Filed: 5/17/2017 9:32:35 AM WEQC

DEPARTMENT OF ENVIRONMENTAL QUALITY
LAND QUALITY DIVISION

GUIDELINE NO. 13

PERMITTING OF SEDIMENTATION PONDS AND PRIMARY SEDIMENTATION CONTROL STRUCTURES AND PROCESS WATER PONDS AS IMPOUNDMENTS

COAL AND NON COAL

DEQ Exhibit 23

DEQ 23-001

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PREFACE

The preparation and update of this document is an effort to provide clarification to all parties regarding regulatory requirements for sediment ponds and primary sedimentation control structures as well as process water ponds as impoundments. It contains some direct citations to required design elements and performance standards, as well as statements of policy and procedure. All the contents of this Guideline are not to be interpreted by the applicant or Wyoming Department of Environmental Quality (WDEQ) staff as mandatory.

The intent of this Guideline is to assist applicants in complying with requirements of the Land Quality Division (LQD) and Water Quality Division (WQD) when seeking LQD permit approval for the structures listed in the title.

I. INTRODUCTION

This Guideline refers **primarily to coal mine operators** since they are specifically required to contain sediment from disturbed lands within the permit area boundary per LQD Coal R&R Chapter 4, Section 2.(f)(i). WQD regulations which directly govern Coal operations are found in Chapter 10.

Non-Coal mine operators must consider erosion control methods for disturbed lands created by their mining operations per W.S. § 35-11-415 (b)(vii), but do not have a formal sediment control performance standard. In many cases, these erosion control methods are distinct from sedimentation ponds and sedimentation control structures and are not subject to the design and engineering criteria outlined in this Guideline. If a Non-Coal mine operation chooses to utilize a formal sedimentation pond, the design criteria of WQD R&R Chapter 11, Section 31 are applicable.

BASED UPON AN AGREEMENT SIGNED MAY 28, 1996 AMONG THE LQD AND WQD ADMINISTRATORS AND THE WDEQ DIRECTOR:

1. The LQD will be the lead review Division for the WDEQ and sole approving Division for sedimentation control structures, process water ponds and combination of these structures which occur within a coal permit area boundary. All applications for such structures will come directly to the LQD. A WQD Rules and Regulations (WQD R&R) Chapter 3 application form (Permit to Construct) **will not be required** with applications for these structures.

2. The LQD will use all applicable LQD Rules and Regulations (LQD R&R) and WQD R&R in review sedimentation control structures and process water ponds. When necessary, the LQD will solicit WQD technical review assistance in the review of process water ponds. The LQD will prepare a single review document and will be responsible for satisfactory resolution of all review comments.

3. The WQD will retain all review and approval functions for the NPDES permit and Storm Water Discharge permit systems.

4. The WQD will retain all review and approval functions for domestic wastewater facilities, including sewage lagoons and septic tanks, unless those functions have been delegated to a local governmental agency.

The LQD will bond for removal and/or reclamation of such facilities under the LQD permit.

This Guideline **does not address** Alternative Sediment Control Measures (LQD Coal R&R Chapter 4, Section 2.(f)(i)) or Secondary Sediment Control Structures (WQD R&R Chapter 3). LQD Guideline No. 15 addresses Alternative Sediment Control Measures.

In most cases, the structures addressed by this Guideline also require permitting by the Wyoming State Engineer's Office (SEO). Where possible, this Guideline tries to eliminate duplicity by asking the applicant to use data, maps, design information, etc. used by the SEO. **In all cases, the applicant must pursue a separate permitting process with the SEO.**

II. DEFINITIONS

This is not an inclusive list from LQD R&R and WQD R&R, but does intend to be a ready reference for more widely applicable definitions.

1. *Affected land* means the area of land from which overburden is removed, or upon which overburden, development waste rock or refuse is deposited, or both, including access roads, haul roads, mineral stockpiles, mill tailings excluding uranium mill tailings, and mill facilities, within the Nuclear Regulatory Commission license area, impoundment basins excluding uranium mill tailings impoundments, and all other lands whose natural state has been or will be disturbed as a result of the operations. W.S. § 35-11-103(e)(xvi).

2. *Aquifer* is a zone, stratum or group of strata that stores and transmits water in sufficient quantities for a specific use. LQD Coal R&R Chapter 1, Section 2.(i) and LQD Non-Coal R&R Chapter 1, Section 2.(g).

3. *Embankment* means an artificial deposit of material that is raised above the natural surface of the land and used to contain, divert, or store water, support roads or railways, or other similar purposes. LQD Coal R&R Chapter 1, Section 2.(ad) and LQD Non-Coal R&R Chapter 1, Section 2.(s).

4. *Ephemeral stream* means a stream which flows only in direct response to precipitation in the immediate watershed or in response to snow melt, and which has a channel bottom that is always above the prevailing water table. LQD Coal R&R Chapter 1, Section 2.(ae) and LQD Non-Coal R&R Chapter 1, Section 2.(t).

5. *Impoundment* means a closed basin formed naturally or artificially built which is dammed or excavated for the retention of water, slurry or other liquid or semi-liquid material. A permanent impoundment is a structure that will remain after final bond release. LQD Coal R&R Chapter 1, Section 2.(ay) and LQD Non-Coal R&R Chapter 1, Section 2.(af).

6. *Intermittent stream* means a stream or part of a stream that is below the local water table for some part of the year, but is not a perennial stream. LQD Coal R&R Chapter 1, Section 2.(az) and LQD Non-Coal R&R Chapter 1, Section 2.(ag).

