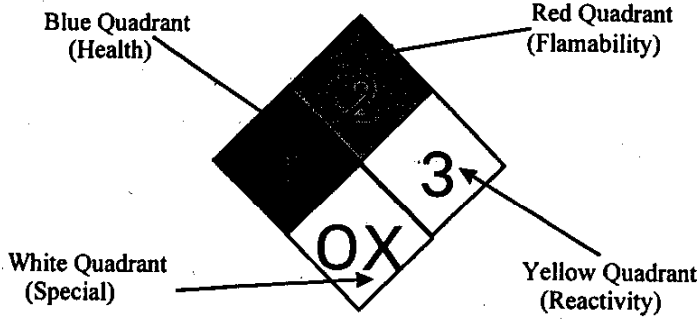
Examples of ORM-D materials include consumer commodities and small arms ammunition.

The National Fire Protection Association (NFPA) has developed a standardized marking system (704M) designed to be utilized at fixed facilities storing hazardous or flammable materials. This system has been adopted by many industries, and may now be found on small containers as well as large fixed facility containers. The system was originally designed to provide firefighters critical information on the hazards posed by stored materials during firefighting operations. As such, it needed to be large enough to see and concise enough to be quickly discernible in emergency situations.

The NFPA 704 system uses a diamond divided into four different color quadrants. Each quadrant is colored differently, representing a specific hazard. The red quadrant (top) represents a flammability hazard, the blue quadrant (left) represents a health (or toxicity) hazard, the yellow quadrant (right) represents a reactivity (explosion) hazard, and the white quadrant (bottom) is reserved for special hazards. The diamond looks like this:



NFPA 704 Marking System

The numbers in each quadrant of the NFPA 704 system indicate the degree of hazard posed to a firefighter (wearing turn-out bunker gear and

an SCBA) for that particular quadrant. A "0" indicates minimal risk, and a "4" indicates high risk. More specifically, the NFPA designations for the numbers assigned to these quadrants are as follows:

Blue - Health Hazard

In general, the health hazard in fire fighting is that of a single exposure, the duration of which may vary from a few seconds up to an hour. The physical exertion demanded in fire fighting or other emergencies may be expected to intensify the effects of an exposure. In assigning degrees of danger, local conditions must be considered. The following explanation is based on use of the protective equipment normally worn by fire fighters.

4 - These materials are too dangerous to health for a firefighter to be exposed. **Turn-out bunker gear and an SCBA are not adequate protection from inhalation and skin exposure to this material.** Skin contact with the vapor or liquid of this material may be fatal. Inhalation of the vapors of this material may be fatal.

3 - These materials are extremely hazardous to health, but fire areas may be entered with extreme care. Turn-out bunker gear and an SCBA **may not** be adequate protection from inhalation and skin exposure to this material. No skin surface should be exposed and additional protective clothing may be needed.

2 - These materials are hazardous to health, but fire areas may be entered freely with turn-out bunker gear and an SCBA. Turn-out bunker gear and an SCBA are adequate protection from inhalation and skin exposure to this material.

1 - These materials are only slightly hazardous to health. Turn-out bunker gear and an SCBA are adequate protection from inhalation and skin exposure to this material.

0 - These materials, even under fire conditions, pose no additional health hazards over those of ordinary combustible materials. Turn-out bunker gear and an SCBA are adequate protection from inhalation and skin exposure to this material.

Red - Flammability Hazard

Susceptibility to burning is the basis for assigning degrees within this category. The method of attacking the fire is influenced by this susceptibility factor.

4 - These materials are extremely flammable gases or extremely volatile flammable liquids. If possible, stop the flow and keep exposed tanks cool. Withdrawal may be necessary.

3 - These materials can be ignited under almost all normal temperature conditions. Water may be an ineffective means of extinguishing these materials because of the very low flash point.

2 - These materials must be heated slightly before they will ignite. Water may be an effective means of extinguishing these materials because they can be cooled below their flash points.

1 - These materials must be preheated before they will ignite. A water fog may be sufficient to extinguish these materials when burning.

0 - These materials will not burn.

Yellow - Reactivity (Stability) Hazard

The assignment of degrees in the reactivity category is based upon the susceptibility of materials to release energy either by themselves or in combination with water. Fire exposure was one of the factors considered along with conditions of shock and pressure.

4 - These materials are readily capable of detonation or explosive decomposition at normal temperatures and pressures. If they are involved in a massive fire, vacate the area immediately.

3 - These materials, when heated or under confinement, are capable of detonation or explosive decomposition and they may react violently with water. Fire fighting should be conducted from behind explosion resistant barriers.

2 - These materials will undergo violent chemical change at elevated temperatures or pressures but do not detonate. Firefighting should be conducted from a distance or with portable monitors if possible. Tanks containing these materials should be kept cool. Use caution.

1 - These materials are normally stable, but may become unstable in combination with other materials or at elevated temperatures or pressures. Fire fighting can be conducted utilizing precautions normal to any fire.

0 - These materials are normally stable and do not present any reactivity hazards to firefighters.

White - Special Hazard

Under the 704 system, a "**W**" with a slash through it indicates that no water should be used. An "**OX**" indicates that the material is an oxidizer, and may increase the flammability hazard of other materials. There are some other symbols that may appear in this quadrant, such as:

ALK - This material is corrosive to skin and steel, and is a base (alkaline) material.

ACID - This material is corrosive to skin and steel and is an acid material.

 - This material is radioactive.

APPENDIX 6

Integrating Removal and Remedial Site Assessment Investigations

United States Environmental Protection Agency	Office of Solid Waste and Emergency Response	Directive 9345.1-6FS EPA540-F-93-038 September 1993

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 9203.1-051, 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 ¼ 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.

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 - 051, 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 assessment 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.