Response to Comments
July 29, 2016

Wyoming Solid Waste Rules and Regulations
Chapters 1, 2, 9 and 15

Response to Comments Received during Informal Outreach Conducted from July 21 through October 15, 2015, The January 22, 2015 Water and Waste Advisory Board Meeting, Informal Comments Received after the Board's January 22, 2016, Meeting Through June 15, 2016, and the Board's July 20, 2016 Meeting

Introduction

On July 21, 2015 the Wyoming Department of Environmental Quality, Solid and hazardous Waste Division (Department) gave public notice of proposed changes to Chapters 1 and 2 of the Solid Waste Rules and Regulations (Rules) and announced a series of five (5) informal outreach meetings throughout the state. Outreach meetings were held in Green River, Cody, Gillette, Cheyenne, and Casper during the month of August. Twenty-four (24) people attended the outreach meetings; including 21 people representing solid waste facility operators and 3 different consulting firms. The initial outreach period ended August 31, 2015, but it was extended until October 15, 2015 to give the public an opportunity to comment using the Department's newly developed online comment process.

Overall the comments received at the outreach meetings were favorable and supportive. Most of the comments were in the form of questions about why certain things were changed or noted editorial changes. The comments did not include recommendations for significant changes to the proposed rules.

During the extended informal online comment period, one commenter responded with comments regarding "indicator parameters" analyzed in groundwater samples and the Department's proposal to eliminate landfill classifications to treat all landfills alike. Primarily, all landfill operators, not just those operators with large landfills or landfills with groundwater impacts, will need to conduct their own statistical evaluations of groundwater data.

During the formal comment period prior to the January 22, 2016, Water and Waste Advisory Board (Board) meeting one online comment was received prior to the meeting and one letter with a series of written comments was presented to the Board during the meeting.

The rules were revised based on the comments received at the Board's January 22, 2016 meeting and the revisions were sent directly to the commenters. Additional comments/questions were received June 1, 2016 (see No. 12 below). The Department responded to the commenter directly and to the Board at its July 20, 2016 meeting as described below.

Comments received at the Board's July 20, 2016 meeting are also addressed below.

Response to comments

1. Concrete rubble (Received at an outreach meeting):

Chapter 1 of the Solid Waste Rules includes "concrete rubble" in the definition of "clean fill". One commenter asked if the Department could add a definition of "concrete rubble" to reduce the rebar content sometimes seen in piles of concrete rubble. The Department considered potential ways to do this, such as restricting rebar by limiting the percent of rebar present in a pile or limiting the length of rebar protruding from rubble.

Response

Rebar in concrete rubble isn't generally considered a threat to surface or groundwater, but primarily a safety issue. The Department would like to encourage the recycling of rebar rather than including it in clean fill, but doing so can be difficult in some cases. Unfortunately, the amount of rebar acceptable in rubble can be a project-specific quantity and establishing a single standard would be difficult, rather subjective and very difficult to enforce. The decision about the amount of rebar in a fill project is often best determined by the person using the rubble, not the Department.

We note that the exemption applies to the actual use of concrete rubble as fill, not indefinite storage for eventual use. Speculative accumulation of concrete rubble is not exempt and will not be authorized. The amount of rubble stored needs to be appropriate for the project. Rather than impose a "one size fits all" limit on concrete rubble and rebar content, the Department will continue to take into consideration site and project specific factors when assessing fill projects that utilize concrete rubble.

2. Scrap tires (Received at an outreach meeting):

In Chapter 1, the Department added information on the definition of a scrap tire from Part 49 of the Code of Federal Regulations § 570.9. One commenter had heard that after 10 years a tire was not considered useable and recommended that if this was true, this should be added to the definition of "scrap tire".

Response

The Department researched this question and found that the Rubber Manufacturers Association inspected more than 14,000 scrap tires at seven large scrap tire processors in seven states and recorded the tires' date code and tread depth as well as whether the tires had been repaired or had any visible damage. The study data, shared with the National Highway Traffic Safety Administration (NHTSA), concluded that chronological age alone cannot determine when a tire is removed from service. Based on this information, the Department did not add an age limitation to the definition of "scrap tire".

3. Composite liner details in the rule (Received at an outreach meeting):

A commenter recommended that the rule in Chapter 2, Section 5(g) should include more details about the requirements for a composite liner such as compacted soil thickness, and maintaining less than a thirty (30) cm head on the liner.

Response

This information is included in the statutory definition of "composite liner" and in W.S. § 35-11-527, respectively. Because this information is in statute and a goal of this rulemaking is to reduce the rules, the Department does not plan to duplicate these statutory requirements in the rule.

4. Frost protection for soil barrier layers (Received at an outreach meeting):

A commenter noted that the frost protection requirement for compacted soil barrier layers in final cover was not moved to the final cover section as stated.

Response

This error has been corrected and the frost protection standard has been moved to Chapter 2, Section 12(c)(v)(C)(V).

Three comments were received about the proposed changes to the section on the design/construction of engineered containment system caps and liners found in Chapter 2, Section 5(g). (Renumbered section (g).)

5. GCL equivalency (Received at an outreach meeting):

A commenter noted that geosynthetic clay liners (GCLs) have been a nationally accepted alternative to a 2 foot layer of compacted soil in a composite liner system for many years and have been previously approved by the Department. However, this option is not clearly stated in the rule.

Response

The Department agrees and has added the following to Chapter 2, Section 7(f): "The administrator may approve replacement of the two (2) foot layer of compacted soil in a composite liner with an alternate component that performs at least as well as a two (2) foot layer of compacted soil, such as a geosynthetic clay liner (GCL)."

6. Deleting groundwater monitoring constituents (Received at an outreach meeting):

A commenter asked about deleting a groundwater monitoring constituent because it is not likely to be present in the waste disposed at the facility and how we could possibly know that.

