

DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

WATER QUALITY CONTROL COMMISSION

REGULATION NO 82

401 CERTIFICATION REGULATION

5 CCR 1002-82

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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(l)(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 or 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 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 certification issued by the Division pursuant to these regulations shall apply to both the construction and operation of the project for which a federal license or permit is required, and shall apply to the water quality impacts associated with the project.

82.4 APPLICATION FOR WATER QUALITY

- (A) COE SECTION 404. Application for state water quality certifications shall include:
 - 1. A copy of the federal application for a COE Section 404 permit to discharge dredged or fill material; and
 - 2. 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
- (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 certification 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 certification shall be made via letter to the Division. The letter of application shall contain the following information:
 - (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 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;
- (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 certification, the Division shall consider and review the certification application submitted, 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;
 - (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 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 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 the 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 certification for the license or permit.
- (3) **Conditional Certification.** If, after consideration of the elements in subsection 82.5(A)(1), the Division concludes that the 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, the Division shall issue water quality certification with such conditions included. The Division, as a part of conditional approval, may require water quality monitoring, based on site-specific circumstances, to ensure that BMPs are performing as designed and that the project complies with all applicable requirements. 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 including redesign or modification.

- (4) Emergency Certification of Section 404 Permits. Whenever the COE 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 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 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 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 401 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, 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 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 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 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 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, 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 and the exceedance, (ii) the identity of 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 to the exceedance.
- (4) Any anticipated change in discharge location and/or quantities associated with the 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 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; and
 - (c) Owners or operators of other intakes or diversions which are located within five miles downstream from the site of the 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; and

- (c) Owners or operators of other intakes or diversions which are located within five miles downstream from the site of the 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 areas specified in the federal license or permit.
- (9) No construction equipment shall be operated below the existing water surface 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 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 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, or 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 shall be state-certified weed-free.
- (15) Discharges of dredged or fill material in excess of that necessary to complete the 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(C), 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 certifications which require BMPs shall include a map of project location, a site plan, and a listing of the selected BMPs chosen for the 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.
 - (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.

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 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

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

82.12 STATEMENT OF BASIS AND PURPOSE

Certification by the State of Colorado under Section 401 of the Clean Water Act is required for issuance of Federal licenses and permits which may result in a discharge to waters of the United States in Colorado. At this time this requirement applies to Corps of Engineers individual 404 permits, and Federal Energy Regulatory Commission licenses and permits, although these regulations do not restrict certification to those permits only. The Water Quality Control Division is given the certification responsibility under Section 25-8-302 of the State Act. These regulations satisfy the requirements of Section 25-8-101 et seq and 25-8-302 of the State Act.

In adopting these regulations, the Water Quality Control Commission has determined that it is necessary for the State, acting through the Division, to determine whether the adopted stream classifications and water quality standards will be complied with rather than leaving this determination to the Corps of Engineers or other federal agency charged with issuing permits affecting state waters. Further, the Commission concluded that the basic stream standards included in Section 3.1.11 of the Basic Standards and Methodologies together with the numeric standards assigned to protect the classified uses of any segment or segments are to be considered by the Division when deciding whether to unconditionally certify, conditionally certify, or deny certification of federal licenses or permits.

Any discharge into state waters, even an insignificant one, is recognized by the Commission as having the likelihood to cause noncompliance with stream standards for a short distance below the discharge point for a short duration. These regulations incorporate this concept by requiring the Division to consider effects on significant portions of stream segments for extended periods of time.

It is recognized that the construction and operation of water diversion, conveyance, and storage facilities may result in unavoidable and permanent changes in the water quality characteristics of any segment of a stream which is inundated by the facility. These regulations are not intended to apply to or regulate such impacts. Furthermore, water quality changes which occur within diversion, conveyance and storage facilities, including daily or seasonal changes such as temperature stratification, turnover, changes in the level of dissolved oxygen, or other conditions associated with the capture, impoundment, diversion, conveyance, or release of water, are not considered to be noncompliance for the purposes of these regulations.

The Commission concluded that enforcement authority of the conditions of certification rests with the federal licensing agency. However, the Division is not prevented from notifying the federal agency pursuant to section 401(a)(5) of the federal act that a permitted activity is in violation of the certification or from initiating action against the federal agency in mandamus or as otherwise permitted by law to prevent the continuation of an activity in violation of a certification, particularly if attempts to resolve the matter through the federal licensing agency have been unsuccessful.

The Commission considered the economic ramifications of these regulations and concluded that they were economically reasonable. The benefits which accrue to all as a result of maintaining the classified uses of the states waters and the water quality standards outweigh the minor costs associated with the imposition of the management requirements and additional requirements listed in 2.4.5.

82.13 Statement of Fiscal Impact

The costs of complying with these regulations falls to those persons who are required to obtain federal licenses or permits for the discharge of certain materials into state waters. Since most federal licenses or permits will likely be certified with conditions, the costs will be associated with complying with the conditions ("MANAGEMENT REQUIREMENTS" and "ADDITIONAL REQUIREMENTS" in 2.4.5). These conditions are not extraordinary requirements not normally followed in construction, but rather are good construction and maintenance techniques which will not add appreciably to the costs of projects requiring federal permits or licenses.

The benefits of these regulations fall to all persons who rely upon the classified beneficial uses of the state's waters and the maintenance of the stream standards adopted to protect those uses. These benefits are considerable and far outweigh the costs of complying with these regulations, even if denial of certification in certain specific instances is necessary to protect the state's waters.

Since these regulations essentially codify procedures which have been followed for some time, except that even fewer and less restrictive conditions are available for application to specific permits, there is reason to believe that the costs of utilizing federal permits in Colorado will remain at or below historic levels.

82.14 FINDINGS REGARDING BASIS FOR EMERGENCY RULE, AND FISCAL IMPACT STATEMENT, FOR AMENDMENTS ADOPTED ON FEBRUARY 2, 1988

Background

These changes have been adopted by the Commission to resolve a dispute as to whether the State currently has adequate authority to conduct the full certification required by section 401 of the federal Clean Water Act in connection with federal authorization of any activity that may result in any discharge into state surface waters. The revised language is intended to assure that the State has full authority to conduct the section 401 certifications required by the Federal Act. Language in the previous Statement of Basis and Purpose (2.4.11) that may have indicated more limited authority is hereby overridden.

This dispute arose due to a controversy regarding section 401 certification in connection with issuance of a section 404 permit for a proposed new reservoir project. Along with clarifying the State's intent to conduct the full section 401 certification, these amendments resolve the issue of how water quality standards and conditions are to be applied to the operation phase of water supply projects when conducting such reviews. The purpose of the new and amended provisions in section 2.4.5 is to establish broad authority to address water quality impacts, with a proviso intended to assure consistency with C.R.S. 25-8-104.

The Commission expressly recognizes that the character of a body of water changes from that of a flowing stream to that of a reservoir as the result of an impoundment. It is the intent of the Commission to integrate new state waters which result from impoundments into the existing classification and standards system, as appropriate. Whenever a reservoir is constructed, the Division shall evaluate factors such as the proposed uses and public access to such reservoir, and request that the Commission adopt classifications and standards to protect the uses of the new water body where appropriate.

Control Regulations

At the hearing there was considerable debate whether the Commission should adopt some portion or all of these amendments solely pursuant to the authority in C.R.S. 25-8-202(1)(i.5) (relating to regulations governing 401 certification activities), or rather pursuant to the authority in C.R.S. 25-8-205 (relating to control regulations). In order to help minimize the risk of any legal challenge to these amendments, the Commission has decided to adopt these changes pursuant to the provisions of both sections.

In adopting these amendments, the Commission has considered the factors listed in C.R.S. 25-8-205(2). The amendments and the regulation as a whole are necessary to assure that applicable federally-permitted activities will be in compliance with State water quality classifications and standards, and other water quality control requirements. The regulation does not specify treatment requirements that are automatically applicable to any particular types of discharges. Rather, the regulation relies principally on a list of management practices, monitoring requirements and mitigation requirements (in section 2.4.5) that may be applied in a particular case as necessary to assure compliance with applicable requirements. The inclusion of a wide variety of potential conditions is intended to assure that project-specific conditions can be formulated that will assure compliance with water quality standards and any other applicable requirements (e.g. other control regulations) in the most practical, economically and technically feasible manner available. The Commission believes that the amended regulation is consistent with existing federal water quality control requirements.

