

# Idaho Pollutant Discharge Elimination System

User's Guide to Permitting and  
Compliance Volume 6—Sewage Sludge  
and Biosolids

State of Idaho  
Department of Environmental Quality  
April 2021



**Prepared by**  
Idaho Department of Environmental Quality  
Surface and Wastewater Division  
1410 N. Hilton St.  
Boise, ID 83706



*Printed on recycled paper, DEQ, April 2021, PID IPGF, CA code 82988. Costs associated with this publication are available from the State of Idaho Department of Environmental Quality in accordance with Section 60-202, Idaho Code.*

## Table of Contents

Acronyms, Abbreviations, and Symbols .....	v
1 Introduction.....	1
1.1 Purpose and Scope.....	1
1.2 Relationship to Existing Rules and Guidance .....	1
1.2.1 Clean Water Act Background.....	2
1.2.2 Rules Regulating the IPDES Program.....	2
1.3 Legislative and Regulatory Citations .....	2
1.4 Time Computation.....	3
1.5 Hyperlinks .....	3
2 Defining Sewage Sludge and Biosolids and Rule Applicability .....	3
3 Application Form.....	5
3.1 TWTDS Application .....	5
3.1.1 Facility Classification .....	5
3.1.2 Topographic Map and Line Drawing .....	6
3.1.3 Contractors.....	6
3.1.4 Sludge Volumes.....	6
3.1.5 Pollutants, Pathogen Class, and Vector Reduction.....	6
3.1.6 Treatment Processes .....	7
3.1.7 Exceptional Quality .....	7
3.1.8 Sewage Sludge Receiving Facilities .....	8
3.1.9 Use and Disposal Practices.....	8
3.1.10 Use or Disposal Facilities .....	11
3.1.11 Sludge Disposal Plan (Biosolids Management Plan) .....	11
4 Understanding Your Responsibilities under 40 CFR 503 .....	12
4.1 Purpose and Applicability .....	12
4.2 Enforceability .....	12
4.3 Sampling and Analysis .....	12
4.4 Management Practices.....	13
4.5 Recordkeeping .....	13
4.6 Reporting .....	14
5 Other Considerations .....	14
5.1 Domestic Septage .....	14
5.2 Struvite .....	14
6 Regulatory Compliance and Inspection.....	15
References.....	16

Key Terms..... 17

Appendix A. Summary of Class A and Class B Pathogen Reduction Requirements..... 19

Appendix B. Summary of Vector Attraction Reduction Options ..... 20

Appendix C. Restrictions on Sites Where Class B Biosolids are Applied ..... 21

Appendix D. General Requirements and Management Practices for Land Application Sites ..... 23

Appendix E. Management Practices for Surface Disposal Sites ..... 25

Appendix F. Pathogen and Vector Attraction Reduction Requirements for Surface Disposal Sites..... 26

Appendix G. Frequency of Monitoring Sewage Sludge (Biosolids) ..... 27

Appendix H. Recordkeeping and Reporting Requirements..... 29

Endnotes: IDAPA and CFR References ..... 31

**List of Tables**

Table 1. Pollutant limits (adapted from Table 2-1, EPA 1994b)..... 9

Table 2. Options for meeting pollutant limits and pathogen and vector attraction reduction requirements for land application (adapted from Table 2-2, EPA 1994b). ..... 10

Table 3. Surface disposal pollutant limits (adapted from Table 3-2, EPA 1994b). ..... 10

Table C-1. Examples of crops impacted by site restrictions for Class B biosolids (adapted from Figure 2-5, EPA 1994b). ..... 22

Table G-1. Frequency of monitoring for pollutants, pathogen densities, and vector attraction reduction (adapted from Table 2-7, EPA 1994b). ..... 27

Table G-2. Monitoring required at surface disposal sites (adapted from Table 3-5, EPA 1994b). ..... 27

Table G-3. Frequency of monitoring for surface disposal of biosolids (adapted from Table 3-6, EPA 1994b). ..... 28

Table H-1. Recordkeeping and reporting requirements for land application (adapted from Table 2-8, EPA 1994b). ..... 29

Table H-2. Recordkeeping and reporting requirements for surface disposal (adapted from Chapter 3, pages 74–75, EPA 1994b). ..... 30

## Acronyms, Abbreviations, and Symbols

§	section (usually a section of federal or state rules or statutes)
APLR	annual pollutant loading rate
CFR	Code of Federal Regulations (refers to citations in the federal administrative rules)
CPLR	cumulative pollutant loading rate
CWA	Clean Water Act
DEQ	Idaho Department of Environmental Quality
EPA	US Environmental Protection Agency
EQ	Exceptional Quality
ha	hectare
IDAPA	Idaho Administrative Procedures Act (refers to citations of Idaho administrative rules)
IPDES	Idaho Pollutant Discharge Elimination System
kg	kilogram
mg	milligram
MPN	Most Probable Number
MSWLF	Municipal Solid Waste Landfill
NPDES	National Pollutant Discharge Elimination System
PC	pollutant concentration
PCB	polychlorinated biphenyl
POTW	publicly owned treatment works
PFRP	Processes to Further Reduce Pathogens
PSRP	Processes to Significantly Reduce Pathogens
RCRA	Resource Conservation and Recovery Act
TWTDS	treatment works treating domestic sewage
US	United States

# 1 Introduction

The Idaho Department of Environmental Quality's (DEQ's) Idaho Pollutant Discharge Elimination System (IPDES) Bureau developed permitting and compliance guides to help the regulated community and other public users easily understand the IPDES permitting and compliance process and the IPDES statutory and regulatory requirements for publicly owned treatment works (POTWs), pretreatment, industrial wastewater, storm water discharges, sewage sludge and biosolids, and facilities covered by IPDES general permits. This *Idaho Pollutant Discharge Elimination System User's Guide to Permitting and Compliance Volume 6—Sewage Sludge (Biosolids)* (User's Guide Volume 6) provides assistance specifically to Idaho's sewage sludge and biosolids generators, preparers, applicators, owners or operators of surface disposal sites, and citizens on complying with DEQ administrative rules, Idaho Code, and the Clean Water Act (CWA), which govern the discharge of pollutants to waters of the United States in Idaho.

## 1.1 Purpose and Scope

This guide serves as a reference for successfully navigating the IPDES application and compliance process as it pertains to treatment works treating domestic sewage (TWTDS) and the final use and disposal of sewage sludge and Class A and Class B biosolids. Additionally, this guide is designed to help the regulated community and other users:

- Understand sewage sludge-specific IPDES application processes and requirements.
- Comply with all processes, protocols, and requirements of federal and IPDES Bureau sewage sludge rules.

## 1.2 Relationship to Existing Rules and Guidance

This User's Guide Volume 6 supports implementation of the CWA; Idaho Code and administrative rules; federal regulations; and state and national policies, guidance, and standards and complies with Idaho's "Water Quality Standards" (IDAPA 58.01.02), "Individual/Subsurface Sewage Disposal Rules and Rules for Cleaning of Septic Tanks" (IDAPA 58.01.03), "Wastewater Rules" (IDAPA 58.01.16), "Ground Water Quality Rules" (IDAPA 58.01.11), and "Rules Regulating the IPDES Program" (IDAPA 58.01.25).

User's Guide Volume 6 supplements the *Idaho Pollutant Discharge Elimination System User's Guide to Permitting and Compliance Volume 1—General Information* (User's Guide Volume 1) (DEQ 2017) and addresses detailed sewage sludge and biosolids-specific topics and circumstances that are not described in Volume 1 or other IPDES guidance.

Some sections of this guide are newly developed to address rules, regulations, and conditions specific to Idaho, while other sections reference or adapt numerous existing state and US Environmental Protection Agency (EPA) guidance documents, as appropriate.

While this guide provides direction, DEQ may have to adjust the implementation of its sewage sludge and biosolids application to include compliance with IDAPA 58.01.02, IDAPA 58.01.03, IDAPA 58.01.11, IDAPA 58.01.16, IDAPA 58.01.25, and additional state and federal guidance.

This guide does not replace, supplant, or change any requirements under state or federal rules and regulations but does identify and reference relevant regulations, policy, and other guidance documents. A detailed discussion about the CWA, federal code, Idaho Code, and Idaho Administrative Rules that support the IPDES Bureau is included in the User's Guide Volume 1, section 2 (DEQ 2017).