Response

The Department looked into this and found that the Solid Waste Rules are worded a little differently than EPA Subtitle D rules. In response to this question, the Department changed Section 9, (b)(i)(D)(I)(1.) from "Deletes a constituent because the owner or operator shows that it is not likely to be present in the waste..." to "Deletes a constituent because the owner or operator shows that it is not likely to be contained in or derived from the waste...".

7. Comments on the topic of Appendix C constituent detection and assessment monitoring.

Similar comments regarding Appendix C monitoring and consequences when these constituents exceed background were received from Trihydro Corp., the Fremont County Solid Waste Disposal District (FCSWDD), the City of Laramie, and the Water and Waste Advisory Board. Comments received on this topic from Trihydro Corp, the FCSWDD, and the City of Laramie are included below.

a. Comments from Trihydro Corporation regarding indicator parameters:

1. **Indicator Parameters** – Inclusion of the naturally-occurring geochemical indicator parameters as proposed Appendix C under the reorganized Section 9(b) is more stringent than RCRA Subtitle D, but is consistent with the current analytical requirements of most landfill detection monitoring programs. However, by including these parameters in the RCRA Subtitle D groundwater monitoring regulatory framework, there may be some unintended consequences that could be more stringent than Subtitle D, and could increase costs to landfill operators.

   Specifically, including the proposed Appendix C parameters in the detection monitoring standards could trigger the need to initiate Appendix B assessment monitoring, a nature and extent of contamination investigation, and ultimately corrective action for the Appendix C parameters. The RCRA Subtitle D groundwater monitoring regulatory framework requires these additional requirements when statistically significant increases are identified by detection monitoring for Appendix A metals and volatile organic compounds (VOCS). However, many of the proposed Appendix C parameters do not have groundwater protection standards, or groundwater protection standards for all classes of groundwater use.

   Concentrations of the proposed Appendix C parameters can be indicators of a release from a landfill, but can also vary because of variations in hydrologic and geochemical conditions. Therefore, consideration may be given to retaining the requirement to provide statistical analysis for proposed Appendix C parameters, but not using them to trigger Appendix B assessment monitoring, a nature and extent of contamination investigation, and corrective action.
   Suggestions for revisions to the proposed rule change are as follows:

   > Section 9(b)(i)(E)(I) – Assessment monitoring is required whenever a statistically significant increase over background water quality is detected for an Appendix A constituent.

Section 9(b)(i)(E)(V) – If the concentrations of all Appendix B constituents are at or below background values using the approved statistical procedures, for two (2) consecutive sampling events, the owner or operator must notify the Administrator in writing and may return to detection monitoring.

Section 9(b)(i)(E)(VI) – If the concentrations of any Appendix B constituents are above background values, but all concentrations are below the groundwater protection standard, using the approved statistical procedures, the owner or operator must continue assessment monitoring.

Section 9(b)(i)(E)(VII) – If one (1) or more Appendix B constituents are detected at statistically significant levels above the groundwater protection standard in any sampling event, the owner or operator must, within fourteen (14) days of this finding notify the Administrator of the constituents detected above the groundwater protection standard in a written report with supporting documentation, place a copy of the report in the operating record, and notify all appropriate local government officials in writing, and:

Section 14(b)(ii)(C) – Control the source of the releases of pollution so as to reduce or eliminate, to the maximum extent practicable, further releases of Appendix B constituents into the environment that may pose a threat to public health or the environment; and

Section 14(b)(v) – The Administrator may determine that remediation of a release of an Appendix B constituent from a facility is not necessary if the owner or operator demonstrates to the satisfaction of the Administrator that:

Section 14(d)(ii) – Compliance with the groundwater protection standards shall be considered complete when concentrations of Appendix B constituents have not exceeded the groundwater protection standard(s) for a period of three (3) consecutive years using the approved statistical procedures. The Administrator may approve an alternative length of time during which the owner or operator must demonstrate compliance with the standard(s), considering:

The suggested changes would retain the current assessment monitoring, nature and extent of contamination investigation, and corrective action requirements (which are consistent with RCRA Subtitle D), rather than expanding them to include the naturally-occurring geochemical parameters in proposed Appendix C.

b. Comments from the Fremont County Solid Waste Disposal District regarding indicator parameters:

The following comments are provided regarding proposed changes to Chapter 2 Municipal Solid Waste Landfill Regulation (Draft Revisions 12-8-1 5). Our District, like many publically-operated facilities in Wyoming, are already taking positive steps to improve the environmental performance and efficiency of our facilities. Therefore,

we want to make sure that any new regulations that have the potential to further challenge our limited financial resources are reasonable and appropriate.

Specifically, there are two issues which are likely to have financial impacts on the District's operations. The issues we'd like you to consider are relative to Comments 4 and 5 (received online) in the Department's Response to Comments.

Comment 4 - Indicator Parameters

I would like to bring to your attention a number of issues regarding the proposed Append ix C indicator parameters:

Stringency - The Department' s response to the comment about naturally-occurring indicator parameters in proposed Append ix C indicates that this requirement is not more stringent than the Environmental Protection Agency 's (EPA) Resource Conservation and Recovery Act (RCRA) Subtitle D regulatory language. While it is true that RCRA Subtitle D allows states to approve alternative indicator parameters, the imposition of additional requirements increases the number of parameters. Because these indicator parameters are not required by Subtitle D, adding them to the Subtitle regulatory language appears to be more stringent that RCRA Subtitle D. The attached table summarizes which of these parameters are and are not included in existing detection and assessment monitoring requirements in Wyoming Solid Waste Ru les and Regulations and EPA RCRA Subtitle D.

