



Idaho Pollutant Discharge Elimination System User's Guide Volume 6

Response to Comments on Draft Final User's Guide

U.S. EPA Region 10 Water Division, February 3, 2021 E-mail

1. Section 2 Defining Sewage Sludge and Biosolids and Rule Applicability

DEQ adopted the federal 503 regulation by reference. Therefore, DEQ is responsible for ensuring the provisions under 503 are implemented appropriately. It is important for DEQ to track the total universe of sewage sludge facilities, domestic septage facilities (generators and/or handlers), lagoons including all abandoned or non-discharging lagoons. A full accounting of all sewage sludge facilities is important for tracking, information dissemination and compliance/enforcement purposes.

In A Plain English Guide to the EPA Part 503 Biosolids Rule

(<https://www.epa.gov/sites/production/files/2018-12/documents/plain-english-guide-part503-biosolids-rule.pdf>), the EPA addresses domestic septage coverage as follows: Part 503 imposes separate requirements for domestic septage applied to agricultural land, forest, or a reclamation site (i.e., nonpublic-contact sites). The “simplified rule” for application of domestic septage to such sites is explained in Domestic Septage Regulatory Guidance: A Guide to the EPA 503 Rule (<https://www.epa.gov/biosolids/domestic-septage-regulatory-guidance-guide-epa-503-rule>). If domestic septage is applied to public contact sites or home lawns and gardens, the same requirements must be met as for bulk biosolids applied to the land (i.e., general requirements, pollutant limits, pathogen and vector attraction reduction requirements, management practices, frequency of monitoring requirements, and recordkeeping and reporting requirements). It is unclear from the DEQ’s inventory of 222 facilities if they include domestic septage operators (permitted or unpermitted).

According to the DEQ’s Permitted Septage Tank Pumpers List (under “Resources” at, <https://www.deq.idaho.gov/water-quality/wastewater/septic-and-septage/>) there are over 100 operators that may be subject to the federal biosolids regulation depending on what the haulers do with the domestic septage. For example, if the septage haulers land apply the domestic septage to agricultural land, forest land, reclamation sites or use surface disposal of sewage sludge, then they are regulated by 503. It appears that none of the domestic septage haulers are included with 122 facilities identified in the current guidance. Furthermore, it is unclear from the septage tank pumpers list if it includes domestic handling facilities (e.g., composters conduct further treatment of the septage and land apply the septage).

According to the Memorandum of Understanding (MOU) between the Department of Environmental Quality and Idaho’s Public Health Districts

(<https://www2.deq.idaho.gov/admin/LEIA/api/document/download/5959>), in addition to posting

a statewide list of permitted septic tank pumpers on its website, Idaho DEQ has certain regulatory responsibilities for domestic septage, including:

- Approving the method and location of domestic septage disposal if the disposal location is used for ongoing applications.
- Approving operation plans and providing inspections at approved domestic septage sites.
- Corrective action under rules governing the cleaning of septic tanks.

In addition, DEQ is responsible for reviewing plans and specifications for certain kinds of subsurface sewage disposal systems.

DEQ should review its records pertaining to domestic septage disposal facilities and subsurface sewage disposal systems in an effort to identify additional facilities that are subject to 40 CFR 503.

Response 1: DEQ concurs that potentially more than 222 facilities/operators may fall under the regulations of IDAPA 58.01.25.380 than were previously identified in DEQ's 2017 survey. DEQ will work with the regulated community to determine the true scope of the universe.

Changes to UGV6: Updates regarding septage have been incorporated.

2. Section 2 Defining Sewage Sludge and Biosolids and Rule Applicability

The draft guidance states, "TWTDS facilities that hold neither an IPDES nor a reuse permit may or may not be subject to these regulations."

This is confusing and potentially misleading. Facilities that meet the definition of TWTDS at 40 CFR 122.2 are subject to 40 CFR 503. Furthermore, regardless if a facility has a permit or not, the facility must comply with all standards and requirements under 503 that apply to it.

Response 2: DEQ concurs that this language was confusing.

Changes to UGV6: The language was removed to reduce confusion.

3. Section 5.2 Struvite

The current language regarding struvite is not acceptable to EPA. DEQ cannot designate struvite a Class A EQ biosolids product without first meeting Class A EQ requirements under Part 503. Please clarify the last sentence and include language that explains how a company or TWTDS must meet the Class A EQ requirements before it can claim that its product may be used or disposed of a Class A EQ biosolids.