### **1.2.1 Clean Water Act Background**

The Federal Water Pollution Control Act, or CWA, is the primary US law addressing pollutants in receiving waters (e.g., streams, rivers, lakes, and reservoirs). The CWA was originally enacted in 1948 and was revised by amendments in 1972 (P.L. 92-500), 1977 (P.L. 95-217), 1981 (P.L. 97-117), and 1987 (P.L. 100-4). The CWA requires controls on discharges to meet the statutory goal of eliminating the discharge of pollutants under the National Pollutant Discharge Elimination System (NPDES) permit program.

### **1.2.2 Rules Regulating the IPDES Program**

IDAPA 58.01.25 establishes the procedures and requirements for issuing and maintaining permits for facilities or activities required by Idaho Code and the CWA to obtain authorization to discharge pollutants to waters of the United States. These permits are referred to in these rules and guidance as “IPDES permits” or “permits.”

## **1.3 Legislative and Regulatory Citations**

In this guide, the following conventions are used to cite legislation and regulations:

- Idaho Code—Title of the code follow by the code citation: “Approval of State NPDES Program” (Idaho Code § 39-175C). After initial use, the code is then referred to by the citation (e.g., Idaho Code § 39-175C).
- Idaho Administrative Rules—Title of the rule is followed by the rule citation: “Rules Regulating the Idaho Pollutant Discharge Elimination System Program” (IDAPA 58.01.25). After initial use, the rule is then referred to by the rule citation (e.g., IDAPA 58.01.25).
- Code of Federal Regulations—Initial and subsequent references to CFRs use the regulation citation (e.g., 40 CFR 136).
- US Code—Initial and subsequent references to US code use the code citation (e.g., 16 U.S.C. § 1531 et seq. or 33 U.S.C. §§ 1251–1387).
- Clean Water Act (CWA)—Title of the act is followed by the act citation: Clean Water Act section 402 (e.g., CWA § 402). After initial use, the act is then referred to by the act citation (e.g., CWA § 402).

Most regulatory citations in this guide are from IDAPA 58.01.25 and CFR Title 40. Other rules and regulations are explicitly referenced in full citation when used for the first time in this guide. Applicable IDAPA and CFR references are included as endnotes after the appendices.

## 1.4 Time Computation<sup>1</sup>

References to days represent calendar days, unless otherwise specified (e.g., business days). In computing any period of time scheduled to begin after or before the occurrence of an activity or event, the date of the activity or event is not included. The last day of the period is included, unless it is a Saturday, Sunday, or legal holiday, in which case the period runs until the end of the next day (which is not a Saturday, Sunday, or holiday). When a party or interested person is served by mail, 3 days are added to the prescribed time.

References to a “365 day period” in 40 CFR 503 varies in definition, depending on its usage. For annual loading rates, application rates, or agronomic rates, the 365 day period is a rolling year that prevents overapplication of pollutants or nutrients to a particular site. For monitoring and reporting purposes, the 365 day period is the reporting year and may correspond to the calendar year or a fiscal year, for example.

## 1.5 Hyperlinks

Websites referenced in this guide provide supplementary information and appear in blue italics so the material can be accessed in printed and electronic versions. In the electronic version, the website address is hyperlinked to the site. Correct website addresses and hyperlinks are provided; however, these references may change or become outdated after publication.

## 2 Defining Sewage Sludge and Biosolids and Rule Applicability

This guide helps the reader understand topics about regulating sewage sludge use or disposal in Idaho. Throughout this User's Guide, the term “sewage sludge” is defined as<sup>2</sup>:

Any solid, semi-solid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced wastewater treatment, scum, septage, portable toilet pumpings, type III marine sanitation device pumpings, and sewage sludge products. Sewage sludge does not include grit or screenings, or ash generated during the incineration of sewage sludge.

Although the term “biosolids,” is neither defined in Idaho's rules nor 40 CFR 503, it commonly refers to sewage sludge that has been treated to meet Class A or Class B pathogen reduction and vector attraction reduction requirements and that can be beneficially used through land application, or in some cases, surface disposal.

This guidance distinguishes between the following terms:

- Sewage sludge—used in a regulatory capacity or when referring specifically to disposal
- Sewage sludge (biosolids)—used as a general term to refer to material in any of the various stages of treatment, use, or disposal
- Biosolids—used to denote sewage sludge that has been treated to meet Class A or Class B quality



Because biosolids contain nutrients and organic matter, and have undergone a pathogen reduction process, they are considered a beneficial resource by EPA and DEQ. Therefore, the beneficial use of biosolids through land application is encouraged to help improve and maintain productive soils and stimulate plant growth.

Regulations governing sewage sludge use or disposal in Idaho include the following:

- IDAPA 58.01.25.380 and 40 CFR 503 establish standards that consist of general requirements, pollutant limits, management practices, and operations standards for the final use or disposal of sewage sludge.
- IDAPA 58.01.16.650 establishes standards for the development of a sludge disposal or utilization plan.
- 40 CFR 258 regulates disposal of sewage sludge into municipal solid waste landfills.

This guide is primarily focused on implementing IDAPA 58.01.25.380 and 40 CFR 503.

Regulation 40 CFR 503, incorporated by reference into IDAPA 58.01.25, allows for issuance of permits to a “treatment works treating domestic sewage” but does not require permits to be issued. DEQ is not issuing sewage sludge use or disposal permits but is relying on direct enforceability<sup>3</sup>. The requirements<sup>4</sup> of these rules are applicable and directly enforceable to “Any person, who prepares sewage sludge, applies sewage sludge to the land, or fires sewage sludge in a sewage sludge incinerator and to the owner or operator of a surface disposal site<sup>5</sup>.”

The IPDES requirements apply to the following TWTDS and other entities or persons required to complete a Sewage Sludge application:

- All generators of sewage sludge (biosolids) that are applied to the land, placed on a surface disposal site, fired in a sewage sludge incinerator, or placed in a municipal solid waste landfill unit<sup>6</sup>
- Industrial facilities that separately treat domestic sewage and generate sewage sludge<sup>7</sup>
- All surface disposal site owners/operators
- All sewage sludge incinerator owners/operators
- Any person, individual, corporation, or government entity who changes the quality of sewage sludge<sup>8</sup> (e.g., sewage sludge blenders or processors)
- Any other person or facility designated by DEQ as a TWTDS

In addition, DEQ may, at any time, require the following TWTDS or persons to complete a TWTDS – non-discharging application<sup>9</sup>:

- Sewage sludge (biosolids) land applicers, haulers, persons who store, or transporters who do not generate or do not change the quality of the sewage sludge (biosolids)
- Landowners of property on which biosolids are applied
- Domestic septage pumps/haulers/treaters/appliers (section 5.1)
- Packagers/baggers that do not change the quality of the biosolids

Any facility that generates sewage sludge is subject to IDAPA 58.01.16.650 and is required to develop and submit a sludge disposal Plan or Biosolids Management Plan.

IPDES requirements for sewage sludge (biosolids) do not apply or establish requirements for the following processes or wastes<sup>10</sup>:

- Requirements for specific processes for treating domestic sewage or sewage sludge prior to final use or disposal
- Selection of a sewage sludge use or disposal practice
- Sewage sludge that is co-fired in an incinerator with other wastes nor these incinerators<sup>11</sup>
- Sewage sludge generated at an industrial facility (other than separately treated domestic sewage and sludge)<sup>12</sup>
- Sewage sludge determined to be hazardous in accordance with 40 CFR 261<sup>13</sup>
- Sewage sludge containing a concentration of polychlorinated biphenyls (PCBs) equal to or greater than 50 milligrams per kilogram of total solids (dry weight basis)<sup>14</sup>
- The use or disposal of ash generated during the firing of sewage sludge in a sewage sludge incinerator<sup>10 or 11</sup>
- The use or disposal of grit or screenings generated during preliminary treatment of domestic sewage<sup>10</sup>
- Sludge generated during the treatment of drinking water<sup>10</sup>
- Septage composed entirely or partially of commercial or industrial septage, including grease-trap pumpings<sup>10</sup>

### 3 Application Form

Nondischarging generators, preparers, and appliers of domestic sewage sludge (biosolids) and owners/operators of surface disposal sites need to register and electronically submit a TWTDS – non-discharging application in the IPDES E-Permitting System. Each IPDES POTW or other facility generating sewage sludge must also register and electronically submit a TWTDS – discharging application in the E-Permitting System. If the individual or entity does not have internet access, they must contact DEQ to apply for a waiver from electronic reporting.

The following sections identify information specific to TWTDS applicants. The TWTDS application will provide additional instructions within the form—the sections and headings generally follow the EPA Form 2S.

