



COLORADO

**Water Quality
Control Commission**

Department of Public Health & Environment

**NOTICE OF PUBLIC RULEMAKING HEARING
BEFORE THE
COLORADO WATER QUALITY CONTROL COMMISSION**

SUBJECT:

For consideration of the adoption of revisions the 401 Certification Regulation, Regulation #82 (5 CCR 1002-82). Revisions proposed by the Water Quality Control Division, along with a proposed Statement of Basis, Specific Statutory Authority and Purpose, are attached to this notice as Exhibit 1.

In these attachments, proposed new language is shown with double-underlining and proposed deletions are shown with ~~strikeouts~~. Any alternative proposals related to the subject of this hearing will also be considered.

SCHEDULE OF IMPORTANT DATES

Party status requests due	08/21/2018 5 pm	Additional information below.
Proponent’s prehearing statement due	08/23/2018 5 pm	Additional information below.
Responsive prehearing statements due	09/18/2018 5 pm	Additional information below.
Rebuttal statements due	10/16/2018 5 pm	Additional information below.
Last date for submittal of motions	10/18/2018 5 pm	Additional information below.
Notify commission office if participating in prehearing conference by phone	10/19/2018 by noon	Send email to cdphe.wgcc@state.co.us with participant(s) name(s)
Prehearing Conference (mandatory for parties)	10/22/2018 1:00 pm	Florence Sabin Conference Room Department of Public Health and Environment 4300 Cherry Creek Drive South Denver, CO 80246 Call-in: 1-857-216-6700, Code: 425132
Rulemaking Hearing	11/13/2018 1:00 pm	Fremont Room Summit County Community and Senior Center 83 Nancy’s Place Frisco, CO 80443

HEARING SUBMITTALS:

For this hearing, the commission will receive all submittals electronically. Submittals must be provided as PDF documents, except for raw data exhibits which may be provided as Excel workbooks. Submittals may be emailed to cdphe.wqcc@state.co.us, provided via an FTP site, CD or flash drive, or otherwise conveyed to the commission office so as to be received no later than the specified date.

PARTY STATUS:

Party status requests must be in writing and must provide:

- the organization's name,
- one contact person,
- a mailing address,
- a phone number, and
- email addresses of all individuals associated with the party who wish to be notified when new submittals are available on the commission's website for review.

In accordance with section 25-8-104(2)(d), C.R.S., any person who believes that the actions proposed in this notice have the potential to cause material injury to his or her water rights is requested to so indicate, along with an explanation of the alleged harm, in their party status request.

PREHEARING AND REBUTTAL STATEMENTS:

Each party must submit a prehearing statement: parties that have proposed revisions attached as exhibits to the notice must submit a proponent's prehearing statement. All other parties must submit a responsive prehearing statement. Proponents may also submit responsive prehearing statements when there are multiple proposals attached to the notice.

Each prehearing and rebuttal statement must be provided as a separate PDF document from any accompanying written testimony or exhibits.

Following the rebuttal statement due date, no other written materials will be accepted from parties except for good cause shown.

Oral testimony at the hearing should primarily summarize written material previously submitted. The hearing will emphasize commission questioning of parties and other interested persons about their written prehearing submittals. Introduction of written material at the hearing by those with party status will not be permitted unless authorized by the commission.

PREHEARING CONFERENCE:

Attendance at the prehearing conference is mandatory for all persons requesting party status. Parties needing to participate by telephone are encouraged to notify the commission office prior to the prehearing conference. Remote participants can call 1-857-216-6700 and enter the conference code 425132.

Following the cut-off date for motions, no motions will be accepted, except for good cause shown.

PUBLIC PARTICIPATION ENCOURAGED:

The commission encourages input from non-parties, either orally at the hearing or in writing prior to the hearing. Written submissions should be emailed to cdphe.wqcc@state.co.us by October 31, 2018.

SPECIFIC STATUTORY AUTHORITY:

The provisions of sections 25-8-202(1)(d) and 25-8-501 to 25-8-504, C.R.S., provide the specific statutory authority for consideration of the regulatory amendments proposed by this notice. Should the commission adopt the regulatory language as proposed in this notice or alternative amendments, it will also adopt, in compliance with section 24-4-103(4) C.R.S., an appropriate Statement of Basis, Specific Statutory Authority, and Purpose.

Dated this 11th day of July, 2018 at Denver, Colorado.

WATER QUALITY CONTROL COMMISSION



Trisha Oeth, Administrator

EXHIBIT 1
WATER QUALITY CONTROL DIVISION

DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Water Quality Control Commission

REGULATION NO. 82 - 401 CERTIFICATION REGULATION

5 CCR 1002-82

This regulation is promulgated pursuant to sections 25-8-202 and 25-8-205, C.R.S.

82.1 PURPOSE

The purpose of this regulation is to implement section 25-8-302(1)(f) C.R.S. which became law on June 4, 1985. The Commission construes this section as a direction by the Colorado legislature to define what conditions can be required by the Water Quality Control Division in connection with certification of federal licenses and permits under Section 401 of the Federal Clean Water Act, consistent with the Colorado Water Quality Control Act. This regulation authorizes the Water Quality Control Division to certify, conditionally certify, or deny certification of federal licenses and permits in accordance with Section 401 of the Federal Clean Water Act and sets forth Best Management Practices (BMPs) applicable to all certifications except for federal 402 permit certifications, and the procedures for developing conditions to be included with certification, where necessary.

By this regulation and pursuant to section 25-8-302(1)(f) C.R.S., General or Nationwide permits under Section 404 of the Federal Act are certified without the addition of BMPs or other conditions, and no further action on such permits by the applicant or the Division is required.

This regulation applies to Water Quality Control Division certification of permits issued by the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act, Federal Energy Regulatory Commission licenses for hydropower projects, and other federal permits which involve a discharge into waters of the state, including permits issued by the Environmental Protection Agency (EPA) pursuant to section 402 of the Federal Act.

82.2 DEFINITIONS

- (1) 401 Certification means that certification required by Section 401 of the federal Clean Water Act, 33 U.S.C. Section 1341.
- (2) 402 Permit means that individual permit issued by the U.S. Environmental Protection Agency for the discharge from federal facilities as described in Section 402 of the Federal Act.
- (3) 404 Permit means that individual permit issued by the U.S. Army Corps of Engineers for the discharge of dredged and fill material as described in Section 404 of the Federal Act.
- (4) Best Management Practices - BMPs means those structural and non-structural methods, measures or practices implemented to prevent, reduce, or mitigate adverse water quality impacts resulting from construction and operation of a project.

- (5) Certification means that determination by the Division that the project will comply with the Basic Standards and Methodologies for Surface Water, Regulation No. 31 (5 CCR 1002-31), the Basic Standards for Ground Water, Regulation No. 41 (5 CCR 1002-41), surface and ground water classifications and water quality standards, and all other applicable water quality requirements for the affected waters. Such certification is subject to section 25-8-104, C.R.S.
- (6) ~~COE-USACE~~ means U.S. Army Corps of Engineers.
- (7) Division means the Water Quality Control Division, Colorado Department of Public Health and Environment.
- (8) Federal Act means the Clean Water Act, 33 U.S.C. Section 1251 et seq., as amended.
- (9) FERC means the Federal Energy Regulatory Commission.
- (10) Project means an activity which may result in a discharge into state waters and for which a federal license or permit is required.

82.3 APPLICABILITY AND SCOPE

- (A) No federal license or permit for which water quality certification is required under Section 401 of the Federal Act may be issued without the certification provided pursuant to these regulations, except as provided in subsection 82.3(B).
- (B) General or nationwide permits to discharge dredged or fill material issued under section 404 of the federal act are authorized for use without additional action by the Division.
- (C) Any 401 certification issued by the Division pursuant to these regulations shall apply to both the construction and operation of the ~~project~~ Project for which a federal license or permit is required, and shall apply to the water quality impacts associated with the ~~project~~ Project.

