April 2015 RR-556

Guidance for the Management of Investigative Waste

Word Art created in Tagxedo, 2014

WISCONSIN DEPT. OF NATURAL RESOURCES

Wisconsin Department of Natural Resources
P.O. Box 7921, Madison, WI 53707
dnr.wi.gov, search “brownfield”

Environment Remediation and Redevelopment Cleanup Redevelopment Partnership

Table of Contents

I. Purpose, Disclaimer, Contacts and Revisions

Purpose

This guidance outlines the requirements for the management of investigative waste (IW) at sites undergoing investigation or remediation. This guidance was developed to assist persons undertaking or overseeing site investigations or assessments conducted pursuant to the ch. NR 700 series comprehensive clean-up rules.

Disclaimer

This document is intended solely as guidance, and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. This guidance does not establish or affect legal rights or obligations, and is not finally determinative of any of the issues addressed. This guidance does not create any rights enforceable by any party in litigation with the U.S. EPA, the State of Wisconsin or the Department of Natural Resources. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.

Contacts and revisions

This guidance will be updated as needed. Please contact Gary A. Edelstein, P.E. at 608-267-7563 or via email at gary.edelstein@wisconsin.gov if you have questions, comments or concerns.

II. Investigative Waste Definition

For the purposes of this guidance, IW (or investigation-derived waste) is defined to include any solid waste, including any contaminated media (soil, rock or ground water) generated as a result of typical investigative activities. This includes, but is not limited to:

- drill cuttings from boring or monitoring well installations,
- decontamination fluids from cleaning investigative equipment (i.e., drill rigs, backhoes, sampling equipment such as bailers and pumps),
- spoils from backhoe pits,
- development water,
- purge water,
- water from pump tests,
- excess samples and dirty personal protective equipment and
- clothing intended to be thrown away.

For purposes of these guidelines, IW does not include any wastes from activities generated as a result of remediation activities. Remediation wastes include wastes from petroleum tank/piping excavations, petroleum tank bottoms/sludges and other wastes that are picked up, treated and returned to the site. Also, the term does not include wastes used for treatability studies, including off-site bench scale tests and on-site pilot tests.

A. General Management Principles and Requirements

Whenever making decisions regarding the management of IW, the following general principles should be followed:

1. **General** - IW management methods should be protective of human health and the environment and comply, to the extent practicable, with all applicable laws and rules, including wastewater, solid waste and hazardous waste laws and rules. As a general rule, it will be necessary to use best professional judgment, in light of the site specific conditions, to determine if a management option is protective of human health and the environment. In some instances, options may be available to allow certain on-site management methods, including redisposal of IW back on the site, that normally would not be allowed under the solid or hazardous waste laws and rules. In other instances, managers may make enforcement discretion decisions. This is discussed in more detail under the next section - Complying with Requirements.

2. **Minimization** - The amount of IW produced should be minimized as much as possible. Work plans for investigations should outline drilling and sampling techniques that minimize the generation of IW. Non-intrusive investigation methods may be used, when such methods are considered appropriate for the site. The potential problems of managing IW should be a factor in choosing investigative methods. For additional specific suggestions for IW minimization methods, please refer to page 5 of the attached (appendix A) U.S. EPA Superfund fact sheet, under the title "IDW Minimization".

3. **Liquid IW** - Contaminated liquids should generally not be disposed of on the ground or back onto waste at a site. Aqueous wastes may be collected, properly characterized for possible treatment or incorporation into on-site remediation, such as for ground water or leachate, or collected for management at a permitted waste water treatment plant willing to accept these wastes, and having the appropriate approvals to do so. The preferred method for managing contaminated pump test discharges or other large volumes of aqueous wastes with low levels of contamination is to provide any necessary treatment to meet Watershed Management Program requirements and discharge them to surface waters in accordance with those program requirements. It may be necessary to provide a temporary treatment unit for such discharges. Liquids generated from areas known to be free of contamination need not be handled as IW, but should not be disposed of over areas known to be contaminated or over waste, to avoid the leaching of additional contaminants into the environment.

4. **Management as Part of Remedial Action** - For sites where it is known that some sort of remedial action will be conducted in the future, secure on-site storage (see the long-term storage guidelines, attachment 2) and subsequent management of the IW through incorporation into the remedial action is preferred to off-site management, where possible. This will avoid the need for separate treatment and/or disposal arrangements. IW (with the exception of non-indigenous IW) generated during the course of an investigation can be considered part of the site and managed with other wastes from the site, consistent with a final remedy. IW that meets the definition of soil in ch. NR 700 that does not contain a hazardous waste or displays a hazardous waste characteristic may be managed on or off site in accordance with ch. NR 718.

5. **Field Screening** - Where appropriate, field screening methods may be used to help determine if IW contains contaminants of concern, in lieu of laboratory testing. Staff project managers should decide if field screening is an appropriate method for making this determination on a site specific basis. In many instances, field screening might be used to help reduce the number of samples requiring laboratory analysis.