7. *Land application/treatment* means the application of wastes or wastewater to the land at a predetermined rate for the purpose of disposal or treatment by any or all of the following processes: degradation, plant uptake, assimilation or accumulation in the soil profile from filtration. WQD R&R Chapter 11, Part A, Section 4.(g).

8. *Mine discharge* means water discharged from affected land, or discharged process water or a combination thereof. WQD R&R Chapter 10, Section 2.(f).

9. *Monitor well* means a well constructed or utilized to measure static water levels or to obtain liquid, solid, or gaseous analytical samples or other physical data that would be used for controlling the operations or to indicate potential circumstances that could affect the environment. LQD Coal R&R Chapter 1, Section 2.(bg) and LQD Non-Coal R&R Chapter 1, Section 2.(aj).

10. *Monitoring* means the collection of environmental and hydrological data by either continuous or periodic sampling methods. LQD Coal R&R Chapter 1, Section 2.(bh) and LQD Non-Coal R&R Chapter 1, Section 2.(ak).

11. *Off-channel* means the interception of a drainage way which collects runoff only from disturbed areas. WQD R&R Chapter 11, Part A, Section 4.(k).

12. *On-channel* means the interception of a drainage way which collects runoff from both disturbed and undisturbed areas. WQD R&R Chapter 11, Part A, Section 4.(l).

13. *Operation* means all of the activities, equipment, premises, facilities, structures, roads, rights-of-way, waste and refuse areas excluding uranium mill tailings and mill facilities, within the Nuclear Regulatory Commission license area, storage and processing areas, and shipping areas used in the process of excavating or removing overburden and minerals from the affected land or for removing overburden for the purpose of determining the location, quality or quantity of a natural mineral deposit or for the reclamation of affected lands. W.S. § 35-11-103(e)(viii).

14. *Outslope* means the face of the spoil or embankment sloping downward from the highest elevation to the toe. LQD Coal R&R Chapter 1, Section 2.(bj) and LQD Non-Coal R&R Chapter 1, Section 2.(an).

15. *Perennial stream* means a stream or part of a stream that flows continuously during all of the calendar year as a result of groundwater discharge or surface runoff. LQD Coal R&R Chapter 1, Section 2.(bk) and LQD Non-Coal R&R Chapter 1, Section 2.(ao).

16. *Permit area* means the area of land and water within the boundaries of the approved permit or permits during the entire life of the operation and includes all affected lands and water. LQD Coal R&R Chapter 1, Section 2.(bl) and LQD Non-Coal R&R Chapter 1, Section 2.(am).

17. *Potentiometric surface* means the surface that coincides with the static level of water in an aquifer. The surface is represented by the levels to which water from a given aquifer will rise under its full head. LQD Coal R&R Chapter 1, Section 2.(bn) and LQD Non-Coal R&R Chapter 1, Section 2.(aq).

18. *Precipitation event* means a quantity of water resulting from drizzle, rain, snow, sleet, or hail in a limited period of time. It may be expressed in terms of recurrence interval and duration. LQD Coal R&R Chapter 1, Section 2.(bo) and LQD Non-Coal R&R Chapter 1, Section 2.(ar).

19. *Process water* means water originating from a pit or shaft in which mining is occurring or has occurred, sanitary waste, equipment washdown water, coal handling or processing waste waters, or coal storage area runoff. WQD R&R Chapter 10, Section 2.(g).

20. *Sedimentation control facility* means a pond or structure designed to capture runoff from disturbed areas for the purpose of treating water for sediment and suspended solids removal. WQD R&R Chapter 11, Part A, Section 4.(r).

21. *Sedimentation control structures* means any collection ditch, containment ditch or other conveyance or impoundment used to convey runoff to an impoundment or impound runoff for the purpose of settling out sediment or suspended solids. The impoundment will individually contain less than two acre-feet of runoff in addition to sediment storage or contain less than two acres in surface area, whichever is smaller. Non-soil strainer dikes, terraces, riprap and mulches are primarily intended for soil conservation purposes and do not require permits to construct. WQD R&R Chapter 3, Section 3.(xiv).

22. *Sedimentation pond* means a primary sediment control structure designed, constructed and maintained to slow down water runoff to allow sediment to settle out, including dams or excavated depressions or natural depressions in excess of two-acre feet. The term does not include strainer dikes, terraces, riprap, check dams, mulches, or other secondary sediment control structures. WQD R&R Chapter 3, Section 3.(xv).

23. *Sedimentation pond* means a sediment control structure designed, constructed, and maintained to slow down or impound precipitation runoff to reduce sediment concentrations in a point source discharge, including dams or excavated depressions. The term does not include straw dikes, riprap, check dams, mulches, collection ditches, toe ditches, vegetative buffers, gabions, contour furrows and other traditional soil conservation techniques and non-point source runoff controls. LQD Coal R&R Chapter 1, Section 2.(cc).

24. *Surface coal mining and reclamation operations* means surface coal mining operations and all activities necessary or incidental to the reclamation of such operations. LQD Coal R&R Chapter 1, Section 2.(ct).

25. *Surface water* means water, either flowing or standing, on the surface of the earth. LQD Coal R&R Chapter 1, Section 2.(cu) and LQD Non-Coal R&R Chapter 1, Section 2.(bk).

26. *Surface waters of the state* means all permanent, intermittent, and ephemeral defined drainages and lakes and reservoirs which are not man-made retention ponds used for the treatment of municipal, agricultural or industrial waste; and all other bodies of surface water, either public or private which are wholly or partially within the boundaries of the State. Nothing in this definition is intended to expand the scope of the Environmental Quality Act, as limited in W.S. § 35-11-1104. WQD R&R Chapter 1, Section 2.(b)(xlv) and WQD R&R Chapter 10, Section 2.(h).