#### 3.1 TWTDS Application

Applicants are required to provide the following information. Note that this application is in addition to the sludge disposal plan or biosolids management plan that the TWTDS must submit to the DEQ regional office engineering manager for approval to comply with IDAPA 58.01.16.650 (section 3.1.11).

##### 3.1.1 Facility Classification

- For a new facility, the application must include a brief description of the plans to use or dispose of the sewage sludge (biosolids).
- The facility's status as a Class I sludge management facility. A Class I sludge management facility is any POTW required to have an approved pretreatment program or any other facility so designated<sup>15</sup>.
- The facility's design flow rate, population served, and equivalent dwelling units served.

- The facility's status as a generator and/or a preparer of sewage sludge, including public or private ownership and the method of use or disposal,
- The facility's IPDES/NPDES permit number and a list of other state or federal permits related to the management of sewage sludge.
- If any generation, treatment, storage, application to land, or disposal of sewage sludge from this facility will occur in Indian Country<sup>16</sup>. If so, sewage sludge operations will be subject to EPA or tribal requirements.

### **3.1.2 Topographic Map and Line Drawing**

Applicants will provide topographic maps that show the following information, including the area 1 mile beyond the property boundaries of the facility:

- Location of all sewage sludge management facilities, including locations where sewage sludge is stored, treated, or disposed
- Location of all wells, springs, and other surface water bodies, listed in public records or otherwise known to the applicant within one-quarter mile of the facility property boundaries

Similarly, applicants will also provide a line drawing and/or a narrative description that identifies all sewage sludge processes employed, including all processes used for collecting, dewatering, storing, or treating sewage sludge; the destinations of all liquids and solids leaving each unit; and all methods used for pathogen reduction and vector attraction reduction.

### **3.1.3 Contractors**

Applicants will identify if a contractor is responsible for any operational or maintenance aspects related to the generation, treatment, use, or disposal of sewage sludge and will provide the contact information and areas of responsibility for each contractor.

### **3.1.4 Sludge Volumes**

The applicants will provide the dry metric tons generated on site and/or received from off-site facilities per 365-day period. In addition, if sewage sludge is received from off-site facilities, provide the location and contact information, total dry metric tons received from the facility, and any treatment the sewage sludge received for each facility.

### **3.1.5 Pollutants, Pathogen Class, and Vector Reduction**

Limits are established for various pollutants in sewage sludge based on the facility's expected use or disposal practices<sup>17</sup>. Applicants will provide the most recent monitoring data available on the quality of the biosolids, including pollutants for which limits in biosolids have been established for the facility's expected use or disposal practices. If available, applicants should provide data based on three or more samples taken at least 1 month apart and no more than 4.5 years prior to application. Provide data as a monthly average in mg/kg dry weight and include the analytical method and the detection level for the analysis.

The biosolids should be further classified as Class A or B (or domestic septage, if appropriate) and the pathogen reduction alternative provided<sup>18</sup>. Pathogen reduction alternatives required for each class are summarized in Appendix A.

- Class A is biosolids in which either the density of fecal coliform in the biosolids is less than 1,000 Most Probable Number (MPN) per gram of total solids (dry weight basis) or the density of *Salmonella* sp. bacteria in the sewage sludge is less than 3 MPN per 4 grams of total solids (dry weight basis) at the time the biosolids are used or disposed.
- Class B is biosolids in which the geometric mean of the density of fecal coliform found in seven representative samples is less than either 2,000,000 MPN per gram of total solids (dry weight basis) or 2,000,000 Colony Forming Units per gram of total solids (dry weight basis).

An applicable vector attraction reduction option should be selected for use depending on the final use or disposal practice of the biosolids. A summary of the various options for vector attraction reduction appears in Appendix B.

### 3.1.6 Treatment Processes

Applicants will describe any treatment processes used to meet the pathogen reduction goal (Class A or B) and to reduce vector attraction properties of biosolids and describe any other biosolids treatment or blending activities. A variety of treatment processes are recognized that allow a facility to meet the various pathogen class and reduction alternatives and the vector attraction reduction options. Any innovative processes that may be used to achieve the facility's goals should also be described.

### 3.1.7 Exceptional Quality

Biosolids or material derived from sewage sludge is considered “Exceptional Quality” (EQ) and may be land applied in bulk or sold or given away in bags or other containers for application to the land only if it meets all of the following requirements:

- The ceiling concentrations in Table 1 of 40 CFR 503.13
- The pollutant concentrations in Table 3 of 40 CFR 503.13
- The Class A pathogen reduction requirements in 40 CFR 503.32(a)
- One of the vector attraction reduction requirements in 40 CFR 503.33(b)(1-8)

If all of the above are all true, the general requirements<sup>19</sup> and management practices<sup>20</sup> do not apply, except on a case-by-case basis as determined by DEQ to protect public health and the environment. However, the monitoring, recordkeeping, and reporting requirements<sup>21</sup> are all still required by the preparer of the biosolids. This allows those that purchase or are given EQ biosolids to apply the material to the land with less regulatory overhead. This includes facilities that receive ONLY EQ biosolids, even though they may alter the composition, but not the quality, of the received EQ biosolids. EQ biosolids should be applied to the land at an appropriate nitrogen feed rate, the same as any other commercial fertilizer.

Applicants will also identify the dry metric tons per 365-day period of biosolids and material derived from sewage sludge meeting EQ for both the amount land applied in bulk, or sold or given away in bags or other containers for application to the land. If the material is sold or given

away in bags or other containers, applicants are required to upload copies of labels or notices that accompany the material for application to the land<sup>22</sup>.

### 3.1.8 Sewage Sludge Receiving Facilities

If the applicant is a generator of sewage sludge that transfers their sludge to another facility for treatment or blending prior to use or disposal, the receiving facility's information (e.g., address and contacts), treatment processes, and use or disposal activities is required.

The total dry metric tonnage per 365-day period transferred out of the applicant's facility is required, as is outlining any additional treatment to reduce pathogens or vector attraction properties implemented by the receiving facility prior to use or disposal. The types of information required are identical to that required in sections 3.1.4 through 3.1.7 for the sewage sludge generator.

### 3.1.9 Use and Disposal Practices

Four basic use and disposal practices exist for sewage sludge (biosolids):

1. Land application
2. Surface disposal
3. Incineration
4. Disposal to a municipal landfill

The first three of these practices are regulated by 40 CFR 503, while the last is regulated under 40 CFR 258. Any facility that uses or disposes, or proposes to use or dispose, of sewage sludge in any of these manners is required to apply for an IPDES permit<sup>23</sup>, unless covered in the facility's current IPDES permit, and prepare and submit a Sludge Disposal Plan<sup>24</sup> to the local DEQ regional office engineering manager. A Sludge Disposal Plan is also known as a Biosolids Management Plan (DEQ 2011).

**Land application** refers to use of biosolids on agricultural, silvicultural, forest, land reclamation, public works area, and parks and other landscaping sites at agronomic rates. Biosolids can be land applied either in bulk or in smaller containers (e.g., bags). Both Class A and Class B biosolids may be land applied in bulk with varying degrees of regulation. Only Class A biosolids may be bagged and provided to small scale users for land application<sup>25</sup>. Both bulk and bagged biosolids that are land applied must meet one of the appropriate vector attraction reduction requirements.

All biosolids applied to the land must meet the ceiling concentrations for the following pollutants:

- |            |              |            |
|------------|--------------|------------|
| • Arsenic  | • Lead       | • Selenium |
| • Cadmium  | • Mercury    | • Zinc     |
| • Chromium | • Molybdenum |            |
| • Copper   | • Nickel     |            |

These ceiling concentrations are shown in Table 1. As long as these are met, the regulations at 40 CFR 503 provide four options for meeting pollutant limits and pathogen and vector attraction

reduction operational standards for biosolids applied to the land that are equally protective to human health and the environment. These options, summarized in Table 2, include:

- Exceptional Quality (EQ)
- Pollutant Concentration (PC)
- Cumulative Pollutant Loading Rate (CPLR)
- Annual Pollutant Loading Rate (APLR)

In addition to the pathogen reduction and vector attraction reduction requirements, land application sites are required to follow certain general requirements and management practices. These requirements are summarized in Appendix D.