The regulation as amended, through the list of potential conditions, provides flexibility to take into account the continuous, intermittent, or seasonal nature of a discharge to be controlled in developing conditions for individual projects. It is the intention of the Commission that these differences be taken into account by the Division in developing such project-specific conditions. Similarly, under the regulation as amended the Division will have flexibility to take into account the presence or absence of dilution flows, and the capacity of the receiving water to assimilate the discharge, in fashioning conditions for a project.

Essentially all of the potential conditions in section 2.4.5 are safety precautions that may need to be taken in specific situations to protect water quality. The need to apply any specific conditions to an individual project to assure compliance with applicable water quality requirements should be assessed by the Division when acting on 401 certification requests.

Emergency Adoption

The Commission finds that the adoption of the amended regulation on an emergency basis is imperatively necessary for the preservation of the public welfare and that compliance with normal notice requirements would be contrary to the public interest. The State has a substantial interest in maintaining its autonomy in establishing and implementing an appropriate water quality control program for Colorado, including the application of water quality standards and other water quality control requirements, especially in view of Colorado's complex, interrelated water quality and water quantity management systems. Expedient approval of environmentally sound water development projects is an important state interest that should not be left to EPA control.

The public interest in State--rather than federal--water quality control decision-making is evidenced by the legislature's adoption of the Water Quality Control Act, including a specific direction that the Commission adopt regulations to provide for State 401 certification determinations. Because there is not time to comply with the normal 60-day notice requirement for control regulations, this emergency action has become necessary to assure full and appropriate State decision-making with respect to two or three major water supply projects currently in the permitting process. There is a substantial public welfare interest in avoiding the uncertainty and duplication of review that is likely to occur without this emergency action. Substantial time and costs are likely to be associated with dual review procedures and delays in project authorization and construction.

Moreover, it has been argued by some, including EPA, that if control regulations are not adopted on an emergency basis by the Commission, the 401 certification review for these projects will be conducted by EPA and that EPA will have no authority to apply water quality standards to the operational aspects of the projects. Therefore, in view of this legal uncertainty the emergency adoption is necessary to assure that

there will be a meaningful and substantive 401 certification review for all aspects of these water supply projects. This requires not only amending the definition of "401 certification", but also adopting appropriate revised and additional provisions to assure an adequate State review.

Specific Amendments

Several non-substantive, editorial changes have been made to make the regulation clearer and more understandable. Among the substantive changes, the definition of "401 certification" has been revised to assure that the State has authority to conduct the full 401 certification required for projects, including addressing the operational phase of projects. The definition of "compliance or comply" has been revised to clarify that while certain temporary exceedences of standards is allowed, there should be certain limits on the extent of such temporary impacts. This is necessary in order for water quality requirements to be applied meaningfully to the long-term operations of projects, as well as to the short-term construction phase to which the regulation originally applied.

The definition of compliance, Section 2.4.4, and the introductory language of section 2.4.5 have been revised to clarify the Commission's intention that water quality classifications and any other applicable water quality control requirements be complied with (along with effluent limitations and water quality standards) in issuing 401 certifications. The phrase "other water quality control requirements" refers to control regulations or other duly adopted and enforceable regulations. Certain other introductory language in section 2.4.5 also has been revised since the list of potential conditions in that section no longer is limited solely to "management practices."

Language has been added to conditions 3 and 4 in section 2.4.5 to allow these conditions to be applied to the operation phase of projects, as well as the construction phase. New condition 18 provides more general authority for the Division to impose requirements to assure compliance with applicable water quality requirements. The provision provides that the impacts of both the discharge of pollutants and hydrologic modifications may be addressed. There was considerable controversy over the inclusion of "hydrologic modifications," due to the potential impact on water rights. The Commission has addressed this concern by the inclusion of the proviso that any conditions imposed must be consistent with section 25-8-104 of the Water Quality Control Act. There may be hydrologic modification impacts that can be mitigated without materially injuring water rights. The Commission believes that it has a responsibility to assure the maximum practical water quality protection that does not conflict with the provisions of section 25-8-104. Moreover, because of the wide variety of factual circumstances that may exist, the Commission has decided it is preferable at this time to leave the formulation of specific conditions in a manner that is consistent with section 25-8-104 to case-by-case determinations, rather than attempting to address all potential circumstances in this regulation.

New condition 19 also provides important additional flexibility in the section 401 certification process. There may be situations where there would be a lack of compliance with applicable effluent limitations, water quality classifications and standards, or other water quality control requirements, which can not be avoided by imposition of conditions 1 through 18. In these circumstances, without condition 19 the Division would have no alternative but to deny certification, except where denial would be in conflict with Section 25-8-104 of the Water Quality Control Act.

The intent of the language added to the end of section 2.4.7 is to assure that potential certification denials are handled in a manner consistent with section 25-8-104 of the State Act. This recognizes that in some circumstances a project may have water quality impacts that could be mitigated only by being inconsistent with section 25-8-104, and provides that due to section 25-8-104 the 401 certification will not be denied in such circumstances. In such cases, the Division shall identify any such water quality impacts for which mitigation is not being required by the State, due to the State policy established in section 25-8-104, and recognize that this result is in conformance with State policy.

Fiscal Impact

82.15 FINDINGS REGARDING BASIS FOR EMERGENCY RULE AND STATEMENT OF BASIS, STATUTORY AUTHORITY, AND PURPOSE FOR ADOPTION OF PERMANENT RULE (January, 1989 Amendments)

Because a section 401 certification requirement has already been in place under the federal Clean Water Act and because the certification reviews have already been conducted by the Division pursuant to this regulation, no substantial fiscal impact is anticipated from this amendment for most projects. To the extent that the new and revised requirements in section 2.4.5 require monitoring and mitigation of water quality impacts that was not required previously for some projects, these changes could increase project costs for some applicants. However, the Commission finds that such conditions would result in corresponding environmental benefits by assuring compliance with water quality standards. Because of the wide variety of factual circumstances that may occur, it is not possible to quantify either the costs or the benefits at this time. Moreover, since without these conditions in some instances the Division's only alternative would be to deny certification, these new provisions will in such circumstances have a positive economic impact in allowing projects to proceed. To the extent that some aspects of section 401 certification might otherwise have been performed by the Environmental Protection Agency instead of the State, this amendment should reduce the costs of the regulatory process to applicants who would otherwise have to deal with both agencies to obtain 401 certification.

82.15 FINDINGS REGARDING BASIS FOR EMERGENCY RULE AND STATEMENT OF BASIS, STATUTORY AUTHORITY, AND PURPOSE FOR ADOPTION OF PERMANENT RULE (January, 1989 Amendments)

EMERGENCY ADOPTION

The Commission finds that the adoption of the amended regulation on an emergency basis is imperatively necessary for the preservation of the public welfare. Moreover, the Commission finds that for this rule not to be adopted with an immediate effective date would be contrary to the public interest.

The State has a substantial interest in maintaining its autonomy in establishing and implementing an appropriate water quality control program for Colorado, including the application of water quality standards and other water quality control requirements, especially in view of Colorado's complex, interrelated water quality and water quantity management systems. Expedient approval of environmentally sound water development projects is an important state interest that should not be left to EPA control.

In order to assure adequate state 401 certification authority, on February 2, 1988, the Commission adopted certain emergency amendments to this rule. See Finding Regarding Basis for Emergency Rule, and Fiscal Impact Statement, for Amendments Adopted on February 2, 1988. By law, that emergency rule would expire on February 2, 1989. An emergency effective date for these new amendments is necessary to avoid any substantial gap in the effectiveness of fully adequate state 401 certification regulations. Such a gap could result in unnecessary confusion and substantial expense for project proponents seeking 401 certifications during that period. Therefore, this amended regulation shall be effective immediately and shall remain effective on an emergency basis until March 2, 1989, at which time the amended regulation becomes permanently effective.

BACKGROUND

These changes have been adopted by the Commission to ensure that the State has adequate authority to conduct the full certification required by section 401 of the federal Clean Water Act in connection with federal authorization of any activity that may result in any discharge into state surface waters. The revised language is intended to assure that the State has full authority to conduct the section 401 certifications required by the Federal Act. Language in the previous Statement of Basis and Purpose (2.4.11) that may have indicated more limited authority is hereby overridden.

