Guidance for Siting, Design, and Operations of Non-Municipal Solid Waste Landfills in Idaho

FINAL

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1 Introduction

Non-municipal solid waste landfills (NMSWLFs) manage a broad range of waste types but generally fall into two general categories: construction and demolition waste landfills (C&D landfills) and industrial waste landfills. NMSWLFs only accept solid waste that is not mixed with household waste or waste not specifically prohibited by other state or federal regulations.

State and federal solid waste laws and regulations pertaining to NMSWLFs include the Environmental Protection and Health Act (Title 39, Chapter 1, Idaho Code); the Idaho "Solid Waste Management Rules" (IDAPA 58.01.06); and Title 40, Part 257, of the Code of Federal Regulations (CFR). DEQ and the seven public health districts act in accordance with applicable state and federal regulations and policies when overseeing solid waste facilities.

The purpose of these regulations is to protect public health and the environment from the potentially harmful effects of solid waste disposal. DEQ's mission is to protect human health and preserve the quality of Idaho's air, land, and water for use and enjoyment today and in the future. Improperly sited, designed, operated, and closed landfills may impact human health and Idaho's environment. Contamination of waters of the state, which include ground water and surface water, can occur if leachate is not minimized or properly managed. Vectors such as insects, rodents, and birds can spread disease if proper controls are not implemented, and air quality can be impacted by landfills from landfill gas, odor, or excessive dust. All operations at NMSWLFs must be conducted in a manner that will minimize potential negative impacts on the state of Idaho.

This document has been developed by the Idaho Department of Environmental Quality (DEQ) to help the public better understand applicable requirements and provide additional information to owners and operators about siting , designing, and operating their NMSWLFs.

2 Landfill Tier Classification

By definition, solid waste incorporates a wide range of waste streams with varying characteristics.[1] To address the many different characteristics, Idaho's "Solid Waste Management Rules" (IDAPA 58.01.06) were developed to regulate solid waste facilities, including Non-Municipal Solid Waste Landfills (NMSWLFs), based on a tier classification. Each of the three landfill tier classifications considers the volume and/or potential for harm to human health and the environment from the waste being managed. Facility owners and operators managing larger volumes of waste and/or waste types with a greater potential for harm to human health and the environment must demonstrate a higher level of protection when proposing site, design, operating, and closure features for a NMSWLF.

[1] 40 CFR 257.2 defines solid waste as "any garbage, or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permit under 33 U.S.C. 1342, or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923)."

While IDAPA 58.01.06 provides a tier classification of "below regulatory concern" (BRC), this tier classification is only applicable to processing facilities. Processing facilities are solid waste management facilities that use biological or chemical decomposition to prepare solid waste for reuse. Examples of BRC facilities include composting, petroleum-contaminated soil land farms, and anaerobic digesters. The BRC classification does not apply to landfills.

The following are brief descriptions of the three tier classifications for NMSWLFs addressed in IDAPA 58.01.06.Solid Waste Management Rules.

2.1 Tier I Landfills

Tier I landfills accept materials for disposal that are not likely to produce leachate and have a total disposal capacity of less than or equal to 2,000 cubic yards. Due to these limitations, Tier I landfills are not required to comply with the more stringent regulations required of Tier II and Tier III landfills.

Tier I landfill owners and operators are required to submit notice to DEQ and the local health district of their intent to operate, they do not require state siting or design approval. Tier I facilities are not required to have an approved operating plan, but it is recommended they have a written operating plan. The notice shall include the owner's name, operator's name, physical location of the site, mailing address, facility phone number, and type of solid waste management facility. Tier I landfill owners and operators are required to comply with basic operating practices including the control of odors, litter, and vectors (i.e., rodents, insects, birds, or other animals that may transmit diseases) and do the following:

- Post signs at the facility entrances indicating the facility name, hours of operation, waste accepted, and an emergency phone number.
- Control facility access through fencing, natural barriers, and entrances that are locked when an attendant is not on duty.
- Not conduct open burning except for certain waste types and under specific conditions.
- Manage waste to ensure birds are not a hazard to air traffic if landfills are within certain distances to airports.
- Control stormwater through adequate design to prevent impacts to surface and ground water.
- Maintain documentation—such as a daily log indicating types and volumes of waste—that verify the site's Tier I status.

Tier I landfill requirements are contained in IDAPA 58.01.06.011. Facilities failing to comply with IDAPA 58.01.06.011 or to maintain documentation verifying Tier I status may be reclassified as a Tier II or Tier III facility and required to comply with all applicable requirements. Tier I landfills may be inspected by the health district and DEQ staff to ensure the facility is in compliance with applicable requirements. An example of a Tier I site is a landfill for building demolition waste not likely to generate leachate at a remote mine site with a total disposal capacity of 2,000 cubic yards or less. Tier I facility owners and operators should contact their local government to determine whether local government approvals are needed.

2.2 Tier II Landfills

Tier II landfills are facilities not disposing of conditionally exempt small quantity generator (CESQG) hazardous waste, not disposing materials with a high human pathogenic potential, not managing solid waste in a manner or volume that will form toxic leachate or gas, and not managing solid waste in a manner or volume that is likely to pose a substantial risk to human health or the environment. These landfills have a total disposal capacity greater than 2,000 cubic yards. Tier II landfills are required to obtain site and design approval from DEQ and operating and closure/post-closure plan approval from the local district health department. Requirements for Tier II facilities are contained in IDAPA 58.01.06.012.

C&D landfills and industrial landfills managing waste that have a low potential for human health and/or environmental impacts are examples of Tier II NMSWLFs. Owners and operators of C&D landfills should be aware that construction and demolition activities can generate hazardous waste typically from CESQGs. Tier II C&D landfill owners and operators should implement screening practices and educate landfill staff and visitors on proper disposal of hazardous waste. Tier II landfills that are disposing of CESQG hazardous waste or materials with a high human pathogenic potential, or managing solid waste in a manner or volume that will form toxic leachate or gas, or is likely to pose a substantial risk to human health or the environment will be required to meet the regulatory requirements established for Tier III landfills. Further discussion on allowable/prohibited waste is provided in section 5.1 and 5.3. For more information on hazardous waste and/or CESQG status, please visit the DEQ's "Hazardous Waste in Idaho" webpage (*www.deq.idaho.gov/waste-mgmt-remediation/hazardous-waste*).

2.3 Tier III Landfill

Tier III landfills are facilities disposing of CESQG hazardous waste, disposing materials with a high human pathogenic potential, managing solid waste in a manner or volume that will form toxic leachate or gas, or managing solid waste in a manner or volume that is likely to pose a substantial risk to human health or the environment.

Examples of Tier III landfills include C&D landfills accepting CESQG, C&D/industrial landfills accepting leachable waste with shallow ground water and/or highly permeable soil or geology under the site, or industrial landfills disposing of waste that DEQ determines would pose a risk to public health or the environment.

Tier III landfills are required to be designed and constructed with a liner, leachate collection system, landfill emission control system, and a ground water monitoring system. Requirements for Tier II facilities are contained in IDAPA 58.01.06.013.

3 Landfill Siting

Siting a Tier II or Tier III landfill can be one of the more difficult tasks for landfill owners and operators. In addition to State of Idaho requirements, local governments have planning and zoning requirements that may require a conditional use permit and/or zoning requirements for landfill sites. Early discussions with all regulatory agencies can help reduce the time required to

gain approval. Conducting a site tour with local and state agencies may help identify potential issues that can be addressed during the approval process.

Neighbors may oppose a proposed landfill for fear that the facility will reduce their property values or reduce the enjoyment of their property due to odors, dust, vehicle traffic, and vectors such as flies, birds, and rodents. Surrounding property owners may also be concerned that the landfill will impact ground water used for drinking water. Many times, neighbor opposition can be addressed by informing them early in the process and holding meetings with neighbors to discuss the proposed landfill.

The Tier II and Tier III siting requirements contained in IDAPA 58.01.06 are considered the minimum criteria to protect public health and the environment. Landfill owners and operators need to consider this when evaluating potential sites and developing the facility's design and operating plan. A site that just meets the siting criteria and is not designed or operated properly can pose a potential threat to public health and the environment.

While IDAPA 58.01.06 does not specify siting requirements for Tier I landfills, impacts to human health and the environment may result in DEQ regulating such a landfill as a Tier II or Tier III. Criteria for solid waste disposal facilities and practices are set forth in 40 CFR 257.3. Solid waste facilities or practices violating criteria established in 40 CFR 257 are considered open dumps and may be subject to citizen lawsuits as provided for under federal law in the Solid Waste Disposal Act of 1965, 42 USCA §§ 6901 to 6992K.

The following sections summarize the siting criteria contained in IDAPA 58.01.06 for Tier II and Tier III NMSWLFs. Anyone completing a site approval application should read the siting criteria contained in the rules prior to completing the application. In addition to completing an application, all siting criteria will need supporting documentation to demonstrate compliance. Applications are required to be signed and stamped by a qualified professional such as a professional engineer or professional geologist registered in the State of Idaho. Requirements for Tier II and Tier III NMSWLFs are contained in IDAPA 58,01.06.012. and 58.01.06.13, respectively. A site plan approval checklist with specific rule citations are included in Attachment 2. The site approval application is available at *www.deq.idaho.gov/waste-mgmt-remediation/solid-waste/landfills/nmswlf*.

3.1 Floodplain Restriction

Landfill owners and operators may not locate landfills within a 100-year floodplain if the facility will restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in a washout of solid waste so as to pose a hazard to human health and the environment. Owners and operators proposing to locate a landfill in a 100-year floodplain must ensure the site application specifically addresses how the facility will not restrict the 100-year flood, reduce temporary water storage capacity of the floodplain, or result in a washout of solid waste. All site approval applications must contain a Federal Emergency Management Agency (FEMA) map with the facility identified or a site evaluation report and a letter of confirmation stamped by a registered professional engineer or registered professional geologist registered in the State of Idaho. Requirements for floodplain restrictions in Tier II and Tier III NMSWLFs are contained in IDAPA 58.01.06.012.01.a and 58.01.06.013.01.a, respectively.

3.2 Endangered or Threatened Species Restriction

To address potential impacts to endangered and/or threatened species, owners or operators must obtain a determination from the United States Fish and Wildlife Service, the Idaho Office of Species Conservation, or the Idaho Department of Fish and Game. If a determination is made that the proposed site may impact endangered or threatened species, the owner/operator may be required to conduct a survey of the proposed site to determine if endangered or threatened species are on site or if the site contains critical habitat for the species. If the site contains endangered or threatened species or critical habitat, the owner or operator may need to undertake steps to address impacts to those species. Requirements for endangered or threatened Species restrictions in Tier II and Tier III NMSWLFs are contained in IDAPA 58.01.06.012.01.b and 58.01.06.013.01.b, respectively.

3.3 Surface Water Restriction

Landfills can impact streams, rivers, lakes, and reservoirs if siting, design, operation, or closure are not adequately considered. Leachate may run off during storm events and/or snowmelt. Leachate is defined as a liquid that has passed through or emerged from waste and contains soluble, suspended, or miscible materials removed from such waste. The US Environmental Protection Agency (EPA) has further defined leachate to include liquid that has contacted daily cover.[2] Adequate stormwater controls and site grading can minimize leachate generation and prevent leachate from washing off into surface waters.