**Table 1. Pollutant limits (adapted from Table 2-1, EPA 1994b).**

Pollutant	Ceiling Concentration Limits for All Biosolids Applied to Land (mg/kg) <sup>a</sup>	Pollutant Concentration Limits for EQ and PC Biosolids (mg/kg) <sup>a</sup>	Cumulative Pollutant Loading Rate Limits for CPLR Biosolids (kg/ha)	Annual Pollutant Loading Rate Limits for APLR Biosolids (kg/ha per 365-day period)
Arsenic	75	41	41	2.0
Cadmium	85	39	39	1.9
Chromium	3,000	1,200	3,000	150
Copper	4,300	1,500	1,500	75
Lead	840	300	300	15
Mercury	57	17	17	0.85
Molybdenum	75	—	—	—
Nickel	420	420	420	21
Selenium	100	36	100	5.0
Zinc	7,500	2,800	2,800	140
Applies to:	All biosolids that are land applied	Bulk and bagged biosolids <sup>b</sup>	Bulk biosolids	Bagged biosolids <sup>b</sup>
From Part 503	Table 1, Section 503.13	Table 3, Section 503.13	Table 2, Section 503.13	Table 4, Section 503.13

a. Dry-weight basis

b. Bagged biosolids are sold or given away in a bag or other container.

Notes: milligram per kilogram (mg/kg); kilogram per hectare (kg/ha)

**Table 2. Options for meeting pollutant limits and pathogen and vector attraction reduction requirements for land application (adapted from Table 2-2, EPA 1994b).**

Option	Pollutant Limits	Pathogen Requirements	Vector Attraction Reduction Requirements
EQ Biosolids	Bulk or bagged biosolids meet pollutant concentration limits in Table 1	Any 1 of the Class A requirements in Appendix A	Any 1 of the requirements in Options 1 through 8 in Appendix B
PC Biosolids	Bulk biosolids meet pollutant concentration limits in Table 1	Any 1 of the Class B requirements in Appendix A and Appendix C	Any 1 of the 10 requirements in Appendix B
		Any 1 of the Class A requirements in Appendix A	Requirements 9 or 10 in Appendix B
CPLR Biosolids	Bulk biosolids applied subject to CPLR limits in Table 1	Any 1 of the Class A or Class B requirements in Appendix A or Appendix C	Any 1 of the 10 requirements in Appendix B
APLR Biosolids	Bagged biosolids applied subject to APLR limits in Table 1	Any 1 of the Class A requirements in Appendix A	Any 1 of the first 8 requirements in Appendix B

**Surface disposal** refers to placing sewage sludge on an area of land for final disposal. Some surface disposal sites may be used for beneficial purposes as well. Surface disposal sites include monofills, surface impoundments, lagoons, waste piles, dedicated disposal sites, and dedicated beneficial use sites. If sewage sludge is placed on land but remains for 2 years or less, it is considered storage rather than disposal. If however, the biosolids remain on the land for longer than 2 years, the land is considered an active sewage sludge unit, and surface disposal requirements<sup>26</sup> must be met. There are two options for meeting the required pollutant limits for arsenic, chromium, and nickel:

- Meet the limits in Table 3, depending on the distance between the active sewage sludge unit's boundary and the surface disposal site's property line, or
- Meet site-specific pollutant limits set forth by the permitting authority.

**Table 3. Surface disposal pollutant limits (adapted from Table 3-2, EPA 1994b).**

Location in 40 CFR 503 Rule	Distance from the Boundary of Active Biosolids Unit to Surface Disposal Site Property Line (meters)	Pollutant Concentration <sup>a</sup>		
		Arsenic (mg/kg)	Chromium (mg/kg)	Nickel (mg/kg)
Table 2 of Section 503.23	0 to less than 25	30	200	210
	25 to less than 50	34	220	240
	50 to less than 75	39	260	270
	75 to less than 100	46	300	320
	100 to less than 125	53	260	290
	125 to less than 150	62	450	420
Table 1 of Section 503.23	Equal to or greater than 150	73	600	420

a. Dry-weight basis (basically, 100% solids content).

Certain management practices must be followed when sewage sludge is placed on a surface disposal site<sup>27</sup>. The required management practices for surface disposal sites are summarized in Appendix E. Both Class A and Class B biosolids may be placed on an active sewage sludge unit, and vector attraction reduction requirements also apply. The pathogen and vector attraction reduction requirements for surface disposal sites are summarized in Appendix F.

**Incineration** refers to firing sewage sludge in a furnace in which no other materials are fired, except auxiliary fuel. Co-firing of sewage sludge with other wastes, such as domestic trash, is not regulated under 40 CFR 503, except in certain circumstances. Pollutant limits for arsenic, beryllium, cadmium, chromium, lead, mercury, and nickel are determined by calculating risk-specific concentrations, which vary by pollutant and incinerator type. Applicants who fire their sewage sludge in a sewage sludge incinerator should refer to 40 CFR 503, Subpart E for the appropriate pollutant calculation methods.

**Disposal to a Municipal Solid Waste Landfill (MSWLF)** requires the sewage sludge be sufficiently dry to pass the “Paint Filter Liquids Test” (EPA Method 9095B), not meet the definition of hazardous waste<sup>28</sup>, and not contain PCBs<sup>29</sup>. In addition, the landfill must meet the minimum national criteria<sup>30</sup>. Disposal to an MSWLF does not require the sewage sludge to meet requirements of 40 CFR 503.

The applicant lists the total dry metric tonnage per 365-day period of sewage sludge (biosolids) that the facility uses or disposes of per each of the four use and disposal practices, and if applicable, the pollutant limitations, pathogen class and reduction alternatives, and the vector attraction reduction options for each use or disposal site. Additional detail may be required for use or disposal locations that are not owned or operated by the applicant.

### 3.1.10 Use or Disposal Facilities

Applicants will provide details about use or disposal facility locations, maps, contact information, and processes. Information is only required if the applicant's facility uses or disposes of sewage sludge (biosolids) in one of the particular methods (i.e., land application, surface disposal, incineration) or if the applicant is the owner of a facility that accepts sewage sludge (biosolids) for use or disposal in one of these manners. Some information may have to be collected from the owner or operator of the use or disposal facility, such as the types of monitoring equipment or air pollution control equipment at a sewage sludge incineration facility. Facilities that generate or prepare sewage sludge (biosolids) need to renew their application each time they change the use or disposal facility to which they send their sewage sludge (biosolids).

### 3.1.11 Sludge Disposal Plan (Biosolids Management Plan)

Municipal sewage sludge that meets the requirements of this IPDES guidance must also meet the requirements of IDAPA 58.01.16.650 through the DEQ Wastewater and Engineering Bureau. To meet the requirements of IDAPA 58.01.16.650, applicants must provide the DEQ regional office engineering manager a Sludge Disposal Plan for engineering approval prior to use or disposal of a facility's industrial sludge, municipal sewage sludge, or treated biosolids. DEQ guidance (DEQ 2011) considers the Sludge Disposal Plan as a Biosolids Management Plan if the municipal sewage sludge has been treated to Class A or B biosolids standards. Refer to IDAPA



58.01.16.650 or contact DEQ's Wastewater and Engineering Bureau for additional detail regarding development of a plan.

## 4 Understanding Your Responsibilities under 40 CFR 503

### 4.1 Purpose and Applicability

Regulation 40 CFR 503 establishes general requirements, pollutant limits, management practices, and operational standards for the final use or disposal of sewage sludge (biosolids) generated during the treatment of domestic sewage in a treatment works. The regulation applies to the following:

- Any person who:
  - Prepares (generates/derives material from) sewage sludge
  - Applies biosolids to the land
  - Fires sewage sludge in a sewage sludge incinerator
  - Owns or operates a surface disposal site
- Sewage sludge (biosolids) that is:
  - Applied to the land
  - Placed on a surface disposal site
  - Fired in a sewage sludge incinerator
- The land or facility where sewage sludge (biosolids) is:
  - Applied to the land
  - Placed on a surface disposal site
  - Incinerated

### 4.2 Enforceability

Any person who prepares sewage sludge, that is, any person who generates sewage sludge during the treatment of domestic sewage in a treatment works or derives a material from sewage sludge, must ensure that the applicable requirements of 40 CFR 503 are met when the sewage sludge (biosolids) is applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator. This provides for accountability and enforceability from generation, through treatment and processing, and during and after final use or disposal.

### 4.3 Sampling and Analysis

Representative sampling of sewage sludge (biosolids) is required. Depending on the use or disposal method, the following pollutants may be required to be sampled for and analyzed using the approved methods<sup>31</sup>:

- Enteric viruses
- Fecal coliform and *Salmonella* sp. bacteria
- Helminth ova
- Inorganic pollutants

- Specific oxygen uptake rate
- Total, fixed, and volatile solids

Appendix A provides a summary of required analyses for each class of biosolids, pathogen reduction requirement, and vector attraction reduction option. Results of these analyses must be compared to the pollutant limits enumerated for each use or disposal practice to ensure acceptable levels of pollutants within the sewage sludge (biosolids) for protection of human and environmental health.