27. *Suspended solids* means organic or inorganic material carried or held in suspension in water which are retained by a standard glass fiber filter in the procedure outlined by the Environmental Protection Agency's regulations for waste water analyses (40 CFR 136). LQD Coal R&R Chapter 1, Section 2.(cv) and LQD Non-Coal R&R Chapter I, Section 2.(bl).

28. *Wastewater facilities* means sewerage systems, disposal system and treatment works. WQD R&R Chapter 3, Section 3.(b)(xx).

29. *Waters of the state* means all surface and groundwater, including waters associated with wetlands, within Wyoming. W.S. § 35-11-103(c)(vi).

30. *Water table* means the upper surface of a zone of saturation, where the body of groundwater is not confined by an overlying impermeable zone. LQD Coal R&R Chapter 1, Section 2.(dh) and LQD Non-Coal R&R Chapter 1, Section 2.(bs).

As seen above, the LQD R&R and WQD R&R are sometimes internally and externally inconsistent in the definition and use of terms. In addition, other functional combinations of structures and common use terminologies have evolved over regulatory history. Whenever possible, the LQD prefers that the permittee choose one of the following categories and use a uniform set of terminology throughout the permit. However, the LQD will permit a combination or variety of pond types as long as each type is clearly justified and documented.

III. SEDIMENTATION PONDS

All Sedimentation Ponds, Sedimentation Control Structures and Facilities require LQD review and approval as elements of the LQD Permit. There are several subsets of Sedimentation Ponds.

A. Sedimentation Ponds as Elements of a Sedimentation Control Plan

1. The SEO will issue a single SEO permit for a number of small sedimentation ponds whose individual capacity is equal to or less than two acre-feet as long as the cumulative capacity of all ponds in this category does not exceed 19.8 acre-feet per individual permit.

2. WQD R&R Chapter 3, Section 10 allows that "In lieu of individual permits for every sedimentation control structure, an applicant may request...a sedimentation control plan".

3. LQD Coal and Non-Coal R&R have no permitting procedures equivalent to or parallel to the SEO or WQD procedures. However, under the spirit of SEO procedures and under the letter of WQD R&R, the LQD may approve a Sedimentation Control Plan for a combination of these small capacity sedimentation ponds as long as the application includes:

    a. clear documentation of the approved SEO permit;

    b. an explanation of how this Sedimentation Control Plan will meet all applicable LQD performance standards;

    c. a commitment to follow provisions of the SEO permit when constructing each pond;

    d. an explanation of how this Sedimentation Control Plan will meet the performance standards of WQD R&R Chapter 3, Section 10 and when applicable WQD R&R Chapter 10, Appendix A and/or Chapter 11, Part C, Section 31; and

    e. a commitment to maintain the information required by WQD R&R Chapter 3, Section 10.(e) at the mine office for LQD inspection purposes.

4. WQD R&R, Chapter 3, Section 10 contains the general design standards for these individual structures.

5. The applicant should meet with appropriate LQD staff prior to submittal of a Sedimentation Control Plan in order to mutually agree on the content and format for the application.

B. Sedimentation Ponds Whose Total Capacity Exceeds 2 Acre-Feet But Do Not Meet Major Impoundment Criteria

These structures require independent LQD and SEO permitting actions. The general design standards and submittal content are outlined in Section IX in this Guideline.

C. Sedimentation Ponds With NPDES Discharge Permits for Total Settleable Solids

Under provisions of the DEQ Agreement noted in the Introduction to this Guideline, the NPDES Discharge Permit is an exclusive WQD program administered from the WQD Cheyenne offices (307-777-7082). All elements, including inspection and discharge point operation and maintenance requirements, are administered separately from the LQD sedimentation pond permitting process.

There is one variation of the NPDES Discharge Permit program which could influence a sedimentation pond reviewed and approved by the LQD. The WQD may issue an NPDES Discharge Permit under standards for Total Suspended Solids or Total Settleable Solids.

If a sedimentation pond has NPDES Total Suspended Solids effluent criteria associated with its discharge, the pond must always meet those criteria unless the design storm event is exceeded.

If a sedimentation pond has NPDES Total Settleable Solids effluent criteria associated with its discharge, the pond has three different categories of effluent criteria depending upon recent precipitation/surface runoff events:

1. If no precipitation or snow melt events have occurred during the ten days prior to a discharge, the discharge must meet the Total Suspended Solids, iron and pH limits.

2. If a precipitation or snow melt event has occurred during the ten days prior to a discharge, the discharge must meet the Total Settleable Solids and pH limits.

3. If a precipitation or snowbell event exceeds the 10-year, 24-hour design standard, a discharge must meet the pH limits for the first two days following the event. On the third through tenth days any discharges must meet the Total Settleable Solids criteria; the standards return to Total Suspended Solids after the tenth day unless another precipitation or snowbell event occurs.

There are significant design differences between ponds with Total Settleable Solids effluent limits and those which must always meet Total Suspended Solids effluent limits. The application must identify the presence of and type of WQD approved NPDES discharge permit associated with a particular sedimentation pond.

IV. PROCESS WATER/SEDIMENTATION PONDS

Historically, many coal permittee's process water ponds have also included distinct sediment control functions. The LQD will approve structures which receive both **non-hazardous** process water and sediment from a disturbed area, as long as this combination of functions is clearly identified and the designs address all applicable performance standards. Depending upon the nature and volume of the chemical and physical components of the process water, the application may require a demonstration of no impact to groundwater and/or a liner and monitoring regime to reduce the impact to groundwater.

