Combined comments and agency response and actions taken

General Comments regarding entire rule package or large conceptual issues:

1. There should be no fees for the following reasons
    a. This puts a burden on rural small businesses during an economic downturn
    b. The value of the program is not worth the fee to individual dam owners.

Selected Quotes from Comments: (*note: full comments are given in Attachment 4*)

"Dam inspections have been done through the recent years on a regular basis in cooperation with Oregon Water Resources Department with very few changes in findings from year to year. Although it is somewhat helpful to have another organization inspect the projects from time to time, our staff and directors work very closely with the dams and are therefore always conducting inspections looking for necessary maintenance and improvements. Therefore an annual fee for this service will not be a good investment of the patrons' funds that could be better used improving the dams directly. To have such a fee would amount to over seven percent of the annual budgeted operation and maintenance rates for each of the two dams which is a drastic increase with no recognizable benefit to the district or the facilities inspected.

In conclusion it is the opinion of the Powder Valley Water Control District that any new fees on district dams would have a significant negative effect on the local producers who are already struggling during this difficult economic time. Therefore the district strongly urges you to not put such a burden on the local agricultural communities."

Agency Response:

Discussion/Action

The fee is being instituted to cover a portion of the Department's expense for providing oversite of large dams. It is in the public interest that dams are properly built and maintained to reduce the potential loss of life and property damage.

The fee is being implemented to allow for more timely inspections as well as other program improvements and will not cover the cost of the dam safety program. The cost to the state general fund is estimated at approximately $450,000 per biennium while the fee would recover approximately $40,000 or about 9% of the program cost. Oregon has a smaller dam safety program than surrounding states and in terms of equivalent full time staff per dam inspected is one of the lowest in the nation. Based on 2007 statistics, Oregon has one full time staff equivalent per 584 dams while the average of its surrounding states is 167 dams per full time staff.

It is understandable that when a dam is in good condition and functioning properly the dam safety program seems like an unnecessary expense. However over time, all dams are likely to have problems. Having a functional dam safety program reduces the

probability that a poorly maintained or improperly designed and constructed dam will fail.

While noting the burden that is being put on dam owners, in light of all considerations, no modifications to rules or action are taken.

2. Dams exempt from the fee should be different than what is currently in the proposed rules:

a. There is a concern that municipal water treatment facilities and tanks would come under the program and be subject to fees therefore explicit language is necessary to not have an unintended consequence of this happening..

Selected Quote from comments:

"The Division 20 rules should be clear in their applicability. In that respect, we are concerned that the draft definition of "dam" may be interpreted to include facilities that are in fact not dams and should not be subject to the requirements of the Division 20 rules. These facilities, such as reinforced concrete and metal storage tanks, wastewater aeration basins, and wastewater clarifiers, are not currently subject to the Department's dam inspection program and are subject to the regulatory authority of other agencies."

Agency Response

Discussion/Action

The Department shares this concern and proposes the insertion of the following clause into the rules under OAR 690-020-0000 (3):

690-020-0000 (3) These rules do not apply to metal or reinforced concrete water storage tanks or various types of tanks that are part of water treatment facilities.

There was also a comment regarding changing the proposed definition of dam to mean an "artificial barrier" versus a hydraulic structure to further protect water storage tanks from being included. However, the statutes use the term hydraulic structures in several cases and do not use the term artificial barrier. Furthermore, staff has a concern that off-channel reservoirs that pose a hazard and are currently part of the program might have grounds for an exemption under such language. For this reason, staff recommends that the proposed definition for dam retain the term "hydraulic structure". We also feel the specific exclusion given above prevents metal tanks and other types of tanks to be included in the program. Related to this change metal tanks are explicitly defined in 690-020-0022 (18)

"(18)"Tank" means a fully enclosed (bottom and sides) hydraulic structure made from metal or reinforced concrete or rigid fiberglass or plastics that provides its own water sealing and structural stability."

b. There is a concern that "small dams" that could pose a downstream hazard are being excluded from design requirements and other program requirements.

Selected Quote:

"provide for the protection of life and property"... "How can you say that ODWR is doing this when it is possible to have a 1000 acre foot dam that is 9.8 feet high or a 30-foot high dam that stores 9.1 acre feet that is not required by ODWR to be designed by a registered engineer and the drawings, specifications and design documentation submitted to ODWR for review?"