B. Complying with Requirements

1. **Determine Requirements Based on Characterization** - Whenever IW is produced, appropriate steps need to be taken to characterize the waste to determine whether it should be handled as a solid or hazardous waste or wastewater and to determine the options available for both the short term and long term management of that IW.

2. **Hazardous Waste Requirements** – IW characterized and found to contain a hazardous waste or displaying a hazardous waste characteristic should be managed in accordance with the document "Guidance for Hazardous Waste Remediation" (RR-705) . This document describes how to determine of the IW is hazardous and outlines management options.

3. **Solid Waste Requirements –** IW characterized and found to be a solid waste and not a hazardous waste should be managed:

    a. At a licensed solid waste facility;
    b. In accordance with a written ch. NR 500 exemption, such as a low hazard exemption;
    c. As part of the remedial action,
    d. On or off site in accordance with ch. NR 718 for IW that meets the definition of soil; or
    e. On site using enforcement discretion.

4. **Enforcement Discretion – A decision may be made by the Department to use discretion and not enforce certain solid and/or hazardous waste program requirements.** Each situation must be reviewed and considered individually regarding the appropriate course of action. The following criteria should be considered by the Department when making such decisions:

    a. The contaminants, their concentrations, and total volume of IW;
    b. Media potentially affected (e.g., groundwater, soil) under management options;
    c. Location of nearest population(s) and the likelihood and/or degree of site access;
    d. Potential exposure to workers; and
    e. Potential for environmental impacts.

5. **Wastewater Requirements** – Discharges to surface water must be in accordance with a WPDES Permit. A general permit has been developed for remediation projects so the need to issue individual permits is avoided. See the Wastewater General Discharge Permit for Contaminated Groundwater from Remedial Action Operations (WI-0046566-6) for more information.

    Hauling or discharging through the sanitary sewer system wastewater to a permitted sewage or wastewater treatment facility is allowed provided the facility can accept the wastes under its permit, and for municipal

sewage treatment systems, is done in accordance with any local pretreatment ordinances. Responsible persons should contact the local sewage or wastewater treatment plant authority or entity to ensure compliance with local pretreatment requirements.

Discharges of wastewater to the soil surface for infiltration into the ground or to an infiltration system or pit require prior approval by the RR and Wastewater Programs. See the publication on Infiltration and Injection Requests (RR-935) for more information.

6. **Responsibilities** - If a RR project manager is assigned to and is actively overseeing a project, then that person is responsible for oversight of the steps the responsible party or person responding is taking to comply with regulatory requirements and make any enforcement discretion decisions. The responsible party or person responding must ensure that steps are taken to properly characterize the IW, that a plan is in place for the management of those wastes, and that any appropriate local, state and federal approvals are obtained prior to these actions.

C. Specific Management Principles

1. **Decontamination** - Equipment decontamination should occur on a pad that is lined and designed to prevent surface water from running on to the pad and to prevent contaminated liquids from running off. Generally, these pads are sloped to drain to a sump that can be pumped out into a storage tank. Often, the pads are constructed of concrete with sealed joints or with a geomembrane covered with a geotextile and gravel. At many sites, it may be necessary to construct such a pad before the investigation begins. It may be necessary to decontaminate and/or manage as waste any contaminated material from the pad once it is decommissioned.

2. **Sampling, Testing and Short-Term Storage** - Guidelines for sampling, testing and short-term storage of IW are outlined in Attachment 1. Where appropriate, field screening methods may be used to help determine if IW contains contaminants of concern, in lieu of laboratory testing. RR staff project managers should decide if field screening is an appropriate method for making this determination on a site-specific basis at all sites, including state funded clean-up sites.

3. **Long-term Storage** - Guidelines for long-term storage are outlined in Attachment 2. For hazardous IW, a storage facility license may be required for long-term storage.

4. **Test Pits** - Test pit spoils returned to the same excavation immediately (generally on the same day), where returning the spoils does not pose an increased threat to human health or the environment has been allowed in the past without meeting all approval/licensing requirements using enforcement discretion, and this should be allowed to continue.

Appendix A - EPA Superfund IW Factsheet

NOTE: This is a DNR scanned version of this US EPA Quick Reference Fact Sheet. The DNR believes it is an accurate facsimile of the fact sheet, but the reader should obtain a copy of the original if there is any question of accuracy.

EPA- Publication: 9345.3-O3FS April 1992
United States Environmental Protection Agency, Office of Solid Waste and Emergency Response
Office of Emergency and Remedial Response Hazardous Site Control Division OS-220W
Quick Reference Fact Sheet

Guide to Management of Investigation—Derived Wastes

CERCLA field investigation activities (e.g., remedial investigation/feasibility studies and remedial designs) may result in the generation of waste materials that may pose a risk to human health and the environment These investigation-derived wastes (IDW) may include drilling muds, cuttings, and purge water from test pit and well installation; purge water, soil, and other materials from collection of samples; residues (e.g., ash, spent carbon, well development purge water) from testing of treatment technologies and pump and treat systems; contaminated personal protective equipment (PPE); and solutions (aqueous or otherwise) used to decontaminate non-disposable protective clothing and equipment. The management of IDW must ensure protection of human health and the environment and comply with (or waive) regulatory requirements that are applicable or relevant and appropriate requirements (ARAR). **This fact sheet presents an overview of possible IDW management options, discusses the protectiveness requirements and ARARs associated with these options, and outlines general objectives established for IDW management under Superfund.**

The general options for managing IDW (see Highlight 1) are collection and either (1) immediate disposal or (2) some type of interim management. Interim management may include storage or other temporary measures. As discussed below, the specific option selected will depend on the type of waste produced, its relative threat to human health and the environment, and other site-specific conditions.