82.4 APPLICATION FOR WATER QUALITY CERTIFICATION

- (A) ~~COE-USACE~~ SECTION 404. Application for state water quality certifications shall include:

- ~~(1)~~ A completed copy of the Division's Clean Water Act (CWA) Section 401 Water Quality Certification request form;
- ~~(2)~~ A signed copy of the federal application for a ~~COE-USACE~~ Section 404 permit to discharge dredged or fill material; and
- ~~(3)~~ A map of ~~project~~ Project location, a site plan, and a listing of the selected BMPs chosen for the ~~project~~ Project, in accordance with subsection 82.6(B) of this regulation; and
- ~~(4)~~ Appropriate fees for processing the 401 certification. Tiers are determined by the Division at the time of application. These fees are as follows:

<u>Tier</u>	<u>Description</u>	<u>Cost</u>
<u>1</u>	<u>Projects that incur minimal costs and water quality impacts</u>	<u>\$1,100</u>
<u>2</u>	<u>Projects that incur moderate costs and potential water quality impacts</u>	<u>\$3,800</u>
<u>3</u>	<u>Projects that involve large watershed</u>	<u>Calculated on an hourly rate based on</u>

	<u>area, a high degree of complexity, or a high potential for water quality impacts.</u>	<u>the actual costs of Ddivision staff and contractor time.</u>
<u>4</u>	<u>Projects that involve multiple or large watershed areas, a very high degree of complexity, very high potential for water quality impacts, or a high level of public involvement.</u>	<u>Calculated on an hourly rate based on the actual costs of Ddivision staff and contractor time.</u>

- (B) 402 PERMITS ISSUED BY EPA. For 402 permits issued by EPA, application for certification shall be made in a manner determined by the Division, but at a minimum, shall include a copy of the application for the 402 permit submitted to EPA.
- (C) FERC AND ALL OTHER FEDERAL LICENSES OR PERMITS. For FERC and all other federal licenses or permits for which water quality certifications are is-required, other than Section 404 permits as referenced in subsection 82.4(A), and Section 402 permits referenced in subsection 82.4(B), application for 401 certifications shall be made via letter to the Division. The letter of application shall contain the following information along with the fees stated above for the processing of the 401 certification:
- (1) Name, address, and phone number of the applicant;
 - (2) The federal license or permit for which certification is requested;
 - (3) A description of the ~~project~~ Project or activity which is expected to result in a discharge into waters of the state;
 - (4) All water quality data, reports, and analyses which describe the existing and projected water quality for those waters affected by the ~~project~~ Project;
 - (5) A map of project location, a site plan, and a listing of the selected BMPS: chosen for the project, in accordance with subsection 82.6(B) of this regulation.
- (D) ADDITIONAL INFORMATION. The Division may request additional water quality related information from the applicant if the information contained in the federal application or the application for certification is deemed insufficient to reach a certification decision.

82.5 DIVISION PROCEDURES AND DETERMINATIONS

- (A) Division Certification Determination:
- (1) In determining whether to issue a 401 certification, the Division shall consider and review the certification application submitted, the water quality impacts of the construction and operation of the Project, associated National Environmental Policy Act (NEPA) documents and the following, as appropriate:
 - (a) Antidegradation review pursuant to the procedures in the Procedural Rules, Regulation No. 21. (5 CCR 1002-21), section 21.16, and the Basic Standards and Methodologies for Surface Water, Regulation No. 31 (5 CCR 1002-31), section 31.8;
 - i. For USACE Section 404 permits and FERC licenses, the significance determination shall include all segments (and their classifications and water quality standards) impacted and benefited by the Project as defined by Regulation 31.8(c) Significance Determination.

- (b) The Basic Standards and Methodologies for Surface Water Regulation No. 31 (5 CCR 1002-31), and the Basic Standards for Ground Water Regulation No. 41 (5 CCR 1002-41);
 - (c) Classifications and water quality standards assigned to the waters affected by the ~~project~~ Project at the date of certification for which a federal license or permit is required;
 - (d) Any applicable effluent limitations or control regulations;
 - (e) Best Management Practices required by this regulation in subsection 82.6(B);
 - (f) The stormwater discharge provisions of the Colorado Discharge Permit System, Regulation No. 61 (5 CCR 1002-61);
 - (g) Comments and other information raised during the public comment period outlined in subsection 82.5(B).
 - (h) Any ~~project~~ Project specific conditions proposed by the applicant and agreed to by the Division, including any condition beyond the authority of the Division to require.
- (2) Regular Certification. If, after consideration of the elements in subsection 82.5(A)(1), the Division concludes that there is reasonable assurance that the ~~project~~ Project for which a federal license or permit is required will comply with all applicable requirements if constructed, operated, and maintained as designed, the Division shall issue unconditional a certification without additional conditions for the license or permit.
- (3) Conditional Certification. If, after consideration of the elements in subsection 82.5(A)(1), the Division concludes that there is reasonable assurance that the ~~project~~ Project for which certification is required will comply with all applicable requirements only if one or more conditions are placed on the license or permit to mitigate the water quality impacts of the construction and operation of the Project, the Division shall issue a 401 water quality certification with such conditions included. The Division may condition water quality certification with adaptive management to address changes in the Project's predicted impacts and/or future changes in applicable water quality classifications and standards. The Division may also take into consideration conditions in local, state and federal permits and licenses. The Division, as a part of the conditional certification approval, may require water quality monitoring, based on site-specific circumstances, to ensure that BMPs are performing as designed and that the ~~project~~ Project complies with all applicable requirements conditions. Any conditions imposed by the Division, shall be consistent with subsection 25-8-104 C.R.S. Any condition acceptable to the applicant and the Division, that is beyond the authority of the Division to impose may also be included as a condition to the certification. Prior to issuance of such conditional certification, the Division may hold one or more meetings or conferences to inform the applicant of the need for such conditions and to discuss options for the ~~project~~ Project including redesign or modification.
- (4) Emergency Certification of Section 404 Permits. Whenever the COE-USACE makes a determination that it will process an application for a section 404 permit pursuant to its Procedures for Emergency Authorizations, 33 CFR 325.2(e)(4), the Division may issue a section 401 certification pursuant to subsections 82.5(A)(2) or 82.5(A)(3) on an emergency basis under subsection 82.5(B)(3), if it determines that such certification is necessary to preserve public health or welfare. In issuing such certification, the Division shall take into consideration the factors listed in section 82.5(A)(1) to the extent

practicable, and may modify or waive, to the extent necessary, the certification requirements of section 82.6

- (5) Denial of Certification. If, after consideration of the elements in subsection 82.5(A)(1), the Division concludes that there is not a reasonable assurance that the ~~project~~ Project for which a federal license or permit is required will comply with all applicable requirements even with the addition of conditions, the Division shall deny certification of the license or permit. Prior to denial of certification, the Division may hold one or more meetings or conferences to inform the applicant of the preliminary decision to deny certification and to allow the applicant to make necessary modifications to the ~~project~~ Project leading toward certification, if possible.
- (6) Certification shall not be denied where the imposition of conditions or denial would result in material injury to water rights as prohibited under section 25-8-104 C.R.S. In such case, the Division shall identify in the certification and in the Water Quality Information Bulletin that section 25-8-104 C.R.S. has been applied. However, the Division and the project proponents shall, in concert with commenters to the certification proceeding, including the involved federal agencies, examine and implement, where appropriate, means to prevent, reduce or mitigate water quality impacts identified during the permitting process and associated with the exercise of water rights. In such case, agreed upon conditions to ensure that the federally permitted activity will comply with effluent limitations, water quality classifications and standards, and other applicable water quality control requirements that may be imposed under state law shall be included in the Division's certification determination.

(B) Public Notice

In preparing a certification determination the Division shall prepare both a draft and final certification.

- (1) The draft certification shall be noticed in the Water Quality Information Bulletin, and shall include a request for comments to be submitted to the Division within thirty (30) days of publication in the bulletin. The draft certification shall contain:
 - (a) If applicable, preliminary antidegradation determination in accordance with the Basic Standards and Methodologies for Surface Water, (5 CCR 1002-31), Regulation 31.8; and
 - (b) A draft certification determination.
- (2) The final determination shall be prepared following the thirty day (30) public comment period on the draft certification. The final certification shall include any changes determined appropriate by the Division based upon public comments and information raised during the public comment period for the draft certification. Notice of a final antidegradation determination and final certification determination will be published in the Water Quality information Bulletin.
- (3) Emergency Certification of Section 404 Permits. Subsections 82.5(B)(1) and (B)(2) notwithstanding, whenever the ~~COE-USACE~~ makes a determination that it will process an application for a section 404 permit pursuant to its Procedures for Emergency Authorizations, 33 CFR 325.2(e)(4), the Division may issue an emergency section 404 certification pursuant to subsection 82.5(A)(4). Reasonable efforts will be made to receive comments from interested Federal, state and local agencies and the affected public.

