

ATTACHMENT 2-3
INVESTIGATION-DERIVED WASTE (IDW)
ENVIRONMENTAL GUIDANCE

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NEBRASKA DEPARTMENT OF ENVIRONMENTAL QUALITY

ENVIRONMENTAL GUIDANCE DOCUMENT

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Investigation-Derived Waste (IDW) & Remediation Waste Considerations

Scope of This Guidance Document

The objective of this document is to facilitate consistency throughout the state in managing IDW and remediation environmental media and debris potentially contaminated with hazardous waste. While this guidance is applicable to locations that do not come under the “area of contamination” (AOC) policy or have not had an AOC designated, AOC considerations are discussed in this document to better clarify the full range of options available when considering investigation and remediation questions should an AOC be appropriate. AOC considerations are at page 6. This document is not meant for use to develop cleanup criteria. This document was written for environmental investigation and remediation professionals.

What is Investigation-Derived Waste (IDW)?

IDW is a subset of remediation wastes. IDW is waste that is generated in the process of investigating or examining an actual or potentially contaminated site. It includes solid and hazardous waste, media (including groundwater, surface water, soils, and sediments) and debris that contain *listed* hazardous wastes or exhibit a characteristic of a hazardous waste. It includes media and debris that is not hazardous but is contaminated with hazardous constituents. Not all IDW is hazardous waste.

IDW includes wastes that are generated from field investigation activities, typically approved and overseen by the Nebraska Department of Environmental Quality (NDEQ) or the U. S. Environmental Protection Agency (EPA), that are specifically designed to determine the nature and extent of contamination. IDW will normally be generated during the site assessment or remedial investigation and feasibility study stage of a cleanup project. IDW is the waste generated from an activity related to determining the nature and extent of contamination as well as the preparation or examination of the site for future remediation. Such wastes can include, but are not limited to: drilling mud, cuttings, and purge water from test borings and well installation;

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purge water, soil and other materials from collection of samples; contaminated personal protective equipment (PPE), and solutions used to decontaminate non-disposable protective clothing and sampling equipment; and equipment used during field investigation activities. IDW does not include wastes that are generated from the removal or displacement of environmental media or debris as a result of other related remediation activities (these would be remediation wastes) or activities not related to remediation such as geotechnical investigation for building construction. The generator can usually dispose of non-hazardous IDW, depending on its physical state and health-based characteristics, as any other solid waste. However, federal, state, and local waste, air, and water regulations apply. For example, most non-hazardous media cannot be disposed by open burning. As another example, land application of contaminated media is regulated in Nebraska and is usually not allowed except to permitted municipal solid waste landfills.

Remediation wastes are wastes generated from all types of remediation activities.

Is The Waste Hazardous?

Environmental media is not, of itself, a waste. It can, however, contain *listed* hazardous wastes or enough hazardous constituents that it exhibits a characteristic of a hazardous waste. If the media will be actively managed and it contains *listed* hazardous waste or is a characteristic hazardous waste, it must be managed as a hazardous waste.

There may be circumstances where pre-existing sampling data may be used to make a hazardous waste determination. Factors such as the age of the extant sampling data, potential for changed conditions, and whether the sampling data used is representative of the IDW in question must be considered. For further information regarding hazardous waste determinations see the department's Environmental Guidance Document # 00-066, Waste Determinations & Hazardous Waste Testing.

Active Management and Point of Generation

The concept of “active management” as applied to IDW or remediation waste is associated with environmental media or debris. *If media or debris is being displaced on a site due to activities related to contamination investigation or remediation, the NDEQ considers such activities as active management under the waste regulations.* Activity not related to investigation or remediation is not considered “active management” under the waste regulations. For example, routine trench or foundation excavation spoils that are generated at a site that is not a remediation or investigation activity site or are not related to remediation or investigation activities are not considered a waste unless it is intended for disposal. Such spoils could normally be replaced in the excavation. In investigation or remediation activities, the point of

generation (POG) of waste is where or when the media or debris is excavated or investigation or remediation related wastes are either created or rendered spent. For example, for PPE the POG is generally the location where the equipment is determined to be no longer usable. Sampling gloves are routinely rendered “spent” between sampling events. These gloves are waste when they are removed.

Pre-Characterized Sites.

When a site can be adequately pre-characterized as not contaminated with *listed* or characteristic hazardous wastes, IDW from this site does not require management as hazardous waste.

Examples of this type of IDW include: cuttings and purge water from wells or piezometers located a significant distance from known contamination that are being drilled to fully determine hydrologic conditions or gradient, cuttings from an uncontaminated and unsaturated zone above suspected groundwater contamination; etc. However, if the pre-characterization is proven to be wrong by subsequent investigation, incorrect management of the IDW may result in an expansion of the scope of the cleanup or remediation, since contamination may have been spread. This could result in an enforcement action. To avoid this possibility, the department recommends that IDW be containerized and managed according to this guidance, pending the completed hazardous waste determination for any portion of a site with limited or poor historical data.