IDW MANAGEMENT REQUIREMENTS

When managing IDW, site managers are required to choose an option that: (1) is protective of human health and the environment and (2) complies with (or waives) ARARs, as described below.

Protectiveness

In determining if a particular management/disposal option is protective, site managers should consider the following:

- The contaminants, their concentrations, and total volume of IDW;
- Media potentially affected (e.g., ground water, soil) under management options;
- Location of the nearest population(s) and the likelihood and/or degree of site access;
- Potential exposures to workers; and
- Potential for environmental impacts.

---

[1] Management of treatability study and treatment pilot wastes is discussed in Guide for Conducting Treatability Studies Under CERCLA, Interim Final, December 1989, EPA/540/2-89/058. Information on management of IDW generated during Preliminary Assessments and Site Investigations is provided in Management of Investigation-Derived Waste During Site Investigations, May 1990, EPA/540/G-91/009.

As a general rule, it will be necessary to use best professional judgment, in light of the site-specific conditions, to determine whether an option is protective of human health and the environment. For example, a site manager may determine that storing IDW temporarily until the final action or returning IDW to its source is protective, based on knowledge that the material **poses** low risk and/or that the final action will address any risks posed by the wastes and there will be no unacceptable risks in the interim.

Alternatively, if the site includes or is near residential areas, the site is unsecured, and/or contaminants appear to be present at unacceptable levels, it may not be protective to return excavated soil to the source. Storing IDW in containers in an on-site, secure location, or sending it off site immediately may be more appropriate.

Site managers also need to consider the potential effects of IDW management-related activities on environmental media. For example, pouring contaminated purge water on the ground around a well may not be prudent, because such an action could mobilize any hazardous constituents present in the soil or introduce contaminants into clean soil.

Compliance with ARARs

Remedial Investigation/Feasibility Study (RI/FS) and Remedial Design (RD) actions must comply with ARARs "to the extent practicable, considering the exigencies of the situation" (NCP, 55 FR 8756, emphasis added); therefore, it generally will not be necessary to obtain a waiver if an ARAR cannot be attained during these actions. If a site manager determines that, based on site-

Highlight 1: IDW Management Options

Type of IDW	**Generation Processes**	**Management Options**
Soil	• Well/test pit installation • Borehole drilling • Soil sampling	• Return to boring, pit, or source immediately after generation • Spread around boring pit, or source within the AOC+ • Consolidate in a pit (within the AOC) • Send to on-site TDU+ • Send to TDU off site immediately • Store for future treatment and/or disposal
Sludges/sediment	• Sludge pit/sediment sampling	• Return to boring pit, or source immediately after generation • Send to on-site TDU • Send to TDU off site immediately • Store for future treatment and/or disposal
Aqueous liquids (ground water, surface water, drilling fluids, other wastewaters)	• Well installation/development • Well purging during sampling • Ground water discharge during pump tests • Surface water sampling	• Discharge to surface water • Pour onto ground close to well (non-hazardous waste) • Send to on-site TDU • Send to off-site commercial treatment unit • Send to POTW+ • Store for future treatment and/or disposal
Decontamination fluids	• Decontamination of PPE+ and equipment	• Send to on-site TDU • Evaporate (for small amounts of low contamination organic fluids) • Send to TDU off site immediately • Store for future treatment and/or disposal
Disposable PPE	• Sampling procedures or other on-site activities	• Send to on-site TDU • Place in on-site industrial dumpster • Send to TDU off site immediately • Store for future treatment and/or disposal

*The generation processes listed here are provided as examples. IDW may also be produced as a result of activities not listed here.
+AOC: Area of Contamination (AOCs at a site may not yet have been identified at the time of the RI/FS); TDU: Treatment/disposal Unit; POTW: Publicly Owned Treatment Works; PPE Personal Protective Equipment

specific factors, compliance with an ARAR is practicable but an ARAR waiver is warranted for an RI/FS or RD action, an interim action waiver may be available if the final remedy will attain the ARAR. An action memorandum should be prepared for the waiver, the state given an opportunity to comment, and the decision document placed in the administrative record.

Potential ARARs for IDW at CERCLA sites include regulations under the Resource Conservation and Recovery Act (RCRA) (including both Federal and State underground injection control (UIC) regulations), the Clean Water Act (CWA), the Clean Air Act (CAA), the Toxic Substances Control Act (TSCA), and other State environmental laws. How these various requirements may direct or influence IDW management decisions is described below.