Along with the clarifying the State's intent to conduct the full section 401 certification, these amendments resolve the issue of how State use classifications and water quality standards and conditions are to be applied to all activities requiring a section 404 permit, including reservoir and water diversion projects. The purpose of the new and amended provisions is to establish broad authority to address all pertinent

water quality impacts of 404 permitted activities during both the construction and operational phases of such projects. The regulation reflects the Commission's twin responsibilities of preserving the water quality of the State by conducting full federal section 401 certification, while protecting the exercise of water rights by assuring consistency with C.R.S. 25-8-104.

SOURCE OF AUTHORITY TO ADOPT REGULATION

One threshold issue for the Commission is whether it should adopt some portion or all of these amendments solely pursuant to the authority in C.R.S. 25-8-202(1)(i.5) (relating to regulations governing 401 certification activities), or rather pursuant to the authority in C.R.S. 25-8-205 (relating to control regulation). In order to help minimize the risk of any legal challenge to these amendments, the Commission has decided to adopt these changes pursuant to the provisions of both sections.

In adopting these amendments, the Commission has considered all the factors listed in C.R.S. 25-5-205(2). The amendments and the regulation as a whole are necessary to assure that applicable federally-permitted activities will be in compliance with State water quality classifications and standards, and other water quality control requirements. (205(2)(a)). The regulation does not specify treatment requirements that are automatically applicable to any particular types of discharges. (205(2)(b)). Rather, the regulation relies principally on a list of management practices, monitoring requirements and mitigation requirements (in section 2.4.5) that may be applied in a particular case as necessary to assure compliance with applicable requirements. The inclusion of a wide variety of potential conditions is intended to assure that project-specific conditions can be formulated that will assure compliance with water quality standards and any other applicable requirements (e.g., other control regulations) in the most practical, economically and technically feasible manner available. (205(2)(c)). The Commission believes that the amended regulation is consistent with existing federal water quality control requirements. (205(2)(d)).

The regulation as amended, through the list of potential conditions, provides flexibility to take into account the continuous, intermittent, or seasonal nature of a discharge to be controlled in developing conditions for individual projects. (205(2)(e)). It is the intention of the Commission that these differences be taken into account by the Division in developing such project-specific conditions. Similarly, under the regulation as amended, the Division will have flexibility to take into account the presence or absence of dilution flows, and the capacity of the receiving water to assimilate the discharge, in fashioning conditions for a project. (205(2)(f)).

Essentially all of the potential conditions in section 2.4.5 are safety precautions that may need to be taken in specific situations to protect water quality. The need to apply any specific conditions to an individual project to assure compliance with the applicable water quality requirements should be assessed by the Division when acting on 401 certification requests. (205(2)(g)).

SUBSTANTIVE AMENDMENTS

In adopting this regulation, the Commission has had to interpret and resolve several important issues flowing from the language of section 401 of the federal act, and from the interplay of this language with section 104 of the State Water Quality Control Act. The operative federal section 401 language requires that any "activity" which results in "any discharge" [a section 401 activity] must receive a State certification that the "discharge will comply with applicable provisions of" the federal act. These "applicable provisions" include the federal requirement that states establish water quality classifications, standards, effluent limits, and control regulations to protect water quality. Section 104 of the State Act forbids such water quality rules when they (1) "impair rights to divert . . . and apply water to beneficial uses," (2) "result in material injury to water rights," or (3) "require minimum stream flows."

The first major issue resolved by the amended regulation is that a Colorado 401 certification may address the water quality effects of a section 401 activity during both the construction and operational phases of the activity. Both such aspects of a section 401 activity affect water quality. The definition of "401 certification" has been revised to assure that the State has authority to conduct the full 401 certification

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(2.4.3.1). Language has also been added to conditions 3 and 4 in section 2.4.5, and to requirements 1 and 2 in section 2.4.6, to allow these conditions and requirements to be applied to the operation and construction phase of section 401 projects.

The second important issue resolved by this regulation is the Commission's determination that section 401 of the federal act authorizes states to certify (1) that the "discharge" from the section 401 activity will comply with water quality requirements that may be imposed under state law, and (2) that changes in water quality caused by the activity producing the discharge will also so comply. Consistent with this interpretation of federal law, new condition 21 (of section 2.4.5) permits the Division to impose requirements on section 401 activities (1) to address "direct" water quality impacts resulting from the discharge, and (2) to address "indirect" water quality impacts resulting from the activity itself. Examples of the latter might include changes in the character of a body of water caused by an impoundment, reservoir, or water diversion structure requiring a section 404 permit (and consequent state 401 certification). The Commission believes that section 401 of the federal act and sections 25-8-202 and 25-8-205 of the Colorado Water Quality Control Act authorize the impacts of these activities to be addressed to the extent they alter the biological, chemical, or physical integrity of the waters of the State. These impacts are indirectly caused by the discharge, in that they would not occur unless the discharge is authorized.

The third significant issue resolved by this regulation involves the relationship between the Colorado 401 certification process and section 25-8-104 of the State Act. The Commission interprets section 401 to require states to certify compliance only with those water quality rules that legally may be imposed under State law. Because section 104 helps define the range of permissible water quality rules under state law, the regulation provides that the Division may neither impose certification conditions inconsistent with section 104 (section 2.4.5.21), nor deny a certification where water quality impacts may be avoided only by imposing conditions inconsistent with section 104 (section 2.4.7).

The fourth key issue involves the Commission's interpretation of Section 104 in the context of State 401 certifications. Although the Commission recognizes that it is not the final judge of the precise meaning of the prohibitions found in section 104 (that being the responsibility of the legislature and the judiciary), it nevertheless believes it appropriate to provide guidance to the Division in ascertaining certification conditions and mitigation measures consistent with section 104. Therefore, while new condition 21 of section 2.4.5 permits the Division to require mitigation prior to certifying certain dams and diversions impacting water quality, condition 21 deems inconsistent with section 104 (and the lawful exercise of water rights) mitigation "requiring water to be released from impoundments or restricting the quantity of water withdrawn from the state water bodies. . ." Such conditions were thought either to require "minimum steam flows" or to "impair rights to divert water," both of which are prohibited by section 104.

To further assist the Division in interpreting section 104, and to ensure that the Division's judgment about the scope of section 104 is not entirely dependent on an interpretation provided by parties seeking 401 certification, the Division is required by section 2.4.8.6 to "consult with the State engineer and the Attorney General in determining whether a contemplated 401 condition or denial may be inconsistent with section 104 . . ."

SPECIFIC AMENDMENTS

The definition of "401 certification" has been revised to assure that the State has authority to conduct the full 401 certification required for projects, including addressing the operational phase of projects.

The definition of compliance, section 2.4.3.4, and the introductory language of section 2.4.5, have been revised to clarify the Commission's intention that the Commission's Basic Standards, including water quality classifications and any applicable water quality control requirements (along with effluent limitations and water quality standards) be complied with in issuing 401 certifications. The phrase "other water quality control requirements" refers to control regulations or other duly adopted and enforceable regulations. The definition of "compliance or comply" has also been revised to clarify that while certain temporary exceedences of standards are allowed, there should be certain limits on the extent of such

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temporary impacts. This is necessary in order for water quality requirements to be applied meaningfully to the long-term operations of projects, as well as to the short-term construction phase to which the regulation originally applied.

Certain introductory language in section 2.4.5 has been revised since the list of potential conditions in that section no longer is limited solely to "management practices." The introduction to section 2.4.5 has also been amended to reflect the Commission's decision that certification conditions may be both technology-based, and output-based (i.e., based on achieving a specified level of ambient water quality).

In order to provide reasonable assurance that water quality will be protected during the construction and operation of large, long-term, complex projects, the introduction of section 2.4.5 has been amended to permit the Division to add site-specific details to a condition imposed under 2.4.5. New condition 22 also provides important additional flexibility in the section 401 certification process. There may be situations where there would be a lack of compliance with applicable effluent limitations, water quality classifications and standards, or other water quality control requirements, which cannot be avoided by imposition of conditions 1 through 21. In these circumstances, without condition 22 the Division would have no alternative but to deny certification, except where denial would be in conflict with section 25-8-104 of the Water Quality Control Act.

