PERMIT APPLICATION MANUAL

Last Updated:
February 14, 2025

Prepared by the Water Resources Division
New Appropriations Program

Permit Application Manual

Important Information:

The purpose of this manual is to document policy and procedure for Department staff and the public when submitting, reviewing, processing, and making decisions about permit applications. The goal of this manual is to provide a unified resource to promote consistency in change application processing by the Department. This manual is not a cookbook or replacement for the critical thinking that is an essential component of water right processing. This manual should serve as an aid in helping to consider unique water right applications in a consistent manner.

This manual reflects the operational procedures/policies and final legal decisions the Department is operating under during the processing of permit applications. **Please note that this manual includes policies and procedures that are used for applications received both before and after Jan. 1, 2024** (change in application processing due to the implementation of House Bill 114 and subsequent updates to administrative rule). When reading this manual, make sure you are looking at the appropriate information depending on when your application was filed. If there is no distinction between pre and post Jan. 1, 2024, processes, then the procedures remain the same.

This manual is not intended to provide step by step guidance for accepting and processing change applications. For unique situations where additional guidance is needed, please contact the Central Office to ensure that proper methodology is being followed.

Permits and Changes have been reviewed and issued by the Department since the inception of the Water Use Act in 1973. While criteria the applicant must meet have remained the same, the level of analysis has changed throughout time and become considerably more in-depth in recent years due to statutory changes and legal determinations. Much of what is contained in this manual is simply a reformatting and compilation of past efforts the Department has made at documenting processing procedures.

It is recommended that you do not print this manual because the manual is constantly being improved and revised. Additionally, various content throughout the manual is linked to resources for easy navigation and these links are lost when printing. Central Office will send out emails informing staff of major updates or revisions.

Table of Contents

How to Use This Manual

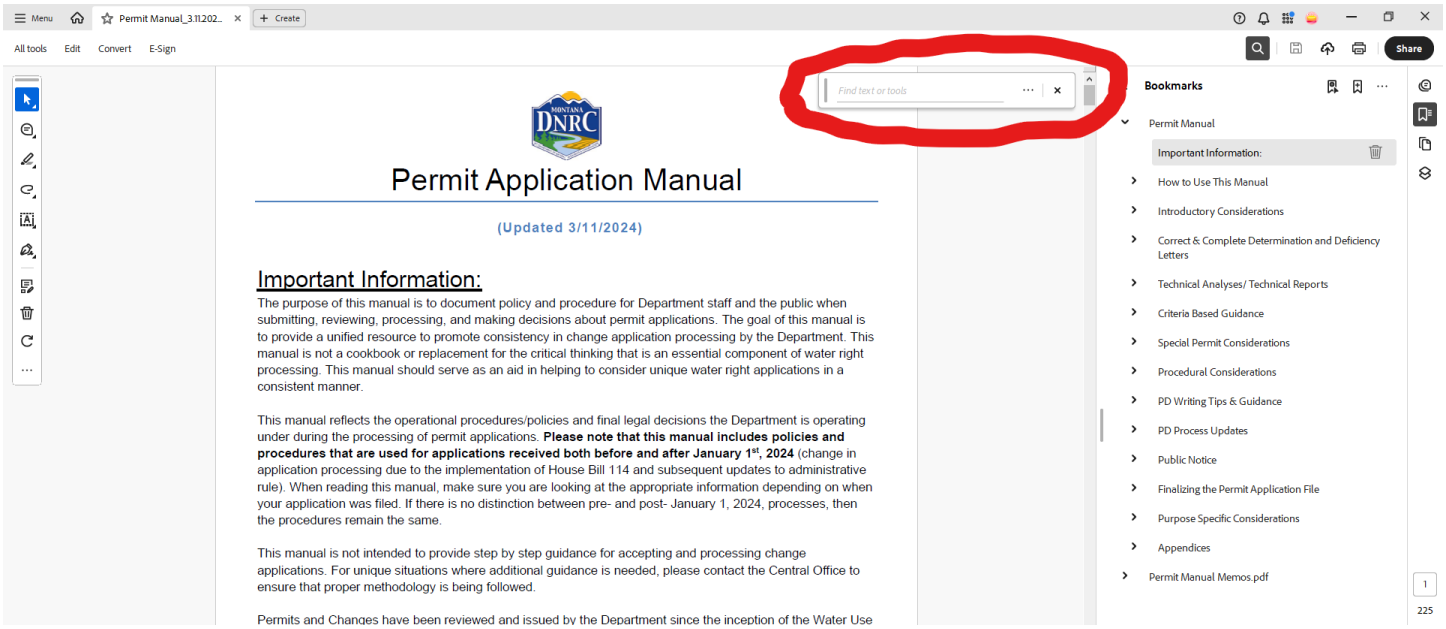
As described in the introduction, this manual is a one stop shop for information relating to how the Department should be processing permit applications. That means that this manual is over 100 pages long and as such, the following are some tips which will help you to find the information you are looking for more quickly and effectively.

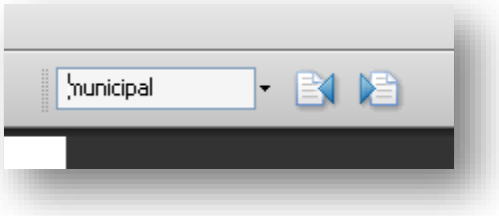
The Table of Contents is Clickable

All you have to do is click your mouse on an item in the table of contents and you will be taken to that area of the manual.

The Manual is Searchable:

You can enter a search query in the area identified by the red circle below and then execute the query to find what you are searching for. For example, I entered “municipal” and was then able to cycle through all occurrences of the word (like) “municipal” in the manual by simply clicking the arrows as seen in the second image below.



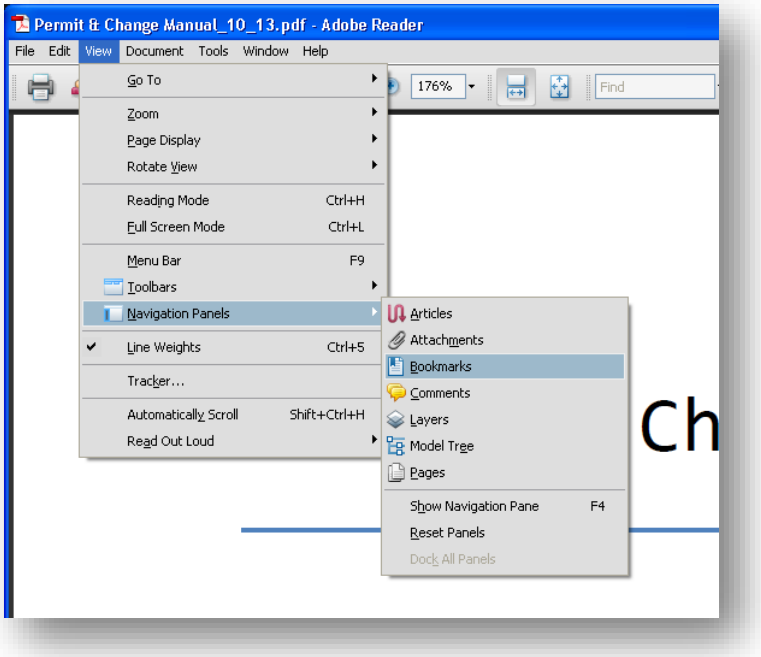


(Just click the arrows after your query to see where the word turns up)

You can view the table of contents:

It might seem like a pain to click on the Table of Contents and then be deep into the manual with no ‘tabs’ or easy navigation available except by scrolling all the way back to the Table of Contents and clicking again. To avoid this issue simply turn the Table of Contents on at the left of your screen. To

do this, click VIEW---NAVIGATION PANELS---BOOKMARKS as seen in the following image:



Now, no matter where you are in the manual you will have the ability to navigate within a bookmarked table of contents.

Depending on the type of PDF reader or web browser you are using, the Table of Contents may appear on different sides of the window.

Introductory Considerations

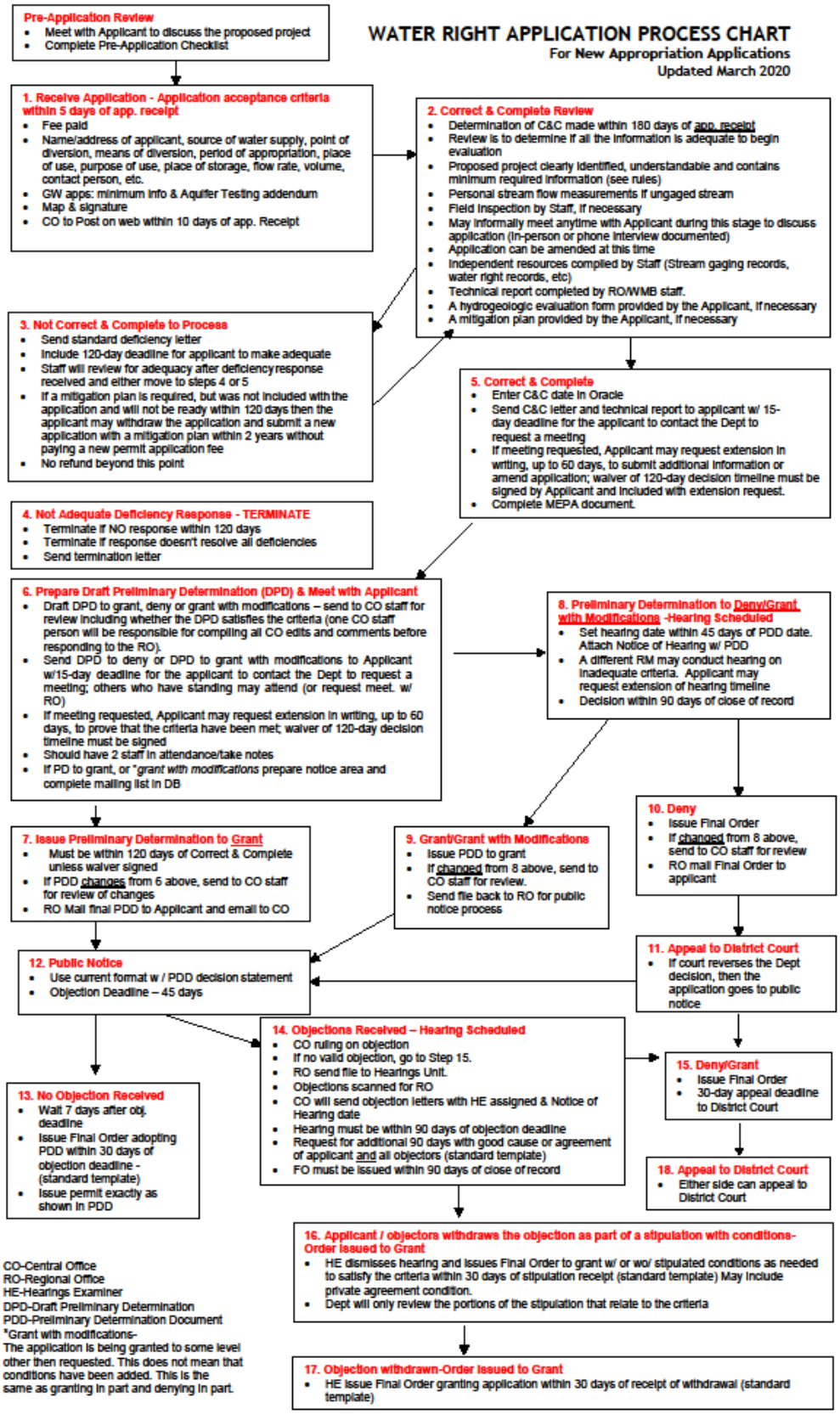
Application Processing Timelines & Flow Chart

For Applications Received Prior to Jan. 1, 2024:

The Department must maintain certain timelines when processing an application. These timelines are identified in statute (§§ 85-2-302 and -307, MCA (2021)). **An application will be processed under the statutes and administrative rules that were in effect at the time of application receipt**. Upon receipt of an application, the Department has 180 calendar days to review the application and send a deficiency letter identifying any defects in the application. The applicant has 120 calendar days to respond and address all deficiencies identified in the deficiency letter. If the Department does not notify the applicant of any defects within 180 calendar days, the application must be treated as a correct and complete application. A Correct & Complete letter will be sent to the applicant along with a Technical Report and any other reports which will be used by the Department for analysis of criteria for issuance of the permit authorization. Once the application is deemed correct and complete, the Department has 120 calendar days to issue a decision in the form of a preliminary determination document (PD). Assuming a PD decision to authorize the permit application, the application is prepared for and sent out to public notice. The notice period can be anywhere from 15-60 calendar days, and the Department has concluded that the notice period will be 45 calendar days unless the RO instructs otherwise for special circumstances. If no valid objections are received during public notice, the permit authorization can be issued immediately with an adoption order. If valid objections are received, the hearings unit will handle the case.

Pre-HB114 Process Flow Chart

The following flow chart outlines the steps in the change process for applications received prior to Jan. 1, 2024.



For Applications Received on or After Jan. 1, 2024:

The Department must maintain certain timelines when processing an application. **An application will be processed under the statutes and administrative rules that were in effect at the time of application receipt.** There are two processing timeline "pathways" that an applicant may take, depending on whether or not the applicant participates in a preapplication meeting with the Department. These timelines are identified in statute (§§ 85-2-302 and -307, MCA (2023)).

Preapplication Meeting Held

Process Overview

Below are the general steps in the permit and change application process if a preapplication meeting is held. See the more detailed description of each step of the process in the following sections.

- Preapplication meeting requested
- Preapplication meeting held
    - Applicant must complete the first signature(s) within **10 business days** of the preapplication meeting
    - Applicant must submit completed preapplication meeting form within **180 calendar days** of the preapplication meeting
- Preapplication Meeting Form (PMF) submission
    - Department must review the submitted PMF for adequate completion (and inform the applicant via Template Letter PA1) within **5 business days** of the PMF receipt date.
        - If the PMF is adequately completed, the Department will sign and accept the form. This acceptance date begins the 45 calendar day period to complete the technical analyses or scientific credibility review.
        - If the PMF is not adequately completed (thus, not accepted), the applicant may use the remaining time prior to the 180- calendar day deadline to submit an adequately-completed PMF.
    - Department must complete (and send the applicant, along with Template Letter PA2) the Technical Analyses or Scientific Credibility Review within **45 calendar days** of deeming the PMF to be adequately completed.
        - Internal timelines for Technical Analyses/ Scientific Credibility Review:
            - ≤ Day 5 after PMF receipt, RO sends WSB Checklist upon determination of adequately completed Preapplication Meeting Form.
            - ≤ Day 40 after PMF acceptance, WSB delivers their completed section of the report, and RO compiles report contents and prepares the report for delivery to applicant.
    - Applicant has **180 calendar days** from the date of the Technical Analyses Report/ Scientific Credibility Review completion to submit their application to the Department.
- Application receipt- deficiencies and correct and complete determination
    - Upon receipt of a permit or change application, the Department has **15 business days** to either send a deficiency letter (Template Letter A1) or determine the application to be correct and complete (and send Template Letter A2).
        - If deficiencies in the application are identified, the applicant has **120 calendar days** to respond to the deficiency letter with information addressing the deficiencies listed.
            - If the applicant does not respond to the deficiency letter with substantial and credible information, the Department must terminate the application (and send Template Letter T1) within **30 calendar days** of the deficiency response deadline.

        - Upon receipt of a correct and complete application via deficiency letter response, the Department will determine the application to be correct and complete within **30 calendar days** of the deficiency letter response.
- Preliminary determination
    - Upon determination of a correct and complete application, the Department has **60 calendar days** to issue a Draft PD to Grant/ Grant in Modified Form/ Deny the application (and send Template Letter A3).
        - Internal timelines for Draft PD:
            - ≤ Day 45 after correct and complete determination (≥15 calendar days before PD deadline), the RO will send the Draft PD to CO for review
                - *Please note that each regional office has their own process and deadlines for Regional Managers to review PDs. Those deadlines are not captured in this document, and staff need to be aware of them and build them into their schedule for PD processing.*
            - ≤ Day 55 after correct and complete determination, CO will return the reviewed Draft PD to RO
            - ≤ Day 60 after correct and complete determination, RO will consider CO comments and deliver Draft PD to applicant.
    - See the "PD Process Updates" section of the manual for more information on the PD versions that may be issued after the Draft PD.

Preapplication Meeting Form Completion

Upon the occurrence of the preapplication meeting, the applicant has 180 calendar days to return a completed Preapplication Meeting Form Part B to the Department along with a $500 preapplication meeting fee. The Department reserves 5 business days to evaluate whether the form was adequately completed to proceed with the technical analyses or scientific credibility review. If the form is adequately completed, the Department will accept the Preapplication Meeting Form and proceed with the technical analyses or scientific credibility review of applicant- completed technical analyses. If it is not adequately completed, the Department will not accept the form and will send the Preapplication Meeting Form Part B back to the applicant. The applicant then has any remaining days in the 180-day period from the date of the preapplication meeting to adequately complete the Preapplication Meeting Form. If the applicant does not adequately complete the form in the 180 calendar days from the date of the preapplication meeting, a new preapplication meeting will need to be scheduled. See the Preapplication Meeting section of the manual for more information on preapplication meetings and the Preapplication Meeting Form package.

Technical Analyses/ Scientific Credibility Review

Upon acceptance of an adequately completed Preapplication Meeting Form, the Department has 45 calendar days to complete either the technical analyses report (if the applicant designated the Department to complete the technical analyses) or the scientific credibility review report (if the applicant opted to complete the technical analyses themselves). After the technical analyses report or scientific credibility review report is completed, the applicant has 180 calendar days to submit their Application Form (600/606) to the Department before the Preapplication Meeting Form expires. Department-completed technical analyses expire one year from the completion date. See the Technical Analyses/Technical Reports section of the manual for more information on the technical analyses and scientific credibility review process.

Application Receipt

Upon submission of an application, the Department initially reviews the application package to determine whether it meets the application receipt requirements. If it does not meet submission requirements per ARM

36.12.1304 (permits) or 1305 (changes), the Department will return the application without stamping it received or accepting funds. If it does meet requirements, RO stamps application as received and performs initial entry. If a preapplication meeting was held, the Department has 15 business days to review the application for deficiencies and either send a deficiency letter or deem the application to be correct and complete. If the application includes information that differs from the technical analyses, or the applicant has since performed their own technical analyses, the application is treated as no preapplication meeting having occurred, and expedited timelines will not apply.

Deficiency Letter/ Correct and Complete

If application deficiencies are not identified within 15 business days of application receipt the application automatically defaults to a correct and complete application. If the Department sends a deficiency letter, the applicant has 120 calendar days from the date of the deficiency letter to submit a deficiency response letter. If a deficiency response letter is not received within that period, the Department must terminate the application. Within 30 calendar days of receiving a deficiency response letter, the Department must deem the application correct and complete or terminate the application. The RO may need to confer with WSB on whether deficiencies were corrected. An application not terminated after 30 calendar days will default to correct and complete. See the Correct & Complete and Deficiency Letters section of the manual for more information on deficiency letters and the correct and complete determination process.

Draft Preliminary Determinations

The Department has 60 calendar days from the determination of a correct and complete application to complete a Draft Preliminary Determination (PD). The applicant has 15 business days from the date of the Draft PD to request an extension of time to submit additional information, if desired. If the Department grants the request for extension of time, the Department will update the Draft PD to consider the new information submitted by the applicant. If the Draft PD is to deny or grant with modifications, the applicant may modify their application one time after the Draft PD is issued. If applicant submits a modification, timelines (and potentially priority date) are reset. Learn more about specific processes for each decision type in the Preliminary Determination Decision Types section below and see the PD Versions section of the manual for more information on the role of different PD version types in the application process.

Opportunity for Public Comment

Draft PDs to grant or grant with modifications will go to a public notice of opportunity for public comment for a period of 30 calendar days. See the Public Notice section of the manual for more information on public comment processes. Learn more about specific processes for each decision type in the Preliminary Determination Decision Types section below and see the PD Versions section of the manual for more information on the role of different PD version types in the application process.

Preliminary Determination

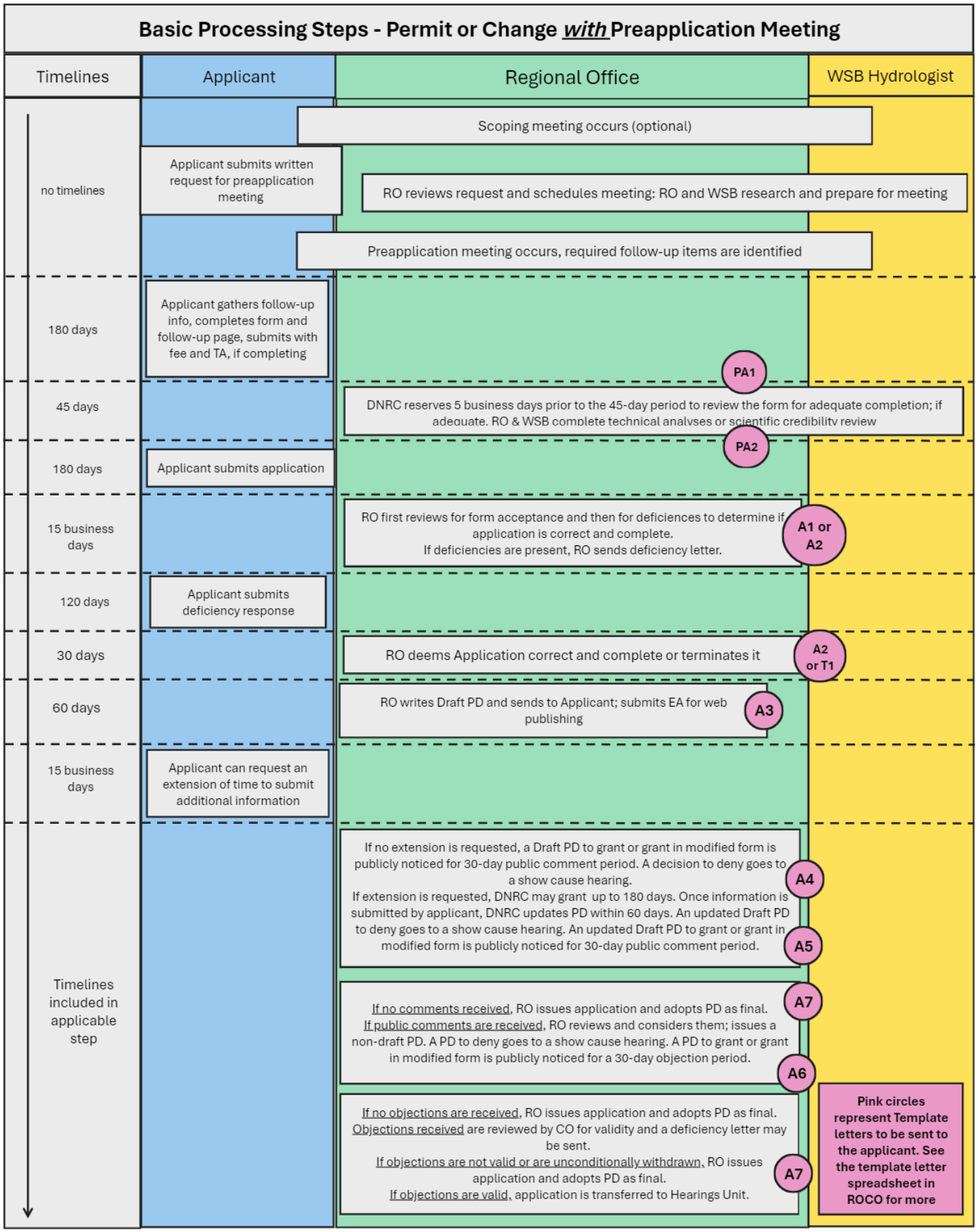
Following the receipt of public comments, the Department will update the Draft PD or updated Draft PD to consider public comments. The Preliminary Determination (non-draft) will be issued within 30 calendar days of the public comment period closing and will then go to public notice for opportunity to object to an application. Learn more about specific processes for each decision type in the Preliminary Determination Decision Types section below and see the PD Versions section of the manual for more information on the role of different PD version types in the application process.

Opportunity to Object to an Application

A PD will go to public notice of opportunity to object for 30 calendar days if the Draft or Updated Draft PD received public comments. Members of the public with standing to object can only object to an application on the basis of issues raised during the public comment period. If no valid objections are received during public

notice, the permit or change authorization can be issued immediately with an adoption order. If valid objections are received, the hearings unit will handle the case. For more information on the objection process, see the Public Notice section of the manual.

Flow Chart- Basic processing steps for applications WITH a preapplication meeting:



No Preapplication Meeting Held

Process Overview

Below are the general steps in the permit and change application process if a preapplication meeting is not held. See the more detailed description of each step of the process in the following sections.

- Application receipt- deficiencies and correct and complete determination
    - Upon receipt of a permit or change application, the Department has **30 business days** to either send a deficiency letter (Template Letter A1) or determine the application to be correct and complete (and send Template Letter A2).
        - If deficiencies in the application are identified, the applicant has **120 calendar days** to respond to the deficiency letter with information addressing the deficiencies listed.
            - If the applicant does not respond to the deficiency letter with substantial and credible information, the Department must terminate the application (and send Template Letter T1) within **30 calendar days** of the deficiency response deadline.
        - Upon receipt of a correct and complete application via a deficiency letter response, the Department will determine the application to be correct and complete within **30 calendar days** of the deficiency letter response.
- Technical Analysis/Scientific Credibility Review & Preliminary Determination
    - Upon determination of a correct and complete application, the Department has **120 calendar days** to issue a Draft PD to Grant/ Grant in Modified Form/ Deny the application (Template Letter A3).
    - Internal Timelines for a Draft PD:
        - Day ≤10 after correct & complete determination:
            - RO will send application and WSB checklist to WSB via HYDRODOCS folder (update database events, and send an email notifying WSB the documents are there)
            - RO and WSB will then spend ≤45 calendar days to complete their remaining respective parts of the technical analyses or scientific credibility review.
        - Day ≤55 after correct and complete determination:
            - WSB will send their portion of the technical analyses or scientific credibility review to RO.
            - RO will begin drafting the PD (≤50 calendar days to send the Draft PD to CO).
            - *Please note that each regional office has their own process and deadlines for Regional Managers to review PDs. Those deadlines are not captured in this document, and staff need to be aware of them and build them into their schedule for PD processing.*
        - Day ≤105 after correct and complete determination (≥15 calendar days before PD deadline):
            - RO will send draft Draft PD to CO for review
            - CO will review Draft PD (≤10 calendar days)
        - Day ≤115 after correct and complete determination:
            - CO will deliver Draft PD review to RO
            - RO will incorporate CO comments
        - Day ≤120 after correct and complete determination:
            - RO delivers Draft PD and technical analyses or scientific credibility review to the applicant.

- See the “PD Process Updates” section of the manual for more information on the PD versions that may be issued after the Draft PD.

Application Receipt

Upon submission of an application, the Department initially reviews the application package to determine whether it meets the application receipt requirements. If it does not meet submission requirements per ARM 36.12.1304 (permits) or 1305 (changes), the Department will return the application without stamping it received or accepting funds. If it does meet requirements, RO stamps application as received and performs initial entry. If a preapplication meeting was held, the Department has 30 business days to review the application for deficiencies and either send a deficiency letter or deem the application to be correct and complete.

Deficiency Letter/ Correct and Complete

If application deficiencies are not identified within 30 business days of application receipt the application automatically defaults to a correct and complete application. If the Department sends a deficiency letter, the applicant has 120 calendar days from the date of the deficiency letter to submit a deficiency response letter. If a deficiency response letter is not received within that period, the Department must terminate the application. Within 30 calendar days of receiving a deficiency response letter, the Department must deem the application correct and complete or terminate the application. The RO may need to confer with WSB on whether deficiencies were corrected. An application not terminated after 30 calendar days will default to correct and complete. See Correct & Complete Determination and Deficiency Letters section of the manual for more information on deficiency letters and the correct and complete determination process.

Technical Analyses/ Scientific Credibility Review

Upon receipt of a correct and complete application, the Department can begin either the technical analyses report (if the applicant designated the Department to complete the technical analyses) or the scientific credibility review report (if the applicant opted to complete the technical analyses themselves). The technical analyses report or scientific credibility review report will be delivered to the applicant with the Draft Preliminary Determination. Department completed technical analyses expire one year from the completion date. See the Technical Analyses/ Technical Reports section of the manual for more information on the technical analyses and scientific credibility review process.

Draft Preliminary Determinations

The Department has 120 calendar days from the determination of a correct and complete application to complete a Draft Preliminary Determination (PD) (and technical analyses/scientific credibility review). The applicant has 15 business days from the date of the Draft PD to request an extension of time to submit additional information, if desired. If the Department grants the request for extension of time, the Department will update the Draft PD to consider the new information submitted by the applicant. If the Draft PD is to deny or grant with modifications, the applicant may modify their application one time after the Draft PD is issued. If applicant submits a modification, timelines (and potentially priority date) are reset. Learn more about specific processes for each decision type in the Preliminary Determination Decision Types section below and see the PD Versions section of the manual for more information on the role of different PD version types in the application process.

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Preliminary Determination

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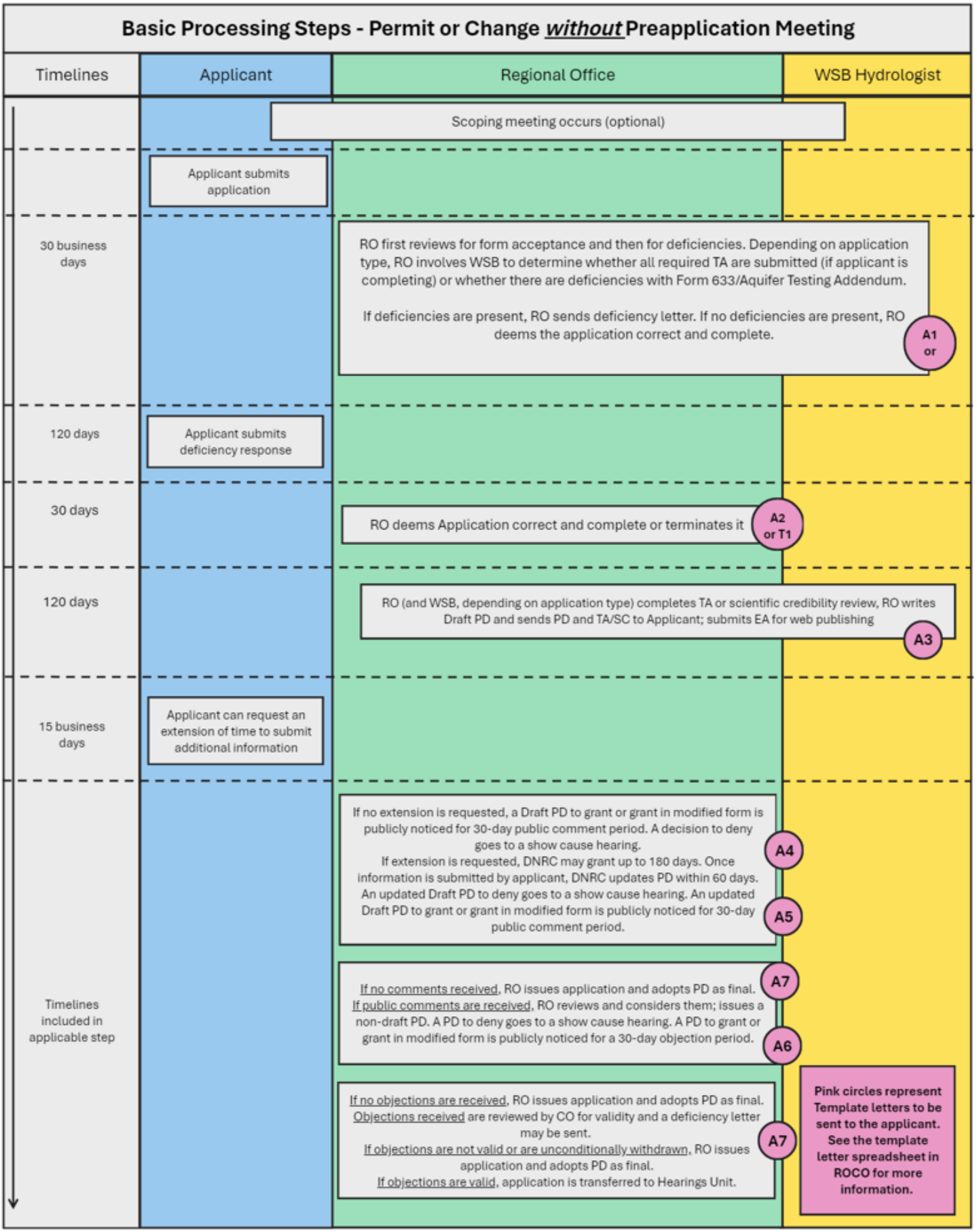
Opportunity to Object to an Application

A PD will go to public notice of opportunity to object for 30 calendar days if the Draft or Updated Draft PD received public comments. Members of the public with standing to object can only object to an application on the basis of issues raised during the public comment period. If no valid objections are received during public notice, the permit or change authorization can be issued immediately with an adoption order. If valid objections are received, the hearings unit will handle the case. For more information on the objection process, see the Public Notice section of the manual.

Flow Chart- Basic processing steps for applications WITHOUT a preapplication meeting:



State Statute, Administrative Rule, and Department Policy

Applications are processed according to state statutes, administrative rules, case law, and Department policy (memorandums or standard practice guidance documents) intended to clarify processes established by statute, rule, and case law. Statute is the law and is the final authority on any water rights issues or questions. Administrative rules are established as guidance, designed to carry out the directives of statute when not explicitly defined. The process for creating and adopting Administrative Rule is defined in statute and rule carries the force and effect of law. Case Law is established through Final Orders issued through the Hearings Unit of the Department or through a determination made by a court. Department policy is adopted only in situations where Statute and Administrative Rule do not clearly define a process, or when Case Law modifies how the Department looks at something. Memos and standard practice guidance documents all fall under the category of Department policy. Water right related definitions can be found either in Mont Code Ann. 85-2-102 or the Administrative Rules of Montana 36.12.101.

Roles and Responsibilities

For more information on the roles and responsibilities pertinent to processing permit and change applications, please see the "Permit and Change RACI Diagram" in the appendices of this document.

Regional Office (RO) Staff

- Responsible for applicant communications. If an attorney is representing the applicant, all communication on the application should be with the attorney unless the attorney has provided written consent otherwise. If the applicant is represented by a consultant, the applicant should be included on all communications (C.C. goes to the consultant).
- Responsible for ensuring applications are correct and complete and later determining if the information contained within the application meet the criteria. The RO staff is also responsible for making recommendations about approval or denial of change applications.
- RO staff is responsible for compiling a Technical Report (for applications received prior to Jan. 1, 2024) or Technical Analyses Report/ Scientific Credibility Review Report (for applications received on or after Jan. 1, 2024) that outlines what information is available and will be utilized to evaluate the criteria.
- RO staff and the RO manager as the decision maker will draft a Preliminary Determination which consists of findings of fact (based on the information presented in the Technical Report (for applications received prior to Jan. 1, 2024) or Technical Analyses Report/ Scientific Credibility Review Report (for applications received on or after Jan. 1, 2024) and other information gathered by the DNRC and submitted by the applicant) that state whether there is a preponderance of evidence that supports findings that the criteria for issuance of a change have been met. If the information gathered does not show by a preponderance of the evidence that the criteria for issuance have been met, RO staff may need to craft either a Draft Preliminary Determination to deny the application or a Draft Preliminary Determination to grant with modifications, based on the case specific circumstances.

Regional Office Manager

- Responsible for review of Technical Analyses and database coding
- Responsible for final approval or denial of authorizations.

Central Office (CO) Staff

- The CO staff is responsible for answering RO staffs questions relating to processes, MCA, ARM, forms, addenda, policy, precedent, procedure, timelines, PDs, database entry. CO is the clearinghouse for all application policy and procedural questions.
- Responsible for quality control and consistency involving permit and change applications.
- CO staff manages mailing and publishing of public notices for applications and determines if application objections are correct and complete.
- CO is responsible for reviewing PDs and noting processing inconsistencies along with identifying concerns relating to policy, procedure, ARM, and MCA.
- CO also acts as a filter for Legal Unit staff. If you have a "legal" question, make sure it either goes through the CO or that you involve the CO in your conversation with Legal.
- Policy matters should be addressed with the New Appropriations Program Manager, Water Rights Bureau Chief, and RO managers.

Water Sciences Bureau (WSB)

- WSB is responsible for answering RO staff's questions which relate to surface water measurements and calculations, aquifer testing requirements, evaluation of aquifer testing data. WSB also completes technical hydrological analysis or scientific credibility review for certain sections of the technical analyses, and peer reviews of hydrologist specialists work as deemed necessary by WSB and regional managers.
- WSB models and drafts Groundwater Permit Reports for all groundwater permit applications, except for permits for developed springs.

Hearings Unit

- If the application is denied or granted with modifications and the applicant requests a hearing, the Hearings Unit will conduct the hearing and issue a final order on the matter (show cause hearing).
- The Hearings Unit will also conduct hearings on applications which receive valid objections during the public notice period (contested case hearing).

The Applicant

- Responsible to provide all necessary information for a correct and complete application within the statutory timelines.
- The Department will communicate the steps of the application process to the applicant via template letters provided in ROCO > #HB114\Application Template Letters:

Template Letter Name	**Template Letter Code**
Pre-App- Form Receipt Confirmation & Successful/ Unsuccessful Completion Notification	PA1
Pre-App- Technical Analysis/ Scientific Credibility Review Report Delivery	PA2
Application Deficiency Letter	A1
Application Correct & Complete Notification	A2
Application Termination	T1
Draft PD Cover Letter	A3
Grant of Request for Extension of Timelines Letter	A4
Updated Draft PD Cover Letter	A5
PD (non-draft) Cover Letter	A6
Final Adoption Cover Letter	A7

What to Send to Whom Internally

Deficiency Letters: Do not need to be reviewed by CO staff; however, your normal office reviewer is always willing to be a second set of eyes if you'd like.

Technical Reports: Do not need to be reviewed by CO staff; however, your normal office reviewer is always willing to be a second set of eyes if you'd like. Offices are encouraged to send complicated Technical Reports in for review, so the CO is involved earlier in the process and prior to Correct & Complete or technical analyses/ scientific credibility review delivery.

EAs: Do not need to be reviewed by CO staff; however, your normal office reviewer is always willing to be a second set of eyes if you'd like. Go to the MEPA webpage on the DNRC intranet site and use the online submission form to get the EA posted to the web.

PDs: After your Regional Manager has completed a comprehensive quality and content review of your PD, send it to your CO contact person and CC the New Appropriations Program Manager, Regional Operations Manager, and other New Appropriations Program Specialists. Do not send PDs to hearings examiners.

Public Notice: Send a copy of the finalized PD in PDF format to both CO CT contacts in the Central Office along with a note that the public notice is ready to go. Be sure to include both individuals in your email, in case your contact is out of the office. Please remember to include the email address contact information for the Applicant and consultant or attorney in the body of your email to the CO CTs. See the Public Notice section of this manual for more information on communication guidelines for the public notice process.

RO/CO Application Review and Communication Guidelines

- Include Regional Managers in CO decisions that affect policy or process.
- RO and CO staff should be familiar with case law cited in decision documents.
- If case law changes or new case law is established, templates will be updated by legal or CO to incorporate the changes.
- Please send PDs for CO review **at least 15 calendar days** prior to the PD deadline.
- Initiate discussion between RO and CO staff regarding when legal review is necessary. PDs to Deny, PDs to Grant Marketing for Mitigation applications, and PDs to Grant consumed uses of water that exceed 5.5 CFS *and* 4,000 AF per year may need to be reviewed by Legal after CO review. Consult your regional manager and your CO contact if you think a PD may need legal review, and please plan to allot extra time in the review process.
- Decision making is the RO manager's responsibility.
- CO will review decision document drafts for consistency with regards to law, rule, and policy, and make suggestions for improvements as needed.
    - If the manager has questions about whether a PD review comment is a legal, policy, or consistency issue then they should discuss it with the CO.

Preliminary Determination Decision Types

Decision to Deny

For Applications Received Prior to Jan. 1, 2024:

If the PD decision is to deny (or grant with modifications), a draft PD is sent to the applicant and the applicant then has the option to request a meeting within 15 calendar days. If a meeting is requested, the applicant may request, in writing, up to 60 calendar days to provide follow-up information that could lead to a PD to authorize the change. If additional time is requested to provide additional information, the applicant must submit a waiver of timelines form with that request. This is necessary to give the Department adequate time to review the additional information and complete the PD, considering the new information. The waiver of timelines form

must be signed by the applicant or their Attorney if they are being represented by legal counsel. If the draft denial proceeds to a PD to deny, a hearing will be scheduled unless the applicant chooses not to pursue the hearing, pursuant to § 85-2-310(1)(a), MCA.

For Applications Received on or After Jan. 1, 2024:

If the PD Decision is to deny, a Draft PD is sent to the applicant. The applicant has 15 calendar days to submit a request for extension of timelines to submit additional information, after which the Department can grant the applicant up to 180 calendar days to submit additional information for the Department to consider in the decision. If no request for extension of timeline is submitted to the Department within 15 calendar days, the Department sends the application to the Office of Administrative Hearings (OAH) to schedule a show-cause hearing. If the applicant does submit a request for extension of timeline within 15 calendar days of Draft PD issuance, the Department may grant a set amount of time (up to 180 calendar days) for the applicant to submit additional information. The DNRC must inform the applicant of the granted extension in writing (see Template Letter A4). Upon receipt of additional information, the RO needs to determine whether the additional information submitted would require the applicant to submit a modification form. If so, RO should direct applicant to submit a Form 655, which will reset timelines, and potentially the priority date (ARM 36.12.1401). DNRC shall issue an updated Draft PD within 60 calendar days after the earliest date of either: the extension deadline set, or DNRC's receipt of written notice from applicant saying all information has been submitted. DNRC may revise PD based on new information submitted (MCA 85-2-307(3)(b)). If the draft denial proceeds to an updated Draft PD to Deny, a show-cause hearing will be scheduled unless the applicant chooses not to pursue the hearing.

Decision to Grant in Modified Form

A preliminary decision to grant a permit or change in modified form is made when the permit or change is granted only partially, and/or in a way that is different from what the applicant proposes.

For Applications Received Prior to Jan. 1, 2024:

The PD to Grant in Modified Form must be clear about which elements/findings made by the Department are modifications to the original application proposal, and why those modifications are taking place (e.g., “The applicant propose to divert X CFS up to a volume of X AF for X purposes. Based on [Y reasons], the modified flow rate and volume that may be appropriated after this change is Y CFS up to Y AF.”)

Specific statutory provisions in § 85-2-310(7), MCA apply to decisions to grant in modified form. The following process implements those provisions, and must be followed for a decision to grant in modified form:

1. At least 15 calendar days prior to the 120-day decision deadline, DNRC sends the applicant a draft PD to Grant in Modified Form. The applicant has the opportunity to review the draft PD and has 15 calendar days to request a meeting with DNRC to provide additional information proving why the application without modifications meets the criteria for issuance, if desired.
    a. If they request a meeting within 15 calendar days, the applicant must sign a waiver of statutory timelines, so the Department is no longer required to issue a final Preliminary Determination within the 120-day statutory deadline.
    b. If a meeting is requested (and a waiver of timelines has been signed), the applicant can request up to 60 calendar days of additional time to submit information. (The 60-day clock can begin ticking the day the requested meeting is held.)
2. If a meeting is not requested, the draft PD to Grant in Modified Form becomes a PD (non-draft) to Grant in Modified Form and is sent to the applicant, along with a cover letter informing them they have 30 calendar days to request a show-cause hearing. Ensure the Notice language at the end of the PD references the show-cause hearing process. The PD to Grant in Modified Form is not yet sent to public

notice. If the applicant wants to request a show-cause hearing, they have 30 calendar days to do so in writing.

3. If a show-cause hearing is not requested, the PD to Grant in Modified Form proceeds to public notice, where the process is then consistent with PDs to Grant. At this stage, ensure the Notice language at the end of the PD references the public notice process, and not the show-cause hearing process.

Specific letter templates have been designed to outline this process for the applicant. 'Step 1' and 'Step 2' letter templates are available in ROCO FOLDER\DECISION DOCUMENTS\PRELIMINARY DETERMINATIONS\PD TEMPLATES. The 'Step 1' and 'Step 2' letters correspond with Steps 1 and 2 detailed in the list above.

For Applications Received on or After Jan. 1, 2024:

If the PD Decision is to grant with modifications, a Draft PD is sent to the applicant. The applicant has 15 calendar days to submit a request for extension of timelines to submit additional information, after which the Department can grant the applicant up to 180 calendar days to submit additional information for the Department to consider in the decision. If no request for extension of timeline is submitted to the Department within 15 calendar days, the Department will send the Draft PD to public notice of opportunity for public comment (See Public Notice section of this manual). If the applicant does submit a request for extension of timeline, the Department may grant a set amount of time (up to 180 calendar days) for the applicant to submit additional information. The DNRC must inform the applicant of the granted extension in writing (see Template Letter A4). Upon receipt of additional information, the RO needs to determine whether the additional information submitted would require the applicant to submit a modification form. If so, RO should direct applicant to submit a Form 655, which will reset timelines, and potentially the priority date (ARM 36.12.1401). DNRC shall issue an updated Draft PD within 60 calendar days after the earliest date of either: the extension deadline set, or DNRC's receipt of written notice from applicant saying all information has been submitted. DNRC may revise PD based on new information submitted (MCA 85-2-307(3)(b)).