To address impacts to surface waters, site applications need to include a scaled map(s) that indicates surface waters in the vicinity of the landfill. Design plans must include stormwater control features and demonstrate those features are adequate to control a 24-hour, 25-year storm event at a minimum. While the 24-hour, 25-year storm event is the minimum design requirement, each facility's stormwater control system should be designed on site-specific meteorological conditions. The operating plan must discuss how the stormwater control features will be maintained to function as designed. This may include semiannual inspections of the stormwater control system and maintenance activities by landfill staff as needed. Landfill owners and operators should also contact EPA to determine if a National Pollutant Discharge Elimination System (NPDES) permit is required. Requirements for surface water restrictions in Tier II and Tier III NMSWLFs are contained in IDAPA 58.01.06.012.01.c and 58.01.06.013.01.c, respectively.

3.4 Park, Scenic, or Natural Use Restriction

To reduce potential impacts to visitors of national or state parks and scenic or natural use areas, the "Solid Waste Management Rules" require a 1,000-foot separation distance between the active portion of the landfill and the boundary of any state or national park or land reserved or withdrawn for scenic or natural use, including, but not limited to, wild and scenic areas, national monuments, wilderness areas, historic sites, recreation areas, preserves, and scenic trails. Site

[2] EPA Solid Waste Disposal Facility Criteria, EPA530-R-93-017, paragraph 3.8.3 states, "If stormwater enters the landfill unit and contacts waste (including water within daily cover), the stormwater becomes leachate and must be managed as leachate."

approval applications must contain a scaled map depicting the facility and any park, scenic, or natural use area within a 1,000-foot radius of the proposed landfill. Requirements for park, scenic, or natural use restrictions in Tier II and Tier III NMSWLFs are contained in IDAPA 58.01.06.012.01.d and 58.01.06.013.01.g, respectively.

3.5 Wetlands

Owners and operators need to ensure that their proposed landfill will not impact wetlands during facility construction and operation. For landfills sited within a wetland area, owners and operators may need to obtain permits from the US Army Corps of Engineers. Additional design requirements may apply to facilities located in wetland areas to address high water table and/or unstable areas. Documentation included with the site approval application should include a copy of the applicable National Wetlands Inventory map and letters from the US Army Corps of Engineers or the Natural Resources Conservation Service providing wetlands determination. Requirements for wetlands restrictions in Tier II and Tier III NMSWLFs are contained in IDAPA 58.01.06.012.11.a.i and 58.01.06.013.13.a, respectively.

3.6 Ground Water

Ground water is a valuable resource for Idaho. Approximately 95% of Idaho citizens get their drinking water from ground water. In addition, agricultural irrigation accounts for 60% of the total ground water withdraw in Idaho.[3] Protecting ground water should be a high priority for all Idahoans. Once waste is disposed in an unlined landfill, it becomes very difficult to determine whether or when landfill leachate is impacting ground water. Areas across the state have relatively shallow ground water and/or geology such as fractured basalt or sandy soil that may allow landfill leachate to migrate to ground water.

Owners and operators proposing to site an unlined landfill should carefully evaluate site parameters and waste to be managed to determine if there is a potential to impact ground water. While landfill liners are costly, remediating ground water impacted by landfill activities can be significantly more expensive. Software models such as the Hydrologic Evaluation of Landfill Performance (HELP) Model, Unsat-H Model, and others can help determine the potential for leachate impacts to ground water when modeling is performed by a qualified professional registered in the State of Idaho with experience using the particular model. Tier I or Tier II owners and operators of proposed sites or existing Tier I or II sites proposing to accept new waste types where DEQ considers site conditions and/or waste characteristics a potential threat to ground water may be required to demonstrate that the facility will not pose a substantial risk to ground water through modeling or another agreed upon method. Requirements for ground water restrictions in Tier II and Tier III NMSWLFs are contained in IDAPA 58.01.06.012.11.a.ii and 58.01.06.013.01.d, respectively.

[3] DEQ's "Ground Water in Idaho" webpage, *www.deq.idaho.gov/water-quality/ground-water*.

3.7 Geologic Restrictions

Fault areas, seismic impact zones, and other unstable natural or man-made features may impact the facility's site and design elements that are intended to protect human health and the environment. A site evaluation for these factors should be conducted by a qualified professional registered in the State of Idaho to determine if potential geologic issues exist with the site. Requirements for geologic restrictions in Tier II and Tier III NMSWLFs are contained in IDAPA 58.01.06.012.11.a.iii and 58.01.06.013.01.e, respectively.

3.8 Property Line Restriction

The intent of the 100-foot setback from the active portion of the facility to the property line is to provide a physical separation from facility activities to surrounding neighbors. Even well-run facilities can produce some dust, odor, noise, and vectors. By providing this setback, the impact to neighbors can be reduced thereby reducing conflicts with surrounding property owners/users. Requirements for property line restrictions in Tier II and Tier III NMSWLFs are contained in IDAPA 58.01.06.012.11.a.iv and 58.01.06.013.01.f, respectively.

3.9 Site Map

In addition to the site criteria above, a site approval application must include a scaled map(s) indicating the following:

- Highways, roads, and adjacent communities
- Property boundaries
- Total acreage of the site (indicate only the area to be used for waste management activities)
- Off-site and on-site access roads and service roads
- Type(s) of land use adjacent to the facility and a description of all facilities on the site
- All water courses, ponds, lakes, reservoirs, canals, irrigation systems, and existing water supplies within 0.25 miles of the proposed facility property lines
    - Existing water supplies include known public and private wells, springs, and surface water intakes used as public or private drinking water systems.
- High-tension power line rights-of-way, fuel transmission pipeline rights-of-way, and proposed and existing utilities
- Proposed and existing fencing
- Proposed and existing structures at the facility and within 500 feet of the facility boundary, including location of employee buildings and scales (if provided)
- Direction of prevailing winds

Requirements for site map requirements in Tier II and Tier III NMSWLFs are contained in IDAPA 58.01.06.012.02 and 58.01.06.013.02, respectively.

3.10 Local Government Permitting

Landfill owners and operators should discuss their facility plans with county or city government early in the planning process to determine if separate local government approval is required. If

the proposed landfill site needs to be rezoned and/or granted a special use permit, this may delay construction and operation. Local government approvals are separate from the approval process under the "Solid Waste Management Rules." Approval by one entity does not obligate another entity to approve a proposed landfill.

4 Landfill Design

Owners and operators of Tier II and Tier III NMSWLFs are required to address the landfill design requirements in their Design Approval Application. In addition to site selection, landfill design provides public health and environmental protection from waste disposed at landfills. Design elements should consider site conditions and the characteristics of the waste to be disposed at the facility.

Unlike operational activities, certain design elements such as a liner and/or leachate collection system can only be placed prior to the placement of waste. Liners and leachate collection systems are an added cost but should be carefully evaluated. Ground water remediation and/or premature closure of a landfill can be much more costly than a liner, leachate collection system, and ground water monitoring. Known design costs can be calculated into fees imposed on landfill customers and spread over the life of the facility. Unknown costs such as ground water remediation and premature closure of the landfill are difficult to estimate. In the event of premature landfill closure, money still must be spent on cleanup and closure/post-closure, yet no revenue is generated to offset these costs. Design and site features may also limit future waste acceptance if it is determined that the current design and/or site is not adequate to protect human health and the environment when considering the proposed waste characteristics.

Installing a ground water monitoring system including a sufficient number of upgradient and downgradient wells provides an early warning system should landfill leachate reach ground water passing under a landfill. Landfill owners and operators who install a ground water monitoring system also demonstrate to neighbors that the facility understands the importance of ground water and provide a level of confidence to downgradient users that ground water is not impacted. Requirements for landfill design for Tier II and Tier III NMSWLFs are contained in IDAPA 58.01.06.012.11.c and 58.01.06.013.c and d, respectively. A design plan approval checklist with specific rule citations is included in Attachment 3. The design approval application is available at *www.deq.idaho.gov/waste-mgmt-remediation/solid-waste/landfills/nmswlf*.

4.1 Design Application Map Elements

Design applications for Tier II and Tier III NMSWLFs will need to include a map containing the following information.

4.1.1 Surface Water and Erosion Control System

The map will need to identify both stormwater run-on and stormwater run-off control systems—including any ditches, berms, check dams, and ponds—and other measures/features used for stormwater control. Stormwater control systems should also include calculations demonstrating

that the system will manage, at a minimum, the 24-hour, 25-year storm event. Tier III landfill Leachate collection ponds must include design details on the lined trenches and lined pond. For Tier II and Tier III landfills, any time stormwater control design change is anticipated, updated design plans shall be submitted to DEQ for review and approval prior to implementing design changes. Updated facility maps shall also be included with the operating plan.

4.1.2 Proposed Fill Area

Identify the proposed fill area, including the location of waste disposal trenches or cells, noting the locations of trenches used for separated wastes such as animal carcasses, tree trunks, stumps, bulky waste, car bodies, asbestos, and petroleum-contaminated soils. All proposed disposal cells and/or trenches to be developed on the proposed site must be identified on a map. Information on proposed cells/trenches should include waste to be disposed in each cell/trench and cell/trench dimensions.

4.1.3 Location of Borrow Areas

Borrow areas for periodic cover should be identified. The borrow source should be evaluated to determine if there is an adequate volume of material to apply periodic cover over the life of the facility. Landfills with limited borrow source may need to haul in cover material, which increases operating costs.

4.1.4 Design Elevation Grade of Final Cover

The owner and operator will include the final height of the landfill including the final cover. Final cover height should consider surrounding topography and future land use of the property, including the area containing the landfill. A closure/post-closure plan must be submitted to the local health district prior to closure/post-closure activities. Specific requirements pertain to closure/post-closure. Owners and operators should become familiar with the closure/post-closure requirements in the “Solid Waste Management Rules.” Closure/post-closure guidance will be addressed in a separate DEQ guidance document.

4.1.5 Soil and Water Table Test Boring Holes, Wells, or Excavations

New and lateral expansion NMSWLF owners and operators must conduct site investigations to determine the underlying geology and depth to the highest known ground water table. These investigations can be completed using a variety of equipment that provides reliable information on the site characteristics. Locations of any subsurface investigations should be carefully documented and provided on a map. Investigations should concentrate in the area where the disposal cell(s) are located. Site conditions such as soil type and depth to bedrock and/or ground water can vary across a site.

4.1.6 Proposed Receiving, Storage, and Processing Area

These areas are where waste such as scrap metal, wood waste, and refrigerated units will be received, stored, and processed.

4.1.7 Proposed Trench Layout and Development

In addition to the location of cell/trenches for disposal, the map(s) must include information on how cells/trenches will be laid out and how the owner and operator plan to develop each cell/trench.

4.1.8 Topography

Map(s) should include contour lines at 5-foot intervals within the operating area and 10-foot intervals to the facility boundary.

4.1.9 Building and Construction Design Blueprints

Tier III landfill owners and operators will need to include design plans/blueprints for all proposed structures at the facility.

4.1.10 Operational Design and Capacity Information

Tier III landfills will need to submit information discussing the facility's operational design and capacity including a description of the waste types to be accepted and projected daily and annual waste volumes.

4.2 Design and Construction Elements

Tier III landfills are required to install, monitor, and maintain a leachate collection and control system, liner, landfill gas emission control system, and ground water monitoring system. Owners and operators must demonstrate that the proposed system will be constructed, monitored, and maintained in accordance with any manufacturer recommendation and provide adequate protection to human health and the environment. Requirements for the design and construction elements for Tier III NMSWLFs are contained in IDAPA 58.01.06.013.e.v.

4.2.1 Leachate Collection and Control System

Tier IIINMSWLFs are required to install a leachate collection and control system. Design plans must include information on the leachate collection and control system to maintain less than 12 inches depth of leachate over the liner. Design plans should include information on all piping and leachate storage ponds.