Scientific/Regulatory Basis - In regards to the proposed Appendix C parameters , it would be helpful to understand why parameters that have no established groundwater protection standards are included in regulatory language that can be used to trigger additional regulatory requirements, namely assessment monitoring, nature and extent of contamination, and corrective action . As shown on the attached table, only 11 of the 18 indicator parameters have WQD Chapter 8 Class of Use standards, and only 6 of the 18 parameters have drinking water standards such as maximum contaminant levels (MCLs) or drinking water equivalent levels (DWELs). Per the proposed regulatory language, background concentrations would be applicable when no groundwater protection standards exist for these parameters. Under this scenario, an operator could be required to expend money for assessment monitoring, nature and extent of contamination, and corrective action for constituents that have not been identified as hazardous by the scientific or regulatory communities.

Reliability - The Department's response also indicates that the Appendix C parameters have been recognized as "reliable indicators of a release from a landfill for decades." While many of these parameters were used pre-RCRA Subtitle D (i.e., over 20 years ago), the current basis for this statement is not clear. EPA did not include these parameters in RCRA Subtitle D, and it is unclear how many other states currently include the specific parameters in Appendix C in their RCRA Subtitle D regulatory language. Furthermore, the Department's suggestion that operators have the option of providing a demonstration that the concentrations of naturally-occurring parameters are associated with something other than the landfill is seldom a practical

alternative. Many existing landfills had waste in place prior to the establishment of the current groundwater monitoring networks. As such, "pre-waste" groundwater data is not available to try and explain differences in water quality that may be due to long-term climatic trends or subtle variations in the hydrogeologic conditions across a site.

While it may be reasonable to require the indicator parameters in Appendix C to better understand the geochemistry of an aquifer, we support the recommendation to not change the regulatory language regarding triggers for assessment, nature and extent of contamination, and corrective action requirements. If concentrations of these parameters are a concern at a specific facility, we would encourage the Department to pursue regulatory action under existing regulatory authority (e.g., Water Quality Rules and Regulations Chapter 8) in lieu of the RCRA Subtitle D regulatory requirements.

Also, we would like to note that two of the parameters on the proposed Appendix C are already in the RCRA Subtitle D and Wyoming Solid Waste Rules and Regulations for detection and assessment monitoring (see attached table). Therefore, including them in Appendix C appears to be a duplicate requirement and may not be necessary.

c. Comments received from the City of Laramie January 21, 2016:

After reviewing others' comments and the DEQ's responses, The City of Laramie would like more time to review Chapter 2. Specifically, one commenter did not feel that the Appendix C parameters should trigger assessment monitoring and the commenter believes there may be some unintended consequences that could be more stringent than Subtitle D and increase costs for landfill operators. As a Landfill operator, the City of Laramie, Solid Waste Division would like more time to evaluate the commenters concerns.

Response (to comments related to indicator parameters):

Summary

The overarching concern from commenters about the indicator parameters was that these constituents, even if they were the only constituents detected (no Appendix A constituents detected), could trigger assessment monitoring with costly Appendix B sampling. The Department agrees that an indicator parameter alone should not trigger assessment monitoring with Appendix B sampling. However, constituents with a maximum contaminant level (MCL) or class of use based limit in Chapter 8 of the Water Quality Rules need to be addressed. As suggested at the Board meeting January 22, 2016, to avoid confusion, the Department has created a separate section of the rule (Section 9(b)(i)(F)) to address Appendix C indicator constituents. This section mirrors the procedures used in Chapters 4 and 8 of the Water Quality Rules and Regulations and provides the Administrator flexibility when addressing elevated concentrations of Appendix C indicator constituents.

The list of indicator parameters has been moved from Chapter 2, Section 6(b)(ii)(D) to Appendix C and has been reduced from twenty-nine (29) to seventeen (17) constituents primarily because many

are duplicated on the Appendix A or B sampling lists. Nine (9) of the Appendix C constituents have a MCL or class of use based limit in the Wyoming Water Quality Rules and Regulations. If a statistically significant increase over background is detected only for one of the nine indicator parameters with an MCL or class of use based limit, assessment monitoring for Appendix B constituents will no longer be required. The Department will classify groundwater to establish class of use based groundwater protection standards as required by the Water Quality Rules and Regulations. After groundwater protection standards have been established, operators will determine if there has been a statistically significant increase above a groundwater protection standard. If a groundwater protection standard has been exceeded, the operator may demonstrate that the exceedance is not due to the landfill. If a demonstration is not made, the Administrator may require the operator to determine the nature and extent of contamination and conduct an assessment of corrective measures.

The remaining eight (8) Appendix C constituents will be used to characterize and compare groundwater quality and provide data to help determine whether observed differences in water quality are due to a release from a landfill or are due to natural variability in groundwater quality. Elevated concentrations of these eight (8) constituents will no longer trigger assessment monitoring or corrective action.

Additional information:

Since the Solid Waste Rules were promulgated in 1994, municipal waste landfills had different monitoring requirements based upon daily disposal rates and whether or not there was any evidence of groundwater contamination. Monitoring data collected since 1994 demonstrates that the volume of waste received per day does not necessarily correlate to the type of constituents detected in groundwater. Regardless of daily disposal rates, the municipal waste being disposed is largely the same and poses the same threats to groundwater. In addition, the EPA's minimum monitoring (Appendix A) does not include some of the constituents with class of use based limits in Wyoming Water Quality Rules. For these reasons, the Department believes that groundwater at all municipal waste landfills should be monitored for the same constituents and should include the constituents in Appendix C.

A Type II landfill is one that receives less than 20 tons of waste per day and has no evidence of groundwater contamination. Currently a Type II landfill operator could be required to analyze for 29 baseline (indicator) constituents and the EPA's 62 Appendix A constituents. Type I landfills must analyze for the Appendix A constituents and have also been monitoring for the indicator parameters.