(C) Other Division Procedures:

- (1) The Division shall, where appropriate, or where requested, provide to commenters to the certification proceeding and to others upon request, its written analysis of its basis for certification, including identification of the stream segments affected, the potential water quality impacts identified as a result of the ~~project~~Project, and the results of any actions under subsection 82.5(A)(6) to prevent, reduce or mitigate water quality impacts associated with the exercise of water rights. A copy of any such analysis shall be provided to the federal permitting or licensing agency at the time of certification.
- (2) Where possible, the 401 certification process should be coordinated or consolidated with the scoping and review processes of other agencies which have a role in a proposed ~~project~~Project in an effort to minimize costs and delays for such projects.
- (3) When an issue involving section 25-8-104 C.R.S. is raised, the Division shall consult with the State Engineer and the Water Conservation Board in determining whether a contemplated 401 condition or denial may be inconsistent with ~~Section~~section 25-8-104 of the Water Quality Control Act
- (4) The Division shall complete the certification decision as soon as practicable following the expiration of the public comment period provided for in subsection 82.5 (B). If the federal agency to whom license or permit application has been made has determined that an environmental impact statement, public hearing, or other action to supplement the body of information for the application is necessary, the Division may delay the issuance of a certification decision until a time not later than sixty (60) days, following the close of the administrative record, if it finds that such process may produce information relevant to the certification decision. Any failure of the Division to issue a certification decision within the timeframes established above shall not be deemed either an issuance or a denial of certification, except as provided in the Federal Act. The applicant for certification may waive the decision time frames above upon request by the Division,

(D) Except for data determined to be confidential under section 25-8-405(2) C.R.S., or other applicable law, all reports and information prepared and submitted in accordance with the requirements herein shall be available for public inspection at the offices of the Division.

(E) 401 certification does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

(F) Nothing herein shall preclude the Division from initiating action for enforcement as may be provided by law.

82.6 Certification Requirements:

(A) The following requirements shall apply to all certifications:

- (1) Authorized representatives from the Division shall be permitted to enter upon the site where the construction activity or operation of the ~~project~~Project is taking place for purposes of inspection of compliance with BMPs and certification conditions.
- (2) In the event of any changes in control or ownership of facilities where the construction activity or operation of the ~~project~~Project is taking place, the successor shall be notified in writing by his predecessor of the existence of the BMPs and certification conditions. A copy of such notification shall be provided to the Division.

- (3) If the permittee discovers that certification conditions are not being implemented as designed, or if there is an exceedance of water quality standards despite compliance with the certification conditions and there is reason to believe that the exceedance is caused, in whole or in part, by the ~~project~~Project, the permittee shall verbally notify the Division of such failure or exceedance within two (2) working days of becoming aware of the same. Within ten (10) working days of such notification, the permittee shall provide to the Division, in writing, the following:
- (a) In the case of the failure to comply with the certification conditions, a description of (i) the nature of such failure, (ii) any reasons for such failure, (iii) the period of non-compliance, and (iv) the measures to be taken to correct such failure to comply; and
 - (b) In the case of the exceedance of a water quality standard, (i) an explanation, to the extent known after reasonable investigation, of the relationship between the ~~project~~Project and the exceedance, (ii) the identity any other known contributions to the exceedance, and (iii) a proposal to modify the certification conditions so as to remedy the contribution of the ~~project~~Project to the exceedance.
- (4) Any anticipated change in discharge location and/or quantities associated with the ~~project~~Project which may result in water quality impacts not considered in the original certification must be reported to the Division by submission of a written notice by the permittee prior to the change. If the change is determined to be significant, the permittee will be notified within ten days, and the change will be acknowledged and approved or disapproved.
- (5) Any diversion from or bypass of facilities necessary to maintain compliance with the terms and conditions herein is prohibited, except (i) where unavoidable to prevent loss of life or severe property damage, or (ii) where excessive storm drainage or runoff would damage any facilities necessary for compliance with limitations and prohibitions herein. The Division shall be notified immediately in writing of each such diversion or bypass.
- (6) At least fifteen days prior to commencement of a ~~project~~Project in a watercourse, which the Division has certified, or conditionally certified, the permittee shall notify the following:
- (a) Applicable local health departments;
 - (b) Owners or operators of municipal and domestic water treatment intakes which are located within twenty miles downstream from the site of the ~~project~~Project; and
 - (c) Owners or operators of other intakes or diversions which are located within five miles downstream from the site of the ~~project~~Project.

The permittee shall maintain a list of the persons and entities notified, including the date and form of notification.

- (7) Immediately upon discovery of any spill or other discharge to waters of the state not authorized by the applicable license or permit, the permittee shall notify the following:
- (a) Applicable local health departments;

- (b) Owners or operators of municipal and domestic water treatment intakes which are located within twenty miles downstream from the site of the ~~project~~Project; and
- (c) Owners or operators of other intakes or diversions which are located within five miles downstream from the site of the ~~project~~Project.

The permittee shall maintain a list of the persons and entities notified, including the date and form of notification.

- (8) Construction operations within watercourses and water bodies shall be restricted to only those ~~project~~Project areas specified in the federal license or permit.
- (9) No construction equipment shall be operated below the existing water surface until the Division is notified. ~~unless specifically authorized by the 401 certification issued by the Division.~~
- (10) Work should be carried out diligently and completed as soon as practicable. To the maximum extent practicable, discharges of dredged or fill material shall be restricted to those periods when impacts to designated uses are minimal.
- (11) The ~~project~~Project shall incorporate provisions for operation, maintenance, and replacement of BMPs to assure compliance with the conditions identified in this section, and any other conditions placed in the permit or certification. All such provisions shall be identified and compiled in an operation and maintenance plan which will be retained by the ~~project~~Project owner and available for inspection within a reasonable timeframe upon request by any authorized representative of the Division.
- (12) The use of chemicals during construction and operation shall be in accordance with the manufacturers' specifications. There shall be no excess application and introduction of chemicals into state waters.
- (13) All solids, sludges, dredged or stockpiled materials and all fuels, lubricants, other toxic materials shall be controlled in a manner so as to prevent such materials from entering state waters.
- (14) All seed, mulching material and straw used in the ~~project~~Project shall be state-certified weed-free.
- (15) Discharges of dredged or fill material in excess of that necessary to complete the ~~project~~Project are not permitted.
- (16) Discharges to state waters not identified in the license or permit and not certified in accordance therewith are not allowed, subject to the terms of any 401 certification.
- (17) Except as otherwise provided pursuant to subsection 82.7(~~CD~~), no discharge shall be allowed which causes non-attainment of a narrative water quality standard identified in the Basic Standards and Methodologies for Surface Waters, Regulation #31 (5 CCR 1002-31), including, but not limited to discharges of substances in amounts, concentrations or combinations which:
 - (a) Can settle to form bottom deposits detrimental to beneficial uses; or

- (b) Form floating debris, scum, or other surface materials sufficient to harm existing beneficial uses; or
- (c) Produce color, odor, or other conditions in such a degree as to create a nuisance or harm existing beneficial uses or impart any undesirable taste to significant edible aquatic species, or to the water; or
- (d) Are harmful to the beneficial uses or toxic to humans, animals, plants, or aquatic life; or
- (e) Produce a predominance of undesirable aquatic life; or
- (f) Cause a film on the surface or produce a deposit on shorelines.

(B) Best Management Practices:

- (1) Best management practices are required for all projects for which Division certification is issued except for section 402 permits. Project applicants must select BMPs to be employed in their project. A listing and description of best management practices is located in Appendix I of this regulation.
- (2) All requests for 401 certifications ~~which require BMPs~~ shall include a map of the Project~~project~~ location, a site plan, and a listing of the selected BMPs chosen for the ~~project~~Project. At a minimum, each project must provide for the following:
 - (a) Permanent erosion and sediment control measures that shall be installed at the earliest practicable time consistent with good construction practices and that shall be maintained and replaced as necessary throughout the life of the ~~project~~Project.
 - (b) Temporary erosion and sediment control measures that shall be coordinated with permanent measures to assure economical, effective, and continuous control throughout the construction phase and during the operation of the ~~project~~Project.

82.7 IMPLEMENTATION AND ENFORCEMENT OF CERTIFICATIONS

The Division is authorized to utilize the following approaches to ensure that the certification is implemented and maintained:

- (A) Upon receipt of information that water quality standards are being exceeded as a consequence of the ~~project's~~Project's construction or operation, the Division, after consultation with the permittee and notification of the appropriate federal permitting agency, may modify the certification and provide a copy of such modification to the federal permitting agency.
- (B) Upon receipt of information indicating that one or more certification conditions have not been complied with during the construction or operation of a project, the Division shall notify the appropriate federal permitting agency in writing and request that necessary action be taken to implement such conditions as contemplated in Section 401(D) of the Federal Act. A copy of any such notification and request shall be sent to the permittee. The Division shall remain in communication with the federal permitting agency and the permittee regarding the progress towards implementation of the conditions until satisfactory compliance has been obtained, or until the federal agency has completed enforcement action.