4.2.2 Liner

For NMSWLFs required to install a liner, liner design plans must include information on the type of liner to be installed, liner compatibility with the proposed waste to be managed, quality assurance/quality control (QA/QC) practices to ensure the liner is installed to maintain liner integrity, and a demonstration that the liner will prevent downward migration of leachate and/or gas to the upper most water-bearing zone.

4.2.3 Landfill Gas Emission Control System

NMSWLFs required to install landfill emission control systems must provide system design plans to DEQ. The design plans should indicate the location and depth of monitoring devices and/or recovery components based on site-specific conditions and ensure that landfill gases will not exceeded 25% of the lower explosive limit for gases in facility structures (excluding the gas control and recovery system component) and not exceed the lower explosive limit at the property boundary.

4.2.4 Ground Water Monitoring

Owners and operators of a Tier III NMSWLF are required to install a ground water monitoring system must submit design plans identifying the location of proposed wells at the point of compliance, soil types at the site, depth to ground water, and ground water flow direction.

Within 30 days of well completion, the owner and operator shall submit a copy of the geologic log and record of well construction to DEQ for each well.

A ground water monitoring plan must also be submitted and approved by DEQ indicating monitoring frequency (quarterly unless otherwise approved by DEQ), constituents to be monitored (40 CFR 257.24), and QA/QC sampling procedures.

5 Landfill Operations

The operation of a NMSWLF has a significant effect on whether the facility is protecting human health and the environment while providing a service to the community and/or company. A poorly operated landfill can negate the effort that went into properly siting and designing it.

NMSWLFs are required to implement an operating plan reviewed and approved by the local health district. An operating plan serves several purposes. While Idaho regulations require a NMSWLF to have an approved operating plan on site, the operating plan also serves as a reference guide to landfill staff. New employees can become familiar with the operations of the facility by reviewing the operating plan, and the plan can be used by staff when unusual or emergency situations arise or if unfamiliar waste types are encountered. While an operating plan cannot be written for every possible situation, it should be written so that most expected situations are addressed. In the event that an unexpected situation arises, a contact person should be listed.

The following is a discussion on NMSWLF operating requirements, which are also detailed in Attachment 4. Requirements for Tier I, Tier II, and Tier III NMSWLFs are contained in IDAPA 58.01.06.011, 58.01.06.012, and 58.01.06.013, respectively. Specific rule citations are included in Attachment 1 for Tier I landfills. Specific rule citations and an approval plan checklist for Tier II and Tier III landfills are included in Attachment 4.

5.1 Prohibited Activities

Three types of waste disposal are prohibited in all NMSWLFs, as discussed below.

5.1.1 Regulated Medical Waste

The first prohibited activity is the disposal of "regulated" medical waste that has not been decontaminated. According to 29 CFR 1910.1030, regulations for bloodborne pathogens, "*decontamination* means the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal." *Regulated waste* is defined as "liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials" (29 CFR 1910.1030). Medical waste poses a significant risk to solid waste workers and the general public that uses solid waste facilities. All solid waste management facilities should require regulated medical waste to be placed in a biohazard bag or container and decontaminated prior to shipment to their facility. Requirements for regulated medical waste prohibitions for Tier I, Tier II and Tier III NMSWLFs are contained in IDAPA 58.01.06.011.01.a.i; 58.01.06.012.03.a.i; and 58.01.06.013.03.a.i, respectively.

For more information on the proper management of medical/infectious waste, please see DEQ's "Regulated Medical Waste Management and Disposal Guidance" available at *www.deq.idaho.gov/waste-mgmt-remediation/solid-waste/medical-waste.*

5.1.2 Speculative Accumulation

Idaho's "Solid Waste Management Rules" define speculative accumulation as "stock piles of materials or recyclables to be processed for reuse or disposal when fifty percent (50%) of the material is not reused or disposed by the end of the following calendar year after the date of first receipt by the facility, and which may create a nuisance or public health impact" (IDAPA 58.01.06.005.45). As an example, if a landfill started stockpiling a material on January 2, 2014, and accumulated 300 cubic yards of the material, the landfill would have until December 31, 2015, to dispose or reuse at least 150 cubic yards of the material. Requirements for regulated medical waste prohibitions for Tier I, Tier II, and Tier III NMSWLFs are contained in IDAPA 58.01.06.011.01.a.ii; 58.01.06.012.03.a.ii; and 58.01.06.013.03.a.ii, respectively.

5.1.3 Disposal of Radioactive Waste

There are several sources of radioactive waste in solid waste. IDAPA 58.01.06.001.03.viii identifies all radioactive waste and radioactive materials regulated pursuant to Idaho Code §39-4405(9) and radioactive waste and materials regulated under the authority of the Atomic Energy Act of 1945 as wastes not regulated under the Solid Waste Management Rules. For example, many household smoke detectors use a small amount of americium-241 in an ionization chamber to detect smoke and should not be accepted at NMSWLFs. Other sources include EXIT signs used in public, commercial, and industrial buildings. Exit signs use tritium as the radiation source that allows these signs to be lighted when building power is lost, such as in the event of a fire or other emergency. Exit signs containing tritium are regulated by the US Nuclear Regulatory Commission and are required to be transferred to a general licensee such as a manufacturer, distributor, licensed radioactive waste broker, or licensed low-level radioactive

waste disposal facility. Exit signs containing tritium are *prohibited* from disposal in municipal or non-municipal solid waste landfills. Requirements for disposal of radioactive waste prohibitions for Tier I, Tier II, and Tier III NMSWLFs are contained in IDAPA 58.01.06.011.01.a.iii; 58.01.06.012.03.a.ii; and 58.01.06.013.03.a.iii, respectively.

The Pennsylvania Department of Environmental Protection has conducted two studies regarding radiation levels—and more specifically, tritium levels—in landfill leachate:

- Radiological Investigation Results for Pennsylvania Landfill Leachate, October 3, 2005—*www.dep.state.pa.us/brp/Radiation_Control_Division/SolidWasteMonitoring/LF%20Leachate%20Final%2010_03_051_web.pdf*
- Radiological Investigation Results for Pennsylvania Landfill Leachate Fall 2005 Tritium Update, April 7, 2006—*www.dep.state.pa.us/brp/Radiation_Control_Division/SolidWasteMonitoring/Fall%2005%20LF%20Leachate%20Tritium%20PRE%20FINAL_slw032906_8.pdf*

Oil and gas drilling activities in the United States, including Idaho, have seen a dramatic increase in recent years. Radioactive waste typically referred to as naturally occurring radioactive material (NORM) or technologically enhanced naturally occurring radioactive material (TENORM) can be generated through oil and gas drilling. Sludge from production water can be a type of TENORM. Idaho's "Rules Regulating the Disposal of Radioactive Materials" (IDAPA 58.01.10) *prohibit* the disposal of TENORM except at facilities meeting specific criteria. Currently, the US Ecology facility near Grand View, Idaho, is the only facility in Idaho authorized to accept TENORM. For more information on TENORM, please see the following EPA website: *www.epa.gov/radiation/tenorm.*

5.2 Signs

Signage at each entrance to all NMSWLFs is required and informs customers the name of the facility, hours of operation, waste types accepted, and an emergency contact. Signs should be easily readable by those entering the facility, and lettering should be large enough to be seen from a reasonable distance. Poorly located signs or too small of print can lead to misunderstandings with customers and additional work for the landfill staff. Additional information such as tipping fees, special collection events, prior notification for special wastes, and other information can help educate NMSWLF customers. Requirements for signage at Tier I, Tier II, and Tier III NMSWLFs are contained in IDAPA 58.01.06.011.01.b; 58.01.06.012.03.b; and 58.01.06.013.03.b, respectively.

While not required by the "Solid Waste Management Rules," signs *within* the facility can help direct customers to specific areas such as those designated for scrap metal, appliances, yard/green waste, segregated wood waste, and other similar areas. The sign should clearly list specific items or waste types that may be placed or are not allowed to be placed in the designated area.

5.3 Waste Types

The owner and operator of Tier II and Tier III NMSWLFs should consider site-specific conditions when deciding what waste types to accept or identify the types of waste to be managed and then find sites and/or design features that will protect public health and the environment. Operating plans are required to identify wastes that will be received at the facility. Only the solid waste types listed in the approved operating plan may be accepted for disposal, and waste types should be identical to those listed in the site and design applications.

Descriptions of common waste types follow; this list is not intended to be all-inclusive. Additional discussion on waste types is provided in sections 5.3.2. through 5.3.5.

5.3.1 Industrial Solid Waste

As defined in 40 CFR 258.2. "Industrial solid waste" is waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under subtitle C of the Resource Conservation and Recovery Act (RCRA). Such waste may include, but is not limited to, waste resulting from the following processes:

- Electric power generation
- Fertilizer and agricultural chemical manufacturing
- Food and related products and by-products manufacturing
- Nonferrous metals manufacturing/foundries
- Leather and leather product manufacturing
- Organic chemical manufacturing
- Plastics and resins manufacturing
- Pulp and paper manufacturing
- Rubber and miscellaneous plastic products manufacturing
- Stone, glass, clay, and concrete manufacturing
- Textile manufacturing
- Transportation equipment manufacturing
- Water treatment

Examples of Industrial Solid Waste for acceptance by Tier I, Tier II, and Tier III NMSWLFs are contained in IDAPA 58.01.06.09.02; 58.01.06.58.01.06.012.03.c; and 58.01.06.013.03.c, respectively. This type of waste does not include mining waste or oil and gas waste. NMSWLF owners/operators proposing to accept industrial waste should carefully consider the characteristics of the waste. While a waste stream may be nonhazardous, constituents in the waste may, if improperly managed, impact ground water. EPA's *Guide for Industrial Waste Management* provides an in-depth analysis of the issues regarding industrial waste landfills. In addition, EPA provides the Industrial Waste Management Evaluation Model (IWEM). IWEM is a software program that assists industrial waste landfill owners and operators in determining the most appropriate waste management unit design to minimize or avoid potential impacts.

- *Guide for Industrial Waste Management*: *www.epa.gov/osw/nonhaz/industrial/guide/index*
- Industrial Waste Management Evaluation Model (IWEM): *www.epa.gov/osw/nonhaz/industrial/tools/iwem/index*

Landfill owners and operators should ensure any industrial waste (and other waste) is not hazardous waste. Generators of waste are required to determine whether the waste they generate is hazardous. It is the landfill owner's and operator's responsibility to ensure hazardous waste is not accepted at their facility by requiring documentation, either laboratory results or process knowledge by the generator, that the waste is not hazardous. Changes in the industrial process or changes in materials used in the industrial process may require updated hazardous waste characterization.

Only Tier III NMSWLFs with liners, leachate collection systems, and ground water monitoring as identified in the approved operating plan may accept CESQG hazardous waste.

5.3.2 Inert Waste

Non-municipal solid waste landfills *only* accepting inert waste are exempt from the "Solid Waste Management Rules" but will need to check with local government to determine if permitting is required. Facilities accepting a mixture of inert waste and regulated waste must comply with the "Solid Waste Management Rules." The following are examples of materials that are considered inert waste (IDAPA 58.01.06.005.19):

- Asphalt—Does not include asphalt contaminated with automotive fluids or contaminated with other materials.
- Earth—Uncontaminated gravel, sand, soil, rock, and stone.
- Masonry—Bricks, cinderblock, mortar, and concrete. Painted masonry should be tested for paint containing heavy metals (e.g., lead, chromium) and/or polychlorinated biphenyls (PCBs) if the type of coating is unknown. Masonry coated with heavy metal paint and/or PCBs is not considered inert.