Agency Response

Discussion/Action

Department staff shares this concern. However, Oregon statute excludes dams less than 10 feet in height or impounding less than 3,000,000 gallons of water (9.2 acre feet) from the design process. (see ORS 540.400 (1)). For this reason, we do not require a hazard classification determination for dams that we do not review. Furthermore, since we do not review plans and specifications for these dams we cannot verify if they were done by a registered engineer. However, what we can do is make some recommendations regarding small dams that will set a "standard of practice" and we have added some specific language to this in light of these comments. It should be noted that all dam owners are responsible for their structures and can be liable for damage caused by a failure.

OAR 690-020-029-(8) "It is recommended that prior to construction the dam owner has the dams potential hazard to downstream properties studied using methods listed in 690-020-0100 . It is also recommended that any dam with a potential significant or high hazard rating be designed by a registered engineer familiar with dam engineering. It is also advisable for any larger dam nearing or surpassing the dam height or storage thresholds to be designed by a registered engineer."

c. The exclusion for Federal dams is not exhaustive enough. For instance why does it have to be a network of dams and why is their a requirement that Federal dam entities have to do anything when they have sovereign responsibility for these dams.

Selected Quote:

"The Districts are of the view that if a dam is subject to the safety program of a federal agency, and particular, the U.S. Bureau of Reclamation's dam safety program then not only should the dam be exempt from fee restrictions as proposed in OAR 690-020-0200(b), but the dam should simply be exempt from the entire Division 20 rules."

Agency Response

Discussion/Action

The Department has amended the proposed rules taking out the clause in OAR 690-020-0200 regarding "*network of dams.*" Staff agrees that no Federal Agency controls just one dam and the language is not necessary.

Agency staff does not agree that Federal agencies should be wholly exempt from Division 20 rules. Oregon has statutory responsibility for all dams that meet height and volume thresholds regardless of ownership (see ORS 540-350). Federal agencies have the same responsibility to construct and maintain dams to protect public safety. The

proposed rules do not exempt any Federal Agency from design and construction requirements. If a Federal Agency meets certain criteria for inspection and maintenance that exceed state requirements, they would be exempt from the fee requirement because the Department does not conduct regular inspections. As an example, the Department considers the current Reclamation program to exceed all our requirements. Reclamation makes regular detailed inspections of their dams with a team of experts. They have strong dam tender training and maintenance programs and repairs are made when needed.

Another minor change was suggested and made regarding changing word *"coerce"* to *"require"* for clarity in 690-020-0200 (6) (b) (C).

No changes are proposed to exempt Federal Agencies from the Division 20 rules.

d. Waste Treatment lagoons should be exempt from fees and their inclusion represents a new activity for the Department.

Selected Quote:

"In a departure from current rules, it appears that the Department is attempting to exert authority over wastewater storage and treatment facilities as part of its proposed amendments to its Division 20 rules. Not only is such regulation not required by statute but such facilities are already thoroughly regulated by the Oregon Department of Environmental Quality ("DEQ"). Moreover, Senate Bill 788 (2009), which according to the Departments notice of rule making is the recently adopted bill that is necessitating the current rulemaking effort, is largely a fee bill and says nothing about the Department being authorized or otherwise needing to extend its jurisdiction to include wastewater facilities."

Agency Response

Discussion/Action

The regulatory activity regarding Dam Safety for Wastewater treatment storage facilities has been ongoing for decades. The Department currently reviews plans and conducts inspections of wastewater lagoons that exceed the statutory size limits. The authority for this activity is found in ORS 540-350. If a hydraulic structure meets criteria of size and is not used for log driving or diking on the the owners own property etc., it is part of the types of structures this program has jurisdiction over. One of the most high profile dam failures in recent years in Oregon was a wastewater lagoon (Simplot - 2006).

DEQ does not include a review for dam safety as part of their permitting process. While they do review the potential for emissions of water pollution of such facilities they do not consider total catastrophic failure. One comment asked for changes in wording from wastewater facilities to sewage lagoons. Staff could change "facilities" to "lagoon" but realized that sewage is too narrow in that it refers to waste carried through a sewer system. Therefore sewage could not be used.

Change new Dam Definition OAR 690-020-0022(e) to:

"(5) "Dam" means a hydraulic structure built above the natural ground grade line that is used to impound water. Dams include wastewater lagoons and other hydraulic structures that store water, attenuate floods, divert water into canals.

For OAR-020-0025 (8) (b) replace term "*sewage*" with "*wastewater*"

3. "The proposed rules should be revised to define enlargement, rehabilitation, repair and alteration."

Selected Quote: (See above)

Agency Response

Discussion/Action

Staff shares this position. This is a good opportunity to update the rules and establish standards for significant dam work. Staff has developed a term and definition for "significant dam work" based on language developed by the Oregon Department of Fish and Wildlife.