Response 3: DEQ concurs that the existing language did not properly convey the requirements that intentionally produced struvite must demonstrate that it meets Class A EQ quality.

Changes to UGV6: The language was updated to clarify those requirements.

Association of Idaho Cities, February 3, 2021 Letter

4. General Comments

AIC has reviewed the January 2021 draft guidance, along with comments developed and submitted by the City of Meridian. AIC submits this “Letter of Concurrence” with Meridian’s comments, along with these clarifying comments on behalf of our members and Board.

Response 4. Thank you for your comments.

Changes to User’s Guide Volume 6 (UGV6): None.

5. Section 3.1.7 Exceptional Quality (EQ)

Overall, AIC is supportive of how the IDEQ seeks to keep the current basic regulatory approach. This approach by the IDEQ (i.e., to keep compliance with the federal 503 regulations as simple as possible) is aligned with our cities' interests. This includes how the public participation and comments are invited for draft IPDES permits where the requirement to comply with the 503 regulations, as well as the approach outlined in Section 3.1.7 for “Exceptional Quality” materials.

Response 5: Thank you for your comments.

Changes to UGV6: None.

City of Greenleaf, February 2, 2021 E-mail

6. General Comments

The City of Greenleaf is very appreciative of the intent of these guides as stated in the introduction, to “...help the regulated community and other public users easily understand the IPDES permitting and compliance process and the IPDES statutory and regulatory requirements.... This is of paramount importance to Idaho, and particularly to municipal publicly owned treatment works (POTWs).

It is important to note that over half of the approximately 200 cities in the State of Idaho have populations less than 1,500 people, providing services under an economy of scale which requires that the small-town public works staff multi-task across multiple disciplines to effectively and efficiently operate and maintain not only the POTW, but also potable water, irrigation water, and roads & streets. In the specific case of the City of Greenleaf, our two-person public works staff works diligently to perform all these functions on a day-to-day basis, with supervisory assistance from a contract wastewater operator of record for POTW operation.

It is also notable that small-town government, while typically the most grass-roots, trusted, and in-touch at the local level, is also subject to the downside of small-town politics. Transitions may not be smooth, and can be rough, sudden, and deep. For example, in 2004 the City of Greenleaf experienced a mayoral recall election in which all city employees except the utility billing clerk and irrigation system ditch rider resigned before the election, and the election resulted in loss of Mayor and resignation of two City Council Members. This left no quorum for the City Council,

and the city had to wait for the Governor to appoint a 3rd Council Member so that city government could re-build with appointments of a 4th Council Member, Mayor, Clerk, Treasurer, Attorney, and begin hiring process for public works personnel.

Guidance must be written so that it is understandable by the lay person. Small-town public works employees often gain their expertise in wastewater through on-the-job experience. Additionally, small-town public works employees typically perform their work with direction straight from Mayor and/or City Council that do not have a background in wastewater treatment. The need is great for both simplicity and visual tools to aid in the understanding of requirements.

Response 6: Thank you for your comments. DEQ will work to address areas of complexity within the guidance and future documents to ensure readability at all levels.

Changes to UGV6: None.

7. Additional Appendices

The City of Greenleaf recommends the addition of two new appendices to the draft. One additional appendix to contain a flowchart or flowcharts to visually represent the requirements and decision-making process for successful fulfillment of requirements, and the other additional appendix to contain a checklist or checklists to help ensure that required actions are not missed. Incorporation of recommended timelines and required deadlines to both flowcharts and checklists would also be very helpful.

Response 7: DEQ appreciates the City's ideas to provide visual tools to aid in implementation at the local level.

Changes to UGV6: DEQ did not add additional appendices to include implementation tools, but will provide such tools as separate documents on DEQ's website.

8. E-permitting System

The processes described in the user guide are dependent upon the successful navigation and usage of the E-Permitting System. Frankly, the E-Permitting System can be very challenging, complex, and non-intuitive in its current iteration. The city understands that the system is not currently what DEQ wants it to be, and appreciates DEQ's continuing efforts to streamline and make the E-Permitting System more user-friendly in its' operation.

Response 8: Thank you for your comments.

Changes to UGV6: None. However, DEQ is continuing to improve the usability of the E-Permitting System based on feedback from our permittees.