Several sections have been amended or added to ensure that the public, appropriate health departments, and affected water users are notified of the effects of the section 401 activity. Section 2.4.5.1 and 2.4.5.10 require the federal licensee or permittee needing certification to notify the above entities or (1) the project affecting water quality, and (2) the presence of any pollutants that may enter the watercourse as a result of the project. New section 2.4.6.7 permits the Division to provide a separate written analysis of its basis for certification when there is a high public interest in the project or where the Division in its discretion deems the separate analysis to be appropriate.

As a result of a stipulation agreed to by several parties to the hearing, several changes have been made to further the goal of coordination. Section 2.4.5.8 requires the permittee needing 401 certification to coordinate with downstream water purveyors to minimize impacts on drinking water quality. New section 2.4.8.5 urges that the 401 certification process be coordinated with parallel review processes of other government agencies (e.g., a federal NEPA review), in order to minimize duplication of effort and delays in project approval.

Because of this same stipulation, section 2.4.5.9 has been amended so that the Division may impose conditions to prevent toxic pollutants from entering water courses.

The Commission's antidegradation rule is reflected in several amendments to the Commission's 401 certification regulation. The definition of "compliance or comply" in section 2.4.3.4 has been amended to reflect the limiting role played by the antidegradation rule when a section 401 activity threatens to degrade high quality waters. Amended section 2.4.8.2 extends the time for the Division to act on 401 certification requests if an antidegradation review is required, in order to provide adequate time for public participation in such a review.

The intent of the language added to the end of section 2.4.7 is to assure that potential certification denials are handled in a manner consistent with section 25-8-104 of the State Act. This recognizes that in some circumstances a project may have water quality impacts that could be mitigated only by being inconsistent with section 25-8-104, and provides that due to section 25-8-104, the 401 certification will not be denied in such circumstances. This result is acceptable according to the language and intent of section 401 of the federal act, which requires section 401 activities to comply only with State water quality laws that may be imposed under State law, not those forbidden under state law (i.e., by section 104 of the State Act). The Division shall identify water quality impacts for which mitigation is not being required by the State, due to the State policy established in section 25-8-104, and recognize that this result conforms to State policy.

LIST OF PARTY PARTICIPANTS TO THE 401 CERTIFICATION

PUBLIC RULEMAKING HEARING

1. Metropolitan Water Providers - Metro Water Participants (Providers)
2. City of Fort Collins
3. City of Colorado Springs
4. Environmental Defense Fund
5. Colorado River Water Conservation District
6. Northern Colorado Water Conservancy District & Municipal Subdistrict
7. City & County of Denver

82.16 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE: AUGUST, 1994, RULEMAKING HEARING RESULTING FROM TRIENNIAL REVIEW

The provisions of 25-8-202(1)(i.5) C.R.S. provides for 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

- A. **DEFINITIONS AND ORGANIZATION:** In the purpose section, the Commission eliminated the possible confusion regarding the types of federal permits that the regulation applied to. The Commission particularly noted that federal permits issued under Section 402 of the Federal Act are covered by the regulation. The current 401 regulation was designed primarily to consider the construction and operation aspects of 404 permits or FERC licenses. Because permits issued under section 402 do not involve the same type of certification analysis that 404 permits or FERC licenses do, the Commission anticipates that the requirements for certification of federal 402 permits will need to be revisited at a future rulemaking hearing to determine whether modifications to the regulation need to be made to address the 402 permit certification issues that may arise as this regulation is implemented. It is also conceivable that the State will seek delegation of the federal facilities 402 permit program from the EPA which will render the certification of federal 402 permits moot.

The Commission also decided to add several definitions and modify others to better clarify the terminology used in the regulation.

The Commission determined that the previous organization of the regulation was awkward and redundant, particularly in Sections 2.4.4, 2.4.5 and 2.4.7 where much of the language covering division actions is repeated. Also, the Commission felt it was important to move the portion of the regulation on procedures near the beginning, and include sections on Applicability and Application Procedures to make the regulation more useable. The previous regulation contained a section (2.4.6) on certification requirements that included requirements for both the applicant and the division. The Commission determined that these two matters should be separated for improved organization of the regulation. Instructions for the division are included in 2.4.6(C), and the requirements for the applicant are in 2.4.6(D).

The thirty day time frame in which the division was to normally have reached a certification decision was eliminated from the final rule since it could prove unnecessarily constricting in circumstances where a complex situation presented itself requiring more than the usual scrutiny. The phrase "as soon as practicable" replaces the thirty-day timeframe, but the Commission continues to expect that in normal circumstances, the 401 decision will be rendered within thirty days. The sixty-day decision time frame in circumstances where a special information supplementing process is called for was retained as a means to assure that the decision process is not unreasonably delayed.

The requirements contained in the application section are modest and are not considered to be a burden on the applicant. In the applicability section, the acknowledgment that Corps of Engineers nationwide or general permits can be used without further action by the division tracks precisely with the statutory requirement in 25-8-302(f). Also, in 2.4.4(C) the provisions that certification is to apply to both the construction and operation aspects of a project, and extend to the water quality impacts of a project are consistent with division policy throughout the history of 401 certification, and are properly codified in this regulation. To limit the division's certification in either time or scope would invite federal intervention as contemplated in the Clean Water Act. By including this language in the regulation, the Commission understands that insignificant and transitory water quality impacts are not matters of concern in the division's certification process, and that the division should focus on those impacts that have the potential to cause exceedances which could impair state classifications and standards.

- B. CHANGES TO DIVISION PROCEDURES AND DETERMINATIONS: The Commission determined that it was important to include the public notice procedures the division is to follow for both COE and other federal permits. The public notice provisions essentially are a reflection of the policies developed over time by the division, and seemed to have served both the public and the applicant for certification well.

The heart of the regulation is found in 2.4.6(B) where the major elements comprising the division's decision are set forth. In the former regulation, some of this guidance was missing and other portions were scattered throughout the regulation. These modifications bring the decision components together in one place, and clarify how the division is to arrive at a certification decision. One noteworthy change from the previous regulation is that Best Management Practices (BMPs), known previously as "management practices", are now required for every certification, except for certification of federal 402 permits. The BMPs are nothing more than sound construction techniques which any responsible contractor would employ to protect the environment and public health. Except for federal 402 permits that do not involve construction, it is reasonable to require these practices for each certification, and not issue an unconditional certification without BMPs as was allowable in the former version of the regulation. The BMPs were left largely unchanged except for practice number 21 which allowed special conditions to be drawn up and included with the list of standard conditions. That practice was eliminated and instead was folded into 2.4.6(B)(4), Conditional Certification. Under these revisions, the division can clearly separate the need for special water quality protective conditions from the list of standard BMPs by performing its certification under the provisions of 2.4.6(B)(4) rather than (B)(3), Unconditional Certification. It was also determined that conditional certification may also contain mitigation measures acceptable to the applicant and the division, even those that may be beyond the authority of the division to impose. In the past, almost no certifications were issued without the list of "management practices" attached, so this clarification merely confirms division policy. The provisions for denial of certification were modified to recognize that the division should confer with the applicant for certification prior to denial to explore possible modifications to the project so that certification could be issued. Otherwise, the provisions for certification in those cases where denial would materially injure water rights has been retained.

The Commission modified language in 2.4.6(B)(5) to now provide that the division shall deny certification if it concludes that there is not a "reasonable assurance" that the subject project will comply with listed state requirements. This language is consistent with language found in 401 certifications issued by the division, and with language found in section 401 of the Federal Clean Water Act and the EPA 401 regulations. The Commission does not intend by this language to create any presumption that the project for which a 401 certification is sought will comply with state water quality requirements. Instead, the Commission intends this language to require the applicant for a 401 certification to come forward with sufficient information to enable the division to determine whether the project will comply with such requirements. Denial of a 401 certification is appropriate in the absence of such sufficient information.

The Commission also modified language in ' 2.4.6(B)(5) that previously required the division to identify water quality impacts for which mitigation is not being required due to the state policy established in ' 25-8-104, C.R.S. A number of parties pointed out that this language implied that the state policy established in ' 25-8-104, C.R.S. was undermining the division's ability to address water quality issues in the context of 401 certification reviews. The Commission has therefore, changed this language to indicate that whenever material injury to water rights is an issue, the division, the applicant and other interested persons, will work together to examine and implement, where appropriate, means to avoid or mitigate water quality impacts consistent with the prohibition against material injury found in ' 25-8-104, C.R.S. Related language was added in ' 2.4.6(C)(1) whereby the division may prepare a written analysis of the basis for certification if appropriate or requested. The Commission anticipates that the division will prepare such an analysis for all significant 401 certifications and for those where the statutory prohibition against material injury to water rights is of particular concern. The Commission intends that this analysis will identify the water quality impacts associated with the project, and that it will discuss whether and to what extent mitigation was required or not required, particularly if water rights are involved. This analysis is to be provided to all commenters to the 401 certification process, and to all others who request it, and is to be submitted along with the 401 certification to the permitting or licensing federal agency.