How to Manage IDW or Remediation Waste.

Often, once IDW or remediation waste is generated it needs appropriate management before a hazardous waste determination is completed (usually due to the laboratory turnaround time for analysis of field samples). Unless the area where the IDW or remediation waste was generated is pre-characterized as not containing hazardous waste, the waste should be managed as follows:

Disposable Personal Protective and Sampling Equipment: Containerize when generated. This waste is a solid waste and could, therefore, be a hazardous waste. Personal protective and sampling equipment becomes a hazardous waste at the time it is disposed if it is contaminated with any *listed* hazardous waste. According to the “Mixture Rule” (See Title 128- Nebraska Hazardous Waste Regulations, Chapter 2, §005.02), any mixture of solid waste and *listed* hazardous waste becomes a *listed* hazardous waste. Although unlikely, this waste may also be a hazardous waste if it has become contaminated with enough hazardous constituents to exhibit a *characteristic* of a hazardous waste. (Spent filters are examples of IDW or remediation waste that are often characteristic for toxicity.)

Drill Cuttings/Soil/Sediment (including composite/grab sample waste from surface soils) and Test Pit Spoils: Containerize when generated pending characterization. If the solid media contains a *listed* waste, you must obtain a determination by the department’s Waste Management Division that the waste no longer “contains” *listed* waste before it can be considered a non-hazardous waste and disposed of as such. (See the EPA’s “contained-in” policy.) The department recognizes that circumstances will vary from site to site.

Generally speaking, drill cuttings/soil/sediment may be returned to the site of original removal if the media is a non-hazardous waste and is below the EPA Region 9 Preliminary Remediation Goal (PRG) or the Nebraska Voluntary Cleanup Program (VCP) Lookup Table values* for all constituents of concern. IDW or remediation waste drill cuttings/soil/sediment must not be allowed to be used as fill on other areas of the site or off site unless the media is not mixed with other solid wastes and does not have the potential to cause contamination that may threaten human health or the environment. Merely being below appropriate PRG or VCP Lookup Table values* does not necessarily mean the media won't have the potential to cause contamination that may threaten human health or the environment. There might also be situations where "landfarming" of some types of contaminated soils is appropriate. For example, media contaminated solely with petroleum fuels can often be landfarmed successfully and safely. Contact the NDEQ Waste Management Section for more information.

If you have questions about how to implement this section for your particular situation, contact the department for clarification and assistance. (*Note: Test pits might be the most convenient sampling methodology, but they generate a great deal of material that must be managed and should be used as a last resort and only after the depth to ground water has been established.*)

Purge and Development/Decontamination Water: Containerize when generated. If the water is a *listed* or a characteristic hazardous waste it may not be discharged to the ground or back to the well. If analysis of the water determines that it is not hazardous waste and it meets ground water standards found in Title 118 – Nebraska Ground Water Quality Standards and Use Classifications, VCP Lookup Table values*, or health based standards, the water may be poured on the ground at or near the point of generation, but not back to the well. If the water contains a *listed* waste, you must obtain a determination by the department that the waste no longer "contains" *listed* waste before it can be disposed of as a non-hazardous waste. (See the EPA's "contained-in" policy.)

Discharges to surface water or drainages should be avoided because of stringent aquatic life water quality standards.

Where there is prior approval by the affected Publicly Owned Treatment Works (POTW) (Municipal Wastewater Treatment Plant) Facility, discharges directly through an on-site sanitary sewer system to a POTW may be allowed. (*Note: The water cannot be transported to a Nebraska POTW if it is a listed or characteristic hazardous waste. Nor can listed or characteristic hazardous waste water be transported to another site that has a sanitary sewer connection to a Nebraska POTW.*)

The department understands that there may be a large amount of decontamination water to containerize for analysis and characterization; therefore we recommend the initial generation of decontamination water be minimized.

Water generated from *dewatering IDW* must be managed as a separate waste. Containerize the water upon generation. A separate waste determination is required. If analysis of the water determines that it is not hazardous waste and it meets ground water

standards found in Title 118 – Nebraska Ground Water Quality Standards and Use Classifications, VCP Lookup Table values*, or health based standards, the water may be poured on the ground at or near the point of generation. If the water contains a *listed* waste, you must obtain a determination by the department that the waste no longer “contains” *listed* waste before it can be disposed of as a non-hazardous waste.