Centrisys/CNP and NRU, January 29, 2021 Letter

9. Section 5.2 Struvite

Section 5.2 (page 15) states that struvite "...intentionally formed using advanced wastewater treatment processes to treat phosphorus-rich sidestreams... may be used or disposed of as a Class A EQ biosolid." At this time, Centrisys/CNP and NRU suggest Section 5.2 be altered to remove

the guidance that struvite must meet the classification of a Class A EQ biosolid to be beneficially used.

Centrisys/CNP and NRU support the case that struvite produced by recovery technologies like Centrisys/CNP's MagPrex® system is significantly different in physical and biological characteristics from those products which fall under the jurisdiction of 40 CFR Part 503, and as such should not be subjected to the same regulatory requirements as a Class A EQ biosolid product before it can be beneficially used in agriculture, horticulture, or other markets.

Centrisys/CNP and NRU agree with and promote the diligent monitoring of the quality of struvite recovered from water resource recovery facilities (WRRFs) to ensure the safety and well-being of end users, crops, and surrounding environments where the struvite may be land-applied. However, the standard methods used in 40 CFR Part 503 do not allow for accurate testing of struvite and therefore limit the rule's applicability to this material.

Struvite is a crystalline mineral and a sparingly soluble salt containing six water molecules that are integral components of the crystal lattice. The struvite mineral also contains 7.24% ammonium (NH₄) by weight. When exposed to the appropriate time and temperature criteria required of Class A EQ materials for elimination of pathogenic potential, losses of the crystal waters and ammonium occur. This results not only in a destruction of the struvite molecule and reduction of its value as a nitrogen fertilizer, but also presents a potentially dangerous situation in which ammonia gas enters the local atmosphere.

Furthermore, the loss of the mineral's crystal water - which constitutes 44.08% of the mineral's total weight- combined with ammonia off-gassing results in inaccurately low total solids analysis when the material is subjected to Standard Method 2540 G for the determination of total, fixed and volatile solids. This means struvite tested by the Standard Method may yield total solids results lower than the regulatory limit for vector attraction reduction. Yet, the crystalline waters accounting for nearly half the weight of the struvite mineral are not liquid water in any sense and present no significant water activity, and therefore should not be accounted as available water for microbial growth. This fact, combined with the inorganic nature of the struvite mineral, and the low amounts of organic materials it precipitates with under proper harvesting conditions, means struvite is itself inhibitory to vector attraction and/or microbial growth.

Given the weight loss implications of exposing struvite to high heat and that the thermal treatment requirement is the most applicable Class A EQ pathogenic reduction solution to the MagPrex process, meeting the pathogenic reduction method requirements as currently written in Part 503 for land application of the material is a physical impossibility without altering the struvite itself. Yet, the recovery of the struvite mineral without doubt yields a valuable product with beneficial applications in agricultural, horticultural, and other industrial markets, offering WRRFs implementing struvite recovery technologies a source of revenue and further helping the industry at large attain sustainable commercial phosphorus recovery from wastewater

Response 9: DEQ appreciates the position that manufactured struvite should be removed from the 40 CFR 503 regulated coverage.

Changes to UGV6: Struvite language (Section 5.2) was updated to clarify DEQ's position. Until generated struvite is exempt from 40 CFR 503 regulations, DEQ will continue to require applicant demonstration of Class A EQ status for intentionally generated struvite. However,

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.

10. Section 5.2 Struvite

Centrisys/CNP and NRU support the efforts made by the National Association of Clean Water Agencies (NACWA) in encouraging the EPA to clarify the regulatory classification of resources, like struvite, that are recovered from wastewaters but are vastly different from materials falling under the definition of “sewage sludge” and that they are outside of the scope of 40 CFR Part 503. Though the influent to a struvite recovery process would be considered post-digested sewage, the result of the struvite precipitation reaction is primarily an inorganic crystalline material much different in chemical structure, physical characteristics, and biological behavior from the high-organics digest fed into the system.

Response 10: See Response 9.

Changes to UGV6: See Response 9.

11. Section 5.2 Struvite

Supplementary information related to the above discussion can be found in the Centrisys/CNP document titled “Review of Applicability of EPA’s Part 503 Biosolids Rule on Phosphorus Minerals recovered at Water Resource Recovery Facilities”, which accompanied this letter at the time of its submission.

Response 11: See Response 9.

Changes to UGV6: See Response 9.