5.3.3 Regulated Solid Waste

Facilities accepting regulated solid waste must comply with the requirements for the specific tier level within the "Solid Waste Management Rules." The definition of solid waste encompasses a broad range of materials. Waste that does not meet the definition of inert or is not regulated under other state or federal regulations is more than likely a regulated solid waste. The following are examples of materials that are regulated solid waste:

- Metals—Aluminum, brass, copper, iron, steel. (While these materials may be landfilled, DEQ encourages recycling when possible.) Examples include plumbing fixtures and piping, sheet metal, nails, metal studs, rebar, banding, electrical fixtures, and wiring (no fluorescent lights or ballasts that may contain PCBs).
- Plastics/Vinyl—Polyethylene, polyvinyl chloride (PVC), polystyrene. Examples include piping, insulation (extruded and sheeting), Styrofoam, flooring (including laminate), siding, doors, and window casings.
- Wood (untreated)—Lumber, pallets, silvicultural waste (trees, brush).
- Miscellaneous—Cardboard; glass/ceramics; roofing materials (composition and roofing paper, but not roofing cement); wall coverings (plaster, drywall, gypsum board).

5.3.4 Special Waste—Asbestos

In Idaho, asbestos is regulated by EPA. The management and/or disposal of asbestos must comply with applicable federal regulations. Prior to managing or disposing asbestos, please contact the EPA Region 10 asbestos coordinator at (907) 271-3688 or (206) 553-0513.

5.3.5 Prohibited Waste

In addition to municipal wastes, the disposal of other wastes in a NMSWLF is prohibited. These wastes include, but are not limited to, the following:

- Carpet (from households, motels, hotels, bunkhouses, ranger stations, and crew quarters)
- Electronic waste
- Furniture (from households, motels, hotels, bunkhouses, ranger stations, and crew quarters)
- Hazardous waste (e.g., batteries, paint, solvents, lead, and mercury)
- Household waste (including clothing, toys, and household hazardous waste)
- Untreated medical/healthcare wastes (regulated medical waste must be decontaminated as defined in 29 CFR 1910.1030)
- Petroleum or petroleum-based products (e.g., oil, caulking, adhesives, epoxies, petroleum-contaminated soils)
- Pesticides/herbicides/insecticides
- Tires—Tires may be accepted for off-site recycling or off-site disposal
- Unopened or opaque garbage bags (unable to identify contents)
- Treated wood, especially wood treated with creosote, pentachlorophenol, or copper-chrome-arsenate (e.g., fencing, decking, utility poles, and freshwater pilings)
- Yard waste (from households, motels, hotels, bunkhouses, ranger stations, and crew quarters)

5.4 Waste Monitoring and Measurement

Monitoring incoming waste helps ensure that only acceptable waste is disposed in the NMSWLF. It also tells customers that the facility is serious about monitoring acceptable waste and prohibiting the disposal of unauthorized waste. Monitoring incoming waste and recording this information on a daily log can assist with future NMSWLF decisions. Looking at past logs and recognizing trends can help identify possible reuse or recycling opportunities, assess remaining capacity, and determine future design capacity needs. Waste monitoring and measurement requirements for Tier II and Tier III NMSWLFs are contained in IDAPA 58.01.06.012.03.d and 58.01.06.013.03.d, respectively.

Tier II and Tier III owners/operators must develop appropriate waste screening and sorting plans and procedures. NMSWLF owners and operators are expected to undertake a reasonable screening program to ensure that only allowable waste is disposed at the facility. Operating plans must discuss monitoring and handling procedures for unauthorized waste. Special effort should be made to ensure that chemical containers such as paint cans, adhesive buckets, fuel containers, and pesticide containers are not accepted for disposal. Providing relevant training to employees

is highly recommended to ensure on-site safety and make certain employees understand operational requirements, procedures, and processes identified in the landfill's operating plan.

Gate attendees should conduct a visual inspection of every load that enters the facility. Any prohibited waste or containers that may contain prohibited waste should be removed by the hauler and disposed at an appropriate facility. Conducting a visual inspection of incoming loads will help prevent prohibited waste from reaching the disposal area and assist in estimating the volume of waste entering the facility. Employees stationed at the working face may also identify waste being discarded and ensure unauthorized waste is not disposed at the NMSWLF.

As part of the waste screening process, random load inspections should be conducted. Typically, random load inspections are conducted on a minimum 1% of the total number of loads received for a given period. Random load inspections should not be pre-announced or conducted at specific intervals (e.g., second Tuesday of every month or every Thursday). These inspections require a designated area that will prevent the release of liquids to the environment. The load to be inspected should be dumped at the designated area with the hauler present to answer questions regarding load contents. Using appropriate personal protection, landfill staff should break open opaque bags. Chemical containers or containers with unknown contents should not be opened and should be returned to the hauler. A log or other form is used to document the contents of the load, driver's name, and vehicle license number. Any unauthorized waste should be specifically noted on the log and how the unauthorized waste is managed. Once the inspection is complete, authorized waste can be transported to the NMSWLF working face.

Remove prohibited wastes from the working face and redirect their disposal to an appropriate facility. NMSWLF staff should direct customers to the nearest municipal solid waste landfill to dispose of household waste or an appropriate facility for other prohibited waste. Identify problem customers and prohibit their access to the site or charge fees for handling unauthorized waste. Cite or prosecute habitual illegal dumpers. Many NMSWLF owners and operators have implemented policies that discourage the disposal of unauthorized waste. Over time, the consistent application of the practices listed above will help in managing the solid waste facility, reducing liability, and protecting landfill workers and the environmental integrity of the site.

Measuring incoming loads either by weight or volume can also assist with evaluating past, current, and future disposal trends. As Idaho's population increases, so does the volume of waste entering landfills; however, solid waste disposal rates do not always correlate directly with population trends. By recording waste types and volumes, short-term and longer planning can be made regarding future landfill expansion, staffing, equipment, operating costs, and fees. See section 5.17 for further discussion on employee training.

5.5 Communications

Operating plans should identify communication equipment available onsite and emergency response notification. Communication requirements for Tier II and Tier III NMSWLFs are contained in IDAPA 58.01.06.012.03.e and 58.01.06.013.03.e, respectively. Additional discussion on communications is provided in section 5.6.

5.6 Fire Prevention and Control

Tier II and Tier III owners/operators are required to include fire prevention and control measures in their operating plans. Fires can occur at landfills for a variety of reasons. Spontaneous combustion of organic materials, incompatible wastes, illegal drug paraphernalia, burn barrels, equipment exhaust systems contacting combustible waste, or dry vegetation are all potential causes of fires. Owners and operators need to be prepared by having a plan to deal with fires. In addition, NMSWLF staff need to understand the waste types accepted at the facility and have adequate firefighting equipment and knowledge of when to fight fires and when to contact the local fire department. Operating plans should contain emergency contact information, and emergency contact information should be posted beside or programmed into land-line telephones. If personnel are provided cell phones, emergency contact information should be programed into cell phones. Fire Prevention and Control requirements for Tier II and Tier III NMSWLFs are contained in IDAPA 58.01.06.012.03.f and 58.01.06.013.03.f, respectively.

5.7 Facility Access

To prevent “midnight dumping,” vandalism, and liability from injury, all NMSWLF owners and operators need to secure their landfill site when staff are not on duty by using adequate fencing and/or natural features. Natural features may include large water bodies, rugged terrain, or other similar features that limit vehicle and foot traffic from entering the facility. Entrances should be controlled with gates that are locked when landfill staff is not present. Facility access requirements for Tier I, Tier II, and Tier III NMSWLFs are contained in IDAPA 58.01.011.01.d; 58.01.06.012.03.g; and 58.01.06.013.03.g, respectively.

5.8 Scavenging and Salvaging

Scavenging by the public at a landfill is prohibited at Tier II and Tier III landfills. If the owner or operator is salvaging, the person conducting the salvaging should be trained on the potential dangers and provided proper personal protective equipment. Regulations for scavenging and salvaging citations for Tier II and Tier III NMSWLFs are contained in 58.01.06.012.03.h and 58.01.06.013.h, respectively.

5.9 Nuisance Control

All owner and operators of NMSWLFs must control for nuisances. Nuisance issues are one of the public’s concerns surrounding a landfill site. Odor; vectors, such as flies and rodents; and blowing litter are a few of the nuisance conditions that can occur at a landfill. Effectively managing incoming waste can help reduce nuisance issues. Adequate periodic cover, litter control fences, and effective vector control are a few actions that landfill owners and operators can implement to reduce nuisance conditions. An operating plan must detail how nuisance conditions will be controlled and contingency measures implemented should nuisance conditions arise. Nuisance control requirements for Tier I, Tier II, and Tier III NMSWLFs are contained in IDAPA 58.01.011.01.c; 58.01.06.012.03.i; and 58.01.06.013.03.i, respectively.

5.10 Bird Hazards to Aircraft

All NMSWLFs located within 10,000 feet of any airport runway used by turbojet aircraft or 5,000 feet of any airport used by piston-type aircraft must ensure waste is managed to not attract birds and not increase the likelihood of bird/aircraft collisions. In 2013, 10 bird/aircraft collisions were reported in Idaho, with half of these collisions resulting in $50,000 or greater damage to the aircraft. Unlike municipal solid waste landfills, NMSWLFs typically do not accept waste that attracts birds. NMSWLF owners and operators should continue to evaluate waste accepted at their facility to ensure birds do not become a hazard to aircraft. Requirements for preventing bird hazards to aircraft for Tier I, Tier II, and Tier III NMSWLFs are contained in IDAPA 58.01.06.011.01.f; 58.01.06.012.03.j; and 58.01.06.013.j, respectively.

5.11 Open Burning

All NMSWLFs may conduct open burning only if they first request permission of the DEQ and notify the local fire department. Infrequent open burning of agricultural wastes, silvicultural waste, land-clearing debris, diseased trees, or debris from emergency cleanup operations is the only open burning allowed. While federal and state regulations do not define infrequent, the Merriam-Webster Dictionary defines infrequent as (1) seldom happening or occurring or (2) placed or occurring at wide intervals in space or time. DEQ has determined that infrequent open burning should occur no more than a few times per year at a particular facility. State or federally declared natural disasters may require the open burning of waste generated from such an event. If open burning is considered in response to a state or federally declared natural disaster, please contact your regional DEQ office and local health district. Plastic, paper, cardboard, dimensional lumber, and other materials are prohibited for open burning. While certain organic-based waste can be infrequently open burned, owners/operators should consider other management options for these wastes. Wood waste can be ground for use as hog fuel, livestock bedding, landscape material, and bulking material for compost. Reuse of the waste can generate income for the facility and/or extend the life of the NMSWLF. Fire Prevention and Control requirements for Tier I, Tier II, and Tier III NMSWLFs are contained in IDAPA 58.01.06.011.01.f; 58.01.06.012.03.f; and 58.01.06.013.03.f, respectively.

5.12 Stormwater Run-on and Run-off Control

Tier II and Tier III NMSWLF owners/operators need to prevent stormwater and/or snowmelt from running onto the active portion of their facility. Stormwater run-on and run-off controls apply to existing NMSWLFs, lateral expansions and new NMSWLFs. Stormwater and/or snowmelt that has not contacted waste may be managed as uncontaminated stormwater. Stormwater running off the active portion of the landfill, including stormwater contacting periodic cover, must be managed as leachate and diverted to an appropriately designed leachate management system. Precipitation and snowmelt collected from interim cover and/or final cover and not contacting waste may be managed as uncontaminated stormwater. Requirements for stormwater run-on and run-off controls are contained in IDAPA 58.01.06.012.03.l and 58.01.06.013.03.l, respectively. See section 5.16 for more information on interim cover.