The proposed additional clarifying language is added as noted below.

New: OAR 690-020-022 "(16) *""Significant Dam Work" means repair, rehabilitation, enlargement or other alteration to a dam in which 1) at least 30% of the fill material is impacted by the activity,2) a spillway is being enlarged or repaired that effects the height or hydraulics of the spillway, 3) dam height and/or reservoir size is being increased 4) a low level outlet conduit or inlet gate is being reworked with excavation or 5) any other activity that could affect the integrity of the dam or its auxiliary works""*

OAR 690-020-025 (2) Whenever possible, precipitation [or rainfall] and runoff records shall be submitted as part of the design for new or significant dam work on existing dams.

"OAR 690-020-035 (1) "All maps, plans, and specifications for the construction of new large dams or significant dam work for existing large dams"

OAR 690-020-035 (6) "During the design process for any newly constructed dams or for significant dam work to existing dams that involves potentially changing the volume or rate of water released during failure, the dam owner or owner's representative must submit to the department an inundation analysis using methods described in 690-020-100. The department shall use this analysis to determine the hazard rating of the dam in accordance with 690-020-100."

Line by line comments (in chronological order of the rules)

Comment: 690-020-0022, page 2: It appears that the upper-level numerical headings (1) and (2) are being removed. Will the **Definitions** section have a numerical heading (1) or jump directly to letters (a)– (p)?

Response/Action: Changed to numbering to be consistent.

Comments: Page 2, (e)(d) ...backfilled with impermeable material... this should be "lower permeability material". And
690-020-0022, page 2, (d): “backfilled with impermeable material” should read “backfilled with low permeability material”.
Response/Action: **Changed to be “*low permeability material*”**

Comment: Page 3, General Requirements (2) ...design shall be submitted. Add ... "submitted with the design documentation".
690-020-0025, page 3, (2): Add “with the design documentation” to the end of the last sentence in this section. We want to clarify that this should not clutter the drawings and specifications (or plans).
Response/Action: No action taken – Staff feel the current language is clear and the wording does not force cluttering on design drawings.

Comment:690-020-0022, page 3, (l) “Freeboard” definition: The designed “high-water level” during large storm events is higher than the principal spillway elevation. We propose defining “Freeboard” as “the vertical distance between the principal spillway elevation and the dam crest”, or “vertical distance between emergency spillway and dam crest”.
Response/Action: No action taken. Freeboard is more complicated than this. It represents the difference in water level to top of dam during a design storm.

Comment: 690-020-0022, page 3, (n): Remove the word “large”. We will further explain our reasoning for this later in this letter. Basically, we think small dams can be hazardous.
Response/Action: Staff agrees. Owners are responsible for damage caused by failure. Action taken elsewhere, see what was done regarding general comment for small dams.

Comment: 690-020-0022, page 3, (p): Capitalize the “d” in “Small dam” definition.
Response/Action: Capitalized “D”.

Comments: Page 4, (4) ...Approved plans and specifications... This should be approved drawings and specifications. The drawings and specifications constitute the "Plans". The word plans should not be used in lieu of drawings.
690-020-0025, page 4, (4): For engineering submittals, the word “plans” typically means “drawings and specifications”. Further references to these items should be consistent with these terms. Possibly define dam plans as the set of dam drawings and dam specifications.
Response/Action: No changes as current terminology is consistent with statute.

Comments: 690-020-0025, page 4, (6): The first instance of the word “should” shows up. We believe that the word “shall” is intended. Search and replace all uses of “should” with “shall”. We think that in many cases it would be best to use “shall”.
Page 4 (6) There are a couple of comments here. To start, the word "should" shows up at least 5 times in this paragraph. Thou "Shall Not" use "should". The correct word is

"shall". This shows up numerous places in the rest of the document. Hopefully a word search with your word processor can find them all for you and change them.
Response/Action: From a statutory perspective the agency lacks authority to "prescribe" regarding small dams. They are specifically exempt from review. The Department does however provide some guidance and standards for practice. Changed the word "should" generally to "it is recommended"

Comments: 690-020-0025, page 4, (6): We do not believe it is necessary to specify types of pipe that are allowable to be used in construction in the rule. We recommend deleting the sentence starting with "Acceptable conduit materials include…". If you keep the sentence in you should include steel with alum. coating and types of appropriate PVC. Second item, regarding pipe. You might check with a couple of pipe manufacturers on this. I do not think fiber-treated bituminous-coated corrugated steel pipe is available anymore. This is probably due to the environmental hazards of the dip tank. An alternate is Aluminized Type II Coating meeting AASHTO M-274. There may be a newer polymer type coating available in addition to this. Check with Contech or the pipe plant at Eugene, OR.
Response/Action: We have removed some of the pipe types that are more exotic. This listing is not meant to be exhaustive. We have also added concrete encased corrugated metal pipe or plastic pipe because the encasement makes these materials acceptable.