Decision to Grant

For Applications Received Prior to Jan. 1, 2024:

If the PD decision is to grant, a non-draft PD is sent to the applicant at the same time as being sent to public notice for objections. See the Public Notice section of this manual for more information.

For Applications Received on or After Jan. 1, 2024:

If the PD decision is to grant, a Draft PD is sent to the applicant. The applicant has 15 calendar days to submit a request for extension of timelines to submit additional information, after which the Department can grant the applicant up to 180 calendar days to submit additional information for the Department to consider in the decision. If no request for extension of time is submitted to the Department within 15 calendar days, the Department will send the Draft PD to public notice of opportunity for public comment (See Public Notice section of this manual). If the applicant does submit a request for extension of timeline, the Department may grant a set amount of time (up to 180 calendar days) for the applicant to submit additional information. The DNRC must inform the applicant of the granted extension in writing (see Template Letter A4). Upon receipt of additional information, the RO needs to determine whether the additional information submitted would require the applicant to submit a modification form. If so, RO should direct applicant to submit a Form 655, which will reset timelines, and potentially the priority date (ARM 36.12.1401). DNRC shall issue an updated Draft PD within 60 calendar days after the earliest date of either: the extension deadline set, or DNRC's receipt of written notice from applicant saying all information has been submitted. DNRC may revise PD based on new information submitted (MCA 85-2-307(3)(b)).

Request for Extension of Timelines

The Department has made available an opportunity for an applicant to request an extension of time after the Draft PD is issued by the Department. Upon a request for extension of time, the Department can grant the applicant, in writing, up to 180 calendar days to submit additional information for the Department to consider in the decision (MCA 85-2-307(3)(a)). If DNRC granted the request for extension of time, the Department shall issue an updated Draft PD within 60 calendar days of the earliest date of either:

- The extension of deadline set (up to 180 calendar days granted by DNRC upon request of the applicant)
- DNRC's receipt of written notice from applicant saying all information has been submitted. (MCA 85-2-307(3)(b))

If you feel that a request for extension of timelines should be denied to an applicant, please contact Central Office.

Waiver of Timelines

Note that applications received prior to Jan. 1, 2024, may apply a "Waiver of 120 Days Statutory Timeline for Preliminary Decision" form. ***Note that applications received after Jan. 1, 2024, cannot use this form.***

The Department has made available a "Waiver of 120 Days Statutory Timeline for Preliminary Decision" form, more commonly referred to as a 'waiver of timelines. An applicant signing this form is waiving the Department's statutory obligation in § 85-2-307, MCA to complete a preliminary determination within 120 calendar days of an application being deemed correct and complete. The applicant may waive timelines at any point in the process following a correct and complete determination, but before a preliminary determination has been sent to the applicant. An applicant cannot waive any timelines prior to a Correct & Complete determination of the application. If an applicant waives timelines on an application, staff processing the application should make every effort to complete review and draft a decision document in a timely fashion.

Preapplication Meetings

Overview

Meeting Purpose

The purpose of the preapplication meeting is to make the Application process more streamlined, predictable, and efficient for both the applicant and Department. While preapplication meetings are optional, they are encouraged by the Department and offer the following incentives:

- Discounted filing fee,
- Expedited application timelines,
- Receipt of Technical Analyses report prior to application submittal.

The preapplication meeting should be used to delve into the details of the proposal and explore areas of potential conflict or difficulties foreseen with completing the application materials or project as the applicant is proposing. The applicant needs to fully understand all criteria applicable to their proposed project. This will help the applicant prepare themselves and put together a comprehensive application and hopefully avoid difficulties in processing upon completion of the Preapplication Meeting Form.

It is likely that you will meet with the applicant prior to the preapplication meeting. For purposes of clarification, this type of meeting will be referred to as a scoping meeting. When and if you have such a meeting, make it very clear that a scoping meeting does not take the place of the preapplication meeting.

It may be beneficial to set up a site visit with the applicant. Work with your regional manager and the applicant to determine if and when a field visit should take place.

Preapplication Meeting Fee and Application Discount

A fee of $500 is required at the time of Department receipt of the signed Preapplication Meeting Form (within 180 calendar days after the preapplication meeting is held). This $500 fee will be credited toward the total discounted filing fee of the permit or change application form. The new fees are as follows:

- Permit application in a closed basin: $2900
- Permit application in a closed basin with a preapplication meeting: $1600
    - Permit preapplication fee is $500 – this $500 would be credited to the $1600 fee, so the payment required at application submittal is $1100.
- Permit application in an open basin: $2500
- Permit application in an open basin with a preapplication meeting: $1200
    - Permit preapplication fee is $500 – this $500 would be credited to the $1200 fee, so the payment required at application submittal is $700.
- Change application: $2500
- Change application with a preapplication meeting: $1500
    - Change preapplication fee is $500 – this $500 would be credited to the $1500 fee, so the payment required at application submittal is $1000.

Preapplication Meeting Timelines

- Preapplication Meeting Held
    - **Applicant** has **180 calendar days** from the date of the preapplication meeting to complete and sign the Preapplication Meeting Form Part B and return it to the Department with the $500 preapplication meeting fee.
- Preapplication Meeting Form Received
    - The **Department** reserves the first **5 business days** after the Preapplication Meeting Form Part B receipt to determine if the Preapplication Meeting Form Part B submitted by the applicant was adequately completed for the Department to proceed with technical analyses. If the applicant has elected to complete the technical analyses, the Department must also determine in these 5 business days whether the applicant submitted each piece of technical analyses required based on the proposed project and the Department is able to proceed with the scientific credibility review. This determination of adequate Preapplication Meeting Form Part B completion is communicated to the applicant with Template Letter PA1.
        - If the Preapplication Meeting Form Part B (and technical analyses if applicable) are not deemed adequately completed, the Department does not accept the Preapplication Meeting Form and will return the form to the applicant. The applicant can use any remaining days in the 180-calendar day time frame (days since the preapplication meeting) to adequately complete the Preapplication Meeting Form by submitting a new Part B (and technical analyses if applicable).
    - If the Department accepts the submitted Preapplication Meeting Form Part B (and technical analyses if applicable), the **Department** has **45 calendar days** from the date of Preapplication Meeting Form Part B acceptance to either complete the technical analyses or complete the scientific credibility review. The Technical Analyses are sent with Template Letter PA2.
- Technical Analyses Report/ Scientific Credibility Review Report Delivery

    - From the date that the Department sends either the Technical Analyses Report or the Scientific Credibility Review Report, the **applicant** has **180 calendar days** to submit their application to the Department.
- Application Receipt
    - Application processing timelines are expedited if a preapplication meeting was held for the application. See Application Processing Timelines section of the manual for more information.

Meeting request

Rule requirements

Per ARM 36.12.1302(2), a request to schedule a preapplication meeting for a permit or change must be written (electronically or physically) and include the following information:

- (a) the flow rate and volume of water required;
- (b) the point of diversion;
- (c) the place of use;
- (d) the source of water;
- (e) the purpose;
- (f) for changes, the water right(s) proposed to be changed;
- (g) for changes, an explanation of historical use of the right(s) proposed for change;
- (h) any proposed places of storage, if applicable; and
- (i) for applications proposing a new well or wells, the well depth(s) and location.

An optional Request for Preapplication Meeting Form is available on our Forms webpage.

Level of detail

The applicants should provide details to the best of their knowledge at the time of the preapplication meeting request, for the Department to prepare for the meeting to the best of our ability. We will not "reject" a preapplication meeting request due to lack of detail, so long as the required information is submitted per rule. When scheduling a meeting with the applicant, make sure they are aware of the location and content of the Preapplication Meeting Form Part A. If the applicant has more information than is required per rule when requesting the preapplication meeting, (for example, historical use records that the Department may not otherwise have access to) it would be helpful for the applicant to provide this information prior to the meeting (though not required). It's important to make clear to the applicant that the information the Department brings to the preapplication meeting is dependent on the information provided in the written preapplication meeting request. If an applicant wants to schedule a preapplication meeting but lacks information that would inform the Department's preliminary research prior to the meeting, the Department may strongly suggest the meeting be a "scoping meeting"- this behooves both the applicant and the Department.

For all groundwater applications, WSB needs the proposed point(s) of diversion and the proposed well depth(s) (¼ ¼ ¼ section, township, and range) to identify the depleted surface water sources before the preapplication meeting. For surface water irrigation changes, WSB needs the historical and proposed places of use and points of diversion to determine where return flows historically accrued and are projected to accrue.

What can change (between preapplication meeting request and preapplication meeting)

The Department will not hold applicants to the information provided in the preapplication meeting request. However, it's important the applicant is aware that deviating from information provided in the preapplication meeting request may invalidate the preliminary research conducted by the Department. Regional offices

should strongly encourage applicants in this situation to change their meeting type to a scoping meeting, so that the applicant can get the correct information at the time of the preapplication meeting.

Scheduling the meeting

Timelines

There is no rule or statutory timelines for when a preapplication meeting needs to be scheduled following a preapplication meeting request. Preapplication meetings should generally be scheduled about a month out to give the Department ample time to prepare for the meeting and conduct preliminary research on the application while also managing the current workload.

Coordination with WSB

For all groundwater applications and surface water irrigation water right change applications in which the place of use is being changed, the WSB will prepare for and attend preapplication meetings. When scheduling a preapplication meeting for either groundwater applications or surface water irrigation changes, confirm WSB availability and send an invitation to the meeting via the shared WSB preapplication meeting calendar. Preapplication meetings involving WSB need to be scheduled a **minimum of 30 calendar days** from when the meeting request was made, for WSB to have ample time to prepare for the meeting. **Please attach all submitted preapplication materials to the meeting event.** WSB will then designate a staff member to prepare for and attend the meeting.

Preparation for the meeting

Information to bring to the meeting

While applicants are not held to the information provided in the preapplication meeting request, the Department will prepare for the meeting using the information provided in the request. All parties, including WSB and RO, need to be on the same page during the preapplication meeting—schedule a meeting with WSB ahead of the meeting if necessary.

Water right documents and history (for changes)

For changes, the RO should be familiar with the history and current status of the water right, including decree status, if there's a current Water Court case, or any previous changes (active or inactive) on the water right being changed. The RO should also research the historical use of the water right, using the information supplied by the applicant and other resources (WRS maps and field notes, historical imagery, records, etc.).

Unique basin scenarios

If there are basin closures, enforcements, or other potentially unique conditions in the area (such as gaged vs ungaged sources), this is important information to have prepared at the meeting to convey to the applicant.

Any red flags!

Communicate any red flags or points of confusion you come across to the applicant. If you have policy questions at or prior to the meeting, reach out to the Central Office so they can be addressed as soon as possible (there will be limited time for policy discussions during the period of technical analysis or scientific credibility review).

Holding the meeting

Preapplication Meeting Attendees

Groundwater permit or change applications:

- RO staff

- WSB staff
- Applicant and/or applicant representative

Surface water permit applications:

- RO staff
- Applicant and/or applicant representative

Surface water non-irrigation change applications:

- RO staff
- Applicant and/or applicant representative

Surface water irrigation change applications***, if the place of use or purpose is being changed***:

- RO staff
- WSB staff
- Applicant and/or applicant representative

Meeting structure

The preapplication meeting will walk through the proposed project by completing (or going over, if information is not available) the applicable steps of the Preapplication Meeting Form Parts A & B. Make it clear that the DNRC is a neutral party and that we are here to educate and assist the applicant. We need to remain fair and consistent in our dealings with the applicant throughout the process and cannot appear as an advocate or act as a consultant. Ideally the meeting will have an interactive nature- so having resources on-hand like the WRS maps, Irrigation Calculator Tool, and the Technical Analyses Guide will allow for a more quality discussion with the applicant.

How to fill out the Preapplication Meeting Form

The Preapplication Meeting Form (form) Part A will be filled out by the regional office staff during the preapplication meeting. The idea behind the comprehensive form is that most questions are specific and require little narrative, unless otherwise indicated. For questions that require a narrative response, there are specific instructions to do so. For questions that the applicant cannot answer at the time of the preapplication meeting, RO staff should select the "follow up" box so that the applicant and Department know that the applicant is required to submit more information following the meeting using the designated follow-up section of Part A of the form. The follow-up section will be used by DNRC to document required information the applicant must gather during the 180 calendar days after the preapplication meeting. The applicant will then use Part B to document and submit the additional information they have gathered and are now submitting. Part B of the Preapplication Meeting Form can also be used by the applicant to document any changes they desire to make to Part A of the form that was signed at the end of the preapplication meeting.

For example, if the applicant determines during the 180 calendar days following the preapplication meeting that they want to change/ amend their response to question 5a from the response given during the preapplication meeting, the applicant could list question 5a in Part B of the Preapplication Meeting Form, along with their requested change to their earlier response to that question.

Looking for red flags

As mentioned above, if the applicant has changed significant information from their preapplication meeting request, the regional office staff should strongly suggest the applicant consider the meeting at hand to be a scoping meeting instead of a preapplication meeting.

First signatures

At the end of the preapplication meeting, both the applicant and Department will sign the Preapplication Meeting Form Part A. If the applicant or attorney is not physically present at the preapplication meeting, the Department allows for a 10 business day grace period to receive the first set of original signatures on the Preapplication Meeting Form Part A. The Department should be signing the Preapplication Meeting Form after receiving the applicant's original signature. It's important that the applicant is aware of the expectations of them at the time of first signatures. At this time, the applicant's signature will be acknowledging the following:

- "We attest that the information on this form accurately describes the proposed project discussed during the preapplication meeting, and that the items marked for follow-up will require the Applicant to provide additional information before the form is deemed complete."
- "Applicant acknowledges that any information provided by the Department during the preapplication meeting is preliminary and subject to change."
- "Applicant acknowledges that if the follow-up information provided to the Department substantially changes the proposed project, for example in a way that alters which sections of the form are applicable or which technical analyses are required, or who is to complete the technical analyses, the applicant will need to schedule a new preapplication meeting so that the Department can identify any additional information necessary for completion of the technical analyses (ARM 36.12.1302(3)(c))."

Receiving the completed (signed) Preapplication Meeting Form

Deadline for receipt

After the preapplication meeting is held, the applicant has 180 calendar days to finish the Preapplication Meeting Form Part B (gather any missing information indicated as needing follow up, or to make any changes to the content discussed in the preapplication meeting). If the applicant has opted to do technical analyses, the applicant must also submit the technical analyses within 180 calendar days of the preapplication meeting.

Preapplication Meeting Form receipt

- Upon Department receipt of Part B of the Preapplication Meeting Form (within 180 calendar days following the meeting), the Department reserves five business days to **deem the Preapplication Meeting Form package (Parts A & B) to be <u>inadequately completed</u>** if:
    - 1 – the completed form does not include all necessary follow-up information identified in the meeting, **OR**
    - 2 – the completed form is not adequate for the Department to proceed with technical analyses, **OR**
    - 3 – the applicant has elected to complete technical analyses and has not submitted each piece of technical analysis required, **OR**
    - 4 – the applicant has substantially changed the details of the proposed project, such as in a way that alters which sections of the form are applicable, which technical analyses are required, or who is to complete the technical analyses.
- If the Department deems the form package to be inadequately completed within these five business days due to reasons 1-3 above, the applicant can use the balance of their 180-calendar day period in ARM 36.12.1302(4) or (5) to gather the remaining follow-up information needed.
    - If there is no time remaining in the 180-calendar day period, the applicant can submit a written request for a new preapplication meeting, pursuant to ARM 36.12.1302(2).
        - Even if there is still time remaining, the applicant can choose to schedule a new preapplication meeting.
- The Department shall transfer the $500 payment received to the new preapplication meeting, or refund the payment to the applicant if the applicant desires. If the Department returns the form to the

applicant within these five calendar days due to reason (4) above, the applicant must submit a written request for a new preapplication meeting, pursuant to ARM 36.12.1302(2).

- The Department shall transfer the $500 payment received to the new preapplication meeting, or refund the payment to the applicant if the applicant desires
- If the Department determines the form is **adequately completed,** the Department will sign and accept the form, and the 45- calendar day period for the Department to complete the technical analyses or scientific credibility review begins.

Preapplication Meeting Form Adequacy Review Expectations

Note the differences in both expectations and timing between the Department's application deficiency review, Preapplication Meeting Form (PMF) adequacy review, and Scientific Credibility Review (applicable only if the applicant is completing their own technical analyses). See the table below for a comparison of the three potential stages of review, when each stage is applicable, and what each review should entail.

	Preapplication Meeting Form Adequacy Review	Technical Analyses Scientific Credibility Review	Application Deficiency Review
Details of Review	• Review PMF for completion and adequate answers to mandatory questions • Review amended questions section of the PMF and ensure that no amended answers change the project in such a way that you'd want to call the meeting a scoping meeting (for example, if a mandatory part of the form that was originally not applicable is now applicable) • If Department is doing TA, review TA components (mandatory sections) to ensure previously discussed variables have not changed	• In-depth credibility findings of each component of the applicant-completed TA • N/A if Department completes the TA	• Review for completion and adequate answers to all questions • If preapplication meeting was held, compare previously completed TA / SC review to application contents to ensure preapplication pathway still applies
Preapplication Meeting Pathway	Occurs within 5 business days of Department receipt of the Preapplication Meeting Form *Note that at this time, if the Department is conducting the TA, components of analyses are to be vetted for adequacy/ correctness to be used in the TA. This is to ensure that the numbers considered in the TA are usable.* *Examples of components that must be preemptively vetted are variables of the historical use analysis such as management factor or conveyance losses, or variables of the surface water analysis like gage data and physical availability estimation technique.*	Occurs within 45 calendar days of acceptance of the PMF, assuming the PMF is adequately completed. *Note this step does not occur if the Department is completing the technical analyses.*	Occurs within 15 business days of application receipt *Note that this review should not include any review of the technical analyses, unless the applicant submitted information in the application/ a new Technical Analyses Addendum that contradicts the existing technical analyses.*
No Preapplication Meeting Pathway	N/A (not completed on this application pathway)	Occurs within 120 calendar days of correct and complete determination, to be delivered with the Draft PD. (internal timeline to complete within 45 days of correct and complete application determination) *Note this step occurs after the application deficiency review in this pathway.* *Note that this step does not occur if the Department is completing the technical analyses.*	Occurs within 30 business days of application receipt. *If the Department is completing the technical analyses, the Technical Analyses Addendum (TAA) must be evaluated for deficiencies/ usable data.* *Examples of components that must be preemptively vetted are variables of the historical use analysis such as management factor or conveyance losses, or variables of the surface water analysis like gage data and physical availability estimation technique.*

Second signature expectations

It's important that the applicant understands what is expected of them at the time of Preapplication Meeting Form Part B submission and what is expected of the Department within 5 business days of Preapplication Meeting Form Part B receipt. At these times, the applicant and Department will be attesting to the following:

When the applicant submits the signed Preapplication Meeting Form to the Department:

- Signed at the time they submit completed form with follow-ups to Department: *"I attest that this preapplication meeting form (Form 600P-A and Form 600P-B), follow-up, and amended responses accurately portray the proposed project. I am aware that my/our application for this project will not qualify for a discounted filing fee and expedited timelines if, upon submittal of the application to the department, I change any element of the proposed application from the preapplication meeting form, amended responses, or follow-up materials (ARM 36.12.1302(6)(a))."*

When the Department signs the applicant- signed Preapplication Meeting Form:

- Signed by the Department within five business days of PMF receipt, if PMF is adequately completed: *"We confirm that the preapplication form (Form 600P-A and Form 600P-B), amended responses, and follow-up information are adequate for the Department to proceed with technical analyses in ARM 36.12.1303. Or, if the Applicant has elected to complete technical analyses, we confirm they have submitted each required element of technical analysis based on the proposed project and the Department is able to proceed with the scientific credibility review (ARM 36.12.1303(8))."*
- Note that this second signature begins the 45 calendar day period for the technical analyses/ scientific credibility review process. With the second Department signature, the Department is confirming acceptance of the Preapplication Meeting Form package and that the information in the submitted Preapplication Meeting Form package is adequate and will inform the technical analyses or scientific credibility review for the application at hand. This is why it is so important to use the first 5 business days after Preapplication Meeting Form Part B receipt and prior to the 45 calendar day time period to confirm that all required information is included and is appropriate to be used by the Department.
- For example, If the applicant is proposing to deviate from DNRC standard practices for historical use and is therefore submitting a historical use addendum with their completed preapplication meeting form, the Department needs to confirm during this 5-day review period whether the submitted values on the addendum are adequately justified so that the Department can produce credible technical analyses.

Next steps

Technical analyses report/ scientific credibility review delivery

Once the Preapplication Meeting Form Part B has been signed by the Department, the Department has 45 calendar days from the date of PMF acceptance to complete either the technical analyses or the scientific credibility review. See the Technical Analyses/ Technical Reports section of the manual for more information on the technical analyses/ scientific credibility review processes and internal timelines.

Application receipt

After the technical analyses or scientific credibility review delivery, the applicant has 180 calendar days to submit the application to the Department. Per ARM 36.12.1302(6)(a), the application will not qualify for the discounted filing fee and expedited timelines if upon submittal of the application to the Department, any element of the proposed application is different from the Preapplication Meeting Form and follow-up materials. See the Application Receipt section of the manual for more information on application receipt processes.

Database coding

Initial entry

Following the preapplication meeting you will need to create a record of the event and an application number in the database. Listed below is essential information that must be entered into the database.

- Create a new application and enter the **Basin**, **Application Type** (600P or 606P), and **Date/Time Received** (date/time of preapplication meeting).
- Add the **applicant.**
    - You may need to create a new Contact record for the applicant before you are able to add them to the application. If the applicant has a representative (attorney, consultant, etc.) also add that information to the Contact record for the applicant.
    - A "Begin Date" for the applicant will automatically populate in the application based on the date/time the preapplication meeting was held.
- File Location and Processor information will automatically populate based on data for the user performing the initial entry. Ensure the Processor Staff information is kept up to date to reflect the staff person assigned as point person for the project.
- A **Preapplication Meeting Held event and date** will be added automatically based on the date and time you entered when creating the application record. The Response Due information for the Preapplication Meeting Held event will automatically show 180 calendar days after the meeting date – this is the date by which the applicant must return the completed preapplication meeting form (and technical analyses if they've elected to complete them).
- If a preapplication meeting expires and the applicant schedules a new one, create a new 600P/606P rather than reusing the old one.
- If an application is received for a project that had a preapplication meeting, change the application type on the 600P or 606P to instead be 600 or 606 upon receipt of the application form.
    - Do this even if you notice that the application has changed from the preapplication meeting form. In this instance, also add the MNEP event.
- If a preapplication meeting expires and the applicant submits an application (600 or 606) for the same project, create a new 600 or 606, rather than changing the application type on the 600P or 606P for the preapplication meeting.

New Changes to Database entry:

- When the completed and signed Preapplication Meeting Form Part B is received, add the "Preapplication Meeting Form Received" event. Staff should also manually enter the PMF acceptance or rejection deadline (5 business days after PMF receipt) into the "response due" section.
- When the Preapplication Meeting Form is deemed adequately completed and accepted by the Department, add the "Preapplication Meeting Form Accepted" event. Also add the $500 payment to the Payments tab on the application record.
- If the Department deems the Preapplication Meeting Form inadequately completed (within 5 business days of PMF receipt), add the "Preapplication Meeting Form Returned" event, and add a comment within the event that includes the original Preapplication Meeting Form receipt date. When you add the "Preapplication Meeting Form Returned" event, delete the original "Preapplication Meeting Form Received" event. If the Form is then submitted to the Department again after the applicant resolves any issues, add a new "Preapplication Meeting Form Received" event.

Events

The following events are entered prior to application receipt if a preapplication meeting was held:

- PREAPPLICATION MEETING HELD (PAMH) *(automatically entered when application is created)*
- PREAPPLICATION MEETING FORM RECEIVED (PMFR)
    - Staff should manually enter the PMF acceptance or rejection deadline (5 business days after PMF receipt) into the "response due" section.
- PREAPPLICATION MEETING FORM ACCEPTED (PMFA)

    - Staff should manually enter the 45-day Technical Analyses Report/ Scientific Credibility Review deadline into the "response due" section.
- PREAPPLICATION MEETING FORM RETURNED (PMFX) (*only if applicable)*
- TECHNICAL ANALYSES DELIVERED TO APPLICANT (TASA) *(only if applicable)*
- SCIENTIFIC CREDIBILITY REVIEW DELIVERED TO APPLICANT (SCRS) *(only if applicable)*

See the Standard Application Processing Events table (Appendices) for a comprehensive list of events that may be entered throughout the application process.

Application Acceptance Review & Initial Entry Instructions

Application Acceptance

There are clear requirements for acceptance of an application to change a water right described in ARM 36.12.1304. Statutory timelines begin (or continue, if a preapplication meeting occurred) the day an application is accepted, assigned a date received, and given an application number. So, it's very important that an application meets all of the requirements for acceptance before it is initially entered.

Before stamping for application receipt, the RO must perform an initial review to determine whether it meets the application receipt requirements. If it does not meet the requirements, the application should be returned to the applicant without the receipt stamp. If an application does meet the requirements of ARM 36.12.1304, the application will be stamped as received and the RO will perform the initial entry.

If a preapplication meeting was held: If the application includes information that differs from the technical analyses (or if the applicant had since performed a different set of technical analyses), the application is treated as if no preapplication meeting occurred (discounted filing fee and expedited timeline will not apply).

- **If the application as filed no longer qualifies for the expedited timeline or reduced filing fee:**
    - **Add the MNEP event (moved to non-expedited pathway)**
    - **The application will now be subject to the non-preapplication meeting pathway timelines, and the submitted reduced filing fee will now be insufficient for application processing.**

There are clear requirements for acceptance of an application to change a water right described in ARM 36.12.1305. Statutory timelines begin (or continue, if a preapplication meeting occurred) the day an application is accepted, assigned a date received, and given an application number. So, it's very important that an application meets all of the requirements for acceptance before it is initially entered.

Received permit and change applications are posted to the Department's website every Monday morning by CO CT staff. If you have entered the received application into the database but have not yet completed initial entry, you should inform the CO CT Public Notice Reps so that they don't post an incomplete Notice of Receipt.

MCA 85-2-307 requires that the Department post all applications for a permit or change on the Department's website, and it is our policy to post received applications within 10 business days. **This means that your initial entry must be complete by the second Monday following application receipt**. The following guidance explains what must be initially entered for change applications.

Sage Grouse Habitat Considerations:

If you receive a Form 600, check the Sage Grouse Habitat GIS layer to see if it is within a designated sage grouse area, including Core Habitat, General Habitat, and Connectivity Areas. If it is not, accept the application

and process it as you would normally. If the application does fall within a designated area, a letter from the Sage Grouse Habitat Conservation Program must be submitted with the application for acceptance. If a letter is not submitted, the application must be rejected. Do not enter the application into the database. Return the application and refund the fee. If a letter is submitted with the application, then accept the application and process it as you would normally.

For any application that requires an EA to be completed, in the "Unique, Endangered, Fragile or Limited Environmental Resources" section of the EA, state whether the proposed use is in a sage grouse area as designated by the Executive Order. If it is, then state that the applicant consulted with the Sage Grouse Habitat Conservation Program and that the information regarding the consultation (i.e., the letter) is in the file.

Permit Application Initial Entry:

Posted permit applications contain an abbreviated abstract. Enter the main elements of the proposed permit application in their respective fields. For initial entry of a permit application, you should enter:

- **Purpose(s) requested** *(Required to be entered)*
- **Flow Rate requested** *(Optional but recommended to be entered)*
- **Volume requested** *(Optional but recommended to be entered)*
- **Source of water** *(Required to be entered)*
- **Point of Diversion(s)** (¼ ¼ ¼ Sec/Section/Twp/Range/County) (Even a coarse description based on the submitted map(s) will work. Remember maps must conform to ARM 36.12.111 to accept applications) *(A minimum of the County is required to be entered, though a more precise point of diversion is preferred)*

Payment Information

Do not accept an application unless payment in full is received (ARM 36.12.1304). The specific fee applicable to an application will depend on a variety of factors. The options within the Filing Fee Summary section of the Payments accordion allow you to adjust the Fee Due amount to fit a given application. See the table below to understand the various fee options for a permit and how to adjust the database to enable payment collection. The Department should be waiving fees only in very rare occasions – contact Central Office if you have questions about database entry for fee waivers.

Make sure all payment information is entered into the database upon initial entry. Additional payment entry instructions including information about fee refunds, transfers, and more scenarios can be found on the ROCO drive in the Forms folder. The instructions are a Word document found below the individual form folders titled "Application Fee Entry R12-18".

Note that if a preapplication meeting occurred, you will have created a 600P record in the database and entered a $500 payment. When you change the application type to a 600, the $500 payment will stay listed in the Payment Details and the Amount Paid field will show $500.

600 Application Details	Fee Required	Database Adjustments
Preapplication Meeting Occurred; Permit is in a Closure Area	Fee is $1600 ($500 of which was already paid)	Fee Discount = Yes
Preapplication Meeting Occurred; Permit is outside a Closure Area	Fee is $1200 ($500 of which was already paid)	Fee Discount = Yes Fee Other = Yes
No Preapplication Meeting Occurred; Permit is in a Closure Area	Fee is $2900	No Adjustments

No Preapplication Meeting Occurred; Permit is outside a Closure Area	Fee is $2500	Fee Other = Yes
No Preapplication Meeting Occurred; Permit is <35 GPM groundwater in a closure area	Fee is $400	Fee CGWA = Yes

Data Entry
Fill in the Staff Processing Field under the Location tab in the database.

Staff Hydrologic Review
For **groundwater permit applications,** WSB will complete a review prior to the deficiency letter being sent to evaluate if the Form 633 and Aquifer Testing Addendum are correct and complete. **Surface water permit applications** do not receive a review or technical analyses from WSB. See the technical analyses guidance for information as to when review by WSB is required for an application.

If WSB will contribute to the technical analyses or WSB insight is needed for an application, a WSB checklist will be sent to WSB to begin their review/technical analyses completion period. Perform an initial review of the application and create and complete a copy of the appropriate WSB checklist available in ROCO>FORMS > 600-Permit. The checklist needs to be filled out completely and the numbers need to be vetted and peer-reviewed before you send the Checklist to WSB. **The numbers you send to WSB need to be the final numbers** that will be in your Technical Report (for applications received prior to Jan. 1, 2024), or technical analyses/ scientific credibility review report (for applications received on or after Jan. 1, 2024). The Water Sciences Bureau will use the information from the checklist to conduct their portion of the technical analyses or scientific credibility review.

Place your checklist, along with a scanned copy of the application, into your respective office folder within ROCO > HYDRO DOCS > APPLICATION MATERIALS. Send an email to the appropriate staff hydrologist with your request for their review, making sure to explain any application details you want them to consider in their calculations.

Data Entry
Under the **Events Tab,** add a “Checklist Sent to WSB” event and the date sent.

Basin Closure & Compact Considerations

Administrative Rule Closures:
In highly appropriated basins & subbasins the Department may close a basin by Administrative Rule (§ 85-2-319, MCA). To do so, the Department must receive a “PETITION FOR CLOSURE OF A HIGHLY APPROPRIATED BASIN,” (Form 631). This form may be filed by the Department of Environmental Quality or by at least 25% or 10, whichever is less, of the users of the water in the source of supply within the basin or subbasin for which the rules are requested. The petition must include facts showing that there is no unappropriated water, prior appropriators are being adversely affected, or that further use will interfere with planned uses or water reservations. Through the petition the applicant(s) may request a complete closure to all new appropriations or condition the closure to require specific provisions in order to appropriate any new water. Some closures provide exceptions for municipalities, nonconsumptive uses, domestic, stock storage during high spring flows, and groundwater. Within 60 calendar days of receipt of the petition for Basin Closure, the DNRC is required to respond indicating that the petition is denied, accepted, or that additional information is needed. Ten basins have been closed via administrative rule:

- Walker Creek Basin Administrative Closure
- Truman Creek Basin Administrative Closure
- Sixmile Creek Basin Administrative Closure
- Grant Creek Basin Administrative Closure
- Sharrott Creek Basin Administrative Closure
- Willow Creek Basin Administrative Closure
- Houle Creek Basin Administrative Closure
- Towhead Creek Basin Administrative Closure
- Rock Creek Basin Administrative Closure
- Musselshell River Basin Administrative Closure

Legislative Closures:

By law the legislature can preclude permit applications in a chosen drainage basin. Five basins have been closed by legislative action:

- Upper Clark Fork Basin Legislative Closure
- Bitterroot River Basin Legislative Closure
- Upper Missouri River Basin Legislative Closure
- Jefferson-Madison River Basin Legislative Closure
- Teton River Basin Legislative Closure

Department ordered Milk River Closure:

The legislature has given DNRC the authority to order closures within the Milk River basin. There are two DNRC orders closing portions of the basin:

- Mainstem of the Milk River Department Closure
- Southern Tributaries of the Milk River Department Closure

Supreme Court Closure:

The entire area within the confines of the Flathead Reservation is closed to any new appropriations of water by mandate of the Montana Supreme Court.

Compact Closures:

Since its inception the Compact Commission has negotiated 17 compacts with six tribes and five federal agencies in Montana. Thirteen of these compacts have stipulations in them that close certain sources of water to new appropriations and regulate groundwater withdrawals.

High Spring Flow Exception in Closed Basins

Some basin closures have an exception to the closure for high spring flows. The high spring flow exception can be met if the applicant presents information to show that the flow for that source is commonly above the average annual flow during the period of diversion for which they are applying. The applicant must use the most representative gaging station to determine the average annual flow for that source. A representative gage is defined by being in the same geographic area and preferably in the same drainage area and/or by having similar characteristics to the area in which the water right is being applied for (similar slope, aspect, precipitation, geology, etc.).

Basin Closure Links:

- Montana Basin Closures
- § 85-2-319, MCA 2023
- Form 631 – PETITION FOR CLOSURE OF A HIGHLY APPROPRIATED BASIN

Controlled Groundwater Area (CGWA) Considerations

CGWAs have been created in response to issues with water quantity and water quality within a specific geography (§ 85-2-506, MCA). To create a CGWA the DNRC must be in receipt of a "*PETITION FOR CONTROLLED GROUNDWATER AREA*," (Form 630). This form may be filed by a state or local public health agency for identified public health risks; a municipality, county, conservation district, or local water quality district formed under Title 7, chapter 13, part 45; or by at least one third of the water right holders in an area proposed for designation of a CGWA. The petition for the creation of a CGWA must contain an analysis by a hydrogeologist, qualified scientist, or qualified licensed engineer concluding that one or more of the following criteria are met:

- Current or projected reductions of recharge will cause groundwater levels to decline to the extent that current water users cannot reasonably exercise their rights.
- Current or projected withdrawals have reduced or will reduce groundwater levels or surface water availability necessary for current users to reasonably exercise their rights.
- Current or projected withdrawals have induced or altered or will induce or alter contaminant migration exceeding relevant water quality.
- Current or projected withdrawals have impaired or will impair groundwater quality necessary for current water right holders to reasonably exercise their rights.
- Groundwater within the proposed area is not suited for beneficial use.
- Public health, safety, or welfare is or will become at risk.

Upon receipt of an application the DNRC has 180 days in which to notify the petitioner of any defects, or the petition will be treated as Correct & Complete. If deficiencies are identified the petitioner will then have 90 days to correct these deficiencies before the petition is terminated. Once the petition has been determined to be Correct & Complete the DNRC will have 60 days in which to initiate rulemaking proceedings including public notice, deny the petition in whole or in part with a sufficient explanation, or inform the petitioner that the DNRC will require an additional 90 days in which to come to a final decision. If there is not enough information to conclude that a permanent CGWA is necessary, the DNRC may designate a temporary Controlled Groundwater Area during which ongoing measurements will be utilized to determine if a permanent status is warranted.

Resources:

- Controlled Groundwater Areas
- § 85-2-506, MCA
- Form 630 – Controlled Groundwater Area Petition

Controlled Groundwater Areas & Basin Closures by Regional Office

Every employee should become familiar with the various closures that exist within the geography served by their office. The following is a list of individual Basin Closures and Controlled Groundwater Areas broken down by Regional Office. Exceptions to each closure exist. These are discussed regionally and can also be found in "Montana's Basin Closures and Controlled Groundwater Areas" located under "References" on the New Appropriations page of the website.

Billings Regional Office

- Controlled Groundwater Area
  - Powder River Basin
  - Horse Creek
  - South Pine
  - Lockwood

- Administrative Rule Closure
    - Rock Creek
    - Musselshell River
- Compact Closure
    - Northern Cheyenne
    - Crow
    - Little Bighorn Battlefield
    - Big Horn Canyon National Recreation Area

Bozeman Regional Office

- Controlled Groundwater Area
    - USNPS Montana Compact Yellowstone
    - Bozeman Solvent Site
    - Idaho Pole Company Site
- Legislative Closure
    - Upper Missouri Basin
    - Jefferson & Madison Basins
- Compact Closure
    - Yellowstone National Park
    - Red Rock Lakes National Wildlife Refuge

Glasgow Regional Office

- Controlled Groundwater Area
    - South Pine
- Administrative Rule Closure
    - Musselshell River
- Milk River Closure
- Compact Closure
    - Fort Belknap
    - Black Coulee Wildlife Refuge
    - Charles M. Russel National Wildlife Refuge

Havre Regional Office

- Milk River Closure
- Legislative Closure
    - Teton Basin
    - Upper Missouri Basin
- Compact Closure
    - Glacier National Park
    - Fort Belknap
    - Black Coulee Wildlife Refuge
    - Chippewa Cree of the Rock Boy
    - Benton Lake Wildlife Refuge
    - Blackfeet

Helena Regional Office

- Controlled Groundwater Area
    - Butte Alluvial and Bedrock Site

    - Old Butte Landfill/Clark Tailings
    - Warm Springs Ponds
    - North Valley (East Helena)
    - Rocker
- Administrative Rule Closure
    - Towhead Gulch
- Legislative Closure
    - Upper Missouri Basin
    - Upper Clark Fork Basin
    - Jefferson and Madison Basins
- Compact Closure
    - Big Hole Battlefield
    - Red Rock Lakes National Wildlife Refuge

Kalispell Regional Office

- Controlled Groundwater Area
    - BNSF Paradise Railyard
    - BNSF Somers Railyard
    - BNSF Somers Expansion
- Administrative Rule Closure
    - Walker Creek
    - Truman Creek
- Supreme Court Closure
    - Flathead Reservation
- Compact Closure
    - Glacier National Park

Lewistown Regional Office

- Administrative Rule Closure
    - Musselshell River
- Legislative Closure
    - Upper Missouri River Basin
- Compact Closure
    - Benton Lake Wildlife Refuge

Missoula Regional Office

- Controlled Groundwater Area
    - Bitterroot Valley Sanitary Landfill
    - Hayes Creek Basin
    - Larson Creek
- Administrative Rule Closure
    - Sixmile Creek
    - Houle Creek
    - Grant Creek
    - Sharrott Creek
    - Willow Creek
- Supreme Court Closure
    - Flathead Reservation

- Legislative Closure
    - Upper Clark Fork Basin
    - Bitterroot Basin

Bozeman Solvent Site Controlled Groundwater Area

- Created based on water quality concerns (dry cleaning solvent) through petition process
- No exceptions to permitting, so must mitigate any new uses (initially did break out two different types of permits based on level of use, but not in a way that can allow exemptions from mitigation in closed basin)
- Replacement wells are acceptable, but must be through 606 Replacement Well process
    - Upon receipt of 606, DNRC can issue permit to drill – required for the driller for any beneficial use. DEQ will ensure well is sampled.
- Dewatering wells do not need to go through DNRC
- Most of BSSCGA is within city water supply zone, except north of the East Gallatin River
- Treatment with microbes has been implemented and most levels in the upper level are all below treatment level now

Idaho Pole Controlled Groundwater Area

- Created based on water quality concerns (wood pole treatment) through petition process
- Very small area of effect with low building potential
- (Assuming similar to BSS, where no new permits allowed in closed basin without mitigation)
- Pump and treat system in place
- No beneficial uses allowed at all except for remedial actions
- Conversation has taken place on shrinking the defined area (getting rid of south end, as based on property boundary and not actual contamination)

NPS Compact

Bozeman Regional Office Manager is the liaison/expert for the NPS/MT Compact, generally contact with any questions, both internal questions and questions for the NPS Compact Liaison.

Compact areas of effect: Surface waters and potentially hydraulically-connected groundwaters upflow, in, and adjacent to the following NPS Areas, as delineated by the Compact – Glacier National Park (GNP), Yellowstone National Park (YNP), Big Hole National Battlefield (BHNB), Bighorn Canyon National Recreation Area (BCNRA), Little Bighorn Battlefield National Monument (LBBNM). Grant Kohrs Ranch National Historical Site (GKRNHS) and Nez Percé National Park (NPNP) do not include reserved land – these waters are not regulated by Compact.

Yellowstone Controlled Groundwater Area

A separate provision of the Compact, not related to YNP surface water portion of compact, mentioned above, though in some areas both YNP Compact and YCGA can apply.

- Created to protect the hydrothermal resource of Yellowstone National Park through the National Park Service water rights compact
- Water temperature (less than 60 degrees F) and specific conductance are the two parameters requested to ensure that not drawing upon hydrothermal water connected to the park
    - Appropriations of water between 60 degrees F and 85 degrees F are possible, depending upon the specific conductance value and geothermal gradient

    - Attempts to appropriate water greater than 85 degrees F have a high burden and can only be considered in discharge areas (map breaks out recharge versus discharge areas to the YNP hydrothermal system – though these are not well-defined scientifically)
- Has built in exemption to full permitting process for uses under 35 GPM and 10 AF/YR that can be used in closed basins today
    - Requires notice to NPS on all applications. NPS can object based on hydrological connection to surface water source regulated by the NPS compact (generally sources in, bordering, and up flow of YNP).
    - Permits for non-exempted amounts are required to analyze net depletions to surface waters regulated by the compact, if applicable
- ARM Link: http://www.mtrules.org/gateway/Subchapterhome.asp?scn=36%2E12.12
- MCA Link: https://leg.mt.gov/bills/mca/title_0850/chapter_0200/part_0040/section_0010/0850-0200-0040-0010.html

Federal Reserved Water Rights

FOUR IMPORTANT BASIC POINTS

- Water Rights are established by state law, except for Federal Reserved Water Rights.
- Federal Reserved Water Rights are rights appurtenant to Federal and Indian lands. They were recognized by the U.S. Supreme Court in Winters v. United States in 1908. Courts have held that there is an implied water right to satisfy the primary purposes of the reservation.
- These rights are indefinite and wide ranging. For ease of administration and quantification, the State of Montana negotiates "compacts" with Federal Agencies and Tribal Governments; other states rely on the Attorney General to litigate Federal Reserved Water Rights.
- A compact defines the limits of reserved water rights and in return the state of Montana formally recognizes some claimed rights and uses.

Federal Lands in Montana with Reserved Water Right Claims

Reserved water rights are claimed for these lands in Montana by the following federal agencies:

- U.S. Forest Service, Department of Agriculture (green)
- National Park Service, Department of Interior (purple)
- Bureau of Land Management, Department of Interior (red)
- U.S. Fish and Wildlife Service, Department of Interior (pink)

In Montana, federal reserved water rights have been claimed for seven Indian Reservations, for allotments for the Turtle Mountain Chippewa Tribe, and for federal lands within the state (national parks, national forests, national wildlife refuges, and federally designated wild and scenic rivers). *A water rights compact is a contract or agreement between the State of Montana and a Federal Agency or tribe settling and enumerating these reserved claims.* This settlement typically quantifies the amount of water claimed and may include logistic and operational parameters for the water in the claimed area.

Think of a compact as a negotiated settlement agreement. The Compact, or agreement, is between the tribe or agency and the State of Montana (acting as the owner of all unreserved state waters). The tribe or agency is alleging that they have water right claims inherent in their ownership or historical occupancy of certain lands. The compact settles these rights as though they had gone through the statewide adjudication process, a process from which they were statutorily exempt.

A federal reserved water right differs from the state appropriative water rights familiar to most members of the public. Under Montana water law, which incorporates the prior appropriation doctrine (first in time, first in right), the right to water depends on the priority of a person's claim. The water user is limited to appropriating only that amount that can be put to beneficial use at a specific time. If the state right is not used over a certain period of time, it can be lost by abandonment. Since the passage of the Montana Water Use Act in 1973, the state has been working on an adjudication process to finalize all water rights prior to that date in State Water Court. For those wishing to obtain post-1973 water rights, the law established a permitting system administered by the State Department of Natural Resources and Conservation (DNRC).

Federal reserved water rights were created when the United States Supreme Court made the Winters v. United States (206 U.S. 564 [1908]) decision about a Fort Belknap Indian Reservation water claim. In the Winters decision, the Supreme Court held that when Congress or the President sets aside land out of the public domain for a specific federal purpose, such as an Indian reservation, National Park, or a National Forest, a quantity of water is reserved which is necessary to fulfill that specific federal purpose. A federal reserved water right has a priority date as of the date the land was withdrawn, and the reservation was created. **The rights cannot be lost through nonuse.**

Quantification, or the determination of the size of a federal reserved water right for the state adjudication process, requires the Montana Reserved Water Rights Compact Commission (RWRCC) to reach an understanding with the federal agency holding the water right about the purpose(s) for which the specific federal reserve was created. The parties must then come to agreement as to how much water is necessary to satisfy the purpose(s) of the reserve. The resulting agreement must be signed by the negotiating parties, the appropriate federal officials, pass through the Montana legislature, (and the U.S. Congress, in some cases) and go to the Water Court for incorporation into a final decree for the specific water basins involved.