The LQD, when appropriate, will solicit WQD technical review assistance for any structure receiving process water.

Section IX of this Guideline contains the general content requirements for any structure receiving process water.

V. IMPOUNDMENTS

All sedimentation ponds, process water ponds, pit protection or flood control structures and permanent postmining impoundments fall within the definition of an impoundment and are subject to the design, construction and inspection procedures of the LQD R&R. The LQD R&R and LQD policy and procedure make further functional subsets of the impoundment category.

A. Pit Protection or Flood Control Structures

These structures normally have no sediment control or process water functions because they receive no runoff from lands disturbed by mining activity. These structures are not required by LQD or WQD statutes and thus have no specific design standards. These structures should be designed using current and prudent engineering practices.

The designs should be directly incorporated into the LQD permit with appropriate address of LQD topsoil protection and road construction and design criteria. Normally, the LQD will require topsoil salvage below the normal high water line. The LQD will not normally require topsoil salvage between the structure and the pit.

B. Major Impoundments

1. During mining, a Major Impoundment is any structure impounding water, sediment or slurry:

    a. to an elevation of twenty (20) feet or more above the upstream toe to the crest of the emergency spillway; or

    b. to an elevation of five (5) feet above the upstream toe of the embankment and has a storage volume of twenty (20) acre-feet or more; or

    c. which will be retained as part of the postmining land use, and:

        I. Has an embankment height greater than 20 feet as measured from the downstream toe of the embankment to the top of the embankment; or
        II. Has an impounding capacity of 20 acre-feet or greater. LQD Coal R&R Chapter 4, Section 2.(g)(iii).

LQD policy holds that the twenty acre-feet volume refers exclusively to the capacity directly held by an embankment when one is present. If there is incised capacity deeper than the upstream toe of an embankment, that incised capacity does not contribute to the calculation of the twenty acre-feet criterion. The distinction between embanked capacity and an incised capacity does not apply to permanent structures.

Both these LQD Coal R&R definitions are similar to the SEO's definition of a Major Impoundment and require separate SEO permitting action. Similarly, the LQD's Major Impoundment may involve Mine Safety and Health Administration (MSHA) permitting actions. The LQD permittee should pursue **separate** permitting actions with the SEO and MSHA as appropriate.

C. Permanent Postmining Impoundments

Specific components of LQD Coal R&R Chapter 2, Section 2.(b)(iv)(E) and Chapter 4, Sections 2.(b)(viii) and (g) and Non-Coal R&R Chapter 2, Section 2.(b) and Chapter 3, Sections 2.(b) & (g) contain general performance standards for permanent postmining impoundments for all mine operators who propose such structures.

This Guideline does not address permanent postmining impoundments. LQD Guideline No.17 addresses the design and permitting of permanent postmining impoundments and postmining stock ponds. That Guideline should be consulted for additional procedures and technical content.

VI. MILL AND/OR SLURRY TAILINGS IMPOUNDMENTS

LQD Coal R&R Chapter 4, Section 2.(g)(viii), Non-Coal R&R Chapter 3, Section 2.(h) and WQD R&R Chapter 3 address impoundments designed to contain mill tailings or slurry tailings, exclusive of uranium mill tailings. The WQD also has specific performance standards.

The applicant should contact the LQD to arrange a meeting to achieve mutual agreement on content and format.

VII. ALTERNATIVE SEDIMENT CONTROL MEASURES (ASCM)

Mine operators may solicit LQD approval for the use of secondary sediment control features such as check dams, terms, permanent vegetation cover, and mulches, also referred to as alternative sediment control measures or ASCM. This Guideline addresses only primary sediment control structures. The LQD has separate procedures for reviewing and approving ASCM as outlined in LQD Guideline No. 15. Current versions of Guideline No. 15 are available from the appropriate LQD District Office.

The LQD understands that the SEO may also review and permit any ASCM which impounds runoff. The applicant should always consult with the SEO concerning that Agency's current position on ASCM.

VIII. APPLICABLE STATE AGENCY RULES AND REGULATIONS (R&R)

A. LQD Rules and Regulations

Applicable LQD R&R are a mixture of definitions (Coal Chapter 1 and Non-Coal Chapter 1), and performance standards (primarily Coal Chapter 4).

B. WQD Rules and Regulations

Applicable WQD R&R are also a mixture of definitions (Chapter 1, Chapter 3, Chapter 10, and Chapter 11), and performance or design standards (Chapter 3, Section 10, Chapter 10, Appendix A and Chapter 11, Part C, Section 31).

C. SEO Rules and Regulations and/or MSHA Statutes

The LQD does not directly use SEO R&R or MSHA statutes in its review and approval process.

IX. RECOMMENDED SUBMITTAL CONTENTS

These contents apply to materials submitted as a component of an original permit or amendment applications as well as revision applications submitted under LQD Coal R&R Chapter 13 and Non-Coal R&R Chapter 7.

A. Maps

The LQD will accept maps submitted with the SEO application, **as long as those maps are formatted and identified for direct insertion into the LQD permit.** The LQD prefers the "E" sheet size (21" x 30"), but "D" (15" x 21½"), "G" (24" x 36"), "F" (40" x 35") or "H" (18" x 24") are acceptable. The LQD prefers high quality blueline or blackline reproductions.

All maps must be P.E. certified as specified by LQD R&R Chapter 4, Section 2.(g)(iv)(A) and WQD R&R Chapter 3, Section 6.(b) (ii).

