Idaho Code Section 22-101A Statement: Section 22-101A, Idaho Code, provides that ISDA must meet certain requirements when it formulates and recommends rules which are broader in scope or more stringent than federal law regulations. The Rules Governing Commercial Livestock Truck Washing Facilities (CLTWFs) are broader in scope and more stringent than federal law in the following manner: This rule requires all CLTWFs in Idaho to submit an environmental/nutrient management plan (E/NMP) for ISDA approval, regardless of size, which is not required by the federal government. Furthermore, the federal government does not identify CLTWFs as an agricultural entity despite the nutrients and byproduct stored in CLTWF containment structures are generated from other regulated livestock facilities. However, the Rules Governing Commercial Livestock Truck Washing Facilities were modelled after and consistent with the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) program. The Idaho Legislature recognizes the importance of protecting state natural resources while maintain an ecologically sound, economically viable and socially responsible commercial livestock truck washing industry in the state and has established regulatory benchmarks for CLTWFs that are consistent with construction and inspection standards implemented on the livestock facilities for which they provide transportation services. The successful implementation of this rule is dependent upon and consistent with the compliance of all provisions of the federal Clean Water Act (CWA) and state laws designed to further protect state waters. Therefore, this rule does represent a standard that is broader in scope and more stringent than federal law.

Section 22-101A, Idaho Code, also applies to a rule which "proposes to regulate an activity not regulated by the federal government." This rule may be used to regulate an activity not regulated by the federal government. The following is a summary of additional information required by Sections 22-101A (3) and (4), Idaho Code. Information relating to Section 22-101A (2) has also been provided. The requirements set forth in this rule are based upon best available peer reviewed science and studies and analyses conducted by other states, the U.S. Environmental Protection Agency (EPA), USDA Agriculture Research Service (ARS), and professional and scientific and medical journals. The referenced studies and analyses will be included in the rulemaking record and can be reviewed during the public comment period for further detailed information regarding health effects.

Section 22-101A(2)(a), Idaho Code. To the degree that a department action is based on science the department shall utilize the best available peer reviewed science and supporting studies conducted in accordance with sound objective scientific practices.

Phosphorus (P) losses to surface waters are a serious concern in some regions, as elevated P concentrations can cause water quality problems in P-sensitive water bodies. "Non-point" or "diffuse" sources of P, such as agricultural fields that can transport both sediment and soluble P via irrigation/precipitation/snow melt runoff, can be difficult to identify, as their contribution to P loading of surface waters can vary greatly with time and space. The requirements set forth in this rule are designed to protect surface waters by regulating phosphorus storage and land application from CLTWFs. P losses during storage and land application is influenced by the standard of storage facility and crop management practices respectively. This analysis is based upon the best available peer reviewed science and studies and analyses conducted by other states, the USDA-Natural Resources Conservation Service (NRCS), USDA Agriculture Research Service, and professional and scientific journals. Several tools (i.e., Agricultural Policy Environmental eXtender; APEX (Ramierez-Avila et al., 2017, Bhandari et al., 2017), Soil and Water Assessment Tool; SWAT, (Chaubey et al., 2006) including Phosphorus Site Index (PSI) (Weld et al., 2002; Moncrief and Drewitz , 2006) have been developed and used for P management and planning. The referenced studies and analyses will be included in the rulemaking record and can be reviewed during the public comment period for further detailed information regarding the impact of the nutrient management practices of Idaho CLTWFs to surface waters of the state.

Section 22-101A(2)(b), Idaho Code. To the degree that a department action is based on science the department shall utilize data collected by accepted methods or best available methods if the reliability of the method and the nature of the decision justifies use of the data.

During the separate rulemaking process, a controlled experiment was conducted by ISDA to evaluate the accuracy and consistency of all the laboratories in Idaho that offer soil nutrient analysis services. The purpose of the experiment was to determine if a "margin of error" for soil testing could be calculated based upon the variability of the test results received from each laboratory. The results of the experiment identified a variability of up to 62% in nutrient test results from different laboratories that evaluated the same soil sample. The experiment also revealed soil collected by different samplers from the same fields and analyzed by the same laboratory could vary up to 46%. Similar study conducted by Murdock et al., (1993) at Lexington Kentucky reported about 80% of sampling variability in P concentrations, however variation in the laboratory was very. Other relevant data collection methods to better assess and evaluate the risk for phosphorus loss on each field in a CLTWF's nutrient management plan are currently available and implemented by many regulatory agencies. However IDAPA 02.04.23, Rules Governing Commercial Livestock Truck Washing Facilities, have not incorporated this process into the regulatory standards for Idaho and it is not currently an option for Idaho CLTWFs to implement. These additional data points and collection methods would identify each variable that determines the level of risk each field represents when phosphorus is applied to the soil. The two primary variables are "P source" and "P transport". The sub-categories of each variable are established in published literature by the scientific community and from multiple states and that have adopted a similar method of regulating phosphorus application on crop fields. The current Nutrient Management Standard (NMS) for Idaho CLTWFs is the NRCS Conservation Practice Standard Nutrient Management Code 590, published in 1999. There have been several updates to this document since 1999, but these more recent standards have not been adopted into this rule or the statute. ISDA also relied upon additional information available to the public from peer-reviewed scientific journals in this analysis.