Compacts by WRD Regional Office

Billings:

- Northern Cheyenne Indian Reservation,
- National Park Service,
- Crow Indian Reservation,
- USDA Fort Keogh Livestock and Range Research Station,
- USFS Compact

Bozeman:

- U.S. Bureau of Land Management (BLM),
- National Park Service,
- USFS Compact

Glasgow:

- U.S. Bureau of Land Management (BLM),
- Fort Peck Indian Reservation,
- Bowdoin National Wildlife Refuge,
- Charles M. Russell National Wildlife Refuge
- Upper Missouri River Breaks National Monument

Havre:

- Blackfeet Tribe Compact,
- Rocky Boys Indian Reservation,
- U.S. Bureau of Land Management (BLM),
- U.S. Fish and Wildlife Service (USFWS),

- National Park Service,
- Fort Belknap Indian Reservation ,
- Charles M. Russell National Wildlife Refuge,
- USFS Compact

Helena:

- Red Rocks Lakes NWR,
- National Park Service,
- USDA Sheep Experiment Station,
- USFS Compact

Kalispell:

- National Bison Range Compact,
- National Park Service,
- USFS Compact

Lewistown:

- Charles M. Russell National Wildlife Refuge
- Upper Missouri River Breaks National Monument,
- USFS Compact
- U.S. Bureau of Land Management (BLM),
- U.S. Fish and Wildlife Service (USFWS)

Missoula:

- USFS Compact

Blackfeet Tribe Compact 85-20-1501 MCA

After 20 years of negotiations, a compact settlement between the Blackfeet Tribe, the United States, and the Commission passed the legislature in 2009. The compact will provide water and economic development for the Blackfeet while protecting the rights of water users locally and downstream on the Milk River. The compact was introduced in Congress in 2010. The federal bill can be found on: The Thomas Library of Congress website by typing in the bill number S.434.

National Bison Range Compact 85-20-1601 MCA

A compact between the State and the U.S. Fish and Wildlife Service for the National Bison Range Wildlife Refuge was reached in 2009. The compact was ratified by the 2009 Montana Legislature and signed by the Governor. The Montana Water Court issued the Bison Range preliminary decree in Sept. 2011 (Case # WC-2011-01)

Rocky Boys Indian Reservation 85-20-601 MCA

A water rights compact between the State and the Chippewa Cree Tribe of Rocky Boy's Indian Reservation was reached in early 1997. The compact was ratified by the 1997 Montana Legislature and was signed by Governor Marc Racicot in 1997. The compact was approved by the U.S. Congress in 1999. The Montana Water Court issued a final decree for the compact in Jun. 2002 (Case # WC-2000-01).

U.S. Bureau of Land Management (BLM) 85-20-501 MCA

A water rights compact with the Bureau of Land Management for both the Upper Missouri Wild and Scenic River and Bear Trap Canyon Public Recreation Site on the Madison River was ratified by the Montana Legislature and was signed by the Governor in 1997. It does not require ratification by Congress. In May 2011, the Montana Water Court issued a final decree for the BLM-Montana Compact (Case # WC-2008-10).

U.S. Fish and Wildlife Service (USFWS) 85-20-701 MCA

In 1996, a water rights compact between the State and the USFWS was reached for both the Benton Lake and Black Coulee National Wildlife Refuges (NWR). The Compact was ratified by the 1997 Montana Legislature and was signed by Governor Marc Racicot. The compact has been approved by the Federal agencies. Ratification by Congress is not required. The Montana Water Court issued final decrees for the compact in Oct. 2005 (Case # WC-2000-03 & WC-2002-04).

Red Rocks Lakes NWR 85-20-801 MCA

A water rights compact for Red Rocks Lakes NWR was ratified by the Montana Legislature and signed by the Governor in 1999. The compact has gone through the federal approval process and the Montana Water Court issued a final decree on this compact in Aug. 2005 (Case # WC-2000-02). Ratification by Congress is not required.

Northern Cheyenne Indian Reservation 85-20-301 MCA

Negotiations between the Commission and the Northern Cheyenne Tribe were successfully concluded in 1991 and the compact approved by the Montana Legislature and signed by the Governor in that same year. The Northern Cheyenne Compact was ratified by Congress and signed into law in Sept. 1992. The Montana Water Court issued a final decree for this compact in Aug. 1995 (Case # WC-93-1).

National Park Service 85-20-401 MCA

A water rights compact with the National Park Service for Yellowstone and Glacier National Parks and the Big Hole Battlefield was finalized in 1993. The 1995 Legislature ratified a compact for the remaining two Park Service units: Little Bighorn Battlefield National Monument and Bighorn Canyon National Recreation Area, completing Park Service negotiations in Montana. The compact does not require congressional approval. The Montana Water Court issued a final decree for this compact in Apr. 2005 (Case # WC-94-1)

Fort Peck Indian Reservation 85-20-201 MCA

Negotiations between the Commission and the Assiniboine and Sioux Tribes of the Ft. Peck Indian Reservation were successfully concluded in 1985. The compact was ratified by the 1985 Montana Legislature and signed by the Governor. The Fort Peck compact was approved by appropriate Federal agencies. Congressional approval has not been granted. The Montana Water Court issued a final decree for this compact in Aug. 2001 (Case #WC-92-1).

Crow Indian Reservation 85-20-901 MCA

A compact between the Crow Tribe, the United States, and the State passed the Montana Legislature and was signed by the Governor in 1999. The compact was ratified by the United States Congress in Nov. 2010. The settlement package was approved by the Crow Tribe in a referendum election in Mar. 2011. The Montana Water Court issued a preliminary decree for this compact in Jan. 2013 (Case No. WC-2012-06).

Fort Belknap Indian Reservation 85-20-1001 MCA

A compact between the State and the Gros Ventre and Assiniboine tribes of the Fort Belknap Indian Reservation was ratified by the 2001 Montana State Legislature and signed by Governor Judy Martz. Negotiations continue on a federal bill which must be approved by U.S. Congress: a bill was introduced in Congress in 2011, but no action was taken.

USDA Fort Keogh Livestock and Range Research Station 85-20-1101 MCA

A water rights compact for USDA Fort Keogh Research Station was approved by the Montana Legislature and signed by the Governor in 2007. The compact settles the administrative, irrigation, stock, and emergency fire suppression water rights for Fort Keogh near Miles City. It includes reserved rights to Fort Keogh's current irrigation use from the Yellowstone River and some future irrigation use, and it includes a small amount of current use from a tributary of the Tongue River. The compact was approved by Federal agencies in 2013. Water Court action is pending.

USDA Sheep Experiment Station 85-20-1201 MCA

A water rights compact for USDA Sheep Experiment Station was approved by the Montana Legislature and signed by the Governor in 2007. The Compact settles the stock water, domestic, irrigation, storage, dust abatement, reclamation, research, emergency fire suppression and other water rights of a small portion of the Sheep Experiment Station located in Montana. The compact was approved by Federal agencies in 2013. Water Court action is pending.

Bowdoin National Wildlife Refuge 5-20-1301 MCA

This compact settles the reserved water rights for uses including administrative, wildlife habitat maintenance and enhancement, stock watering and other. The U.S. FWS water rights are contingent on an MOU which must be attached to the compact as Appendix 3. The MOU includes provisions relating to the solution of the severe salinity problems on the Refuge. The MOU was approved by all Parties in Apr. 2013. The compact awaits Federal agency approval and Water Court action is pending.

USDA Forest Service 85-20-1401 MCA

The water compact between the State of Montana and the U.S. Forest Service, which took more than 15 years to negotiate, was approved by the Montana Legislature and signed by the Governor in 2007, followed by Federal agency approval. The compact recognizes reserved water rights for the Forest Service for administrative and emergency firefighting, and for instream flows for the South Fork Flathead Wild and Scenic River. The compact uses state law to create state-based water rights for instream flow on the National Forest System lands. The Montana Water Court issued a final decree for this compact in Oct. 2012 (Case # WC-2007-03).

Note – The U.S. Forest Service Compact is unique in that it provides a process for the Forest Service to turn reserved water rights into state water reservations. Essentially, these are statements of claim for instream flow. The Forest Service Compact lists protected instream flows on approximately 85 rivers and streams in Montana. However, the task of enumerating flows on thousands of tributaries and other rivers exceeded the resources of either the Forest Service or the State, so the compact gives the Forest Service 30 years from the time of the Compact to identify additional instream rights.

These Forest Service unidentified rights are misleadingly called “reservations”. They are reservations in that they are the product of Forest Service reserved water rights. There is no correlation between Forest Service water right “reservations” and typical state-based reservations found in Mont. Code Ann. 85-2-316
U.S. Forest Service Lands in Montana with Reserved Water Right Claims:

- Kootenai National Forest
- Flathead National Forest
- Lewis and Clark National Forest
- Lolo National Forest
- Bitterroot National Forest

- Helena National Forest
- Deer Lodge National Forest
- Beaverhead National Forest
- Gallatin National Forest
- Custer National Forest

These claims are primarily instream flow claims which are listed by drainage at § 85-20-1401, MCA (TABLE 1)

Charles M. Russell National Wildlife Refuge

The United States and the State of Montana have agreed to the terms of a compact settling for all time the United States' federal reserved water rights claims for the Charles M. Russell National Wildlife Refuge (CMR). The final compact is the product of a year of settlement negotiations between the United States Department of Interior and the Montana Reserved Water Rights Compact Commission. The negotiated compact was ratified by the 2013 Montana Legislature and signed by the Governor. In the coming months, the compact will be signed by the Secretary of the Interior and submitted to the Montana Water Court for incorporation into a final decree. The ratified compact subordinates the United States' 1936 priority date to 2013, quantifies a federal reserved water right consisting of baseflows in sixty-nine streams draining onto the refuge, and implements limitations on larger on-stream impoundments on selected streams.

Upper Missouri River Breaks National Monument

The United States and the State of Montana have agreed to the terms of a compact settling for all time the United States' federal reserved water rights claims for the Upper Missouri River Breaks National Monument. The final compact is the product of a year of settlement negotiations between the United States Department of Interior and the Montana Reserved Water Rights Compact Commission. The negotiated compact was ratified by the 2013 Montana Legislature and signed by the Governor. In the coming months, the compact will be signed by the Secretary of the Interior and submitted to the Montana Water Court for incorporation into a final decree. The ratified compact subordinates the United States' 2001 priority date to Jun. 1, 2012, quantifies a federal reserved water right of 160 cubic feet per second (CFS) and 5 CFS in the Judith River and Arrow Creek respectively, institutes an on-stream impoundment limitation, and requires ramping of large new diversions.

Chippewa Cree Tribe (Rocky Boy Reservation) Compact

A compact between the State and the Chippewa Cree tribe of the Rocky Boy's Indian Reservation was entered into by the State of Montana and the Chippewa Cree Tribe of the Rocky Boy's Indian Reservation and filed with the Secretary of State of the State of Montana on Apr. 15, 1997, and signed by the United States on Feb. 28, 2000. This compact settles any and all existing water rights claims of the Chippewa Cree Tribe in the State of Montana.

Confederated Salish & Kootenai Tribes Compact

This Compact is entered into by and among the Confederated Salish and Kootenai Tribes of the Flathead Reservation, the State of Montana, and the United States of America to settle all existing claims to water of or on behalf of the Confederated Salish and Kootenai Tribes within the State of Montana. This compact is currently waiting on federal authorization.

Correct & Complete Determination and Deficiency Letters

Review for Deficiencies

The deficiency letter (Template Letter A1) is the document that outlines how the application does not meet the correct and complete standard set by ARM 36.12.1601.

Because of the importance of the deficiency letter, it is necessary to compare the application contents with the required form questions and Administrative Rules line by line and identifying every instance where the application does not fully meet the Administrative Rules standard for 'correct and complete'. It is vital to remember that it is totally possible and expected that there will be correct and complete applications which later lead to a decision to deny. The purpose of a deficiency letter IS NOT to ask questions that will lead the application to a decision to grant. The purpose is to identify rule-based deficiencies for which the application can be terminated if adequate response is not received. If no preapplication meeting was held, the deficiency letter is also your opportunity to ask for information you will need in your technical analyses or technical analyses scientific credibility review. If a preapplication meeting was held, the technical analyses will have been completed or reviewed by the time the application is going through deficiency review. There are numerous opportunities to communicate concerns you have with their application in the context of whether the information will lead to a grant or a denial. The deficiency letter is not one of those times.

There may be additional addenda required to be submitted which will supplement the information requested on Form 600. The Department will not be able to make a "Correct & Complete" determination unless the additional addenda are completed with all required information. Additional permit application addenda that may be required include:

- Technical Analyses Addendum (600-TA)
    - Necessary if no preapplication meeting was held (in order to gather information for the technical analyses), or if a preapplication meeting was held and the applicant is proposing to deviate from the previously completed technical analyses or scientific credibility review.
- Aquifer Testing Addendum (600/606-ATA)
    - Necessary for groundwater permit or change applications.
- Basin Closure Addendum (600-BCA)
    - Necessary for groundwater permit applications in closed basins.
- Hydrogeologic Report Addendum (600-HRA)
    - Necessary for groundwater permit applications in closed basins for which the applicant has opted to conduct their own technical analyses.
- Mitigation Purpose Addendum (600/606-MIT)
- Necessary if the application is for a project that involves mitigation. Out-of-state Use Addendum (600/606-OSA)
    - Necessary if the project includes out-of-state water use.
- Reasonable Use Addendum (600-B)
    - Necessary if the project involves an appropriation of 4,000 or more AF/year AND 5.5 or more CFS
- Water Marketing Addendum (600/606-WMA)
    - Necessary if the application is for a project involving water marketing.
- Place of Storage Addendum (600/606-SA)
    - Necessary if the application involves a place of storage.
- Controlled Groundwater Area Addendum (600-CGWA)

    - Necessary for appropriations within controlled groundwater areas.
- Yellowstone Controlled Groundwater Area addenda (to the 600-YCGA Permit Application form)
    - Necessary for appropriations within the Yellowstone Controlled Groundwater Area.
        - Wells providing under 35 GPM
        - Wells providing over 35 GPM

Common deficiencies with permit applications:

- Required addenda are missing or not completed with all requested information
- Supplemental explanations are not given when requested
- If a representative of the applicant signs the application, they must provide documentation establishing their authority to sign the application
- No pump information with a pump curve is submitted
- Application materials are lacking sufficient information on headgate/ditch capacity
- Inadequate description provided for how the diversion system will be operated from the point of diversion through the place of use
- Lacking explanation of why the requested flow rate/volume is required for beneficial use for applications which don't use DNRC standards

For Applications Received After Jan. 1, 2024:

See the stages of application review table in the Preapplication Meetings section of this manual for a comparison of the different levels of review at each application stage.

Preapplication Meeting Held:

If a preapplication meeting was held, the deficiency review will consist of:

- Ensuring consistency between the application as filed and the mandatory sections of the Preapplication Meeting Form and the Technical Analyses Report or Scientific Credibility Review created by the Department;
    - If elements of the application as filed misalign with the existing technical analyses/ Preapplication Meeting Form, the application no longer qualifies for the expedited timelines or reduced filing fee.
        - If the application as filed no longer qualifies for the expedited timeline or reduced filing fee:
            - Add the MNEP event (moved to non-expedited pathway)
            - The application will now be subject to the non-preapplication meeting pathway timelines, and the submitted reduced filing fee will now be insufficient for application processing.
- Review of correctness and completeness for elements not contemplated in the mandatory sections of the Preapplication Meeting Form, and any applicable addenda.

If DNRC is doing TA: If any changes have been made to the numbers confirmed in the Department-completed technical analyses, RO should send Form 633 + Aquifer Testing Addendum to WSB immediately for them to review for deficiencies (variances needed). RO should send full application with WSB checklist to WSB only when the WSB checklist numbers are complete and ready for TA. **If no changes were made to the completed technical analyses, WSB does not need to look at the application again.**

If applicant is doing TA: If any changes have been made to the numbers reviewed for credibility in the applicant-completed technical analyses, RO should send entire application and TA to WSB immediately for WSB to review for deficiencies in Form 633 (and assess whether all required TA were submitted) and begin scientific credibility review. WSB does not need to be involved for surface water permits. **If no changes were made to the completed technical analyses, WSB does not need to look at the application again.**

No Preapplication Meeting Held:

If DNRC is doing TA: RO should send Form 633 + Aquifer Testing Addendum to WSB immediately after application receipt for them to review for deficiencies (preapplication meeting was not held and thus TA has not yet been completed). RO should send full application with WSB checklist to WSB only when the WSB checklist numbers are complete and ready for TA.

If applicant is doing TA: RO should send entire application and TA to WSB immediately after application receipt for WSB to review for deficiencies in Form 633 (and assess whether all required TA were submitted) and begin scientific credibility review. WSB does not need to be involved for surface water permits.

Relevant Statutes and Rules

36.12.1501 PERMIT AND CHANGE APPLICATION DEFICIENCY LETTER AND TERMINATION
36.12.1601 WATER RIGHT PERMIT AND CHANGE - CORRECT AND COMPLETE DETERMINATION

Deficiency Letters

When an application cannot be deemed correct and complete due to a lack of information, a deficiency letter (Template Letter A1) should be sent to the applicant. **Correct and complete simply means that all required information is present in a form that is substantial and credible.** Deficiency letters should have nothing to do with addressing statutory criteria, rather, deficiency letters are only related to the application elements required by ARM being substantially and credibly addressed.

The deficiency letter should identify any shortcomings in the application that do not meet correct and complete standards required in ARM 36.12.1601. Each deficiency should be clearly identified in the deficiency letter with as much information needed to explain what the applicant must provide or clarify for their application to be considered correct and complete by the Department. Each deficiency identified needs to include a citation of the inadequately answered question, and the administrative rule not met. Only one deficiency letter will be sent, so it is important to thoroughly review an application for deficiencies. **If the information returned in response to the deficiency letter is inadequate, the application shall be terminated within 30 calendar days of deficiency letter response receipt (for applications received on or after Jan. 1, 2024).** Please note, however, that you can contact the applicant or consultant via phone or email and request clarifying information during processing of the application.

The deficiency letter must be written on the Department letterhead of the office where the application is being processed. It must be written in standard letter format that clearly identifies the date sent, the applicant, and the application number- **the deficiency letter template (Template Letter A1) in the ROCO drive contains the standard necessary information**. The bottom of the letter should identify the specialist preparing the letter with an address, phone number, and email where the specialist can be contacted.

For Applications Received Prior to Jan. 1, 2024:

A deficiency letter identifying all defects of the application must be sent within 180 calendar days of receipt of the application. If the Department does not notify the applicant of any defects within 180 calendar days, the application must be treated as a correct and complete application.

If the applicant does not respond to a deficiency letter with information necessary to determine the application to be correct and complete, **the application must be terminated in 30 calendar days**.

Note: When preparing the letter do not use an automatically updating date field. It may be necessary to review, reprint or to send the letter via email to someone else later. An automatic updating date field will cause confusion the next time the document is opened.

The deficiency letter must end with the approved important information text at the bottom of the letter that describes the statutory time requirements for response and consequences if those timelines are not met.

IMPORTANT INFORMATION: If all the requested information in the deficiency letter is not postmarked or submitted within 120 days of the date of the deficiency letter, the application will be terminated, and the fee will not be refunded. The 120-day response deadline is xx/xx/20xx.

For Applications Received on or After Jan. 1, 2024:

The requirements and timelines for deficiency letters are described in ARM 36.12.1501. A determination of correct and complete application (Template Letter A2) OR a deficiency letter (Template Letter A1) identifying all defects of the application must be sent to the applicant within:

- 15 business days of application receipt if a preapplication meeting **was held**
- 30 business days of application receipt if a preapplication meeting **was not held.**

If the Department does not notify the applicant of any defects in the application within the appropriate time frame, the application must be treated as a correct and complete application (§ 85-2-302(5)(c), MCA).

If no deficiency letter response is received or if the deficiency letter response does not provide all information necessary to determine the application to be correct and complete, **the application must be terminated** (Template Letter T1) with**in 30 calendar days of deficiency response receipt**. Application Termination Guidance can be found in ROCO.

Note: When preparing the letter do not use an automatically updating date field. It may be necessary to review, reprint or to send the letter via email to someone else later. An automatic updating date field will cause confusion the next time the document is opened.

The deficiency letter must end with the approved important information text at the bottom of the letter that describes the statutory time requirements for response and consequences if those timelines are not met.

IMPORTANT INFORMATION: If all the requested information in the deficiency letter is not postmarked or submitted within 120 calendar days of the date of the deficiency letter, the application will be terminated, and the fee will not be refunded. The 120-day response deadline is xx/xx/20xx.

Correct & Complete

Administrative Rules of Montana (ARM) 36.12.1601 addresses the “correct and complete” determination of permit and change applications. Once an application is received, the Department will review it to ensure that all information required per rule that is necessary to address the statutory criteria has been submitted. This is also known as a “correct and complete” determination. The Department cannot move forward on analysis of the application for statutory criteria until it has been deemed “correct and complete”. It is important to understand that providing information required for a “correct and complete” determination is not the same as

proving the statutory criteria. The Department can only grant an application if the criteria for issuance of a change authorization are proven to be met by a preponderance of the evidence.

Permit Application "correct & complete" criteria

The Department will examine applications to determine if all required information under the Administrative Rules below pertinent to the application has been provided. If required information is missing, a deficiency letter (Template Letter A1) will be sent to the applicant identifying the missing information within the following timelines:

- For applications received **prior** to Jan. 1, 2024: 180 calendar days of application receipt.
- For applications received on or **after** Jan. 1, 2024:
    - If a preapplication meeting **was held**, 15 business days of application receipt
    - If a preapplication meeting was **not held**, 30 business days of application receipt.

For permit applications, information required under ARM 36.12.1601 must be submitted and meet the standard of substantial credible information in order to receive a correct and complete determination.

"Correct & Complete" Letter

Once an application has been deemed "correct and complete" by the Department a letter (Template Letter A2) will be sent out informing the applicant.

For Applications Received Prior to Jan. 1, 2024:

A technical report will accompany the Correct & Complete letter. Once this occurs, the Department has 120 calendar days in which to draft a preliminary determination document. If the applicant would like to discuss any information presented within the Technical Report, they have 15 calendar days from the date of the Correct & Complete letter to contact the DNRC and request a meeting. If the Technical Report findings are different from information presented with the application, the Department will proceed with the findings of the Technical Report and consider the application to be amended unless a meeting is requested within 15 calendar days of the date of the Correct & Complete letter to resolve the differences. If the application is amended by the Technical Report and the Department proposes to grant the application, the applicant will not be able to request a hearing on the differing amounts found by DNRC in the technical report. If a meeting is requested, be sure to document all individuals attending and the topics discussed. If the applicant chooses not to dispute the Department's findings at the meeting, be sure to document this as well.

If the applicant does dispute the Department's findings, they can request up to 60 calendar days of additional time to provide information to the Department for review. If additional time is requested to provide additional information, the applicant must submit a waiver of timelines form with the written request for additional time. This is necessary to give the Department adequate time to review the additional information and complete the PD, taking into account the new information. The waiver of timelines form must be signed by the applicant or their Attorney if they are being represented by legal counsel. The applicant may waive timelines at any point in the process once an application has been deemed Correct & Complete. An applicant cannot waive any timelines prior to a Correct & Complete determination of the application. A waiver of timelines waives the 120-day statutory timeline set for the Department in issuing a decision on a permit. If an applicant waives timelines on an application, staff processing the application should make every effort to complete review and draft a decision document in a timely fashion. If, upon review of this additional information, the Department's findings still do not agree with the applicant, the Department will proceed with either a grant with modifications or decision to deny, depending on the specifics of the application. If no meeting is requested, begin the process

of a Draft Preliminary Determination Decision which will grant, deny, or grant with modifications the water right changes requested in the application.

For Applications Received on or After Jan. 1, 2024:

The correct and complete letter (Template Letter A2) will be sent to the applicant within the following timelines:

- If the application was received and no deficiencies were identified:
  - If a preapplication meeting was held:
    - ≤15 business days
  - If no preapplication meeting was held:
    - ≤30 business days
- If a deficiency letter was sent:
  - ≤30 calendar days of deficiency letter response receipt, regardless of whether or not a preapplication meeting occurred

Once this occurs, the Department has the following timelines to deliver a Draft PD (and technical analyses/ scientific credibility review, if no preapplication meeting occurred)

- If a preapplication meeting **was** held: ≤60 calendar days from the date of the correct and complete determination
- If a preapplication meeting **was not** held: ≤120 calendar days from the date of the correct and complete determination. Technical analyses report or scientific credibility review will also be delivered to the applicant at this time.

See the PD Version Types section of the manual for more information on crafting the Draft PD.

Technical Analyses/ Technical Reports

Technical Reports for Applications Received Prior to Jan. 1, 2024

Overview:

Technical Reports are always completed for permits. There are no special circumstances where you do not have to complete a Technical Report for permit applications.

The Technical Report stems from the need for applicants to have an opportunity to see what data the DNRC will be utilizing in our decisions PRIOR to our making a decision. The Technical Report (including the WSB Groundwater Report) should only be sent to an applicant at correct and complete. Don't forget that when the Department grants an application there is not a draft decision sent out, so the Technical Report is even more vital as it singularly establishes reference information for the applicant to consider prior to the Department formulating a decision.

The Technical Report IS: The Technical Report details what information the Department will utilize in formulating a decision document at that point in time. Much of the information used will come from the Department but some information may be provided by the applicant. Criteria cannot be assessed in the technical report.

The Technical Report IS NOT: An analysis or discussion of whether the application meets the criteria. As such you should not highlight or make bold any elements of the Technical Report which, in your mind, might later cause the application not to be granted. There are numerous opportunities to communicate with the applicant

concerns you have with application in the context of whether the information will lead to a grant or a denial. The Technical Report is not one of those times.

The Details:

The following guidance should provide you with the tools and information necessary to create an effective Technical Report.

There are template Technical Report Word documents located on the ROCO drive which should be utilized when you begin crafting your Technical Reports. Example Technical Reports are located in that same location.

The Technical Report will address all the data and information the DNRC will use to assess criteria in the next step of the process. The Technical Report should in no way address whether the application meets statutory criteria. The Technical Report only addresses the elements and data upon which the Department will be basing our analysis of the criteria.

The Technical Report will state exactly what data, or method will be used by the Department to analyze criteria. The DNRC **will not** take that information to the next step and relate the data into the realm of criterion analysis. When the applicant receives the Technical Report at correct and complete, they can make the determination relating to what they need to do based on the information we provide them.

The Technical Report is not and should not be considered a duplication of effort in relation to crafting a PD. The information contained in the Technical Report that the Department is relying on for decision making should be included in your PD as findings of fact. All you should have to do is copy the information contained in the Technical Report into the relevant criterion-related sections of the PD and add a sentence or two that explains what the DNRC is finding and if the information in that finding shows by a preponderance of the evidence that the specific criterion is being meet. Anyone who reads the Technical Report should be able to reproduce the calculations made by the Department.

If the Department's calculations in the Technical Report are different from the what the applicant has proposed, the application will proceed as a "grant" not a "grant in modified form" if the applicant does not dispute the calculation in the technical report" and the criteria for issuance of a change authorization are met. This will also be treated like an amendment to the application. The correct and complete template letter in ROCO > Technical Reports has optional text to include this procedural clarification; be sure to include that language.

After the historical diverted flow rate, volume, and consumed volume are finalized, they should be entered into the historical use accordion of the database.

When does the Technical Report go out?

The Technical Report, along with any reports from WSB, should only be sent to applicants after an application has been deemed correct and complete. If additional details are provided to the Department of corrections are made to the initial Technical Report which will influence what the Department reviews during the criteria analysis, a summary of the changes and revisions should be sent to the applicant in memo format instead of in a Revised Technical Report prior to completion of a Preliminary Determination.

After the Technical Report is sent out at correct and complete, the Department may communicate with applicants as needed. These communications can be done orally or in writing and are separate from the correct and complete letter (and determination) and the Technical Report.

Who is responsible for the creation of the Technical Report?

The Regional Office processing the application is responsible for drafting the Technical Report. It is the responsibility of the individual regional managers to understand what level of analysis and data compilation their staff is capable of. The Technical Report is not necessarily a one person show. It is imperative that lines of communication remain open between regional offices, the Central Office, and the Water Sciences Bureau (WSB should be contacted with requests for hydrological guidance). Remember, the Water Sciences Bureau does not process water right applications; they simply analyze certain technical aspects of applications, provide peer review and teaching to regional offices, and in general serve as guides in all hydrological matters. Regional office staff are responsible for initially reviewing applications to such a level that they can convey to the WSB any out of the ordinary numbers or considerations they would like them to look at and consider prior to completing their technical analysis.

The Central Office is available to answer your questions pertaining to what should and what should not be included in Technical Reports.

The Technical Report for Permit Applications:

A Technical Report for new appropriation permit applications will contain at a minimum the following information:

- Physical availability of water
    - During the pre-application meeting, elements relating to physical availability need to be discussed, including: The source of water, a discussion of why the water is available, if appropriate whether measurements or aquifer tests need to be completed and a discussion of what source measurements or aquifer tests may need to be completed.
    - For surface water applications, what gage and dataset will be used and how does it break down the physical availability of water in the source (median of the mean) by month? This is just the data, not a conclusion of if the data shows that water is physically available in the context of the application.
    - For surface water, if there is not a proper gage then what measurements and models will be used and how much water does this technique show is available over the proposed period of diversion? It may be necessary for the regional managers and hydro specialists to work with the Water Sciences Bureau to put appropriate data into this report. This is just the data, not a conclusion of if the data shows that water is physically available in the context of the application. With regard to measurements that may be necessary in an ungaged situation, the applicant will complete the measurements. The DNRC is not required by rule to make these measurements. This should have been discussed during the pre-application meeting as well.
    - All groundwater applications will be sent to the WSB for review. WSB staff will complete a Groundwater Report which need to be included with the Technical Report as appendices. The WSB formerly completed separate Aquifer Test Reports and Stream Depletion Reports, but those have been combined so that only one report from WSB is completed per application. As a reminder, the applicant must follow specific aquifer testing requirements and provide at a minimum information and data in conformance with ARM 36.12.121 to the DNRC. The requirements of ARM 36.12.121 must be followed unless a variance has been granted by the DNRC. Questions relating to the specifics of the aquifer testing requirements outlined in ARM 36.12.121 or

relating to the appropriateness of a variance should be directed to the appropriate staff in the WSB.
    - For consistency, physical and legal availability of depleted surface water(s) for groundwater applications should be addressed in the legal availability section of the Technical Report.
- Legal availability of water
    - During the pre-application meeting, elements relating to legal availability will be discussed. Specifically, the applicant will discuss why they think water is available. This information should be contemplated along with your specialized and localized knowledge as you decide what area and rights will be incorporated into the legal availability section of the Technical Report and later in the legal availability criterion analysis itself.
    - The Technical Report should include an explanation of what water rights will be looked at with regard to legal availability and also a breakdown by month of how much water is already legally accounted for in the area of potential impact you previously determined
    - For groundwater applications, the Technical Report will also include any net depletion to surface water, including what amount and in what reaches, as determined by the WSB.
    - For applications received prior to Jan. 1, 2024, rule addresses surface water depletions from groundwater pumping under ARM 36.12.1705(2). In order to follow rule, we need to compare physical availability of depleted surface waters to legal demands within the area of impact. For the purposes of writing groundwater applications, please do the following for addressing depleted surface waters: Address physical and legal availability of depleted surface waters in the Legal Availability section of the Tech Report, not in the physical availability or adverse effect sections. Depletion to surface water(s) should be based on the *consumptive use identified in the Depletion Report from WSB. If there were surface water sources reviewed for depletions that we determined will not be depleted, make that clear as well in the legal availability section of the PD. Use the adverse effect section to explain why there will or will not be an adverse effect to those water users within the area of impact you have defined- you can relate it back to the analysis you completed in the Legal Availability section.
- Adverse effect
    - State the figures and reference the WSB appendices that determine the figures that will be used for this criterion (1-foot drawdown contour list of water rights).
    - Include a list of all water rights which are being considered for adverse effect by the proposed appropriation. Include this list in the Technical Report or as an Appendix to the Technical Report. For long lists, you may consider including the list in the file and identifying that “it is available upon request” in the Technical Report.
- Adequacy of diversion works
    - Include any information that is gathered or known outside of the information submitted with the application.
- Beneficial use
    - Include any information that is gathered or known outside of the information submitted with the application.
- Possessory interest
    - Include any information that is gathered or known outside of the information submitted with the application.

- If there is any question as to if there is proper authority to represent the application (possibly ownership of the entire POU), point out the information you discovered.

Technical Analyses & Scientific Credibility Review for Applications Received on or After Jan. 1, 2024

Overview of the Technical Analyses

Technical analyses are required for permit and change applications to provide the minimum information necessary for the Department to complete a criteria assessment under § 85-2-311, MCA for permits, or § 85-2-402, MCA for changes (ARM 36.12.1303). The Technical Analyses report (TA) – which is frequently referred to as the Technical Analyses – is a compilation of technical information and data that the Department will use to consider whether or not the applicant has met the statutory criteria for the application at hand. Criteria are not analyzed in the technical analyses, but the TA will eventually inform the criteria analysis in the decision document. House Bill 114 introduced a new approach to the information used for the criteria analysis. Still required for all permit applications, the technical analyses requirements laid out in ARM 36.12.1303 now fully describe which analyses are necessary for a given application type. **The applicant will now choose either the applicant or Department to complete the entirety of the technical analyses for an application**. The Department will deliver either a Technical Analyses report (if applicant opted for the Department to complete the technical analyses) or a Scientific Credibility Review report (if applicant opted to complete their own technical analyses) to the applicant either prior to application submission (if the applicant completed a preapplication meeting) or with the draft preliminary determination (if the applicant did not complete a preapplication meeting). See sections below for more information on the timelines for each application pathway. **For information about how applicants may complete their own technical analyses for a permit or change application, please see the Technical Analysis Guide document on the Department website's Forms and Resources page.**

When Department- Produced Technical Analyses or Scientific Credibility Review Occur

Preapplication Meeting Held

- **Applicant completes technical analyses:** Technical analyses will be submitted by the applicant with the completed Preapplication Meeting Form and $500 fee, and the Department will begin a scientific credibility review when the Preapplication Meeting Form and technical analyses are deemed to be adequately completed.
- **Department- completed technical analyses:** Technical analysis will begin when the Preapplication Meeting Form is deemed to be adequately completed.
- The Department's Technical Analyses or Scientific Credibility Review report will be delivered within **45 calendar days** of acceptance of the adequately completed Preapplication Meeting Form and $500 fee. (Template Letter PA2)

No Preapplication Meeting Held

- **Applicant- completed technical analyses:** Technical analyses will be submitted by the applicant with the Application Form, and the Department will begin a scientific credibility review no later than when the application is deemed to be correct and complete (if the necessary information is provided within the application prior to the correct and complete determination, it may begin earlier).
- **Department- completed technical analyses:** The information necessary for the technical analyses will be provided in the Application Form via the Technical Analyses Addendum. Technical analyses completed by the Department will begin no later than when the application is deemed to be correct and complete (if the necessary information is provided within the application prior to the correct and complete determination, it may begin earlier).

- The Department's Technical Analyses or Scientific Credibility Review report will be delivered to the applicant with the Draft Preliminary Determination (≤120 days from correct and complete determination). (Template Letter A3)

	Preapplication Meeting	**No Preapplication Meeting**
Department TA	Technical Analyses report delivered ≤45 calendar days after completed Preapplication Meeting Form acceptance.	Technical Analyses report delivered with Draft PD (≤120 calendar days after C&C).
Applicant TA	Scientific Credibility Review report delivered ≤45 calendar days after completed Preapplication Meeting Form (including technical analyses) acceptance.	Scientific Credibility Review report delivered with Draft PD (≤120 calendar days after C&C). Technical analyses received with application.

Technical Analyses List - Permits

Depending on application type, the RO and WSB will have differing levels of involvement in the creation of the Technical Analyses report or Scientific Credibility Review report. The following technical analyses list shows what technical analyses are required per rule, and which member of Department staff is responsible for certain aspects of the technical analyses/ scientific credibility review. Note that the Department is delivering one cohesive report to the applicant, with Parts A & B of the reports completed by the different bureaus. Technical Analyses reports for applications that only require analyses from one bureau will only have one part.

Technical Analyses List- Permits (as required in ARM 36.12.1303)				
Source Type	**Application Type**	**Additional Context (if applicable)**	**Technical Analyses Required**	**Analysis Owner**
SW	Permit		surface water analysis	RO
			analysis of the area of potential impact	RO
GW	Permit-Open Basin		groundwater analysis	WSB
			surface water depletion analysis	WSB
			surface water analysis (of depleted SW)	RO
			analysis of the area of potential impact (of depleted SW)	RO
GW	Permit-Closed Basin		groundwater analysis	WSB
			surface water depletion analysis	WSB
			surface water analysis (of depleted SW)	RO
			analysis of the area of potential impact (of depleted SW)	RO
			hydrogeologic report	WSB
		applications with proposed mitigation	analysis of the net effect to hydraulically connected surface waters	WSB
		applications where aquifer recharge is proposed for mitigation	analysis of monthly accretions to affected hydraulically connected surface waters	WSB

Surface Water Permit Application - Technical Analyses Resources

- Surface water analysis

- Analysis of physically available surface water for the purpose of evaluating the Physical Availability criterion
- RO completes technical analysis/ scientific credibility review.
- See Department Standard Practice for Physical Availability of Surface Water (ARM 36.12.1702) guidance in the "Criteria Based Guidance" section of the permit manual and corresponding rule for more information.

- Analysis of the area of potential impact
  - Analysis of the reach/ area considered in the legal availability analysis, including the geographic extent of the area of potential impact (AOPI) and the quantification of the flow rate and volume of water rights within the reach considered for the legal availability analysis.
  - RO completes technical analysis/ scientific credibility review.
  - See Department Standard Practice for Legal Availability for Permit Applications (ARM 36.12.1704) and corresponding rule for more information.

Groundwater Permit Application - Technical Analyses Resources

- Groundwater analysis
  - (i) aquifer transmissivity and storage coefficient
    - Used for analyzing physical availability on the source.
    - WSB completes technical analysis/ scientific credibility review.
    - See WSB Standard Practices, Department Standard Practice for Physical Availability of Groundwater section of the manual, and corresponding rule (ARM 36.12.1703) for more information.
  - (ii) maximum drawdown and remaining available water column in the proposed point of diversion(s)
    - Used for analyzing the Adequate Means of Diversion criteria (ARM 36.12.1707)
    - WSB completes technical analysis/ scientific credibility review.
    - See WSB Standard Practices, Department Standard Practice for Adequate Means of Diversion for Permit Applications section of the manual, and corresponding rule (ARM 36.12.1707) for more information.
  - (iii) 0.01-foot drawdown contour
    - Used for determining an area of potential impact on a groundwater source for the purpose of determining legal availability.
    - WSB completes technical analysis/ scientific credibility review.
    - See WSB Standard Practices, Department Standard Practice for Legal Availability for Permit Applications section of the permit manual, and corresponding rule (ARM 36.12.1704) for more information.
  - (iv) location and distance between the proposed point of diversion(s) and the 0.01-foot drawdown contour
    - Used for determining an area of potential impact on a groundwater source for the purpose of analyzing the legal availability criterion.
    - WSB completes technical analysis/ scientific credibility review.
    - See WSB Standard Practices and Legal Availability for Permit Applications (ARM 36.12.1704) for more information.
  - (v) annual groundwater flux through the 0.01-foot drawdown contour, annual groundwater recharge, or annual groundwater discharge. The quantification must be in acre-feet per year
    - Used for analyzing legal availability on the source.
    - WSB completes technical analysis/ scientific credibility review.

        - See WSB Standard Practices and Legal Availability for Permit Applications (ARM 36.12.1704) for more information.
    - (vi) all groundwater rights within the 0.01-foot drawdown contour or area of potential impact
        - Used for determining an area of potential impact on a groundwater source for the purpose of determining legal availability.
        - WSB completes technical analysis/ scientific credibility review.
        - See WSB Standard Practices, Department Standard Practice for determining Legal Availability for Permit Applications, and corresponding rule (ARM 36.12.1704) for more information.
    - (vii) 1-foot drawdown contour, which is based on five years of constant pumping, which is derived from the requested annual volume and apportioned monthly based on the proposed period of diversion
        - Used for determining an area of potential adverse effect on a groundwater source for the purpose of analyzing the adverse effect criterion.
        - WSB completes technical analysis/ scientific credibility review.
        - See WSB Standard Practices and Adverse Effect criterion for Permit Applications (ARM 36.12.1706) for more information.
    - (viii) distance and location on a map between the proposed point of diversion(s) and the 1-foot drawdown contour
        - Used for determining an area of potential adverse effect on a groundwater source for the purpose of analyzing the adverse effect criterion.
        - WSB completes technical analysis/ scientific credibility review.
        - See WSB Standard Practices and Adverse Effect criterion for Permit Applications (ARM 36.12.1706) for more information.
    - (ix) all groundwater rights with points of diversion within the 1-foot drawdown contour
        - Used for determining an area of potential adverse effect on a groundwater source for the purpose of analyzing the adverse effect criterion.
        - WSB completes technical analysis/ scientific credibility review.
        - See WSB Standard Practices and Adverse Effect criterion for Permit Applications (ARM 36.12.1706) for more information.
    - (x) remaining available water column for each groundwater point of diversion identified in (ix)
        - Used for determining an area of potential adverse effect on a groundwater source for the purpose of analyzing the adverse effect criterion.
        - WSB completes technical analysis/ scientific credibility review.
        - See WSB Standard Practices and Adverse Effect criterion for Permit Applications (ARM 36.12.1706) for more information.
- Surface water depletion analysis
    - Used for determining an area of potential adverse effect on a groundwater source for the purpose of analyzing the legal availability criterion.
    - WSB completes technical analysis/ scientific credibility review.
    - See WSB Standard Practices and Legal Availability for Permit Applications (ARM 36.12.1704) for more information.
- Surface water analysis (of depleted SW)
    - Analysis of physically available surface water on the depleted surface water source(s) for the purpose of analyzing legal availability.
    - RO completes technical analysis/ scientific credibility review.

    - See Department Standard Practice for Physical Availability of Surface Water in the "Criteria Based Guidance" section of the manual, Department Standard Practice for Legal Availability for Permit Applications in the "Criteria Based Guidance" section of the manual, and corresponding rule (ARM 36.12.1702 and 1704) for more information.
- Analysis of the area of potential impact
    - Analysis of the reach/ area considered in the legal availability analysis, including the geographic extent of the area of potential impact (AOPI) and the water rights within the reach considered for the legal availability analysis.
    - RO completes technical analysis/ scientific credibility review.
    - See Department Standard Practice for Legal Availability for Permit Applications in the manual and corresponding rule (ARM 36.12.1704) for more information.
- Hydrogeologic report
    - Only required for permit applications in a closed basin, per § 85-2-360, MCA.
    - Used for determining projected net depletions to surface water sources.
    - WSB completes technical analysis/ scientific credibility review.
    - See WSB Standard Practices for more guidance.
- Analysis of the net effect to hydraulically connected surface waters.
    - Only required for permit applications in a closed basin with proposed mitigation
    - WSB completes technical analysis/ scientific credibility review.
    - See WSB Standard Practices for more guidance.
- Analysis of monthly accretions to affected hydraulically connected surface waters.
    - Only required for permit applications in a closed basin where aquifer recharge is proposed for mitigation.
    - WSB completes technical analysis/ scientific credibility review.
    - See WSB Standard Practices for more guidance.

TA Internal Processing

Internal Timelines

Preapplication Meeting Held

Determination of Adequately Completed Preapplication Meeting Form

For applications that have had a preapplication meeting, the Technical Analyses or Scientific Credibility Review report will be completed and delivered to the applicant prior to application receipt. Once the Preapplication Meeting Form is accepted, the Department has 45 calendar days to complete their technical analyses. The Department reserves the right to return an inadequate Preapplication Meeting Form to an applicant within 5 business days of form receipt. The Department considers the PMF accepted upon determination of being adequately completed. Immediately after PMF receipt, RO staff should send groundwater analysis-related materials to WSB for a review for adequate completion, if not already reviewed during the variance request process. Within the first five business days of PMF receipt, RO staff review submitted materials to ensure the Preapplication Meeting Form is adequately completed to proceed with the technical analyses.

If the Preapplication Meeting Form is deemed to be adequately completed (notification delivered to applicant via Template Letter PA1), the Department will consider the form accepted and begin the 45 calendar days to complete either the technical analyses or the scientific credibility review (if applicant completed their own technical analyses). Internal timelines for this part of the process are the same between the creation of the scientific credibility review and technical analyses, but vary based on application type (depending on what level of involvement WSB has in the technical analyses or scientific credibility review reports). The following internal

timelines are suggested to maintain workloads and give both WSB and the ROs enough time to complete their portions of the analyses. *Communication between WSB and the ROs is crucial to produce the reports by the deadline in administrative rule.*

- Day ≤5 after Preapplication Meeting Form Receipt: WSB and RO review for adequate completion, RO accepts and signs PMF if determined to be adequately completed. RO sends WSB Checklist upon determination of adequately completed Preapplication Meeting Form. RO communicates determination of adequate or inadequate PMF to applicant via Template Letter PA1, and the 45 calendar day period for the technical analyses/scientific credibility review begins.
- Day ≤45 after Preapplication Meeting Form Acceptance: At or before Day 40, WSB delivers their completed section of the report to RO, and RO compiles report contents and prepares the report for delivery to applicant (delivery included with Template Letter PA2).