The EPA's minimum list of monitoring constituents (the Wyoming Appendix A list) does not include many of the constituents that have been detected in downgradient wells at Wyoming landfills and many of these constituents have MCLs and/or class of use based limits in the Wyoming Water Quality Rules and Regulations. The proposed monitoring requirements include the EPA's minimum Appendix A list and seventeen (17) of the twenty-nine (29) baseline constituents required for Type II landfills in Chapter 2, Section 6(b)(ii)(D) of the current rule. Nine (9) of the seventeen (17) constituents on the Appendix C list have a MCL and/or a class of use based limit in the Wyoming Water Quality Rules and Regulations. The Appendix C constituents will be used to determine if MCLs and/or class of use based limits in the Water Quality Rules are not exceeded, to help differentiate between natural variability and a landfill release, to provide consistently detectable constituents where trends can provide an early indication of a release, and to support a

"preponderance of evidence" approach when determining whether or not a landfill has impacted groundwater. Footnotes have been added to Appendix C to explain the purpose for the constituents and how they will be used.

The Legislature implemented the landfill monitoring program in 2006, and since that time all landfill operators have been asked to monitor for the same baseline and Appendix A constituents so that determinations of a release are consistent. The Department contacted laboratories and found that the average cost per well for the Appendix C constituents is $238.00. The average cost per well for the Appendix A list is $335.00 and for Appendix B constituents $1,210.00.

The current rule can trigger assessment monitoring if any of the indicator parameters are detected at a concentration statistically elevated above background concentrations. This assessment monitoring requires analysis for 159 additional Appendix B constituents adding a cost of approximately $875 per monitoring well at each sampling event. While Appendix B sampling may not be necessary at all of the wells at a landfill, the Department recognizes the cost increase can be significant. In addition, the Department does not believe that this level of analysis (Appendix B) is necessary if concentrations of only the indicator parameters are elevated in downgradient wells. Therefore, the proposed rule change will not trigger Appendix B assessment monitoring if an Appendix C constituent alone is statistically elevated above background concentrations. Unless the operator demonstrates that the differences are due to something other than the landfill, the Department will classify groundwater. If a MCL or class of use based limit is exceeded, the operator may be required to characterize the nature and extent of the release, conduct an assessment of corrective measures, and institute corrective actions approved by the Administrator.

There are nine (9) landfills where Appendix C indicator parameters are the only elevated constituents. One of these nine (9) landfills has no evidence of a release for a constituent with a class of use based limit. In other words, under the proposed rule, eight (8) landfill operators will no longer need to begin assessment monitoring with Appendix B sampling, but will instead follow the less stringent process defined in proposed Section 9(b)(i)(F). One landfill operator will only need to continue monitoring.

The Board also asked if the Department had information about what other states require in regard to indicator parameters. The Department asked about indicator parameters on a national listserver. Twelve states responded. As expected, 100% require monitoring for the Appendix A constituents which is a minimum Subtitle D requirement. 92% also require analysis for indicator parameters, including the neighboring states of Utah and South Dakota. (Other surrounding states did not respond to our request for information.) 67% of responding states would require assessment monitoring if an indicator parameter exceeds background concentrations.

In conjunction with adding new a new Section 9(b)(i)(F) to address Appendix C constituents separately, other sections were edited to reinforce this change. "For Appendix A constituents" has been added to the title of Section 9, paragraph (b)(i)(E) to clarify that these procedures apply to Appendix A constituents. (Note that this was changed to "for Appendix B constituents" in response to comments received at the Board's July 20, 2016 meeting.) "Appendix A constituent" was also added to Section 9(b)(i)(D)(III) and Section 9(b)(i)(E)(I) to clarify that the requirements apply to Appendix A constituents. "Appendix B" will not be deleted from Section 9(b)(i)(E)(V), (VI), (VII), or (VIII) to clarify that these requirements apply to Appendix B, not Appendix C, constituents.

Trihydro Corp. proposed leaving text in Section 14 "Corrective Action Standards" that could effectively limit corrective action to Appendix B constituents. In particular, Trihydro Corp. recommended leaving "Appendix B" in Sections 14(b)(ii)(C), 14(b)(v), and 14(d)(ii). The Department believes that limiting corrective action procedures in Chapter 2 of the Solid Waste Rules to only Appendix B constituents would be inconsistent with requirements in Chapter 4, Sections 4 and 5 and Chapter 8, Sections 3 and 4 of the Water Quality Rules and regulations. Also, leaving "Appendix B" in Section 14(b)(v) could limit the Administrator's ability to determine that remediation of an Appendix C constituent release is not necessary.

8. Comments on the topic of eliminating landfill classifications, requiring all landfill operators to conduct their own statistical evaluations of groundwater data.

a. Comments from Trihydro Corporation:

Elimination of Type I/II Landfill Classification – Many Type II landfills have already been reclassified as Type I landfills because of suspected releases. However, some of the suspected releases at Type II landfills are only associated with naturally-occurring geochemical parameters (proposed Appendix C), which are not included in the RCRA Subtitle D groundwater monitoring requirements. Additionally, the remaining Type II landfills (without evidence of a release) are not currently required to complete statistical analysis. Therefore, eliminating the Type II classification and placing all landfills in the RCRA Subtitle D groundwater monitoring framework, appears to be more stringent than RCRA Subtitle D, and could increase costs to these small landfill operators.