1. Location Map

   The application should contain a map, generally located in the Mine Plan, which illustrates the structure's location. This map is often titled the "Hydrologic Control Plan" and delineates the location of all hydrologic structures within the permit area.

2. Enlarged Plan View Map should:

   a. show the contours in the immediate vicinity of the structure with contour intervals not exceeding ten (10) feet; and

   b. show a tie to a known survey monument or a legal description (¼¼ section) for the immediate structure.

3. Contributing Drainage Area Map

   If more than one sedimentation pond is included in a particular submittal, one map may show several ponds. If not shown or discussed elsewhere, this map should also present the following:

   a. show that the pond is located near disturbed lands and out of intermittent or perennial streams LQD Coal R&R Chapter 4, Section 2.(f)(iii), WQD Chapter 3, Section 10.(c) and WQD Chapter 11, Part C, Section 31.(a);

   b. show all designs for the sedimentation pond, all collector ditches, outlet channels and directly associated conveyance structures WQD Chapter 10, Appendix A, Section 2.(a)(i) and WQD Chapter 11, Part C, Section 31.(c);

   c. show all access to the pond construction site, including the types of roads as per LQD Coal R&R Chapter 1, Section 2.(bz) and Non-Coal R&R Chapter 1, Section 2.(ax). If P.E. certified road construction designs do not exist in the LQD permit, they must be included in the accompanying Mine Plan text;

d. show the extent of topsoil stripping necessary for the construction of the sedimentation pond. The LQD will normally require topsoil and subsoil salvage to the design Normal High Water Line. This commitment or a justified variant must appear in the accompanying Mine Plan text; and

e. show the location of all affected lands and any source of process water within each sedimentation pond's drainage area.

B. Additional Supporting Information

These data may be included on the plan view map, subsequent map sheets, separate map sheets or in permit text. Overall, the application must demonstrate that the design, construction and maintenance plans use the best technology currently available to prevent additional contributions of sediment to stream flow or to runoff outside disturbed areas W.S. § 35-11-415 (b)(viii) and LQD Coal R&R Chapter 4, Section 2.(f)(vii).

1. A pond area-capacity table should identify the total storage capacity of the pond in acre-feet, as well as the storage capacity of each design function. The SEO defines the following capacity categories:

   a. Inactive Capacity is the capacity below the structure's outlet;

   b. Irrigation and/or Other Uses Capacity is the capacity between the outlet and the principal spillway; and

   c. Flood Control Capacity is the capacity between the principal spillway and the emergency spillway.

   Other capacity categories should be tabulated and briefly defined. The areal extent (acres) and control elevations for each capacity category should be listed.

2. The sediment calculation method or procedure should be summarized or referenced and all parameters tabulated.

3. The hydrologic designs should demonstrate use of and compliance with the following minimum design criteria:

   a. the ability to contain runoff from the 10-year, 24-hour event. WQD Chapter 10, Appendix A, Section 2.(a)(iv) and Chapter 11, Part C, Section 31.(b).

   b. There are three general pond types, dependent primarily upon association with a NPDES Permit.

      (1) If there is no discharge permit number associated with a pond, the pond must completely contain the 10-year, 24-hour event.

      (2) If the pond is associated with a discharge permit with Total Suspended Solids effluent limits, the pond is not categorically required to completely contain the 10-year, 24-hour event. However, all storm events smaller than a 10-year, 24-hour event which result in discharge must attain the Total Suspended Solids effluent limits.

(3) If the pond is associated with a discharge permit with Total Settleable Solids effluent limits, the pond is not categorically required to completely contain the 10-year, 24-hour event. However, all storms smaller the 10-year, 24-hour event which result in a pond discharge must attain the Total Settleable Solids effluent limitations unless there was a precipitation or snowbell event during the 10 days prior to the discharge.

c. The ability to maintain adequate sediment storage capacity. LQD R&R Chapter 4, Section 2.(f)(iv)(B), WQD Chapter 10, Appendix A, Section 2.(a)(iv) and WQD Chapter 11, Part C, Section 31.(b).

The LQD interprets "adequate sediment storage capacity" to mean a minimum of one year's storage as calculated from the design storm event. In order to reduce the frequency of pond dredging and associated disruption of function, the LQD recommends that sediment control pond designs include three years' sediment storage capacity.

d. The summary of the hydrologic design parameters should clearly identify the method of calculating runoff, input parameters and outputs (peak flow, runoff volume, etc.) from calculations. The LQD prefers that a brief written description of specific input parameters is also included. This section should discuss the SEO requirement for at least five (5) feet of freeboard. The LQD will accept waivers granted by the SEO; documentation of the waiver must be presented in the application.

4. Embankment designs should demonstrate use of and compliance with the following minimum design standards and performance standards:

a. Design Parameters

(1) Outer slope no steeper than 1v:2h. WQD Chapter 10, Appendix A, Section 2.(b)(ii) and WQD Chapter 11, Part C, Section 31.(d)(ii).

(2) Inner slope no steeper than 1v:3h. WQD Chapter 10, Appendix A, Section 2.(b)(ii) and WQD Chapter 11, Part C, Section 31.(d)(ii).

(3) Minimum top width sufficient to provide structural stability. WQD Chapter 10, Appendix A, Section 2.(b)(iii) and WQD Chapter 11, Part C, Section 31. (d)(iii).