Resource Conservation and Recovery Act (RCRA). Certain sections of the RCRA Subtitle C hazardous waste regulations (e.g., land disposal restrictions and storage restrictions) may be ARARs for IDW should RCRA hazardous waste be identified at a site. (Note that RCRA may be relevant and appropriate even if the IDW is not a RCRA hazardous waste.) A waste is hazardous under RCRA if it is listed as such in 40 CFR 261.31 - 261.33 or if it exhibits one of four characteristics: ignitability, corrosivity, reactivity, or toxicity.

Site managers should not assume that a waste considered to pose a potential risk at a CERCLA site is a listed or characteristic RCRA hazardous waste. Until there Is positive evidence (records, test results, other knowledge of waste properties) that the IDW Is a RCRA hazardous waste, site managers should manage it in a protective manner (but not necessarily In accordance with Subtitle C requirements). Business records or facility processes should be examined to determine whether RCRA listed wastes were generated and are present in the IDW. For characteristic wastes, site managers should rely on testing results or on knowledge of the material's properties. If best professional judgment and available information indicate that, for protectiveness reasons (or because RCRA requirements are relevant and appropriate), IDW is best managed as a "hazardous waste," management in accordance with Subtitle C requirements is prudent, regardless of whether it is known to be a RCRA waste.

If aqueous liquid IDW is considered a RCRA hazardous waste, the site manager should determine whether the Domestic Sewage Exclusion (DSE) applies to the discharge of that IDW to a POTW. The RCRA DSE exempts domestic sewage and any mixture of domestic sewage and other wastes that passes through a sewer system to a POTW for treatment from classification as a solid waste and, therefore, as a RCRA hazardous waste (40 CFR 261.4).

- Land Disposal Restrictions

If IDW is determined to be a RCRA hazardous waste and subject to the land disposal restrictions (LDRs), "land disposal" of the IDW will be prohibited unless specified treatment standards are met (see Superfund LDR Guides #5 and #7, Determining When LDRs Are Applicable to CERCLA Response Actions and Determining When LDRs Are Relevant and Appropriate to CERCLA Response Actions OSWER Directive 93473.05FS and
9347.3-08FS, June 1989 and December 1989 and the NCP, 55 FR 8759, March 8, 1990). "Land disposal" occurs when wastes from different AOCs are consolidated into one AOC; when wastes are moved outside an AOC (for treatment or storage) and returned to the same or a different AOC; or when wastes are excavated, placed in a separate hazardous waste management unit such as an incinerator or tank within the AOC, and then redeposited into the AOC.

Storing IDW In a container ("a portable device In which a material Is stored, transported, treated, disposed of, or otherwise handled" (40 CFR 260.10)) within the AOC and then returning it to Its source, however, Is allowable without meeting the specified LDR treatment standards. Under the definition of "hazardous waste management unit" (40 CFR 260.10), EPA states that "a container alone does not constitute a unit; the unit includes the containers and the land or pad upon which they are placed." Therefore, returning IDW that has been stored in containers (not tanks or other RCRA-regulated units) within the AOC to its source does not constitute land disposal, as long as containers are not managed in such a manner as to constitute a RCRA storage unit as defined in 40 CFR 260.10. In addition, sampling and direct replacement of wastes within an AOC do not constitute land disposal.

- Storage

Subtitle C outlines the storage requirements for RCRA hazardous wastes. Under RCRA, "storage" is defined as "the holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere" (40 CFR 260.10).

On-site Superfund actions are only required to comply with the substantive standards of other laws (see 40 CFR 300.5, definitions of applicable or relevant and appropriate requirements). Superfund sites are also exempt from permit requirements under CERCLA §121(e). Therefore, site managers are not required to comply with administrative requirements triggered by RCRA storage deadlines (e.g., contingency planning, inspections, recordkeeping). Generally equivalent administrative activities are undertaken at Superfund sites, however, under existing Superfund management practices.

Site managers storing known RCRA hazardous waste must comply with the substantive, technical requirements of 40 CFR Parts 264 and 265 Subparts I (containers), J (tanks), and L (waste piles), to the extent practicable. (See Highlight 2 for a summary of these technical requirements for each type of unit). In addition, the ground-water monitoring requirements of 40 CFR Parts 264 and

265 Subpart F are potential ARARs, and to the extent they are determined to be ARARs at a site, they should be attained to the extent practicable (or waived). (In many cases, ground-water monitoring conducted during the RI/FS will provide protection equivalent to the Subpart F requirements.)

[NOTE: Under the LDRs, restricted RCRA hazardous waste may not be stored at a site unless the storage is solely for the purpose of accumulating sufficient quantities of the waste to facilitate proper disposal, treatment, or recovery (see 40 CFR 268.50). Generally, storing IDW until a final disposal option is selected in a Record of Decision (ROD) and Implemented during the remedial action is allowable storage under the RCRA LDR storage prohibition.]