Although there may be support for eliminating the Type I/II classifications for some requirements, consideration may be given to retaining flexibility in the requirement to perform statistical analysis at the smaller landfills for each monitoring event. Suggestions for revisions to the proposed rule change are as follows:

Section 9(b)(i)(C)(VIII) – If a facility receives or received more than 20 tons of municipal solid waste per day (annual average), ~~t~~The owner or operator must determine whether or not there is a statistically significant increase over background values. If a facility receives or received less than 20 tons of municipal solid waste per day (annual average), the owner or operator may be required to determine whether or not there is a statistically significant increase over background values. Statistically significant increases must be determined as follows:

The suggested language would provide the flexibility to require statistical analysis once, once per year, twice per year, or at some other frequency based on site specific conditions, rather than every monitoring event.

b. Comments from the Fremont County Solid Waste Disposal District:

Comment 5 - Statistical Analysis

The proposal to eliminate the Type I/II landfill classification and require all landfills to provide statistical analysis of groundwater monitoring data will increase monitoring costs for small

landfills, which by their nature receive less waste. Less waste received generally equates to less revenue, so the relative cost of statistical analysis is higher than at facilities that receive more waste and generate more revenue. It's not clear which affected facility (one) was being referenced in the Department's Response to Comments, but the Dubois Landfill is currently classified as a Type II facility, and we are not planning to close and excavate wastes. I would encourage the Department, therefore, to further evaluate the number of facilities affected by the proposed change. The proposed alternative language provides flexibility regarding who is required to perform the statistical analysis, and how often it may be required.

Response (to comments regarding the elimination of landfill classifications):

In 2004, the Governor's Citizens Advisory Group on Solid Waste recommended that all landfills be treated alike. Most landfill operators (Type I landfills) are required to conduct their own statistical evaluations of groundwater data, but some (Type II landfills) are not. The Department agrees that landfill operators should be treated equitably.

In addition to the issue of fairness, due to new programs and limited staff, the Department does not have the resources to continue conducting statistical evaluations for landfill operators. In the proposed rule, all landfill operators will be required to conduct their own statistical evaluations.

There are six (6) landfills with no evidence of contamination, but all of these are either Type I by volume or no longer monitoring groundwater. There are currently five (5) Type II landfills where contamination is suspected, but not yet confirmed: Lingle, Midwest-Edgerton #1, Midwest-Edgerton #2, Moorcroft #3, and Dubois. (Statistics are not currently being run for the Dubois landfill due to the lack of an upgradient monitoring well). There is one (1) Type II landfill (Upton #4) where more data is needed before a determination can be made. Under the current rule, the operators of these landfills would be required to begin conducting their own statistical evaluations of groundwater data if contamination is confirmed. Under the proposed rule, the operators of these facilities will need to conduct their own statistical evaluations of groundwater data whether or not groundwater contamination is detected.

The Department contacted landfill operators and consulting firms and found that the average cost of statistical evaluations and the associated reporting is $2,800.00 per sampling event. While other statistical software may be available at lower cost, the list price for the software used by the Department is up to $1,525/facility with an optional annual software maintenance fee of up to $395/facility. If these landfill operators conduct semiannual sampling, the annual cost increase would be approximately $6,000.00 per landfill. If sampling is annual, the annual cost increase would be approximately $3,200.00 per landfill.

The Department understands that the operators of these six (6) landfills will incur additional costs if they must conduct their own statistical evaluations of groundwater. For the operators of five (5) of the landfills, statistical evaluations are likely under the current rule due to suspected contamination. Other landfill operators have needed to begin running their own statistics for the same reason. The additional cost is relatively small compared to the overall annual expense of landfill operation. The Department believes that the proposed rule fairly applies the requirement for statistical evaluations to all landfill operators.

For the reasons above, the Department is continuing to propose a rule change that will treat all landfill operators equitably, requiring all operators to conduct their own statistical evaluations of groundwater data. However, in response to comments received at the Board's July 20, 2016 meeting, provisions have been added to Chapter 2, Section 9(b)(i)(C)(VIII)(2.) and Chapter 2 Section 9(b)(i)(F)(II) of the proposed rule that will give the Administrator the authority to approve an alternate time frame for operators to conduct statistical evaluations of groundwater data. A new Section 9(b)(i)(E)(V) was added to provide the same flexibility for statistical comparisons to groundwater protection standards when operators are conducting assessment monitoring for Appendix B constituents. Where appropriate on a site specific basis, an alternate schedule for statistical evaluations may reduce costs for landfill operators.

9. Miscellaneous changes to Chapter 1 based on comments received during the Board's January 22, 2016 meeting.

a. Section 1(b) was changed from "In addition to the definitions in statute..." to "In addition to the definitions in the Wyoming Environmental Quality Act,...."

b. "Dissembled" was universally changed to "disassembled".

c. The definitions of passenger tire and passenger tire equivalent (PTE) were deleted and the 20 pound definition of a PTE was added to the definition of scrap tire.

d. The definitions of scrap tire and used tire were separated.

e. Subparagraph headings were added to the definition of collateral and the exemption in Section 1(g)(xii) for solid waste transfer/treatment/storage facilities.

10. Miscellaneous changes to Chapter 2 based on comments received during the Board's January 22, 2016 meeting.

a. "Assure" was universally changed to "ensure".

b. In cases where the term "facility" was changed to "unit", the rule has been changed to "facility or unit".

c. In Section 9 "Monitoring standards", subsection (b)(i)(C)(II), "but an additional filtered sample may be collected" was added at the end of the sentence regarding field filtering so that it now reads: "Groundwater samples shall not be field filtered prior to laboratory analysis, but an additional filtered sample may be collected."

d. In response to a question about the need to run statistics if all concentrations for a constituent are below the practical quantification limit (PQL), Section 9(b)(i)(C)(VII)(5.) was edited as follows:

> (5.) Any data reported as below detection limits shall be entered into the statistical analysis as a value equal to one-half the practical quantitation

limit (PQL) for the constituent unless the Administrator approves alternate statistical procedures. The PQL shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility. A statistical evaluation is not necessary when all concentrations for a constituent are reported below the PQL. Samples reported with estimated concentrations shall be treated as valid measurements for statistical purposes;