No Preapplication Meeting Held

Determination of Correct and Complete Application Form

For applications that have not had a preapplication meeting, the Technical Analyses or Scientific Credibility Review report will be completed after the correct & complete determination, and delivered to the applicant with the Draft Preliminary Determination (Template Letter A3).Once the permit or change application form is received, the Department has 30 business days to determine if the application is deficient or can be considered correct and complete. If the application as submitted is deficient, the Department has 30 calendar days from receipt of the deficiency letter response to determine if the application is correct and complete. If the application is not correct and complete after receipt of the deficiency letter response, the Department will terminate the application (and no technical analyses or scientific credibility review will be completed for the application).

If the application is deemed to be correct and complete, the Department will proceed to completion of the technical analyses or scientific credibility review for the application. While the Technical Analyses or Scientific Credibility Review report is not delivered to the applicant until the delivery of the Draft Preliminary determination (≤120 calendar days from determination of correct and complete application), the Department will begin the technical analyses or scientific credibility review upon the correct and complete determination. Note that if the application contains all necessary information for the technical analyses or scientific credibility review, then the Department may begin technical analyses prior to the correct and complete determination. The following internal timelines are suggested to maintain workloads and give both WSB and the ROs enough time to complete their portions of the analyses- so, if one step is completed early, try to maintain the allotted timestep to allow for more processing time on the back end. For example, if you are supposed to have 10 days to complete a step in the process (from day 10- day 20), but the materials arrived to you on day 8 instead, aim to complete your step by day 18, maintaining the 10-day timestep for the given step, and pushing the time savings to later in the process. *Communication between WSB and the ROs is crucial to produce the reports by the statutory deadline.*

- Upon application receipt:
    - If DNRC is doing TA, RO should send Form 633 and Aquifer Testing Addendum to WSB immediately for them to review for deficiencies (variances needed).
        - If WSB identified any deficiencies related to Form 633, RO must later send the related deficiency response to WSB ASAP upon receipt so they can determine whether deficiencies are resolved.
    - If applicant is doing TA, RO should send entire application and TA to WSB immediately for WSB to review for deficiencies and begin scientific credibility review (WSB does not need surface

water permits or non-irrigation surface water changes as they do not contribute to those reports).
        - If WSB identified any deficiencies (missing pieces of TA), RO must send later deficiency response to WSB ASAP upon receipt so they can determine whether deficiencies are resolved.
- Day ≤10 after correct & complete determination:
    - RO will send application and WSB checklist to WSB via HYDRODOCS folder (update database events, and send an email notifying WSB the documents are there)
    - RO and WSB will then spend ≤45 calendar days to complete their remaining respective parts of the technical analyses or scientific credibility review.
- Day ≤55 after correct and complete determination:
    - WSB will send their portion of the technical analyses or scientific credibility review to RO- the technical analyses/ scientific credibility review is complete!
    - RO will use the remaining 65 calendar days to write and review the Draft PD.
    - Note the Technical Analyses/ Scientific Credibility Review report will be delivered to the applicant with the Draft PD (Template Letter A3).

Technical Analyses Report

Overview

The Technical Analyses report (TA) is completed by the Department if an applicant opts for the Department to complete the technical analyses for a given application. The content of the Technical Analyses report is application type dependent and pursuant to ARM 36.12.1303. Within this report, the Department will complete the technical analyses for each section using the Department's standard practice, unless otherwise specified and agreed upon in the Preapplication Meeting Form or Historical Use Addendum.

Please Note: In order to satisfy § 85-2-360, MCA, applicants for groundwater permits in closed basins MUST have a preapplication meeting if they want the Department to conduct the technical analyses. If they do not have a preapplication meeting, they must conduct their own technical analyses.

Scientific Credibility Review

Overview

The scientific credibility review of technical analyses is performed by the Department if an applicant opts to perform their own technical analyses for an application. During the scientific credibility review, the Department analyzes the credibility of the methodology and results of each element of the technical analyses as required in ARM 36.12.1303 to determine if the applicant-submitted technical analyses are eligible to be used in the Department's criteria analysis. If the applicant opts to produce their own technical analyses, they must prove their methodology is scientifically substantial and credible. It's important to note that an applicant may prove their methodology to be scientifically credible while deviating from Department standard practice, though the bar for proving scientific credibility will be higher than if Department standard practices were correctly used (as Department standard practices are considered to be credible by the Department). If applicant-submitted technical analyses are found to be scientifically uncredible by the Department, the statutory criteria cannot be proven using the originally submitted technical analyses.

Deficiency/ Adequate Completion Review VS Scientific Credibility Review

While performing both the adequate completion review of a Preapplication Meeting Form and the deficiency review of a 600 or 606 application form, it's important to recognize the distinction between those processes and the scientific credibility review. The processes may seem similar on the surface, but the scientific

credibility review can only occur once the Department has confirmed that all information needed to conduct the review has been included in either the Preapplication Meeting Form or the Technical Analyses Addendum of the 600/606 application form. Certain components of the credibility review will be addressed within mandatory questions on the Preapplication Meeting Form (if on the preapplication meeting pathway). See the table below and the additional table in the Preapplication Meetings section of this manual for a comparison of the different levels of review at each application stage.

Application Deficiency Review/ Preapplication Meeting Form Adequate Completion Review	**Technical Analyses Scientific Credibility Review**
Completeness of form & analyses	Credibility of methodologies
Consistency of content on the form & analyses	Quality of analyses and analyses results
Deviation from preapplication meeting discussion	Relevance of the data used
	Adequacy of parameters*
	Department justification for credibility findings

**If a preapplication meeting was held, the adequacy of parameters and data inputs will have been discussed within the mandatory sections of the Preapplication Meeting Form and thus previously evaluated during the adequacy check of the completed Preapplication Meeting Form.*

The review of adequate completion (Preapplication Meeting Form) or deficiency review (600/606 Application Form) will be a review for completion and consistency throughout the respective document. See the Correct & Complete Determination and Deficiency Letters or Preapplication Meeting sections of the manual for more information on these determinations. The scientific credibility review will consist of a credibility analysis of each required technical analysis of a given application, including the methodology and result of each analysis. These documents will be formatted similarly to the technical analyses reports and will walk through the basis of each of the Department's credibility findings.

Assessing Credibility

When evaluating the scientific credibility of the submitted technical analyses, the Department must consider the following criteria of each element of the analyses. If any one component of an analysis is deemed to not meet the criteria listed below, the Department will find the analysis to be incredible in the review.

Per ARM 36.12.1303(8), the Department will evaluate the **methodology, quality of the analysis,** and **relevance of the data used** for the technical analyses. The following questions can help guide the Department's scientific credibility review of applicant-submitted technical analyses.

Methodology:

- What methodology did the applicant use to complete the analysis?
- How is this methodology scientifically credible or incredible? (e.g., peer reviewed, used by other agencies, etc.)
- Is this methodology appropriate for the subject analysis? (e.g., was the methodology used meant to be used for the analysis it was used for?)

Quality of the analysis:

- Regardless of the credibility of the methodology at hand, was the analysis performed correctly and completely? (e.g., are the numbers right?)
- Why does the Department find the quality of the analysis to be credible or incredible?

Relevance of the data:

- What is the source of the data for the analysis being performed?
- Why is this data acceptable or unacceptable for the subject analysis?
- Do the variables or parameters submitted for each analysis make sense for the project and water source?
- Is justification provided for variables and/or data inputs being submitted within analyses?

Examples of Scientific Credibility Finding Language:

- The **analysis of the area of potential impact** is not considered to be scientifically credible by the Department because the quality of the analysis is considered incredible by the Department. The analysis neglected to include water rights downstream of the point of diversion, with no explanation as to why said water rights should not be considered in the area of potential impact.
- The **return flow analysis** is not considered to be scientifically credible by the Department because the analysis was inadequate. Per ARM 36.12.1303(3)(d)(iii), "if water rights are identified which will be impacted by a change in return flow, the return flow analysis must include a monthly breakdown of the rate and timing of return flow and evaluate impacts to the identified rights". While the rate and timing of the return flows were identified in your analysis, an evaluation of the impacts to the identified water rights was not included.

Appealing or Challenging Technical Analyses or Scientific Credibility Review Reports

A process to appeal or challenge a departmental technical analysis or scientific credibility review is not defined by rule or statute. Options do exist, however, to address disputed departmental technical analyses or scientific credibility reviews. Any errors or revisions of technical analyses or scientific credibility reviews should be discussed with CO. Reach out to your Central Office contact if you've noticed an error or an applicant seeks to revise their technical analyses.

WSB Checklists

If you are processing an application type that requires analyses or review from WSB, then you will need to complete a WSB checklist upon determining the information in the application form or Preapplication Meeting Form is final and ready for technical analysis. The following application types require the WSB checklists listed below:

- Groundwater Permit Application (GW 600)
- Groundwater Change Application (GW 606)
- Surface Water Irrigation Change Application (SW 606)

All other application types do not require WSB reports.

Preparing the Report for Delivery

WSB will forward a PDF of their portion of the Technical Analyses report or Scientific Credibility Review report to the RO. RO Staff will complete the appropriate cover letter (either Template PA2 or A3) and describe the contents of the Technical Analyses report/ Scientific Credibility Review report. RO Staff will save the final, merged report in the appropriate Regional Office folder in Hydro Tech Reviews (ROCO/HYDRO DOCS/HYDRO TECH REVIEWS).

ROCO Templates

RO portions of the Technical Analyses report and Scientific Credibility Review report templates are available in ROCO in the HYDRODOCS/ Report Templates Post Jan 1 Folder.

Criteria Based Guidance

Physical Availability of Surface Water for Permit Applications

Overview

Physical availability is a criterion that must be analyzed to issue a permit under MCA 85-2-311 for both surface water and groundwater applications. To show that water is physically available in the source at the flow rate and/or volume that the applicant seeks to appropriate, there are numerous variables and processes that must be considered. There needs to be a preponderance of evidence that water is physically available at the proposed point of diversion.

When analyzing the information below please keep in mind that it is the MCA and ARM that should ultimately be acting as your guide when analyzing physical availability. Keep in mind that the goal of this process is to determine how much water is physically available at the point of diversion or in the source as close to the point of diversion as possible.

MCA: The following MCA provides the basis for why we analyze physical availability when permitting water rights.
§85-2-311 Criteria for issuance of permit

ARM: The following ARM provides us with guidance as to how we must analyze physical availability.
ARM 36.12.1702: PERMIT APPLICATION CRITERION - PHYSICAL SURFACE WATER AVAILABILITY

Resources:

- USGS Montana Water Science Center (Montana USGS stream-gaging and other related information)
- GWIC (Montana Groundwater Information Center; Well and other groundwater related information)
- Flow Measurement Calculator Spreadsheet (formerly Form 649): A standardized Excel document which should be utilized to record surface water discharge measurements.
- FWP Bathymetric Data
- StreamStats USGS program

Memos:

- Technical Memorandum: Physical Availability of Ponds, dated Apr. 22, 2019
- Technical Memorandum: Physical Availability of Surface Water Without Gage Data, dated Apr. 18, 2019
- Technical Memorandum: Physical Availability of Surface Water with Gage Data, dated Nov. 1, 2019

Physical availability of surface water for permits should be calculated using the appropriate Technical Memoranda that apply to the specific situation regarding the water source.

- *If you have questions on methodology, which evaluation technique to use, or would like an evaluation peer reviewed, contact WSB.*
- *In any unique circumstances which may involve deviation from a standard practice, please contact WSB to ensure that the proper methodology and analysis are being followed.*

Background/Context

The Physical Availability criterion is all about determining if the source of supply is capable of supplying the flow rate and volume of water needed for the proposed project. For example: if the applicant is proposing to divert 5 CFS from a stream that flows at 2 CFS, that is a problem. Physical availability is attained by varying methods dependent on the characteristics of the source at the proposed point of diversion(s). Physical Availability is not necessarily dependent on other appropriations from the source, but those appropriations may be used in certain modeling methodologies outlined in this section.

Physical Availability is the first criterion addressed in a Preliminary Determination for a surface water permit. It is required to be met before the Legal Availability criterion (ARM 36.12.1704) can be addressed. Legal Availability is a separate, but related criterion that subtracts the "Legal Demands" of existing users from the Physical Availability determined in this criterion. Having a defensible finding of water being physically available is paramount to having a defensible finding of water being legally available.

Not all sources have the same flow characteristics, available gaging resources, or defensible modeling techniques. For purposes of permitting surface water sources, we look at three stream classifications. These classifications are defined in MCA 85-2-355, and we are applying the same definitions for the purpose of analyzing this criterion.

"Ephemeral stream" means a watercourse that has a channel and that carries water only during and shortly after precipitation or snow melt events.

"Intermittent stream" means a nonperennial flowing stream that has a channel and that annually carries water but is dry for part of the year in most years.

"Perennial flowing stream" means a stream that has flowed continuously during all seasons during dry as well as wet years, except when the flow is interrupted by diversions.

In addition to streams, applicants may seek to appropriate from lakes. Lakes are typically distinct from reservoirs, but lines can get blurred when natural lakes are "enhanced". Use your best judgment and regional knowledge to determine if the Lake methodology outlined below is appropriate.

If the surface water permit application in question includes source types other than streams or lakes, discuss how criteria will be met with WSB and your regional manager.

Common scenarios/questions

- At what location do we calculate the Physical Availability if there are multiple PODs spread out?
  - If a permit application for surface water includes a transitory POD or multiple PODs, the Department will calculate physical availability from the location of the most upstream point.
- Does the Physical Availability criterion matter if the applicants proposed beneficial use is "I'll use what I can get"?
  - Yes, each criterion assessment always matters, and we need a set volume and flow rate to complete the physical availability criteria analysis. If the applicant answered this way, that would be a deficiency, and we wouldn't be at the point of writing a Technical Analysis Report or PD.

DEPARTMENT STANDARD PRACTICE FOR DETERMINING PHYSICAL SURFACE WATER AVAILABILITY:

Procedure Steps

The procedure steps for analyzing the physical availability on a source are dependent on the type of surface water source in question.

The procedure steps below identify the following:

- When stream gage records are used to calculate median of the mean monthly stream flows.
- When discharge measurements are used to calculate median of the mean monthly stream flows.
- When discharge measurements are used to validate estimated mean monthly stream flows.
- When discharge measurements, in lieu of an estimation technique, are used to demonstrate physical availability.

Perennial and intermittent stream methodologies (ARM 36.12.1702(1)):

The physical availability analysis for perennial and intermittent streams requires quantification of the monthly flow rate and volume, either via stream gage records or discharge measurements on the source of supply. The Department uses the best available data to quantify the physical availability of water on a source. The following information describes the Department's standard practice and standards of data quality for each methodology.

Stream Gage Record Requirements

A gaging station measures, collects and/or transmits continuous gage-height, among other data, for a location on a surface water source. Continuous gage-height data is collected at the gaging station using a submersible or non-submersible sensor and data recording device. The sensor is calibrated to a reference gage (e.g., a staff gage or wire weight from a stable structure) that agrees with an accurately established gage datum. Readings from the reference gage and discharge measurements are used to fit a weighted power function regression equation to the data, referred to as a 'stage-discharge rating curve' (rating curve). An instantaneous discharge record is derived from the rating curve using the continuous gage-height data collected at the station as input. Discharge measurements are collected at a site representative of the flow that would pass by the gaging station, such that no flow enters or leaves the source between the measurement site and the gage. The instantaneous discharge data produced by a station can be used to generate flow statistics over any length of time greater than the sampling frequency. The most common sampling frequency is every 15-minutes but could also be every 30-minutes or 1-hour.

To estimate the median of the mean monthly flow, the stream gage record must meet the three requirements identified below. *Numbers 2 and 3 are assumed to be met when USGS or DNRC WSB gage records are used.*

1. **Record Completeness:** Gage-height data has been recorded daily at predetermined time intervals (one measurement every 15 minutes, or a minimum of 1 measurement per hour), the period of record represents both generally wet and dry years, and reflects current flow regimes (e.g., dam removed/built, water appropriations, etc.). If data gaps occur, they are identified and left unfilled or estimated using interpolation, ice correction, or indirect discharge measurement methods.

   The minimum preferred period of record is 10 consecutive years, however if the period of record is between 5 and 10 consecutive years and meets all the requirements for record completeness and Numbers 2 and 3 below, the gage data may be considered in estimating the median of the mean monthly flow. If the period of record is less than 5 years, the mean monthly values will be used to

validate an estimation technique, unless an estimation technique cannot be applied according to the Department standard guidelines. If an estimation technique cannot be applied, then the mean monthly values may be used as evidence of physical availability. See the "*Estimating Physical Availability Using Discharge Measurement Records— Situational Methodologies for Sources Without Gage Data*" subsection for more information on how to estimate physical availability on a source when stream gage record requirements are not met.

2. **Discharge Measurements and Rating Curves:** Discharge measurements were taken at a location that is representative of the flow passing by the gaging station. Ideally, discharge measurements and reference gage readings were taken every 4 to 8 weeks so that shifts in the stage-discharge rating curve are adequately represented over time. When using rating curve derived discharge data, the rating curve and data used to construct it should be regularly (ideally annually) peer reviewed. Any rating curve derived discharge data that has not undergone some form of review should always be considered provisional and subject to change.

3. **Quality and Accuracy of Gage-Height Data**: For gage-height data to be useful for their intended purposes, requirements for maintaining a permanent gage datum and meeting specified accuracy limits are important. The following is a list of gage-height data requirements which need to be met.
   - A reference gage and permanent gage datum have been established and maintained by running differential-level surveys to establish reference marks every 2 or 3 years.
   - The overall accuracy of stage data established for USGS gaging stations is either 0.01 foot or 0.2 percent of the effective stage, whichever is greater. For example, the required accuracy would be 0.06 ft at an effective stage of 30 ft, 0.02 ft at 10 ft, and 0.01 ft at all effective stages less than 7.5 ft. Effective stage is defined as the height of the water surface above the orifice, intake, or other point of exposure of the sensor to the water body as described by Sauer and Turnipseed (2010a).

Estimating Physical Availability at a POD- Situational Methodologies for Gaged Sources

If quantifying the physical availability at the POD using stream gage data, there are four situations to consider based on the location of the gage(s) relative to the POD, and if the addition or subtraction of intervening water rights to or from gage data results in erroneous estimates of physical availability. If a source is intermittent, measurements may be required and used in lieu of or in conjunction with gage data to estimate physical availability.

Situation 1: POD Between Two Stream Gages:

This situation applies if two stream gages with similar periods of record exist on the source, with one gage being upstream and one gage being downstream of the proposed POD. Stream gage records for both gages must meet the three requirements identified above, there should be no dams or dry stream reaches between the gages, and both gages should have similar streamflow characteristics. In addition, the contributing drainage area at the POD must be within the range of 0.5 -1.5 times the size of the contributing drainage area of either gage. Follow the steps below to address Situation No. 1.

1. Use the stream gage records for both gages pursuant to ARM 36.12.1702(1)(a), with at least ten years of record to calculate the median of the mean monthly flow rate for both gages.
2. Use the "Between Gages: Interpolation" method outlined in the Nov. 1, 2019, Technical Memorandum: Physical Availability of Surface Water with Gage Data for each month in the proposed period of diversion.
   a. To use the Interpolation Method, the gage(s) and the POD (ungaged site) must be located on the same source and exhibit similar streamflow characteristics.

i. "Streamflow characteristics" refers to the general hydrologic characteristics of the stream, including but not limited to density of diversions, presence of onstream reservoirs/dams, geography and geomorphology.

b. Remember to determine if the methodologies proposed are appropriate for the situation at hand based on stream conditions and existing uses. If you have questions about this, consult WSB.

3. Calculate the total volume for each month using the calculated flow at the proposed POD.
   a. Multiply the monthly flow rate in CFS by 1.98 (unit conversion constant from CFS to AF/day) and the number of days in the month to determine the monthly available volume in AF for each month on both gages.
      i. $Total\ Monthly\ Volume\ (AF) = Flow\ Rate\ (CFS) \times Days \times 1.98$

Situation 2: POD Located Above or Below One Stream Gage with no intervening water rights:

This situation applies if one stream gage exists on the source and there are no intervening water rights, dams, tributaries, and/or dry stream reaches between the gage and POD, and the POD is less than a ½ mile from the stream gage. The stream gage record must meet all three requirements identified above. If the POD is more than a ½ mile away from the gage or if tributaries contribute significant flow between the POD and gage, the Drainage Area Ratio Method (outlined under Situation 4) is a reasonable method to estimate flow at the POD. Use stream gage measurement records pursuant to ARM 36.12.1702(1)(a) to determine the flow rate each month near the POD.

1. Use the stream gage records for the gage pursuant to ARM 36.12.1702(1)(a), with at least ten years of record to calculate the median of the mean monthly flow rate for the gage.
2. If the POD is more than a ½ mile away from the gage or if tributaries contribute significant flow between the POD and gage consider the Drainage Area Ratio Method (outlined under Situation 4), if not go to step 3.
3. Calculate the volume for each month using the calculated flow at the proposed POD.
   a. Multiply the monthly flow rate in CFS by 1.98 (unit conversion constant from CFS to AF/day) and the number of days in the month to determine the monthly available volume in AF for each month on both gages.
   b. $Total\ Monthly\ Volume\ (AF) = Flow\ Rate\ (CFS) \times Days \times 1.98$

Situation 3: POD Located Above or Below One Stream Gage with intervening water rights:

This situation applies if one stream gage exists on the source, meets the three stream gage record requirements identified above, and there are intervening water rights, dams, or dry stream reaches between the gage and POD. If there is evidence that the results obtained from Situation 3 generate unrealistic or indefensible physical availability estimates, consider using the method outlined in Situation 4. Follow the steps below to address Situation 3.

1. Use the stream gage records for the gage pursuant to ARM 36.12.1702(1)(a), with at least ten years of record to calculate the median of the mean monthly flow rate for the gage.
2. Calculate the volume for each month using the calculated flow at the proposed POD.
   a. Multiply the monthly flow rate in CFS by 1.98 (unit conversion constant from CFS to AF/day) and the number of days in the month to determine the monthly available volume in AF for each month on both gages.
   b. $Total\ Monthly\ Volume\ (AF) = Flow\ Rate\ (CFS)\ \times Days \times 1.98$
3. Sum the monthly flow rates for all intervening water rights with diversions between the closest gage (either up or downstream) and POD. It is important to make a distinction between appropriations that divert water directly from the source (i.e., pumps, headgates, and even livestock direct) versus nonconsumptive appropriations like instream flow, hydropower, or any other use where no water is diverted from the source. Although instream flow water rights are legal demands, they don't impact the physical flow of a source, as such they have no bearing on the stream's physical availability. Therefore, we ignore 'run of the river' hydropower and instream demand when following the steps below.
   a. Use the methodologies outlined in "Legal Availability for Permit Applications" of the Manual to determine flow rate and volume for each existing water right. Note, the goal of quantifying

existing water rights for Physical Availability is to determine what has physically been removed from the source as opposed to the legal protection of the appropriation.

b. Distribute diverted flow and volume by month for the existing rights.
    i. Flow Rate: Every month gets the entire flow rate. (Example 1 CFS over a period of use of 12 months is 1 CFS/Month)
    ii. Volume: Evenly distribute the volume by months within the period of use. (Example 12 AF over a period of use of 12 months is 1 AF/Month)
        1. There may be scenarios where it makes sense to distribute the volume in another way. Use your best judgment and regional knowledge to determine if an even distribution is not appropriate in your scenario.
c. Total the existing rights for each month and either add or subtract them to the values calculated above to determine the physical availability of the source at the POD.
    i. If the POD is upstream of the gage:
        1. Add intervening rights to flow rates and volumes calculated in steps 1 and 2.
    ii. If the POD is downstream of the gage:
        1. Subtract intervening rights from flow rates and volumes calculated in steps 1 and 2.

Situation 4: Drainage Area Ratio Method

If there is evidence that the results obtained from Situation 3 generate unrealistic or indefensible physical availability estimates, or if under Situation 2 the POD is far away from the gage, it may be advised to instead use the Drainage Area Ratio Method as outlined in Nov. 2019 Department Technical Memorandum: Physical Availability of Surface Water with Gage Data.

1. To use the Drainage Area Ratio Method, the gage and the POD (ungaged site) must be located on the same source and exhibit similar streamflow characteristics.
    a. "Streamflow characteristics" refers to the general hydrologic characteristics of the stream, including but not limited to density of diversions, presence of onstream reservoirs/dams, geography, and geomorphology.
2. In addition, the contributing drainage area at the POD must be within the range of 0.5 -1.5 times the size of the contributing drainage area of the gage.
3. See the Drainage Area Ratio Method section of the abovementioned memo for information on the streamflow characteristics that may impact this methodology's applicability. If you have questions about the physical availability analysis on a source, reach out to WSB.

Estimating Physical Availability Using Discharge Measurement Records— Situational Methodologies for Sources Without Gage Data

If stream gage record requirements referenced above are not met, the three scenarios below describe how submitted discharge measurements may be used when estimating either median of the mean or mean monthly stream flow. All discharge measurements used to either estimate a median of the mean streamflow, validate an estimation technique, or provide evidence of monthly physical availability need to be collected following established methods (Sauer, 2002; Sauer and Turnipseed, 2010b) and/or in accordance with methods identified on the Department's Flow Measurement Calculator worksheet, available on the Department's Water Right Forms and Resources page.

The discharge measurement location for all scenarios should represent flow passing by the proposed point of diversion. The frequency of measurement and measurement period of record is different for each scenario and is predicated upon ARM 36.12.1702 and minimum requirements to generate flow statistics.

Situation 1: Complete Discharge Measurement Record:

To estimate median of the mean monthly streamflow solely from collected discharge measurements, the following requirements must both be met:

1. Minimum of two discharge measurements were taken each month during the proposed period of diversion to capture a range of flows,

2. Measurements were collected for a minimum of 10 consecutive years to capture both wet and dry years.

Situation 2: Streamflow Estimation Techniques and Partial Discharge Measurement Records:

If discharge measurements do not meet the requirements identified in Situation 1 to estimate median of the mean monthly steam flows, the measurements may be used in conjunction with a Department approved estimation technique to estimate mean monthly stream flow. Per ARM 36.12.1702(1)(b), the applicant must collect/provide a minimum of three measurements that reflect high, moderate, and low flows during the period of diversion, unless a variance is granted pursuant to ARM 36.12.123.

The applicant is responsible for collecting all three measurements before the application is submitted (or for applications received after Jan. 1, 2024, prior to the technical analyses being completed if a preapplication meeting was held). The Department can assist applicants on a case-by-case scenario, but the burden of providing quality data is on the applicant. Speak with your Regional Manager if you have an applicant asking for assistance with source measurements.

See the WSB Regression Equation Spreadsheet Resource for Department-accepted estimation techniques to calculate mean monthly flow rates. Estimation techniques are based on published literature, specific to different regions and scenarios, and use a variety of basin characteristics and climate data to estimate flow statistics. Reach out to the Water Sciences Bureau if you are unsure about the applicability of a specific technique or need assistance applying it.

The methods that are addressed in the Flow Measurement Calculator worksheet were previously referenced in the old ARM 36.12.1702 rule. If you want to review the old publication list or read the publications they are located here, pathway ROCO FOLDER\HYDRO DOCS\Helpful Resources\Streamflow Estimation_Calculator\Publications

Some things to note about this great resource:

- *The worksheet will open as a read-only document to prevent unintentional editing.*
- *There is an instructions tab, start there first.*
- *Look at the hydrologic region map (tab 3) to know where your project site is located.*
- *Enter data into the required data tab and stream flow estimates will auto populate in the appropriate region tab.*
- *You can use StreamStats to generate basin characteristics, a link is provided in the worksheet.*
- *When all else fails, call WSB and they can help you with the worksheet or discuss appropriate methods.*

Situation 3: Monthly Discharge Measurement Records as Evidence of Physical Availability:

In instances where Situation 1 doesn't apply and estimation techniques cannot be applied or do not accurately estimate flow under Situation 2 (e.g., wastewater ditches, spring fed streams, basin characteristics outside the range of usable values, highly managed systems), then physical availability of water will be determined based on collected discharge measurements for these sources. Per ARM 36.12.1702(4), measurements on these sources need to occur once monthly during the proposed period of diversion. For sources that are depleted by groundwater uses, measurements need to be once monthly during the period of depletion.

1. To calculate the volume for each month using the estimated flow at the proposed POD:
    a. Multiply the monthly flow rate in CFS by 1.98 (unit conversion constant from CFS to AF/day) and the number of days in the month to determine the monthly available volume in AF for each month on both gages.
    b. $Total\ Monthly\ Volume\ (AF) = Flow\ Rate\ (CFS)\ \times Days \times 1.98$

References

- Sauer, V.B., 2002. Standards for the Analysis and Processing of Surface-Water Data and Information Using Electronic Methods: U.S. Geological Survey Water-Resources Investigations Report 01–4044, 91 p.
- Sauer, V.B., and Turnipseed, D. P., 2010a. Stage Measurement at Gaging Stations: U.S. Geological Survey Techniques and Methods, book 3, chap. A7, 45 p.
- Sauer, V.B., and Turnipseed, D.P., 2010b. Discharge measurements at gaging stations: U.S. Geological Survey Techniques and Methods, book 3, chap. A8, 87 p.

Ephemeral stream methodologies (ARM 36.12.1702(2)):

The physical availability analysis for ephemeral streams requires quantification of the annual runoff volume. The annual runoff volume above the proposed point of diversion will be determined using climate and drainage area data. Ephemeral streams do not require flow rate measurements and often don't have available gage records or measurement records. These streams are modeled for annual volume only. Please confer with WSB for information on determining the correct estimation technique.

1. Use an appropriate program to delineate the drainage area above the proposed lowest/downstream point of diversion. Useful programs include but are not limited to:
    a. USGS StreamStats program
    b. ArcPro or web app: Converge
2. Determine that the most appropriate modeling method for this application is based on available data and basin characteristics.
    a. Regression Equations
        i. USGS Water Resources Investigation Report 84-4143
        ii. WSB Regression Equation Spreadsheet Resource (linked) for region-specific regression equations. See more information about this spreadsheet in the "Streamflow Estimation Techniques and Partial Discharge Measurement Records" section of the perennial & intermittent stream section above.
    b. Other professionally documented and Department-approved methods, including but not limited to:
        i. Orsborn method (See Appendices),
        ii. Mannings Equation, and/or
        iii. U.S. NRCS mean annual runoff data.
    c. If you are unsure which methodology is most appropriate for a given application, contact WSB.
3. Once generating the annual runoff volume at the POD, subtract the quantified volumes of any upstream water rights within the basin. The resulting volume will be the physically available water at the proposed POD.

Lake methodologies (ARM 36.12.1702(3)):

Physical availability for a lake will be determined based on stored volume of the lake. Please confer with WSB for information on determining the correct estimation technique. Follow the steps below to quantify its volume:

1. If the volume of a lake has been quantified by a qualified entity based on bathymetric data, that volume will be used to quantify physical availability.
2. If the volume of a lake has not been quantified, volume may be quantified by a qualified professional based on Department-approved methodology.

All Other Source Types (ARM 36.12.1702(4)):

Physical availability of water will be determined based on monthly flow rate and volume. The applicant is required to collect measurements for these sources once monthly at Department-approved intervals during the proposed period of diversion. Physical availability analysis of other source types is dependent on the source

type, means of proposed diversion, basin characteristics, and available data. Please confer with WSB for information on determining the correct estimation technique.

Streamflow Measurement Data (ARM 36.12.1702(5)):
Streamflow measurements must include a description of the methodology used to collect said measurements. See the Flow Measurement Calculator on the Department Forms and Resources webpage for an example of how streamflow measurement data should be submitted.

Measurement requirements (ARM 36.12.1702(6)):
The Department will determine the acceptability of measurements based on the information submitted. Measurements collected by an applicant must be measured in CFS or GPM and be collected at a Department approved location on the source of supply. The Department may require from the applicant additional information and data necessary to complete its analysis.

Variance Requests (ARM 36.12.1702(7)):
An applicant may make a written request for a variance from the measurement requirements in subsections 1(b) or 4 as provided for in 36.12.123. Generally, variances should not be necessary seeing as only three measurements are required under the new rule. Variance requests must be submitted on Form 653.

Making a Finding
The purpose of the physical availability criterion is to prove that water is in fact available at the source in the amount the applicant proposes to use. If there is not physically available water in the source at the proposed point of diversion during the proposed period of diversion, then the criterion is not met.

Physical Availability of Groundwater for Permit Applications

Overview
Physical availability is an element (criterion) which must be analyzed to issue a permit under Montana Code Annotated (MCA) 85-2-311 for both surface water and groundwater applications. To show that water is physically available in the source at the flow rate and volume that the applicant seeks to appropriate, there are numerous variables and processes that must be considered. There needs to be a preponderance of evidence that water is physically available at the proposed point of diversion. In some instances, there are applications that are seeking out-of-state transportation and use or a flow rate and volume greater than 5.5 cubic feet per second (CFS) and 4,000 Acre-Feet (AF). The evidentiary requirement for these applications per §§ 85-2-311(3) and -311(4), MCA increases from a preponderance to clear and convincing.

MCA: The following MCA provides the basis for why we analyze physical availability when permitting water rights.
§85-2-311 Criteria for issuance of permit

ARM: The following ARM provides us with guidance as to how we must analyze physical availability.
ARM 36.12.1703: PERMIT APPLICATION CRITERION - PHYSICAL GROUNDWATER AVAILABILITY

Background/Context
Prior to 2012 the applicant would hire a consultant to complete the aquifer test, analyze test data and generate a technical report. The report identified estimated aquifer properties used to quantify physical availability of the source aquifer, predicted drawdown to nearby wells, and net depletions to surface waters. As such, groundwater applications were lengthy, and many times consultant analyses were questioned by the Department. This resulted in many deficiency letters, waivers of timelines, and/or hearings.

In 2012 the water right process was reformed which required the Department to complete the technical analyses previously done by the consultant. Between 2012 and Jan. 2024 the Water Sciences Bureau (WSB) reviewed the submitted Form No. 633 and Aquifer Testing Addendum of the groundwater application and summarized their scientific findings in either an Aquifer Test Report, Depletion Report or Groundwater Permit Report.

In 2023 the Administrative Rules of Montana (ARM) Rule Chapter 36.12 were revised. The rule now includes specific measurement requirements for developed springs — the revision clarified that developed springs cannot be tested following aquifer testing procedures laid out in ARM 36.12.121. If the appropriation is from a developed spring, the applicant is required to collect monthly flow measurements during the period of diversion. The measurements will be used to establish groundwater physical availability.

The evaluation of drawdown in an applicant's production well, which was previously under ARM 36.12.1703 was also moved to ARM 36.12.1707, Adequacy of Diversion Criteria. A new rule was also created, ARM 36.12.123, which established a variance request and approval process.

DEPARTMENT STANDARD PRACTICES FOR DETERMINING PHYSICAL AVAILABAILITY OF GROUNDWATER:

Groundwater Means of Diversion Requirements

The listed information is specific to each type of groundwater means of diversion and is pertinent to a Preapplication Meeting Form or Form 600 being considered successfully completed or correct and complete, regardless of what scenario is chosen above.

Physical Availability of Developed Springs

Completeness

For projects involving developed springs, the determination that the Preapplication Meeting Form or Form 600 is complete necessitates the applicant submitting monthly flow rate measurements collected at regular intervals or Department-approved intervals during the proposed period of diversion. An applicant cannot receive a variance from the monthly measurement requirements.

Processing Information

Upon the determination that the Preapplication Meeting Form or Form 600 is complete, the Department will determine if the measurements submitted are considered acceptable. If the measurements are deemed acceptable, the RO staff will use the measurements to show the rate of water physically available each month during the proposed period of diversion and present that information in a Developed Springs-Physical Availability Technical Report.

Note that a WSB checklist does not need to be filled out because WSB has no technical analyses to generate.

RO staff may ask WSB staff to help determine the acceptability of each measurement based on submitted information which, at a minimum should include the date and time of the measurement(s), flow rate, and an explanation of how the measurement(s) were collected. Measurements should account for all spring flow and be taken below the point of discharge from the spring, but above any downstream points of inflow. Measurements should be taken in accordance with common methods and standard practices.

Physical Availability of Non-Natural Ponds/ Pit-Ponds

Completeness

For projects involving groundwater ponds, the determination that the Preapplication Meeting Form or Form 600 is complete necessitates the applicant submitting pond design plans, and a map identifying the location of the proposed pond. The depth and surface area of the pond (submitted in preapplication meeting form or application form) and net evaporation off the pond should be quantified. See the WSB Technical Memorandum: Pond and Wetland Evaporation/ Evapotranspiration for guidance on how to calculate the net evaporation for ponds and pits.

Processing Information

A variance will be required from ARM 36.12.121 because ponds cannot be pump tested. The WSB will use existing aquifer test data, published groundwater recharge or discharge values, baseflow separation, or other scientific methods to quantify the availability of groundwater within the source aquifer. Questions relating to the appropriateness of a variance should be directed to WSB.

Physical Availability of Wells or Pumping Pits:

Completeness

For projects involving wells or pits, the determination that the Preapplication Meeting Form or Form 600 is complete necessitates the applicant submitting an electronic Form 633 and Aquifer Testing Addendum, or variance request and associated approval letter from the Department.

Processing Information

The WSB must review the electronic Form 633 and the Aquifer Testing Addendum to ensure aquifer testing data is useful and all requirements of ARM 36.12.121 are met.

WSB Procedures

If the applicant has elected for the Department to complete the technical analyses, the WSB will complete the following steps for groundwater pond, well or pit applications. Applicants completing their own technical analyses can use the following resources, available on the Department website.

1. The WSB will review the information and complete a Groundwater Permit Report. The technical aspects of the physical availability criterion quantified by WSB may follow the processes outlined in the following Department Standard Practice documents:
    - Physical and Legal Availability of Groundwater Technical Memorandum, dated Apr. 22, 2019
    - Numerical Groundwater Modeling Guidance Technical Memorandum, dated Oct. 7, 2019
    - Net Surface Water Depletion from Ground Water Pumping Technical Memorandum, dated Jul. 6, 2018
    - Surface Water Depletion for Regional Bedrock Aquifers Technical Memorandum, dated Sept. 16, 2019
2. The WSB may utilize the following Scientific Memos, in addition to the Standard Practices identified above when addressing physical availability in the Missoula Valley, West Billings Area and Madison Aquifer.
    - Variance – Evergreen Aquifer Geothermal/Heat Exchange Wells (Flathead Valley), dated Mar. 12, 2010
    - Variance – Yellowstone River Terrace Level 3 Aquifer Properties Memo, dated Mar. 1, 2022
    - Variance – Missoula Valley Geothermal/Heat Exchange Wells Memo, dated Mar. 10, 2010
    - Madison Group Aquifer Memo, dated Jan. 2, 2020

Making a Finding

Developed Springs

1. RO staff may ask WSB staff to help determine the acceptability of each measurement based on submitted information which, at a minimum, should include the date and time of the measurement(s), flow rate, and a narrative of how the measurement(s) were collected.
2. The RO staff will reference the point measurement data in a table in their Preliminary Determination as evidence of the physical availability of the source aquifer each month during the proposed period of diversion.

Non- Natural Ponds, Wells or Pumping Pits

1. The WSB report will be referenced in your Preliminary Determination in relation to whether water is physically available for the proposed use(s). Physical availability of groundwater will be addressed in WSB reports generally as either groundwater flux, recharge, or discharge.
2. Information from the Groundwater Permit Report that should be included in the Preliminary Determination under the Physical Availability Criteria include:
    a. Aquifer testing variances received, and the date the RO granted them;
    b. Transmissivity;
    c. Storage coefficient;
    d. Groundwater flux value and the distance at which the zone of influence (0.01-ft drawdown contour) occurs from the point(s) of diversion.
    e. If applicable, groundwater recharge or discharge values and calculation or cited source.
    f. If applicable, surface water contribution to the aquifer, using a baseflow index analysis, calculation, and cited source.

Specific Concepts and Q&A:

Specific information about aquifer tests

Testing at a constant rate at maximum flow rate demonstrates short term physical availability. Long term physical availability is typically addressed by extrapolating drawdown through the period of diversion, or through forward modeling using aquifer properties derived from aquifer test data (including well loss).

Variances to ARM 36.12.121 can be approved by using existing tests (usually within ¼ mile), but this practice is not done on a regular basis. The Water Sciences Bureau can make recommendations regarding the granting of a variance, but it is the regional manager's responsibility to formally grant or deny the variance request. Also keep in mind that a variance does not preclude the applicant from proving the criterion.

ARM 36.12.121: Aquifer Testing Requirements. Is an observation well always required? Why or why not?

For interpretation of aquifer properties an observation well helps. Data from a pumping well may not reflect the full picture of the aquifer that the pump test is intended for. There are situations when a variance may be approved, usually due to economic factors (wells at great depth).

ARM 36.12.121: Aquifer Testing Requirements. Why do measurements have to be to a precision of 0.01 foot?

Most methods and measurement equipment have this precision so it's not unreasonable.

ARM 36.12.121: Aquifer Testing Requirements: Why is there a requirement for the 24-hour test and a 72-hour test based on proposed flow rate?

The intention is to stress the aquifer to determine the effects of the development. Sometimes, the preferred testing methods do not give us the data we need and to retest would be costly, so a decision must be made if another test is required or not.

Legal Availability for Permit Applications

Overview

Legal availability is a criterion which must be analyzed in order to issue a permit under MCA 85-2-311. For surface water and groundwater permit applications to be granted, there must be a preponderance of evidence showing that water can be reasonably considered legally available in the source at the point of diversion at the flow rate and volume that the applicant seeks to appropriate for the duration of the proposed period of diversion. When analyzing the information below please keep in mind that it is the MCA and ARM that should ultimately be acting as your guide when analyzing legal availability.

When processing surface water permit applications, the Department will only look at existing legal demands on potentially affected surface water sources. However, with groundwater permit applications, the Department will examine whether there is legally available groundwater in the zone of influence and legal availability in any surface water sources which the WMB identifies as being depleted from in the groundwater analyses.

MCA: The following MCA provides the basis for our analysis of legal availability.
§85-2-311(1)(a)(ii) Criterion for issuance of permit

ARM: The following ARM provides us with guidance as to how we must analyze legal availability.
ARM 36.12.1704: PERMIT APPLICATION – LEGAL AVAILABILITY

Memos:

- Technical Memorandum: Physical and Legal Availability of Ground Water, dated Apr. 22, 2019
- Madison Group Aquifer guideline document (deals with surface depletions for Madison Aquifer wells)

Resources:

- USGS Montana Water Science Center (Montana USGS stream-gaging and other related information)
- GWIC (Montana Groundwater Information Center; Well and other groundwater related information)
- NRIS Water Right Query System
- Converge (either online or desktop ArcPro/GIS version)

DEPARTMENT STANDARD PRACTICE FOR AREA OF POTENTIAL IMPACT ANALYSIS:

Procedure Steps

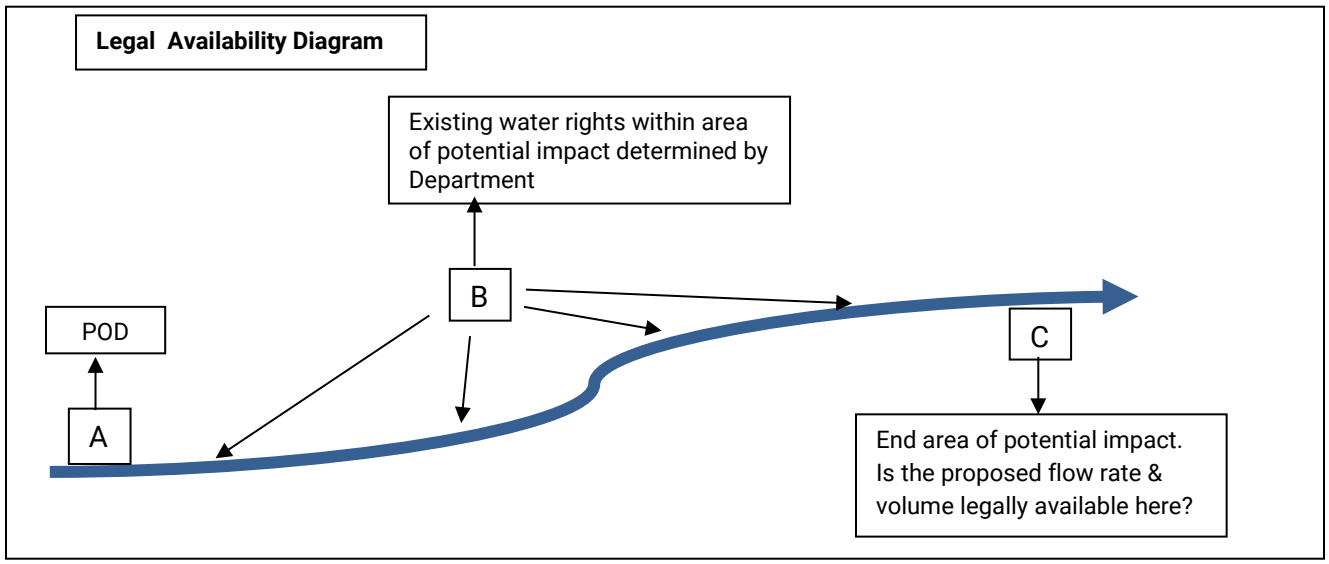
Area of Potential Impact Determination

1. The groundwater area of potential impact for wells is the zone of influence defined by the 0.01-foot drawdown contour as determined by WSB, as well as the determined stream reach(es) of any hydraulically connected surface water sources (see Step 2 below to determine the area of potential impact for hydraulically connected surface water sources). For developed springs, the Department will

consider other users on the source. For information on how to conduct a groundwater analysis, see the Technical Analysis Guide.