The frequency of sampling varies on the ultimate use and disposal and the total tonnage of sewage sludge (biosolids) used or disposed. This frequency varies from annually for the least tonnage to monthly for the most is continued for the first 2 years, and then may be reduced by DEQ. Tables summarizing the monitoring frequency based on the various factors are available in Appendix G. For monitoring required at sewage sludge incinerators, the applicant should refer to 40 CFR 503 Subpart E.

#### **4.4 Management Practices**

Each final use or disposal practice requires the sewage sludge (biosolids) be applied, placed, or incinerated following specific management practices<sup>32</sup> to ensure the protection of:

- The land upon which the biosolids are applied or placed
- Any surface or ground water in or near the area of application or placement
- The surrounding lands, habitats, and air shed
- The health of animals and people living near the use or disposal site

General requirements and management practices for land application sites are summarized in Appendix D, and management practices for surface disposal sites are summarized in Appendix E. Applicants who are disposing of sewage sludge in sewage sludge incinerators should see 40 CFR 503 Subpart E for detailed management practices.

#### **4.5 Recordkeeping**

In addition to the recordkeeping required by IDAPA 58.01.16.650, and depending on the role played, the generator, preparer, applier, or owner or operator of a usage or disposal site must keep records relating to the use or disposal of sewage sludge (biosolids) for a minimum of 5 years, or in some cases, indefinitely (e.g., land application dates, locations, and quantities)<sup>33</sup>. These records include:

- Results of all sample analyses
- Pathogen class and vector attraction reduction requirements attained
- Treatment processes used to meet those requirements
- Other records may include :
  - The tonnage of sewage sludge (biosolids) used or disposed,
  - The dates of that use or disposal, and
  - The land area, in hectares, onto which biosolids were applied, or
  - The feed rate, combustion temperature, the stack height, and other parameters of a sewage sludge incinerator.

Appendix H summarizes the recordkeeping and reporting requirements for land application and surface disposal, and additional EPA guidance on recordkeeping for land application and surface disposal is available (EPA 1994a; EPA 1994c). The applicant should consult 40 CFR 503 for the exact records retention requirements or requirements for sewage sludge incineration.

## 4.6 Reporting

Annual sewage sludge (biosolids) reporting is required for all Class I sludge management facilities, POTWs with a design flow equal to or greater than one million gallons per day, and all POTWs that serve 10,000 people or more regardless of design flow. These reports are due no later than February 19 of each year.<sup>34</sup> Appendix H summarizes the recordkeeping and reporting requirements for land application and surface disposal. For exact requirements and sewage sludge incineration requirements, the applicant should consult 40 CFR 503. This report must be submitted through DEQ's E-Permitting System at <http://www2.deq.idaho.gov/water/ipdes>.

Only the facilities outlined above are required to report under IDAPA 58.01.25.380. All facilities, however, must comply with IDAPA 58.01.16.650 and follow the reporting outlined in their approved Sludge Disposal or Biosolids Management Plan<sup>35</sup>.

## 5 Other Considerations

### 5.1 Domestic Septage

Domestic septage is defined as either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage<sup>36</sup>. The requirements for use or disposal of domestic septage are similar but distinct from other types of sewage sludge. Companies intending to apply domestic septage to the land or place domestic septage on a surface disposal site should follow the *Guidance for the Land Application for Domestic Septage* (DEQ 2016a), which includes the appropriate requirements for pathogens and vector attraction reduction, monitoring, reporting, and recordkeeping. These companies may be required to submit a TWTDS – non-discharging application.

In addition, septage haulers and septage land application sites require a permit and development of a Septage Management Plan for land application to use or dispose of domestic septage in any manner other than discharge to a sewage treatment works<sup>37</sup>. DEQ's Septic and Septage web page provides additional information (<https://www.deq.idaho.gov/water-quality/wastewater/septic-and-septage/>).

### 5.2 Struvite

Struvite, or magnesium ammonium phosphate ( $\text{NH}_4\text{MgPO}_4 \cdot 6\text{H}_2\text{O}$ ), is a solid, crystalline phosphate mineral that can form naturally under certain conditions during wastewater treatment. The presence of struvite does not disqualify sewage sludge from being classified as Class A or B biosolids.

Struvite can also be intentionally formed using advanced wastewater treatment processes to treat phosphorus and ammonia-rich sidestreams. Until struvite generated in this manner is exempt from 40 CFR 503 regulations by EPA, DEQ will work with facilities that wish to generate struvite to find reasonable compliance methodologies so that the struvite may be used or disposed of as a Class B, Class A, or Class A EQ biosolid based on analyses.

## 6 Regulatory Compliance and Inspection

A sewage sludge inspection assesses facilities engaged in a regulated sludge activity and evaluates compliance with applicable regulatory provisions, including sludge monitoring, recordkeeping and reporting, treatment operations, sampling and laboratory quality assurance, and use or disposal practices. Sludge inspections may be conducted with compliance inspections at major and nonmajor POTWs. Inspections may also be conducted to respond to citizen tips or complaints.

The recommended inspection frequency goal is at least one sludge inspection of each major POTW every 5 years. Sludge use and disposal operations, including incineration and surface application, should receive at least one sludge/biosolids inspection every 5 years (DEQ 2016b). However, DEQ may substitute an off-site desk audit for sludge/biosolids generation, use, and disposal sites that meet the following criteria:

1. Are not currently subject to enforcement actions or compliance schedules that are the result of concluded enforcement actions
2. Have not been reported in significant noncompliance within the previous four quarters
3. Have no unresolved single-event violation identified in prior inspections
4. Do not discharge to impaired<sup>38</sup> waters for pollutants contributing to the impairment
5. Have no known potential to impact drinking water supplies

The process for determining compliance does not differ by sector. More information is provided in the User's Guide Volume 1, section 9 (DEQ 2017).

## References

- DEQ (Idaho Department of Environmental Quality). 2011. *Guidance for Land Application of Municipal Biosolids*. Boise, ID: DEQ.  
<https://www2.deq.idaho.gov/admin/LEIA/api/document/download/5945>
- DEQ (Idaho Department of Environmental Quality). 2016a. *Guidance for the Land Application of Domestic Septage*. Boise, ID: DEQ.  
<https://www2.deq.idaho.gov/admin/LEIA/api/document/download/10637>
- DEQ (Idaho Department of Environmental Quality). 2016b. *Idaho Pollution Discharge Elimination System Compliance Monitoring Strategy*. Boise, ID: DEQ.  
<https://www2.deq.idaho.gov/admin/LEIA/api/document/download/4817>
- DEQ (Idaho Department of Environmental Quality). 2017. *Idaho Pollutant Discharge Elimination System User's Guide to Permitting and Compliance Volume 1—General Information*. Boise, ID: DEQ.  
<https://www2.deq.idaho.gov/admin/LEIA/api/document/download/4809>
- EPA (US Environmental Protection Agency). 1994a. *Surface Disposal of Sewage Sludge – A Guide for Owners/Operators of Surface Disposal Facilities on the Monitoring, Recordkeeping, and Reporting Requirements of the Federal Standards for the Use or Disposal of Sewage Sludge, 40 CFR Part 503*. Washington, DC: Office of Water.  
<https://www.epa.gov/sites/production/files/2018-11/documents/land-application-sewage-sludge.pdf>
- EPA (US Environmental Protection Agency). 1994b. *A Plain English Guide to the EPA Part 503 Biosolids Rule*. Washington, DC: Office of Wastewater Management.  
<https://www.epa.gov/sites/production/files/2018-12/documents/plain-english-guide-part503-biosolids-rule.pdf>
- EPA (US Environmental Protection Agency). 1994c. *Land Application of Sewage Sludge - A Guide for Land Appliers on the Requirements of the Federal Standards for the Use or Disposal of Sewage Sludge, 40 CFR Part 503*. Washington, DC: Office of Enforcement and Compliance Assurance. <https://www.epa.gov/sites/production/files/2018-11/documents/land-application-sewage-sludge.pdf>

## Key Terms

Citations for key terms used in this guide are provided below. To see the official definition for a term, users should go directly to the rule that is referenced.