- (C) If the procedures in subsection 82.7(A) and (B) above are unsuccessful at implementing the certification, in addition to enforcement authorities provided under the Water Quality Control Act, the Division may initiate procedures pursuant to section 24-4-104, C.R.S., to suspend certification for a defined period of time to enable the applicant to comply with the certification conditions or submit a new certification application, or to revoke the water quality certification.
- (D) Temporary exceedances of water quality standards shall be deemed in compliance with applicable provisions so long as such exceedance will not be of a degree to cause conditions acutely toxic to aquatic life or to exceed standards assigned to protect a domestic drinking water supply where that is a classified use.

82.8 REVIEW OF DIVISION 401 CERTIFICATIONS

401 certification decisions of the Division shall be reviewable pursuant to section 25-8-302(1)(f) C.R.S., and the applicable provisions of the State Administrative Procedure Act.

82.9 SEVERABILITY

The provisions of this regulation are severable, and if any provisions or the application of the provisions to any circumstances is held invalid, the application of such provision to other circumstances, and the remainder of this regulation, shall not be affected thereby.

82.10 Reserved

82.11 Reserved.

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82.22 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE: NOVEMBER 13, 2018 RULEMAKING; EFFECTIVE JANUARY 31, 2019.

The provisions of 25-8-202(1)(i.5) and 25-8-205 C.R.S. provide the specific statutory authority for these regulatory amendments. The Commission also adopted, in compliance with 24-4-103(4), C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE

The Commission has adopted revisions to this regulation to update procedures, correct typographical errors and to include a fee structure that was enacted by House Bill 15-1249. Since the last update to the regulation in 2003, the Division has issued 401 certifications for three large water supply projects. The process of issuing these certifications highlighted language in the regulation that was not specific enough and allowed for alternative interpretations of the regulation. The regulation was updated to add clarity and minimize confusion.

Section 82.4(A) was modified to add the 401 water quality certification request form and the fee structure table explaining the tiers and the fees associated with processing the 401 certification application. Language was added to Section 82.4 (C) referencing the fees for FERC projects.

Section 82.5(A) was modified to include National Environmental Policy Act (NEPA) documents that the division can review for the 401 certification determination. In Section 82.5 (A)(1)(a), language was added to reference Regulation 31 in the antidegradation review for the 401 certifications. Section 82.5 (A)(1)(a)(i) was added to clarify the geographic scope of projects when completing the significance determination.

Language was added to Section 82.5(A)(2), regarding the regular certification, stating that there is reasonable assurance the project will comply with the 401 certification requirements.

Section 82.5(A)(3) was also modified to add similar language to the conditional certification stating that there is reasonable assurance that the project will comply with the 401 certification requirements with additional conditions required by the Division. Language was also added concerning the use of adaptive management as a condition. This condition was added to allow flexibility in conditions due to uncertainty based on the potential for water quality standard changes and unexpected impacts from projects that are designed based on results of water quality modeling.

Language was added to Section 82.6 (A)(9) that will require the applicant to notify the Division before work occurs below the existing water surface.

References and other sources in Appendix I, Best Management Practices for the Clean Water Act Section 401 Certifications, were updated because of outdated references and sources that no longer exist.

APPENDIX I

The Selection of Best Management Practices for Clean Water Act Section 401 Certifications

Colorado Water Quality Control Division

October, 2000

A. Introduction

This Appendix, which is part of the Colorado 401 Certification Regulation, provides direction to applicants for federal permits and licenses which require a state water quality certification, pursuant to section 401 of the federal Clean Water Act Certification is required for Clean Water Act section 404 'dredge and fill permits' issued by the Army Corps of Engineers (404 permits), licenses issued by the Federal Energy Regulatory Commission (FERC), Clean Water Act section 402 permits issued for Federal facilities by the Environmental Protection Agency, and other Federal permits or licenses which may be determined to need a 401 certification. The primary purpose of 401 certification is to assure that the issuance of these federal permits and licenses will result in compliance with state water quality requirements.

The main body of Regulation No. 82 sets forth the process to apply for 401 certification in Colorado, and identifies the procedures and criteria that will be used by the Water Quality Control Division in acting on certification requests. Based upon the information provided by an applicant, the Division may approve, conditionally approve or deny 401 certification requests. Denial of certification triggers denial of the federal permit or license for which certification is requested.

A central element of the certification process is the identification of appropriate "best management practices" (BMPs) for a proposed project BMP's involve: first, the proper design and construction of the water quality protective features of projects; and second, appropriate operation and maintenance of these features to ensure the long term compliance of projects. As set forth in section 82.4 and subsection 82.6(B) of the 401 Certification Regulation, project proponents are responsible for choosing appropriate BMP's, and providing operation and maintenance procedures and schedules, for all aspects of their projects that could affect water quality, for the life of the project.

Over the long run, properly selected and functioning BMPs can protect receiving water quality. Generally, to be successful, BMPs must involve:

- > Proper design for Colorado conditions;
- > Proper construction of the water quality protective features designed for the project; and
- > Appropriate operation and maintenance of these features to ensure that they are successful.

The purpose of this Appendix is to assist applicants for projects requiring 401 certification in the BMP selection process.

B. Selection of Best Management Practices

1. Overview

This Appendix provides three tools to assist in the selection of BMPs for individual projects:

- A Best Management Practices 401 Certification Matrix;
- A set of BMP Descriptions; and
- A list of References and Other Sources of Information

The best management practices listed in the BMP Matrix are construction-related BMPs considered generally applicable or potentially applicable under Colorado hydrologic conditions, and therefore are appropriate for Colorado section 401 certifications. The BMP Descriptions provide further explanation of each of the best management practices listed in the matrix. The list of References and Other Sources of Information provide more detailed information about individual BMPs.

The BMP Matrix includes the best information available to the Water Quality Control Division and Commission at this time regarding practices known to be appropriate for construction-related projects in Colorado. It is anticipated that the matrix may be revised and supplemented in subsequent triennial reviews of this regulation. The list of BMPs provided in the matrix is not intended to be comprehensive. Rather, it is intended that applicants may select BMPs other than those included in the BMP Matrix, so long as a site-specific justification is provided regarding the appropriateness of a particular BMP for a particular project.

The matrix format reflects the fact that there are a variety of BMPs that may be appropriate for a given project and that each project's circumstances are unique. The matrix identifies the most likely BMPs appropriate for different types of projects and for different types of pollutant scenarios. It also assists project proponents in determining if a specific BMP is not appropriate to a specific scenario. It is intended to be a flexible tool.

Project proponents are responsible for selecting appropriate BMPs and for identifying the selected BMPs in the application for 401 certification. The selection of BMPs will depend on project design and must be determined on a case-by-case basis. While the use of a single practice is not likely to meet certification requirements, there is no minimum number of practices that are required for certification. The matrix should be considered a tool to help an applicant determine if a BMP has been demonstrated to achieve or contribute to the desired water quality outcome in the particular project scenario being considered.

A project proponent should consider the following general criteria when selecting BMPs for the project:

- > Effectiveness at pollution prevention or reduction;
- > Appropriateness for the type of project or site, given the physical constraints;

- > Cost-effectiveness;
- > Future maintenance burden;
- > Opportunities for multi-use benefits (i.e. parks, green spaces and landscaping features);
- > Opportunities to minimize, to the extent practical, impacts on streams, rivers, lakes or other waterbodies defined as waters of the state.

Water Quality Control Division staff is available for consultation on BMP selection. A list of references is included in this regulation to provide access to additional information that may be helpful in the selection of BMPs.

2. Explanation of Terms Used in BMP Matrix

Best Management Practices (BMPs) - means structural and non-structural methods, measures or practices implemented to prevent, reduce or mitigate adverse water quality impacts resulting from construction and operation of a project.

Project Types - means general categories and types of construction or development projects in Colorado that are likely to require 401 certification (e.g., bridges, crossing structures, channel work, utility construction, site development, roads and highways, instream mining, dams and reservoirs, specialty activities such as golf courses and driveways).

Sediment Problems - means construction or development sites where sediment and erosion controls are necessary to prevent sediment pollution (e.g., sediment deposits and loading, steep slopes, stream bank instability, runoff or velocity controls, wind erosion).

Aquatic or Riparian Problems - means construction or development sites where control practices are needed to protect aquatic or riparian environments or conditions (e.g., bank habitat, associated vegetative cover, preservation of habitat, life cycle impacts to plants and animals, water quality limitations that affect fish and wildlife).

Reference Types - means categories that refer to structural or source controls, permanent best management practices, and specialty practices used by the Forest Service or Bureau of Land Management. Reference types are applicable to construction or development sites.

Structural BMPs are facilities constructed to passively treat runoff before it enters the receiving waters. Such BMPs (sometimes called "dirt moving" practices) used on a construction or development site can be either temporary or permanent depending on the duration of their application, and are designed to reduce sediment pollution and other pollutants in runoff. Additionally, they can provide for the protection of aquatic or riparian areas. A limited number of special use practices requiring additional demonstration under the semi-and or mountainous conditions in Colorado are also listed in the matrix and can be used on a case-by-case basis. Special use practices have been developed for golf course projects, driveways and high-altitude construction. Some construction BMPs result in permanent sediment and erosion control structures, which are designed to work beyond the construction period.