2. The surface water area of potential impact could be limited to just a certain reach of the source of the proposed appropriation, or it could include downstream sources to which the source of the proposed appropriation is tributary. It is up to the Regional Office or the applicant, if they are completing the technical analyses, to determine what the area of potential impact for the proposed surface water appropriation will be. The proposed area of potential impact must be justified with substantial and credible information.
3. The following is a list of variables to consider when determining the area for potential impact on surface water. These variables, along with other site-specific variables, should work in combination to allow you to come up with a finding of fact that spells out what area the DNRC defined as the area for potential impact and why. While great geographic variability in source characteristics is seen throughout the state, DNRC will strive to use a consistent approach in considering the different variables for determining the area of potential impact.
    - ❑ **Basin closure status –** if the proposed appropriation is in a closed basin, what are the implications of the basin closure?
        - Status of downstream hydropower – If there are generally large nonconsumptive legal demands, it is likely that the area of potential impact can be ended at that use.
    - ❑ **Existing source and tributary knowledge –** local knowledge could inform the area of potential impact by the size and location of tributaries that add substantial amounts of water. Knowledge of the source could be used to limit or extend the area of potential impact based on losing or gaining reaches.
    - ❑ **Is the source a viable contributor to the mainstem? –** If the source is not a viable contributor to the mainstem the area of potential impact could be ended at the confluence.
    - ❑ **Source type –** Ephemeral, intermittent, or perennial source? If the source is ephemeral or intermittent the area of potential impact could be ended at the confluence with the mainstem.
    - ❑ **Connectivity issues –** If the source is not a viable contributor to the mainstem the area of potential impact could be ended at the confluence.
    - ❑ **Other major source tributary contributions downstream –** See comment above under existing source and tributary knowledge.
    - ❑ **Connections to lakes and non-hydropower reservoirs –** If there are downstream reservoirs or lakes, they probably provide an appropriate limit to the area of potential impact.

    If you are uncertain as to the appropriate area of potential impact consult with the Regional Office Hydro specialist, Regional Manager, or Central Office staff.



Compilation of Legal Demands:

- Legal demands for surface water permit applications and legal demands of hydraulically connected surface waters for groundwater permit applications consider the water rights below the proposed point of diversion or the upstream-most point in the depleted surface water reach.
- What to include as a legal demand:

DO include in a legal demands index:	**DO NOT** include in a legal demands index:
All active claims, certificates, exempt notices, and permits	Non-perfected MT/WY compact water
Instream flows	Duplicate Water Rights
Hydropower water rights	

*If the source has **Conservation District Reservations or Tribal Water Rights or Reservations**, reach out to your Regional Manager and Central Office to determine if the perfected or full, unperfected volume should be included in the legal demands index.*

Quantification of Legal Demands

Quantify the legal demands by flow rate and volume. All active water rights are assumed to be in use on a yearly basis.

Face Value

If the flow rate and volume are quantified on the water right, those are the legal demand of that water right. If either the flow rate of volume is not decreed, permitted, and/or otherwise assigned, move to "Claimed Flow Rate or Volume". In cases where the volume is not defined by number, but rather a statement that is calculable, gather the data you need and make the calculation.

- Example: A Statement of claim where livestock direct volume is 30 Gallons per day per animal unit. It is a year-round period of use, and the claim form identified 1000 AU.
- $1000\ AU \times \frac{30\frac{gal}{day}}{AU} \times 365\ days \times \frac{1}{325851} gal = 33.6\ AF$
- Note: (30 Gal/Day/AU x 366 days / 325851 gal = 0.034 AF/YR)

Claimed Flow Rate or Volume

Assign the flow rate and/or volume claimed on the original application if not unreasonable. Unreasonable could be defined as dramatically more than Department standards or something similar. If they are blank and/or unreasonable, move on to "Department Calculation".

- Example: It is 100 acres of irrigation, and they claimed 250 AF on the form. Use 250 AF.
- Example: It is a livestock direct right with 400 cow/calf pairs, and they claimed 1000 AF. Move to "Department Calculation.

Department Calculation

<u>Flow Rate</u>

- Onstream Reservoirs and Water Spreading Systems – No flow rate is assigned. The legal demand flow rate is not assigned. The flow rate for comparisons is left blank (will calculate as zero)
- Livestock Direct from Source/Ditch – No flow rate is assigned.
    - Calculate the flow rate of all livestock direct from source water rights drinking from the reach of interest using either 30 GPD/AU for Statements of Claim or 15 GPD/AU for provisional permits, and add 35 GPM to the result.

- Example: There are six livestock direct water rights (all Statements of Claim) in the reach of interest (area of potential impact), that claim 25, 150, 250, 65, 100, and 50 AU, a total of 640 AU.
- $640\ AU\ \times 0.034 \frac{AF}{AU \cdot year} \times \frac{1\ year}{365\ days} \times \frac{1\ day}{1440\ min.} \times\ 325851 \frac{gal}{AF} = 13.49\ GPM$
- $13.49\ GPM + 35\ GPM = 48.49\ GPM$
- Be careful about multiple use for stock from irrigation ditches, or multiple claims for the same herd. This information would fall under the allowable deviations below.

Volume

- Reservoirs – If volume is not assigned:
  - Use either the capacity of the reservoir or the beneficial use.
    - For example, a 10.2 AF capacity stock reservoir for 150 AU could be calculated at 10.2 AF or 150 x .034 AF = 5.1 AF.
  - Fish or Fish and Wildlife purposes should consider the capacity of the reservoir, if that is the only purpose.
  - Estimate capacity if not given. This is done by measuring the surface area in GIS and estimating the dam height from a topographical map. If the capacity is not given but the beneficial use is known (stock or irrigation for example) use the beneficial use.
- Irrigation – low range of 60% efficient irrigation in appropriate climatic regions. If the area of potential impact crosses a boundary of climatic regions use the lower numbered region.
  A. Determine the appropriate climate region
  B. Refer to the DNRC Water Calculation Guide (formerly Form 615) for irrigation requirements and find one of the 60% efficient lists on the table.
  C. Determine the lower number of the range given for that efficiency in that climate region.
  D. Multiply the number from C above by the number of acres claimed.
- Domestic Statement of Claim 1.5 AF, Permit 1.0 AF.
- Lawn and Garden = 2.5 AF/AC
- Stock – Statement of Claim = 0.034 AF x #AU (30 GPD/AU); Permit = 0.017 AF x #AU (15 GPD/AU).
- Groundwater Certificate – Average of quantified 602s or 35GPM/10 AF.
  - For 602s without listed volumes, use Excel to find the average of all 602s for which volumes are listed and apply that average as the legal demand for each 602 without a listed volume. Consider whether there are enough 602s with listed volumes to be representative (at least ~20). If there are not enough to be representative, use 35 GPM and 10 AF for each unquantified groundwater certificate.
- There will be unique situations. (contact CO or WSB if questions arise). Remember to document or reference any flow rate or volume calculations in the PD!

This concludes the procedures included in the Technical Analyses.

The remaining procedures are conducted as part of the Legal Availability Criterion Assessment while drafting the PD. *Keep this list of legal demands for adverse effect analysis.*

Comparison of physical availability to legal demands

To determine if water is legally available, compare the physical water availability you determined at the proposed point of diversion to the legal demands you determined over the proposed period of diversion. Create a table comparing the difference between the physical availability and legal demands is ideal in conveying when and in what amount water can or cannot be considered legally available.

Groundwater Sources

1. Make a table of physical availability and legal demands by annual volume.

2. If physical availability minus legal demands by annual volume is positive by more than the requested volume, water is legally available.
3. If it is negative or less than the requested volume, water is not legally available.

Perennial Streams

1. Make table of physical availability and quantified legal demands by month for flow rate and volume.
    a. Flow rate is the given flow rate each month in the period of diversion. *If the period of diversion is four or less days in a given month (for example the period of diversion ends on Oct. 4), flow rate for that month is not added to legal demands for that month.*
2. Subtract the legal demands on the source from the physically available water.
    a. If physical availability minus legal demands by flow rate and volume are positive by more than the requested flow rate and volume in all months, water is legally available.
    b. If there are months with negative calculated legal availability, or the positive number is lower than the requested flow rate and volume, water is generally not considered legally available during those months.

Intermittent Streams

The legal and physical availability analyses for perennial streams will consider the legally & physically available flow rate and volume of the source. (ARM 36.12.1702(1))

1. Determine annual physically available volume via guidance described in Physical Availability of Surface Water.
    a. If estimation technique gives mean annual flow rate (runoff in CFS), multiply the flow rate (CFS) by 1.98 times 365 to calculate the annual volume.
    b. If using a gage, multiply mean flow in each month by 1.98 and the number of days in the month, then add volumes for each month to calculate annual volume.
2. Subtract volumes of water spreading and reservoirs (annual demands), if applicable. (These are all water rights that have only a volume and no flow rate, except for livestock direct from source.)
3. Distribute remaining annual volume by monthly percentages from an appropriate gage. If determining annual volume from a gage, use the same gage. An appropriate gage is one on a source with similar characteristics and as close as possible.
    a. Determine the mean annual volume for the gaged source.
    b. Divide the mean monthly volume by the mean annual volume to get a percentage of mean annual volume for each month for the gaged source.
    c. Multiply the remaining volume from the source in question by the percentages derived from the gaged source.
        i. Divide monthly volume by the number of days in the month times 1.98 (unit conversion constant from CFS to AF per day) to get monthly flow rate:
        ii. $Monthly\ Flow\ Rate = \frac{Monthly\ Volume}{1.98 \times days\ in\ month}$
4. Make a table of monthly legally available water by subtracting the remaining legal demands from the calculated flow rate. Note that this should include livestock direct from source rights.
    a. To distribute the remaining legal demands by month, calculate the number of days in the period of diversion and divide the volume by that number of days. Multiply by number of days in the month.
5. Subtract the legal demands on the source from the physically available water.
    a. If physical availability minus legal demands by flow rate and volume are positive by more than the requested flow rate and volume in all months, water is legally available.
    b. If there are months with negative calculated legal availability, or the positive number is lower than the requested flow rate and volume, water is generally not considered legally available during those months.

Ephemeral Streams

The legal and physical availability analyses for ephemeral streams will only consider the legally & physically available annual runoff volume of the source. (ARM 36.12.1702(2))

1. Make a table of physical availability and legal demands by annual volume.
2. If physical availability minus legal demands by annual volume is positive by more than the requested volume, water is legally available.
3. If it is negative or less than the requested volume, water is not legally available.

Other Surface Water Source Types

1. Make a table of physical availability and legal demands by annual volume.
2. If physical availability minus legal demands by annual volume is positive by more than the requested volume, water is legally available.
3. If it is negative or less than the requested volume, water is not legally available.

Allowable Deviations (Must be explained and justified in Technical Report/Analyses and PD):

If you have water right specific information (not general trends or statements) that you can describe and show by a preponderance of evidence that a specific water right or point of diversion should be considered at a lesser amount than the existing legal demand for that right or diversion dictates, then you can describe the circumstances in your findings of fact in your Preliminary Determination. You must first make the comparison at the full amounts and then using water right specific information to adjust the comparison accordingly. However, the first comparison between physical availability and legal demands must take place without any adjustments and be documented. If this extended step shows that water can now be considered legally available, continue through the criteria analysis process. If you received the adjustment information, include that information and any justification in your Technical Report/ Analyses, otherwise it may be incorporated into your decision document.

Examples of instances in which you may need to modify the list of legal demands on the source: duplicate Statement of Claim and Permit, shared pump for multiple water rights, multiple reservoirs for the same herd.

Making a Finding

The conclusions to be made regarding the legal availability criterion are summarized under the various stream types and are based upon the tables created in Step 4.

Specific Concepts and Q&A:

What if a gage has a long period of record, can't we assume that the physical discharge readings at the gage are really representing legally available water at the gage?

It has been determined that this assumption is not consistent with current law or ARM. However, we are open to exploring new ways to move in this direction, if they are consistent with the MCA. For the time being we cannot make this assumption.

If a legal availability analysis comes up negative (there is not water legally available) can we make accommodations if there appear to be 'paper rights/inflated rights' on the source?

Yes. If we have substantial credible information showing that there are inflated rights, we may consider it and make a finding of fact on it in our decision document. For the DNRC to make a finding that water is legally available, it must be shown by a preponderance of evidence that the information at hand shows that water can be considered legally available. The DNRC will not accept a hunch, so to speak. These findings need to be very

specific. Stating something about a group of rights without specific documented information to support said statement does not work. The same is true for tributary source contributions.

Will the DNRC still accept explanations of how known patterns of use differ from legal water rights filings?
The DNRC can still accept explanations. However, the explanation would need to show with substantial credible information that the explanation makes sense. For the DNRC to make a finding that water is legally available it must be shown by a preponderance of evidence that the information at hand shows that water can be considered legally available. A signed affidavit from an applicant stating that another water right owner does not exercise their water right is not substantial credible information.

Wesmont v. DNRC (groundwater application resulting in net depletion of surface water)
In the Wesmont v. DNRC case the court sided with DNRC. The case was in reference to a GW application that resulted in a net depletion of water on the Bitterroot River. The applicant contended that the depletion was so small that there would not be an adverse effect, and they need not look at legal availability. The court reaffirmed that the De minimis argument does not work with regard to the legal availability and adverse effect of water rights. The case also addressed the question of a constitutional right to a water right. The court stated that a person does not have a constitutional right to have a water right; they have a constitutional right to apply for a water right. If you would like to read the decision, you can get a copy from your managers or Central Office staff. The Sitz case also addresses De minimis.

When evaluating existing water rights for legal availability, how have you seen historical flow rates get 'calculated' with regard to legal availability? Has anyone ever seen an application which attempts to use a set of standards to quantify these historical flow rates?
Typically claimed flow rates and volumes should be used, not standards. In specific cases, other amounts may be used but there must be justification as to why we should use these other amounts. For example, a claim indicates a flow rate of 20 CFS but there is substantial credible information that the ditch can only convey 15 CFS; then 15 can be used. Volumes may be based on other information (IWR/maybe standards in certain cases) if no other information is available.

Legal availability and adverse effect when an applicant owns other water rights on the source
A legal demands index consists of all prior appropriations, including those owned by the applicant. We must consider other rights owned by the applicant when looking at legal demands along with all other pertinent prior appropriations.

Adverse Effect for Permits

Overview:

When an applicant applies for a new Provisional Permit, it must be shown that the new appropriation of water will not adversely affect any prior appropriators. The applicant must have a reasonable plan to prevent adverse effect previously existing water users during times of water shortage, should the situation arise. Typically, if water is proven to be physically and legally available, the adverse effect criterion will be easily attainable so long as the applicant proves their plan is adequate— though this is not always the case. In instances of less consistent sources or unique source conditions, it takes a more detailed plan (i.e., only appropriate when a gage hits a certain level, or mitigation via an existing water right) to prove that water can be used without causing an adverse effect to existing users.

MCA: The following MCA provides the basis for why we analyze adverse effect criteria when processing provisional permits.
§ 85-2-311 Criteria for issuance of permit

ARM: The following ARM provides us with guidance as to how we must analyze adverse effect.
ARM 36.12.1706: PERMIT APPLICATION CRITERION – ADVERSE EFFECT

Memos & Policies:

- Permitting in the open Clark Fork and Flathead basins (TRL TFLC Memo), dated Jun. 9, 2008
- Permitting in the open Clark Fork and Flathead basins Follow-up to Jun. 9, 2008, Memorandum, dated May 1, 2009

Background/Context

A list of water rights taken into consideration when evaluating adverse effect criterion should be generated and included in the application file. For surface water applications, the legal demands list will suffice for this purpose if the water rights considered for adverse effect match those considered for legal availability. For groundwater applications, the adverse effect list should include all water rights modeled to experience drawdown of 1 foot or greater, at minimum. The list can be included in technical analyses or as an appendix to the technical analyses. The list of water rights considered for adverse effect should be referenced in the PD. The procedure steps below discuss how the Department determines the area considered for adverse effect and how the Department evaluates the adverse effect criterion.

Procedure Steps

1. Generate a list of water rights taken into consideration when evaluating the adverse effect criterion. Reference the list of water rights considered for adverse effect in the PD and include the list in the Application File.
    a. **For surface water applications**, the water rights included in the Area of Potential Impact while addressing the legal availability criterion If other water rights are considered in the adverse effect analysis that are not included in the legal demands index, they should be identified. An explanation of why they were included in the adverse effect analysis should also be provided.
    b. **For groundwater applications** the list of water rights considered for adverse effect (Area of Potential Impact) includes both groundwater rights within the One-Foot Drawdown Contour and surface water rights on the designated reach of depleted surface water sources.
        i. For groundwater applications where the point of diversion is a well, the list of water rights considered for adverse effect should include:
            1. All water rights within the One-Foot Drawdown Contour. The One-Foot Drawdown Contour includes all water rights modeled to experience drawdown of 1 foot or greater. The One-Foot Drawdown Contour will be generated during the Groundwater Analysis and, if the Department conducts the technical analyses, this information will be an appendix of the Technical Analyses Report.
            2. All surface water rights within the Area of Potential Impact of depleted surface water sources. This list is generated during the legal availability analysis for Analysis of Area of Potential Impact of Depleted Surface Water for all hydraulically connected surface water source(s).
            3. If other water rights are considered in the adverse effect analysis that are not included in the legal demands index, they should be identified and an explanation of why they were included in the adverse effect analysis should also be provided.
        ii. For developed springs and pit ponds, the list of water rights considered for adverse effect includes all water rights in the legal demands index created during the legal availability

analysis. If other water rights are considered in the adverse effect analysis that are not included in the legal demands index, they should be identified. An explanation of why they were included in the adverse effect analysis should also be provided.

2. For applications related to **surface water** (either surface water applications or groundwater applications in which surface water sources are depleted), consider the following when analyzing the effect to water rights compiled in Step 1:
    a. The amount of water legally available on the source of supply/ connected source throughout the entire proposed period of diversion.
        i. Using the list of water rights compiled in the previous step, compare the information you have regarding legal availability to the proposed appropriation. If water is legally available 9 out of 10 years, how might this new use affect downstream users on that 10th year? Look at the proposed flow rate and volume. What about the proposed diversion schedule? Are there only issues during certain months or all months?
3. For **groundwater** applications, consider the following when analyzing the effect to water rights compiled in Step 1:
    a. If the Department is producing the technical analyses, Water Sciences Bureau (WSB) staff will model future impacts to other wells based on the proposed appropriation. Once WSB has provided the analysis or scientific credibility review, document the effect the proposed groundwater appropriation will have on other groundwater users.
        i. Can existing water users reasonably continue to appropriate from the groundwater source?
        ii. Are there wells with the affected area of impact that could be considered inadequate (e.g., wells that are not drilled deep enough in the source aquifer)?
        iii. Does the calculated drawdown result in any water rights being projected to have no more available water column? If so, contact WSB and Central Office for policy guidance.
    b. If the Department is producing the technical analyses, Water Sciences Bureau (WSB) staff will model impacts to all hydraulically connected surface water sources because of the proposed appropriation via a surface water depletion analysis. Once WSB has provided the analysis or scientific credibility review, document the effect the proposed groundwater appropriation will have on surface water users.
        i. Based on the legal availability analysis of all hydraulically connected surface water sources, will the existing water users in the hydraulically connected surface water sources be able to continue to exercise their water right to their full extent? (Note that ditches are not considered by the Department to be a source of water, thus the Department does not consider depletions to ditches in the surface water depletion analysis.)
    c. A change to mitigation is necessary if water was found to be not legally and/or physically available for the proposed appropriation.
        i. To determine how much mitigation water is required, find the difference between the proposed appropriation and the amount legally available.
4. Conditions may be necessary to limit the proposed appropriation when an adverse effect is identified. Examples of possible conditions that may be used to prevent adverse effect are as follows:
    a. Flow bypass systems for onstream reservoirs;
    b. Trigger Flows or other measurement conditions;
    c. Limited period of diversions;
    d. Other application-specific conditions.

5. The applicant is required to provide a plan (provided by completing the Application form with substantial, credible information) which includes how the operation of the proposed appropriation will take place such that there will not be an adverse effect to others and how the right could be controlled if an adverse effect were created such as when call is made.

a. Review the information the applicant provided. Does it appear that their answers to the questions in the adverse effect section of the application form adequately address any issues? Is the plan reasonable?
b. Can the applicant cease the proposed diversion of water? If so, how? The intent is to show that the applicant can properly control their diversion of water from the source of supply.
c. Are there any health and/or safety concerns associated with ceasing the proposed diversion of water? This could be a consideration with public water supply systems.

6. If the plan is reasonable under 5. to where the applicant can control the proposed diversion of water, and water is legally available under 2., the adverse effect criterion is met. If not, but the conditions under 4. are found to be sufficient by the Department, then the adverse effect criterion is met. Note that applications can meet the adverse effect criterion but not the physical/ legal availability criteria, and vice versa. (For example, if an applicant's plan shows that they cannot cease diversions in response to a valid call for water, the adverse effect criterion would not be met despite achieving the legal/physical availability criteria.) While the legal and physical criteria being met may inform the adverse effect analysis, adverse effect is a separate criterion and should be treated as such through the adverse effect analysis.

Making a Finding

The specialist needs to make a finding of whether the proposed use will cause an adverse effect upon existing water users. For groundwater applications, be sure to reference the modeled drawdown and calculated remaining available water column from the technical analyses to justify findings of adverse effect on specific water rights. The adverse effect criterion is not fulfilled if other water users will be adversely affected. If adverse effects are found, the Department needs to explain which water right(s) will be adversely affected because of the proposed use.

Specific Concepts and Q&A:

Adverse Effect—what is a "shortage of water?" Do we want detailed plans to prevent adverse effect in the PD or should we simply say that if call is made the pump will be shut off? More information on "call" is needed.

"Shortage of water" and "call is made" infer the same thing. Call is essentially the trigger point for when there is a shortage of water. If call is made, the junior user only needs to curtail their use so that adverse effect to a senior user is avoided. For example, if there are only 2 users on a source and each user has a right for 10 CFS but the stream is only flowing 15 CFS, the junior is still allowed to use 5 CFS as the use of that 5 CFS is not creating an adverse effect to the senior. Under current MT law, a senior can make call to ANY junior user…call does not need to be made to the most junior user on the source nor does call need to be made to all juniors. If FWP makes call on all junior appropriators and there is water legally available after FWP's right is satisfied, then the most senior of the called appropriators may resume diversion. The remaining water is not prorated through junior users. A realistic and detailed plan for the use should be submitted.

Legal availability with regard to adverse effect

Given that an applicant has explained how the water should be considered legally available and we make a finding as such, the applicant would still be required to explain how the operation of the right will take place such that there will not be an adverse effect to others and how the right could be controlled if an adverse effect were created such as when call is made.

Regarding the development of a new mine pit/gravel pit, DEQ has required the applicant to obtain a DNRC consultation regarding adverse effect to WR holders. What should DNRC provide?

Visit with the applicant about any water rights they may need to obtain. Also, discuss other nearby water rights that may be affected by their development, then draft a brief memo or sign something the applicant may provide explaining that you discussed this with the applicant. Sometimes the applicant will bring a form for you to sign in lieu of a memo.

Wesmont v. DNRC (groundwater application resulting in net depletion of surface water)
The court sided with DNRC on this one. The case was in reference to a GW application that resulted in a net depletion of water on the Bitterroot River. The applicant contended that the depletion was so small that there would not be an adverse effect, and they need not look at legal availability. The court basically reaffirmed that the De minimis argument does not fly with regard to the legal availability and adverse effects of water rights. The case also addressed the question of a constitutional right to a water right. The court stated that a person does not have a constitutional right to have a water right; they have a constitutional right to apply for a water right. If you would like to read the decision, you can get a copy from your managers or central office staff.

What is the policy on adverse effect in relation to someone else having an inadequate diversion and with regard to people being able to reasonably exercise their right?
We don't have a directive on how to deal with these situations. Each case is fact specific as these situations are highly dynamic and dependent on a multitude of variables, including things like aquifer/well depth, drought cycles, local knowledge, and practices. With so much variability involved it is difficult to nail down a specific way to deal with all these situations. That said we are always willing to talk about specific circumstances.

Legal availability and adverse effect when an applicant owns other water rights on the source
A legal demands index consists of all prior appropriations including those owned by the applicant. We must consider other rights owned by the applicant when looking at legal demands along with all other pertinent prior appropriations.

If it is the applicant's own prior appropriations that yield water not legally available, it may still be possible for the applicant to provide a plan and likely conditions which will allow the Department to now consider and find the water to be legally available for the purposes of the application. It is likely that a condition would need to be added to the permit which states that the permit can be revoked if operation takes place outside of the presented plan. Essentially the plan will need to show how the applicant will not be double-dipping, but rather substituting senior water for a more junior use presented in the application (which would be more easily callable). This would also likely trigger a measurement condition which would effectively show that double-dipping would not be taking place. It is logical to assume that the denser the appropriations are on the source the more difficult it would be to present a working plan. Given that an applicant has explained how the water should be considered legally available and we make a finding as such, the applicant would still be required to explain how the operation of the right will take place such that there will not be an adverse effect to others and how the right could be controlled if an adverse effect were created such as when a call is made.

Adequate Means of Diversion for Permits

Overview:
Adequate means of diversion is an criterion that must be analyzed in order to issue a permit under MCA 85-2-311. The applicant must prove by a preponderance of evidence that the proposed means of diversion, construction, and operation of the appropriation works are adequate for the proposed beneficial use. Substantial credible information would show that water could be withdrawn from the source and conveyed to

the place of use in the amounts applied for without unreasonable loss through design or operation. When analyzing the information below please keep in mind that it is the MCA and ARM that should ultimately be acting as your guide when analyzing the diversion means.

MCA: The following MCA provides the basis for why we analyze adequate means of diversion.
85-2-311 Criteria for issuance of permit

ARM: The following ARM provides us with guidance as to how we must analyze adequate means of diversion.
ARM 36.12.1707: PERMIT APPLICATION CRITERION – ADEQUATE DIVERSION MEANS AND OPERATION

Background/Context

In 2023, ARM 36.12.1707 was revised to include the following information in the beneficial water use permit criterion:

(7) For groundwater wells, the Department will compare the drawdown projected for the proposed period of diversion to the height of the water column above the bottom of the proposed production well to determine if the well design is adequate for the proposed appropriation.

These revisions were made to move the evaluation of production well drawdown from the Physical Availability section to the Adequate Diversion Means and Operation section, as that analysis is more pertinent to the adequacy of the proposed system than the physical availability of water on the source. **Note that applications received prior to Jan. 1, 2024 will address the projected production well drawdown in the physical availability of groundwater section of the PD.**

Procedure Steps

STEP 1: Examine POD design plans

Well POD design plans:

1) Was the well drilled by a licensed well driller?
    a. NO
        i. Requires further review of construction.
        ii. See Board of Water Well Contractors (ARM Chapter 36.21)
    b. YES
        i. What is the driller's license number?
2) Was a well log submitted with application?
    a. NO
        i. Need applicant- provided depth and static water level
        ii. If possible, determine source aquifer.
    b. YES
        i. GWIC number from Bureau of Mines and Geology
3) Was aquifer testing completed per ARM 36.12.121?
    a. YES
        i. Refer to groundwater report produced by water sciences bureau.
    b. NO
        i. Was a variance granted per WSB?
            1. YES

    a. Did the variance refer to adequacy of diversion? Consult WSB for further information.
  2. NO
    a. Why not? This may mean that the diversion works cannot be considered adequate. Consult WSB for further information.

4) Compare drawdown to available water column (data from WSB groundwater analysis in technical analyses report)
    a. Is the diversion capable of diverting the proposed volume and flow rate?
5) Is pump capable of diverting flow?
    a. Refer to the applicant- provided pump curve or pump specifications
    b. Does the well naturally flow?
      i. How will the flow rate be controlled?
6) Are all components of the system listed reasonable?

Developed spring POD design plans:

1) How was it developed?
2) Was the flow rate of the developed spring measured in accordance with ARM 36.12.1703?
3) Will the flow rate be controlled?
    a. How will the flow rate be controlled?

Groundwater Pit POD design plans:

1) Was the pit developed by a licensed entity?
    a. How was it developed?
2) Will the flow rate be controlled?
    a. How will the flow rate be controlled?
3) Are the diversion works capable of the requested flow rate and volume?
    a. What is the capacity of the diversion works?
4) What was the physical availability of water modeled by WSB? Is this greater than the amount of water requested?

Surface water POD design plans:

1) What does the diversion consist of (i.e., a pump, headgate, or a dam)?
2) Is the diversion capable of diverting the full amount requested through period of diversion?
    a. Pump curves
    b. Headgate dimensions
    c. Dike or dam height and length
    d. For storage dams, did the application meet the requirements of 36.12.113(3) & (4)?
3) Have diversion specifications been provided and are they reasonable?
    a. Was the diversion designed by a professional and were those designs provided?

STEP 2: Examine Conveyance design plans

Groundwater and Surface water Conveyance design plans:

1) What does the proposed conveyance consist of?
    a. Was the proposed conveyance system designed by a professional and were those designs provided in the application?
2) Are there losses related to the proposed means of conveyance? If so, are said losses reasonable?
    a. Evaluating Conveyance Design Plans –
      i. In the context of proposed design plans, does the system conform to current design, construction, and operation standards?
    b. Evaluating Conveyance Operation Plans–
      i. What is the pattern and timing of diversion included in the applicant's operation plan?

ii. For example, does the applicant plan to run the system 24/7?
    1. Whether or not this is acceptable depends on the applicant's plan for beneficial use of the 24/7 diverted water
        a. OK Example – A stock tank system operates 24/7 during winter months to prevent icing up of both the tanks and lines. During summer months, the system is controlled by shut of valves.
        b. Not OK Example– To save money, a stock system has a solar pump and no shut-off valve. Water is diverted whenever the sun is out. The only reason this is done this way is because it was cheaper and easier than installing shut off valves.

3) Is the proposed conveyance capable of providing the required flow and volume and any losses?
4) Does proposed conveyance require easements and have they been explained?
    a. Although easements are not required to be in place before an application is granted, they are an important element of conveyance and should be explained.

STEP 3: Examine place of use design plans

1) Is the water delivery system capable of providing the requested beneficial use?
2) Are adequate specifications provided?
    a. Was the system designed by a professional and were those designs provided?
        i. Sprinkler charts
        ii. Dam "as-built" plans
        iii. Fish hatchery Design plans
        iv. Stock Systems
        v. Subdivision plans

STEP 4: Examine discharge, if applicable

1) Is water discharged from the project?
    a. Where and how?
    b. Have the necessary permits been obtained?
    c. Although discharge permits are not required to be in place before an application is granted, they are an important element of discharge and should be explained.
        i. § 85-2-362(1)(h), MCA: Statute requires that DNRC have evidence that the appropriate water quality permits have been granted prior to approval of a mitigation plan or aquifer recharge plan.
        ii. § 85-2-364, MCA: States that the DNRC may not grant a permit requiring a mitigation or aquifer recharge plan until a discharge permit is submitted by the applicant, if necessary.
        iii. If the abovementioned statutes are applicable to the application at hand, what evidence can you provide to show that appropriate water quality permitting is in place?

STEP 5: Examine the plan of operation

1) Is a plan of operations provided?
    a. Does it seem reasonable? If not, why not?
2) Can the plan of operations deliver the flow rate and volume for the beneficial use being requested?
    a. How many hours per day does the diversion need to operate to achieve the volume?
    b. How many days within the period of use does the system need to operate to achieve the volume?

STEP 6: Examine the entire system's designs plans as a whole; does it make sense?

1) Is the operation feasible as described?
2) If yes, and Steps 1-5 have been answered "yes", the means of diversion are considered to be adequate.

Making a Finding

An explanation describing how the means of diversion from source of water through to the application of the beneficial use should be included in the PD based on the above information provided by the applicant. Ensure the applicant has researched and has decided on a plan of operation and has provided adequate design plans to accomplish the beneficial use of the application, and that all elements of the criteria are reasonable, and all water being diverted is accountable in such operations. If the requested flow rate can be achieved and the requested water volume can be conveyed adequately to satisfy the beneficial use, the means of diversion and conveyance are adequate.

Specific Concepts and Q&A:

What if an applicant is adding more flow and volume to an existing well, specifically what does the Department look at regarding adequacy of diversion?

The Department will evaluate adequacy of diversion for the total use from the well and all other criteria for only the new (increased) amount (flux, adverse effect).

Beneficial Use for Permits

Overview:

When an applicant applies for a new Provisional Permit, they must prove that their new appropriation is a beneficial use of water. There are rules that establish "reasonable" amounts of water for several different purposes and the applicant may use those amounts or come up with different amounts if they can be justified.

MCA: The following MCA provides the basis for why we analyze beneficial uses.

§ 85-2-311 Criteria for issuance of permit

§ 85-2-102 Definitions

ARM: The following ARM provides us with guidance as to how we evaluate beneficial use.

ARM 36.12.1801: PERMIT AND CHANGE APPLICATIONS – BENEFICIAL USE

ARM 36.12.115: WATER USE STANDARDS

Background/Context

As with all criteria, the level of proof has evolved through history. Beneficial use is generally straightforward and has evolved more for change authorizations than it has for permits. The objective of the beneficial use analysis is to assure that there is a benefit to an individual, group, or the public in general. For example, instream flow to support a fishery benefits the public in general. In addition to the use itself, the flow rate and volume must be proven to be reasonably needed. What is reasonably needed can be difficult to define, but general considerations exist. The applicant must provide a convincing proposal, and it is up to you as the decision maker to review and determine if the use is reasonably needed. If the applicant proposes a volume that falls within standards in ARM 36.12.115, then it is automatically deemed reasonable, and that portion of the criteria is met in most cases. If the proposed volume doesn't fall within standards or no standards exist, the applicant must show through their plan that the proposed use is not wasteful. Because assessment of the beneficial use criterion is not always black and white, establishing a single standard level of proof required is nearly impossible. Our standard is to prove the beneficial use by preponderance of the evidence (more believable than not) and common sense will need to be employed. If you are not certain that beneficial use has been proven by a preponderance of the evidence, consult with another specialist, your manager, or CO for additional opinions/discussion.

Procedure Steps

1. **Beneficial Purpose:** The applicant must explain how this use provides a benefit to the applicant, other users, or the public.
    a. Most purposes are considered beneficial. See § 85-2-102(5), MCA for the definition of beneficial use and the most standard examples of beneficial uses of water.
    b. Some examples of purposes that have special considerations:
        i. *Wildlife:* Individuals cannot obtain a water right for wildlife use. FWP, FWS, or other entities responsible for wildlife may be able to obtain a permit or change for wildlife purposes, however, it'll need to provide species lists and expected usage.
        ii. *Domestic:* If domestic from a surface source, the applicant must provide the most recent COSA (Certificate of Subdivision Approval) for their property, if one exists. If the COSA states that potable water cannot be from a surface source, you will need to **deny** the application, though hopefully this is caught earlier as part of the preapplication meeting or deficiency review. See "Surface water and domestic use" in the Purpose-Specific Considerations section for more information.
        iii. *Water Marketing:* An individual may obtain a permit or change for marketing water to others. The applicant must provide contracts showing that the full requested amount of water is already spoken for. An applicant may not contract to themselves or their owned entities (Winston Scott may not contract with Winston Scott Enterprises and so forth). See § 85-2-310(8), MCA.
    c. Commonly requested purposes that are not considered beneficial or require further investigation:
        i. *Aesthetics*: a commonly requested purpose that is NOT considered a beneficial use.
        ii. If the purpose requested is not standard and you question its validity or are unsure of statutory requirements, consult CO.
2. **Justification of the Proposed Volume:** The applicant must show that the volume requested is reasonable.
    a. The applicant may choose to base their proposal on volumes or use rates outlined in ARM 36.12.115 (including any number within the range for irrigation) for a permit or change. The applicant may also choose to use modern management factors and efficiencies outlined in ARM 36.12.1902 to calculate proposed use volumes for a change application. Volumes and use rates that appear on the DNRC Water Calculation Guide (formerly Form 615) should be accepted as reasonable. If Department standards are used, no further justification is necessary- accept the proposed volume.
    b. If the applicant proposes a volume outside of Department standards or there are no applicable standards listed within ARM 36.12.115 or ARM 36.12.1902, the applicant must provide documentation and justification of their requested volume. Some examples include IWR calculations for irrigation, DEQ or county regulations for in-house domestic use (250 or 350 gallons per day, for example), or other scientifically based numbers.
    c. In some cases, using less water than is typically required is acceptable. For example, if 2.5 AF per acre is required for full-service irrigation, the applicant can make a case that using half as much water will still provide for a single hay cutting or to allow forage for stock. The applicant must fully explain the plan of operation and describe how the amount of water proposed will be sufficient to provide for the proposed beneficial use.
    d. If there is a pond involved, be sure to evaluate the purpose volume specifically in the beneficial use section (as opposed to the entire capacity of the pond). See Pond Guidance for purpose-specific considerations in relation to ponds and pits.
    e. If this application represents a supplemental use to another application:
        i. The full purpose volume can be requested from a different source than the existing supplemental right. A measurement condition may be warranted in this context to ensure the applicant is not diverting water for full-service irrigation from both sources.

ii. If the source is the same, only the additionally required amount should be applied for. For example, if four acres of lawn is already covered and the applicant is requesting an additional acre, then they can only request 2.5 AF (at a 2.5 AF/ acre allotment) unless the original right was filed for a smaller volume than the Department standard.

3. **Justification of the Proposed Flow Rate**: The applicant must show that the flow rate requested is reasonable.
    a. There are no standard flow rates in administrative rule. The applicant may choose to use volumes outlined in ARM 36.12.115, which may include any number within the range for irrigation. If standards are used, then no explanation is necessary. Accept the proposed flow rate.
    b. Some questions to think about when considering the proposed flow rate:
        i. Was the system designed by an engineer?
        ii. Is there a minimum flow rate required by DEQ? (i.e., for public water supply systems)
    c. In many cases, water users will not install a larger pump or dig a larger ditch than is required. However, the applicant must show that the proposed flow rate and volume are reasonable for the beneficial use.
4. **Additional Department Considerations:** Condition Language
    a. Measurement conditions may be required to prove that the amount requested is the amount needed. The measurement condition must help to meet one or more criteria and should not be applied simply because you'd like to have the information, or the applicant is willing to provide measurements. Examples where conditions are warranted include:
        i. A proposal for less than full-service irrigation on a permit or change.
        ii. A request for less than 0.28 AF per year per household on a permit for domestic use; in the case an applicant has received a deviation from DEQ for domestic volume.

Making a Finding

The beneficial use section of a PD should include finding language describing how the proposed flow rate and volume was determined, with sources for the numbers used (rule, crop records, measurements, etc.). If the purpose is unusual or undefined in rule or statute describe how/ why the Department finds the proposed use to be beneficial.

Specific Concepts and Q&A:

What is required from an applicant to document beneficial use for a wetlands application?

Beneficial use for a wetland will not be analyzed in terms of benefit to wildlife, waterfowl, etc. Is there any difference between an agency (i.e. FWP, MDT, etc.) and a private individual applying? No. However, MDT would like to keep track of their wetland mitigation credits. If an application they submit is for wetland mitigation credits, then we must see the documentation.

- See *Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities* Memorandum to determine if the project at hand will require a water right.
- Projects that do require a water right will still have to prove the beneficial use criterion. This, like other conservation-minded purposes, should be justified by an agency or topic expert who can technically describe and demonstrate the benefit to the ecosystem the proposed wetland will support.

When is a water right needed for use of sewage effluent?

Refer to the HB52 memorandum for guidance.

How do we look at beneficial use for fish ponds?

We do not have straight forward guidelines or rules for addressing beneficial use with regard to fish ponds. This is because fish ponds tend to have very dynamic variables associated with them (size, number of fish, species of fish, oxygen content, flow needs, and location of pond….). What we do have is a set of decision documents which show examples for both granting and denying based on the beneficial use criterion. These examples are located on ROCO—Ponds examples. Until we have established guidelines, use these examples to help you craft the beneficial use section of your PD. Having information from a fisheries biologist and references to scientific literature helps to support the beneficial use of the pond(s). It is important that the literature or documentation being cited supports the application at hand. Citing literature that pertains to the needs of catfish in Louisiana does not correspond to what trout will need in a small pond at high elevations in MT. Please let us know if you have any questions regarding fish ponds and beneficial use.

Possessory Interest for Permits

Overview:

Possessory interest is an element (criterion) which must be analyzed in order to issue a permit under MCA 85-2-311. An applicant must have possessory interest, or the written consent of the person with possessory interest, in the property where the water is to be put to beneficial use. Exceptions include applications where the stated purpose is municipal, sale, instream flow, mitigation, or water marketing. The applicant's signature on form 600 attests to possessory interest. If any element of the proposed water right involves federal land, the applicant must provide proof of special use authorization.

MCA: The following MCA provides the basis for why we analyze possessory interest:
85-2-311. Criteria for issuance of permit.

ARM: The following ARM provides us with guidance as to how we must analyze possessory interest.
ARM 36.12.101 DEFINITIONS
ARM 36.12.1802 PERMIT AND CHANGE APPLICATION CRITERION - POSSESSORY INTEREST

Procedure Steps

Examine Affidavit and Certification Section on the Application:

1. Is there a printed name and matching original signature?
    a. No
        i. Doesn't meet Acceptance Criteria – Return to applicant
    b. Yes
        i. Continue to step 2

2. Is the applicant a corporation, business, or trust?
    a. Yes
        i. Make sure the signer has legal authority to sign. This should include title of individual (Trustee, President, etc.)
            a. Allowed for request for documentation for a compelling reason.
    b. No
        i. Continue to Step 3

3. Is the property/water right owned by more than one owner?
    a. Yes
        i. All owner signatures are required.
        ii. Split of the water right may be needed.
    b. No

i. Continue to Step 4

4. Does the applicant match the owner of the proposed and/or existing Place of Use?
    a. No
        i. Applicant will need to provide written consent of the person having Possessory interest.
    b. Yes
        i. Possessory Interest addressed.

Special Possessory Interest Considerations:

Homeowners Associations

Homeowners Associations (HOAs) need to be registered with the Secretary of State (SOS) to be able to complete a water right application. All business entities must be filed with the SOS in order to exist as a legal entity and transact business. Therefore, an HOA that has not been properly formed under the laws of Montana is not a legal entity. DNRC can't transact business with any entity that is not in good standing with SOS because any signature is likely invalid. The board of directors, its officers, and its existence must all be in good standing to function as an entity.

Conservation Districts

Conservation Districts (CDs) cannot apply for a permit unless their water reservation has been fully utilized. If that's the case, the CD can apply for either irrigation or marketing. If applying for marketing, they will need contracts to prove they have people ready and waiting for the water. This may allow for a longer completion deadline. If they apply for irrigation, the "municipal supply" possessory interest language from ARM 36.12.1802 should be used in the decision document as noted below:

(1) An applicant or a representative shall sign the application affidavit to affirm the following:
(a) the statements on the application and all information submitted with the application are true and correct; and
(b) except in cases of an instream flow application, or where the application is for sale, rental, distribution, or is a municipal use, or in any other context in which water is being supplied to another and it is clear that the ultimate user will not accept the supply without consenting to the use of water on the user's place of use, the applicant has possessory interest in the property where the water is to be put to beneficial use or has the written consent of the person having the possessory interest.

Making a finding:

Finding of fact example (standard language that does not require editing to use in a PD):
The applicant signed the affidavit on the application form affirming the applicant has possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use.

Conclusion of Law example (standard language that does not require editing to use in a PD):
The applicants have proven by a preponderance of the evidence that it has a possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use. (FOF No. XX)

Specific Concepts and Q&A:

Water and Sewer Districts—which comes first: permit or boundary expansion?

Water and Sewer Districts are unique and are not considered municipalities. They are governed under MCA Title 7; Chapter 13, and each district has a unique set of articles of incorporation which further dictate how the body must operate. That said, to address the possessory interest criterion in a permit application, water and

sewer districts need at a minimum written permission from the landowners within the proposed place of use. Upon perfection of the permit, it must be shown that the water and sewer district is utilizing the water in the proposed place of use. This could be accomplished by showing an expanded boundary, providing proof of hookups, or providing contracts with users within the place of use.

Special Permit Considerations

Evidentiary Requirements

Preponderance of the Evidence

This is the standard evidentiary requirement for permits and changes unless otherwise noted.

Clear and Convincing Evidence

Permit applications for the following scenarios are subject required to prove statutory criteria by clear and convincing evidence:

- water rights that divert 4,000 or more AF and 5.5 or more CFS of water (§ 85-2-311(4))
- water rights that are proposed to transfer or use water out of the state of Montana (§ 85-311(5))

Contact Central office if you have questions about evidentiary requirements.

Temporary Permits

A temporary permit may be granted for appropriations intending to last a short period of time. Road construction, seismic exploration, and hydrostatic testing are some examples of temporary uses. Application for a temporary permit is made on Form 600 and any applicable required addenda. The permit must be issued for a specific period of time with an automatic expiration date. The expiration date will be the last day of intended use. A temporary permit expires on its own and cannot be extended. If a project is not completed by the expiration date of the permit, a new application must be filed, and a new permit must be obtained for the appropriation of water to legally continue. Temporary permits are subject to the same criteria and basin closure requirements as provisional permits. Temporary permits are still required to be assigned a project completion notice date. This date may or may not match the expiration date, depending on the applicant's plan for development of the water use.