- Recordkeeping and Manifesting

If hazardous wastes are sent off site, the site manager must comply with both administrative and substantive elements of the RCRA generator requirements of 40 CFR Pan 262 and LDR notification and certification requirements of Part 268. (For example, a site manager must prepare an LDR notification and certification when restricted wastes are sent off site to a land disposal facility.) These standards include requirements such as manifests for shipping waste that list all hazardous waste listing and characteristics applicable to the waste (see 40 CFR 262.11), packaging and transport requirements, and recordkeeping requirements.

If the LDRs are applicable, the following information should be collected and available before the removal of wastes to an off-site disposal facility: EPA hazardous waste number, LDR treatment standards, manifest number for the waste shipment, and waste analysis data.

Highlight 2:

Examples of RCRA Technical Storage Requirements

RCRA storage requirements, applicable to both less-than-90-days generators and permitted or interim status storage facilities, may include the following substantive requirements:

Containers 40 CFR 264 Subpart I and 265 Subpart I
- Containers must be in good condition
- Wastes must be compatible with containers
- Container must be closed during storage
- Container storage areas must have a containment system that can contain 10 percent of the volume of containers or of the largest container
- Spilled or leaked waste must be removed from the collection area as necessary to prevent overflow

Tanks 40 CFR 264 Subpart J and 265 Subpart J
- Tanks must have a secondary containment system that includes a liner, a vault, a double-walled tank, or an equivalent device (applies only to certain tanks)

Waste Piles 40 CFR 264 Subpart L and 265 Subpart L
- Waste piles must have a liner and a leachate collection and removal system
- Owners/operators must have a run-on control system to prevent flow on to the active portion of the pile during peak discharge from at least 25 year storm
- Owners/operators must have a run-off management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm

- This is a partial list of substantive requirements. For more detail, see 40 CFR Part 264 and 265.

- Underground Injection Control (UIC) Program

Under the UIC regulations, RCRA hazardous wastes may be injected into Class I permitted wells. In some cases, hazardous liquids, such as extracted ground water from pump and treat operations may be injected into a Class IV UIC well. For example, ground water contaminated with RCRA hazardous wastes may be injected into Class IV permitted wells if it is part of a CERCLA response action or a RCRA corrective action and if it has been treated to 'substantially reduce hazardous constituents prior to such

injection..." (RCRA § 3020(b)). (See Applicability of Land Disposal Restrictions to RCRA and CERCLA Ground Water Treatment Reinjection OSWER Directive #9234,1-06, December 1989.)

- Non-RCRA Hazardous Wastes

Some non-RCRA hazardous waste may be subject to management requirements under Subtitle D of RCRA as solid wastes. Subtitle D regulates disposal of solid waste in facilities such as municipal landfills. Therefore, non-RCRA hazardous IDW, such as decontaminated PPE or equipment, may need to be disposed of in a Subtitle D facility (depending on State requirements).

Clean Water Act (CWA). Discharges of aqueous IDW to surface water and publicly owned treatment works (POTWs) may be required to comply with CWA Federal, State, and local requirements. Requirements to be met may include water quality criteria, pre-treatment standards, State water quality standards, and NPDES permit conditions. Direct discharges to on-site waters are subject only to substantive requirements, while discharges to POTWs and other off-site discharges must comply with both a substantive and administrative CWA requirements (including Permitting requirements). (See Guide to Discharging CERCLA Aqueous Wastes to POTWs. June 1991 and CERCLA Compliance with the CWA and SDWA, #9234.2-06FS, January 1991.)

Toxic Substances Control Act (TSCA). If IDW contains PCBs, TSCA treatment and/or disposal requirements may apply during its management TSCA requirements regulate the disposal of material contaminated with PCBs at concentrations of 50 ppm or greater as found on site (i.e., based on sample analysis and not the PCB concentration of the source material {e.g., transformer fluid}). (See PCB Guidance Manual, EPA/540/G-90/007, August 1990.) In addition, TSCA storage requirements may apply that limit the time that PCBs may be stored to one year. Furthermore, if PCB materials are mixed with a RCRA hazardous waste, they may be regulated by the LDR California list prohibitions. (See RCRA sections 3004(d)(2)(D) and (E).)

Department of Transportation (DOT) requirements. Where IDW will be disposed of off site or transported on public roads to a site, DOT requirements for containerizing, labeling, and transporting hazardous materials and substances may apply.

State requirements. Promulgated State regulations that are legally enforceable, timely identified, and more stringent than Federal regulations may be potential ARARs for IDW managed on site. Substantive requirements of State law that may be ARARs for IDW management include State water quality standards, direct discharge limits and RCRA requirements (including underground injection control regulations) promulgated m a State with an authorized RCRA hazardous waste management program (as well as programs authorized by State laws). Off-site, substantive and administrative requirements of State law may apply.

Off-Site Policy. In addition to complying with requirements of Federal and State laws all off-site disposal of wastes must comply with CERCLA section 121(d)(3) and the CERCLA Off-Site Policy (OSWER Directive No.9834.11 (November 13, 1987)). The Off-Site Policy establishes criteria for selecting an appropriate treatment, storage, or disposal facility (TSDF), including release criteria for all facilities that receive wastes from CERCL A authorized or funded response actions. In addition, receiving facilities must be in compliance with all "applicable laws."