Nonstructural BMPs include pollution prevention practices and source control activities, designed to minimize or eliminate a problem before it occurs. Source control BMPs are sometimes referred to as "good housekeeping" measures because a clean site will produce less pollutants than will a dirty one. Site planning and design of BMPs may, in and of itself, be considered a nonstructural BMP.

3. How to Apply BMP Matrix

The purpose of the BMP Matrix is to cross-reference individual best management practices with the most common project types, as well as with the most common types of problems potentially resulting from projects, and with reference types. Therefore, the horizontal axis of the matrix (across the top) lists “**project types**”, “**potential sediment problems**”, “**potential aquatic or riparian problems**” and “**reference types**”. The best management practices are listed on the vertical axis (down the left-hand side of the page). These BMPs are grouped into “**design considerations**”, “**sediment controls**”, “**erosion controls**”, “**drainageway protection**”, and “**non-structural construction site practices**”.

A 401-certification application should contain a list of appropriate BMPs proposed for a specific project, along with the required site plan, description, and location of those BMPs. The number and type of applicable practices depends on project design and generally must be determined on a case-by-case basis. The state has not defined a minimum number of practices that are appropriate to various projects. The matrix can assist an applicant in determining if a proposed practice is actually applicable to the desired pollution prevention or environmental protection outcome.

Table 1. Example of How to Use the Matrix
1. Identify a general project or reference type from horizontal portion of matrix (example, “Bridges & Crossing Structures”).
2. Identify the major issue(s) such as sediment or other aquatic and/or water quality that may be a concern or likely pollutant (example, “Sediment Deposition/Loading”).
3. List only those practices in common for that project type and problem type (example, under “Design Considerations” there are six BMPs - site constraints, construction timing, identify applicable source controls, design of landscaping and vegetative practices, stormwater quality control planning and minimize directly connected impervious areas - that match for the combination of “Bridges & Crossing Structures” with “Sediment Deposition/Loading”). Proceed through the entire matrix in this manner.
4. Determine which of the BMPs identified under step 3 are necessary to the project (example, the consultant engineer believes only landscape and vegetative practices, stormwater quality control planning, site constraints (slope stability), and construction timing are necessary BMPs for this project).
5. Incorporate into project design - The 401 certification application would list under design considerations that the following BMPs are incorporated into the project design - Necessary landscaping and vegetative practices (list), a stormwater control plan that affects runoff features (list), slope stability features needed to reduce erosion potential (list), and a construction timing schedule (list).

Prior to using the matrix, an applicant needs to identify the potential problem areas that are specific to the project. In using the matrix, an applicant should select a topic area or areas (project type, sediment problem, aquatic or riparian problem or reference type). Generally, only one topic area and one or more category areas need selection by the applicant. Based on this selection, a preliminary list of BMPs can be extracted from the matrix.

The applicant can then use the project design specifications to refine the BMP list for inclusion in a permit application. BMP design specifications are not included in this regulation (see reference section for selected sources containing design specifications appropriate for Colorado geomorphic and climate conditions). As part of the 401 certification, the Division will determine the appropriateness of selected practices. The Division can require additional water quality protective conditions to be included with certification.

An example that illustrates a site plan for a 401 certification project is shown in Figure 1. This example shows typical BMPs that may be incorporated for a drop structure construction project

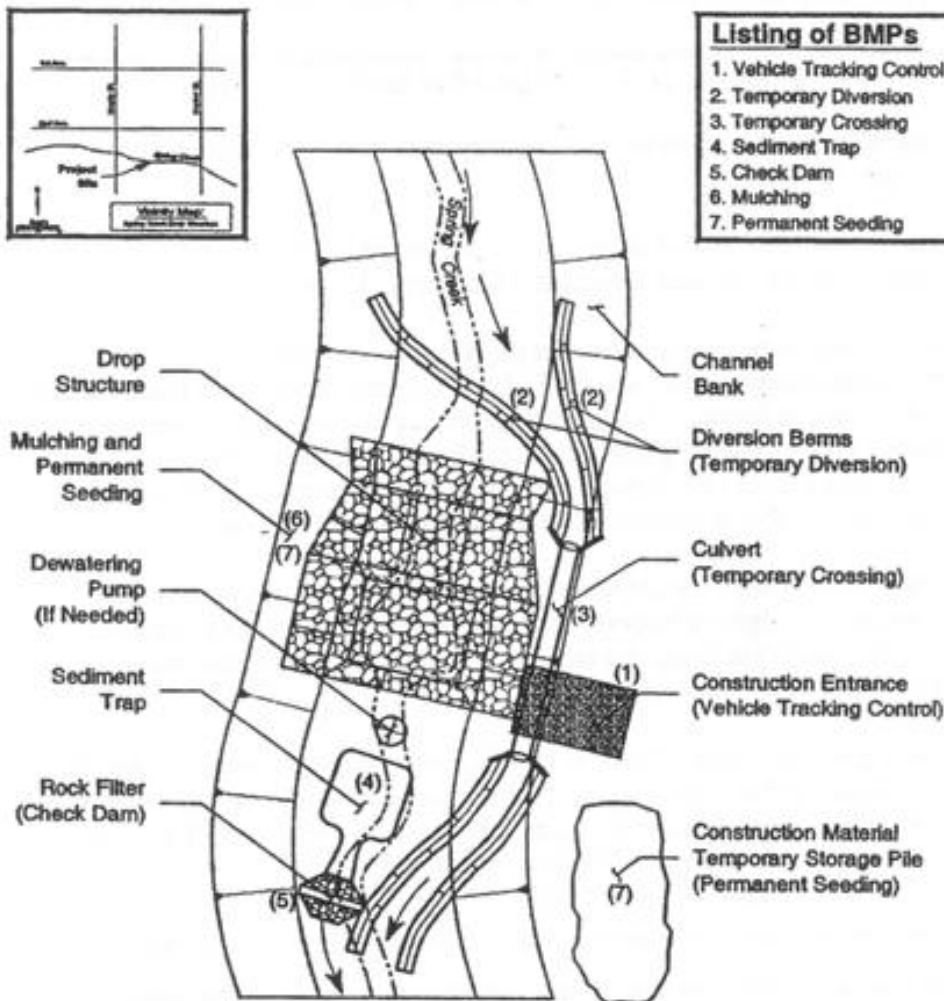


Figure 1. Example Site Plan showing BMPs for 401 Certification Project

C. Additional Information Regarding BMP Selection

1. Essential Design Considerations for All Projects

The BMPs listed in the matrix are based to a large extent on those described in the *Urban Drainage and Flood Control District's Drainage Criteria Manual*, Volume 3. This BMP manual contains most of the control methods used in Colorado for stormwater management and construction activities. BMPs applicable to 401 certification that are directed toward preserving or improving water quality fall into two general categories:

- (1) Sediment and erosion control practices (and practices relating to other potential construction-related pollution sources) that reduce or prevent discharge of pollutants or maintain water quality in runoff during development and construction activities; and
- (2) Stormwater practices that reduce loads after the construction phase. These BMPs are permanent structural facilities built at the time of development to supplement stormwater drainage and flood-control practices.

Both the construction and post-construction phases need to be considered in project design.

Sediment is one of the most prevalent runoff components associated with development and construction activities. Similar best management practices are applicable to both stormwater runoff and construction site runoff. The objective of erosion control is to limit the amount and rate of erosion occurring on disturbed areas. The objective of sediment control is to capture the soil that has been eroded before it leaves the construction site. Despite the use of both erosion control and sediment control measures, it is recognized that some amount of sediment will remain in runoff leaving the construction site.

2. Temporal and Spatial Issues

Seasonal flow regimes (high flow versus low flow) can affect the types of BMPs that should be considered, as well as affect the timing of certain construction activities. Generally, construction activities will need to occur during low flow periods to protect water quality and minimize construction impacts. Direct activity within waters of the state should be minimized. Protection of sensitive aquatic species for example to minimize impacts during spawning periods may require careful selection and implementation of BMPs.

A project proponent needs to be aware of what types of aquatic animals, wildlife or endangered or threatened plants and animals could be affected by construction activities. Consequently, a project proponent must consider timing and flow characteristics as part of the planning and design phase of a project. Consideration of temporal and spatial effects is important to ensure that designated uses, such as fisheries and recreational uses, are protected.