City of Meridian, February 2, 2021 E-mail

12. Annual Report

Will the annual report be web based, form fillable (similar to the current form through EPA 's CDX biosolids website), or will facilities just be required to submit a report in any format to the IPDES site as an attachment? The EPA site/form is easy to use and collects all the information in a consistent manner from all dischargers. It may be worthwhile for DEQ to mirror the EPA submission site, if possible. Request: Consider current EPA submission site when developing IPDES equivalent. If DEQ does not utilize an automatic form filling site for submission, it is recommended to post an example annual report for dischargers to utilize to assist in creation of their annual reports.

Response 12: The goal is to have the E-Permitting annual report closely resemble EPA's NETBIO system.

Changes to UGV6: None.

13. Section 5.2 Struvite

Struvite (magnesium ammonium phosphate) is a phosphate mineral that can be removed from the solids processing stream of a wastewater facility and beneficially reused as a slow release fertilizer. In 2017, EPA acknowledged that struvite products are highly refined, safe products and perhaps should not be regulated under the 503 requirements as a biosolids or sludge material. "Some products originating from sewage sludge could conceivably be so heavily refined or processed that a significant transformation or change in quality has occurred to the extent that it would be unreasonable to describe those products as "material derived from sewage sludge.... such products...would be outside the scope of Part 503." (Jan 2017 EPA letter to NACWA, emphasis added).

Requiring struvite products to meet Class A Exceptional Quality biosolids standards in Idaho is unnecessary and will likely reduce the beneficial reuse of struvite based slow release fertilizers in Idaho.

As City of Boise has demonstrated through their attempts at further processing struvite products as Class A biosolids, "typical time and temperature requirements specified for Class A biosolids treatment are difficult to apply in the treatment for struvite to meet Class A condition. This challenge is due to the temperature-sensitive nature of the struvite crystal. The struvite crystal structure is destroyed when heat is applied due to release of bound water and the subsequent release of bound ammonia, leaving a dusty, low-nutrient and low-value product. The release of bound water inside the heat treatment vessel can also produce a dense, sticky material that is impossible to reclaim and requires extensive maintenance to remove" (City of Boise's Struvite Story 10-19, emphasis added).

Additionally, running pathogen and virus testing on salt matrices is expensive, unnecessary, and challenging at best. Traditional, approved wastewater testing methods are generally developed for use on liquid or non-crystal solid matrices.

With the likely increase in the installation of intentional struvite producing facilities in Idaho as a necessary way for dischargers to help meet stringent effluent nutrient limits, it is important for DEQ to analyze the reasoning and justifications for requiring regulations that are more stringent than necessary for non-biosolids product (struvite) by deeming it a Class A biosolid.

Additionally, it would be useful for DEQ to survey other states and regions to better understand how and why struvite is regulated across the nation. Many of the companies that are developing struvite production equipment in the US have many years of experience in the production, handling, and regulations of struvite material in Europe, as well, and may be able to provide DEQ with valuable insight. It is recommended that DEQ meet with these vendors to better understand struvite products, composition, and risks/benefits (vendor examples include Ostara, CNP/Centrisys, and Schwing) before imposing additional regulations.

Struvite is an important, recoverable mineral resource for Idaho, and it would be a shame to hamper beneficial use of struvite due to unnecessarily over regulation based on an improper classification that ignores the significant transformation and change in quality from the source material.

Request:

Struvite products should be exempted from meeting the requirements of the 503 regulations as this product is no longer a sewage sludge or biosolids material. This clear exemption will give facilities the regulatory certainty necessary to continue to pursue the important beneficial reuse of this product in our state.

Suggested language for guidance document could include:

Section 5.2- Struvite and Struvite Based Products

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 forms naturally under certain conditions during wastewater treatment. Struvite can also be intentionally formed using advanced wastewater treatment processes to treat phosphorus-rich sidestreams.

Struvite is significantly transformed from sewage sludge so that the change in quality and primarily inorganic nature allows it to fall outside of the definitions of sewage sludge and biosolids, thus allowing struvite to fall outside of the scope of Part 503. Struvite generated and sold into a commodity market can also be considered outside of the scope of Part 503.

DEQ may on a case-by-case basis require facilities who produce and wish to dispose of struvite in a beneficial manner to demonstrate the quality and/or safety of the struvite material before disposal/reuse. This material however is not required to meet the analysis of heavy metals contamination; pathogenic potential elimination; or vector attraction reduction methods listed in the 503 regulations as this material is not a sludge or biosolids product.

Response 13: See Response 9.

Changes to UGV6: See Response 9.