Stormwater run-on and runoff control should include stormwater best management practices (BMPs), stormwater control system maintenance, and monitoring of the stormwater control system to ensure the system is functioning as designed. Discussion on stormwater control system BMPs, maintenance, and monitoring should be included in the facility's operating plan. Any time stormwater control design change is anticipated, updated design plans shall be submitted to DEQ for review and approval prior to implementing design changes. Updated facility maps shall also be included with the operating plan and submitted to the local health district for review and approval. For more information on stormwater BMPs, please see DEQ's and EPA's stormwater webpages:

- DEQ's "Stormwater in Idaho" webpage: *www.deq.idaho.gov/water-quality/wastewater/stormwater*
- EPA's "Stormwater Homepage": *http://cfpub.epa.gov/npdes/home.cfm?program_id=6*

5.13 Waste Compaction and Placement

Tier II and Tier III NMSWLF owners and operators are required to identify and comply with the waste compaction and placement methodologies placed in their approved operating plans. Good compaction and an organized plan for waste placement can significantly extend landfill life and help operations. Factors that affect compaction include waste characteristics, placement of waste, and appropriate equipment. Good compaction maximizes space in the landfill. Unused air space is wasted space that ultimately costs the NMSWLF owner and operator in reduced landfill life expectancy. With good compaction, less periodic cover material is required because the compacted surface is more uniform with fewer void spaces. Achieving good compaction also reduces differential settling that reduces long-term costs for final NMSWLF cover maintenance.

NMSWLF owners and operators should carefully evaluate the cost of a compactor against the cost of reduced landfill space, additional time to apply periodic cover over uneven waste, and additional work to repair final cover due to differential settlement. The following is an example of the increased air space when the compaction ratio is increased from 800 pounds (lb)/cubic yard to 1,100 lb/cubic yard for a 20 ton/day facility. At 800 lb/cubic yard, the facility would use 50 cubic yards of air space per operating day to dispose of 20 tons of waste. At 1,100 lb/cubic yard, the facility would consume 36.4 cubic yards per operating day, a difference of 13.6 cubic yards per day. If the facility is open 260 days per year, this would equate to an increased disposal capacity of 3,536 cubic yards per year for a compaction ratio of 1,100 lb/cubic yard versus 800 lb/cubic yard. Waste Compaction and Placement requirements for Tier II and Tier III NMSWLFs are contained in IDAPA 58.01.06.012.11.d.i and 58.01.06.013.13.e.i, respectively.

5.14 Storage of Waste When the NMSWLF is Inaccessible

Tier II and Tier III landfill owners and operators should plan for periods when the active portion of the NMSWLF may be inaccessible due to weather (e.g., excessive precipitation). Areas of the facility with access to all-weather roads should be evaluated for short-term storage of waste during extreme weather events. Litter control and stormwater management should also be considered when determining locations for short-term storage. When extreme weather events occur that prevent access to the facility, the owner or operator must inform the local health district of the situation and the need to use the temporary waste storage area. Temporary storage

should only be used until the working face of the NMSWLF can be accessed, at which time temporarily stored waste should immediately be moved. Storage of waste requirements for Tier II and Tier III NMSWLFs are contained in IDAPA 58.01.06.012.11.d.ii and 58.01.06.013.13.e.ii, respectively.

5.15 Periodic Cover

Periodic cover applied over disposed waste serves several purposes. Cover reduces blowing litter, controls odor, limits vector access to waste, reduces the potential for fires, and reduces the potential of leachate generation. EPA's *Guide for Industrial Waste Management*, chapter 8, Section III.D, states the following:

> It might be necessary to apply a daily cover to operating landfills and waste piles. Covering the waste helps control nuisance factors, such as the escape of odors, dust, and airborne emissions, and can control the population of disease vectors where necessary. Some cover materials, due to their ability to hold moisture, can reduce the infiltration of rain water, decreasing the generation of leachate and the potential for surface-water and ground-water contamination.

The "Solid Waste Management Rules" require Tier I NMSWLFs to control nuisances (rodents, vectors, odor, and litter) due to their limited total disposal capacity and acceptance of materials not likely to produce leachate. Tier II and Tier III NMSWLFs are required to apply 6 inches of compacted soil cover layer on exposed waste as necessary to prevent nuisance and vector conditions at periods consistent with the approved operating plan. Further, 40 CFR Part 257.3-8(e)(6) defines periodic application of cover material to mean "the application and compaction of soil or other suitable material over disposed solid waste at the end of each operating day or at such frequencies and in such a manner as to reduce the risk of fire and to impede disease vectors' access to the waste."

Two things are clear from the above-mentioned regulations: (1) operating plans must provide a specific time period for cover material application and (2) EPA considers daily application of cover the standard, with other specified periods and application in such a manner as to reduce the risk of fire and impede disease vector access to waste. NMSWLF owners/operators who wish to apply cover material at frequencies less than daily must justify in the facility's operating plan as to how the alternative frequency will reduce the risk of fires, impede disease vectors, and control litter, odor, other nuisance conditions, and precipitation entering the waste. Issues to address include precipitation, wind, waste characteristics, adjacent property uses, and other site-specific conditions. The operating plan must provide a specific frequency (e.g., at the end of each operating day, every 3 days, every 5 days, or every 2 weeks). Statements such as, "periodic cover will be applied as needed to prevent nuisance and vector conditions" should not be included in operating plans. These types of statements provide no objective standard for determining when and/or if these conditions exist or who will make this determination.

Rather than applying soil on a periodic basis, NMSWLF owners or operators may want to consider using an alternative periodic cover. Examples of appropriate alternative periodic cover include, but are not limited to, the tarp-o-matic, and posi-shell, and finished compost. Owners and operators of unlined NMSWLFs should carefully consider alternative periodic covers that may leach contaminants, which increase the potential for ground water impacts. Municipal solid waste landfills that use alternative daily covers are required to apply a 6-inch soil cover typically

at the end of the operating week. NMSLWFs that use alternative periodic covers will also be required to apply a 6-inch soil cover at a specific period to maintain a fire break, limit stormwater percolation through the waste, and aid in lift stability. Using an alternative periodic cover will help conserve landfill air space while meeting the intent of the periodic application of 6 inches of soil. Nuisance control requirements for Tier I NMSWLFs are contained in IDAPA 58.01.06.01.c. Period cover requirements for Tier II and Tier III NMSWLFs are contained in 58.01.06.012.11.d.iii and 58.01.06.013.13.e.iii, respectively.

5.16 Interim Cover

Tier II and Tier II landfills are required to provide interim cover. Interim cover is the application of 12 inches of compacted soil placed over areas of waste that will not receive additional waste for an extended period of time or in between lifts to provide structural stability. The time frame for considering interim cover application is typically 3–6 months, depending on the time of the year. For example, if an area last received waste in October and is not expected to receive waste for 4 months, then it may be appropriate to apply interim cover, since late fall/winter is a wetter time of year for most of Idaho. Not only does interim cover provide additional protection against precipitation leaching through the waste, but, if properly sloped, precipitation running off interim cover can be managed as stormwater rather than leachate from periodic cover. Interim cover requirements for Tier II and Tier III NMSWLFs are contained in IDAPA 58.01.06.012.11.d.iv and 58.01.06.013.e.iv, respectively.

5.17 Employee Training

While not included in the "Solid Waste Management Rules," employee training is highly recommended. Educate staff on the facility's operating plan, policies, regulations, and guidance pertaining to solid waste management and on potential environmental impacts and liability issues resulting from improper waste management. Develop and implement a comprehensive training program to help staff identify prohibited waste items and enforce site restrictions. Facility employees should also receive health and safety training as it pertains to their jobs and activities around the NMSWLF. A copy of any training, whether on-site or off-site, should be retained in the employee's file to help demonstrate the employee's competency and the frequency of training. Regular, periodic employee training will not only result in a safe, well-run facility but may also reduce insurance costs and lost work time from injuries and accidents.

5.18 Worker Safety

While not included in the Solid Waste Management Rules, worker safety training is highly recommended. NMSWLF workers face many safety issues during their workday, including exposure to different wastes, operation of heavy equipment, and customer traffic. NMSWLF management should provide the safest working situation possible. Not every hazard will be mitigated, but training staff on the dangers associated with their job, providing customers with clear traffic routes to and from the working face, and providing the necessary personal protective equipment to site workers will help reduce accidents at the site and decrease insurance costs.

5.19 Documentation

All NMSWLF owners and operators are required to maintain on site certain documents. All approved plans such as the landfill operating plan, ground water monitoring plan, gas monitoring plan, and closure and post-closure plan must be retained on site. . Other documentation such as daily logs demonstrating volumes and types of waste, employee training records, random load inspection forms, rejected load logs, and other similar documents should also be maintained on site. Documentation requirements for Tier I, Tier II, and Tier III NMSWLFs are contained in IDAPA 58.01.06.011.3; 58.01.06.012.11.e; and 58.01.06.013.13.f, respectively.

6 Glossary

The following definitions, contained within various regulations, will assist in understanding discussions within this guidance:

Commercial Solid Waste: means all types of solid waste generated by stores, offices, restaurants, warehouses, and other non-manufacturing activities, excluding residential and industrial wastes (40 CFR Part 258.2).

Construction/Demolition Waste: means the waste building materials, packaging and rubble resulting from construction, remodeling, repair and demolition operations on pavements, houses, commercial buildings and other structures. Such waste includes, but is not limited to, bricks, concrete, other masonry materials, soil, rock, lumber, road spoils, rebar, paving materials and tree stumps. Non-inert wastes and asbestos wastes are not considered to be demolition waste for the purposes of this chapter (Idaho Code §39-7403 Idaho Solid Waste Facilities Act).

Construction and Demolition (C&D) Landfill: means a solid waste disposal facility subject to the requirements in 40 CFR Part 257, subparts A or B of this chapter that receives construction and demolition waste and does not receive hazardous waste (defined in §261.3 of this chapter) or industrial solid waste (defined in §258.2 of this chapter). Only a C&D landfill that meets the requirements of 40 CFR Part 257, subpart B may receive conditionally exempt small quantity generator waste (defined in §261.5 of this chapter). A C&D landfill typically receives any one or more of the following types of solid wastes: roadwork material, excavated material, demolition waste, construction/renovation waste, and site clearance was (40 CFR Part 257.2).

Conditionally Exempt Small Quantity Generator (CESQG): Conditionally Exempt Small Quantity Generators (CESQG) generate 100 kilograms (220 pounds) or less per month of hazardous waste, or 1 kilogram (2.2 pounds) or less per month of acutely hazardous waste (40 CFR Part 261.5).

Decontaminated Waste (medical): Medical waste that has been physically or chemically treated to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use or disposal (29 CFR Part 1910.1030).

Electronic Waste: Unwanted or unusable computers, monitors, televisions, audio equipment, printers, cellular phones, and other electronic devices.

Garbage: Any waste consisting of putrescible animal and vegetable materials resulting from the handling, preparation, cooking and consumption of food, including waste materials from households, markets, storage facilities, handling and sale of produce and other food products (IDAPA 58.01.06).