Miscellaneous Waste Issues: The disposal of waste in *unpermitted* landfills is prohibited. In other words, you can’t put waste in or on the ground *or put it back in or on the ground* if it’s not a permitted landfill. There may be times during investigation or remediation activities when excavation uncovers materials that might have been improperly disposed. In addition to excavating items that were improperly disposed, there may be times when random non-media items are excavated that had a legitimate reason for being in the ground. **Generally speaking, if waste-like items are excavated, they must not be placed back in the ground.** These items should be sent to a municipal solid waste landfill if determined to be a non-hazardous waste and can pass the “paint filter” test. Examples: 1) If you excavate an abandoned pipe or cable section, you should not re-bury that piece. *There is no need to remove the remaining pipe or cable that was not excavated.* 2) If you come upon a dumpsite and determine the waste was placed after October 1, 1993 (when the solid waste regulations became effective in Nebraska), all the waste might need to be removed to a properly permitted landfill. If the landfill site was closed prior to October 1, 1993, then only the waste items removed during excavation need to be sent to a properly permitted solid waste landfill. 3) If you come upon “free-product” material, you should consider this material to be a waste. It should not be left on site. Waste determination and proper waste management would be required.

Beneficial Use: Title 132, Chapter 1, §041 defines “fill” as solid waste that consists only of one or more of the following: sand, gravel, stone, soil, rock, brick, concrete rubble, asphalt rubble, or similar material. If excavation uncovers buried material that appears to meet the above definition, the NDEQ would normally allow such material to be replaced in the excavation if it is not otherwise hazardous. If the “fill” were mixed with other types of wastes not mentioned above it would not meet the above definition. This would be evidence that the location might be a former landfill. In some cases, excavation spoils might be able to be used elsewhere on site or at another site. Title 132, Chapter 2, §002.01 and §002.01A allow the use of fill for certain land improvement purposes provided the wastes used in these activities are not mixed with other wastes **and** do not have the potential to cause contamination that might threaten human health or the environment.

Hazardous IDW or Remediation Waste Placed on the Ground. Hazardous IDW or remediation waste placed on the ground creates a regulated unit and constitutes a solid waste management unit (SWMU) that might be subject to RCRA permitting or closure requirements. Placement on the ground occurs even when the IDW or remediation waste is placed on plastic sheets or concrete pads. Note that the Area of Contamination Policy can change this assessment, but only when and where an AOC has been formally declared.

Storage In Containers

Hazardous waste storage in containers must meet the requirements of Title 128 - Nebraska Hazardous Waste Regulations, Chapter 9 or 10 (whichever applies), or, if applicable, a RCRA hazardous waste storage permit.¹ Hazardous IDW or remediation waste must be stored and managed as a hazardous waste because returning it to a SWMU might exacerbate the contamination cleanup regulatory issues. Facilities accumulating hazardous IDW or remediation waste for longer than

- 90 days for Large Quantity Generators (LQGs) (See Title 128, Chapter 10), or
- 180/270 days for Small Quantity Generators (SQGs) (See Title 128, Chapter 9)

after generation will need a hazardous waste storage permit. Hazardous waste accumulation is limited to the generator's accumulation timeframe. However, a special one-time 30-day extension approval may be obtained from the department, if the generator can justify that an additional 30 days is essential. This request must be made in writing, within the generator's accumulation timeframe. Already permitted facilities may need to modify their current RCRA permit to store the waste. If a remedy is chosen to treat the waste in tanks or containers and that remedy cannot effectively treat the hazardous IDW, it must be properly disposed of within the generator's accumulation timeframe or as delineated in a RCRA permit.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) sites meet applicable or relevant and appropriate requirements (ARARs) relative to on-site treatment of remediation waste.

IDW or Remediation Waste Disposal

Hazardous IDW or Remediation Waste. If only conditionally exempt small quantity generator amounts are involved, then the waste may be disposed to a permitted municipal solid waste landfill with prior approval by the landfill. In this case, no more than 43 pounds of the CESQG waste may be sent to the landfill on any one day. Such wastes must be able to pass the "paint-filter" test.

Certain liquid wastes may be sent to a publicly owned treatment works (POTW) via an on site sanitary sewer with prior approval by the POTW.

The generator of IDW or remediation waste must meet all SQG or LQG generator requirements as appropriate.

Non-hazardous IDW. Options follow:

Keep IDW media on-site if uncontaminated.

Keep contaminated IDW media on-site if it meets EPA Region 9 PRG or Nebraska VCP Lookup Table* values. Return to the point of excavation. Return water media to the ground at/near generation point if it meets certain criteria as explained above. Site specifics must be considered. Non-media IDW or remediation waste must be disposed off-site to a proper facility.