Note that this paragraph was revised to provide flexibility when concentrations are reported below the PQL. This provision incorporates the optional procedures in Chapter 15 of the EPA's March 2009 "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance" The last sentence, regarding estimated concentrations, was added because it has direct bearing on the use of data reported below the PQL and is recommended in Chapter 6, Section 6.3.4 of the EPA's March 2009 "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance".

e. The Board discussed the terms inorganic constituents vs. inorganic indictor parameters in Section 9(b)(i)(D)(I)(2.). The text proposed is consistent with Subtitle D 258.54(a)(2) that says the Director of an approved state may approve an "alternate list of inorganic indicator parameters for a MSWLF unit, in lieu of some or all of the heavy metals (constituents 1-15 in appendix I of this part)", therefore the proposed text has not been changed. Note that Subtitle D 258.54(c) requires the operator to begin assessment monitoring (with Appendix B sampling) if "there is a statistically significant increase over background for one or more of the constituents listed in appendix I to this part or in the alternative list approved in accordance with paragraph (a)(2) of this section". (Paragraph (a)(2) gives the Director of an approved state the authority to substitute indicator parameters for one of the appendix I heavy metals.) By adding Appendix C indicator parameters to Wyoming's monitoring requirements rather than substituting them for Subtitle D appendix I (Wyoming Appendix A) heavy metals, we will not be required to use these indicator parameters to trigger assessment monitoring with Appendix B sampling.

f. The Board asked if the statement in Section 9(b)(i)(D)(III)(s.) could be changed from "Demonstrate to the administrator in writing that the statistically significant increase is not due to the solid waste disposal unit...." to "Demonstrate to the administrator in writing that the statistically significant increase may not be due to the solid waste disposal unit...."

Response: Subtitle D Part 258.54(c)(3) and Part 258.55(g)(2) state that the operator "may demonstrate that that a source other than the landfill unit caused the contamination or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality." This demonstration would need to be approved by the Director of an approved state. As written in Subtitle D, the demonstration must be conclusive, as approved by the director, and not just probable or possible. The Department believes that the proposed change would be less stringent that Subtitle D and did not make the change.

g. "For the first time" was added to Section 9(b)(i)(E)(II) and Section 9(b)(i)(E)(IV)(3.) to clarify that additional independent samples and the establishment of background concentrations respectively, are required when an Appendix B constituent is detected for the first time during assessment monitoring.

h. "As determined by the Administrator" was added to Section 9(b)(i)(E)(VII) to give the Administrator the ability to designate which local government officials need to be notified when an Appendix B constituent is detected above the groundwater protection standard.

i. Where distances were specified only in feet or meters, distances for both were added for clarification.

j. The subparagraph headings (III) and (IV) were changed to (C) and (D) respectively in Section 14(b)(v).

11. The Board asked how landfills fit in the Chapter 2, Section (a) permit transition schedule.

Response:

At this time, we believe that approximately thirty (30) municipal landfills will be closed. Approximately sixteen (16) to eighteen (18) municipal landfills are expected to remain open. However, decisions are still pending in many cases and we don't know precisely which landfills will close and which will remain open. The Department attempted to prepare a table showing when landfills plan to cease receipt of waste and when their permits expire, but too many operators have not made final decisions about closure or determined when the will close. Several permits have been extended recently and any list prepared would be a moving target. In addition, our database is under construction and a list of permit dates was not readily available.

The Department addresses landfills on a case-by-case basis. If the operator plans to close, but needs more time to prepare a closure plan, we try to accommodate them by extending their existing permit rather than requiring them to renew an operating permit that won't be needed in a few years.

When Chapter 2 was revised in 2013, operators were expected to know by 2015 or early 2016 whether or not they would continue receipt of waste after July 1, 2017. Unfortunately, there have been complications and delays and decisions are still pending. Funding has been a significant challenge and preparing to implement alternatives has required more time than expected. To minimize permitting costs for landfill operators, the Department has extended operating permits to give operators more time to make decisions, prepare the appropriate permit application documents, and make funding arrangements. Because we now know that additional time will be needed in some cases, the proposed rule change in Chapter 2, Sections 2(a)(i)(A)(II) and (III) and Section 2(a)(iii)(A) will provide flexibility to accommodate extenuating circumstances.

12. Trihydro Comments/Questions received informally on June 1, 2016 regarding changes the Department drafted to address their previous comments.

a. Section 9.b.i.C.VII.5 – The proposed change says statistics aren't required when all concentrations for a constituent are reported below the PQL. My question has to do with what is meant by "all" – all values for the event, or all values for the historical data set?

Response:

"All concentrations for a constituent" means all concentrations reported over time for an individual constituent, not the concentration reported at an individual sampling event. It may or may not be necessary to run statistics for a constituent following subsequent sampling events and this would need to be discussed based on the data. For example, it may be necessary to run statistics when a constituent is reported below the PQL to demonstrate that a facility may return to detection monitoring after entering into assessment monitoring. There are several possibilities which are not amenable to inclusion in the rule, but the options can be included in the statistical procedures specified in the permit application and/or discussed as the need arises.

b. Section 9.b.i.C.VII.5 - The existing language in Chapter 2 is from the original Subtitle D, and requires using ½ the PQL for non-detects. The EPA's 2009 Unified Statistical Guidance allows using either ½ the PQL or the PQL. As such, you might consider revising the existing language to be consistent with the 2009 Unified Statistical Guidance.

Response:

EPA's Unified Statistical Guidance states that it may be appropriate to use either ½ the PQL or the PQL, but the appropriate choice is based on the situation. It is not appropriate to use either ½ the PQL or the PQL interchangeably. The rule is written to provide flexibility for the Administrator to approve situationally appropriate alternatives proposed by the landfill operator and their consultant.

c. Section 9.b.i.D.III.1 and 9.b.i.E.VII … The notification requirements have been revised to add "with supporting data." I don't see "supporting data" defined anywhere, so I'm wondering if there's a way to clarify this to avoid confusion later. Operators already have to provide statistical analysis, so I'm wondering what additional data would be necessary.