<b>Term</b>	<b>IDAPA, CFR, or CWA Citation</b>
Agronomic Rate	40 CFR 503.11(b)
Application	IDAPA 58.01.25.010.03
Beneficial Use	IDAPA 58.01.02.010.08
Class I sludge management facility	IDPAP 58.01.25.010.14
Compliance Schedule or Schedule of Compliance	IDAPA 58.01.25.010.17.
Design Flow	IDAPA 58.01.25.010.23
Director	IDAPA 58.01.25.010.25
Discharge	IDAPA 58.01.25.010.27
Disinfection	IDAPA 58.01.16.010.19
Equivalent Dwelling Unit	IDAPA 58.01.25.010.35
Facility or Activity	IDAPA 58.01.25.010.38
Facility Plan	IDAPA 58.01.16.010.25
General Permit	IDAPA 58.01.02.010.40
Idaho Pollutant Discharge Elimination System (IPDES)	IDAPA 58.01.25.010.42
Indian Country	IDAPA 58.01.25.010.43
Industrial Wastewater	IDAPA 58.01.25.010.46
Land application	40 CFR 503.11(h)
Major Facility	IDAPA 58.01.25.010.51
Municipal solid waste landfill (MSWLF)	40 CFR 258.2
Municipality	IDAPA 58.01.25.010.55
National Pollutant Discharge Elimination System (NPDES)	IDAPA 58.01.25.010.56
Owner or Operator	IDAPA 58.01.25.010.62
Permit	IDAPA 58.01.25.010.63
Person	IDAPA 58.01.25.010.64
Pollutant	IDAPA 58.01.25.010.66
Pretreatment	IDAPA 58.01.25.010.68
Publicly Owned Treatment Works (POTW)	IDAPA 58.01.25.010.73
Receiving Waters	IDAPA 58.01.25.010.74
Reuse	IDAPA 58.01.16.010.71

<b>Term</b>	<b>IDAPA, CFR, or CWA Citation</b>
Sewage Sludge	IDAPA 58.01.25.010.84
Source	IDAPA 58.01.25.010.90
Storm Water	IDAPA 58.01.25.010.94
Toxic Pollutant	IDAPA 58.01.25.010.97
Treatment	IDAPA 58.01.25.010.98
Treatment Facility	IDAPA 58.01.25.010.99
Treatment Works Treating Domestic Sewage (TWTDS)	IDAPA 58.01.25.010.100
Waters of the United States	IDAPA 58.01.25.003.aa

## Appendix A. Summary of Class A and Class B Pathogen Reduction Requirements

(Adapted from Table 2-5, EPA 1994b)

### Class A

In addition to meeting the requirements in one of the six alternatives listed below, fecal coliform or *Salmonella* sp. bacteria levels must meet specific density requirements at the time of biosolids use or disposal or when prepared for sale or give away.

#### Alternative 1: Thermally Treated Biosolids

Use one of four time-temperature regimes.

#### Alternative 2: Biosolids Treated in a High pH-High Temperature Process

Specifies pH, temperature, and air-drying requirements.

#### Alternative 3: For Biosolids Treated in Other Processes

Demonstrate that the process can reduce enteric viruses and viable helminth ova. Maintain operating conditions used in the demonstration.

#### Alternative 4: Biosolids Treated in Unknown Processes

Demonstration of the process is unnecessary. Instead, test for pathogens – *Salmonella* sp. or fecal coliform bacteria, enteric viruses, and viable helminth ova – at the time the biosolids are used or disposed of or are prepared for sale or give away.

#### Alternative 5: Use of PFRP

Biosolids are treated in one of the Processes to Further Reduce Pathogens<sup>39</sup> (PFRP).

#### Alternative 6: Use of a Process Equivalent to PFRP

Biosolids are treated in a process equivalent to one of the PFRPs, as determined by the permitting authority.

### Class B

The requirements in one of three alternatives below must be met.

#### Alternative 1: Monitoring of Indicator Organisms

Test for fecal coliform density as an indicator for all pathogens at the time of biosolids use or disposal.

#### Alternative 2: Use of PSRP

Biosolids are treated in one of the Processes to Significantly Reduce Pathogens<sup>40</sup> (PSRP).

#### Alternative 3: Use of Processes Equivalent to PSRP

Biosolids are treated in a process equivalent to one of the PSRPs as determined by the permitting authority.



## Appendix B. Summary of Vector Attraction Reduction Options

(Adapted from Table 2-6, EPA 1994b)

### Requirements in one of the following options must be met:

- Option 1:** Reduce the mass of volatile solids by a minimum of 38%.
- Option 2:** Demonstrate vector attraction reduction with additional anaerobic digestion in a bench-scale unit.
- Option 3:** Demonstrate vector attraction reduction with additional aerobic digestion in a bench-scale unit.
- Option 4:** Meet a specific oxygen uptake rate for aerobically treated biosolids.
- Option 5:** Use aerobic processes at greater than 40°C (average temperatures 45°C) for 14 days or longer (e.g., during biosolids composting).
- Option 6:** Add alkaline materials to raise the pH under specified conditions.
- Option 7:** Reduce moisture content of biosolids that do not contain unstabilized solids from other than primary treatment to at least 75% solids.
- Option 8:** Reduce moisture content of biosolids with unstabilized solids to at least 90%.
- Option 9:** Inject biosolids beneath the soil surface within a specified time, depending on the level of pathogen treatment.
- Option 10:** Incorporate biosolids applied to or placed on the land surface within specified time periods after application to or placement on the land surface.

## Appendix C. Restrictions on Sites Where Class B Biosolids are Applied

(Adapted from Figure 2-4, EPA 1994b)

Regulation 40 CFR 503 places restrictions for harvesting of crops and turf, grazing of animals, and public access on sites where Class B biosolids are applied. Examples of crops impacted by Class B pathogen requirements are listed in Table C-1.

### Restrictions for the harvesting of crops and turf:

1. Food crops, feed crops, and fiber crops, whose edible parts do not touch the surface of the soil, shall not be harvested until *30 days* after biosolids application.
2. Food crops with harvested parts that touch the biosolids/soil mixture and are totally above ground shall not be harvested until *14 months* after application of biosolids.
3. Food crops with harvested parts below the land surface where biosolids remain on the land surface for 4 months or longer prior to incorporation into the soil shall not be harvested until *20 months* after the biosolids application.
4. Food crops with harvested parts below the land surface where biosolids remain on the land surface for less than 4 months prior to incorporation shall not be harvested until *38 months* after biosolids application.
5. Turf grown on land where biosolids are applied shall not be harvested until *1 year* after application of the biosolids when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.

### Restrictions for the grazing of animals:

1. Animals shall not be grazed on land until *30 days* after application of biosolids to the land.

### Restrictions for public contact:

1. Access to land with a high potential for public exposure, such as a park or ballfield, is restricted for *1 year* after biosolids application. Examples of restricted access include posting with no trespassing signs and fencing.
2. Access to land with a low potential for public exposure (e.g., private farmland) is restricted for *30 days* after biosolids application. An example of restricted access is remoteness.

**Table C-1. Examples of crops impacted by site restrictions for Class B biosolids (adapted from Figure 2-5, EPA 1994b).**

<b>Harvested Parts That:</b>		
<b>Usually Do Not Touch the Soil/Biosolids Mixture</b>	<b>Usually Touch the Soil/Biosolids Mixture</b>	<b>Are Below the Soil/Biosolids Mixture</b>
Peaches	Melons	Potatoes
Apples	Strawberries	Yams
Oranges	Eggplant	Sweet Potatoes
Grapefruit	Squash	Rutabaga
Corn	Tomatoes	Peanuts
Wheat	Cucumbers	Onions
Oats	Celery	Leeks
Barley	Cabbage	Radishes
Cotton	Lettuce	Turnips
Soybeans		Beets

## Appendix D. General Requirements and Management Practices for Land Application Sites

Regulation 40 CFR 503 outlines general requirements and management practices for sites that apply biosolids to the land:

### Land Application General Requirements (adapted from Figure 2-8, EPA 1994b)

#### For EQ Biosolids

None (unless set by EPA or State permitting authority on a case-by-case basis for bulk biosolids to protect public health and the environment).

#### For PC and CPLR Biosolids

The **preparer** (the person who generates the biosolids or the person who derives a material from biosolids) must notify and provide information necessary to comply with the Part 503 land application requirements to the person who applies bulk biosolids to the land.

The **preparer** who provides biosolids to another person who further prepares the biosolids for application to the land must provide this person with notification and information necessary to comply with the Part 503 land application requirements.