Section 22-101A(3)(a), Idaho Code. Identification of each population or receptor addressed by an estimate of public health effects or environmental effects.

Phosphorus (P) is an important nutrient needed for crop production, however there are environmental concerns when excessive amounts of P from various sources including soil, manure, fertilizer reaches surface waters.. Although P is not directly toxic, the continued application of P to agricultural land and its subsequent movement to surface waters in runoff can accelerate eutrophication. Eutrophication is defined as an increase in the fertility status of natural waters that can causes accelerated growth of algae or aquatic plants. Undesirable aquatic plant growth results from additions of phosphorus, increases the demands of oxygen by microorganisms and depleted the level of oxygen in the water. This can impair water use for industry, recreation, drinking, and fisheries. Although nitrogen (N) and carbon (C) are also associated with accelerated eutrophication, most attention has focused on P, due to the difficulty in controlling the exchange of N and C between the atmosphere and a water body, and fixation of atmospheric N by some blue-green algae. Thus, P is often the limiting element and its control is of prime importance in reducing the accelerated eutrophication of surface waters.

In areas of intensive crop and livestock production, continual P applications as mineral fertilizer and manure have been made at levels exceeding crop uptake (Sharpley, 1995). As a result, surface soil accumulations of P have occurred to such an extent that the loss of P in surface runoff has become a priority management concern. Up to 80% of P applied to soil can react with Al, Fe, and Ca to form complexes that are unavailable for plant uptake. This P can, however, be transported from the site of application by runoff and erosion. Unless added P is incorporated into the soil, it usually accumulates in the surface 10 cm of soil, increasing the potential for its transport in runoff.

Limited success has been achieved in minimizing nonpoint agricultural inputs. This is exacerbated where P input in manure from confined animal operations often exceeds local crop removal rates. The subsequent accumulation of P in soil is of environmental rather than agronomic concern in many cases. As many years are required to bring about a significant reduction in soil P levels by crop removal, once eutrophication of a body of water is accelerated, it is usually not cost effective to treat the water body, in addition the internal recycling of sedimentary P can support the growth of aquatic biota even if external inputs are discontinued.

Most of Idaho’s drinking water comes from ground water sources. However, approximately 5% of public water systems in Idaho draw from surface water that may be at risk for harmful algal blooms (HABs). Blue-green algae are naturally occurring bacteria that photosynthesize like algae and plants. Under certain conditions, however, the blue-green algae can grow rapidly and produce toxins called cyanotoxins that pose a risk to human health as well as wildlife and domestic animals (Idaho DEQ).

Section 22-101A(3)(b) and (c), Idaho Code. Identification of the expected risk or central estimate of risk for the specific population or receptor and identification of each appropriate upper bound or lower bound estimate of risk.

Eutrophication of the environment can have deleterious consequences for the health of exposed animal and human populations, through various pathways. Specific health risks appear when fresh water, extracted from eutrophic areas, is used for the production of drinking water. Some cyanobacteria present in the eutrophic water produce cyanotoxins which is harmful to human being. However, cyanotoxins are not currently regulated for public water systems. . Cyanotoxins have been reported in Idaho’s surface waters and in July 2018, one public drinking water system was impacted by a harmful algal bloom; however, cyanotoxin levels in the treated (finished) water were below health advisory levels. Unregulated private drinking water sources that receive drinking water from surface water sources are also at risk from cyanotoxins. In Idaho, approximately 400,000 people are not served by regulated public water systems, but rely on private domestic wells to withdraw ground water for drinking water. The potential or absolute risk of this possibility is not quantified. Harmful algal blooms have been reported in Idaho during the summer months for the past several years. (Idaho DEQ)

Section 22-101A(3)(d), Idaho Code. Identification of each significant uncertainty identified in the process of the assessment of public health effects or environmental effects and any studies that would assist in resolving the uncertainty.