Hazardous Waste: A waste or combination of wastes of a solid, liquid, semisolid, or contained gaseous form which, because of its quantity, concentration or characteristics (physical, chemical or biological) may:

a) Cause or significantly contribute to an increase in deaths or an increase in serious, irreversible or incapacitating reversible illnesses; or

b) Pose a substantial threat to human health or to the environment if improperly treated, stored, disposed of, or managed. Such wastes include, but are not limited to, materials which are toxic, corrosive, ignitable, or reactive, or materials which may have mutagenic, teratogenic, or carcinogenic properties but do not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to national pollution [sic] discharge elimination system permits under the federal water pollution control act, as amended, 33 U.S.C., Section 1251 et seq., or source, special nuclear, or byproduct material as defined by the atomic energy act of 1954, as amended, 42 U.S.C., Section 2011 et seq. (Idaho Code §39-4403).

Household Waste: Any solid waste, including garbage, trash, and sanitary waste in septic tanks, derived from households, including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day use recreation areas (IDAPA 58.01.06; 40 CFR Part 257.2; 40 CFR Part 258.2).

Industrial Solid Waste: Solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under subtitle C of RCRA. Such wastes may include, but are not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer and agricultural chemicals; food and related products and byproducts; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste (40 CFR Part 257.2; 40 CFR Part 258.2).

Inert Wastes: Noncombustible, non-hazardous, non-putrescible, non-leaching solid wastes that are likely to retain their physical and chemical structure under expected conditions of disposal, including resistance to biological attack (IDAPA 58.01.06; 40 CFR Part 258.2).

Leachate: A liquid that has passed through or emerged from waste and contains soluble, suspended, or miscible materials removed from such waste (IDAPA 58.01.06; 40 CFR Part 257.2; 40 CFR Part 258.2; Idaho Code 39-7403). Leachate is formed when precipitation filters through wastes placed in a landfill. When this liquid comes in contact with buried wastes, it leaches, or draws out, chemicals or constituents from those wastes.

Municipal Solid Waste Landfill (MSWLF): A discrete area of land or an excavation that receives household waste, and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under 40 CFR 257.2. A MSWLF unit also may receive other types of RCRA subtitle D wastes, such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Such a landfill may be publicly or privately owned. A MSWLF unit may be a new MSWLF unit, an existing MSWLF unit or a lateral expansion (IDAPA 58.01.06; 40 CFR Part 257.2; 40 CFR Part 258.2).

Non-Municipal Solid Waste: A solid waste that is not mixed with household waste or not excluded by IDAPA 58.01.06.001.03. Examples of non-municipal solid waste may include inert wastes (IDAPA 58.01.06).

Non-Municipal Solid Waste Landfill (NMSWLF): A discrete area of land or an excavation that accepts only non-municipal solid wastes (IDAPA 58.01.06).

Open Dump: A facility for the disposal of solid waste that does not comply with this part (40 CFR 257).

Qualified Professional: Qualified professional means a licensed professional geologist or licensed professional engineer, as appropriate, holding current professional registration in good standing and in compliance with applicable provisions of Chapter 12, Title 54, Idaho Code (IDAPA 58.01.06.005.35).

Regulated (medical) Waste: Liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials (29 CFR Part 1910.1030).

Special Waste: Waste that requires special treatment or handling after it arrives at the disposal site. The term includes, but is not limited to, asbestos-containing material, petroleum-contaminated soils, low-level PCB-containing material, low-level dioxin-containing material and uncut tires (Idaho Code §39-7403).

Wood Waste: Solid waste consisting of wood pieces or particles generated as a byproduct or waste from the manufacturing of wood products, handling or storage of raw materials, and trees and stumps. This includes, but is not limited to, sawdust, chips, shavings, bark, pulp, hog fuel, and log yard waste, but does not include wood pieces or particles containing chemical preservatives such as creosote, pentachlorophenol, or copper-chrome-arsenate (Idaho Code §39-7403).

Yard Waste: Weeds, straw, leaves, grass clippings, brush, wood, and other natural, organic, materials typically derived from general landscape maintenance activities (IDAPA 58.01.06).

Attachment 1. Tier I NMSWLF Applicable Requirements checklist.

Completed ✓	Requirement	Discussion	Resources
	Prohibited Activities • Only accept materials that are not likely to produce leachate. • Speculative accumulation • Disposal of radioactive waste **Tier I 58.01.06.011.01.a.i-iii.**	A Tier I landfill may not accept regulated medical waste from any business that provides health care, support to health care business, or medical diagnostic services that has not been decontaminated. A Tier 1 landfill may not stock pile materials or recyclables to be processed for reuse or disposal when fifty percent (50%) of the material is not reused or disposed by the end of the following calendar year after the date of first receipt by the facility. Because large stockpiles may create a nuisance or public health impact, they may only be approved by the Department in writing. Radioactive waste shall not be accepted.	IDAPA 58.01.016 29 CFR1910.1030 Idaho Code § 39-4405(9)
	Signs – Facilities open to the public shall clearly post visible and legible signs at each entrance to the facility. The signs shall specify, at a minimum, the name of the facility, hours of operation, waste accepted at the facility, and an emergency phone number. **Tier I 58.01.06.011.01.b.**	Proper signage informs customers of the hours of operation, types of waste accepted, and emergency contact information. Having informed customers prevents waste from being dumped when the facility is closed, reduces the amount of unacceptable waste requiring off-site disposal, and allows for quicker emergency response time in the event of an emergency.	

	Nuisance Control – The owner and operator shall control nuisances, including but not limited to the following: • Disease or Discomfort. Operations at any facility shall not provide sustenance to rodents or insects that cause human disease or discomfort. • Vector. Vector control procedures shall prevent or control vectors that may cause health hazards or nuisances. • Odor. The facility shall be operated to control malodorous gases. • Litter. Effective measures shall be taken to minimize the loss of debris from the facility. Debris blown from or within the facility shall be collected and properly disposed to prevent objectionable accumulations **Tier I 58.01.06.011.01.c.i.-ix.**	Nuisance conditions can occur at NMSWLFs, including odor, dust, litter, and vectors. Effectively managing incoming waste, applying water or other dust control measures, and having an ongoing litter control program can address many of the nuisance conditions at a landfill. While Tier I landfills are not required to submit an operation plan for approval by the local health district and DEQ, the owner and operator must control nuisance conditions and have contingency measures in place should nuisance conditions arise.	
	Facility Access – Unauthorized vehicles and persons shall be prohibited access to the facility. A facility open to the public shall accept waste only when an attendant is on duty. The facility shall be fenced or otherwise blocked to access when an attendant is not on duty. **Tier I IDAPA 58.01.06.011.01.d.**	To prevent “midnight dumping,” vandalism, and liability from injury, owners/operators need to secure their landfill sites.	

	Bird Hazards to Aircraft - No facility may handle putrescible wastes in such a manner that may attract birds and increase the likelihood of bird/aircraft collisions. Facilities located within 10,000 feet of any airport runway used by turbojet aircraft, or within 5,000 feet of any airport used by only piston-type aircraft, shall operate the facility in such a manner that birds are not a hazard to aircraft. **Tier I IDAPA 58.01.06.011.01.e.**	Typically, NMSWLFs do not manage waste that attracts birds. Bird strikes can cause aircraft damage and/or crashes. Owners/operators need to ensure that their site manages waste properly if their facility is in the vicinity of an airport. Operating plans should identify if wastes are being accepted that may be a bird attractant and what steps the facility will take to reduce bird hazards to aircraft.	
	Open Burning and Fires—Open burning is prohibited at facilities except as authorized by the "Solid Waste Management Rules" and IDAPA 58.01.01, "Rules for the Control of Air Pollution in Idaho." **Tier I IDAPA 58.01.06.011.01.f.**	Infrequent open burning may be conducted for agricultural waste (excluding dead animals and manure), silviculture waste, land-clearing debris, diseased trees, or debris from a federal or state natural disaster. Garbage, dead animals, asphalt, petroleum products, paints or painted materials, tires, plastics, cardboard, treated wood, and construction/demolition waste are examples of waste that should not be open burned. The operating plan must state whether open burning is to be conducted and, if so, what waste will be burned, the frequency, and that DEQ and the local health district will be notified prior to each open burning event.	IDAPA 58.01.01 Rules for the control of Air Pollution in Idaho

	Stormwater Run-On/Runoff Controls—The operating plan shall include sufficient stormwater management provisions, which may incorporate a National Pollutant Discharge Elimination System (NPDES) stormwater pollution prevention plan, to prevent contamination of surface and ground water and prevent the spread and impact of contamination beyond the boundary of the facility. Tier I IDAPA 58.01.06.011.01g.	NMSWLF activities can release contaminants to the environment that, if not managed appropriately, may impact human health and the environment. Tier I landfill owners and operators must ensure their site manages stormwater run-on and runoff to minimize these impacts.	
	Application Content, Review and Approval Requirements – **Tier I 58.01.06.011.02**.	Tier I landfills must provide prior notification to DEQ before opening. The notice shall include; the owner's name, operator's name, physical location of site, mailing address, facility phone number and type of solid waste management. Owner and operator names, physical location of site, contact information, type of solid waste management facility.	
	Documentation Requirements – **Tier I 58.01.06.011.03**.	Tier I landfill shall only have a cumulative design capacity of 2,000 cubic yards or less. Tier I landfills may be inspected by the health district and DEQ staff to ensure the facility is in compliance with applicable requirements. It is important the owner or operator maintain documentation onsite, such as a daily log indicating types and volumes of waste that verify the site's Tier I status.	

Attachment 2. Tier II and Tier III NMSWLF site approval checklist.

Completed ✓	Requirement	Discussion	Resources
	Floodplain Restriction—A facility shall not be located within a 100-year floodplain if the facility will restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in a washout of solid waste so as to pose a hazard to human health and the environment. **Tier II IDAPA 58.01.06.012.01.a or** **Tier III IDAPA 58.01.06.013.01.a**	Floodplains are natural areas along rivers that provide water storage during floods. Owners/operators should exercise caution when planning to locate a NMSWLF in a 100-year floodplain. Owners/operators must demonstrate that their facility will not restrict the flow of flood water, reduce the temporary water storage capacity of the floodplain, or result in a washout of solid waste. The site approval application must include a Federal Emergency Management Agency (FEMA) flood map with the site clearly indicated on the map. For facilities proposed within a 100-year floodplain, the site approval application and operating plan must discuss in detail how the facility will not restrict the flow of the 100-year flood, reduce water storage capacity, or result in a washout of solid waste. The application will need to incorporate actions the owner/operator will implement in the event of flood.	FEMA map website—*https://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1*
	Endangered or Threatened Species—A facility shall not cause or contribute to the taking of any endangered or threatened species of plants, fish, or wildlife or result in the destruction or adverse modification of the critical habitat of endangered or threatened species as identified in 50 CFR Part 17. **Tier II IDAPA 58.01.06.012.01.b or** **Tier III IDAPA 58.01.06.013.01.b**	To limit impacts to endangered and threatened species, the owner/operator must obtain a determination from the US Fish and Wildlife Service or the Idaho Office of Species Conservation that the proposed facility will not cause or contribute to the taking of any endangered or threatened species. If a determination is made that the proposed site may impact endangered or threatened species, the owner/operator may be required to conduct a survey on the proposed site to determine if endangered or threatened species are on site or if the site contains critical habitat for the species. If the site contains endangered or threatened species or critical habitat, the owner/operator may need to undertake actions to address the endangered or threatened species. Typically, the determination is valid for 180 days from the date of the determination.	US Fish and Wildlife Service—*http://www.fws.gov/endangered/* Idaho Office of Species Conservation—*http://species.idaho.gov/*