Processing a temporary permit is the same as processing a provisional permit with the following exceptions:

- Temporary permit is selected as the water right type on the water right screen in the database.
- Prior to public notice add an II Remark stating, "This application is for a Temporary Permit to expire in ____ years". (Enter the number of years) (Inclusion of this remark is for public notice purposes.)
- When issuing a temporary permit, remove the II Remark added for public notice and add the TP Remark (This Temporary Right Expires on _____. Enter expiration date.) Make sure to enter a Project Completion Due event.
- Set the expiration date to the last day of the period of use for the number of full years requested. If the applicant requested 4 years, the period of use is May 1 – Sept. 30, and the permit is issued in Mar. of 2015, the expiration date would be Sept. 30, 2018. If the permit is issued July of 2015 the expiration date would be Sept. 30, 2019.
- Add the Temporary Permit/Change Expiration event.

When the permit expires:

- Change the version status and the water right status to Expired.
- Add the Terminated/ Denied/Revoked event and include “Temporary Permit Expired” in the comment field.
- Send the file to the Central Office.

Interim Permits

Interim permits are essentially permits that can be granted for a specific time frame prior to a formal authorization of the permit being granted. If there is not any substantial information to show the permit criteria cannot be met, then we can issue an interim permit. The interim permit allows the applicant to begin appropriating water for the beneficial use prior to Provisional Permit authorization.

Read ARM 36.12.104 very carefully before considering moving forward with an interim permit as it very specifically defines the limits and expectations involved in issuing an interim permit.

ARM 36.12.104 implements MCA 85-2-113 and 85-2-311 to 314 and specifically grants the Department authority to adopt rules and govern the issuance and terms of interim permits. The MCA does not give the Department the authority to issue interim changes. The Department cannot issue interim changes under any circumstance.

An example Interim Permit along with the Interim Permit template can be found on ROCO in the Interim Permits folder.

An interim permit can be granted once the Department has made a correct and complete determination for a permit application. This is because it is at this point; we know there should not be any substantial information known to the Department that the criteria cannot be met. Be very careful when issuing an interim permit. Make sure there is a definite end date. A good end date to select is the date of the public comment period deadline, in the instance public comments are received and the Department’s decision documents must be updated. The processing of the application must continue even if an interim permit is issued. It is also advisable to make it clear that those appropriations under the interim permit must cease if a valid objection is received.

The environmental assessment does not need to be completed prior to issuing the interim permit.

Interim Permit Issuance

1. Assign an expiration date
2. Prepare conditions or terms for the interim permit
3. Draft the interim permit
4. The database should reflect the application as a pending file

Note: There is no such thing as an interim change

Adding Just a Flow rate or Just a Volume

For applications that propose to add just a flow rate or just a volume to a system **AND** the application also adds a new POD, the Department requires that the water right involved in the application contains both a flow rate and a volume. One cannot process an application which adds a new POD for just a flow rate or just a volume, it must contain both.

There are two distinct situations that relate to this issue:

1. The situation where an applicant wants to add just flow or volume to a system through an existing point of diversion.
2. The situation where an applicant wants to add just flow or volume to a system by adding a new point of diversion.

Regarding situation 1 above, an application that is **only** to increase the flow rate or volume must reflect a value of zero in the nonapplicable field. For example, if an applicant is applying to only increase the flow rate the volume field should reflect zero. *Again, remember this is **only for adding to an existing POD**. This does not work if a new POD is being added per the application.*

Regarding situation 2 above, if a new POD is being added via the application, it must have both a flow rate and a volume.

Keep in mind when you are processing these that the analysis will only be in the context of the newly acquired water. Be sure to include remarks in the database that describe the nature of the association or supplemental nature of the new right to the existing right so that the relationship is clear to anyone looking at the water right abstracts.

Permits for Out-of-State Use

For any permit which proposes to use water out-of-state, the appropriator must prove by clear and convincing evidence the applicable criteria from subsection (2) or (4) of 85-2-402, MCA are met. In addition to these criteria being proven by clear and convincing evidence, the appropriator must also prove by clear and convincing evidence the out of state criteria found under subsection (6) of 85-2-402, MCA.

Reservoir Evaporation

For any permits which include a new reservoir which will store water year-round, the applicant will need to include the net evaporation from the pond as part of the requested volume on the permit (ARM 36.12.113). For seasonal reservoirs, the applicant may need to include the net evaporation as part of the requested volume on the permit; this will depend on how they intend to operate the system. If they do not include net evaporation in the request, they will need to explain why as part of their beneficial use explanation. For applications which include a reservoir, how you assign the net evaporation to a beneficial use will depend on the application details.

1. For permits which have only one beneficial use identified, the net evaporation from the pond will be included as part of the beneficial use volume.
2. For permits which have multiple beneficial uses identified, the following guidance is given for assigning the net evaporation to the beneficial uses:
    a. If there is an in-reservoir use, such as fishery use, that beneficial use should include the net evaporation as part of the beneficial use. Other uses (stock, irrigation) for these permits will not include net evaporation as part of the volume assigned to the beneficial use.
    b. If there is not some sort of in-reservoir use, net evaporation will not be assigned as part of the volume for the individual beneficial uses. It will be assigned to the total permit volume only. In these situations, you may want to use an II remark to identify this on the face of the permit.

Procedural Considerations

Projects Involving Multiple Applications

While a project may involve multiple applications submitted by an applicant (e.g., two permit applications or a permit application with a change application), the only time they should be processed as a "combined application" is in a closed basin when a groundwater permit application is accompanied by a mitigation change application, as called for in § 85-2-360, MCA. In the case of a true "combined application", you should still complete two separate Technical Reports, but you can complete a single PD using the Combined PD Template. The Combined PD Template includes Conclusions of Law referencing § 85-2-360, MCA.

For all other cases where two or more applications may be viewed as part of the same project, including a groundwater permit application and a mitigation change application in an open basin, you should complete a separate PD for each application. Doing so will prevent any confusion if an objection is received to one application that is part of a larger project. Each PD should make clear whether it is related to or affected by other applications. Be especially clear with conditions, where the granting of one application may be conditioned on the granting of another, e.g., in the case of a groundwater permit in an open basin where mitigation is found to be necessary. It should be noted that a groundwater permit application and a change application for mitigation in an open basin can apply the combined application preapplication meeting rules laid out in ARM 36.12.1302(7) to the preapplication processing timeline, despite not being processed in the same manner as projects in closed basins.

For projects that involve temporary and permanent changes, refer to the Temporary and Permanent Change Application Processing section.

Amendments

For Applications Received Prior to Jan. 1, 2024:

Modifications to an Application

(ARM 36.12.1401) Anytime an applicant changes their original application; it is considered an amendment. An amendment to an application can be made only before a PD is completed. If there is a need to amend the application, you can direct the applicant use the Amendment to Application form which is located on the ROCO drive.

If the applicant is simply supplying additional clarifying information within the scope of the current application, then a formal amendment to the application is not necessary. That is not to say that the applicant would not need to submit a Waiver of Timelines (Form 639) after the application has been deemed Correct & Complete should the situation warrant such an action.

Per ARM 36.12.1401, amendments include the following types of modifications:
(a) the flow rate is increased;
(b) the volume is increased;
(c) the acreage is increased;
(d) the period of diversion is expanded;
(e) the source of supply is changed;
(f) the point of diversion is changed;
(g) the place of use is changed;

(h) the purpose is changed;
(i) the period of use is expanded, unless the application involves a use from a reservoir and the impact would not change; and
(j) any modification where the effect on the source of supply or its tributaries changes the impact described from the originally submitted information.

The Siebel Supreme Court Opinion stated that "significant modification" to an application becomes a new application.

Amendments **may** reset our timelines for review and the form receipt date. If an applicant submits a major amendment, timelines will be reset. This includes the ability to send out a new deficiency letter. When determining whether an amendment is a major or minor amendment, the office processing the application should review the elements being amended to determine the significance of the amendment on the analyses being conducted for the application.

Database Entry:
Depending on the category and scale of the amendment, different documentation should occur in the database. See the table below for each scenario.

Amendment Type	Event Code	Event Name	Note
Minor Amendment	AME1	AMENDMENT TO APPLICATION RECEIVED (MINOR)	
Major Amendment	AME3	AMENDMENT TO APPLICATION RECEIVED (TIMELINES RESET)	Enter this event for the date an Application Amendment Form (Form 655) is received for a permit or change application. When you add this 'TIMELINES RESET' event, also manually change the date on the Form Received event to be the date of amendment receipt. Leave a comment for the Form Received event with the original date the form was received.
	AME2	AMENDMENT TO APPLICATION RECEIVED (PRIORITY DATE RESET)	Enter this event for the date an Application Amendment Form (Form 655) is received for a permit application IF the amendment changes the nature or scope of the application. This event changes the priority date on the water right but does not change the Form Received date for the application.
	FRMR	FORM RECEIVED	When you add the AME2 or AME3 event, also manually change the date on the Form Received event to be the date of amendment receipt. Leave a comment for the Form Received event with the original date the form was received.
	P114	PRE - HB114 APPLICATION	Add this event when either the AME2 or AME3 events are added to document that the original form receipt date was prior to 1/1/24.

At some point, if the changes proposed in the amendment to the application are a significant deviation from what was originally proposed, the applicant may want to start over with a completely new application. Talk

with your regional manager and the Central Office if you have questions about whether or not a major amendment constitutes the need for a new application. In this situation, the Department may transfer the initial application fee to the new application.

Undisputed Technical Reports

Note that if a Department Technical Report contains calculations that are based on less than what was proposed (acres, flow rate, volume etc.) and the applicant does not request a meeting and dispute the findings, the Application is assumed to be amended in line with the Technical Report. The Department needs to make the applicant aware that this is the case, so be sure to include the applicable language in your Correct and Complete letter (template found in ROCO > Technical Reports). If the Application is amended in this way and the applicant does not dispute the findings, the decision can move forward to a grant, and not a grant in modified form. This does not prevent the decision from being a grant in modified form for other reasons.

For Applications Received on or After Jan. 1, 2024:

(ARM 36.12.1401) Anytime an applicant changes their original application; it is considered an amendment. An amendment to an application can be made only before a PD is completed, except for if the Draft PD is to deny or grant with modifications, in which case the applicant may modify their application only if they have been granted an extension of time under §85-2-307(3), MCA. If there is a need to amend the application, you can direct the applicant use the Amendment to Application form (Form 655) which is located on the Forms & Resources page of the Department website. This form is required for applications received on or after Jan. 1, 2024.

If the applicant is simply supplying additional clarifying information within the nature and scope of the current application, then a formal amendment to the application is not necessary. The priority date of a permit application will be changed to the date the last modification was made if a modification changes the nature or scope of the permit application information.

Per ARM 36.12.1401, a change to the nature or scope of the application includes the following types of modifications:
(a) the flow rate is increased;
(b) the volume is increased;
(c) the acreage is increased;
(d) the period of diversion is expanded;
(e) the source of supply is changed;
(f) the point of diversion is changed;
(g) the place of use is changed;
(h) the purpose is changed;
(i) the period of use is expanded, unless the application involves a use from a reservoir and the impact would not change; and
(j) any modification where the effect on the source of supply or its tributaries changes the impact described from the originally submitted information.

The Siebel Supreme Court Opinion stated that “significant modification” to an application becomes a new application.

For applications received on or after Jan. 1, 2024, **all amendments will reset the statutory timelines for an application.** This includes the ability to send out a new deficiency letter. If the applicant completed a preapplication meeting and the modification does not require the Department to update its technical analyses

or scientific credibility review, the reduced filing fee and expedited application timelines shall still apply. If the applicant completed a preapplication meeting and the modification requires the Department to update any of its technical analyses or scientific credibility review, the reduced filing fee and expedited application timelines shall no longer apply. If the modification only requires the Department to update summary information within the "front end" of the technical analyses or scientific credibility review, this will not constitute a modification that changes the technical analyses. The Department will add a memo to the file providing clarification for the discrepancies between the application and the summary information in the technical analyses or scientific credibility review. (An example of this would be if the proposed flow rate or volume is reduced for a surface water permit application.)

At some point, if the changes proposed in the amendment to the application are a significant deviation from what was originally proposed, the applicant may want to start over with a completely new application. Talk with your regional manager and the Central Office if you have questions about whether or not an amendment constitutes the need for a new application. In this situation, the Department may transfer the initial application fee to the new application.

If a preapplication meeting was held, and the amendment changes the nature or scope of the application, or changes the application in a way that the technical analyses or scientific credibility review will need to be redone, the application is treated as if no preapplication meeting occurred (discounted filing fee and expedited timeline will no longer apply). In the post- amendment deficiency review process, the now-insufficient filing fee can be addressed. See the database entry below for the applicable events to enter in this scenario.

Database Entry:

Depending on the scale of the amendment, different documentation should occur in the database. See the table below for each scenario.

Event Code	Event Name	Note
AME3	AMENDMENT TO APPLICATION RECEIVED (TIMELINES RESET)	Enter this event for the date an Application Amendment Form (Form 655) is received for a permit or change application.
AME2	AMENDMENT TO APPLICATION RECEIVED (PRIORITY DATE RESET)	Enter this event for the date an Application Amendment Form (Form 655) is received for a permit application IF the amendment changes the nature or scope of the application. This event changes the priority date on the water right but does not change the Form Received date for the application.
FRMR	FORM RECEIVED	When you add the AME2 or AME3 event, also manually change the date on the Form Received event to be the date of amendment receipt. Leave a comment for the Form Received event with the original date the form was received.
MNEP	MOVED TO NON-EXPIDITED PATHWAY	Add this event if a preapplication meeting was held, but the Department has moved the application to the non- expedited timeline. (For example, if the application was received and is different than the preapplication meeting form (ARM 36.12.1302(6)(a)), or if an amendment is received that causes the Department to update its technical analyses (ARM 36.12.1401(3)(b).)

Conditions

- If a formatted remark (condition) exists in the database, it must be used. Always check to see if a formatted remark exists before you go about adding it as an II (important information) Remark (freeform). This is important because statistics and queries are often run based on remarks and if everything is entered as an II remark functionality is lost.
- Add conditions only when they are necessary to meet the criteria. The PD should clearly state why the condition is being added and to which criterion the condition relates.
- Conditions can be anything you believe is needed to meet the criteria
- Use an II (important information) Remark if no formatted remark exists and no specific placement of the remark on the water right abstract is needed; be sure to distinguish between remarks that are purely informational and remarks that are conditions
- The applicant does not need to sign off on the conditions to do a PD to grant
    - The Department may include conditions in the written preliminary determination to satisfy applicable criteria for issuance of a permit or change in appropriation right, see § 85-2-307, MCA.
        - Within the PD, the condition language must be included in the section for the criterion it is addressing, and in the final preliminary determination section of the document.
    - The processing RO has the discretion to discuss conditions with applicants prior to final PD drafting and allow them an opportunity to collaborate on the condition(s) that may best suit their proposed project. Ultimately, it is up to the Department to determine final language of a condition.
- Conditions on a Draft PD to Deny
    - Include any conditions that would be required for the criteria to be met within the specific criteria section of the PD that the condition applies to. This tells the applicant that if the application were to be granted, it would be subject to the conditions identified.
    - If you go to a Final PD to Deny, remove the conditions since the usage will not be implemented as requested.
    - If the Draft PD to Deny is changed to a PD to grant, the conditions must remain.

Environmental Assessments

The Montana Environmental Policy Act (MEPA) requires state agencies to consider the physical, biological, social, and economic implications of their actions. Decision-making on permit & change applications requires MEPA compliance.

The Department shall conduct an environmental assessment on all permit and change applications. This assessment must be in the approved format. During the assessment, the Department shall determine if an environmental impact statement (EIS) is necessary. The Department may adopt another agency's EIS findings and include them in a change application.

Environmental Assessments should be completed <u>after</u> correct and complete determination and <u>prior</u> to the completion of the Draft PD.

Because the MEPA process requires full public disclosure of any environmental impacts, all environmental assessments must be posted on the internet. **Submit EAs to the intranet via the DNRC MEPA Submission Form.**

Full EA instructions for EA processing, posting, and templates are contained on the ROCO drive in PROCESSES > EA- ENVIRONMENTAL ASSESSMENTS.

Variances

For Applications Received Prior to Jan. 1, 2024

The only variance that the Department can and does deal with on changes is related to aquifer testing requirements. The Department cannot grant variances other than for ARM 36.12.121. (36.12.1601 Water Right Permit and Change- Correct and Complete Determination)

36.12.1601(6): A water right change application will be deemed correct and complete if an applicant's information, required to be submitted by ARM 36.12.110 through 36.12.116, 36.12.121, 36.12.1301, 36.12.1401, 36.12.1801, 36.12.1802, 36.12.1901 through 36.12.1904, and 36.12.2001, conforms to the standard of substantial credible information and all necessary parts of the application form requiring the information, including any required addendums, have been filled in with the required information.

- Administrative Rule 36.12.1601, which addresses the "Correct and Complete" determination of an application, requires that the Aquifer Testing requirements of 36.12.121 be met for changes. The Department's determination of applying this set of rules is that 36.12.121 only applies to changes if a new groundwater POD is being proposed. If an applicant is proposing a new groundwater POD and has no intention of completing aquifer testing as required by 36.12.121, they will need a variance from the testing requirements to proceed to Correct & Complete. If no new groundwater POD is being proposed, then 36.12.121 is not applicable to the Correct and Complete determination of the application.

For Applications Received on or After Jan. 1, 2024

What's a Variance?

Per ARM 36.12.123 (Variance Request Rules), the Department can grant a variance for requirements in ARM 36.12.121 (aquifer testing requirements) and 36.12.1702 (measurement requirements for physical availability of surface water**). If an applicant seeks a variance from the requirements in rule, a Variance Request Form (available on the Department website) is required by the Department**. An application cannot be deemed correct and complete without meeting the requirements of rule or being granted a variance from rule requirements (if applicable).

How are Variance Requests Processed?

If a preapplication meeting is held, the Variance Request Form must be received by the deadline established in the preapplication meeting. This deadline should be at least 30 business days prior the date the applicant shall submit the completed Preapplication Meeting Form, because the Department shall grant or deny the Variance Request within 30 business days of Variance Request Form receipt. The variance request must be granted or denied prior to the Preapplication Meeting Form being deemed complete, because the result of the variance grant or denial will impact the technical analyses completed for the application. The Department may receive Variance Request Forms prior to the preapplication meeting only if the Department has all the necessary information regarding the application to process said request within 30 business days. It may be beneficial to both the applicant and the Department to have at least a scoping meeting prior to Variance Request Form submission to ensure all relevant information is discussed and included on the Variance Request Form.

If a preapplication meeting is not held, the Variance Request Form may be submitted with the application or as a deficiency response.

For permit or change applications for groundwater with a means of diversion that is a well or pumping pit, variance requests (Form 653) from ARM 36.12.121 must be accompanied by the following associated information:

- Aquifer Test Data Form (Form 633), or alternative methods, models or data for aquifer characteristics;
- Aquifer Testing Addendum (Form 600/606 ATA).

General time frames for requesting a variance (for submitting Form 653)

The deadline for variance request submission can vary somewhat, depending on whether a preapplication meeting was held.

For applications submitted and no preapplication meeting was held, variance requests (Form 653) and necessary associated information (including Aquifer Test Data Form (Form 633) and Aquifer Testing Addendum (Form 600/606 ATA)) must be submitted with the application or as part of a deficiency response pursuant to ARM 36.12.1501.

For applications submitted after Jan. 1, 2024, and a preapplication meeting was held, variance requests must be submitted during the span of the 180 days between when the preapplication meeting is held and before the Preapplication Meeting Form must be submitted. Variance requests (Form 653) must be submitted on or before Day 138 of 180. The specific date by which a variance request must be submitted will be determined at the preapplication meeting (ARM 36.12.123(1)(a)). See the Variance Request Timeline (below) for a visual representation of the deadlines for submitting Form 653 and related materials when a Preapplication Meeting was held.

Why Day 138?

For permit or change applications for which a preapplication meeting was held, compliance with ARM 36.12.121 (aquifer testing requirements) and/or ARM 36.12.1702 (measurement requirements for the surface water physical availability criterion) is necessary by the time the Preapplication Meeting Form is determined to be adequately completed. In some cases, applicants may attempt to comply with these rules by requesting a variance from the aquifer testing or measurement requirements.

The Day 138 deadline for submittal of Form 653 and associated information makes it possible for the Department to grant or deny the variance within the required 30 business days (ARM 36.12.123(3)), while maintaining the administrative deadlines for the Preapplication Meeting Form as described in ARM 36.12.1302(4) and (5), which requires the applicant to include their granted variance(s) with their completed Preapplication Meeting Form (which must be submitted 180 days after the preapplication meeting). Thirty business days is equivalent to approximately 6 weeks or 42 calendar days (including weekends and depending on public holidays). Day 138 is 42 calendar days (30 business days) before the 180-day deadline for submitting the Preapplication Meeting Form.

During the preapplication meeting, the Department will establish an actual date for the Day 138 variance request deadline (ARM 36.12.123(1)). For example, if a preapplication meeting was held on Dec. 11, 2024, the Department would establish Apr. 28, 2025 as the variance request deadline (Apr. 28, 2025, is 138 days after Dec. 11, 2024). The established deadline date will be documented on the Preapplication Meeting Form.

The Applicant is welcome and encouraged to submit a variance request (Form 653) and associated information at any point prior to Day 138, and the Department will grant or deny the variance within 30 business days of receiving the request (ARM 36.12.123(3)).

Best practices and key considerations for requests for variances:

1. **Submitting Form 653 on Day 138 gives the applicant zero turnaround time to make corresponding adjustments to the Preapplication Meeting Form. Therefore, it is strongly recommended that applicants submit Form 653 (and associated information) early (before Day 138):** To consider and/ or recommend requests for variances from requirements of ARM 36.12.121 or ARM 36.12.1702(1)(b) or (4), the Department must have sufficient information. For example, for variances from ARM 36.12.12,1 this would include Form 633 (or alternative methods, data or models) and Form 600/606 ATA (Aquifer Testing Addendum). Applicants should be aware that if they wait until Day 138 to submit their Form 653 and associated information, the Department may use the full 30 business days available to them to consider the variance request or recommend additional variances. In such a scenario, there may be very little, or even zero, time for applicants to update their Preapplication Meeting Form based on the Department's decision to grant, deny, or recommend the variance. For this reason, it is strongly recommended that applicants submit their Form 653 and associated information before the Day 138 variance request deadline.

2. **Applicants should be aware that the Department may take 30 business days to decide whether to grant or deny the variance, per ARM 36.12.123(3):** If an applicant wants a decision on their variance request earlier (so that they can submit their completed Preapplication Meeting Form early), they may submit Form 653 and associated information early. The applicant should be aware, however, that following early submission of the Form 653, the Department will make the decision to grant or deny the variance request within 30 business days of receipt of Form 653 (and associated information) (ARM 36.12.123). Following the submission of an initial variance request on or before Day 138, if additional variance requests are necessary (recommended by the Department), the Department will consider these requests in a timely fashion. The applicant should keep in mind that all variances must be approved for the Preapplication Meeting Form to be adequate AND that the Department will need time to consider each variance request.

Variances from aquifer testing requirements (ARM 36.12.121).

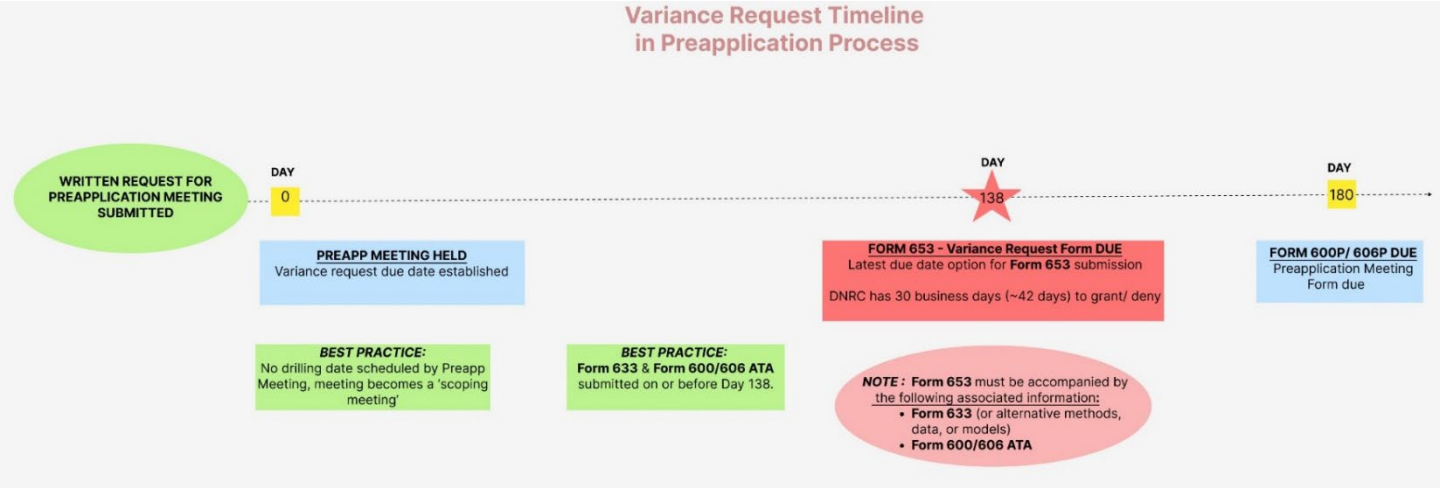
3. **By the time the preapplication meeting is held, applicants should have a drilling date scheduled:** If it is determined that no drilling date is scheduled, it is strongly advised that the Preapplication Meeting be changed to a scoping meeting. The timing of submittal of Form 653 and associated information should be discussed, and a new preapplication meeting should be scheduled.

4. **Even when no variances are expected, submit the information associated with variance requests — *Aquifer Test Data (Form 633) and (Form 600/606 ATA)* — as far in advance of the variance request deadline as possible:** There are cases where an applicant may assume that they do not need a variance, when, in fact, following review of an adequately completed Form 633, the Department recommends that they do request a variance to meet the requirements of ARM 36.12.121. Submitting Form 633 and Form 600/606 ATA far in advance of Day 138 will allow the Department to provide guidance on which variances the applicant may need to request while also leaving the applicant with adequate time to submit Form 653 on or before Day 138. *Ideally, applicants should submit Form 633 and Form 600/606 ATA as far in advance as possible of the Day 138 variance request deadline.*

Variances from surface water measurement requirements (ARM 36.12.1702).

5. During preapplication meetings for proposed surface water appropriations, the need for measurements to comply with ARM 36.12.1702 should be made clear by the Department and a plan for gathering measurements should be discussed with the applicant, including a discussion of methods necessary to ensure that submitted measurements will be usable for the Department technical analyses or scientific credibility review. If applicants need measurements, they may use the 180 days following the Preapplication Meeting to gather these measurements. If during Preapplication Meeting it becomes clear

that the 180 days *will not be sufficient time* to gather the required measurements, the meeting should be hanged to a scoping meeting and/or, as appropriate, options for variances from ARM 32.12.1702 should be discussed, as should the Day 138 variance request deadline.



Application Termination

See the Termination Guidance in ROCO for processing instructions on the application termination process.

For Applications received Prior to Jan. 1, 2024

Withdrawn by applicant

When an application is withdrawn by the applicant during processing, a copy of the signed letter withdrawing the application must be placed in the file.

Annotate the withdrawal, include a copy of the withdrawal letter in the file, and send the file to the Central Office to complete processing.

Deficiencies not Met

As described in ARM 36.12.1501, if the application is not considered correct and complete within 120 days after the deficiency letter is sent, terminate the application with a standard termination letter that points out exactly what Administrative Rules the application did not meet. The termination letter can only list the deficiencies not addressed from the deficiency letter. A standard termination letter is available in the ROCO Folder.

Send the termination letter to the applicant, annotate the termination, include a copy of the termination letter in the file, and send the file to the Central Office to complete the termination processing.

Relevant Statutes and Rules

ARM 36.12.1501 PERMIT AND CHANGE APPLICATION DEFICIENCY LETTER AND TERMINATION

For Applications received on or After Jan. 1, 2024

Withdrawn by applicant

When an application is withdrawn by the applicant during processing, a copy of the signed letter withdrawing the application must be placed in the file.

Annotate the withdrawal, include a copy of the withdrawal letter in the file, and send the file to the Central Office to complete processing.

Deficiencies Not Met

As described in ARM 36.12.1501, if the application is not considered correct and complete within 120 calendar days after the deficiency letter is sent, terminate the application with a standard termination letter that points out exactly what Administrative Rules the application did not meet. The termination letter can only list the deficiencies not addressed from the deficiency letter. A standard termination letter (Template Letter T1) is available on the ROCO Folder. **The termination must be processed within 30 calendar days of the deficiency letter response deadline, as it will otherwise default to correct and complete (§ 85-2-302(6)).**

Send the termination letter to the applicant, annotate the termination, include a copy of the termination letter in the file, and send the file to the Central Office to complete the termination processing.

Relevant Statutes and Rules

ARM 36.12.1501 PERMIT AND CHANGE APPLICATION DEFICIENCY LETTER AND TERMINATION

PD Writing Tips & Guidance

PD Document Naming Standards

When you send your PD to the Central Office, please save it using the following standard:

- Form Number_[GW/SW]_PD_[Grant/Deny/ModifiedGrant]_Basin & Number_Last Name (of applicant)
- Example: 606_SW_PD_Grant_38H 30105555_Jackson

PD Review Period

For Applications Received Prior to Jan. 1, 2024

When you have completed a Draft PD, be sure to send it to your Regional Manager for their thorough review before you send your draft to the Central Office (CC your Regional Manager, the rest of the CO NA staff, Bureau Chief, and Operations Manager). Once your manager has completed their review, you must send the PD to your CO contact for review a minimum of three weeks before the 120-day deadline for PDs to Grant, and at least five weeks prior to the 120-day deadline for PDs to Deny or PDs to Grant in Modified Form (since Draft PDs to Deny or Grant in Modified Form are sent to the applicant 15 calendar days before the 120- day deadline). Be sure to include the 120-day deadline in the body of your email. Once you have sent your Draft PD to CO, add the 'PD Sent to CO for Review' event to the database. See the guidance in the "PD Decision Types" section of this manual for additional considerations with PDs to Deny or to Grant in Modified Form.

Your CO contact will likely reach out to you for clarification/with any questions regarding the decision that cannot be readily addressed as a comment in the PD. The CO will then send you your draft PD with any comments, concerns, suggestions, or questions that are intended to highlight procedural or policy inconsistencies, decision red or yellow flags, and to ensure the decision is clear enough to go out to Public Notice. CO staff will add the 'PD Returned to RO After Review' event when they send your PD back to you. When you have finished incorporating and addressing CO's comments, questions, and/or concerns:

1. Print a final copy of the PD/ draft PD and prepare a cover letter based on the template in ROCO.
2. Have your manager sign the Preliminary Determination page. The dates on both the Preliminary Determination and Certificate of Service pages need to reflect the date the envelope is postmarked by the USPS (might be the next day if you missed the mail pickup).
3. Sign the Certificate of Service page.
4. Mail the original signed PD to the applicant (or the applicant's legal representative) along with the original signed cover letter. Send copies of the PD and cover letter to any consultants or non-legal representatives. Also put a copy of the PD in the application file.
5. Enter the correct "PD to [X] completed" event in the database. The Date/Time entered for this event must also reflect the actual date the PD was completed *and* post-marked to be sent to the applicant.

For Applications Received on or After Jan. 1, 2024

When you have completed a draft Draft PD, be sure to send it to your Regional Manager for their thorough review before you send your draft to the Central Office (CC your Regional Manager, the rest of the CO NA staff, Bureau Chief, and Operations Manager). Once your manager has completed their review, you must send the PD to your CO contact for review a **minimum of 15 calendar days before the 60 or 120-day deadline**. Be sure to include the PD deadline in the body of your email. Once you have sent your Draft PD to CO, add the 'PD Sent to CO for Review' event to the database. See the guidance in the "PD Decision Types" section of this manual for additional considerations with PDs to Deny or to Grant in Modified Form.

Your CO contact will likely reach out to you for clarification/with any questions regarding the decision that cannot be readily addressed as a comment in the PD. The CO will then send you your draft PD with any comments, concerns, suggestions, or questions that are intended to highlight procedural or policy inconsistencies, decision red or yellow flags, and to ensure the decision is clear enough to go out to Public Notice. CO staff will add the 'PD Returned to RO After Review' event when they send your PD back to you. When you have finished incorporating and addressing CO's comments, questions, and/or concerns:

1. Print a final copy of the PD/ Draft PD and prepare a cover letter based on the template in ROCO.
2. Have your manager sign the Preliminary Determination page. The dates on both the Preliminary Determination and Certificate of Service pages need to reflect the date the envelope is postmarked by the USPS (might be the next day if you missed the mail pickup)
3. Sign the Certificate of Service page.
4. Mail the original signed PD to the applicant (or the applicant's legal representative) along with the original signed cover letter. Send copies of the PD and cover letter to any consultants or non-legal representatives. Also put a copy of the PD in the application file.
5. Enter the correct "(draft) PD to [X] completed" event in the database. The Date/Time entered for this event must also reflect the actual date the PD was completed *and* post-marked to be sent to the applicant.

PD Writing Dos and Don'ts

DO:

- Write with conviction—the findings are yours, embrace them! For instance, we are making findings that a proposed use of water *will not*, rather than *should not* or *is not expected to* cause adverse effect to other water users
- Include all information on which the decision is based
- Be sure to address all elements of the application materials, especially in cases where the Department's findings differ from what the applicant asserts
- Explain each topic so someone with no prior knowledge of the subject can understand the decision
- Understand that the decision document may be used by the Hearings Unit or even District or Supreme Courts
- Include tables as well as the written description of the information summarized in the table. Be sure tables are also included within the Findings of Fact it's related to!
- If applicable, state that a hydrologist reviewed the application and finds the information/methods credible, but then make a finding by the Department. "The Department finds…"
- Reference conditions in the proposal and criteria sections as well as the end of the document
- Review the Writing Tips section below

DO NOT:

- Include unnecessary information
- Say "the applicant believes/stated/etc." without following up with a Department finding. Don't use "I find".
- Include the proposed appropriation when discussing legal demands
- Discuss what is being proposed within the Historic Use section
- Use ambiguous/subjective terms (lots, should, is expected to)
- Use descriptions of amounts instead of the actual amounts (e.g., "A small amount of water will be consumed in the pond" vs. "3.5 AF of water will be consumed in the pond")
- Include percentage statements instead of actual amounts, such as:

- The applicant will utilize up to 25% of the flow of the stream
- The applicant historically diverted one half the water flowing in the stream

Writing Tips for PDs:

1. Use the correct template. The current templates will always be kept in the ROCO folder.
2. Don't remove Conclusions of Law (COLs) from the Template unless it has been vetted by Legal. The Conclusions of Law written in blue Template can be added as necessary depending on the specifics of the decision. Optional COL are labeled as such in the PD templates and should only be removed when not applicable to the application at hand.
3. Write the PD as though a reader has no knowledge of the application, nor the facts included in the application. In the decision document, the reader should not have to review any part of the file to understand the facts in the file. Don't include statements that say X is included in the application or indicate where something is located in the file; the reader should be able to discern why the writer, based on the facts, made the decision.
4. Application details need to provide the specifics of an application. What is the source, POD, POU, flow rate, volume, etc. A thorough understanding of both historical use and what is being requested is especially important for changes. A comprehensive knowledge of the application needs to be developed for the reader to understand what the application is for; otherwise, the reader is more likely to make comments that don't make sense. The application details can follow the same order as the public notice, but just make it in paragraph format, rather than sections.
5. Be consistent. If flow rate is referred to in GPM, then continue to use GPM. Don't use CFS in some parts. The rule of thumb applied by the Department is use GPM for flow rates under 1 CFS (448.8 GPM) and CFS for anything equal to or greater than 1 CFS. An applicant may state in their application that based on their system specifications, they are applying to use a flow rate of 674 GPM. Because 674 GPM is greater than 1 CFS, the Department will convert this flow rate to CFS and round to the nearest tenth, therefore coding this flow rate in the database as 1.5 CFS. GPM is more precise than CFS, and if you convert 1.5 CFS back to GPM, the flow rate would be only 673.2 GPM, which is less than 674 GPM. To make clear that our coding of 1.5 CFS does equate to the requested 674 GPM, the first time the requested flow rate is mentioned in the PD, write the requested flow rate as 1.5 CFS (674 GPM).
6. When referencing source, flow rate, volume, period of use, period of diversion, etc. state the source name, the actual flow rate & volume applied for, the actual period of use. This way the reader doesn't have to go back to the application details section of the PD to find the information.
7. Only existing legal demands on the source should be included in the legal demands table. The applicant's proposed use is not a legal demand.
8. If the application is for illegal water use that has occurred, those details are not pertinent and often confuse the reader. Ignore that information and simply talk about the present application.
9. Provide facts of the application, not assertions.
   Fact: a piece of information about circumstances that exist or events that have occurred; a statement or assertion of verified information about something that is the case or has happened; an event known to have happened or something known to have existed; a concept whose truth can be proved; scientific hypotheses are not facts.
10. Make sure applications are correct and complete and the necessary information is in the file. Make the findings of the Department rather than saying "applicant says" or "applicant contends". Identify what information is factual. Don't use such terms as maybe, will likely, unlikely, typically, etc.
11. Make findings of the Department. Rather than saying "I concur with the Department hydrologist"; state the hydrologist's technical findings. You don't want to imply that you have the same level of knowledge unless you do. Remember the Department as a whole makes the ultimate finding.

12. Do not make a finding that a drawdown of X, as our hydrologists state, "typically" does not cause adverse effect. Make a finding based on *this* case.
13. Make findings that the criteria have or have not been met. Do not say there "should" not be or it is "unlikely" that an adverse effect will occur. For example, write "The Department finds the applicant's proposed use of water will not cause adverse effect to other water users on the source".
14. Reference condition requirements in a finding. For example, why a condition of X is needed for the criteria to be met. Then add conditions to the end of the document. Don't say the applicant says they will be sure to do A or B to prevent adverse effect.
15. For permits that require a change for mitigation, a mitigation plan must be included in the permit application and must state the mitigation details and explain why the mitigation plan is adequate to offset adverse effects. There cannot be a complete evaluation in the adverse effect section if there has not been a discussion of the adequacy of their *plan* as it relates to exercise of the permit. Also remember that in the permit application, in the mitigation plan, the amount, timing and location of mitigation water must be analyzed. Under the Adverse Effect section, include the following sub-sections for permit applications that include a mitigation plan: Mitigation Strategy; Mitigation Amount; Mitigation Duration; and Mitigation Location.
16. Be sure the information under each section is applicable. There shouldn't be a need to duplicate information, however it is okay to restate information that is directly relevant to different sections.
17. Don't put the Project Completion Notice deadline in a PD. The applicant cannot request a hearing on the deadline date.
18. When the Department finds something different from what the applicant asserts in their application, be sure to provide a thorough explanation in the PD for why the applicant's assertion was deemed invalid and not used by the Department in the criteria analysis. Since it is the applicant's burden to prove the permit criteria, we must address validity of any criteria-based argument made by the applicant.
19. The first time you refer to a water right, always use the full name of its type, e.g., "Statement of Claim 41G 123-00" or "Provisional Permit 41G 123-00". Moving forward through a PD, use the full name or a shorter type identifier, such as "Claim 41G 123-00" or "Permit 41G 123-00". Be consistent throughout the PD. Never refer to water rights as only "Water Right 41G 123-00"; it is helpful to know the types of water rights being discussed, described, or assessed.

Tips for Writing Findings of Fact:

- Not all the information provided by an applicant needs to be in the decision document, only the facts on which you based your decision.
- HB 831 - applicant must provide a net depletion amount. However, mitigation must be for the amount of "adverse effect". Refer to the mitigation for adverse effect rather than net depletion.
- ~~The average rate of depletion is 0.013 percent of the lowest mean monthly flow in the Bitterroot River.~~ Don't include percentage of flow or volume statements. They may be factual; however, they are not facts used in decision making as they are not specific amounts. We don't want any misconceptions by the public that percent of flow or de minimis amount is a part of water law.
- If you agree with what is being said, state it as a fact. Make the statement a finding.

Examples of how you should craft findings of fact:

Not a Finding of Fact	Finding of Fact
The applicant contributes this fluctuation was due to a change in the barometric pressure.	This fluctuation was due to a change in the barometric pressure.
According to the applicant this pattern of minimal drawdown and no increase in	This pattern of minimal drawdown and no increase in drawdown as the test progresses is

drawdown as the test progresses is typical for an aquifer test performed in a highly productive aquifer where the pumping rate is relatively low.	predictable for an aquifer test performed in a highly productive aquifer where the pumping rate is relatively low.
I concur with the Hydrogeologist determination.	Based on the information provided by the Department hydrogeologist, the Department finds the applicant has addressed the requirements of the Hydrogeologic Assessment as required by § 85-2-360 and -361, MCA.
Drawdown interferences less than X will not typically prevent an existing groundwater user from reasonably exercising their water right.	Drawdown interferences less than X will not prevent an existing groundwater user from reasonably exercising their water right.
The applicant presented sufficient documentation to justify water is physically available using a hydrologic model using precipitation events for small basins.	A hydrologic model using precipitation events for small basins showed the annual predicted runoff will provide X AF.
The existing annual volumetric demand was then compared with the natural flow through the aquifer across the zone of influence to determine if water is legally available.	The natural flow through the aquifer across the zone of influence is 8139.5 AF minus the existing annual volumetric demand of 2733 AF equals 5406.5 AF of water remaining in the aquifer.
The applicant concluded that there is legally available water for this proposed application because there are no legal demands within the applicant's delineated zone for the groundwater considered physically available.	Water is legally available for this proposed application because there are no legal demands within the applicant's delineated zone for the groundwater considered physically available.
The applicant states that the nearest senior water user along the orientation of the fracture system is over three quarters of a mile from the zone of influence.	The nearest senior water user along the orientation of the fracture system is over 3960 feet from the zone of influence.
The system can be turned off at isolation valves where groundwater comes into each building, allowing for the diversion to be shut off in the event of water shortage.	The applicant's plan to prevent adverse effect is to turn off the system at the isolation valves where groundwater comes into each building allowing for the diversion to be shut off in the event of water shortage.
The information shows that water is available throughout the period of diversion.	X shows that water is available throughout the period of diversion. (X is the information.)
The applicant states that 10,952 AF of water annually passes through the ZOI, and as a result it appears that approximately 13,048 AF/yr is over appropriated for this source.	Although 10,952 AF of water annually passes through the ZOI, and as a result it appears that approximately 13,048 AF/yr is over appropriated for this source (legal demand of 24,000 AF/yr minus 10,952 AF/yr of water physically available). However, water is legally available in this case since the proposed use is nonconsumptive.

PD Writing Standardization Table:

Statute Cite	▪ § 85-2-311, MCA (YEAR-for 1st citation only)

	▪ For first citation, include the year of which codes are being used. ▪ Multiple Sections - §§ 85-2-360 to -363, MCA ▪ Space between '§' and title '85'
Rule Cite	ARM 36.12.1702
Statute and Rule Cite	§ 2-4-611, MCA, and ARM 36.12.211 (statute first)
Findings	Use "the Department finds", however, if the finding is constructed as a statement, then neither phrase has to be used. Example: The applicant contributes this fluctuation to a change in the barometric pressure. You can use, the Department finds this fluctuation was due to … or preferably just say, this fluctuation was due to ...
Abbreviate	▪ AF ▪ CFS ▪ GPM ▪ Township/Range – T6N R10W
Always put a comma after a year	The hearing will be held on May 4, 2005, at …
One Word	▪ Groundwater ▪ Instream ▪ Prestream ▪ Unperfected
Capitalize	▪ Department ▪ Applicant ▪ Objector ▪ Montana Water Court
Don't Use *If you write the phrase, "the applicant" …, then there must be a finding stating what the Department finds about the information. ("The Department finds …")* *It's easier to state the factual information.*	▪ Only ▪ Just ▪ Should not ▪ It is unlikely ▪ Conservatively ▪ The applicant says ▪ The applicant determined ▪ The applicant found ▪ The applicant contends ▪ Percent of flow or volume
Use	▪ Department hydrogeologists ▪ Mitigate, not augment
Hyphens & Apostrophes	▪ No apostrophe in years (1970s) ▪ Use hyphen in modifiers (24-hour pump test) ▪ No hyphen - Nonconsumptive
Adverse effect - noun	"The appropriation causes adverse effect"
Adverse effect - adverb	"The water rights will be adversely affected"
Domestic Use	Refer to "Domestic" if the water right is for a house. If there was a lawn and garden component included under the domestic use, break this out into a separate "lawn and garden" purpose. In some situations, in the past, a water right was issued for domestic use which included a lawn and garden component. If this occurred on a water

	right being changed, break out the individual purposes so that it is clear what the water right is for moving forward. Use the Department standard of 1 AF/household for the Domestic use and then calculate the lawn and garden component by applying the 2.5 AF/acre standard to the remaining volume.