(4) An evaluation of the need for erosion protection on inner slopes. WQD Chapter 10, Appendix A, Section 2.(b)(iv), WQD Chapter 11, Part C, Section 31.(d)(iv) and LQD R&R Chapter 4, Section 2.(g)(iv)(C).

(5) Additional detailed design information for major impoundments. LQD Coal R&R Chapter 4, Section 2.(g)(iv)(D).

(6) An evaluation of the need for excavated foundations and cutoff trenches. LQD Coal R&R Chapter 4, Sections 2.(g)(iv)(D) & (E).

b. Performance and Construction Standards

(1) Fill material with relatively low compressibility and low permeability and free of organic material and trash. WQD Chapter 10, Appendix A, Section 2.(b)(i), WQD Chapter 11, Part C, Section 31.(d)(i) and LQD Coal R&R Chapter 4, Section 2.(g)(iv)(E).

(2) Fill material compacted to ensure structural stability, minimum hydraulic seepage and minimized settling. WQD Chapter 10, Appendix A, Section 2.(b)(i) and WQD Chapter 11, Part C, Section 31.(d)(i).

(3) No rocks larger than six inches within five feet of the interior slope surface of the embankment. WQD Chapter 10, Appendix A, Section 2.(b)(i) and WQD Chapter 11, Part C, Section 31.(d)(i).

(4) Rocks larger than six inches but smaller than twelve inches in the largest dimension may occur in the remainder of the embankment if their overall volume is less than 25% of total volume. WQD Chapter 10, Appendix A, Section 2.(b)(i) and WQD Chapter 11, Part C, Section 31.(d)(i).

(5) Vegetated embankment faces and surrounding areas unless riprapped or otherwise stabilized. LQD Coal R&R Chapter 4, Section 2.(g)(iv)(C).

(6) Embankment, its foundation and its abutments designed and constructed to be stable (Administrator may require additional design information). LQD Coal R&R Chapter 4, Section 2.(g)(iv)(D).

5. A cross-sectional drawing illustrating the following:

a. The dimensions of supporting conveyance/collector ditches, with design calculations showing capacity, velocity, roughness and normal depth during the design storm events. WQD Chapter 10, Appendix A, Section 2.(a)(i) notes the need for evaluation of erosion protection;

b. The maximum dam height (hydraulic);

c. Elevations of the high water line, normal water line, storm capacity, crest, upstream toe and downstream toe;

d. Inner and outer slopes;

e. Cut-off collars (if applicable);

f. Core trench (if applicable);

g. Erosion protection (if applicable);

h. Spillway cross section with hydraulic properties (e.g., flow depth, velocity for both the conveyance and transport sections); and

i. Elevation of outlet structure(s).

6. Outlet structure designs should demonstrate use of and compliance with the following minimum design standards:

   a. Include an overflow device. WQD Chapter 10, Appendix A, Section 2.(a)(ii) and WQD Chapter 11, Part C, Section 31.(c)(iii);

   b. Address seepage control on all pipes. WQD Chapter 10, Appendix A, Section 2.(a)(ii) and WQD Chapter 11, Part C, Section 31.(c)(ii);

   c. Address erosion control (at point of discharge to native channel) based on design flow velocities. WQD Chapter 10, Appendix A, Section 2.(a)(ii) and WQD Chapter 11, Part C, Section 31.(c)(ii);

   d. Documentation that equipment or outlet structures are available for discharging the pond. WQD Chapter 10, Appendix A, Section 2.(c) & Section 3 and WQD Chapter 11, Part C, Section 31.(b);

   e. Designed to minimize short circuiting, to minimize discharge of floating solids and to prevent disturbance or erosion of embankment. WQD Chapter 10, Appendix A, Section 2.(a)(ii) and WQD Chapter 11, Part C, Section 31.(c)(ii);

   f. Specify a dewatering device or a spillway with capacity adequate to evacuate the NPDES storm event (10-yr, 24-hr volume) as soon as possible, but not prior to the time that the discharge will comply with approved effluent standards. WQD Chapter 10, Appendix A, Section 2.(c) and WQD Chapter 11, Part C, Section 31.(b); and

   g. Document that the minimum design event for the emergency spillway is the 25-yr, 6-hr storm event. LQD R&R Chapter 4, Section 2.(g)(v) and WQD Chapter 11, Part C, Section 31.(c)(iii).

   NOTE: The LQD will accept spillway designs which pass the actual minimum design event or the overflow resulting after the actual pond dimensions have retained and attenuated the design flow event. The application must explain which option is chosen.

7. Inlet Structure Design Elements and Performance Standards

   a. Designed to minimize erosion, disturbance of pond bottom and resuspension of silts or colloidal soil particles. WQD Chapter 10, Appendix A, Section 2.(a)(i) and WQD Chapter 11, Part C, Section 31.(c)(i).

   b. Designed to prevent sluicing of collected sediments. LQD Coal R&R Chapter 4, Section 2.(f)(iv)(C).

8. Additional Requirements for Ponds Receiving Process Water

   a. Identification of Process Water Components

   The application should clearly identify and quantify the waste components which will occur in all conveyance structures servicing a sedimentation pond and which may reach the pond proper.

b. Groundwater Impact Assessment

The standards of WQD R&R Chapter 3, Section 17 apply to Process Water ponds and should be addressed in the application text. If the permittee cannot provide the documentation required by Chapter 3, Section 17.(a), the applicant should contact the appropriate LQD District Office to achieve mutual agreement on the "subsurface study" required by Section 17.(b). and/or to achieve mutual agreement on the application of WQD R&R Chapter 11, Part C, Section 30.(f).