Completed ✓	Requirement	Discussion	Resources
	Surface Water—The active portion of a facility shall be located such that the facility shall not cause contamination of surface waters, unless such surface waters are an integral part of the non-municipal solid waste management facility's operation for stormwater and/or leachate management. **Tier II IDAPA 58.01.06.012.01.c or** **Tier III IDAPA 58.01.06.013.01.c**	Surface water such as streams, rivers, lakes, and reservoirs can be impacted from NMSWLF operations by the leachate that may run off site during storm events and/or snowmelt. Adequate stormwater control and site grading are effective ways to prevent surface water impacts from NMSWLFs. Site applications must indicate nearby surface water on a scaled map and identify how the site will not impact surface water. A US Geological Survey 7.5-minute topographic map can be used to show surface water features in the area of the proposed site.	US Geologic Survey topographic maps—*http://nationalmap.gov/ustopo/index.html*
	Park, Scenic, or Natural Use Areas—The active portion of a facility shall not be located closer than 1,000 feet from the boundary of any state or national park, or land reserved or withdrawn for scenic or natural use including, but not limited to, wild and scenic areas, national monuments, wilderness areas, historic sites, recreation areas, preserves, and scenic trails. **Tier II IDAPA 58.01.06.012.01.d or** **Tier III IDAPA 58.01.06.013.01.g**	The 1,000-foot separation distance from parks and scenic or natural use areas is intended to reduce potential impacts to park/scenic/natural use area visitors. The site application must contain a map indicating the distance to the nearest park and scenic/natural use area.	National Atlas website for wilderness areas and federal lands—*http://www.nationalatlas.gov/mapmaker?AppCmd=CUSTOM&LayerList=wa&visCats=CAT-boundary,CAT-boundary* *http://nationalatlas.gov/printable.html#fedlands*

Completed ✓	Requirement	Discussion	Resources
	Wetlands—A facility shall not be located in wetlands, except as provided in 40 CFR 257.9. **Tier II IDAPA 58.01.06.012.11.a.i or** **Tier III IDAPA 58.01.06.013.13.a**	Wetlands provide valuable habitat for a wide range of wildlife, help filter surface water, recharge ground water, and help control flood waters. Wetlands are also economically important due to hunting, fishing, agriculture, and recreation opportunities. NMSWLFs should not be located in wetlands unless the conditions identified in 40 CFR 257.9 are met. The site application must contain a copy of the applicable National Wetlands Inventory map and a wetlands determination from the US Army Corps of Engineers or the Natural Resources Conservation Service.	US Fish and Wildlife Wetlands Mapper *http://www.fws.gov/wetlands/Data/Mapper.html* US Army Corps of Engineers–Boise Outreach Office *http://www.nww.usace.army.mil/Locations/BoiseOutreachOffice.aspx* Natural Resources Conservation Service–Idaho *http://www.nrcs.usda.gov/wps/portal/nrcs/main/id/water/watersheds/*
	Ground Water—The active portion of a facility shall be located, designed, and constructed such that the facility shall not cause contamination to a drinking water source or cause contamination of the ground water. **Tier II IDAPA 58.01.06.012.11.a.ii or** **Tier III IDAPA 58.01.06.013.01.d**	Ground water protection is an important goal of DEQ. Idaho citizens rely on ground water for drinking water, irrigation, livestock water, and industrial purposes. Improperly sited, designed, and/or operated solid waste management facilities can negatively impact ground water. Solid waste management facility owners/operators need to demonstrate that their proposed NMSWLF will not impact ground water. The site application should include depth to the highest known ground water, an evaluation of the soils and geology under the proposed site, design features that will prevent the downward migration of leachate, and operations to limit leachate generation. For sites with questionable geology and/or waste characteristics, modeling or additional design features may be required to demonstrate the site will be protective of human health and the environment.	Idaho Department of Water Resources well driller reports— *http://www.idwr.idaho.gov/WaterManagement/WellInformation/DrillerReports/dr_default.htm* Contact a qualified geologist/hydrogeologist for assistance.

Completed ✓	Requirement	Discussion	Resources
	Geologic Restrictions—No facility may be located on land that would threaten the integrity of the design. **Tier II IDAPA 58.01.06.012.11.a.iii or** **Tier III IDAPA 58.01.06.013.01.e**	Fault areas, seismic impact zones, and other unstable natural or man-made features may impact a facility's site and design elements that are intended to protect human health and the environment. A site evaluation for these factors should be conducted by a qualified professional to determine if potential geologic issues exist with the site.	USGS Natural Hazards *http://www.usgs.gov/natural_hazards/* Contact a qualified professional geologist for assistance.
	Property Line Restriction—The active portion of a facility shall not be located closer than 100 feet to the property line. **Tier II IDAPA 58.01.06.012.11.a.iv or** **Tier III IDAPA 58.01.06.013.01.f**	The intent of the setback is to provide a physical separation between facility activities and surrounding neighbors. Even well-run facilities can produce some dust, odor, noise, and vectors. By providing this setback, the impact to neighbors can be reduced, thereby reducing complaints. The site application must contain a scaled map of the site with the location of all waste disposal trenches/cells, leachate collection ponds, and any waste/reuse stockpiling areas. The scaled site map must depict a 100-foot setback from the property line and all areas identified above outside the 100-foot setback.	

Completed ✓	Requirement	Discussion	Resources
	Site Map Requirements— • Highways, roads, and adjacent communities • Property boundaries • Total acreage of the site • Off-site and on-site access roads and service roads • Types of land use adjacent to the facility and a description of all facilities on the site • All water courses, ponds, lakes, reservoirs, canals, irrigation systems, and existing water supplies, within 0.25 miles of the proposed facility property lines • High tension power line rights-of-way, fuel transmission pipeline rights-of-way, and proposed or existing utilities • Proposed and existing fencing and structures at the facility and within 500 feet of the facility boundary. This shall include location of employee building and scales (if provided). • Direction of prevailing winds **Tier II IDAPA 58.01.06.012.02 or Tier III IDAPA 58.01.06.013.02**	A map (or maps) containing the information to the left helps identify potential issues or considerations during the review/approval process.	

Attachment 3. Tier II and Tier III NMSWLF Design Plan approval checklist.

Completed ✓	Requirement	Discussion	Resources
	The owner and operator shall provide the following information for design approval: i. A facility map illustrating: (1) Surface water and erosion control systems; (2) Proposed fill area, including the location of waste disposal trenches or cells, noting the locations of trenches used for separated waste such as animal carcasses, tree trunks, stumps, bulky wastes, car bodies, asbestos, and petroleum contaminated soils; (3) Location of borrow areas; (4) Design elevation grade of final cover; (5) Soil and water table test boring holes, wells, or excavations; (6) Proposed receiving, storage, and processing areas; (7) Proposed trench layout and development; and (8) Contour lines at five (5) foot intervals within the operating area and ten (10) foot intervals to the facility boundary. **Tier II IDAPA 58.01.06.012.11.c. or** **Tier III IDAPA 58.01.06.013.13.d.iii**	NMSWLF designs can vary significantly based on the types and volume of waste to be managed and site-specific geologic conditions. The design may be as simple as natural soils providing adequate protection to ground water or may involve a constructed liner and leachate collection system. Tier II and Tier III NMSWLF owners and operators must submit a design plan detailing the following: • Surface water and erosion control systems • Proposed fill area, including the location of waste disposal trenches or cells, noting the locations of trenches used for separated wastes such as animal carcasses, tree trunks, stumps, bulky wastes, car bodies, asbestos, and petroleum-contaminated soils • Location of borrow area • Design elevation grade of final cover • Soil and water table test boring holes, wells, or excavations • Proposed receiving, storage, and processing areas • Proposed trench layout and development • Contour lines at 5-foot intervals within the operating area and 10-foot intervals to the facility boundary Additional Tier III requirements: • Building and construction design blueprints • Operational design and capacity information, including a description of the waste types and projected daily and annual waste volumes	Contact a qualified professional engineer and/or geologist for assistance in determining an adequate design based on the volume of waste, types of waste, and other site-specific conditions that will protect public health and the environment. EPA Stormwater Pollution Prevention Plan— *http://www.epa.gov/npdes/pubs/industrial_swppp_guide.pdf*

Completed ✓	Requirement	Discussion	Resources
	Tier III Design and Construction Requirements: The owner and operator of a new Tier III NMSWLF shall comply with the following design and construction requirements: i. Leachate Collection and Control System. A leachate collection and control system shall be constructed to prevent ground and surface water contamination; ii. Liner. A liner designed to prevent ground or surface water contamination shall be installed. The liner design shall account for the types of wastes handled and the potential for migration of liquid and gaseous contamination to ground or surface water; iii. Landfill Emission Control System. Appropriate toxic and flammable gas monitoring devices shall be installed where the location, geophysical condition, and waste characteristics indicate that there is a reasonable probability that the facility will generate toxic and flammable gas: exceeding twenty-five (25) percent of the lower explosive limit for gases in facility structures (excluding gas control or gas recovery system components); exceeding the lower explosive limit at the property boundary; or otherwise presenting a potential threat to public health or the environment. **Tier III IDAPA 58.01.06.013.13.c.i–iii**	In addition to the above, Tier III NMSWLF owners and operators will need to detail the proposed leachate collection and control system, landfill liner, and landfill gas emission control system.	

Completed ✓	Requirement	Discussion	Resources
	The following information shall be submitted to DEQ in a ground water monitoring application: a. A map showing soil types, depth to ground water, ground water flow direction and locations of proposed ground water monitoring wells; and b. A monitoring schedule indicating sample frequency and constituents to be analyzed. **Tier III IDAPA 58.01.06.013.05**	Tier III NMSWLF owners and operators must submit a ground water monitoring application containing a map showing soil types under the site, depth to ground water, ground water flow direction, and locations of proposed ground water monitoring wells and a monitoring schedule indicating sample frequency and constituents to be analyzed. The schedule and frequency must be in compliance with 40 CFR 257.24. The application should also address the requirements specified in 40 CFR 257.23.	40 CFR Part 257 *http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&SID=4d2011072039b12873bfba5ed4249183&ty=HTML&h=L&n=40y25.0.1.4.38&r=PART#40:25.0.1.4.38.2.21.10*

Attachment 4. Tier II and Tier III NMSWLF Operating Plan approval checklist.