Comment: 690-020-0025, page 4, (7): Add the word "maximum" in front of "vertical distance", and replace "between the center point of the dam crest…" with "between the centerline of the dam crest and the native ground". Alternatively, the "height of dam is maximum vertical distance of crest of dam to original native ground".
Response/Action: The following clause is added at end to ensure that the measurement is taken at the maximum section: "This measurement is to be taken at the maximum section along the dam's longitudinal axis."

Comments: Page 4, (8) Insert "for classification purposes" in the first sentence after "volumes".
690-020-0025, page 4, (8): Add "for classification purposes" after "(in acre-feet or millions of gallons)" and before "as follows".
Response/Action: No action taken. Not sure what is meant by classification. May want to incorporate, I assume this is for determining large or small dams,

Comments: Page 4, (8)(a) ...bottom of the reservoir to the emergency spillway... Do you mean principal spillway? This would be consistent with the storage volume used in a permit application.
690-020-0025, page 4, (8) (a): Replace "emergency spillway crest" with "principal spillway elevation or normal full water elevation".
Response/Action: Changed language to incorporate multiple elevation spillways on a dam with the principal spillway being the standard. Added information to the definition of emergency spillway that distinguishes between principal and emergency spillways.

Comments: 690-020-0025, page 4, (8) (c): Replace “dam crest level” with “emergency spillway level”….Flood control dams need volume at flood levels.
Page 4, (8)(c) ...full reservoir at the dam crest... Do you mean spillway crest?
Response/Action: Changed to emergency spillway crest. Please note that concrete detention dams and some storage dams overtop and the crest is the emergency spillway.

Page 5, (1) ...should... This should be "shall". Top width, picky point, but with current construction equipment it is difficult, at best, to construct an 8-foot top width. Ten feet should be the minimum.
Response/Action: See comments regarding small dams in general section – replaced should with recommends in general.

Comments: 690-020-0029, page 5, (4): Insert a specification for the minimum acceptable amount of freeboard in this section. Is the construction of a small dam “to pass the 50-year flood flow without overtopping” conservative enough? We believe this should be a minimum of 100-year flood flow unless some type of hazard analysis is done. Possibly use 50-yr flood and specify a minimum freeboard. Replace the last word of this section “fill” with the words “dam embankment”.
Page 5, (4) ...to pass the 50 year flood flow without overtopping. My opinion this should be a minimum of 100-year unless some type of hazard analysis is done.
Response/Action: Changed the 50 year without topping to 50 year with 2 feet of freeboard to top of dam embankment. Replaced fill with “dam’s embankment.”

Comments: 690-020-0035, pages 6 and 7: Additional uses of “plans” along with “specifications” but not “drawings”. We think it should be consistent that plans equal the drawings and the specifications. The text seems inconsistent.
Page 6, (4)(a) "Plans" should be "Drawings". Also in (A) "plans" shows up in two places. If you mean the drawings and specifications this is ok. If you mean the drawings only then the words should be changed to drawings.
Response/Action: No action taken as the terms plans is in statute and this should remain consistent with statutes.

Comment: 690-020-0035, page 7, (4) (a) (B) (ii): In the second sentence after “square miles” add “or acres”. In the last sentence of this section, replace the words “at different water levels” with “at different flow events”. We believe some of the descriptive information specified in this section to be placed on a map is better placed in the design report. The hydrology data should not be in plans, but should be in the design report.
Response/Action: Added the phrase: *“Extraneous information can also be included in specifications or a separate hydrology report as to not clutter up the map.”* Staff added the term **“reservoir”** in front of term “*water level*” to help clarify.

Comment: Page 7, (ii) You might add "or acres" after "square miles" (3rd line). Also There should be a period after "square miles". The items listed after that ie " a brief description of the area...percentage of bare and timbered...general watershed characteristics" should be included in the design documentation with the hydrology documentation. The purpose of the drawings is to provide the contractor direction in what is to be constructed. Extraneous materials such as this should NOT be on the drawings.

Obviously, they are important and should be include in the design documentation as noted.
Response/Action: See immediate comment above for moving information off map. No other action taken.