The **preparer** must provide written notification of the total nitrogen concentration (as N on a dry-weight basis) in bulk biosolids to the applier of the biosolids to agricultural land, forests, public contact sites, or reclamation sites.

The **applier** of biosolids must obtain information necessary to comply with the Part 503 land application requirements, apply biosolids to the land in accordance with the Part 503 land application requirements, and provide notice and necessary information to the owner or leaseholder of the land on which biosolids are applied.

#### Out of State Use

The **preparer** must provide written notification (prior to the initial application of the bulk biosolids by the applier) to the permitting authority in the State where biosolids are proposed to be land applied when bulk biosolids are generated in one State and transferred to another State for application to the land. The notification must include:

- The location (either street address or latitude and longitude) of each land application site;
- The approximate time period the bulk biosolids will be applied to the site;
- The name, address, telephone number, and National Pollutant Discharge Elimination System (NPDES) permit number for both the preparer and the applier of the bulk biosolids; and
- Additional information or permits in both States, if required by the permitting authority.

#### Additional Requirements for CPLR Biosolids

The **applier** must notify the permitting authority in the State where bulk biosolids are to be applied prior to the initial application of the biosolids. This is a one-time notice requirement for each land application site each time there is a new applier. The notice must include:

- The location (either street address or latitude and longitude) of the land application site; and
- The name, address, telephone number, and NPDES permit number (if appropriate) of the person who will apply the bulk biosolids

The **applier** must obtain records (if available) from the previous applier, landowner, or permitting authority that indicate the amount of each CPLR pollutant in biosolids that have been applied to the site since July 20, 1993. In addition:

- When these records are available, the **applier** must use this information to determine the additional amount of each pollutant that can be applied to the site in accordance with the CPLRs in Table 1;
- The **applier** must keep the previous records and also record the additional **amount of each pollutant he or she is applying to the site**; and
- When records of past known CPLR applications since July 20, 1993, are not available, biosolids meeting CPLRs cannot be applied to that site. However, EQ or PC biosolids could be applied.

If biosolids meeting CPLRs have not been applied to the site in excess of the limit since July 20, 1993, the CPLR limit for each pollutant in Table 1 will determine the maximum amount of each pollutant that can be applied in biosolids if:

- All applicable management practices are followed; and
- The applier keeps a record of the amount of each pollutant in biosolids applied to any given site.

The **applier** must not apply additional biosolids under the cumulative pollutant loading concept to a site where any of the CPLRs have been reached.

**Land Application Management Practices (adapted from Figure 2-9, EPA 1994b)****For EQ Biosolids**

None (unless established by EPA or the state permitting authority on a case-by-case basis for bulk biosolids to protect public health and the environment).

**For PC and CPLR Biosolids**

These types of biosolids cannot be applied to flooded, frozen, or snow-covered agricultural land, forests, public contact sites, or reclamation sites in such a way that the biosolids enter a wetland or other waters of the United States (as defined in 40 CFR 122.2, which generally includes tidal waters, interstate and intrastate waters, tributaries, the territorial sea, and wetlands adjacent to these waters), except as provided in a permit issued pursuant to Section 402 (NPDES permit) or Section 404 (Dredge and Fill Permit) of the Clean Water Act, as amended.

These types of biosolids cannot be applied to agricultural land, forests, or reclamation sites that are 10 meters or less from US waters, unless otherwise specified by the permitting authority.

If applied to agricultural lands, forests, or public contact sites, these types of biosolids must be applied at a rate that is equal to or less than the agronomic rate for nitrogen for the crop to be grown. Biosolids applied to reclamation sites may exceed the agronomic rate for nitrogen as specified by the permitting authority.

These types of biosolids must not harm or contribute to the harm of a threatened or endangered species or result in the destruction or adverse modification of the species' critical habitat when applied to the land. Threatened or endangered species and their critical habitats are listed in Section 4 of the Endangered Species Act. Critical habitat is defined as any place where a threatened or endangered species lives and grows during any stage of its life cycle. Any direct or indirect action (or the result of any direct or indirect action) in a critical habitat that diminishes the likelihood of survival and recovery of a listed species is considered destruction or adverse modification of a critical habitat.

**For APLR Biosolids**

A label must be affixed to the bag or other container or an information sheet must be provided to the person who receives APLR biosolids in other containers. At a minimum, the label or information sheet must contain the following information:

- The name and address of the person who prepared the biosolids for sale or giveaway in a bag or other container
- A statement that prohibits application of the biosolids to the land except in accordance with the instructions on the label or information sheet
- An Annual Whole Sludge Application Rate<sup>41</sup> for the biosolids that do not cause the APLRs to be exceeded; and the nitrogen content

There is no labeling requirement for EQ biosolids sold or given away in a bag or other container.

## Appendix E. Management Practices for Surface Disposal Sites

Regulation 40 CFR 503 includes management practices that must be followed when sewage sludge is placed on a surface disposal site. Most of these management practices apply to all surface disposal sites. A few, however, apply only to sites with liners and leachate collection systems or to sites with covers. (A cover can be soil or other material placed over the biosolids.) The required management practices for surface disposal sites are summarized below.

(Adapted from Table 3-3, EPA 1994b)

- Biosolids placed on a disposal unit must not harm threatened or endangered species.
- The active biosolids unit must not restrict base flood flow.
- The active biosolids unit must be located in a geologically stable area:
  - Must not be located in an unstable area
  - Must not be located in a fault area with displacement in Holocene time (unless allowed by the permitting authority)
  - If located in a seismic impact zone, must be able to withstand certain ground movements.
- The active biosolids unit cannot be located in wetlands (unless allowed in a permit).
- Runoff must be collected from the surface disposal site with a system capability to handle a 25-year, 24-hour storm event.
- Only where there is a liner, must leachate be collected and must the owner/operator maintain and operate a leachate collection system.
- Only where there is a cover, must there be limits on concentrations of methane gas in air in any structure on the site and in air at the property line of the surface disposal site.
- The owner/operator cannot grow crops on site (unless allowed by the permitting authority).
- The owner/operator cannot graze animals on site (unless allowed by the permitting authority).
- The owner/operator must restrict public access.
- The biosolids placed in the active biosolids unit must not contaminate an aquifer.

## **Appendix F. Pathogen and Vector Attraction Reduction Requirements for Surface Disposal Sites**

Regulation 40 CFR 503 includes requirements concerning the control of pathogens and the reduction of vector attraction for biosolids placed on a surface disposal site. Biosolids can be placed on an active biosolids unit only if the pathogen and vector attraction reduction requirements are met as shown in the following summary.

(Adapted from Table 3-4, EPA 1994b)

### **Pathogen Reduction Requirements (must meet one of these options):**

- Place a daily cover on the active biosolids unit.
- Meet one of six Class A pathogen reduction requirements (Appendix A).
- Meet one of three Class B pathogen reduction requirements, except Site Restrictions (Appendix A).

### **Vector Attraction Reduction Requirements (must meet one of these options):**

- Place a daily cover on the active biosolids unit.
- Reduce volatile solids content by a minimum of 38% or less under specific laboratory test conditions with anaerobically and aerobically digested biosolids.
- Meet the specific oxygen uptake rate (SOUR).
- Treat the biosolids in an aerobic process for a specified number of days at a specified temperature.
- Raise the pH of the biosolids with an alkaline material to a specified level for a specified time.
- Meet a minimum percent solids content.
- Inject or incorporate the biosolids into soil.

## Appendix G. Frequency of Monitoring Sewage Sludge (Biosolids)

The frequency of monitoring sewage sludge (biosolids) depends on a number of factors in its use or disposal. Tables G-1–G-3 summarize the required monitoring frequencies.

**Table G-1. Frequency of monitoring for pollutants, pathogen densities, and vector attraction reduction (adapted from Table 2-7, EPA 1994b).**

Amounts of Biosolids <sup>a</sup> (metric tons per 365-day period)	Amount of Biosolids (English tons)		Frequency
	Avg. per day	per 365 days	
Greater than zero but less than 290	>0 to <0.85	>0 to <320	Once per year
Equal to or greater than 290 but less than 1,500	0.85 to <4.5	32 to <1,650	Once per quarter (4 times per year)
Equal to or greater than 1,500 but less than 15,000	4.5 to <45	1,650 to <16,500	Once per 60 days (6 times per year)
Equal to or greater than 15,000	≥45	≥16,500	Once per month (12 times per year)

a. Either the amount of bulk biosolids applied to the land or the amount of biosolids received by a person who prepares biosolids for sale or give-away in a bag or other container for application to the land (dry-weight basis).