The Commission considered whether to include a provision allowing the division to waive certification where, even after receiving supplemental information, the nature and extent of water quality impacts remained uncertain. The notion of waiver provisions was rejected, however, since the Commission felt it was better to deny a certification under those circumstances rather than leave the water quality determination up to the federal permitting agency.

- C. ENFORCEMENT PROVISIONS: A new section 2.4.7 was included to describe the two options available to the division for insuring that certification conditions are implemented. In all cases where it is learned that the permittee has not implemented certification conditions, the division is to first notify the federal permitting agency and the permittee and request that action be taken to require the implementation of conditions. If such notification and follow-up is unsuccessful, the division can then consider initiating procedures available under the Administrative Procedure Act to suspend or revoke the certification. The Commission determined that such provisions are necessary and appropriate since the federal agency is required under Section 401(d) to include certification conditions as part of the federal permit and require compliance with them as it would with any provisions of the permit. The Commission recognizes that if the federal permit or license has been granted prior to the revocation or suspension of a 401 certification, that the revocation or suspension will likely not have any effect on the validity of the federal license or permit. Nevertheless, the Commission believes that the revocation or suspension of a 401 certification would send a strong signal to the federal permitting or licensing agency, as well as the permittee or licensee, that compliance with the 401 certification conditions is not being met. Suspension or revocation is not expected to be used except in extreme circumstances where an impasse has been reached with both the permittee and the federal agency.

PARTIES TO THE RULEMAKING HEARING

1. Metropolitan Water Providers, Metropolitan Water Participants and the Metropolitan Water Authority
2. City of Colorado Springs
3. David R. Sturges, P.C.
4. Colorado River Water Conservation District
5. Environmental Defense Fund
6. The Northwest Colorado Council of Governments
7. High Country Citizens' Alliance
8. Coors Brewing Company
9. Metro Wastewater Reclamation District

82.17 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; JULY, 1997 RULEMAKING

The provisions of sections 25-8-202 and 25-8-401, C.R.S., provide the specific statutory authority for adoption of the attached regulatory amendments. The Commission also adopted, in compliance with section 24-4-103(4) C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE

The Commission has adopted a revised numbering system for this regulation, as a part of an overall renumbering of all Water Quality Control Commission rules and regulations. The goals of the renumbering are: (1) to achieve a more logical organization and numbering of the regulations, with a system that provides flexibility for future modifications, and (2) to make the Commission's internal numbering system and that of the Colorado Code of Regulations (CCR) consistent. The CCR references for the regulations will also be revised as a result of this hearing.

82.18 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE: MARCH, 1999, RULEMAKING HEARING RESULTING FROM TRIENNIAL REVIEW

The provisions of 25-8-202(1)(i.5) C.R.S. provides for 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

A. Water Quality Control Division Proposals:

These changes have been adopted by the Commission to correct typographical errors found in the regulation, to remove language which inaccurately describes the application process for certifications under the regulation, and to clarify the applicability of Best Management Practices to section 402 permits.

The corrected typographical errors pertain to numbering errors in various portions of the regulation. The regulation has been modified to reflect correct section and subsection numbers.

Section 82.4(B) and (C) were modified to remove the titles of individuals in the Division to whom certification applications should be made. The Division's reorganization of 1997 removed the positions and work units referred to in the regulation. The changes clarify that application should simply be made to the Water Quality Control Division.

Section 82.5(B)(2)(f) was added to clarify that information received during the public comment period would be considered during the Division's 401 certification determination. This provision is consistent with current Division practices.

Section 82.5(E) was modified to be consistent with the purpose statement found in section 82.1 of the regulation. Section 82.1 is clear in stating that the BMP's are not applicable to section 402 permits. The first statement in section 82.5(E) was modified to include this exception.

B. Trout Unlimited Proposals:

1. Definitions.

Trout Unlimited proposed revisions to the previous definitions of "certification" and "compliance or comply" in section 82.2(6), with a goal of assuring protection of the classified uses of state waters. In this rulemaking, the Water Quality Control Division asserted that the authority to protect uses already existed.

In an effort to clarify the regulation in a manner consistent with federal and state law and existing practice, the Commission has made several revisions related to the definitions in section 82.2.

First, the definition of "certification" has been revised to clarify that the Division must assure compliance with all applicable water quality control requirements for the affected waters in issuing a section 401 certification, rather than solely with the specific requirements previously listed in the definition. The revised language also helps assure consistency with section 401 of the federal Clean Water Act by using the phrase "will comply", rather than the previous "not expected to cause a violation of." Second, the definition of "compliance or comply" was deleted from the regulation because it was found to be unnecessary. The revised definition of "certification" already encompasses the concept of complying with state water quality requirements. In addition, the references in the previous definition to averaging period and frequency of exceedance were unnecessary, since those considerations are addressed in the Basic Standards and Methodologies for Surface Water, which is explicitly referenced in the definition of "certification." Finally, the language in the previous definition of "compliance or comply" regarding temporary exceedances has simply been moved to section 82.6, regarding enforcement of certification conditions.

2. Consideration of Section 25-8-104.

Trout Unlimited proposed revisions to several subsections of section 82.5, proposing that more explicit references be added to the regulation regarding the Division's consideration of section 25-8-104 of the Colorado Water Quality Control Act in making a section 401 certification determination. Section 25-8-104 contains a number of provisions intended to limit the potential impact of water quality regulations on the exercise of water rights.

To address this issue, the Commission adopted alternative language that was agreed to by the Division and all parties during the rulemaking hearing. In particular, a new subsection 82.5(B)(6) has been added, in place of language that has been stricken from subsection 82.5(B)(5). The primary change from previous language is a new provision directing the Division to identify in the certification and in the notice of section 401 certification determinations instances in which section 25-8-104, C.R.S. has been applied. The Commission believes that the compromise language provides reasonable and straightforward notice of the application of section 25-8-104.

Consistent with the agreement between the Division and the parties, the Commission also revised the language in subsection 82.5(C)(1) to provide that the Division "shall", where appropriate or where requested, provide its written analysis of its basis for certifications, including the results of any actions under the new subsection 82.5(B)(6) discussed above. The Commission does not intend for the Division to prepare a separate analysis under this subsection regarding the basis for certification from that otherwise developed. The Commission believes that this is a reasonable approach that will provide necessary information to the public without creating an additional administrative burden for the Division.

PARTY/MAILING LIST STATUS FOR THE RULEMAKING HEARING

1. Trout Unlimited
2. Coors Brewing Company
3. The Northwest Colorado Council of Governments
4. Colorado River Water Conservation District
5. The City of Colorado Springs
6. Northern Colorado Water Conservancy District and its Municipal Subdistrict
7. The Cache La Poudre Water Users Association and the Thompson Water Users Association
8. The Mineral Policy Center
9. Sierra Club
10. High Country Citizens' Alliance
11. Upper Gunnison River Water Conservancy District
12. The Board of County Commissioners of the County of Gunnison, Colorado

82.19 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE OCTOBER, 2000 RULEMAKING

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 changes to the regulations are the result of a one-year workgroup effort designed to improve the Best Management Practices (BMPs) that are required in 401 certifications by the Division. The changes also provide for a more streamlined public notice process, and improved opportunities for public comment on Division certification determinations.

A. BEST MANAGEMENT PRACTICES

The Commission adopted a new approach to the utilization of Best Management Practices (BMPs) in 401 certifications. The changes provide for a more proactive process in the selection of BMPs. Applicants for 401 certification, other than Federal Section 402 NPDES permits, are required to select BMPs, and commit to the operation, maintenance and replacement of these water quality protective measures. In the past BMPs were attached as conditions to 401 certifications.