3. Colorado Limitations

Colorado is a diverse state that has construction activities occurring over a wide range of altitudes. A number of BMPs have been modified to work under the various Colorado conditions. Some particularly important considerations that can limit the application of certain BMPs in Colorado are listed below (this is not a complete list of limitations).

- Seasonal planting limitations - Reestablishment of vegetation in areas disturbed by construction is dependent on appropriate soil texture, nutrient, and solar radiation conditions for plant growth that will limit seeding dates. Soil surface roughening, mulching, and geo-fabric application are particularly useful where temporary revegetation cannot be immediately established due to seasonal planting limitations.
- High altitude construction - Short growing season, steep and rocky slopes, thin soil, high winds, fragile environments and vegetative-type limitations are prevalent.
- Construction timing - Stabilization measures to be used should be appropriate for the time of year, site conditions and estimated duration of use. Phased grading and the protection of existing vegetation should also be considered in the construction schedule and erosion and sediment control plan.

- Velocity controls - Steep terrain can significantly increase runoff velocities and requires consideration of stream-stability control practices, which may be different than those used in other states (e.g., silt fence will not serve as a velocity control practice under Colorado conditions).
- Spring runoff - A project on a stream or river that is subject to high-flow conditions during spring snowmelt (generally March through June) must consider both the timing and depth of flows to be expected at the project site. In addition, runoff that occurs during the spring or summer seasons may result from short duration, high intensity thunderstorms that will affect the volume and discharge rates evident at a site. While the BMPs recommended for Colorado are sized to control water quality for the majority of storm-event volumes, special consideration in design may be required for projects located on streams subject to heavy spring runoff or built where stable flow passage zones or spillways may be required for flooding conditions, fish movement or recreation.
- Mine drainage - Colorado has an extensive mineralized belt running through the central mountains. Projects located near tailing or waste-rock piles, draining audits, previously dredged alluvium, or in the vicinity of mineralized bedrock require special consideration to prevent water quality problems.

BMP Descriptions

The following BMPs were determined to be appropriate for 401 certifications. Other BMPs can be substituted if they accomplish the same results.

Table 2. Colorado Best Management Practices Appropriate for 401 Certification

Construction, Temporary Or Permanent Practices	Planning Considerations
1. Design Considerations	The selection of BMPs for a development site should be made collaboratively as a result of coordination between the developer, local jurisdiction and any required regulatory agency. It is recommended that discussions regarding proposed BMPs occur early in each project.
a. Pre-Construction Planning	An erosion and sediment control plan is comprised of three major elements. The erosion control measures that will be used to limit erosion of soil from disturbed areas at a construction site; the sediment control measures that will be used to limit transport of sediment to off-site properties and downstream receiving waters; and the drainageway protection and runoff management measures that will be used to protect streams and other drainageways located on the construction site from erosion and sediment damages.
i. Site Constraints	Some of the site constraints that should be considered during the planning phase include slope stability, drainage aspect and constructability, along with the general stream hydrology, stream morphology, water quality and aquatic ecology.
ii. Construction Timing	Seasonality should be considered, particularly when construction must take place within streams and other waterways.
iii. Natural Resources	Provides basis for subsequent planning and design to avoid impacts

Inventory & Evaluation	to natural resources. It can include aquatic life, terrestrial life, riparian corridors, wetlands, open space, native species, endangered species, hydrology and drainage, soils, use-protection, classifications and standards, irrigation, stormwater, groundwater, water rights, water sources, geology, geomorphology, topography, etc.
iv. Pre-Design Planning & Golf Superintendent/ <u>Site Manager</u> Input	Identification and evaluation of on-site information provides design criteria to solve existing or possible environmental problems. Involvement of the proposed superintendent or other managers in the early design phases can lead to a more functional system design. The proposed superintendent or manager should be requested to review the water resources and natural resource inventories and provide recommendations to be incorporated into the design phases.
v. Identify Applicable Source Controls	Early in the design stage it should be recognized that the single most effective BMP is the broad category of source controls related to pesticide and fertilizer usage. Strictly limiting their use and using appropriate types for site conditions on a “management unit” basis under an Integrated Pest Management (IPM) strategy helps to reduce the potential for water quality problems.
vi. Golf Course Drainage Designs	Use “natural” drainage practices including preservation of natural drainage, wetlands, ponds, etc. Maintain wide undisturbed riparian (stream) corridors. Avoid flow concentration on-site and to adjacent hydrologically connected areas. Golf course grading should maximize infiltration in the large available pervious areas, thereby promoting removal of runoff from playing surfaces and minimizing drainage problems on adjacent hydraulically connected areas.
vii. Conservation Easements	Preserve wildlife habitat and wetlands and allow other development projects to continue in environmentally sensitive areas. Involve deeds to a charitable trust or environmental organization to maintain natural land or water areas, but does not surrender property title. Rather, it gives rights to an organization to maintain the land in an undeveloped, natural state. Benefits include public recognition, and in some cases, tax and liability reduction.
viii. Incorporate Wildlife Habitat Features	Use the resource inventories to identify important species, which may need protection or will be a part of the finished project. (Also identify pest species such as geese and ground squirrels.) Accommodating these species in the design phases can help reduce conflict with the environmental community and enable better management of the species during operation of the project.
ix. Advanced Irrigation Design	Computer-controlled irrigation systems can be used to reduce surface water runoff and groundwater recharge, thereby reducing the movement of fertilizer and pesticides. Water application rates correspond to consumptive use requirements. Return flow reuse, stormwater reuse and use of treated wastewater effluent for irrigation should be used when environmentally, legally (water rights) and agronomically feasible.

b. Design Of Landscaping & Vegetative Practices	Seasonality should be considered, particularly when construction must take place within streams and other waterways.
c. Minimize Disturbance Of Vegetation and/or Natural Wetlands	Pre-planning can minimize the impacts to selected vegetative type such as riparian vegetation and avoid disturbing natural wetlands. Current (1999) regulations intended to protect natural wetlands recognize a separate classification of wetlands constructed for a water quality treatment.
d. Local Stormwater Control Requirements	The implementation of this BMP is in the form of adoption or promulgation of ordinances, resolutions or executive orders granting authority to local government staff to review Stormwater quality control plans and to either approve or present recommendations to elected officials for their approval; Requires a commitment of staff and fiscal resources of the local government to follow through with review, approval and enforcement of site-specific plans; Regulations must be adopted specifying the content of stormwater quality control plans.
e. Minimizing Directly Connected Impervious Areas	Site drainage flow path to maximize flow over vegetated area; minimize ground slopes to limit erosion and slow down flow; select vegetation for survival values and water quality benefit.
f. Winter Maintenance Requirements - Road/Driveway	Winter maintenance requirements should be incorporated into plans (e.g., Driveway Orientation, Sanding and Snow Removal).
2. Erosion Control Practices	The objective of erosion control is to limit the amount and rate of erosion occurring on disturbed areas. Despite the use of both erosion control and sediment control measures, it is recognized that some amount of sediment will remain in runoff leaving the construction site.
a. Surface Roughening	Surface Roughening provides temporary stabilization of disturbed areas from wind and water erosion; surface roughening should be performed after final grading to create depressions two to four-inch deep and four to six inches apart. It is particularly useful where temporary revegetation cannot be immediately established due to seasonal planting limitations. Surface roughening only provides temporary protection and must be used in combination with other BMPs, such as mulching and temporary cover.
b. Mulching	Mulching of all disturbed areas should occur within 14 days after final is reached on all portions of site not permanently stabilized.
c. Revegetation	Revegetation of a viable vegetative cover should occur within one year on all disturbed areas and stockpiles not permanently stabilized; Temporary vegetation is required on all disturbed areas having a period of exposure to final stabilization of one to two years; permanent vegetation is required on all disturbed areas having an exposure period longer than two years; perennial vegetation should be considered for all revegetation efforts.