This assessment should also address all conveyance structures which will connect the Process Water pond with the operation generating the process water.

c. Design and Construction Standards

The general design and performance standards of WQD R&R Chapter 11, Part C, Section 30.(a) through (e) apply to all Process Water ponds and should be directly addressed in the application.

If the applicant cannot make the demonstration of WQD R&R Chapter 3, Section 17.(a) and elects not to conduct the "subsurface study" outlined in WQD R&R Chapter 3, Section 17.(b), the applicant must line the Process Water Pond according to the standards of WQD R&R Chapter 11, Part C, Section 30.(f). The applicant should contact the appropriate LQD District Office to achieve mutual agreement on liner designs and specifications.

9. Revegetation Plan

The application must reference existing revegetation procedures in the approved Reclamation Plan or include specific plans for revegetation of the disturbed areas associated with pond construction (LQD Coal R&R Chapter 4, Section 2.(f)(iv)(D)).

10. Operation and Maintenance and Inspection Plans

a. Equipment and Instrumentation

The permittee should be aware of the performance standards of LQD Coal R&R Chapter 4, Section 2.(g)(iv)(G) and WQD R&R Chapter 3, Section 11. for permanent and temporary impoundments. Some of these performance standards involve equipment and instrumentation, particularly for formal sediment control structures, which should be specified in the application.

(1) Equipment or procedures to document the depth and elevation of impounded water. LQD Coal R&R Chapter 4, Section 2.(g)(iv)(G)(II).

(2) Equipment or procedures to document the respective design storage capacities. LQD Coal R&R Chapter 4, Section 2.(g)(iv)(G)(III).

(3) Dewatering equipment (if applicable). WQD Chapter 10, Appendix A, Section 2.(c) and WQD Chapter 11, Part C, Section 31.(b).

(4) Outfall structure and related equipment for NPDES discharge (if applicable) WQD Chapter 10, Appendix A, Section 3.

b. Post-construction Professional Engineer (P.E.) Certification

LQD Coal R&R Chapter 4, Section 2.(g)(iv)(F) requires a post-construction inspection "immediately" after construction and that a report be prepared and P.E. certified immediately following the inspection. This construction completion inspection and certified inspection report **does not** require "as-built" engineering drawings. The LQD holds that the post-construction, P.E. certified inspection report be on file at the mine site for LQD inspection purposes. The LQD **does not** desire a copy of the P.E. certification for LQD files.

If the post-construction inspection identifies that the structure is not constructed and completed according to the original P.E. certified designs, the P.E. must execute professional judgement as to whether the nature and degree of difference was within commonly accepted (prudent?) engineering practices. If the deviation was within the bounds of common engineering practices, the simple post-construction P.E. certification statement is adequate.

However, if the deviations exceed normal engineering practices, the LQD holds that the post-construction inspection and P.E. certified report should include P.E. certified "as-built" drawings. These P.E. certified "as-built" designs then replace the original designs via a LQD Coal R&R Chapter 13 revision process.

The application should commit to a timely post-construction P.E. certification and should address the filing of this certification record for LQD inspection purposes.

c. Quarterly Impoundment Inspection Regime

LQD Coal R&R Chapter 4, Section 2.(g)(iv)(H) requires a quarterly inspection by a qualified individual who "...shall look for appearances of structural weakness and other hazardous conditions". The attached flow chart (Attachment 1) should be used to identify all impoundments which should be inspected quarterly.

The permit should contain a clear tabulation of impoundments and their inspection schedule. The permit should also specify the availability of those records at the mine site for LQD inspection purposes.

d. Annual Impoundment Inspection Regime

LQD Coal R&R Chapter 4, Section 2.(g)(iv)(G) requires impoundments be inspected annually for the criteria listed in the R&R. The attached flow chart (Attachment 1) should be used to identify all impoundments which should be inspected annually.

LQD Coal R&R Chapter 4, Section 2.(g)(iv)(G) also requires that:

(1) each annual impoundment inspection report be "...certified by the engineer...";

(2) all annual impoundment inspection reports be retained at the mine site for LQD inspection purposes;

(3) all annual impoundment inspection reports be "...annually submitted to the Administrator". The LQD prefers this annual submittal accompany the permittee's Annual Report.

The permit should contain a clear tabulation of impoundments and their inspection (quarterly and/or annual) schedule. The permit should also specify the certification, warehousing and Annual Report submittal of the annual impoundment inspection reports.

Although not specifically required by statute or regulations, Non-Coal operators should inspect sediment ponds at least annually. The operator must be able to demonstrate that there is enough volume available to treat/contain (dependent on effluent standard) the 10-year 24-hour event. The inspection should also document any erosional, stability or operational problems.

X. SUBMITTAL PROCEDURES

A. New Mine Permit and Amendment Application

The LQD District Supervisor has overall coordination and review responsibilities for sedimentation ponds included in new or amended mine permit applications. Approval for individual sedimentation ponds will occur with the overall permit approval.