Before shipping wastes off site, approval should be obtained for the proposed disposal facility from EPA's Regional Off-Site Policy Coordinator. In addition, EPA has adopted a policy for Superfund wastes shipped out of State that written notification should be provided to receiving States (OSWER Directive 9330.2-07, September 14, 1989).

GENERAL OBJECTIVES FOR IDW MANAGEMENT

In addition to the two requirements of protectiveness and compliance with ARARs to the extent practicable (on site) or compliance with applicable law (off site), EPA has identified two general objectives that Superfund site managers should consider when managing IDW: (1) minimization of IDW generation; and (2) management of IDW consistent with the final remedy for the site. The extent to which these objectives can be achieved is highly dependent on site-specific circumstances.

IDW Minimization

Site managers should strive to minimize the generation of IDW to reduce the need for special storage or disposal requirements that may result in substantial additional costs yet provide little or no reduction in site risks relative to the final remedial action. Generation of IDW can be minimized through proper planning of all remedial activities that may generate IDW, as well as through use of screening information from the site inspection. The potential problems of managing IDW should be a factor in choosing an investigative method. Site managers may wish to consider techniques such as replacing solvent-based cleaners with aqueous based cleaners for decontamination of equipment, reuse of equipment (where it can be decontaminated), limitation of traffic between clean and hot zones and drilling methods and sampling techniques that generate little waste. Examples of such techniques include using gridding techniques to minimize the number of test pits or using soil boring instead of test pits. Alternative drilling and subsurface sampling methods may include the use of small diameter boreholes, as well as borehole testing methods such as a core penetrometer instead of coring. Site managers should also be careful to keep hazardous wastes separate from nonhazardous wastes.

Management Consistent with Final Remedy

Most IDW (with the exception of non-indigenous IDW) generated during the course of an investigation are intrinsic elements of the site. If possible, IDW should be considered part of the site and should be managed with other wastes from the site, consistent with the final remedy. This will avoid the need for separate treatment and/or disposal arrangements.

Because early planning for IDW management can prevent unnecessary costs and the use of treatment or disposal capacity, IDW management should be considered as early as possible during the remedial process. A key decision to be made is whether the waste will best be treated/disposed of immediately or addressed with the final remedy. If addressed with the final remedy, IDW volumes should be considered in the FS. In addition, when IDW is stored on site, it should be managed as part of the first remedial action/operable unit that addresses the affected media.

SELECTION OF IDW DISPOSAL OPTIONS

The following sections present the Agency's presumptions for IDW management that have been established based on the above considerations. The actual option selected should be based upon best professional judgment and should take into account the following factors:

- The type and quantity of IDW generated (sludge/soil, aqueous liquid, non-indigenous IDW);
- Risk posed by managing the IDW on site (e.g., based on site access controls, contaminant concentrations);
- Compliance with ARARs, to the extent practicable (on site);
- IDW minimization; and
- Whether the final remedy is anticipated to be an off-site or on-site remedy (or this information is unknown) and whether IDW can be managed consistent with the final remedy.

Off-site Final Remedies

If a site manager believes that the final remedy will involve off-site disposal of wastes, EPA's presumption is to manage the IDW as part of the remedial action addressing the waste/medium. Thus, until the final action, the IDW may be stored (e.g., drummed, covered waste pile) or returned to its source. However, the management option selected should also take into account any protectiveness concerns, ARARs, and other relevant site-specific factors (e.g., weather, storage space, and public concern/perceptions).

There are several potential reasons why it may be advisable to store IDW until the final action. First, because wastes at the site will be shipped off site eventually, returning IDW (especially sludges and soil) to its source would require that it be excavated again. Thus, site managers may consider it practical to containerize IDW as soon as it is generated. Second, storing IDW in containers may be more protective than returning it to its source. Third, because off-site actions may trigger such requirements as the LDRs, temporary storage will eliminate the need to meet these additional requirements until the final remedy.

In some cases, circumstances may lead site managers to choose to return the IDW to its source. This may be appropriate if it is determined that returning IDW to the source is protective and that storage at the site is not possible or practicable (i.e., given State or community concerns). In other cases, long-term storage may not be protective, and immediate off-site disposal may be a better option.

> Example: A site involves volatile organic RCRA hazardous wastes that will likely be sent off site for final treatment and disposal. Site conditions are such that temporary storage of IDW is considered protective until the remedial action begins. Because off-site disposal will trigger RCRA disposal requirements such as the LDRs and immediate containerization would be more protective than redepositing into the source area at the time of sampling, the site manager decides to containerize the IDW (and comply with RCRA substantive technical tank and container standards) until the final action is initiated.

On-site Final Remedies (or Final Management in an Unknown Location)

When final management of wastes is likely to occur on site, the management presumptions vary depending on the type of IDW produced.