i. Temporary Seeding	All disturbed areas must be mulched, or seeded and mulched, within 14 days after final grade is reached on any portion of the site not otherwise permanently stabilized. Areas that will remain in an interim condition for more than one year should be seeded. Under certain conditions, soil amendments and treatments may be necessary to provide an adequate growth medium to sustain vegetation.
ii. Permanent Seeding	A viable vegetative cover should be established within one year on all disturbed areas and soil stockpiles not otherwise permanently stabilized. Vegetation is not considered established until a ground cover is achieved; which is sufficiently mature to control soil erosion and can survive severe weather conditions.
iii. Wetland Planting, Root Stock & Transplant	Disturbed wetland vegetation should be reused whenever possible. Wetland species should be compatible with the ecoregion where the activity occurs.
iv. Trees And Shrubs	Trees and shrubs should be compatible with the ecoregion where the activity occurs. Generally a water source will be required to establish tree and shrubs.
v. High Altitude Seeding & Planting	Vegetation may not mature until the third growing season, requiring additional time in the implementation of best management practices. In addition to a short construction and growing season, high-altitude erosion control projects must contend with realities such as: less availability of nutrients; plant roots can take up food only when the soil is free of frost; less soil microbial activity; cold temperatures reduce activity of microorganisms that convert organic debris and inorganic matter to soil; less photosynthesis. Not all species are adapted to high altitude planting. The thinner atmosphere at high-elevation sites filters out less ultraviolet radiation from the sun. These rays can damage leaf surfaces, disrupting photosynthesis and even killing plants.
vi. Special Seed Mixtures	The seed mix for erosion control and stabilization during construction should be compatible with the final seeding needs.
d. Topsoil Preservation & Reuse	As a minimum, topsoil preservation and reuse involves the removal, stockpiling, and re-spreading of the surface six to eight inches of natural soil
e. Erosion Control Blankets	Erosion control blankets are used in place of mulch on areas of high velocity runoff and/or steep grade, to aid in controlling erosion on critical areas by protected young vegetation.
f. Interim Ground Stabilization	To provide vegetative cover on disturbed areas not paved or built upon for a period of two years or longer, or for an indeterminate length of time, a perennial grass should be planted.
g. Roads & Soil Stockpiles	Roads and Soil Stockpiles should be covered as early as possible with the appropriate aggregate base; all nonpaved road portions should be seeded and mulched within 14 days after final grading; stockpiles in place over 60 days should have temporary vegetation;

	stockpiles with 100 feet of drainageways need additional sediment control structures.
h. Dust Control	In wind prone areas, roughened surfaces should include ridges oriented perpendicular to prevailing erosive winds in approximately a 1:4 ridge height to ridge width ratio. Cover or wet down areas or materials subject to wind erosion or blowing dust.
3. Sediment Control Practices	The objective of sediment control is to capture the soil that has been eroded before it leaves the construction site. Sediment control will be site specific and can include vehicle tracking controls; sod buffer strips around the lower perimeter of the land disturbance; sediment barriers, filters, dikes, traps or sediment basins; or a combination of any or all of these measures. Sediment controls must be constructed before land disturbance takes place. Earthen structures such as dams, dikes, and diversions should be mulched, as a minimum, within 14 days of installation. Earthen structures that are expected to remain in place for more than one year must be seeded and mulched.
a. Vehicle Tracking	Vehicle tracking of mud and dirt onto paved surfaces should result in cleaning of paved surfaces at the end of each day; for sites greater than two acres, a rock pad should be built at points of ingress and egress.
b. Slope-Length & Runoff Considerations	Cut-and-fill slopes must be designed and constructed to minimize erosion. This requires consideration of the length and steepness of the slope, the soil type, up-slope drainage area, groundwater conditions and other applicable factors. Slopes that are found to be eroding excessively will require additional slope stabilization until the problem is corrected.
c. Slope Diversion Dikes	Slope diversion dikes located above disturbed areas may discharge to a permanent or temporary channel; diversion dikes located mid-slope on a disturbed area must discharge to temporary slope drains or other appropriate structure; diversion dikes located at the base of a disturbed area must discharge to a sediment trap or basin. A temporary diversion on dike is a horizontal ridge of soil placed perpendicular to the slope and angled slightly to provide drainage along the contour. Temporary diversion dikes can be constructed by excavation of a V-shaped trench or ditch and placement of the fill on the down-slope side of the cut
d. Vegetation Buffers	Buffer strips of natural vegetation can be left at the time of site grading, or can be created by using sod. A dense ground cover is necessary or runoff can channelize within the area. A width of 20 feet or more is recommended.
i. Irrigated Grass Buffer Strips	Design is based on maintaining sheet-flow conditions across a uniformly graded, irrigated, dense grass cover strip
ii. Grass-Lined Swales	Design is based on minimizing direct connected impervious areas to decrease runoff peaks, volumes and pollutant loads; design is based

	on maintaining sheet-flow conditions across a uniformly graded irrigated. dense grass cover strip.
iii. Road & Roadside Swales	Roads and roadside swales should be provided for when road areas are not paved within 30-days of final grading; terracing and slope drains can be used in steep slope areas.
e. Sediment Entrapment Facilities	Sediment entrapment facilities include terracing, slope drains, straw bale barriers, silt fences, filter strips, sediment traps and sediment basins at least one entrapment facility should capture run-off leaving a disturbed area
i. Terracing	Sediment can be controlled on slopes that are particularly steep by the use of terracing. During grading, relatively flat sections, or terraces, are created and separated at intervals by steep slope segments.
ii. Slope Drains	There are certain instances when runoff must be directed down a slope within the disturbed area. A temporary slope drain can be used to protect these hill-slope areas from scour and additional erosion. A number of alternative designs and materials can be used for a slope drain.
iii. Straw Bale Barriers/Erosion Bales	Straw bales can be placed at the base of a hill-slope to act as a sediment barrier. The use of straw bales for sediment control is one of the most used practices in Colorado; however, this BMP also has proven to be one of the least effective practices. Straw bale installation is not recommended for use within a swale or channel. Straw bales are temporary in nature and may only perform for a period of weeks or months.
iv. Silt Fence	A silt fence is made of a woven synthetic material and acts to filter runoff. Silt fence can be placed as a temporary barrier at the base of a disturbed area but is not recommended for use in a channel or swale.
v. Filter Strips	Vegetated filter strips act to cause deposition of sediment within the area of vegetation.
vi. Sediment Traps	A sediment trap is a temporary structure that is designed to fill with sediment. A sediment trap can be constructed by either excavating below grade or building an embankment across a swale. Excavated traps are less prone to failure than embankments. No pipe is used at the outlet, as in a sediment basin, and an open-channel spillway must be included in the design. A minimum of 900 cubic feet of storage volume must be provided for each tributary acre.
vii. Sediment Basins	Areas draining more than five acres must be routed through a sediment basin. If the site is to include a stormwater quality or flood detention basin, the permanent detention facility may be used as the temporary sediment basin, provided the outlets are modified upon completion for this purpose. Such permanent detention facilities shall be restored to design grades, volumes, and configurations after site development is completed and the project is finalized.

viii. Brush Barrier	A brush barrier is a temporary structure that is designed to filter sediment under low flow conditions or to protect existing habitat.
ix. Sand Bags	Sand Bags are temporary measures designed to divert or slow water movement, drop out sediments. They can be used to protect existing habitat. Sand Bags need to be removed from the site at the completion of construction.
x. Check Dams	Check dams are temporary structures designed to divert or slow water movement, drop out sediments. They can be used to protect existing habitat. Check dams can be removed from the site at the completion of construction or if permanent they require seeding and mulching consistent with revegetation BMPs.
f. Retention Ponds (12-Hr Wet Ponds)	Requires a base flow to maintain and to flush a permanent pool; designed to empty capture volume over a 12-hour period; design embankment-spillway-outlet system to prevent catastrophic failure
g. Long-term Retention Ponds (>12-Hr Wet Ponds)	Requires a large basin to capture volume for design periods over 12-hour period; special design considerations required to kept embankment-spillway-outlet system from catastrophic failure. This should be viewed as a temporary BMP and not for permanent use.
h. Extended Detention Basins (Dry Basins)	Rely on an outlet designed to extend the emptying time of the basin's capture volume; design embankment-spillway-outlet system to prevent catastrophic failure; design to empty capture volume over a 40-hour period.
i. Sand Filter Extended Detention Basin	A runoff storage zone is underlain by a vegetated sand bed with an underlying sand bed as an under-drain system. Runoff ponds in the surcharge zone and gradually infiltrates into sand bed filling the void spaces. Pollutant removal is provided through settling and filtering, and is suitable where there is no base flow or the sediment load is relatively low.
j. Porous Pavement Detention	A modular porous pavement that is flat and provides a 2-inch deep surcharge zone above its surface to temporarily store capture volume draining from adjacent tributary area, including its own surface. Runoff infiltrates into void spaces of gravel base course through sand filter and slowly exists through an underdrain.
k. Modular Block Porous Pavement	Design for even flow distribution over the entire porous surface; assume permeable pavement areas are 30 percent impervious with subsoil infiltration and 60 percent impervious with no subsoil infiltration.
1. Porous Landscape Detention	A low-lying vegetated area underlain by a sand bed with an underdrain pipe. A shallow surcharge zone exists above the porous landscape detention for temporary storage of capture volume. Runoff ponds in the vegetated zone and gradually infiltrates into the underlying sand bed filling the void spaces. The underdrain slowly dewateres the sand bed and provides a water quality benefit.