Comments: 690-020-0035, page 7, (4) (a) (B) (iii): In the second sentence replace "cutoff walls" with "cutoff collars".
Page 7, (iii) ...cutoff walls... If you mean cutoff collars than say so to be consistent with earlier uses of this term.
Response/Action: Removed cutoff walls however did not replace with cutoff collars as newer dam literature discourages their use.

Comment: Page 7, (b) add "material" after " construction" so that it reads "construction and material specifications
Response/Action: Added word material..

Comments: 690-020-0035, page 7, (4) (b) (A): The wording for "specifications shall describe in detail the methods to be followed" is not flexible enough to allow engineers to use "performance specifications" in addition to or in place of "method specifications". We suggest rewording this sentence to allow both "method" and "performance" specifications. We do not think requiring all methods specifications is prudent.

Page 7, (A) ...describe in detail the methods... This is a big no-no. The means and methods are up to the contractor. If the Engineer describes the means and methods and they do not work then he is responsible. If you require the Engineer to do that then you may be responsible. Certainly the types of material can be specified (ie concrete, toe drain rock etc.). One can also to some extent the type of construction equipment can be specified (such as a sheepsfoot roller as opposed to a smooth roller etc). But in any case one has to be extremely careful about spelling out means and methods.
Response/Action: Added the clause after method "*and/or performance criteria*." No other action is taken. This is existing rule language and has not been an issue over the last 15 years.

Comment: Page 8, (5)(c) "plans" should be "drawings.
Response/Action: None: This is existing rule language and has not been an issue over the last 15 years. The Department understands the distinction between plan and drawing but, changing the terminology for this step will create more confusion and create inconsistency between rules and statutes.

Comment: Page 8, (6) ..."any newly constructed"... this implies that the inundation analysis can be submitted after the dam is constructed. I would assume that the intent is to have the inundation analysis completed as part of the design process so that the hazard rating can affect the design. This section needs to be reworded.
Response/Action: Reworded for other reasons to include dams that are being modified. Department does not see the problem it says "during design process" so the dam should not be already constructed? The newly constructed does not imply the dam is already built but to distinguish it from significant work to existing dams.

Comment: 690-020-0035, page 8, (6) (a) and (b): Combine section (b) into section (a) or place the words "If a dam is rated as a high hazard, the inundation…" at the beginning of section (b).
Response/Action: No action taken. These were previously combined and then separated during rule advisory process.

Comment: Page 9, Hazard Ratings.
Barry and George, I guess 27 years with SCS, even though that was 25 years ago, has permanently warped my mind. Where other criteria has been established for 50+ years why not try to be consistent with it. SCS (NRCS) has their a, b and c ratings as low, intermediate and high (in that order) your a, b and c are in reverse order. A really picky point, but why not try to avoid the potential confusion!!
Response/Action: No action taken. There is inconsistency among states as well as Federal Agencies. These hazard ratings match current agency practice.

Comment: 690-020-0100, page 10, (2): Subsections (a), (b), and (c) are all methods or models acceptable for studies. Subsections (d) and (e) are not methods or modeling but rather definitions or additional information. Can the information in subsections (d) and (e) be placed in the main paragraph of section (2) prior to listing the three methods in (a) – (c)? We also believe that the order of these three methods should be reversed with the "simplified" methods as paragraph (a).
Response/Action: No action taken. To clarify, any method can be right or wrong based on site specific conditions. That is why the analysis needs approval from the Department.

Comment: 690-020-0100, page 10, (2) (d): Replace the word “floorboard” with the words “finished floor”.
Response/Action: Made wording change.

Comment: 690-020-0100, page 11, (4) (a): We firmly believe that small dams should be assigned a hazard rating. A simplified hazard analysis method can be utilized or a qualitative analysis of downstream receptors of a small dam can be completed to determine a hazard rating for a small dam. Small dams that are classified as “Significant Hazard” or “High Hazard” would then have to meet the design criteria for large dams.
Response/Action: No action taken. Department practice has been not to assign a hazard rating to small dams.

Comment: 690-020-0200, page 11, (1): Although there is a reference to “annual” fees in this section, there are currently no fees documented in ORS 536.050. We assume that ORS is going to be revised at the same time.
Response/Action: The fees were established by legislation and will be included in the next publication of statutes.

Comment: As a final comment, Oregon’s engineer licensing board (OSBEELS) has determined that any dam design is engineering. We believe Division 20 is an appropriate location to note that all dam design is required by statute to be done by a registered engineer with the exception of a small dam that has no public danger constructed on private property and designed by the property owner. This requirement should be included in the small dam section of Division 20.
Response/Action: See point regarding Comment to 690-020-0200 above and overall comment regarding small dams done in general comments. We cannot create rules beyond our statutory authority.