Sludge/soil

Generally, the Agency expects sludge or soil IDW will be returned to its source if short-term protectiveness is not an issue. The reason behind this presumption is that IDW that may pose a risk to human health and the environment in the long term will be addressed by the final action. Storage of RCRA hazardous IDW in container-s within the AOC prior to returning It to the source will not trigger the LDRs as long as the containers are not managed In such a way as to constitute a RCRA storage unit as defined in 40 CFR 260.10. Therefore, it may be possible to store IDW temporarily before redisposing of it. However, EPA believes that, in many cases, returning sludges and soils to their source immediately will be protective and will avoid potentially increased costs and requirements associated with storage. Site-specific decisions on how to manage sludge and soil IDW may ultimately vary from the presumption based on protectiveness, ARARs, and/or community concerns.

Example 1: The soil at a site contains wastes that are expected to be stabilized on site during the final remedial action. The site manager determines that sending soil IDW off site is not cost-effective, because off-site disposal would involve testing and transport costs for a relatively small amount of waste. Instead, knowing that the site is secure and that redisposing the waste at the source will not increase site risk or violate ARARs, the site manager decides to return soil IDW to the source area from which it originated.

Example 2: A site manager determines that returning highly contaminated PCB wastes to the ground at a site is not protective because of the potential risks associated with the material; instead, the site manager chooses to drum the waste and send it off site (in compliance with TSCA). (Off-site disposal may occur immediately or at a later date.)

Example 3: Soil IDW contaminated with a RCRA hazardous waste is generated from a soil boring. The site manager decides to put the IDW back into the borehole immediately after generation, but ensures that site risks will not be increased (e.g., the contaminated soil will not be replaced at a greater depth than where it was originally so that it will not contaminate “clean” areas) and that the contamination will be addressed in the final remedy.

Aqueous liquids

EPA has not established a presumption for the management of aqueous liquid IDW (e.g., ground water). Site managers should determine the most appropriate disposal option for aqueous liquids on a site-specific basis. Parameters to consider, especially in making the protectiveness decision, include the volume of IDW, the
contaminants present in the ground water, the presence of contaminants in the soil at the site, whether the ground or surface water is a drinking water supply, and whether the ground-water plume is contained or moving. Special disposal/handling may be needed for drilling fluids because they may contain significant solid components. Examples of aqueous liquid management decisions considering these factors are presented in the following box.

Example 1: A site manager has large volumes of ground water IDW and does not know if it is contaminated. Pouring this IDW on the ground would not be protective, because it may contaminate previously uncontaminated soil or may mobilize contaminants that are present in the soil. Therefore, the site manager stores the water in a mobile tank until a determination is made as to whether the water and soil are contaminated or until the final action.

Example 2: IDW is generated from the sampling of background, upgradient wells. Because there are no community concerns or evidence of any soil contamination from other sources, the site manager decides to pour this presumably uncontaminated IDW on the pound around the well.

Example 3: Purge water from a deep aquifer is known to be contaminated with a RCRA hazardous waste. At this site, if this water were poured on the pound, it could contaminate a previously uncontaminated shallow aquifer that is a potential drinking water source and would have to comply with the LDRs. The site manager decides to containerize the water within the AOC and store it until the final remedy.

Non-indigenous IDW

Non-indigenous IDW (e.g., sampling materials, disposable PPE, decontamination fluids) should be stored until the final remedy or disposed of immediately. If contaminated, such waste may not be disposed of onto the ground because such an action would add contamination that was not present when activities began at the site (e.g., solvents used for decontamination). If non-indigenous IDW is contaminated with RCRA hazardous waste, it must be managed in accordance with RCRA Subtitle C requirements. Otherwise, site managers may generally dispose of it in an on-site dumpster (for PPE).

> Example 1: Disposable PPE (e.g, gloves, shoe covers) becomes contaminated with RCRA hazardous waste during the field investigation. The site manager containerizes and disposes of this IDW in compliance with RCRA Subtitle C requirements.
>
> Example 2: Disposable equipment becomes contaminated during a field investigation. The site manager decontaminates them and sends them to a Subtitle D facility.

COMMUNITY CONCERNS

Residents of communities near a CERCLA site, local governments or States may have concerns about certain disposal methods or long-term storage of IDW at the site. As with all CERCLA activities, site managers should evaluate community concerns regarding disposal of IDW in deciding what action to take. For example, if a community is concerned about the direct discharge of IDW water to surface water on site, site managers may want to consider sending the water to a POTW, if one is located nearby. In some instances, it may be appropriate to prepare fact sheets include options in other community relations documents or explain IDW management decisions at public meeting prior to actions.

Attachment 1 - Guidelines for Sampling, Testing and Short-Term Storage

SAMPLING AND TESTING OF INVESTIGATIVE WASTES

During the installation of monitoring wells and soil borings the amount of waste material generated in the form of drilling fluids and soil cuttings should be minimized. Waste materials generated from these activities will require containerization and sampling in order to determine proper disposal or treatment options. The following is a discussion of ways to not only minimize the amount of materials accumulated and thereby minimize the number of samples which have to be collected and analyzed, but also how to sample these wastes in order to best obtain representative results.