Response:

This is consistent with former Section 2(g) which has been moved to new Section 11(c). Section 2(g) "Reporting Environmental Data" included: "(i) Operators of Type I facilities shall provide copies of all required statistical analyses" and "(ii) Operators of all facilities may be required to submit supporting charts and/or maps which represent the data." Because supporting data can be site specific we're maintaining the historic flexibility that has been in former Section 2(g)(ii). We felt that the need for supporting data should be noted in Section 9 to keep it in context and not just in new Section 11(c).

d. **Section 9.b.i.E.II** – It appears you've added "for the first time" to this section to avoid the need to collect four additional independent samples every time a particular App B constituent is detected. While this makes sense, it raises the question: Are four additional independent samples required each time a new App B constituent is detected? This seems unnecessary because once any App B constituent is detected, four additional independent samples are required, and annually thereafter. As such, there should be adequate data already available for statistical analysis if a new App B constituent is detected later. I suppose if someone went to the effort to only test for the particular App B constituent detected, additional data may be required, but I'm not sure it would be practical or cost effective to do this. I'm wondering if the existing Chapter 2 language avoids this issue from arising.

Response:

"For the first time" was added at the request of the WWAB. Four independent samples are required whenever a new (one that hasn't been detected before) Appendix B constituent is detected for the first time. When collecting four independent samples (to establish background for the newly detected Appendix B constituent) the operator could test for just the newly detected constituent. Section 9(b)(i)(A)(III) gives the Administrator the ability to establish a reasonable schedule for collecting the samples, perhaps even waiting for subsequent routine sampling events depending on the situation.

e. **Section 9.b.i.E.VII.5** – The phrase "in writing" has been added here and several other sections of the rule. Isn't everything done in writing? If you're trying to reduce the number of words/length, this language may not be necessary. Also, this section includes added language regarding a written report, approval by the Administrator, and placement of the report in the operating record. Again, I'm not sure it is necessary to add additional language because these requirements are generally considered to be inherent/implied by the existing rule.

Response:

"In writing" was added for clarification because we've been asked if a call or email are sufficient. The text regarding a written report was added here to be consistent with Section 9(b)(i)(D)(III)(2.). For some reason, the alternate source demonstration text in the detection and assessment monitoring sections of the rule was inconsistent in previous rules. This change in Section 9(b)(i)(D)(III)(2.) corrects that inconsistency.

f. **Section 9.b.i.F.I.1** – Operators will already be reporting the results in their stats. What new information would be provided by this additional report?

Response:

An additional report is not necessary, just a single report including any Appendix A or C constituent determined to exceed background statistically. The text is included here to be clear that a report is necessary when only an Appendix C constituent exceeds background.

g. Section 9.b.i.F.I.2 – I'm not sure I understand the timing of the statistical analysis relative to the groundwater protection standards. Is it required within 30 days of the establishment of groundwater protection standards, within 30 days of completing the sampling and analysis event, or both? It may be reasonable to require statistical analysis within 30 days of the sampling and analysis event if the groundwater protection standard has already been established. However, if the groundwater protection standard has not yet been established, it may be difficult to submit a request, obtain a determination, and complete the statistical analysis within 30 days of the sampling and analysis event.

Response:

The statistical comparisons in Section (F)(II) are not required until after the Administrator establishes the groundwater protection standard (GPS). In some cases and for some constituents, the Administrator may first need to classify groundwater at the facility. It is possible that several sampling events could occur before the GPS is established. After the GPS has been established, the rule requires that the statistical evaluations be conducted within 30 days after sampling and analysis, which is consistent with the timing for running statistical comparisons for Appendix A constituents.

h. Section 9.b.i.F.III.1 – The proposed language provides opportunities to demonstrate that a nature and extent of contamination (N&EC) study is not necessary. However, the most probable explanation, i.e., natural variation, is often difficult to demonstrate at existing facilities if they do not have adequate (if any) pre-waste groundwater data. The proposed Subtitle D language, therefore, may not have a practical application in these situations. I don't have a suggestion to resolve this limitation, but I think it is important to understand that the proposed language may not provide much relief from the subsequent N&EC requirements.

Response:

Natural variability is a possible explanation for statistically significant increases of naturally occurring constituents in downgradient wells, but not necessarily the most probable explanation. Subtitle D was written to assume that the landfill is the source until the operator demonstrates otherwise. However, because these demonstrations can be less clear-cut for naturally occurring inorganic constituents than for VOCs, the new Section (F) proposed in the rule was written to give the Administrator much more flexibility for Appendix C constituents than Subtitle D provides for Appendix A constituents. A nature and extent of contamination investigation and an assessment of corrective measures are not automatic or mandatory under the proposed rule and the administrator can take natural variability into consideration.

i. Section 9.b.i.F - I appreciate your objective of spelling out the process of dealing with App C issues, but the proposed language increases the length of the rule for an issue that could be addressed with minor edits to the existing Subtitle D language, namely:

- Leave existing references to App B as-is.
- Add App C to the monitoring and statistical analysis requirements.

If the Department has concerns with the concentrations of App C constituents, there appears to be adequate existing regulatory authority to address the issue using Chapter 2, Section 5.x:

"Solid waste disposal facilities shall not be allowed to alter groundwater quality, as determined by groundwater monitoring." SHWD could use WQD Chapter 8 to define standards and the classification process because it applies across the state (see Section 1 re "Authority"). Using existing SHWD and WQD standards would allow the Department to use discretion regarding which issues warrant further investigation on a case-by-case basis, and not require everyone to make an alternative source demonstration or initiate a N&EC study.

