, location, and conditions documented in field log.
- Chain of custody.
- Field blanks for each parameter for each day of sampling. The concentration of contaminants detected must be at least one order of magnitude below corresponding sample results.
- Initial 2-point calibration. Low level standard at or below concentration level of concern. High concentration standard no more than 2 orders of magnitude above the low concentration standard.
- Continuing calibration using low level concentration standard after 10 to 15 sample analyses, or at the end of the day/sampling event, whichever occurs first. (This step ensures consistent instrument response.)
- Blanks run after high level samples to avoid cross contamination.

Specific examples of acceptable field methods:

- X-ray fluorescence (XRF) for metals with site-specific standard matrix or with 10 percent lab confirmation by accepted EPA atomic absorption (AA) method.
- Field headspace or vadose zone VOC analysis with site specific standards, coupled with previous site information such as spill composition, 10 percent split for verification by an accepted EPA method, or successful field analysis of a PE or reference sample.

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