The definition of "BMPs" found in section 82.2 was changed to reflect the requirement for long term operation of BMPs, and also to reflect that BMPs combine structural and non-structural features. The definition of "Project", found in section 82.2 was changed to make it more consistent with the language found in Section 401 of the Federal Act, and to eliminate some confusing language about spatial and temporal features of projects. The application process found in subsections 82.4 (A) and (C) was expanded to include a requirement for applicants to select BMPs appropriate for their project, and to provide a site plan, description, and location of those BMPs. Subsection 82.4 (C)(5), which previously required information on "mitigation measures", was deleted from the regulation since it was found to be duplicative with other requirements in the regulation.

Subsection 82.6 (A), Certification Requirements, has been expanded to include a new subsection (11) that requires that projects incorporate provisions for the operation, maintenance, and replacement of BMPs to ensure compliance with certification. Subsection 82.6 (B) has been added to the regulation, and sets forth the requirements for BMPs. New language was added to the regulation in subsection 82.5(A)(3) to clarify the authority of the Division to require monitoring in 401 Certifications.

The Division is required to certify that the construction and operation of the activity under review will comply with applicable State water quality requirements. In the case of "conditional certification", the Division has determined that such compliance will be achieved only if one or more conditions are imposed. However, in certain situations, the efficacy of the conditions can be determined only after their implementation. Hence, during construction and, in what is anticipated to be a small number of situations, during operation, instream water quality measurements must be periodically taken in order to ensure that water quality standards are being met. Water quality monitoring may include chemical, physical, and biological parameters, depending upon the water quality standard(s) of concern. To the extent such a monitoring condition is imposed, it is intended to be cost effective, directed towards specific parameters of concern, and significantly curtailed or terminated if no persistent problem is found to exist.

The "applicable requirements" referenced in section 82.5(A)(3) are the same as those identified in section 82.5(A)(1), each of which relates to the maintenance of water quality standards and/or the protection of designated uses. The certification conditions will therefore, of necessity, be directed towards meeting these objectives.

Relative to paragraph 82.6(A)(10), the Commission acknowledges that to complete work diligently and as soon as practicable, it may be required that such work be performed during other than periods when impacts are minimal. Hence, discretion will have to be exercised in determining what is practicable under all of the site-specific factors surrounding the project in question. These factors will include project design, economic feasibility, and project scheduling as related to the need for timely project completion. However, it is the intention of the Commission that the project proponent, in establishing the design and schedule for the project, should undertake advance planning so as to, to the extent feasible, accommodate the designated uses and avoid any adverse impacts thereto.

Subsection 82.6(A)(11) requires the preparation of an operations and maintenance plan. However, the permittee shall be accorded flexibility relative to the exact content of such a plan so long as the provisions thereof demonstrate compliance with the certification conditions. A certification requirement has been added in subsection 82.6(A)(14) specifying that all seed, mulching material and straw used in projects shall be state-certified weed-free. This requirement will help minimize invasive species introduction that may adversely affect natural hydrologic conditions, e.g. increasing erosion and may help minimize the need for use of pesticides.

Appendix I was added to the regulation by the Commission to provide a basis for the public to understand BMPs and their importance in 401 certifications, and protecting water quality. Appendix I provides a listing of BMPs applicable to activities which seek 401 certifications in Colorado. The appendix provides a description of the types of practices, a matrix of activities and applicable BMPs, and a users guide in understanding the selection of appropriate BMPs for given activities.

B. Public Notice

The "Public Notice" and "Certification Determination" sections of the regulations, found in section 82.5, were changed to provide more opportunity for public review of certification determinations, and improved timeframes for certification determinations. The public notice requirements were changed to require the Division to prepare both a draft and final certification for each 401 certification action. The preliminary antidegradation analysis, which was previously a separate step in the process, is now a portion of the draft certification, and the final antidegradation determination will be included in the final certification. The public notice period for the new draft certification procedure is 30 days. The Division is providing more frequent notice of 401 certification decisions, to assure timely certification decisions.

The language contained in subsections 82.5 (A) (2), (3), and (4), which establish the process for decisions on certification requests, was both clarified and simplified. The reference to the requirements of section 25-8-104 of the Colorado Water Quality Control Act was retained, and a new subsection 82.5 (A) (1) (h) was added to clarify the use of this information in Division determinations.

C. Other Changes to the Regulation

Much of the regulation has been reordered and renumbered, and in some cases minor changes in wording have been made to either clarify or strengthen certain provisions. Many of the BMPs found in the previous regulation have been relocated in section 82.6 "Certification Requirements". These requirements are good housekeeping features that apply to all 401 certification activities.

PARTIES TO THE RULEMAKING

Colorado Ski Country USA

Trout Unlimited

The City of Colorado Springs, including Colorado Springs Utilities

The Northern Colorado Water Conservancy District and its Municipal Subdistrict

The Northwest Colorado Council of Governments

82.20 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE, AND FINDINGS IN SUPPORT OF EMERGENCY ADOPTION OF REVISIONS TO REGULATION NO. 82, THE 401 CERTIFICATION REGULATION (5 CCR 1002-82)

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, and, in compliance with section 24-4-103(6), C.R.S., the following Findings in Support of Emergency Adoption.

A. OVERVIEW

The Corps of Engineers is authorized pursuant to section 404 of the federal Clean Water Act to implement Procedures for Emergency Authorizations in response to situations which “would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen and significant economic hardship”. These procedures, contained in 33 CFR Part 325.2(e)(4) of the Code of Federal Regulations, address expedited procedures for review, coordination and decision making with respect to permit applications in emergency situations. Prior to this rulemaking the 401 Certification regulation did not incorporate provisions which would allow the Division certification process to accommodate an expedited federal section 404 permit process.

The wildfires that have occurred in Colorado during 2002 have resulted in a number of situations where the Corps of Engineers anticipates exercise of its Procedures for Emergency Authorizations to consider permit applications for activities intended to mitigate fire impacts. These potentially include diversion of watercourses around homes, construction of flood control structures and sedimentation ponds, or reconstruction of water supply diversion structures. The Corps of Engineers operates under Procedures for Emergency Authorizations on an infrequent basis and then only in response to events such as flooding or wildfires. The Corps does not expect that a significant number of section 404 permit applications will be considered and issued pursuant to the Procedures for Emergency Authorization.

B. EMERGENCY CERTIFICATION

The Commission has inserted new provisions at sections 82.5(A)(4) and (B)(3) that authorize the Division to expedite consideration and issuance of section 401 certifications in response to Corps of Engineers use of its Procedures for Emergency Authorizations.

The Commission added specific public notice procedures to section 82.5(B)(3) that allow the Division to issue Emergency Certifications without complying with the public notice requirements of subsections 82.5(B)(1) and (2) in order to assure prompt resolution of certification requests. The Commission intends that, in instances where prompt consideration of a certification request is necessary to preserve public health, safety or welfare, the Division should have the flexibility to respond expeditiously. However, the Commission has included language to assure that reasonable efforts will be made to receive comments from interested federal, state and local agencies and the affected public.

The addition of section 82.5(A)(4) will allow the Division to review and determine, on a site-specific basis, the extent to which application of one or more areas of consideration identified in section 82.5(A)(1) and the certification requirements in section 82.6 remain appropriate under emergency situations. The Commission intends that the Division will forego consideration of the factors listed in section 82.5(A)(1) and application of the certification requirements in section 82.6 only to the extent that certification without such consideration or such requirements is necessary to preserve public health, safety or welfare.

C. FINDINGS IN SUPPORT OF EMERGENCY ADOPTION

The 401 Certification Regulation, Regulation No. 82, previously lacked provisions to allow the Division to expedite consideration and issuance of 401 certifications in response to emergency conditions. For this purpose, emergency conditions correspond to those situations in which the Corps of Engineers uses the

Procedures for Emergency Authorizations. Such situations are those which “would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen and significant economic hardship”. The Commission has, by this rulemaking, adopted provisions necessary to allow the Division to respond to such emergencies expeditiously and with appropriate consideration of factors relevant to a certification.

If the Commission does not adopt revisions to Regulation 82 on an emergency basis, the Division will lack the ability to process 401 certifications in an effective and timely manner in response to emergency situations which the State now experiences. The Commission finds that immediate adoption of these revisions to Regulation 82 is imperatively necessary to preserve public health, safety and welfare and that compliance with the requirements of section 24-4-103, C.R.S., would be contrary to the public interest.

These emergency revisions become effective upon adoption and shall remain in effect until March 31, 2003. The Commission determined, pursuant to section 25-8-402(5), C.R.S., that this effective period is necessary to provide time to reconsider these revisions in a rulemaking hearing held in compliance with the requirements of section 24-4-103, C.R.S.