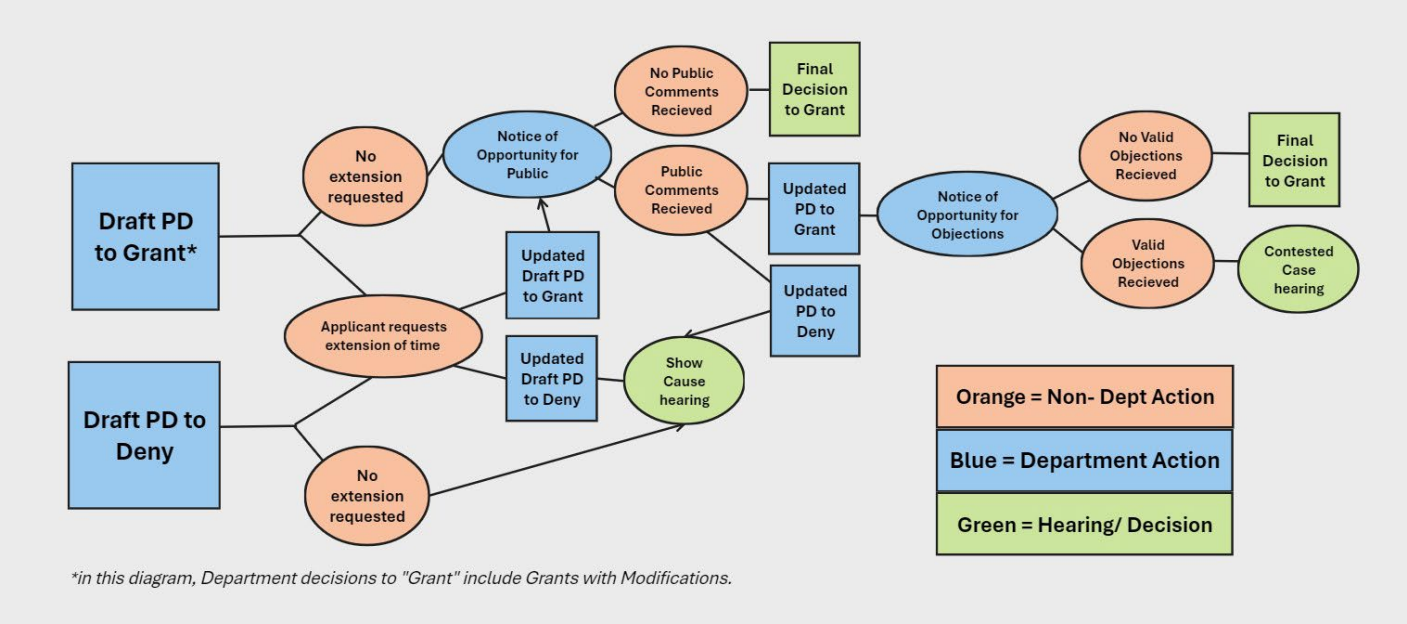
PD Process Updates

Overview

For Applications Received on or After Jan. 1, 2024:

The Department may complete between one and three decision documents for a given application, if either the applicant submits additional information following the receipt of a Draft PD, and/or if the Department receives public comments on a decision. The flow chart and sections below are a guide to which type of decision document is applicable to a given stage of the process.

Below is a simplified flow chart of the preliminary determination process for applications received Jan. 1, 2024, or later, from the point of completion of a Draft PD to final decision or hearing. At this point of the application process, there are no expedited timelines for applications that had a preapplication meeting. Note that any box labeled as "PD to Grant" or "Final Decision to Grant" includes both decisions to grant and to grant with modifications.



PD Versions

The following PD version types are applicable to applications ***received on or after Jan. 1, 2024****. If an application is received prior to Jan. 1, 2024, the application will only have one PD, unless the decision is to deny or grant in modified form, in which case a draft PD will be completed prior to authorization****. Note that all PD versions will be addressed to the applicant with the appropriate template letter, on or before the completion/issuance date.*** *See the "PD Decision Types" section at the beginning of the manual for more information on what constitutes a PD to Grant, Grant with Modifications, or Deny.*

Draft PD

- The Draft PD is the first decision document completed by the Department for an application.
- Sent to applicant/lawyer (and consultant, if applicable) only, with Template Letter A3.
- Following the delivery of the Draft PD, the applicant has **15 business days** to request an extension of time to submit additional information. (MCA 85-2-307(2)(b), -307(3)(a))
    - If a request is received and the Department grants the extension and additional information is submitted, the Department will update the Draft PD considering the new information within **60 calendar days** (see guidance for "Updated Draft PD" below).
    - If no extension of time is requested by the applicant:
        - The specialist will send a Draft PD to grant/grant with modifications to the CO CT for public notice for public comment within **5 business days** of the 15-day period closing. (Internal timeline, timeline is triggered by the DRAFT PD TO GRANT/ GRANT WITH MODIFICATIONS SENT TO APPLICANT event; 5 business days is **20 business days** after this event.)
            - If **no** public comments are received, the Draft PD is adopted as the final decision, and the specialist authorizes the permit or change within **10 business days** of the public comment period closing. (Internal timeline, timeline is triggered by the PUBLIC COMMENT DEADLINE event.)
            - If public comments **are** received, the specialist will update the Draft PD to reflect the DNRC's consideration of the comments within **30 calendar days** of the public comment deadline, and the specialist will send a PD (non-draft) to CO CT for the public notice for objection period within **5 business days** of the closing of the 30-day deadline to update the Draft PD considering public comments. (Internal timeline, timeline is triggered by the PD TO GRANT/ GRANT WITH MODIFICATIONS COMPLETED event.) (see "PD (non-draft)" guidance below).
        - The specialist will send a Draft PD to deny to the Hearings Unit legal secretary (currently Jamie Price) to schedule a show-cause hearing with the applicant within **10 business days** of the 15-day period closing. (Internal timeline, timeline is triggered by the DRAFT PD TO DENY SENT TO APPLICANT event; the deadline is **25 business days** after this event.) In this instance, refer to the Finalizing the Permit Application File section of this manual for instructions on scanning the application file, uploading to FileNet, and sending an email to the Hearings Unit staff.

Updated Draft PD

- If the applicant submitted a request for extension of time (via Form 607), the Department may grant the applicant, in writing (Template Letter A4), up to 180 calendar days to submit additional information for the Department to consider in the decision (MCA 85-2-307(3)(a)). If DNRC granted the request for extension of time, the Department shall issue an updated Draft PD (with Template Letter A5) within **60 calendar days** of the earliest date of either:
    - The extension of deadline set (up to 180 calendar days granted by DNRC upon request of the applicant)
    - DNRC's receipt of written notice from applicant saying all information has been submitted. (MCA 85-2-307(3)(b))
- This PD *may* be revised from the Draft PD based upon the newly submitted additional information.
- Regardless of whether or not we have changed our decision based on the new information submitted by the applicant, the new PD is an updated Draft PD (so that the additional information submitted can be recorded in the decision document).
- An updated Draft PD to deny is sent to the Hearings Unit legal secretary (currently Jamie Price) to schedule a show-cause hearing with the applicant within **10 business days** of the 15-day period

closing. (Internal timeline, timeline is triggered by the DRAFT PD TO DENY SENT TO APPLICANT event; the deadline is **25 business days** after this event.) In this instance, refer to the Finalizing the Permit Application File section of this manual for instructions on scanning the application file, uploading to FileNet, and sending an email to the Hearings Unit staff.

- An updated Draft PD to grant or grant with modifications is sent to CO CT for public notice for opportunity to make public comment within **5 business days** of the PD being sent to the applicant. (Internal timeline, timeline is triggered by the second issuance of the DRAFT PD TO GRANT/ GRANT WITH MODIFICATIONS SENT TO APPLICANT event)
    - If **no** public comments are received, the updated Draft PD is adopted as the final decision (Template Letter A7), and the specialist will authorize the permit or change within **10 business days** of the public comment period closing. (Internal timeline, timeline is triggered by the PUBLIC COMMENT DEADLINE event.)
    - If public comments **are** received, the specialist will update the updated Draft PD to reflect the Department's consideration of the comments, and the specialist will send a PD (non-draft) to the CO CT for public notice for objections within **5 business days** of the closing of the 30-day deadline to update the PD considering public comments. (Internal timeline, timeline is triggered by the PD TO GRANT/ GRANT WITH MODIFICATIONS COMPLETED event) (see "PD (non-draft)" guidance below).

PD (non-draft)

- If public comments are received, the Department will complete a non-draft PD (with template letter A6) within **30 calendar days** of the public comment period ending to consider the public comments submitted.
- This is the PD version type that goes to public notice for objections (MCA 85-2-307(5)).
- The specialist will send the PD to public notice for objections within **5 business days** of the closing of the 30-day deadline to update the PD considering public comments. (Internal timeline, timeline is triggered by the PD TO GRANT/ GRANT WITH MODIFICATIONS COMPLETED event.)
    - *Note that if any objections were received, CO must first determine if objections are valid (this can take a while as there is a deficiency review/response process for objections).*
    - If no valid objections are received, the Department adopts the PD as the final decision. (MCA 85-2-307(5)(c))
        - The Department will authorize the permit or change within **15 business days** of the objection public notice being mailed to the RO from CO. (Internal timeline, timeline is triggered by the PUBLIC NOTICE INFO RETURNED TO RO event.)
    - If valid objections are received, the DNRC shall hold a contested case hearing and issue a final determination within **90 calendar days** of the administrative record closing for a contested case hearing.
        - The specialist will upload the scanned file to FileNet and email the Hearings Unit within **15 business days** of the objection public notice being mailed to the RO from CO. (Internal timeline, timeline is triggered by the PUBLIC NOTICE INFO RETURNED TO RO event.)

Updating the PD

Incorporating Additional Information (submitted by applicant)

If additional information is submitted by the applicant within the granted timeline after submitting a request for extension of time, the Department may update the PD to reflect the additional information if the additional information does not impact the nature, scope, or technical analyses of the Application. If the nature, scope, or

technical analyses of the application would be altered by the additional information submitted, this constitutes as a modification to the application and will be treated as such. See the Amendment section of the manual for guidance on determining what is a modification and how to process a modified application.

Incorporating Public Comment

The public comment period serves as an opportunity for members of the public to voice concerns about the Department's decision prior to objecting to an application, and in turn an opportunity for the Department to explain their decision more fully if not addressed clearly in the Draft PDs. An updated PD (non-draft) will be issued within 30 calendar days of the public comment period ending, considering all public comments submitted (regardless of their content).

How will the Department update PDs to incorporate public comments?

- An updated PD will be issued considering public comments regardless of their content.
- In the information section of the updated PD, add a description of the comments received.
- In the criteria section(s) that were raised in public comment, make a finding and discuss how the public comments were addressed and how/if the Department decision or criteria analyses were at all changed as a result.

What if a public comment does not raise a concern to the Department?

- We will consider all public comments regardless of their validity. (e.g., if a water right holder is commenting simply because they do not like their neighbor, we will still consider the comment- though we will not change the content of our PD because of this argument.)

What if multiple comments raise the same issue?

- While we need to consider all public comments, we can address them in bulk if they pertain to the same discrete issue (and not only just the same criteria!).

Criteria sections that receive public comments should get further review by the Department and be improved to include more detail to either modify our decision or further explain/ justify the Department's decision- & decision-making process (and maybe avoid a hearing!). Ultimately, it's up to the discretion of the RO to modify any criteria analysis. When revising the decision and decision document, **do not change values that were produced or would impact any technical analyses or WSB reports without consulting the Central Office or WSB**. If a comment is arguing our standard procedures or analyses, this needs to be addressed in a hearing.

The Central Office is developing more comprehensive guidance for the internal timelines and procedural guidelines to update the PD and respond to public comments.

Public Notice

This section covers the part of the Public Notice process that is done within the Regional Office while processing an application. Prior to sending an application to public notice, all elements of the water right should be entered into the database exactly how we are proposing to grant it, so that they appear correctly on the Public Notice reports. Any conditions should also be entered into the database prior to sending to public notice (required by § 85-2-307(2)(b), MCA). The only events left for the RO to enter into the database once the application has been through the public notice processes should be an "Issued" event and a "Project Completion Notice Due" event.

Pending Application Website Posting

DNRC updates the Application Status and Environmental Assessments page on the Department website at distinct points in the Permit & Change Application process, depending on when the application was received, in conjunction with the Water Right Notification Tool (WRNT). This public notification process via the WRNT will occur (along with the action of sub-bullets below) when the following events are added to the application record in the database:

- APPLICATION POSTED TO WEBSITE
  - Notice of Receipt is posted to website
- APPLICATION DEEMED CORRECT & COMPLETE
  - Pending application file is posted to website for applications received after Jan. 1, 2024
  - Correct and Complete date is added to website
- PUBLIC NOTICE PUBLIC COMMENT PERIOD (PUBLISHED)
  - Draft/updated Draft PD is posted to website
  - Pending application file is updated & re-posted to website (if material pertinent to the Department's decision has been added to the application file) for applications received after Jan. 1, 2024
- PUBLIC NOTICE OBJECTION PERIOD (PUBLISHED)
  - Non-draft PD is posted to website
  - Pending application file is updated and re-posted to website (see below for additions to file at this stage) for applications received after Jan. 1, 2024
- AUTHORIZATION ISSUED
  - Application is taken down from website 2 weeks after issue date, as it will be available in WRQS via the scanned documents in the database

Pending application files received after Jan. 1, 2024, are also posted to the DNRC website at distinct points in the application process. At the determination of a correct and complete application, the Department will post a PDF of the pending application file to the Department website under the Application Status and Environmental Assessments page. From the point of correct & complete determination to permit or change authorization or application termination, the Department will update the pending application file on the website at each step of the public notice process, if material pertinent to the Department's decision has been added to the application file (such as additional information provided by the applicant, public comment files, or updated PDs). When the updated pending application file is sent to the CO CT Public Notice Reps, they will take down the previous pending application file and replace it with the newly updated version. The same process occurs for the PDs: if the application is going to public notice for objections, the CO CTs will remove the Draft PD from the website and post the non-draft PD to the website (thus why the Draft PD(s) need to be added to the updated pending application file at each point in the process).

The application processor should have the pending application scanned and sent to CO CT Public Notice Reps before the "APPLICATION DEEMED CORRECT & COMPLETE" event is added, because the following day the Water Rights Notification Tool (WRNT) will notify the public that the pending application is correct and complete and available on the website via a GovDelivery message.

Instructions for ROs:

1. Scan pending application file contents upon sending the relevant template letter to the applicant.
2. Name the scanned application file PDF with the following convention:
   a. [600/606]_[BB-########]_PendingApplication-[V1/V2/V3]
   b. [600/606]_[BB-########]_[DRAFT/NONDRAFT]-PD
3. QAQC the pending application file PDF contents, per the most recent record scanning guidance. For example,

a. Arrange the file using the file organization flags in ROCO > FILE ORG & FLAGS, organizing each section in reverse chronological order (earliest dated document on the bottom, most recent dated document on top)
b. Ensure all pages are included
c. Remove all blank pages
d. Orient pages correctly
e. Redact all personal information (bank account information, social security numbers, Realty Transfer Certificate Information)

4. Send pending application file to CO CT Public Notice Reps **via Teams, a OneDrive link to the file, or the State of Montana File Transfer Service**. (Sending the file as a standard attachment via email may be impractical due to large file size.)
    a. In the Teams message, be sure to include:
        i. File to be posted to the website
        ii. Application Number
        iii. Applicant Name
    b. In the event that a file is too large to share via Teams, coordinate with CO CT Public Notice Reps to either create a OneDrive link, use the file transfer service, or create in ROCO a temporary folder containing the large file(s).
5. CO CT Rep will post application file on the website & send confirmation email to RO.
6. After receiving confirmation from the CO CT Rep that the files have been posted, check the website for a final quality check.
7. Add the applicable event once the pending application file is sent to CO CT Rep and the appropriate notice letter is sent to the applicant. (Example: Template Letter A2 [Correct & Complete Letter] is sent to the applicant, the application file is scanned, and "APPLICATION DEEMED CORRECT & COMPLETE" event is added in the database.) Repeat these steps for all points of the application in which updates to the application are to be posted to the website.

The lists below describe the minimum contents of the pending application file at each update and the format to deliver the pending application file PDF updates to the CO CTs.

File flags are used as helpful placeholders and may aid as an organizational tool while compiling the file. **If the pending application file contains excel files, include an Excel File Flag in the location of the excel file as a placeholde**r to direct the reader to request the file from the regional office (for pending application files scanned to the website), or if the file is in records, to search within a different tab. See the File Organization section below for more information on Flags and how to use them.

For **Correct & Complete** web posting, include in **one file**:

1. Pending Application File (in reverse chronological order):
    a. Correct & complete determination letter
    b. Deficiency letter response & any attachments (if applicable)
    c. Deficiency letter (if applicable)
    d. Application as filed
    e. Technical analyses (if applicable at this stage)
    f. Preapplication Meeting Form and attachments (if applicable)
    g. Any other relevant materials or correspondence

For **Draft PD or Updated Draft PD** (whichever version is going to public comment, if the application is being noticed for public comment period) web posting, include in **two files**:

1. Updated Pending Application File, as posted at determination of correct & complete (in reverse chronological order):
    a. Public Notice for Public Comment map & notice list
    b. Updated Draft PD cover letter (if applicable)

c. Additional information submitted by applicant following issuance of Draft PD (if applicable)
d. Draft PD (only if updated Draft PD is going to public notice for public comment)
e. Draft PD cover letter
f. Environmental Assessment
g. Correct & complete determination letter
h. Deficiency letter response & any attachments (if applicable)
i. Deficiency letter (if applicable)
j. Application as filed
k. Technical analyses (if applicable at this stage)
l. Preapplication Meeting Form and attachments (if applicable)
m. Any other relevant materials or correspondence

2. Draft PD or Updated Draft PD

For **PD (non-draft)** web posting (if the application is being noticed for objection period), include in **two files**:

1. Updated Pending Application File (as posted at determination of correct & complete; in reverse chronological order):
    a. Public Notice for Objections map & notice list
    b. Public Comment package (notice report and files)
    c. Public Notice for Public Comment map & notice list
    d. Updated Draft PD (if applicable)
    e. Updated Draft PD cover letter (if applicable)
    f. Additional information submitted by applicant following issuance of Draft PD (if applicable)
    g. Draft PD
    h. Draft PD cover letter
    i. Environmental Assessment
    j. Correct & complete determination letter
    k. Deficiency letter response & any attachments (if applicable)
    l. Deficiency letter (if applicable)
    m. Application as filed
    n. Technical analyses (if applicable at this stage)
    o. Preapplication Meeting Form and attachments (if applicable)
    p. Any other relevant materials or correspondence
2. PD (non-draft)

Preparing the Application for Public Notice

Notice Area Document

When preparing to send your application to public notice, you will create a public notice map and a public notice list (details below). Both the map and the list should be incorporated into a Public Notice Area document, for which a template is available in ROCO > Public Notice. Public Notice Map

A public notice map must be created that shows the POD(s) for the application being noticed as well as all the water rights that will be included in the notice list. The Notice Map should be at a scale that allows the entire project and the notice area to be viewed with adequate detail. Multiple maps or other descriptive documents may be produced for large-scale projects if necessary. Make sure anyone else can fully understand the notice situation based upon the documents/maps produced.

The Notice Map should follow the same general map guidelines described in ARM 36.12.111(1) including a north arrow, scale bar, section lines and numbers, etc.

The creation of the Public Notice Map and the Public Notice List are part of the same task and should be approached together with the notice area and the notice list in mind.

Database Entry for Public Notice

Make sure all elements of the proposed use are coded into the database prior to sending the application to public notice. This includes:

- Owner information
- Priority date
- Purposes
- Flow rate
- Diverted volume
- Purpose Quantity (AU, acres, etc.)
- Source Name
- Source Type
- POD
- Means of diversion
- Purpose details
- Conditions, remarks, etc.

Preparing a Public Notice List

The notice list is a set of water right owners that may have interest in the application being noticed. Water right owners on this list will be sent individual public notice abstracts for the application being noticed. There is no set standard for how far away or how many water rights should be included with a notice list, however at a minimum the list should include the following:

- All water rights considered in the area of potential adverse effect (MCA 85-2-307(4)(f)(i))
- Any purchaser under contract for deed of a property that may be affected by the proposed appropriation
- Any public agency that has reserved waters in the source pursuant to MCA 85-2-316.

In excess of the water rights, individuals, and agencies included in the notice requirements above, there are certain scenarios in which considerations that should be included in deciding on a list extent:

- It's best to over notice than under notice an application.
- Be aware of contentious situations on the source or in the area and include those likely to be concerned.
- An impacted water right may have a different source of water than the water right being changed.

The extent of a public notice list depends on the region, population density, demand for water in that area and other local issues. The notice lists should always be discussed with the Regional Manager because of their knowledge of local water issues. The Department may also send a copy of the notice to other interested persons. For example, government agencies, private companies and consultants, persons with water reservations, Indian tribes with compacts, or persons who could be affected by an alteration in water quality may receive copies of the public notice. Contact information for consultants or other application representatives must be updated in the database prior to public notice to ensure they receive notice of the application. Each regional office has a list of standard parties of interest for your region (also known as 'standards') - consult with your regional manager if you are unsure of which "standards" to include.

Note: Keep in mind that many water rights can be owned by one person or entity. Don't assume because a list has dozens of water rights that it will represent more than a couple owners.

Once a list of water rights is decided on, create a new mailing job in the database with the appropriate Mail Job Type ("PUBLIC COMMENT" or "OBJECTION"). The Mailing Job Number will be used to print labels for the public notice mailing. If you have a long list of water rights to include in the mailing job, you can import an Excel sheet of the water rights. The sheet must have a specific format – the basin code in column A, the water right number in column B, and the extension in column C. No additional formatting can exist in the Excel sheet, and the columns must not have headers.

For Applications Received on or After Jan. 1, 2024:

Note that if your application is going to public notice for objections, a second mailing job should be created to include both the contacts in the original mailing job (that went to public notice for public comment) plus any contacts who made a public comment but were not on the original public notice mailing list. A second mailing job should always be created for the objection period, even if there is no change to the contents of the original mailing job.

Check the Public Notice Report in the Database

Review a copy of the Public Notice available from the database. The Public Notice abstract appears exactly how it will appear in the newspaper and on the individual notices sent to people on the public notice list/in the database mailing job created for the application.

A copy of the Public Notice report must be included with the Public Notice Area document in the application file. Have another Specialist or a Regional Manger review the Public Notice Area document and Public Notice report to ensure the following:

1. All the required information is included and correct (including conditions and all appropriate database coding)
2. The notice is understandable
3. The notice describes the proposed application clearly
4. There are no spelling errors
5. The notice is concise with as few words as possible

Sending Public Notice to CO

After all the following is completed the public notice project can be sent to the Central Office to finish the process:

1. The notice area map is completed
2. The list of water rights to be notified and mailing job are finalized
3. The proposed change description is entered in the database
4. The past use of water description is entered into the database
5. A change version with all elements of the proposed authorization is entered into the database for all water rights being changed
6. Any proposed conditions and remarks are entered into the database

Once all these steps are completed, email the **Application Number,** the **PD, and the mailing job number** to the Central Office public notice coordinator.

The Central Office public notice coordinator will prepare the public notice, arrange a notice date with the newspaper(s) and mail the public notice out to everyone listed on the public notice list.

Public Notice Errors

If there is an error found in the public notice after it's published, a new public notice is required. For example, a period of use less than intended, a purpose described that doesn't fully explain the complete use, or a significant land description error. Refining a POD or POU after public notice is acceptable and does not require a new notice if the refined legal land description falls within the description on the public notice.

Errors by the Department

The Department will pay to re-publish a notice if the error was caused by the Department. Therefore, a meticulous review of the notice and application is necessary before publication.

Errors that do not Require a New Public Notice

Minor errors that do not affect the substance of the notice do not need to be fixed and re-published. Errors such as a misspelled water right number, basin number, or applicant's name.

Data Entry

Under the **Events Tab** add the **PUBLIC NOTICE-SENT TO CO (PUBLIC COMMENT PERIOD)** event and the date sent.

Notice of Opportunity for Public Comment

The notice of opportunity to provide public comment on an application applies only to applications received **after** Jan. 1, 2024.

A Draft PD or updated Draft PD is sent to public notice of opportunity for public comment when:

- The applicant did not request an extension of time to submit additional information
- If the applicant did request an extension of time to submit additional information and the Draft PD is updated, within 60 calendar days of either:
    - the extension deadline set, or
    - DNRC's receipt of written notice from applicant saying all information has been submitted.

The public comment period is 30 calendar days. There is no "validity ruling" for public comments, the only requirements per § 85-2-307(4), MCA, are:

(d) A public comment must identify how one or more criteria for the issuance of a permit of a change in appropriation right is not adequately addressed in a draft preliminary determination issued for the application. The Department may adopt additional rules for public comments.

(e) A person has standing to file a public comment pursuant to this section if the property, water rights, or interests of the person would be adversely affected by the proposed appropriation.

Public comments may be submitted by the public via Form 654: Public Comment on Application and must be received by the Department on or before the deadline specified in the public notice. The above requirements should be met by correctly completing the Form 654. If public comments are received on an application, the Department will consider the public comments received and update the PD to incorporate and address the issues raised.

Public Comment Storage and Processing Sequence

1. Public Comment is received by NA Central Office in Helena.
2. CO CT Public Notice Reps input "Public Comment Received" event to the application and adds the public comment into the public comment accordion, including basic comment information (date, name, identified criteria) into the database.
3. During the public comment period, the CO CT scans submitted public comment files and sends them to the RO electronically for consideration in the updated PD. CO will store the physical copies of the public comment files, and will mail them to the regional office only if a valid objection is later received.

4. After the public comment period ends, CO sends the RO the scanned public comment packet to add to the application file.
    a. Note that sometimes there is a lag with the newspapers, so the affidavit and tear sheet does not need to be included in the scanned application file until it is received by the regional office.
5. Prior to sending the non-draft PD to the applicant, the RO will add an issue description to each comment criterion of each public comment. **Each issue description should be 1-3 sentences in length.**

Notice of Opportunity to Object

For Applications Received Prior to Jan. 1, 2024:

All applications received prior to Jan. 1, 2024, go to public notice of opportunity to object. The standard public notice period for objections for pre- HB114 applications is 45 calendar days. A member of the public with standing to object pursuant to § 85-2-308(3) can object to an application via the submission of a correct and complete Objection Form (Form 611). The Central Office processes objections.

For Applications Received on or After Jan. 1, 2024:

Public notice of opportunity to object to an application is sent out after the public comment period ends if public comments were received, per § 85-2307(5)(b), MCA. After receiving public comments, the Department has 30 calendar days to consider and incorporate public comments that were received on an application's Draft or Updated Draft PD and issue a non-draft PD to go to public notice for objections. See the "Updating the PD" section above for more information on updating the PD.

The public notice period for objections is 30 calendar days. A member of the public with standing to object pursuant to § 85-2-308(3), MCA can object to an application on the criteria for which public comments were received during the public comment period, via the submission of a correct and complete Objection Form (Form 611). For example, if an application received public comments on the adverse effect and beneficial use criteria, an objection could not be filed related to the possessory interest criterion. The criteria commented on and specific issues raised will be described in the updated PD and the public comment accordion of the database (for internal records). The Central Office processes objections. If no public comments were received, the application does not go to public notice of opportunity to object.

Finalizing the Permit Application File

After an application has gone through Public Notice, the Permit Authorization either needs to be issued or the file needs to be transferred to the Hearings Unit if valid objections were received. Follow the relevant steps below:

1. About 1 week after the Objection deadline has passed with no valid objections, the Central Office will send the PN packet back to the RO. This delay is to account for potential lag time in objection receipt. Alternatively, if objections are received, the CO CT will let you know that the deficiency review process is beginning on those objections. Once the objections are through the validity ruling, the CO CT will contact the RO specialist to pass along the relevant documents for the specialist to compile the scanned file, for the specialist to then either issue the authorization or transfer the file to Hearings. If a valid objection is received, the CO CT will send the public notice packet through physical mail.
2. Double check the database to be sure the coding corresponds with the decision document, including any conditions or measurement requirements.
3. If no valid objections are received, the RO needs to adopt the PD and issue the authorization. Prepare the Final Order adopting the Preliminary Determination. The Final Order template letter (A7) is located

in G:\WATER_RT\ROCO FOLDER\#HB114\Application Template Letters. Make a copy of the signed Final Order for the file.

   a. In the Events accordion of the application page, make sure all applicable events have been entered. Also, enter the Issued event and the Project Completion Notice Due date. Generally review the Events to ensure they are accurate. See the Standard Application Processing Events Table at the end of this document for reference.
   b. Print the original Permit Authorization on legal size (ivory) paper for the applicant and make a copy for the file (and copies for any consultants). Send the original to the applicant with a cover letter which includes a statement about when the project completion notice (Form 618) is due and enclose a copy of Form 618. A cover letter template can be found in ROCO.

4. Whether or not valid objections were received, compile the final PDF for the application and place in your office's network drive for the Records Unit to upload the file to FileNet.
   a. For applications received after Jan. 1, 2024, regional offices must transfer files digitally only and cannot send physical files to Records for scanning/uploading.
   b. For applications received prior to Jan. 1, 2024, digital transfer of files is also expected, however regional offices can send a file to Records physically if for some reason the file needs extra scanning attention. In this instance, the regional office must alert the Records Unit in advance and let them know why this file needs their scanning attention.
5. For general instructions about the process for scanning and uploading, refer to the Digital Transfer of Records instructions maintained by the Data Quality & Standards Program. Refer to the File Organization list below to arrange your files in the standard order. If your application file includes a Form 633 or other Excel file, separately save this document to the network drive and have it uploaded under the "File" index. Make sure that the PDF for the main application file includes the Excel File Placeholder, alerting viewers to the fact that the Excel file exists and is associated with the application.
   a. As with all files you are transferring for Records to upload, pay close attention to the file naming conventions.
   b. If your application was received on or after Jan. 1, 2024, then you have already been compiling the PDF for the purposes of uploading the pending application to our website (see the Pending Application Website Posting section of this document). You should only need to add a few final documents to the PDF before it is ready to be uploaded.
   c. If your application was received on or after Jan. 1, 2024, then you may need to scan the entire application file at this point.
   d. As with scanning other types of applications, it is the responsibility of the regional office to ensure their compiled PDF is accurate, complete, and of good viewable quality. The Records Unit will not review the PDF for scanning quality. At least one other person in the regional office should review the final PDF for quality assurance purposes before you transfer it to the network drive to be uploaded.
6. If the application did not receive valid objections and you don't need to transfer it to the Hearings Unit, you can recycle any physical files for the application once you confirm the file is uploaded and is accurate on FileNet.
7. If the application received valid objections and you need to transfer the application to the Hearings Unit, compile the PDF and have it uploaded to FileNet (along with the separate Excel file(s), if necessary). Once you confirm the file is uploaded and accurate on FileNet, send an email to Jamie Price alerting her that this file is available, and you are transferring it to her. Retain any physical parts of the file in the regional office until the hearings process is complete. Note that any documentation from the Hearings process will be separately uploaded to FileNet by the Hearings Unit and will be categorized under the "Hearings" index.

Note: *If your Application required a letter from the Sage Grouse Habitat Conservation Program, notify the program of the issuance of the change by emailing Therese Hartman (SGHP Program Manager) @ thartman@mt.gov.*

File Organization and Documentation

File Organization

Please keep in mind that you can review and organize files (applications and materials) in whatever manner you like while you are working on them. It may be the case that some of the files associated with the application will start as digital files that do not need to be printed. In this case, you may be compiling both physical and digital files associated with the application. Having an effective organizational method to track the various documents is essential.

All files should ultimately be organized in the same manner to aid in consistency. When the public or Department staff is looking at the scanned documents it helps to have things organized in a consistent manner such that content is located where you would expect it to be located and in a logical order. Organization should not be changing from one scanned document to the next. The standard file order for a permit or change application is listed below. Follow this order as best you can, using your judgment to place non-standard files in an order that makes sense. Note that this order is consistent with and builds on the order from the Pending Application Website Posting section of this document.

File Order

- Permit or Change Authorization
- Final Order adopting the PD
- Public Notice for Objections package (including objections received, any associated deficiency correspondence, PN affidavit & tear sheet)
- Public Notice for Objections map & notice list
- PD (non-draft)
- PD cover letter
- Public Comment package (notice report and files)
- Public Notice for Public Comment map & notice list
- Updated Draft PD (if applicable)
- Updated Draft PD cover letter (if applicable)
- Additional information submitted by applicant following issuance of Draft PD (if applicable)
- Draft PD
- Draft PD cover letter
- Environmental Assessment
- Correct & complete determination letter
- Deficiency letter response & any attachments (if applicable)
- Deficiency letter (if applicable)
- Application as filed
- Technical analyses (if applicable at this stage)
- Preapplication Meeting Form and attachments (if applicable)
- Any other relevant materials or correspondence

Flags

File flags are used to divide application content for ease in file navigation. The standard permit & change application file flags for applications received after Jan. 1, 2024, is described below. Additional flags may be used at the processor's discretion to best organize the file. You can find all the flags that are available to be used on the ROCO (N:) drive.

- Excel File Placeholder
    - Add this document in the scanned application file as a placeholder in the location of excel files. (e.g., aquifer test data, list of legal demands, etc.)
- Preapplication Materials
    - Preapplication Meeting Request
    - Preapplication Meeting Form (Parts A & B)
    - All attachments
    - All correspondence prior to application receipt
- Variance Request
    - Variance Request Form
    - WSB Variance Justification
    - Approval or Denial of Request
- Technical Analyses/ Scientific Credibility Review
    - Departmental Technical Analysis or Scientific Credibility Review
    - Any correspondence related to the TA/SC (i.e., challenging/ appealing the TA/SC review, error resolution, etc.)
- Application Materials
    - Application form & all addenda & attachments
- Existing Rights
    - Abstracts of Supplemental, Associated, or "in Conjunction with" water rights
- Processing Materials
    - Work copies of any applicant-submitted information
    - Deficiency Letter
    - Deficiency response
    - Correct & complete determination
    - Any other correspondence with the applicant prior to completion of Draft PD
- Draft Preliminary Determinations
    - Draft PD
    - Draft PD cover letter
    - Updated Draft PD
    - Updated Draft PD cover letter
- Public Notice for Public Comment & Environmental Documents
    - Environmental Assessment & supporting documents
    - Public Notice for Public Comment Package
        - Notice Area Map
        - Notice Area List
        - Public Comment Letter to Applicant
        - Public Comment Letter to Editor
        - Public Comment Certificate of Service
        - Public Comment Invoice & tear sheet
        - Public Comment return mail
        - Public Comment files and associated documents
- PD (non-draft) Flag
    - PD
    - PD cover letter
- Public Notice for Objections Flag
    - Public Notice for Objections Package
        - Notice Area Map

        - Notice Area List
        - Public Notice for Objections letter to applicant
        - Public Notice for Objections letter to editor
        - Public Notice for Objections certificate of service
        - Public Notice for Objections invoice and tear sheet
        - Public Notice for Objections return mail
        - Objection files and associated documents
- Hearings (if applicable)
- Authorization
    - Permit or change authorization
    - Final Adoption

Files as Legal Documentation

Water rights files are legal documents. Maintaining water right files in good order includes documenting every substantive communication or reason for a change in the file. A good rule of thumb is to imagine that you are on the witness stand in five years regarding this water right file – what information would you need to defend all the actions taken with regards to the water right file? If you have a stellar memory, imagine your successor on the witness stand having to defend every action the Department (you) took with regards to the file. Imagine a coworker will have to review this file in the future due to a filed change application – you want your coworker to know exactly what went on with the water right file (and to be thinking complimentary thoughts of you while reviewing your work!). Erring on the side of caution and documenting when in doubt is good practice.

Some ways to document different file actions are explained. For form/document changes, make a copy of the form, clearly stamping "WORK COPY" on the form. On this clearly noted copy, make any changes and document why you are making those changes. Always initial and date the noted changes on this work copy as others may work on this file after you. An example might be a purpose clarification you received on a phone call; note the date, time, name of person, along with the purpose clarification information. If you are adding paper to the file, make sure to document that DNRC added that information to the file. If something comes in later from an applicant, make sure a date received stamp is on the submission, indicating that the document was received after the original form.

If you are having a meeting or an extended conversation with a party to the permit application, consider using a memo format to document what was said during the meeting. You might consider multiple forms of documentation, if, for example, the meeting resulted in form changes. One could have a memo documenting all the content in the meeting along with a work copy of a form noting a clarification or change resulting from that meeting.

Any substantive email or letter correspondence needs to be copied to the file. One can easily forget to include emails in water rights files, so attempt to include them right away upon receipt or after a thread exchange is completed. DNRC also has some templates for documenting multiple phone contacts (created for the complaint process) that one could use if applicable in other water right situations.

In larger water right files, one can consider creating a custom file flag for unique situations. If you have a special circumstance where file organization might benefit from a customized section, consider creating a custom flag to represent material that doesn't fit the typical flagged sections.

Purpose Specific Considerations

Domestic

ARM 36.12.115(2) identifies the standard for domestic use at 1 AF per household. This value is used as a maximum value in issuing a Certificate of Water Right and can be used to calculate the volume of a Provisional Permit. More precise, (and typically lower), values for domestic use can be found in Montana DEQ Circular #3 (Standards for Small Water Systems) and the Planning Guide for Water Use (DNRC Water Calculation Guide, Formerly Form 615). The Department should default to the DNRC standard unless otherwise requested by the applicant. If the applicant wishes to use a value differing from the DNRC standard, they must provide extra information and explain why it is appropriate.

If more than one household is identified on the application, the purpose is identified as Multiple Domestic. Multiple Domestic rights are typically subdivisions where the water right is held by a homeowners' association. A Multiple Domestic water right has the same water use standards as Domestic rights, (i.e., 1 AF per household). **If there are greater than 15 service connections the application must be for a minimum of two wells, as a redundant well is required**. See ARM, Title 75, Chapter 6 (Environmental Protection, Public Water Supplies, Distribution, and Treatment).

Surface water and domestic use

DEQ Circular # 3 prohibits the use of surface water or groundwater under the direct influence of surface water to be used as a water source for a non-public water system (All ARM 17.36 rules apply to sanitation in subdivision applications).

DEQ defaults all new subdivisions of land to groundwater for potable water use. For new permit applications that are requesting surface water for domestic use for individual or shared systems, it's strongly suggested for the applicant to provide documentation establishing that they already have DEQ approval to do so (this may be documented in the Certificate of Subdivision Approval (COSA) for the subdivision, if the COSA was issued by DEQ before their current regulations went into place), as it is the Department's understanding that DEQ will not allow new COSAs for surface water for in-house domestic use on individual or shared systems. For PWS systems (as opposed to individual or shared systems), it may be possible to get a new COSA for surface water for in-house domestic use, but these are very uncommon due to them being very cost prohibitive (consistent chlorination, etc.).

COSAs are generally authorized by DEQ after a permit for the place of use has been issued — so to avoid circular reasoning, the Department will not require a COSA at the time of Permit Application receipt. However, if an existing COSA states that potable water cannot be from a surface source, you will need to **deny** the application (though hopefully this is addressed prior to the PD stage, in either a preapplication meeting or deficiency letter).

It's best practice to ensure that the applicant is aware of other agencies' sanitation and subdivision rules, though the Department does not have the authority to enforce said regulations.

Helpful References:

ARM 36.12.115
Montana DEQ Circular – DEQ 3 (Standards for Small Water Systems)
Montana DEQ Circular – PWS 5 (Ground Water Under the Direct Influence of Surface Water Evaluation)

DNRC Water Calculation Guide (formerly Form 615)
Title 75, Chapter 6 MCA – Public Water Supply

Fishery

See the Fish & Wildlife memo in the memos section.

Fire Protection

Water for temporary emergency fire protection does not require a water right from DNRC. If water is to be stored for fire protection and the storage impoundment exceeds 0.1 AF (the place of storage definition, ARM 36.12.113), a water right may be required. Generally speaking, if evaporation is expected to occur from the storage reservoir, a water right is required. If any water appropriated for fire protection is to be used for activities other than emergency firefighting (such as practice firefighting or washing equipment), a water right is required.

Montana Code Annotated Reference: § 85-2-113(3) The Department shall adopt rules providing for and governing temporary emergency appropriations, *without prior application for a permit*, necessary to protect lives or property.

Administrative Rules of Montana Reference: 36.12.105 Temporary Emergency Appropriations
(1) A person may use water for a temporary emergency appropriation necessary to protect lives or property without prior approval from the department, but the appropriation must cease immediately when the water is no longer required to meet the emergency.
…
(3) A temporary emergency appropriation does not include the use of water for the ordinary operation and maintenance of any trade or business.

Beneficial Use for actual firefighting is typically difficult if not impossible to quantify. Generally speaking, the volume required is that of the storage capacity plus evaporation and any additional water used for non-emergency use.

*Special Note: The Form 647 is available for governmental fire agencies to record a water right for emergency fire protection, emergency fire training, and/or emergency fire-related operations (must be via well or enclosed storage). See the form and form guidance for specific information.

Geothermal

Applications for water use for open loop Geothermal Cooling and Heating can be filed on three different forms depending on the amount of water required for the specific system. Whichever form is used, both a flow rate and a volume must be coded on the individual water right.

- Form 602 - For systems where the combined water use for all listed purposes is less than 35 GPM and 10 AF
    - 6.2 GPM year-round use = 10 AF
- Form 646 – For systems where the flow rate is less than 350 GPM
- Form 600 – For systems where the flow rate is greater than 350 GPM

Geothermal heating and cooling systems are either closed or open loop systems. A closed loop system works by digging a series of holes in the ground and running pipes filled with water and antifreeze in them. The water and antifreeze are then circulated in and out of the house in a closed system. Even a closed system requires a

water right assuming the water is being diverted and not coming from an existing community system. An open loop geothermal system requires a water right.

Open loop geothermal appropriations of up to 350 GPM are potentially exempt from the permitting process if they meet all the requirements of § 85-2-306(3)(ii), MCA and can be completed on Form 646. See Form 646 for more details. If the pumping rate exceeds 350 GPM (or for flow rates below 350 which do not fit the requirements of a 646) a permit is required for the extraction well.

Open loop geothermal systems are nonconsumptive in nature. Special consideration must be given to the location and depth of the extraction vs. injection well. Is the water injected into the same aquifer from which it is extracted? Even though the use is nonconsumptive over the long haul, a neighboring well could be adversely affected if the cone of depression of the extraction well has more a more pronounced effect on another well than the mounding created by the injection well (i.e. the injection well is much deeper than extraction or injection well is located much further away from the extraction well than the neighboring adversely affected well is located). It is possible that extraction can cause a reduction in nearby streamflow that the injection will not offset completely; therefore, adverse effect will need to be addressed on that surface source. This information and more should be identified in the WSB report.

Hydropower

Hydropower permits can be consumptive or nonconsumptive and may or may not include storage. A Hydropower project which does not have a diversion and does not include storage is referred to as “run of the river”.

FERC Licensing (Federal Energy Regulatory Commission)

Hydropower projects almost always involve a FERC license or exception. The State of Montana cannot require a State based water right for a FERC hydropower project or exception, though Montana and/or the appropriator can protect existing water rights. Hydropower is a beneficial use under 85-2-102(4)(a) MCA, and thus a hydropower project may get a state-based water right in order to protect the amount of water required for the project.

Micro Hydro

Micro hydro is a catch-all term for small scale hydropower. Presently it is not treated any differently than other hydropower under Montana Law, but it demands certain considerations because of its small size.

- For a permit, micro hydro proceeds as any other permit. Remember, adverse effect of a nonconsumptive use is usually a result of a change in the timing of flows. If a use is truly nonconsumptive then adverse effect must be limited to the effects of the diversion required by the micro-hydro. Not all micro-hydro systems are nonconsumptive. Some systems may require small storage reservoirs (which may or may not be enclosed). If there is an open reservoir, evaporative losses must be calculated as with any other consumptive water right.

Nonconsumptive Hydropower

Nonconsumptive use means a beneficial use of water that does not cause a reduction in the source of supply and in which substantially all of the water returns without delay to the source of supply, causing little or no disruption in stream conditions (85-2-102(19), MCA). Typical Micro Hydro systems, or “run of the river” systems, oftentimes qualify as nonconsumptive as do permits conditioned on operation in accordance with the preexisting water right. Conversely, any hydro with an impoundment or non-enclosed diversion works probably does not fit within the definition of a nonconsumptive use. Pipeline diversions have been accepted if

it can be shown that there is no adverse effect and water is legally available between POD and the discharge point.

Nonconsumptive Hydropower Use and Basin Closures

Some basin closures have a nonconsumptive exclusion for hydropower while others do not. Listed below are the basin closure exceptions for hydropower found in the Montana MCA:

- Bitterroot River Basin Closure has NO exception for nonconsumptive use MCA 85-2-344 MCA
- Upper Clark Fork River Basin Closure, there is no nonconsumptive exclusion in the upper Clark Fork Closure. However, one may expand existing hydropower projects if consumption is not increased. 85-2-336(2)(f) *MCA*.
- Jefferson River, Madison River Basin Closures, nonconsumptive new permits are OK. 85-2-341 MCA.
- Teton River Basin Closure, nonconsumptive new permits are OK. 85-2-330(b) MCA.
- Upper Missouri River Closure, nonconsumptive new permits are OK. 85-2-343 MCA.

What to do in a Closed Basin?

If there is an exception for nonconsumptive use, then a new permit is the most logical option for run of the river hydropower. If it is piggybacked on an existing use (say the diversion for an irrigation right) then remember that the new permit must be conditioned upon the operating conditions of the existing water right to fit the definition of nonconsumptive and to avoid adverse effect.

If there is no exception for nonconsumptive use or a new permit will create adverse effect the appropriator must rely on a change.