Completed ✓	Requirement	Discussion	Resources
	Prohibited Activities— • Disposal of regulated waste from any business that provides health care, support to health care businesses, or medical diagnostic services that has not been decontaminated • Speculative accumulation • Disposal of radioactive materials **Tier II IDAPA 58.01.06.012.03.a or** **Tier III IDAPA 58.01.06.013.03.a**	Unless specifically provided for in a facility's operating plan, waste from medical care facilities that would be considered infectious or bloodborne pathogen waste is prohibited. Speculative accumulation occurs with stockpiles of material or recyclables to be processed for reuse or disposal when 50% of the material is not reused or disposed by the end of the following calendar year after the date of first receipt by the facility. Radioactive waste shall not be accepted. The operating plan must describe steps the owner or operator will take to prevent unauthorized waste from disposal into the landfill. The operating plan must also describe how waste will be managed to prevent speculative accumulation.	OSHA Bloodborne Pathogen Requirements *https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=10051*
	Signs—Facilities open to the public shall clearly post visible and legible signs at each entrance to the facility. The signs shall specify, at a minimum, the name of the facility, hours of operation, waste accepted at the facility, and an emergency phone number. **Tier II IDAPA 58.01.06.012.03.b or** **Tier III IDAPA 58.01.06.013.03.b**	Proper signage informs customers of the hours of operation, types of waste accepted, and emergency contact information. Having informed customers prevents waste from being dumped when the facility is closed, reduces the amount of unacceptable waste requiring off-site disposal, and allows for quicker emergency response time in the event of an emergency. The operating plan must specify the proposed information to be displayed on the facility's signs and state that a sign containing the proposed information will be posted at every entrance to the facility.	
	Waste Types—Only the solid waste types listed in the approved operating plan may be accepted for disposal or processing. **Tier II IDAPA 58.01.06.012.03.c or** **Tier III IDAPA 58.01.06.013.03.c**	The facility's operating plan must identify specific wastes to be managed and how unauthorized waste will be excluded from the site.	EPA Guide for Industrial Waste Management *http://www.epa.gov/epawaste/nonhaz/industrial/guide/index.htm* EPA Industrial Waste Management Evaluation Model *http://www.epa.gov/epawaste/nonhaz/industrial/tools/iwem/index.htm*

Completed ✓	Requirement	Discussion	Resources
	Waste Monitoring and Measurement—Provisions shall be made for monitoring or measuring all solid waste delivered to a facility. The waste monitoring program shall include the following: • A daily written log listing the types and quantities of wastes received • A plan for monitoring and handling receipt of unauthorized wastes • Routine characterization of the wastes received • Other measures included in an approved operating plan **Tier II IDAPA 58.01.06.012.03.d or** **Tier III IDAPA 58.01.06.013.03.d**	To properly manage waste, facility owners/operators must know how much waste they are managing and the volume of each waste type. In addition, owners/operators need to be prepared to manage unauthorized waste that may be mixed with incoming loads. Other measures may be incorporated in a plan to deal with specific waste or provide greater protection.	
	Communication—Communication devices shall be available or reasonably accessible at the site. **Tier II IDAPA 58.01.06.012.03.e or** **Tier III IDAPA 58.01.06.013.03.e**	These devices allow workers to communicate on a routine basis and in emergency situations.	
	Fire Prevention and Control—Adequate provisions shall be made for controlling or managing fires at the site. **Tier II IDAPA 58.01.06.012.03.f or** **Tier III IDAPA 58.01.06.013.03.f**	Fires can occur at NMSWLFs for a variety of reasons. Stock piles of wood chips can spontaneously combust. In addition, equipment can contact waste or dried vegetation causing fires. Owners/operators need to be prepared and have a plan in place to deal with fires. Site staff also need to know when a situation requires emergency response personnel.	
	Facility Access—Unauthorized vehicles and persons shall be prohibited access to the facility. A facility open to the public shall accept waste only when an attendant is on duty. The facility shall be fenced or otherwise blocked to access when an attendant is not on duty. **Tier II IDAPA 58.01.06.012.03.g or** **Tier III IDAPA 58.01.06.013.03.g**	To prevent “midnight dumping,” vandalism, and liability from injury, owners/operators need to secure their landfill sites.	

Completed ✓	Requirement	Discussion	Resources
	Scavenging and Salvaging—Scavenging by the public at a facility is prohibited; however, salvaging may be conducted in accordance with a written operating plan and only by the owner, operator, or an authorized agent. **IDAPA 58.01.06.012.03.h or** **IDAPA 58.01.06.013.03.h**	NMSWLFs can accept waste that may be viewed as valuable to others. Owners and operators must ensure no scavenging by the public occurs. If salvaging is to be conducted, the owner/operator must be sure the person conducting the salvaging is aware of the potential dangers and is provided proper personal protective equipment. Salvaging procedures should be detailed in the operating plan.	
	Nuisance Control—The owner and operator shall control nuisances, including but not limited to the following: • Disease or Discomfort. Operations at any facility shall not provide sustenance to rodents or insects that cause human disease or discomfort. • Vector. Vector control procedures shall prevent or control vectors that may cause health hazards or nuisances. • Odor. The facility shall be operated to control malodorous gases. • Litter. Effective measures shall be taken to minimize the loss of debris from the facility. Debris blown from or within the facility shall be collected and properly disposed to prevent objectionable accumulations. **Tier II IDAPA 58.01.06.012.03.i or** **Tier III IDAPA 58.01.06.013.03.i**	Nuisance conditions can occur at NMSWLFs, including odor, dust, litter, and vectors. Effectively managing incoming waste, applying water or other dust control measures, and having an ongoing litter control program can address many of the nuisance conditions at a landfill. An operating plan must detail how nuisance conditions will be controlled and contingency measures should nuisance conditions arise.	

Completed ✓	Requirement	Discussion	Resources
	Bird Hazards to Aircraft—No facility may handle putrescible wastes in such a manner that may attract birds and increase the likelihood of bird/aircraft collisions. Facilities located within 10,000 feet of any airport runway used by turbojet aircraft, or within 5,000 feet of any airport used by only piston-type aircraft, shall operate the facility in such a manner that birds are not a hazard to aircraft. **Tier II IDAPA 58.01.06.012.03.j or** **Tier III IDAPA 58.01.06.013.03.j**	Typically, NMSWLFs do not manage waste that attracts birds. Bird strikes can cause aircraft damage and/or crashes. Owners/operators need to ensure that their site manages waste properly if their facility is in the vicinity of an airport. Operating plans should identify if wastes are being accepted that may be a bird attractant and what steps the facility will take to reduce bird hazards to aircraft.	
	Open Burning and Fires—Open burning is prohibited at facilities except as authorized by the "Solid Waste Management Rules" and IDAPA 58.01.01, "Rules for the Control of Air Pollution in Idaho." **Tier II IDAPA 58.01.06.012.03.k or** **Tier III IDAPA 58.01.06.013.03.k**	Infrequent open burning may be conducted for agricultural waste (excluding dead animals and manure), silviculture waste, land-clearing debris, diseased trees, or debris from a federal or state natural disaster. Garbage, dead animals, asphalt, petroleum products, paints or painted materials, tires, plastics, cardboard, treated wood, and construction/demolition waste are examples of waste that should not be open burned. The operating plan must state whether open burning is to be conducted and, if so, what waste will be burned, the frequency, and that DEQ and the local health district will be notified prior to each open burning event.	**IDAPA 58.01.01 Rules for the Control of Air Pollution in Idaho**
	Stormwater Run-On/Runoff Controls—The operating plan shall include sufficient stormwater management provisions, which may incorporate a National Pollutant Discharge Elimination System (NPDES) stormwater pollution prevention plan, to prevent contamination of surface and ground water and prevent the spread and impact of contamination beyond the boundary of the facility. **Tier II IDAPA 58.01.06.012.03.l or** **Tier III IDAPA 58.01.06.013.03.l**	NMSWLF activities can release contaminants to the environment that, if not managed appropriately, may impact human health and the environment. NMSWLF owners and operators must ensure their site manages stormwater run-on and runoff to minimize these impacts. Stormwater contacting waste and/or periodic cover must be managed as leachate in appropriately lined collection systems. The operating plan must discuss the stormwater control system, including maintenance and inspection activities.	EPA Stormwater Control—*http://water.epa.gov/polwaste/npdes/stormwater/Stormwater-Basic-Information.cfm*

Completed ✓	Requirement	Discussion	Resources
	Documentation Requirement—The owner and operator of a NMSWLF shall maintain documentation of compliance with the "Solid Waste Management Rules," Section 012 or 013. **Tier II IDAPA 58.01.06.012.07 or** **Tier III IDAPA 58.01.06.013.09**		
	Compaction and Placement of Waste—The owner and operator of a NMSWLF shall compact and place waste in locations consistent with the approved operating plan. **Tier II IDAPA 58.01.06.012.11.d.i or** **Tier III IDAPA 58.01.06.013.13.e.i**	Compaction of waste increases landfill air space, prolongs the life of the landfill, reduces the amount of periodic cover, and reduces differential settlement. Placing waste in an organized and orderly fashion allows for a well-run landfill and makes calculating used landfill capacity and unused capacity easier. Owners and operators should have a conceptual plan on how waste will be placed in their landfill. While dedicated compaction equipment is an added expense, the increased landfill capacity may offset the cost of compaction equipment. The operating plan must address compaction and placement of waste.	
	Provisions for storage of waste during periods when the NMSWLF is inaccessible. **Tier II IDAPA 58.01.06.012.11.d.ii or** **Tier IIIIDAPA 58.01.06.013.13.e.ii**	Owners and operators should be prepared for extreme weather events that may prevent access to the working face of their landfill. Areas within the facility should be identified for temporary waste storage in the event of extreme weather. When determining a temporary storage area when the NMSWLF is inaccessible, owners and operators should consider ease of access during inclement weather, stormwater control, potential for blowing litter, and traffic flow. A temporary storage area should only be used until access to the working face is re-established.	

Completed ✓	Requirement	Discussion	Resources
	Application of a 6-inch compacted soil cover layer on exposed waste as necessary to prevent nuisance and vector conditions at periods consistent with the approved operating plan. An owner and operator may request that DEQ approve an alternate cover that addresses vectors, litter, fire, odor, and scavenging concerns. **Tier II IDAPA 58.01.06.012.11.d.iii or** **Tier III IDAPA 58.01.06.013.13.e.iii**	NMSWLF owners and operators are required to apply 6 inches of compacted soil over exposed waste. EPA regulations, EPA guidance, and the US 9th Circuit Court have determined that daily application of cover material is the standard. Owners and operators wanting to apply soil cover at a frequency less than daily must provide written justification in their facility operating plan. The justification should include a specific frequency (e.g., every other day, end of the operating week, every 2 weeks), site conditions, and waste characteristics and how nuisance and vector conditions, fire, litter, odor, scavenging, and potential for leachate generation will still be achieved at a frequency less than daily. The operating plan must address periodic cover and the specific frequency that cover will be applied.	40 CFR 257.3-6 *http://www.ecfr.gov/cgi-bin/text-idx?SID=6389822ce614c1f44a4852af3320539d&node=40:25.0.1.4.38.1.20.9&rgn=div8* EPA Industrial Waste Guidance *http://www.epa.gov/epawaste/nonhaz/industrial/guide/pdf/chap8.pdf* US Court of Appeals, 9th Circuit Opinion—Covington v. Jefferson County, 358 F.3d 626 (2004) *https://casetext.com/case/covington-v-jefferson-county#.U767jrGGdK4*
	Placement of an interim cover layer of 12 inches of compacted soil between lifts to provide erosion control and structural stability. An owner and operator may request that DEQ approve an alternate interim cover that addresses erosion and stability for subsequent lifts. **Tier II IDAPA 58.01.06.012.11.d.iv or** **Tier III IDAPA 58.01.06.013.13.e.ivi**	Interim cover is placed over areas of a landfill containing waste that are not expected to receive waste for a period of time. Typically, this period is 3–6 months or longer depending on expected weather conditions. The operating plan must discuss the application of interim cover and under what conditions interim cover will be applied.	
	Preservation of existing vegetation where attainable. **Tier II IDAPA 58.01.06.012.11.d.v or** **Tier III IDAPA 58.01.06.013.13.e.vi**	Maintaining vegetation helps reduce erosion and reduces areas to be seeded at closure. Owners and operators should maintain vegetated areas where practical.	

Completed ✓	Requirement	Discussion	Resources
	Maintenance and operation of a leachate collection and control system and air emission control system consistent with the approved design application. **Tier III IDAPA 58.01.06.013.13.e.v**	Owners and operators of Tier III NMSWLFs required to install a liner, leachate collection system, and landfill gas collection system will need to address the maintenance and operation of these systems in the facility's operating plan. The operating plan must discuss periodic cleaning of the leachate collection systems, ensuring depth of leachate on the liner does not exceed 12 inches, and routine maintenance of these systems to ensure the systems operate as designed.	