B. Renewal Coal Mine Permit Application

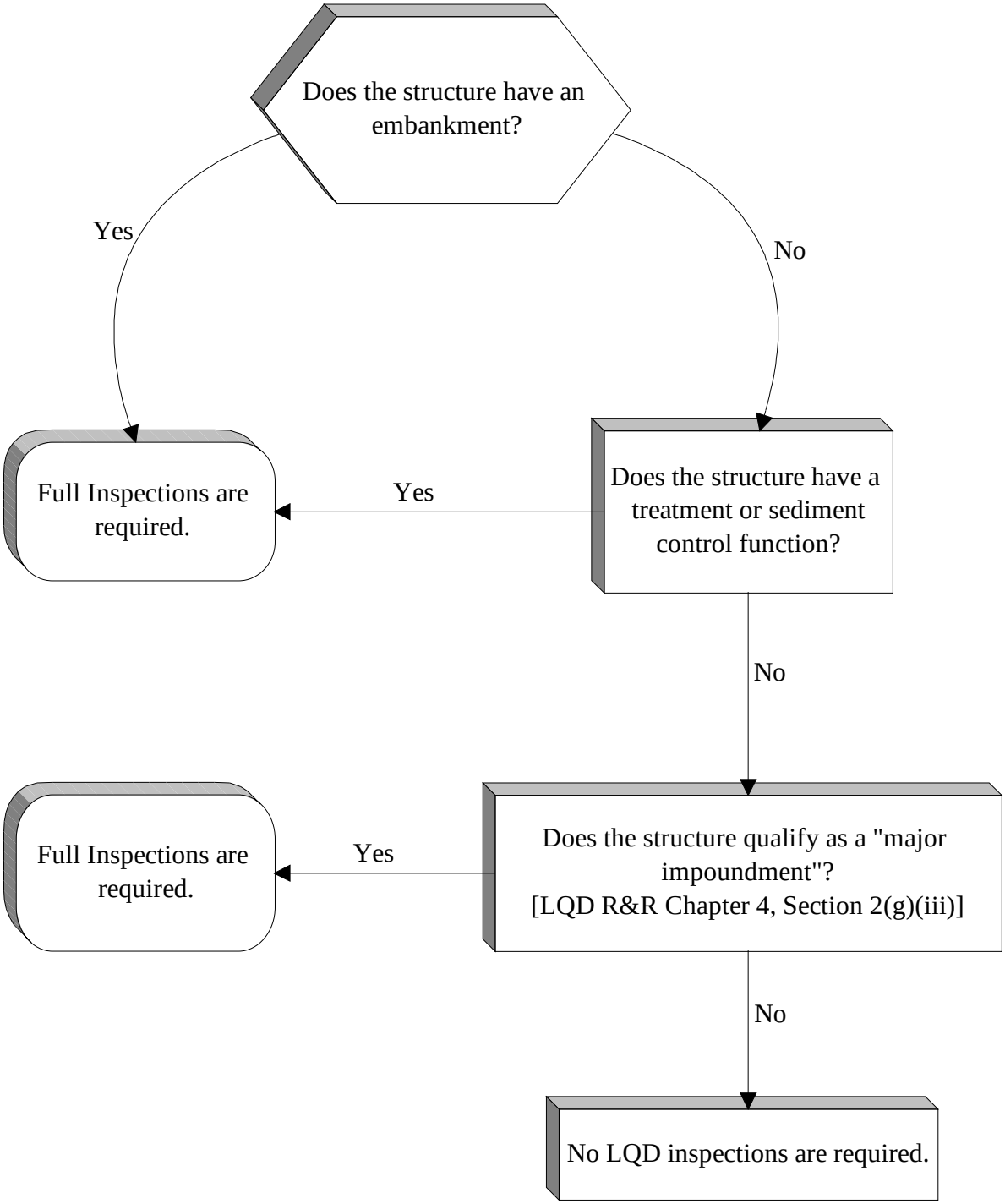
The permittee should contact the appropriate LQD District Supervisor for all processes related to the renewal of a coal permit. There may be grounds to add new sedimentation ponds as a permit renewal element; however the District Supervisor and applicant must agree on the content and format of such an application.

C. Application for a Change or Revision of the Approved Mine Permit

Operators may seek approval of new sedimentation ponds. Permittees **must** seek approval for changes to the design of approved sedimentation ponds **prior to** executing those modifications to approved sedimentation ponds (LQD Coal R&R Chapter 13, Section 1.(a), Non-Coal R&R Chapter 8 and WQD Chapter 3, Sections 11(a)-(c)). In either case, the responsible LQD District Office is the lead agent for review of the submittal under provisions of LQD R&R Chapter 13 and Non-Coal Chapter 7, whether the change is determined a Non-Substantial Revision (NSR) or a formal Form 11 Revision.

The operator should contact the proper LQD District Office Supervisor as far in advance of submittal as possible to determine if preliminary discussions would be timely and effective. The operator should submit two (2) complete and identical packages to the LQD District Office. If WQD review assistance is also involved, the LQD District Office may request a third original copy for shipment to the WQD for concurrent review. The LQD District Office will coordinate the review and issue a consolidated review memorandum. The LQD will have the responsibility to adequately resolve all review comments.

Attachment 1
Impoundments & Associated Inspection Requirements
Flow Chart



Attachment 2
Structures Exempt From Impoundment Inspections

Based upon LQD policy related to the interpretation of LQD R&R, the following types of structures at coal mines are EXCLUDED FROM INSPECTION AS AN IMPOUNDMENT:

- coal pit sumps
- premining stockponds and playas that do not have a mining related function
- native pools in stream channels
- approved postming stockponds that have no embankment, or no treatment function, or do not qualify as a major impoundment
- approved surface water diversion structures
- constructed road culverts and associated stilling or discharge basins
- constructed road ditches which serve as drainage control structures under LQD R&R Chapter 4, Sections 2(j)(ii) and (iii)
- small area low spots on backfill or permanent reclamation
- topsoil stockpile conservation structures(ring ditches) which do not constitute primary or ultimate sediment control structures
- approved Alternate Sediment Control Measures
- wetland structures constructed as approved mitigation unless the wetland is directly associated with a functional sediment control structure