**Table G-2. Monitoring required at surface disposal sites (adapted from Table 3-5, EPA 1994b).**

What Must Be Monitored	In
Arsenic	Biosolids
Chromium	Biosolids
Nickel	Biosolids
Pathogens	Biosolids for several options
Vector attraction reduction	Biosolids for several options
Methane gas	Air in each structure on site
Methane gas	Air at surface disposal site property line



**Table G-3. Frequency of monitoring for surface disposal of biosolids (adapted from Table 3-6, EPA 1994b).**

Amounts of Biosolids <sup>†</sup> (metric tons per 365-day period)	Amount of Biosolids (English tons)		Minimum Frequency
	Avg. per day	Per 365 days	
Greater than zero but less than 290	>0 to <0.85	>0 to <320	Once per year
Equal to or greater than 290 but less than 1,500	0.85 to <4.5	32 to <1,650	Once per quarter (4 times per year)
Equal to or greater than 1,500 but less than 15,000	4.5 to <45	1,650 to <16,500	Once per 60 days (6 times per year)
Equal to or greater than 15,000	≥45	≥16,500	Once per month (12 times per year)
Methane gas in air			Continuously with methane monitoring device if biosolids unit is covered

## Appendix H. Recordkeeping and Reporting Requirements

**Table H-1. Recordkeeping and reporting requirements for land application (adapted from Table 2-8, EPA 1994b).**

Type of Biosolids	Records That Must Be Kept	Person Responsible for Recordkeeping		Records That Must Be Reported <sup>a</sup>
		Preparer	Applier	
EQ Biosolids	Pollutant concentrations	✓		✓
	Pathogen reduction certification and description	✓		✓
	Vector attraction reduction certification and description	✓		✓
PC Biosolids	Pollutant concentrations	✓		✓
	Management practice certification and description		✓	
	Site restriction certification and description (where Class B pathogen requirements are met)		✓	
	Pathogen reduction certification and description	✓		✓
	Vector attraction reduction certification and description	✓	✓ <sup>b</sup>	✓ <sup>c</sup>
	Pollutant concentrations	✓		✓
	Management practice certification and description		✓	
CPLR Biosolids	Site restriction certification and description (where Class B pathogen requirements are met)		✓	
	Pathogen reduction certification and description	✓		✓
	Vector attraction reduction certification and description	✓	✓ <sup>b</sup>	✓ <sup>c</sup>
	Other information:			
	Certification and description of information gathered (information from the previous applier, landowner, or permitting authority regarding the existing cumulative pollutant load at the site from previous biosolids applications)			
	Site Location		✓	✓ <sup>d</sup>
	Number of hectares			
Amount of biosolids applied				
Cumulative amount of pollutant applied (including previous amounts)				
Date of application				
APLR Biosolids	Pollutant concentrations	✓		✓
	Management practice certification and description	✓		✓
	Pathogen reduction certification and description	✓		✓
	Vector attraction reduction certification and description	✓		✓
	The AWSAR <sup>e</sup> for the biosolids	✓		✓

a. Reporting responsibilities are only for POTWs with a design flow rate equal to or greater than 1 million gallons per day, POTWs that serve a population of 10,000 or greater, and Class I sludge management facilities.

b. The preparer certifies and describes vector attraction reduction methods other than injection and incorporation of biosolids into the soil. The applier certifies and describes injection or incorporation of biosolids into the soil.

c. Records that certify and describe injection or incorporation of biosolids into the soil do not have to be reported.

d. Some of this information has to be reported only when 90% or more of any of the CPLRs is reached at a site.

e. Annual Whole Sludge Application Rate as calculated per 40 CFR 503 Appendix A.

**Table H-2. Recordkeeping and reporting requirements for surface disposal (adapted from Chapter 3, pages 74–75, EPA 1994b).**

<b>Person Responsible for Recordkeeping</b>	<b>Records That Must Be Kept and Reported<sup>a</sup></b>
Preparer	<p>The concentrations of arsenic, chromium, and nickel in biosolids for active biosolids disposal units without a liner and leachate collection system with boundaries that are 150 meters or more from the surface disposal site's property line</p> <p>A description of how certain pathogen and vector attraction reduction requirements are met</p> <p>A certification statement, signed and dated:                      "I certify, under penalty of law, that the pathogen requirements in [insert § 503.32(a), § 503.32(b)(2), § 503.32(b)(3), or § 503.32(b)(4) when one of these requirements is met] and the vector attraction reduction requirements in [insert one of the vector attraction reduction requirements in § 503.32(b)(1) through § 503.32(b)(8) when one of these requirements is met] have/have not been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the [pathogen requirements and vector attraction reduction requirements if appropriate] have been met. I am aware that there are significant penalties for false certification, including the possibility of fine and imprisonment."</p>
Owner/Operator	<p>The concentrations of arsenic, chromium, and nickel in biosolids for active biosolids units with boundaries less than 150 meters from the property line or for active biosolids units with site-specific limits</p> <p>A description of how the management practices for surface disposal sites are being met</p> <p>A description of how certain vector attraction reduction requirements are being met</p> <p>A certification statement, signed and dated:                      "I certify, under penalty of law, that the management practices in § 503.24 and the vector attraction reduction requirement in [insert one of the requirements in § 503.33(b)(9) through § 503.33(b)(11), if one of these requirements is met] have/have not been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices [and the vector attraction reduction requirements, if appropriate] have been met. I am aware that there are significant penalties for false certification, including the possibility of fine and imprisonment."</p>

a. Reporting responsibilities are only for POTWs with a design flow rate equal to or greater than 1 million gallons per day, POTWs that serve a population of 10,000 or greater, and Class I sludge management facilities.

## Endnotes: IDAPA and CFR References

- 
- <sup>1</sup> IDAPA 58.01.25.050
- <sup>2</sup> IDAPA 58.01.25.010.84
- <sup>3</sup> 40 CFR 503.3(b)
- <sup>4</sup> IDAPA 58.01.25.380 and 40 CFR 503
- <sup>5</sup> IDAPA 58.01.25.380.02.a
- <sup>6</sup> 40 CFR 503.1(a)
- <sup>7</sup> 40 CFR 503(f) and (n) (excluding industrial wastewater used in commercial or industrial process, but including domestic septage including from industrial facilities.)
- <sup>8</sup> 40 CFR 503.9(q), (r).
- <sup>9</sup> IDAPA 58.01.25.010.85; 40 CFR 503.10(a).
- <sup>10</sup> IDAPA 58.01.25, 40 CFR 503.6, and IDAPA 58.01.16
- <sup>11</sup> 40 CFR Parts 60, 61
- <sup>12</sup> 40 CFR Part 257 if land applied; 40 CFR Part 258 if placed in MSWLF
- <sup>13</sup> 40 CFR Parts 261-268
- <sup>14</sup> 40 CFR Part 761
- <sup>15</sup> IDAPA 58.01.25.010.14; 40 CFR 403.8(a)
- <sup>16</sup> IDAPA 58.01.25.010.43
- <sup>17</sup> 40 CFR 503
- <sup>18</sup> 40 CFR 503.32
- <sup>19</sup> 40 CFR 503.12
- <sup>20</sup> 40 CFR 503.14
- <sup>21</sup> 40 CFR 503.16 – 18
- <sup>22</sup> 40 CFR 503.14(e)
- <sup>23</sup> IDAPA 58.01.25
- <sup>24</sup> IDAPA 58.01.16.650
- <sup>25</sup> 40 CFR 503.15
- <sup>26</sup> 40 CFR 503 Subpart C
- <sup>27</sup> 40 CFR 503.24
- <sup>28</sup> 40 CFR 261
- <sup>29</sup> 40 CFR 761
- <sup>30</sup> 40 CFR 258
- <sup>31</sup> 40 CFR 503.8(b) or in 40 CFR 136
- <sup>32</sup> 40 CFR 503
- <sup>33</sup> 40 CFR 503.17(a)(5)(ii)
- <sup>34</sup> 40 CFR 503.18
- <sup>35</sup> IDAPA 58.01.16
- <sup>36</sup> IDAPA 58.01.25 and 40 CFR 503
- <sup>37</sup> IDAPA 58.01.03.050
- <sup>38</sup> CWA § 303(d)
- <sup>39</sup> 40 CFR 503 Appendix B.(B)
- <sup>40</sup> 40 CFR 503 Appendix B.(A)
- <sup>41</sup> 40 CFR 503 Appendix A