82.21 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE

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.

A. OVERVIEW

The Corps of Engineers is authorized pursuant to section 404 of the federal Clean Water Act to implement Procedures for Emergency Authorizations in response to situations which “would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen and significant economic hardship”. These procedures, contained in 33 CFR Part 325.2(e)(4) of the Code of Federal Regulations, address expedited procedures for review, coordination and decision making with respect to permit applications in emergency situations. Prior to this rulemaking the 401 Certification regulation did not incorporate provisions which would allow the Division certification process to accommodate an expedited federal section 404 permit process.

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Commission has included language to assure that reasonable efforts will be made to receive comments from interested federal, state and local agencies and the affected public.

The addition of section 82.5(A)(4) will allow the Division to review and determine, on a site-specific basis, the extent to which application of one or more areas of consideration identified in section 82.5(A)(1) and the certification requirements in section 82.6 remain appropriate under emergency situations. The Commission intends that the Division will forego consideration of the factors listed in section 82.5(A)(1) and application of the certification requirements in section 82.6 only to the extent that certification without such consideration or such requirements is necessary to preserve public health, safety or welfare.

C. OTHER ISSUES

In addition to the revisions noted above, in this rulemaking the Commission added Figure 1 back into Appendix 1 of the regulation. This is a correction to the published version of Regulation #82 to conform the regulation to the Commission's decision in an October 2000 rulemaking.

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-arid 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.

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.

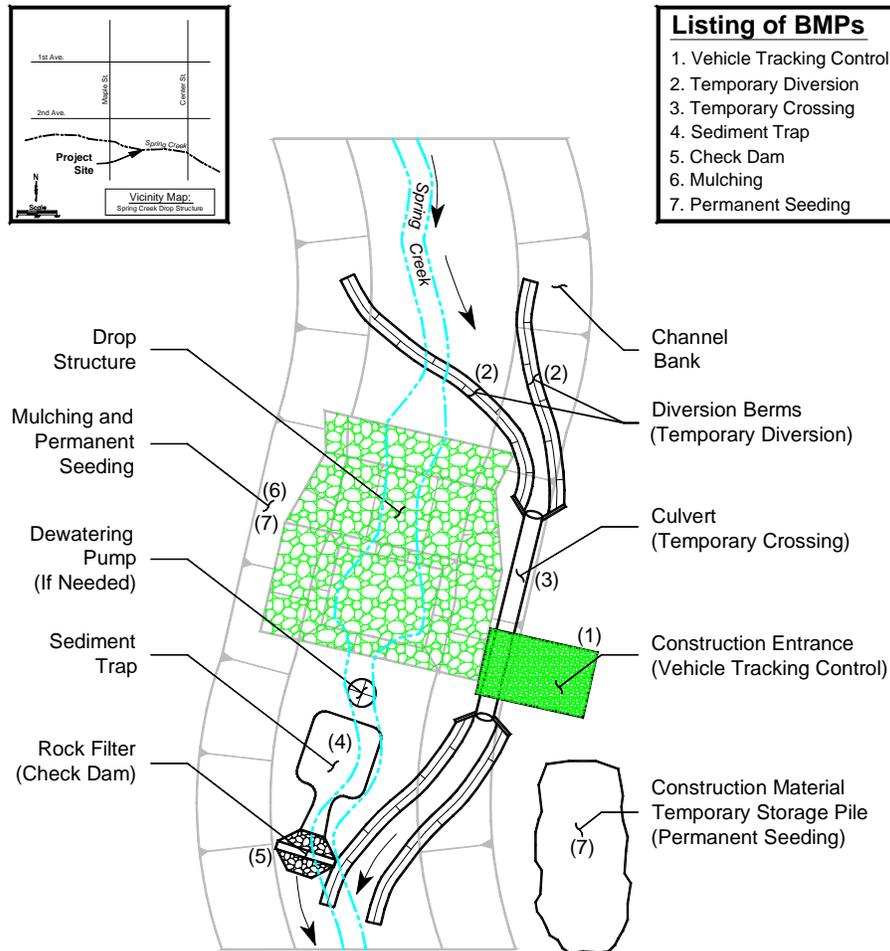


Figure 1. Example Site Plan showing BMPs for 401 Certification Project

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 altitude. 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 a water quality problem.

BMP Descriptions

Colorado Best Management Practices Appropriate for 401 Certification

Construction, Temporary Or Permanent Practices	<i>Planning Considerations</i>
<i>1. Design Considerations</i>	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>i. Site Constraints</i>	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.
<i>ii. Construction Timing</i>	Seasonality should be considered, particularly when construction must take place within streams and other waterways.
<i>iii. Natural Resources Inventory & Evaluation</i>	Provides basis for subsequent planning and design to avoid impacts 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.
<i>iv. Pre-Design Planning & Golf Superintendent Input</i>	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.
<i>v. Identify Applicable Source Controls</i>	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.
<i>vi. Golf Course Drainage Designs</i>	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.

Construction, Temporary Or Permanent Practices	Planning Considerations
vii. <i>Conservation Easements</i>	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. <i>Incorporate Wildlife Habitat Features</i>	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. <i>Advanced Irrigation Design</i>	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. <i>Design Of Landscaping & Vegetative Practices</i>	Seasonality should be considered, particularly when construction must take place within streams and other waterways.
c. <i>Minimize Disturbance Of Vegetation and/or Natural Wetlands</i>	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. <i>Local Stormwater Control Requirements</i>	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. <i>Minimizing Directly Connected Impervious Areas</i>	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. <i>Winter Maintenance Requirements – Road/Driveway</i>	Winter maintenance requirements should be incorporated into plans (e.g., Driveway Orientation, Sanding and Snow Removal).
2. <i>Erosion Control Practices</i>	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. <i>Surface Roughening</i>	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.

Construction, Temporary Or Permanent Practices	<i>Planning Considerations</i>
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. <i>Temporary Seeding</i>	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. <i>Permanent Seeding</i>	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. <i>Wetland Planting, Root Stock & Transplant</i>	Disturbed wetland vegetation should be reused whenever possible. Wetland species should be compatible with the ecoregion where the activity occurs.
iv. <i>Trees And Shrubs</i>	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. <i>High Altitude Seeding & Planting</i>	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. <i>Special Seed Mixtures</i>	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.

Construction, Temporary Or Permanent Practices	Planning Considerations
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 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.

Construction, Temporary Or Permanent Practices	Planning Considerations
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

Construction, Temporary Or Permanent Practices	<i>Planning Considerations</i>
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.
l. 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 retention systems are available for use.

Construction, Temporary Or Permanent Practices	<i>Planning Considerations</i>
4. Drainageway Protection Practices	At times construction activities must occur adjacent to or within a drainageway. 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.

Construction, Temporary Or Permanent Practices	<i>Planning Considerations</i>
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 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 paint 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.

Construction, Temporary Or Permanent Practices	<i>Planning Considerations</i>
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/ preventative 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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Best Management Practice 401 Certification Matrix

Construction, Temporary or Permanent Colorado Best Management Practices Appropriate for 401 Certification	Selected Topic Areas (Not Inclusive)																							
	Project Types									Sediment Problems					Aquatic or Riparian Problems				Reference Types					
	Bridges & Crossing Structures	Channel Work (Dredge & Fill)	Utility Construction (pipes & lines)	Development Sites (Residential/Commercial)	Roads & Highways (linear to waterway)	Recreational Sites (ponds, golf courses)	Instream Mining (Minerals/Gravel)	Dams, Reservoirs & impoundments	Protection Wetlands/ Riparian Habitats	Specialty (e.g., D=Driveway, G=Golf)	Sediment Deposition/ Loading	Sediment Erosion	Steep Slopes	Stream Bank Instability (armoring)	Velocity Control Requirements	High Wind (Wind Erosion/Fugitive Dust)	Bank Habitat & Associated Vegetative Cover	Preservation of Habitat (Riparian)	Life cycle Impacts (Fish, Wildlife & Plants)	Water Quality Restrictions	Structural Controls	Source Controls	Permanent Practices	Forest Service & Bureau of Land Management
1. Design Considerations																								
a. Pre-construction planning																								
i. Site constraints	x	x	x	x	x	x		x		DG	x	x	x	x	x	x	x				x			
ii. Construction timing	x	x	x	x	x	x	x	x	x	DG	x	x				x					x	x	x	
iii. Natural Resources Inventory & Evaluation						x	x		x	G			x				x	x				x		
iv. Pre-design Planning & Superintendent Input						x				G												x		
v. Identify Applicable Source Controls	x	x	x	x					x	G	x	x	x			x	x	x				x		
vi. Special Golf Course Drainage Designs						x			x	G	x	x		x		x	x	x		x	x	x		
vii. Conservation Easements						x			x	G							x	x					x	
viii. Incorporation of Wildlife Habitat Features						x			x	G							x	x					x	
ix. Advanced Irrigation Design						x				G													x	
b. Design of Landscaping and Vegetative Practices	x	x	x	x	x	x				G	x	x	x		x		x			x	x	x		
c. Minimize Disturbance of Vegetation/Wetlands					x	x			x	D						x	x	x	x			x	x	
d. Local Stormwater Control Requirements	x	x		x						G	x	x	x		x				x	x	x	x		
e. Minimizing Directly Connected Impervious Areas	x			x	x	x				G	x								x	x	x	x		
f. Winter Maintenance Requirements	x		x		x	x		x		D							x				x			
2. Erosion Control Practices																								