An attempt should be made to identify the exact depth within the formation where the soil cuttings originated or, in the case of drilling fluids, were in contact with the formation, if possible. When borings are extended into or below the water table it is advisable to segregate materials from a point approximately 10 feet above the top of the water table from those collected below the water table. In that way you can potentially minimize the amount of materials which may need to be sampled and characterized because they were in contact with contaminated groundwater.

When drilling off-site, or away from the area where a release occurred, an assumption can be made that soils above the water table do not contain contaminants, and therefore do not need to be containerized or sampled. This may not be true in those situations where soil gas migration may have carried contaminants off-site to adjacent properties. Field screening equipment, such as an OVM or PID, can be used to help isolate contaminated materials from `clean' soils and cuttings for the contaminants in question, when appropriate.

Materials collected as the result of drilling or soil boring activities which require containerization should be collected and stored in 55 gallon drums, roll-off containers, or similar containers which can be closed or covered watertight and are compatible with the wastes being stored in them. These drums or containers should be marked such that they can be clearly identified as to the exact location and depths the materials came from. These drums or containers should also be stored in a secured location, if possible, and labeled as special waste materials until an exact determination can be made.

If soil samples are being analyzed from a soil boring or well location, the results from those analyses must be directly tied back to the material collected and the container it was placed in. In certain cases, you may be analyzing specific samples based upon elevated readings from field screening devices. This is why very precise labeling and identification of containers is necessary. Should the samples be too widely distributed or should you be unable to field screen for elevated readings, such as with pesticide contamination, all samples will need to be analyzed for the contaminants of concern.

Samples should be taken such that they are representative of the waste material to be analyzed. For material stored in 55 gallon drums, if field readings do not detect a hot spot or area from the boring, a representative sample should be collected for every 5-55 gallon drums or portion thereof. This sample should be a discrete sample taken from approximately the middle of one of the 5 drums. If the drum contains both liquid and solid fractions, these should be sampled and analyzed separately. This assumes that soil formations for the material collected in the 5 drums are consistent in their unified soil classification system (USCS) rating and there was no visual or other indications of contamination present. Where visual observations or field readings detect elevated readings, the sample should be collected from that depth or from the container where those specific materials were placed. Standard sampling methods and procedures should be followed to ensure that the results are representative of the materials in question.

If materials are being stored in a large container, such as a covered rolloff, a minimum of two samples should be collected from opposite ends of the soil pile. Two additional samples should be collected for every additional 100 cubic yards of material being collected and stored. These should be discrete samples and should be taken from at least 18 inches below the surface of the soil pile. An attempt should be made to identify those areas of a soil pile which may contain elevated concentrations or hot spots and these areas should be segregated out and sampled individually.

Liquids collected as part of well installation or development should be segregated from soils as much as possible. If the area is served by a sanitary sewerage system, permission should be obtained from it's operator as well as the

local District wastewater engineer for permission to directly discharge these liquids into that system. In most cases an analysis of the liquids will be required by the sewage treatment plant if information is not available on what contaminants are present.

All analyses should be performed using a method listed in EPA SW-846 designed to detect the target compounds. The method chosen should be one which gives an acceptable detection limit and will allow for characterization of the materials as hazardous or non-hazardous waste. Based upon these results, a determination will need to be made as to proper disposal or treatment options.

Attachment 2 - Guidelines for Long-Term Storage

LONG-TERM ON-SITE STORAGE OF INVESTIGATIVE WASTES (IW)

General

Storage of IW should be in above ground tanks or containers. Examples of tanks include large metal or fiberglass tanks and trailer tanks for hauling liquids on roads. Examples of containers are 55-gallon drums, rolloff boxes (also called "luggers") and U. S. DOT approved boxes for solids. Storage should not be in underground tanks, in-ground pits, surface impoundments, trenches or lagoons. The tanks or containers should be water tight and compatible with the IW being stored. Permanent labels that indicate the source of the wastes and their descriptions should be attached to all containers.

Containers or tanks should be stored in area with limited access, such as a fenced area or a building. If vandalism is a potential concern, consideration should be given to storing the IW in a building. Temporary buildings can be constructed for this purpose. For liquids, and especially highly contaminated liquids, consideration should be given to providing secondary containment for spills and leaks in accordance with the hazardous waste regulations (see below). For outdoor secondary containment, precipitation run on and run off control should be provided in accordance with those regulations.

Stored IW should be periodically inspected, with records kept. Deteriorating containers or tanks should be immediately replaced. Deteriorating 55-gallon drums can be overpacked. If a container label has deteriorated, it should also be replaced.

Hazardous IW Storage

Storage of hazardous IW should be in accordance with the Hazardous Waste Program regulation technical standards. The standards for containers are outlined in ss. NR 665.0170 – NR 665.0178, Wis. Adm. Code. The standards for tanks are outlined in ss. NR 665.0190 - NR 665.0202, Wis. Adm. Code.