According to Natural Resource Conservation Service (NRCS) and Environmental Protection Agency (EPA) there are three options to manage phosphorous. (1) Forage phosphorous need based on soil test-which only allow application of P to pastures where soil test recommendations would warrant P fertilizer needs. (2) Soil Test P threshold (PT)- uses a soil test to quantify phosphorus available for crop uptake, however soil testing alone cannot predict environmental losses, as many other factors (i.e. rainfall, erosion, drainage, etc.) will influence the concentration of P in runoff and leaching waters (SERA 17, 2005) and (3) Phosphorus site indexing (PSI)-is flexible and based on various factors including P transport, P sources and available best management practices. Scientific communities have expressed concern that a soil test is not the only factor that influence P movement. In addition, research showed that at the same soil test P level, P losses can be different for different soil types. Option 3, the PSI uses a mathematical model to predict P movement form agricultural fields based upon several parameters. In addition PSI has been implemented in many regions of the United States including Chesapeake Bay Watershed, Heartland and Southern Regions (Sharpley et al., 2017) to manage P movement from the agricultural fields. Weld et al., (2002) evaluated above mentioned three options of P management to develop NMP in ten Pennsylvania farms, and revealed that NMPs developed using PSI were most flexible and practical, although it was more expensive to develop.

The tools currently available to Idaho CLTWF operators for management and planning of phosphorus application are PT as directed in the 1999 NRCS 590 standard. The P Index, which is not currently available for use by Idaho CLTWF operators, is founded on a well-documented framework of “source” and “transport” factors and represents the “state of the science” of available tools to rank fields based on their relative risk of P loss. Many states have developed P-Indices by modifying the basic components to make it suitable for local conditions. Such widespread adoption of the indexing concept shows the consensus among scientists, the fertilizer industry and policymakers with regards to the validity of the P-Index approach. P-Indices are preferable to soil test P threshold values or any other current risk assessment techniques, in situations where P loss assessment must be carried out by a variety of personnel and stakeholders (SERA 17, 2005). As P-Indices require field input information such as slope steepness and length, a site visit is needed for the first year of an assessment of the P-Index. Therefore, P-Indices are more costly to initially determine and implement than a soil test P threshold. For most animal feeding operations land application of manure is the only economic path for use and in some situations P-Indices will serve to move manure applications away from sites with a high risk for P loss to those with a lover risk, or to change management to reduce risk of P loss (SERA 17, 2005).

Despite widespread implementation of the P Index, P continues to be a major contributor to the impairment of a large proportion of surface waters in the United States (Sharpley, 2017). Harmful algal blooms have been linked to excess P in Western Lake Erie and Florida, as well as to hypoxia in the Northern Gulf of Mexico (Sharpley, 2017). These concerns, along with an inability to meet eutrophication mitigation goals in areas where the P Index has been implemented, such as in the Chesapeake Bay Watershed (Chesapeake Bay Program, 2013; USEPA, 2010), have heightened attention on the need to improve P management strategies. The differences in regional and statewide nutrient and land management priorities, landscape properties, climatic regimes, and dominant hydrologic process, however, are widely variable and preclude developing a single, national P Index. Thus, the development of the Idaho Phosphorus Site Index protocol is an appropriate action for Idaho CLTWF operators to investigation and pursue.

Efforts to minimize P transport from terrestrial to aquatic environments and to slow down freshwater eutrophication must identify critical source areas of P in a watershed that present a greater risk to P-sensitive waterbodies, in order to target cost-effective remedial strategies. In areas of confined animal operations, the development and adoption of innovative measures to transport manure greater distances and to find alternative end-uses must be encouraged. Finally, perhaps most crucial to any strategy for water quality improvement is efficient transfer of research technology to the land user. Effective implementation will involve education programs to overcome the perception by end-users of water, that it is often much cheaper to treat the symptoms of eutrophication rather than control the nonpoint sources.

ISDA acknowledges that the accuracy and consistency of soil phosphorus sampling and testing is an additional unknown. A review of published data and scientific literature did not reveal any peer reviewed studies that address or offer conclusions on the variability of soil phosphorus sampling or testing.

Section 22-101A(3)(e), Idaho Code. Identification of studies known to the director that support, are directly relevant to, or fail to support any estimate of public health effects or environmental effects and the methodology used to reconcile inconsistencies in the data.

The referenced studies and analyses will be included in the rulemaking record and can be reviewed during the public comment period for further detailed information regarding health effects.

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