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a. Surface roughening				x	x	x		x			x	x			x	x								x		
b. Mulching			x	x	x	x		x	x	DG		x	x	x		x	x	x			x	x				
c. Revegetation																										
<i>i. Temporary seeding</i>	x		x	x	x			x				x	x		x	x	x	x					x		x	
<i>ii. Permanent seeding</i>			x	x	x	x	x	x	x	DG		x	x	x	x	x	x	x		x	x	x		x		x
<i>iii. Wetland planting, root stock, transplant</i>	x	x					x		x		x	x					x	x	x	x	x		x		x	
<i>iv. Trees and shrubs</i>				x		x			x	G		x		x			x	x	x	x	x		x		x	
<i>v. High altitude seeding & planting</i>	x		x	x	x			x		G		x	x				x	x			x		x		x	
<i>vi. Special Seed Mixtures</i>						x				DG		x	x	x		x	x	x	x		x		x		x	
d. Topsoil Preservation and Reuse	x	x	x	x	x	x	x	x	x	G		x					x	x	x		x		x		x	
e. Erosion Control Blankets	x	x	x	x	x	x		x	x	D	x	x	x	x		x	x	x					x			
f. Interim ground stabilization	x		x	x	x	x		x	x			x	x	x	x	x	x			x	x					
g. Roads and soil stockpiles	x		x	x	x	x	x	x	x	DG		x						x			x				x	
h. Dust Control				x	x	x		x				x					x			x		x			x	
3. Sediment Control Practices																										
a. Vehicle tracking	x			x		x					x													x		
b. Slope-length & runoff considerations	x	x	x	x	x	x		x	x	D	x	x	x	x	x	x				x		x	x	x	x	
c. Slope diversion dikes	x		x	x	x	x		x	x	DG	x	x	x	x	x			x		x	x		x			
d. Vegetation Buffers										D																

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<i>i. Irrigated Grass Buffer Strips</i>				x	x	x			G	x	x			x	x		x	x	x	x		x		
<i>ii. Grass-Lined Swales</i>			x	x	x	x			DG	x	x		x	x	x	x	x	x	x	x	x	x		
<i>iii. Road & Roadside Swales</i>					x					x	x		x	x	x		x	x	x	x	x	x	x	x
e. Sediment entrapment facilities																								
<i>i. Terracing</i>	x		x	x	x	x		x	x			x	x	x	x	x	x	x	x	x	x	x	x	
<i>ii. Slope drains</i>	x	x	x	x	x	x		x	x	DG	x	x	x					x	x		x	x		
<i>iii. Straw Bale Barriers/ Erosion Bales</i>	x	x	x	x	x	x				DG	x	x	x	x	x			x	x		x	x		x
<i>iv. Silt Fence</i>	x	x	x	x	x	x				DG	x	x						x	x		x	x		x
<i>v. Filter strips</i>	x	x	x	x	x	x	x			G	x	x			x		x	x	x	x	x	x		
<i>vi. Sediment Traps</i>	x	x	x	x	x	x	x			G	x	x			x			x	x	x	x	x	x	x
<i>vii. Sediment Basins</i>	x	x	x	x	x	x	x			G	x	x	x		x			x	x	x	x	x	x	x
<i>viii. Brush Barrier</i>	x	x	x	x	x	x				D	x	x						x	x		x	x		
<i>ix. Sand Bags</i>	x	x	x	x	x	x				D	x	x						x	x		x	x		
<i>x. Check Dams</i>	x	x	x	x	x	x				DG	x	x	x	x	x			x	x		x	x		
f. Retention Ponds (12-hr wet ponds)				x	x	x	x	x	x	G	x	x			x			x		x	x	x	x	
g. Long-term Retention Ponds (>12-hr wet ponds)	x				x	x	x	x			x							x	x	x	x	x		
h. Extended Detention Basins (dry basins)				x	x	x				G	x				x			x		x	x	x	x	
i. Sand Filter Extended Detention Basin				x	x	x					x				x					x	x		x	
j. Porous Pavement Detention				x		x					x									x	x		x	

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k. Modular Block Porous Pavement				x		x				x									x	x		x			
l. Porous Landscape Detention				x		x				x				x					x	x		x			
m. Infiltration Trenches or Basins				x		x			G	x	x		x	x					x	x		x			
n. Constructed Wetlands Basins	x	x		x	x	x	x		G	x	x			x		x			x	x		x			
o. Sediment Vaults, Water Quality Vaults & Inlets				x			x			x	x			x					x	x		x			
p. Steep Slope Stability Practices	x	x		x	x	x	x	x		x	x	x	x	x	x	x	x		x	x	x	x	x	x	
4. Drainageway Protection Practices																									
a. Temporary Waterway crossings and diversions	x	x	x	x	x	x	x						x			x					x		x	x	
b. Permanent Waterway crossings	x	x	x	x	x	x	x		D				x			x					x		x	x	
c. Stream Channel Lining Practices	x	x					x	x	D	x			x			x					x		x		
d. Outlet protection	x	x	x	x	x	x	x	x	DG	x	x	x		x				x	x	x					
e. Inlet protection	x	x	x	x	x	x	x	x	DG	x	x	x		x				x	x	x				x	
f. Wetland Bottom Channel		x					x							x				x	x	x				x	
g. Edge Treatment Along Ponds and Waterways	x	x				x	x		G	x			x			x	x	x	x	x				x	
h. Site-specific Off-site Velocity Control Practices		x		x	x	x	x		G	x	x	x		x	x						x	x	x		
i. Stream Buffer Setbacks	x	x	x		x	x	x			x	x					x	x	x	x	x	x	x	x		
5. Non-sediment Construction Site Practices																									
a. Material Storage and Petroleum Products	x	x	x	X	x	x	x	x											x	x		x			

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b. Underground Utility Construction	x		x	X	x	x		x		G												x		
c. BMP Maintenance	x	x			x	x	x	x	x	G						x	x	x	x		x			
d. Disposition of Temporary Measures	x	x			x	x	x	x	x	x											x		x	
e. Good Housekeeping, Preventative Maintenance & Inspections	x	x	x	X	x	x	x	x	x	DG							x	x			x		x	
f. Spill Prevention and Responses, Minimization of Exposure, Mitigation Plan, Materials Inventory	x	x	x	X	x	x	x	x	x	x							x	x	x		x			
g. Painting Operations	x		x	X	x					x							x	x						
h. Loading and Unloading Operations	x	x	x	X	x	x	x	x	x	x							x				x			
i. Fueling Operations	x	x	x	x	x	x	x	x	x	x											x			
j. Above Ground Storage Tanks Operations	x	x	x	x	x	x	x	x	x	x											x			
k. Covered Storage & Handling Areas	x	x	x	x	x	x	x	x	x											x	x			
l. Vehicle and Equipment Washing	x	x	x	x	x	x	x	x	x											x	x			
m. Integrated Pest Management & Biological Treatments				x		x			x	G							x	x	x		x			
n. Irrigation Management				x		x				G										x	x			
o. Use of Turf Grass Fertilizers & Management Plan				x		x				G										x	x			
p. Golf Course Lake Management						x				G							x	x	x	x				