Remediation waste, by its very nature, is not supposed to be left on site. Therefore, non-hazardous environmental media should be disposed to a permitted landfill or properly treated on or off site. Liquid remediation wastes can be treated on or off site or disposed to an appropriate Clean Water Act facility.

Area of Contamination Policy Considerations

As stated previously, this guidance document generally applies to non-AOC sites. **This section is meant as additional information should conditions warrant application of the AOC policy.** AOCs are certain discrete areas of generally dispersed contamination that can be equated to a RCRA landfill and that movement of hazardous wastes within those areas would not be considered land disposal and would not trigger the RCRA land disposal restrictions. The AOC policy generally involves the concept of “placement.” “Placement” of hazardous waste into or on a landfill or other land-based unit is considered land disposal, which triggers the land disposal restrictions and might trigger other RCRA requirements including permitting, closure, and post-closure. Generally, “placement” *does not* occur when waste is consolidated **within** an AOC, when it is treated in situ, or when it is left in place. “Placement” *does* occur if wastes are moved from one AOC to another (e.g., for consolidation) or when waste is actively managed (e.g., ex situ treatment) within or outside the AOC and returned to land.

AOC Factors. Only the EPA or NDEQ can formally designate an AOC in Nebraska. The lateral extent of an AOC must be limited to the actual area of contiguous, but not necessarily homogenous, contamination. Hazardous waste placed outside an AOC would be considered land disposal and might be subject to RCRA corrective action. AOCs do not include adjacent areas used to implement response activities. The AOC policy does not include contaminated ground water or surface water that may be associated with the land-based source of hazardous waste.

AOC Designation. The department can designate an AOC upon a formal request based on: 1) actual data presented to the department, 2) *discrete* areas of contamination or suspected contamination, 3) approval of an adequate, comprehensive sampling plan, 4) a workplan describing hazardous waste activities to be performed in the AOC, and 5) any other pertinent factors particular to the site.

Glossary of Terms

Area of Contamination Policy: See EPA Document EPA530-F-98-026, Management of Remediation Waste Under RCRA. In Nebraska only the EPA or NDEQ can designate an AOC.

Debris: Material exceeding 60 mm particle size that is intended for disposal and that is a manufactured object, or plant or animal matter or natural geologic material. (Approximately the size of a tennis ball.) See Title 128, Chapter 20, §011.

Environmental Media: Naturally occurring material indigenous to the environment including ground water, surface water, surface and subsurface soils, rocks, bedrock and gravel.

Fill: Solid waste that consists only of one or more of the following: sand, gravel, stone, soil, rock, brick, concrete rubble, asphalt rubble, or similar material.

LQG (Large Quantity Generator): A generator of 2,200 lbs or more of hazardous waste or 2.2 lbs of acutely hazardous waste in a calendar month.

Regulated Unit: Regulated units are defined in 40 CFR 264.90 as surface impoundments, waste piles, land treatment units, and landfills that received hazardous waste after July 26, 1982. RCRA regulated units are a subset of the universe of solid waste management units.

SQG (Small Quantity Generator): A generator of greater than 220 lbs of hazardous waste or less than 2,200 lbs per month of hazardous waste in a calendar month.

SWMU (Solid Waste Management Unit): Any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. This includes any area at a facility where solid wastes have been routinely and systematically released and may include contiguous property where releases have migrated beyond the facility boundaries.

Miscellaneous Resources

Useful Websites:

NDEQ Home page – <http://www.deq.state.ne.us/>

EPA Office of Solid Waste – <http://www.epa.gov/osw/>

Contacts:

NDEQ Waste Compliance Assistance

(402) 471-8308

NDEQ Waste Management Section

(402) 471-4210

NDEQ Toll Free Number

(877) 253-2603

NDEQ Publications²:

Title 128 – Nebraska Hazardous Waste Regulations

Title 132 – Integrated Solid Waste Management Regulations

Environmental Fact Sheet – Hazardous Waste Generator Comparison (00-055)

Environmental Guidance Document – Waste Determinations & Hazardous Waste Testing (00-066)

Nebraska Voluntary Cleanup Program (VCP) Guidance*

1. Refer to the Land Disposal Restriction Rule found in Title 128 – Nebraska Hazardous Waste Regulations, Chapter 20, to determine if the hazardous debris or alternate soil treatment standards can apply to the IDW.

2. These are available on the NDEQ website or may be requested by calling the NDEQ Waste Management Section.

**The Nebraska Voluntary Cleanup Program (VCP) Guidance with the VCP Lookup Tables was in draft at the time of publication of this guidance. Use the most current version. Contact the NDEQ Remediation Section at (402) 471-2214 if you have questions on the VCP Guidance currency. The VCP Guidance may be found on the NDEQ web site.*

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