Response:

The WWAB asked that we create a separate section for Appendix C constituents to avoid confusion. Chapter 2, Section 5(x) just doesn't include enough detail to explain how this standard is to be implemented and Section (F) will do that. Section (F) was written in consultation with WQD and in consideration of the procedures that WQD would use to enforce standards in the WQ rules. Section (F) provides significant case-by-case discretion for Appendix C constituents that exceed a GPS.

13. Comments from the Wyoming Solid Waste and Recycling Association (WSWRA) received during the comment period for the Board's July 20, 2016 meeting.

The comments below were submitted by the WSWRA. The comments were in regards to the rulemaking process, but not the rules themselves; therefore no changes to the rules have been made.

> Dear Board Members:
>
> The Wyoming Solid Waste and Recycling Association (WSWRA) has not discussed the proposed changes as an organization, however, we would like to express our support for the process. DEQ made a real effort to distribute the proposed changes to those who would be interested in commenting and held a number of meetings around the state to discuss the changes. In addition, the staff was available by e-mail and phone to discuss any concerns.
>
> The WSWRA Board wanted to take this opportunity to thank you and the DEQ staff for the process which has allowed everyone to review the proposed changes and to provide input. We believe this allows solid waste handlers the opportunity to explain their unique situations and results in rules with fewer unintended complications and consequences. Thank you for your dedication to this issue.

14. Changes to Chapter 1 in response to comments received at the July 20, 2016 Board meeting.

a. Added "clean and treated" to the wood waste provision in the definition of "construction/demolition waste" in Section 1(b)(xxi) to be clear that construction/demolition waste may include both clean and treated wood.

b. Added the definition of “constituents” in Section 1(b)(xx)as the term applies to constituents analyzed in groundwater samples.

c. Added the definition of “population” in Section 1(b)(lxxiv) as the term applies to populations of groundwater constituents for statistical evaluations of groundwater data.

d. Edited the definition of “100-year floodplain” in Section 1(b)(lxiv) to clarify that the term applies to a geographical area.

e. Added “waste” to the term conditionally exempt small quantity generators in Section 1(e)(iv).

f. Changed “assuring” to “ensuring” in Section 2(d)(i).

g. Changed “and” to “an” in Section 3(c)(ii).

h. Added in “a” manner to Section 4(d)(ii).

15. Changes to Chapter 2 in response to comments received at the July 20, 2016 Board meeting.

a. Changed “which” to “that” in Sections 7(c) and 8(q).

b. Added “pursuant to Section 7(f)” to Section 9(b)(i)(B)(I) following the term”....groundwater passing the relevant point of compliance”. The text now reads “....groundwater passing the relevant point of compliance pursuant to Section 7(f)”.

c. Added the definition of “constituent” to Chapter 1, Section 1(b)(xx) and “population” to Chapter 1, Section 1(b)(lxxiv).

d. The Board asked that the Administrator be given the authority to provide operators additional time to conduct statistical evaluations of groundwater monitoring data. This request affects three sections of the rule; detection monitoring, assessment monitoring for Appendix B constituents, and assessment monitoring for Appendix C constituents.

To address the issue for detection monitoring the Department added “unless an alternate time frame is approved by the Administrator” to Section 9(b)(i)(C)(VIII)(2.).

Section 9(b)(i)(C)(VIII)(2.) now reads:

> (2.) Within thirty (30) days after completing sampling and analysis, unless an alternate time frame is approved by the administrator, the owner or operator must determine whether there has been a statistically significant increase over background at each monitoring well.

To address the issue for Appendix B assessment monitoring the Department added a new Section 9(b)(i)(E)(V). "Specified by the Administrator" was also added to the end of Section 9(b)(i)(E)(V) because assessment monitoring may not necessarily include all monitoring wells.

New Section 9(b)(i)(E)(V) reads:

> (V) Within thirty (30) days after completing sampling and analysis, unless an alternate time frame is approved by the administrator, the owner or operator must determine whether there has been a statistically significant increase over established groundwater protection standards at each monitoring well specified by the Administrator.

To address the issue for Appendix C assessment monitoring the Department added "unless an alternative time frame is approved by the Administrator" to the previous text proposed for Section 9(b)(i)(F)(II). "Specified by the Administrator" was also added to Section 9(b)(i)(F)(II) because assessment monitoring may not necessarily include all monitoring wells.

Section 9(b)(i)(F)(II) now reads:

> (II) After groundwater protection standards have been established, within thirty (30) days after completing sampling and analysis, unless an alternate time frame is approved by the administrator, the owner or operator shall determine if there has been a statistically significant increase over a groundwater protection standard in each downgradient well specified by the Administrator using a statistical method approved by the Administrator.

e. Added "pursuant to Section 7(f)" to Section 9(B)(i)(D)(III) following the term "...groundwater passing the relevant point of compliance".

f. Changed Section 9(b)(i)(E) from "Assessment monitoring for Appendix A constituents" to "Assessment monitoring for Appendix B constituents".

g. Removed the apostrophe from "MCL's" in Section 9(b)(i)(E)(IX)(2.).

h. Retained "Chapter 8 of" in Section 9(b)(i)(E)(X) to be more specific about the reference to the Water Quality Rules and Regulations.

i. Added "of the finding of statistical significance" at the end of Section 9(b)(i)(F)(I)(1.).

j. Replaced "contamination" with "statistically significant increase" in Section 9(b)(i)(F)(III(1.).

k. Added "(map)" to Section 18(a)(iii).

l. Added "Chapter 8 of" to footnote 1 of Appendix C to be more specific about the reference to the Water Quality Rules and Regulations.

16. No comments were received in opposition to the elimination of Chapters 9 and 15.