m. Infiltration Trenches Or Basins	This practice shows promise but needs further demonstration to determine pollutant removal effectiveness, develop design criteria that insures proper design, construction and maintenance.
n. Constructed Wetlands Basins	A constructed wetlands basin is a shallow retention pond which requires a perennial base flow to permit the growth of rushes, willows, cattails and reeds to slow down runoff and allow time for sedimentation, filtering and biological uptake. It is a sedimentation basin and a form of a treatment plant. These basins are built to enhance stormwater quality and do not replace natural wetlands.
o. Sediment Vaults, Water Quality Vaults & Inlets	Sediment or water quality vaults and specialized inlet vaults show promise but need further independent demonstration to determine pollutant removal effectiveness in semiarid climates or in mountainous areas and to develop cost-effective design criteria that insures proper design, construction and maintenance. Site-specific application of sediment vaults should be demonstrated where space limitations control types of applicable structural practices.
p. Steep Slope Stability Practices	The steep slope segments are prone to erosion, however, and must be stabilized in some manner. Retaining walls, gabions, cribbing, deadman anchors, rock-filled slope mattresses and other types of soil retentior systems are available for use.
4. Drainageway Protection Practices	At times construction activities must occur adjacent to or within a drainage way. Whenever this occurs, bottom sediments will be disturbed and transported downstream. The goal of these BMPs is to minimize the movement of sediments resulting from construction activities that take place within any drainageway. Temporary or permanent facilities can be installed to divert flowing water around such sediment-generating construction activities within drainageways.
a. Temporary Waterway Crossings & Diversions	Waterway crossing practices should limit construction vehicles in waterways to the maximum extent practicable. Temporary crossing or diversions are needed for actively-flowing water courses with regular crossing of construction vehicles.
b. Permanent Waterway Crossings	Required stream crossings should minimize impact to riparian corridors, (i.e., wide, free-spanning bridges).
c. Stream Channel Lining Practices	Stability practices or temporary channels must be designed to be stable for the design flow with the channel shear stress less than the critical tractive shear stress for the channel lining material.
d. Outlet Protection	Temporary slope drains, culverts, sediment traps and sediment basins must be protected from erosion and scour, check dams can be used in swales and ditches to protect these from down-cutting.
e. Inlet Protection	All stormwater sewer inlets made operable during construction must have sediment entrapment facilities installed to prevent sediment-laden water from entering the inlet.

f. Wetland Bottom Channel	a wetland can be constructed or set into a drainageway to form a wetland bottom channel; Requires a base flow to maintain wetland vegetation; pollutant removal efficiencies of constructed wetland bottoms vary significantly; removal efficiency design factors include influent concentrations, hydrology, soils, climate, vegetative type, growth zonation, maintenance and harvesting.
g. Edge Treatment Ponds & Waterways	Edge protection practices can be part of the project and help to limit erosion problems. Buffer strip edges provide water quality protection and stormwater management benefits. Landscaping practices can be used to establish edges to enhance and protect water quality.
h. Site-Specific Off-Site Velocity Control Practices (e.g. Golf Course, Instream Gravel Mining, Placer Mining)	Structural BMPs, which control runoff velocities, may be required in drainages at the boundaries of the golf course or other disturbances. Examples include drop structures and other energy dissipaters. These BMPs help to control erosion and water quality problems associated with sediment loading.
i. Stream Buffer Setbacks	No minimum buffer setback distances have been established in Colorado and should be determined on a site-specific basis. This practice shows promise but needs further demonstration to determine pollutant removal effectiveness and to develop design criteria. This practice may be used with appropriate stream crossing practices. It is recognized that certain activities require work instream and buffers should not preclude this.
5. Non-Sediment Construction Site Practices	Those BMPs that do not involve sediment or erosion control are intended to prevent or reduce the contamination of runoff waters. They are broadly applicable to a variety of different sources or activities. By reducing pollutant generation or source control, adverse water quality impacts are reduced.
a. Material Storage, Handling & Petroleum Products	Spill containment and control at material storage site or staging area should include lined areas, diked areas, berming or gates to prevent extensive soil contamination. Berms may be made of concrete, earthen material, metal, synthetic liners, or any material that will safely contain a spill. Spill material is any material not allowed into surface waters or storm sewer systems according to local, state or federal regulation. Spill control devices include valves, slide gates, or any other device that can contain spill material when required.
b. Underground Utility Construction	The construction of most underground utility lines shall be subject to the following criteria: no more than 200 feet of trench are to be opened at one time (local criteria may be more restrictive); where consistent with safety and space considerations, excavated material is to be placed on the uphill side of trenches; trench dewatering devices must discharge in a manner that will not adversely affect flowing streams, wetlands, drainage systems, or off-site property, and provide storm sewer inlet protection whenever soil erosion from the excavated material has the potential for entering the storm drainage system.
c. BMP Maintenance	All BMPs shall be maintained and repaired as needed to assure

	continued performance Straw bale barriers or silt fences may require periodic replacement and all sediment accumulated behind them must be removed and disposed of properly. Sediment traps and basins will require periodic sediment removal when the design storage level is one-half full. All facilities must be inspected by the owner or owner's representative following each heavy precipitation or snowmelt event that results in runoff.
d. Disposition Of Temporary Measures	All temporary erosion and sediment control measures must be removed within 30 days after final stabilization.
e. Good Housekeeping, Preventative Maintenance & Inspections	Good housekeeping requires keeping potential areas where pollutants its and pollution exist clean and orderly. Use of common sense to improve and maintain basic housekeeping methods: accidental spill response, well-maintained machinery and processes, improved operations, material storage practices, material inventory controls, routine or regular clean-up schedules, well organized work areas, educational programs and method to prevent mixing of runoff into environment from stormwater runoff. Preventative maintenance involves regular inspection and testing of equipment and operational systems to prevent break downs and failures that cause potential runoff contamination.
f. Spill Prevention And Responses, Minimization Of Exposure, Mitigation Plan, Materials Inventory	Spill containment practices, storage handling area practices and a prevention response plan and mitigation plan should be utilized. Maintaining a material inventory should be incorporated in a mitigation plan. Generally, minimization of exposure can reduce potential contamination and promote good housekeeping practices.
g. Painting Operations	Paint solvents used to remove or thin paint and dust from sanding and grinding operations can contain toxic metals like cadmium and mercury. Sources of contamination can be pint and chemical paint removal, sanding blasting or equipment painting. Spill containment practices, materials storage and handling practices, and good housekeeping/preventative maintenance practices should be utilized.
h. Loading & Unloading Operations	Loading and unloading operations taking place at docks, truck terminals or outside storage and handling areas can have material spills, leaks or other potential material contamination. Spill containment practices, materials storage and handling practices, and good housekeeping preventative maintenance practices should be utilized.
i. Fueling Operations	Fuel overflows during storage tank filling can be a major source of contamination. Spills can occur during fueling or oil delivery, topping of tanks, allowing rainfall into fueling areas, hosing or wash-down operations or mobile fueling operations. Spill containment practices and storage handling area practices should be utilized.
j. Above Ground Storage Tanks Operations	Storage tank potential leak must be contained using dikes and berms. Spill containment practices and storage handling area practices should be utilized.

k. Covered Storage & Handling Areas	Covering of storage & handling facilities will reduce the likelihood of stormwater contamination and will prevent loss of material from wind or rainfall erosion. Covering can be permanent or temporary using tarpaulins, plastic sheeting, roofing, enclosed structures, or any other device that prevent rain, snow melt or wind from spreading possible contamination. Covering of materials and storage area practices, spill containment practices, materials storage and handling practices, and good housekeeping/preventive maintenance practices should be utilized.
l. Vehicle & Equipment Washing	Runoff control practices, spill containment practices, materials storage and handling practices, and good housekeeping/preventative maintenance practices should be utilized.
m. Integrated Pest Management & Biological Treatments	IPM is a strategy for minimizing pesticide usage and reducing water quality problems associated with landscaping and golf courses. Key tools of IPM include: "prescriptive" pest control on a "management unit" basis; use of pest-resistant turf grass cultivators; establishing populations of natural pest enemies; maintaining balanced turf grass ecosystems; use of competitive species which put weeds and pests at a disadvantage; use of traps and attractants; and careful irrigation and fertilization.
n. Irrigation Management	Irrigation system design should consider the water resource, need for reuse, drainage requirements and water quality issues
o. Use of Turf Grass Fertilizers & Management Plan	Proper fertilization is a key component of turf grass management. Fertilizer for each management unit is based on soil and vegetation tests. Over-application of fertilizers can contaminate surface runoff and impact groundwater. A turf management plan that considers irrigation, fertilization, IPM, and environmental constraints is vital to evaluate ongoing maintenance and operation.
p. Golf Course Lake Management	Limit eutrophication by control of runoff from fertilized areas by measures such as buffer strips and reverse grading.

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