Industrial

The Department typically considers industrial purposes on a case-by-case basis. Ultimately, it must be shown that the amount of water necessary for the industrial use is necessary to accomplish the beneficial use.

Mining

In determining whether a mining activity requires a water right, remember that the key is whether the mining diverts or consumptively uses water, not necessarily what the miner does with that water.
Most commercial placer mining and technologically advanced recreational mining relies on the diversion and withdrawal of water. Diversion for nonconsumptive uses still requires a water right. There is no de minimis exception in Montana water law; some of the oldest water rights in Montana are very small water rights associated with placer mining. In fact, the flow rate for one Montana mining water right dating back to 1874 is for 1.85 GPM, and there are hundreds of Montana mining water rights with flow rates less than 1 CFS.

Gold Panning

Gold panning extracts gold by mixing water with gravels and separating the water and gravel from the gold. Panning is typically done while standing in or at the edge of the water. Essentially the miner is dipping up water and sloshing it in the creek, the water is not diverted or withdrawn, rather the pan is typically partially submerged during the panning process. Gold panning does not require a water right.

Sluicing

Sluicing is the use of a "sluice box" in a creek to separate gold from gravels? A sluice box is a metal, wood, or plastic channel that has "riffles" and other devices in it to catch gold. The sluice box is placed in the water with the entrance of the box upstream, so water flows through the box. Gravels are shoveled into the top of the box where water enters. Sluice boxes in their traditional form are placed in the creek channel and use the natural

flow of the creek to wash gravel. It follows that there is no diversion of water in using a sluice box in the creek, and no water right would be required.

Dredging

Dredging is the use of a suction dredge to "vacuum" gravels off the bottom of a creek. A dredge is the combination of a pump and a sluice box either placed on the creek bank or mounted on floats. An engine-pump combination is either mounted on the floats with the sluice box or placed on the shore. High pressure water from the pump travels through a hose creating suction in a vacuum hose, and the suction developed is sufficient to suck up gravels. The gravel and water travel through the suction hose up to a sluice box. Unlike the traditional use of a sluice box, the water from a suction dredge is physically pumped from the bottom of the stream through a hose and into the sluice box. Thus, the suction dredge is by its very nature a diversionary device, pumping water from the stream into a sluice box. If the sluice box is placed in the river channel, then although the water in the suction dredge discharge hose has been redirected, it has not been diverted from the stream itself, and operation of a suction dredge would not require a water right. If the dredge discharge hose leads to a sluice box on the bank or otherwise placed outside of the actual river channel, then the dredging is a diversion, and would require a water right.

High-Banker

A high-banker is a sluice box with a hopper mounted on one end into which the miner shovels gravel? A pump draws water from the stream into the sluice box and washes the ore, discharging washed gravel and water at the end of the sluice. High banking is also called “power sluicing” because it imitates the action of stream water in the sluice but enables the miner to work more efficiently by diverting operations to the stream bank or other work site. The high-banker withdraws and diverts water out of the stream by its very nature, and thus requires a water right.

Marketing

The Marketing purpose is used any time water is offered for sale to end users that are not the applicant. There are a few exceptions to this, including municipal use and marketing for mitigation use (see respective sections for information on those purposes). In the past, the marketing purpose was sometimes identified as “sale,” and may appear that way on a Statement of Claim.

There are special statutory requirements for all marketing applications. Per § 85-2-310(8)(c)(v)(D), MCA, marketing applications require the submission of contracts to prove a bona fide intent to perfect the water right. Without contractual agreements, the use is considered speculative. **DNRC requires firm contractual agreements for all the water that is to be marketed, except for marketing for mitigation.** You will need to get these contracts prior to being able to deem an application correct and complete.

The water should be for use in Montana only, unless the applicant has addressed the out of state criteria in the application (§ 85-2-311(4) MCA).

If the water is intended for a water depot, then access to the depot facility should be controlled so only people with valid purchase contracts may obtain water. Conditions regarding these issues may be added to the water right if deemed necessary.

There are special Conclusions of Law for water marketing PDs; see the PD templates and consult Central Office for more information.

For database coding purposes, the place of use is the point of sale. The service area is the location where the water is to be used. Possessory Interest must be proven regarding the point of sale/place of use, not the service area. Enter a place of use information remark listing the service area for record keeping. Depending upon the nature of the marketing situation, the service area may be a specific section or as large as several counties.

A CD may apply for a water marketing permit. If the CD chooses to apply for water marketing instead of irrigation, the CD must meet the same requirements as any other applicant with respect to marketing. Additionally, if they are using their water reservation, a change of purpose is required and this change must meet the requirements of § 85-2-316, MCA.

A note on Extensions & Project Completion for Marketing:

Prior to the Atlantis District Court decision dated Aug. 1, 2016, water marketing applications were permitted based on letters of intent to contract at least 50% of the requested volume rather than firm contracts. Following the Atlantis decision, firm contracts were required for the entire requested volume before an application could be considered correct and complete.

Extension

To receive an extension for a project completion deadline, the facility must be built, and water use measurements must be provided, regardless of when the permit was issued.

For permits issued prior to the Atlantis Decision, copies of all contracts must be submitted. The contracts must identify the maximum volume of water being purchased. The combined total volume of all contracts must be equal to or greater than 50% of the permitted volume to show diligence. Maximum yearly measurement records can be less than 50% of the permitted volume. No credit towards completion will be given for diverted water in which no contract is provided. To control speculation only one extension will be granted, and the extension period cannot exceed 5 years. If copies of contracts are already in the file from a previous progress report for the maximum year, they do not have to be submitted again.

If the Permittee files for an extension and later finds out they must file a Project Completion Notice, the filing fee for the Extension will be refunded.

Project Completion Notice

For permits that were received prior to the Atlantis Decision, measurement records and contracts are needed because letters of intent to purchase water were accepted at the application stage. For permits received after the Atlantis Decision, only measurement records are needed because contracts were required at the application stage and are in the file.

Mitigation/Aquifer Recharge

Groundwater permit applications in closed basins need to include a mitigation plan (not a purpose of mitigation; see the Change manual for more common scenarios in which water rights would be changed to have a mitigation purpose) pursuant to § 85-2-360, to prove no adverse effect to existing water rights in the basin.

It is rare but possible for a permit application to come in applying for the purpose of mitigation or aquifer recharge. This will likely be limited to situations in which a basin closure is in place but there is an exception to the closure for high spring flows. A permit for mitigation or aquifer recharge in this situation will be paired with either a permit for groundwater which is depleting a surface water source outside of the high spring flow or

potentially a change application which may need to be mitigated and storage of the high spring flows is used for mitigation.

The Permit needing this mitigation water also needs a condition remark that identifies the Permit providing mitigation, and that the operation of the mitigation plan (second Permit) is necessary for the first Permit (needing the mitigation plan) to operate.

Municipal

Municipal use refers to water appropriated by and provided for those in and around a municipality or an unincorporated town. Municipal use water rights can be held by municipalities, unincorporated cities and towns, water and sewer districts, or other entities. The municipal purpose should not be used by individuals, regardless of the number of purposes on a water right. For example, a rancher should not have a municipal water right even though he/she may have a water right for domestic, lawn & garden, stock, and irrigation. Those purposes should be individually identified on the water right.

The municipal purpose may be used any time an entity owns a water right for multiple purposes which could be construed as municipal in nature. Typically, municipal rights have domestic, lawn & garden, and commercial/institutional/industrial purposes but could include any other purposes such as water marketing, irrigation, stock, mining, etc.

Entity-Specific Considerations

Municipalities

A municipality designation is different from simply using water for a municipal beneficial use. "Municipality" means an incorporated city or town organized and incorporated under Title 7, Chapter 2 of MCA. Additionally, the Department considers unincorporated towns as a municipality outside of a closed basin. Municipalities may own any type of water right used for any purpose (i.e., a municipality may own water rights for purposes other than municipal). A municipality or other entity may own a water right for a municipal purpose which can essentially be used for anything. If the municipality owns water rights for specific purposes, those water rights may only be used for the purposes identified.

Municipalities must own water rights in the same fashion as an individual to legally appropriate water. A municipality may not exceed any element of its water rights at any time, regardless of boundary changes, population growth, etc.

Notes:

- If the municipality would like to reuse wastewater, the applicant will submit a copy of the DEQ application and DNRC will evaluate the proposal to see if a new permit would be required. If the reuse is part of treatment, a new permit will not be required; however, if treatment of the water has concluded and it is going to be once again beneficially used rather than discharged, a new permit would likely be required. See the HB 52 Summary Discussion memo for more detail.
- If a municipality owns an older water right for a diverted volume and DEQ mandates a change in effluent treatment that requires more consumption, a new permit is not required.

Water & Sewer Districts

Water and Sewer Districts—which comes first: permit or boundary expansion?

Water and Sewer Districts are unique and are not considered municipalities. They are governed under MCA Title 7; Chapter 13 and each district has a unique set of articles of incorporation which further dictates how the

body must operate. That said, to address the possessory interest criterion in a change application, water and sewer districts need to have the proposed place of use included within the district boundaries. Upon perfection of the change, it must be shown that the water and sewer district is utilizing the water in the proposed place of use. This could be accomplished by providing proof of hookups or providing contracts with users within the place of use.

Homeowners Associations

Homeowners Associations (HOAs) need to be registered with the Secretary of State (SOS) to be able to complete a water right application. All business entities must be filed with the SOS to exist as a legal entity and transact business. Therefore, a HOA that has not properly formed under the laws of Montana is not a legal entity. DNRC can't transact business with any business entity that is not in good standing with SOS because any signature is suspect and likely invalid. The Board of directors, its officers and its existence must all be in good standing to function as an entity. You can relate this concept with issuing a 602 to a dead person.

Subdivisions & Municipal Use

Multiple domestic use means a domestic use by more than one household or dwelling characterized by long-term occupancy as opposed to guests. Examples include domestic use by:

- colonies
- condominiums
- townhouses
- subdivisions

Multiple Domestic or Municipal Use - Typically a subdivision with a common water supply has a Multiple Domestic Use. A Municipal use for a subdivision is appropriate when there may be three or more uses such as domestic, irrigation, and commercial use on the water system.

Phasing – Many subdivisions are phased, meaning the entire area is planned out but not platted. This allows the developer to use the proceeds from each phase to finance the infrastructure needed for only that portion of the subdivision. As each phase is built and perfected, the Developer applies for a new separate water right, with a flow rate, volume, and POU appropriate to that buildout. When the subdivision is finished the water can be comingled and can be used on any lot in any phase if all phases are covered under at least one water right.

Stock

ARM 36.12.115 identifies a standard diverted and consumed volume for stock use at **15 gallons per day, or .017 AF per year, per animal unit**. Note that stock use is considered 100% consumptive and thus consumptive volume equals diverted volume. Animal units are defined in ARM 36.12.101 and in the DNRC Water Calculation Guide (formerly Form 615). It is important to note that Statements of Claim were issued based on 30 gallons per day per animal unit, twice the volume used in the permit process. (New appropriations of water are calculated using the 15 GPD use rate- see the Change Manual for more information).

Stock Tanks

If the place of use for the stock purpose on a water right includes more than one stock tank within the same legal land description (e.g., three stock tanks within the NENENE), you can list one place of use with that legal land description and include a PL (place of use) remark explaining that there are three stock tanks within the NENENE. You can use one PL remark to explain the distribution of all stock tanks among all the places of use. For example, if there are seven total tanks, four within one legal land description and three within a second legal land description, you can list two places of use, and then add one PL remark explaining the number of stock tanks within each place of use.

Ponds and Reservoirs

The application process for on-stream stock water pit or reservoir that retains 15 AF or less of water from a non-perennial source can be done using a Form 605 with a fraction of the detail required for a permit and a lesser cost.* **All other stock reservoirs require a standard permit.

If a permit application is submitted for a storage reservoir/pond which has a 605 permit already issued for it, the applicant will have to withdraw the 605 before the permit can be issued. If they wish to keep stock use of the pond, the volume required for the stock use can be included as part of the requested volume of the permit. The reason the 605 needs to be withdrawn is that 605 permits are an exception to the permitting process which are for stock use only and they are issued for the capacity of the reservoir/pond multiplied by the number of annual fills of the reservoir/pond. This completely ties up the use of the reservoir/pond for stock use only and the only way to make water available again for appropriation at the reservoir/pond is to withdraw the existing right tying up all the water.

Under § 85-2-312, MCA, the DNRC may issue a permit only for the amount of water that can be beneficially used without waste for the purpose(s) stated in the application. The requested volume will include the amount consumed by stock plus evaporative losses. Evaporation is calculated per the Department's Technical Memorandum: Pond and Wetland Evaporation/Evapotranspiration, dated Jun. 7, 2023. Evaporation from a pond/reservoir is always considered consumptive.

If the appropriation is for a reservoir where the impounded volume exceeds the volume that can be put to a beneficial use an allowance for carryover water can be incorporated into the beneficial use. Guidelines for the extent of this carryover volume do not currently exist. If the application requests a volume that far exceeds the reservoir volume, then the decision should be to deny absent of further justification from the applicant.

Additional Considerations if ponds are involved:

- Hazard Classification – To build a new dam or alter an existing dam, (either of which an impoundment capacity of 50 AF or more), you must apply to the DNRC Dam Safety Program for a hazard classification.
- Drainage Device – Where it is likely that senior water rights will be affected, the ability to drain the reservoir is necessary.
- Existing water rights – Check for existing rights on the subject reservoir. Do the numbers match? Was the dam verified?

Helpful References:

Technical Memorandum: Pond and Wetland Evaporation/Evapotranspiration
USDA Field Manual, Chapter 11 Ponds and Reservoirs

Appendices

Standard Application Events List

Pre- HB 114	Post- HB 114	Event Name	Response Due Days	Notes
PAMH	PAMH	PREAPPLICATION MEETING HELD	180	The database automatically adds this event when you create a 600P or 606P.
	PMFR	PREAPPLICATION MEETING FORM RECEIVED		Enter this event for the date you receive the completed preapplication meeting form from the applicant. Staff should also manually enter the PMF acceptance or rejection deadline (5 business days after PMF receipt) into the "response due" section.
	PMFA	PREAPPLICATION MEETING FORM ACCEPTED	45	Enter this event for the date you determined the preapplication meeting form is adequate for technical analyses. Staff should also manually enter the Technical Analyses Report/ Scientific Credibility Review deadline (45 days after PMF acceptance) into the "response due" section.
	PMFX	PREAPPLICATION MEETING FORM RETURNED		Enter this event if you return the preapplication meeting form to the applicant. When you add this event, delete the Preapplication Meeting Form Received event, and leave a comment with this 'Returned' event noting the original date the form was received.
CWSB	CWSB	CHECKLIST SUBMITTED TO WSB		Enter this event for the date you send the checklist to WSB (to be used whether or not a preapplication meeting occurs).
	TARW	TECHNICAL ANALYSES RECEIVED FROM WSB		Enter this event for the date you receive the technical analyses from WSB (to be used whether or not a preapplication meeting occurs).
	TASA	TECHNICAL ANALYSES SENT TO APPLICANT		Enter this event for the date you send the technical analyses to the applicant (to be used whether or not a preapplication meeting occurs. If no preapplication meeting occurs, send the technical analyses to applicant with draft PD.)
	SCRS	SCIENTIFIC CREDIBILITY REVIEW SENT TO APPLICANT		Enter this event for the date you send the scientific credibility review to the applicant (to be used whether or not a preapplication meeting occurs. If no preapplication meeting occurs, send the credibility review to applicant with draft PD.)
PAME	PAME	PREAPPLICATION MEETING EXPIRED		The database will automatically add this event if either of the following occurs: -The preapplication meeting was held 180+ days ago AND the preapplication meeting form has not been received. -A preapplication meeting was held AND the technical analyses or scientific credibility review were sent to the applicant 180+ days ago AND the application form has not been received.
	TDOR	TERMINATED / DENIED / REVOKED / EXPIRED		Enter this event if the applicant withdraws their preapplication meeting form (decides to not continue the preapplication process).
FRMR	FRMR	FORM RECEIVED		The database will automatically add this event when you change the application type from 600P to 600 or 606P to 606 OR when you create a 600 or 606 (if no preapplication meeting occurred).

	MNEP	MOVED TO NON-EXPEDITED PATHWAY		Add this event if a preapplication meeting was held, but the Department has moved the application to the non-expedited timeline, for example if the application was received and is different from the preapplication meeting form (ARM 36.12.1302(6)(a)), or if an amendment is received that causes the Department to update its technical analyses (ARM 36.12.1401(3)(b)).
HB40	HB40	POSTED TO WEBSITE		CO will add this event when they post the Notice of Receipt online.
HYDR		SENT TO DEPARTMENT HYDROGEOLOGIST/HYDROLOGIST		No longer use this event for permit and change applications, use the CHECKLIST SUBMITTED TO WSB event instead.
DELS	DELS	DEFICIENCY LETTER SENT (FIRST)		Enter this event for the date you send a deficiency letter.
DEFR	DEFR	DEFICIENCY RESPONSE RECEIVED		Enter this event for the date a response to your deficiency letter is received.
VRRR	VRRR	VARIANCE REQUEST RECEIVED		Enter this event for the date a variance request (Form 653) is received.
ACAC	ACAC	APPLICATION DEEMED CORRECT & COMPLETE		Enter this event for the date an application is correct and complete.
TDOR	TDOR	TERMINATED / DENIED / REVOKED / EXPIRED		Enter this event for the date an application is terminated, revoked, or expires.
WTIM		WAIVER OF TIMELINE FORM RECEIVED		The option to waive timelines no longer exists for applications received on or after Jan. 1, 2024.
PDRE	PDRE	PD SENT TO CO FOR REVIEW		Enter this event for the date you send your PD (or draft PD for post-HB 114 applications) to CO for review.
PDRR	PDRR	PD RETURNED TO RO AFTER REVIEW		CO will enter this event when they return the PD (or draft PD for post-HB 114 applications) to you after their review.
AME1		AMENDMENT TO APPLICATION RECEIVED (MINOR)		The option for a minor amendment exists only for pre-HB 114 applications.
AME2	AME2	AMENDMENT TO APPLICATION RECEIVED (PRIORITY DATE RESET)		Enter this event for the date an Application Amendment Form (Form 655) is received for a permit application IF the amendment changes the nature or scope of the application. This event changes the priority date on the water right but does not change the Form Received date for the application. When you add this event, also manually change the date on the Form Received event to be the date of amendment receipt. Leave a comment for the Form Received event with the original date the form was received. If an Application Amendment Form is received for a permit application but the amendment does NOT change the nature or scope of the application, instead use the event APPLICATION AMENDMENT FORM RECEIVED (TIMELINES RESET). Consider whether you also need to add the P114 or MNEP events.

	AME3	APPLICATION AMENDMENT FORM RECEIVED (TIMELINES RESET)		Enter this event for the date an Application Amendment Form (Form 655) is received for a permit or change application. If the amendment is for a permit application and the amendment also changes the nature or scope of the application, instead use the event AMENDMENT TO APPLICATION RECEIVED (PRIORITY DATE RESET). When you add this 'TIMELINES RESET' event, also manually change the date on the Form Received event to be the date of amendment receipt. Leave a comment for the Form Received event with the original date the form was received. Consider whether you also need to add the P114 or MNEP events.
	P114	PRE - HB 114 APPLICATION		Enter this event if the application was received prior to Jan. 1, 2024 and an amendment on the application is received after Jan. 1, 2024. Adding this event will document that the application should be treated as a pre-HB 114 application, even though the Form Received event date is now after Jan. 1, 2024 (because you changed it when the amendment was received).
	DPDA	DRAFT PD TO GRANT SENT TO APPLICANT		Enter this event for the date you send a Draft PD to Grant to the applicant.
DPDG	DPDG	DRAFT PD TO GRANT WITH MODIFICATIONS SENT TO APPLICANT	-	Enter this event for the date you send a Draft PD to Grant with Modifications to the applicant.
DPDD	DPDD	DRAFT PD TO DENY SENT TO APPLICANT	-	Enter this event for the date you send a Draft PD to Deny to the applicant.
EACS	EACS	EA COMPLETED & EMAILED		Enter this event for the date your EA will be posted online.
EXTR	EXTR	EXTENSION REQUESTED AFTER DRAFT PD		Enter this event for the date an applicant requests an extension of time after you send them a Draft PD.
EXTY	EXTY	EXTENSION GRANTED AFTER DRAFT PD		Enter this event for the date you grant an applicant's request for an extension (after you sent them a Draft PD). This event is used with the EXDL event. The EXDL event date is the extension deadline.
EXDL	EXDL	EXTENSION DEADLINE		Enter this event when you grant an extension; enter the event date as the deadline you establish by which an applicant must submit additional information. This event is used with the EXTY event. The EXTY event date is used to track the date you granted the extension.
EXIR	EXIR	EXTENSION INFORMATION RECEIVED		Enter this event to document the Department has received written notice from the applicant that all additional information has been received during the granted extension period.
UDPD	UDPD	UPDATED DRAFT PD SENT TO APPLICANT AFTER EXTENSION		Enter this event for the date the Department sends an updated Draft PD to the applicant after considering new information received during the granted extension period.
	SFPC	PUBLIC NOTICE-SENT TO CO (PUBLIC COMMENT PERIOD)		Enter this event for the date you send public notice information to CO for the public comment period.
	PNCS	PUBLIC NOTICE SENT TO NEWSPAPER (PUBLIC COMMENT PERIOD)		CO will enter this event when they send public notice information to the newspaper for the public comment period.
	PCWV	PUBLIC NOTICE PUBLIC COMMENT PERIOD (PUBLISHED)	30	CO will enter this event to document the date the public notice for public comment will be published in the newspaper.
	PCDL	PUBLIC COMMENT DEADLINE		CO will enter this event to document the public comment deadline (30 days after the published date).

	PCRR	PUBLIC COMMENT RECEIVED		CO will enter this event if one or more public comments is received.
	PCIR	PUBLIC NOTICE COMMENT PERIOD INFO RETURNED TO RO		CO will enter this event when all public comments and associated public notice documentation (affidavit, tear sheet, invoice) have been sent to the RO. CO will digitally send comments to RO as they are received, this event will document when all comments and documentation have been physically sent to the RO at the end of the comment period.
PDGC	PDGC	PD TO GRANT COMPLETED		Enter this event for the date you send a PD to Grant (non-draft) to the applicant.
PDGM	PDGM	PD TO GRANT WITH MODIFICATIONS COMPLETED		Enter this event for the date you send a PD to Grant (non-draft) with Modifications to the applicant.
PDDC	PDDC	PD TO DENY COMPLETED		Enter this event for the date you send a PD to Deny (non-draft) to the applicant.
SFPN	SFPN	PUBLIC NOTICE-SENT TO CO (OBJECTION PERIOD)		Enter this event for the date you send public notice information to CO for the objection period.
PNSN	PNSN	PUBLIC NOTICE SENT TO NEWSPAPER (OBJECTION PERIOD)		CO will enter this event when they sent public notice information to the newspaper for the objection period.
OBDL	OBDL	OBJECTION DEADLINE		CO will enter this event to document the objection deadline (30 days after the published date).
PNWV	PNWV	PUBLIC NOTICE OBJECTION PERIOD (PUBLISHED)		CO will enter this event to document the date the public notice for objections will be published in the newspaper.
OBRR	OBRR	OBJECTION RECEIVED		CO will enter this event if one or more objections are received.
OBIV	OBIV	OBJECTION INVALID		CO will enter this event if objections were received but all are invalid.
OBRC	OBRC	PUBLIC NOTICE OBJECTION PERIOD INFO RETURNED TO RO		CO will enter this event when they mail the objection period public notice packet to the regional office.
ISSU	ISSU	ISSUED		Enter this event for the date you issue an application.
PDDA	PDDA	PD TO DENY ADOPTED		Enter this event for the date you adopt the PD.
PDGA	PDGA	PD TO GRANT ADOPTED		Enter this event for the date you adopt the PD (at same time as Issued event).
PDMA	PDMA	PD TO GRANT WITH MODIFICATIONS ADOPTED		Enter this event for the date you adopt the PD (at same time as Issued event).
PCND	PCND	PROJECT COMPLETION NOTICE DUE		Enter this event for the date the Project Completion Notice will be due (make sure you enter this event before you print the authorization so that the due date will appear on the document).
PCNR	PCNR	PROJECT COMPLETION NOTICE RECEIVED		Enter this event when the Project Completion Notice is received.

RACI Diagram: Permit & Change Application Processing

What's a RACI diagram?

The RACI diagram system is a management tool used to define roles & responsibilities within a process or project, labeling specific roles as being "responsible", "accountable", "consulted", or "informed" for a given task.

Letter	Word	Meaning
R	Responsible	The responsible person is the one who does the work to complete the task or create the deliverable. Every task should have at least one responsible person and could have several.
A	Accountable	The accountable person in the RACI equation delegates and reviews the work involved in a project. Their job is to make sure the responsible person or team knows the expectations of the project and completes work on time. Every task should have only one accountable person and no more. The accountable person needs to make sure timelines for the specific task are being met.
C	Consulted	Consulted people provide input and feedback on the work being done in a project. They have a stake in the outcomes of a project because it could affect their current or future work.
I	Informed	Informed folks need to be looped into the progress of a project but not consulted or overwhelmed with the details of every task. They need to know what's going on because it could affect their work, but they're not decision makers in the process.

Permit and Change RACI Diagram

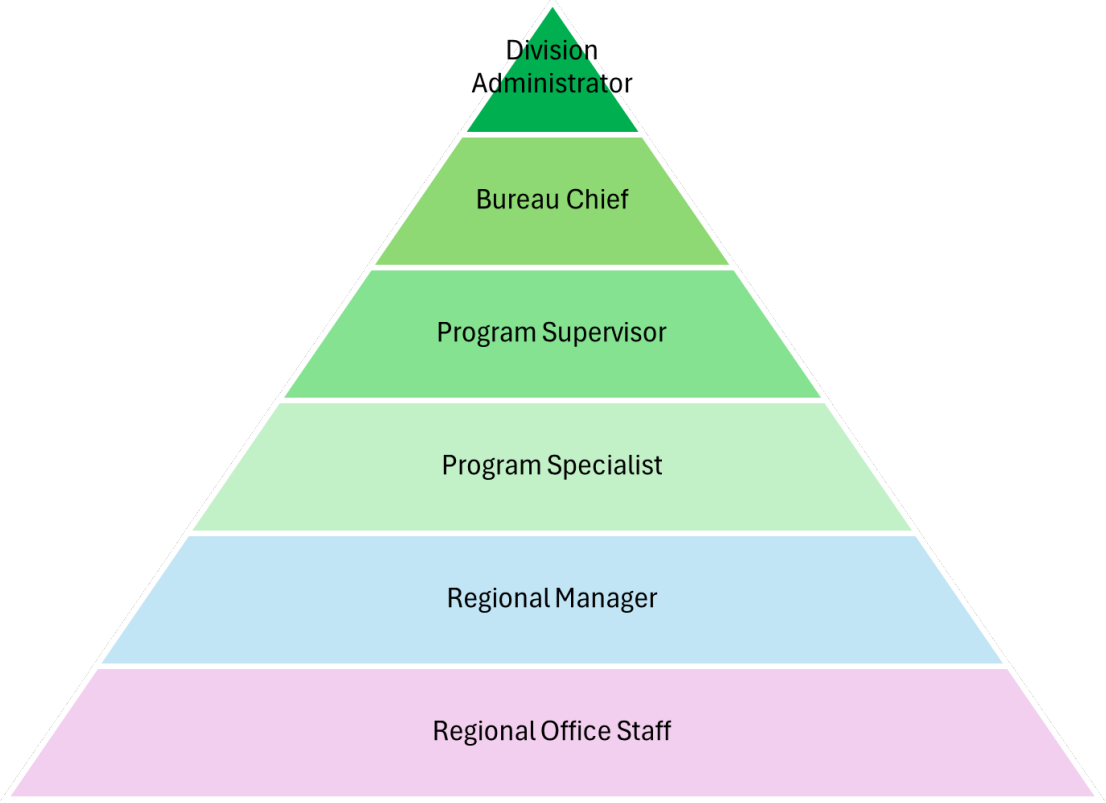
Process Section	Step in Process	Applicant	RO Specialist	RO Manager	NA Prog. Specialist	NA Prog. Sup.	Regional Operations Manager	WSB Hydrologist	WSB GW Sec. Sup.	CO CT	DQS Prog. Sup.	WRB BC	Notes
Scoping	Scoping Meeting	A	R	R	C			I					
Pre-application	Preapplication Meeting	A	R	R	C			R					
	Adequacy Review		R	A				R					
	RO Technical Analyses	I	R	A									Regional Manager accountable for Technical Analyses completed by RO
	WSB Technical Analyses	I	I	I				R	A				WSB GW Section Supervisor accountable for Technical Analyses completed by WSB
	Scientific Credibility Review	I	I	I				R	A				Scientific credibility review completed by RO specialist and/or WSB Hydrologist. Regional Manager track for ensuring scientific credibility review completed on time.
	Review of Tech Analyses & Scientific credibility review for consistency with Department standards			R			A						
Application received	Form Acceptance	I	R	A									Regional manager accountable for ensuring RO staff and WSB hydrologist know application has been received

Application received	Deficiency review	I	R	A	C (as requested by the RO)			C (as needed)					
	Deficiency letter	I	R	A	C (as requested by the RO)								
	Review of deficiency response		R	A	C (as requested by the RO)			C (as needed)					
	Correct & complete letter (includes scanning step)	I	R	A									
	Composing draft PD		R	A	C (as requested by the RO)								
	RO Review of Draft PD			R	C (as requested by the RO)		A						
	CO Review of Draft PD				R	A		C (as needed)				I (as needed)	
	Escalate PD review to Legal			I	I	R						A	NA program supervisor and WRB BC coordinate as needed
	Resolution of CO/RO decision document disagreement			R		R	A					A	Manager and Program Supervisor escalate to Regional Ops Manager and Bureau Chief for resolution. If still can't resolve, escalate to Div. Admin.
	Environmental Assessment		R	A									
	All materials scanned		R	A									
	Issuance/ mailing draft PD	I	R	A									
	Extension of time review (if applicable)		C	A, R									

Application received	Updated draft PD (if extension granted)	I	R	A	C								
	Database coding of application		R	A									
	Preparation of public notice list		R	A	C (as needed)								
Public comment period	Notice to CO that app ready for public comment		R	A						I			
	Issue public comment notice		I	I						R	A		
	Database entry/ scanning of public comment		I	I						R	A		
	Review/ evaluation of public comment		R	A	C								
	Preliminary Determination (based on public comment)		R	A	C								
Objection period	Notice to CO that app ready for objection period		R	A						I			
	Database entry/ scanning of objection									R	A		
	Review objection for validity											A, R	
	Send application to hearings unit (if valid objection)	I	I	I						R		A	
Issuance of Permit/ Change	Preliminary Determination Adoption	I	R	A									

Question Escalation

The pyramid below represents how procedure and policy questions should be answered for water right permitting. If an individual in one of the below-mentioned roles cannot answer the question with certainty, they escalate to the level above them.



Equation Resources

Orsborn's Equation

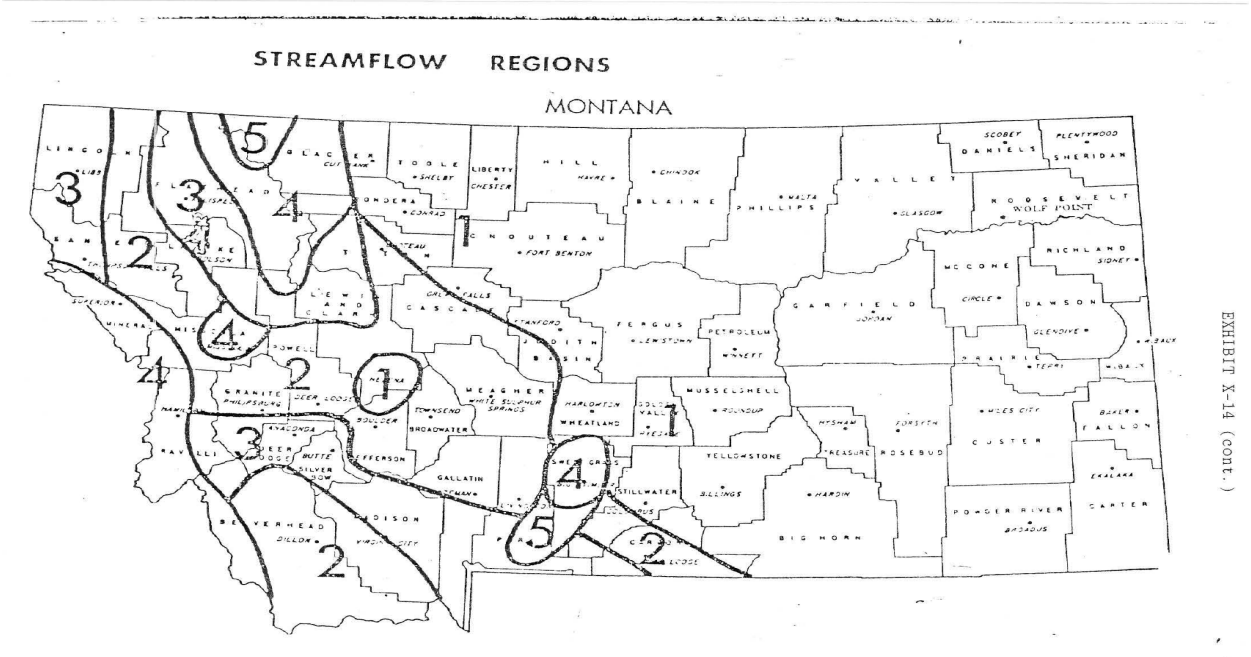


Figure 1: Streamflow Regions of Montana for Orsborn's Equation

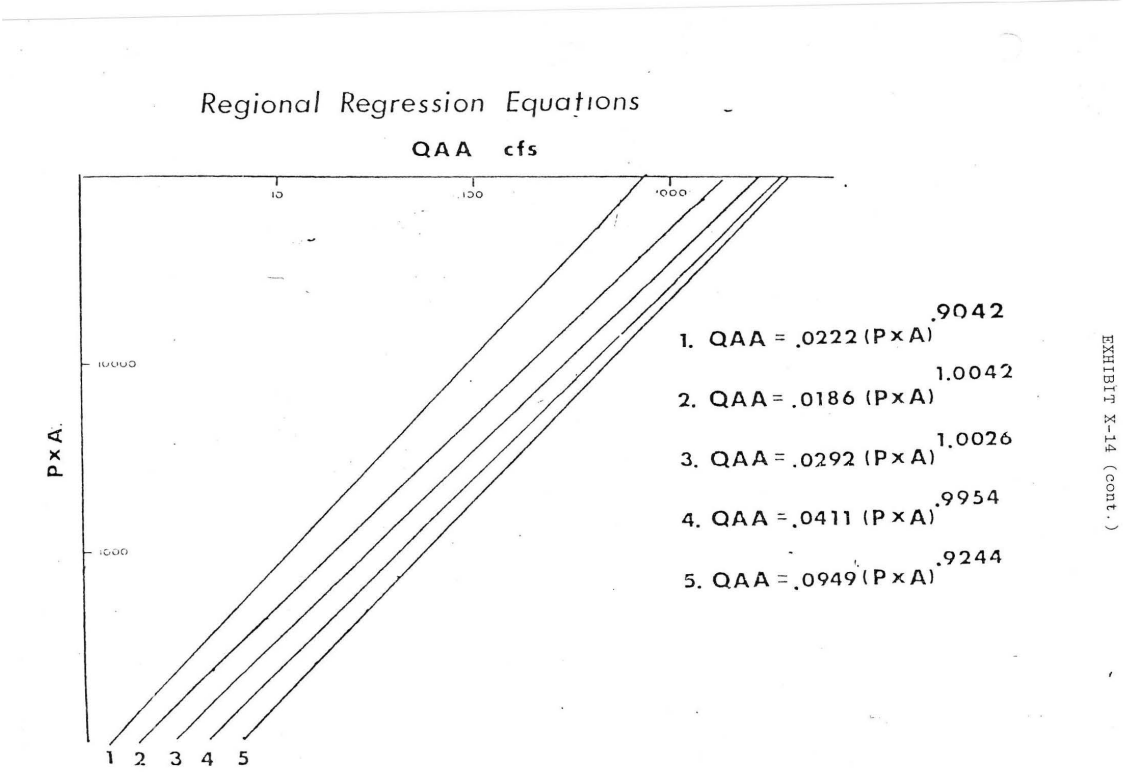


Figure 2: Regional Regression Equations

Memos & Policies

Note that all the Memos & Policies contained in this document can also be found in the ROCO folder in the folder named "MEMOS & POLICIES & OPINIONS".

Technical Memorandum: Physical Availability of Surface Water With Gage Data

Technical Memorandum: Physical Availability of Surface Water Without Gage Data

Technical Memorandum: Physical Availability of Ponds

Technical Memorandum: Pond and Wetland Evaporation/Evapotranspiration

Technical Memorandum: Numerical Groundwater Modeling Guidance

Technical Memorandum: Physical and Legal Availability of Ground Water

Technical Memorandum: Net Surface Water Depletion from Ground Water Pumping

Technical Memorandum: Surface Water Depletion for Regional Bedrock Aquifers

Consumptive Use Methodology – Turf Grass (New Projects)

Ditch Rights General Information

Dewatering and Wastewater Policy Memo

Infiltration Gallery Policy

Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities

Private Fish & Wildlife Appropriations under the Montana Water Use Act

HB52 Summary Discussion

Memorandum: Mitigating Adverse Effect

Stockwater Pits & Reservoirs

Clark Fork Supplemental Memo

Thompson Falls Lumber Co. Memo (Precursor to Clark Fork Supplemental Memo)

Madison Group Aquifer Guidance

Missoula Valley Geothermal/Heat Exchange Wells- Variance

Technical Memorandum: Variance- Yellowstone River Terrace Level 3 Aquifer Properties

Variance – Evergreen Aquifer Geothermal/ Heat Exchange Wells

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Technical Memorandum: Physical Availability of Surface Water with Gage Data

Date: November 1, 2019

To: Millie Heffner, Water Rights Bureau Chief

From: Mark Elison, Manager, Billings Water Resource Office
Doug Mann, Hydrologist, Lewistown Water Resource Office
Larry Dolan, Hydrologist, Water Management Bureau (retired)
James Heffner, Hydrologist, Water Management Bureau
Melissa Brickl, Hydrologist, Kalispell Water Resource Office

The purpose of this technical memorandum is to describe the standard practices DNRC uses to calculate physical availability of surface water as required in §85-2-311, MCA (1)(a)(i) and ARM 36.12.1702 for streams where gage data are available on the source of supply. Separate documents detail standard practices DNRC uses to calculate physical availability of surface water for sources with no gage data, for ponds, and for ephemeral streams.

Background

Stream gage station data, when available, is the best information to use for evaluating physical water availability for a new permit. This is recognized in the permit application criteria for physical surface water availability which state that "If actual stream gaging records are available, or the source has been otherwise measured and quantified by a public entity, the records shall be used to estimate the median of the mean monthly flow rates and volumes for the stream gaging station period of record during the proposed months of diversion at the source of supply in the amount the applicant seeks to appropriate" (ARM 36.12.1702(2)). The difficulty is that a proposed point of diversion (POD) is seldom in the immediate vicinity of the stream gaging station. Unless the POD is at or very close to the gage, the amount of water physically available at the POD will be different from the gage readings and adjustments should be made.

Current Practice

Where the POD is located above the gage, water rights between the POD and the gage will be added to the monthly median of the mean gage values to provide an estimate of physical availability at the POD. This allows for continuity and consistent representation of water legally

available downstream at the gage site. However, this can result in unrealistic estimates of physical availability at the POD. This typically occurs in the eastern part of the state, where the only gaging station on a stream is located at the mouth and the proposed POD is several miles upstream. In this scenario it is not uncommon for this to result in estimates of physical availability that exceed the amount of water physically generated above the POD or even by the entire watershed.

When the POD is located below the gage, water rights between the gage and the POD will be subtracted from the monthly median of the mean gage values to provide an estimate of physical availability at the POD. Depending on the type and magnitude of water rights, as well the length of the reach, the end result may show that there is no water physically available at the POD – which may or may not be a reasonable representation of stream conditions. If there is evidence or documentation that is contradictory to the physical available estimate generated from the calculations above, then an additional physical availability analysis should be undertaken for the local reach. This additional analysis may include the drainage area ratio method discussed below and/or may require discharge measurements.

Drainage Area Ratio Method

If additional analysis is required, the Department may use the Drainage Area Ratio Method detailed in USGS (2015) StreamStats, Chapter G, p. 13. Under this method, streamflow characteristics and contributing drainage area at a gage site and the drainage area of an ungaged site can be used in the following equation to estimate streamflow characteristics at an ungaged site:

$$Q_u = Q_g \left(\frac{A_u}{A_g}\right)^{exp_{Q,R}}$$

where *Q* is the streamflow characteristic, *A* is the contributing drainage area, and subscripts *u* and *g* refer to the ungaged site (POD) and the gage, respectively.

Apply a drainage area ratio adjustment with an exponent (ranging from 0.687 to 1.037, based on regression equations). The exponent varies for different streamflow characteristics (*Q*) and regions (*R*). Table 1-3 from StreamStats Chapter G lists the exponents (Appendix A).

The process is as follows:

1. Assess whether the streamflow characteristics are similar between the gage and the POD, in consultation with the Water Management Bureau.
2. Determine the median of the mean monthly flow at the gage.
3. Determine the drainage area at the gage and at the POD.

4. Apply the equation above for each month using the appropriate exponent for the month and the region. For example, the $Q_{MAY0.5}$ (50% exceedance or median) exponent for the West hydrologic region is 0.828.

In hydrologic regions 3, 4, 5 and 6 (northern and eastern Montana), the USGS did not create regression equations largely because of the high occurrence of zero flows. In those regions the exponent would be taken as 1.0 for all streamflow characteristics and all months.

The Drainage Area Ratio Method has two conditions specifically mentioned in the USGS publication. First, the streamflow characteristics must be similar between the gage and the POD. This condition refers to the general hydrologic characteristics of the stream, including but not limited to density of diversions, slope and source, geography and geomorphology. For example, streamflow characteristics at an upstream, undepleted flow site are not similar to a downstream, depleted location; nor are they similar for a snow-dominant flow regime versus a gage on the prairie. Likewise using a gage upstream of a dam to estimate flows downstream of the structure is not appropriate as streamflow characteristics are not the same. Streamflow characteristics for a site above a major diversion (relative to the flows in the stream) are not similar to those below a major diversion. These situations are not exhaustive but meant to provide examples of when it may not be appropriate to use the drainage ratio methodology. The judgement of similar streamflow characteristics would be made by the regional office in consultation with the Water Management Bureau.

Second, the method is limited to sites that are within a range of 0.5 to 1.5 times the drainage area at the gage. According to the USGS, for sites outside of this range the standard regression equations may give more reliable estimates than the Drainage Area Ratio Method.

Note that in northern and eastern Montana (hydrologic regions 3, 4, 5 and 6) there are no regression equations. Because the Department shall use the gage data and must determine the flow and volume physically available at a proposed POD, the method would not be strictly constrained by the range of drainage areas cited by the USGS. If the drainage area of the POD is outside the range proposed by the USGS, the regional office would evaluate results of the method for adequacy. The regional office will do one of the following:

1. Request or obtain measurements at the POD. If the measurements agree with estimates from the method, the method can be considered adequate.

2. Compare Drainage Area Ratio Method results to USGS regression equations (where they are available) or to other accepted estimation techniques. If the Drainage Area Ratio Method results are within the error for the estimation technique, the method can be considered adequate.

3. Draw on regional knowledge of source conditions and miscellaneous monthly measurements by public entities such as the USGS and DNRC. If regional knowledge with support from miscellaneous monthly measurements by public entities such as the USGS and DNRC verify the method, it can be considered adequate.

If, in the opinion of the Department, the current practice provides unrealistic results and the Drainage Area Ratio Method is either not appropriate or not verified by the analysis above, the source at the POD may be considered an ungaged source for the purposes of ARM 36.12.1702. If the source is considered ungaged, the source would then be subject to accepted estimation techniques in conjunction with measurements.

Between Gages: Interpolation

Where there is both an upstream and a downstream gaging station relative to the POD on the same source, the equation (equation 11) from StreamStats, Chapter G, p. 13 would be used to make a logarithmic linear interpolation between the two gages:

$$logQ_u = logQ_{g1} + \left(\frac{logQ_{g2} - logQ_{g1}}{logA_{g2} - logA_{g1}}\right) \text{x } \left(logA_u - logA_{g1}\right)$$

where Q_u is the streamflow characteristic, A is the drainage area, and subscripts *u, g1* and *g2* refer to the ungaged site (POD) and gaged sites 1 and 2, respectively.

The conditions are similar as for the Drainage Area Ratio Method. If the contributing drainage area of the ungaged site is outside of the range of 0.5 A_g to 1.5 A_g of either gaging station, the equation might provide unreliable estimates. If the streamflow conditions are similar for the source at both gages, and the periods of record for the gages are similar, the method can be considered adequate. The judgement of similar streamflow characteristics and the decision to accept the method outside of the range of 0.5 A_g to 1.5 A_g of either gaging station would be made by the regional office in consultation with the Water Management Bureau.

References

USGS 2015. Montana StreamStats. Scientific Investigations Report 2015-5019.

USGS 2015. Methods for estimating streamflow characteristics at ungaged sites in western Montana based on data through water year 2009: Chapter G in Montana StreamStats.

Appendix A

Exponents for Q50 by month for four hydrologic regions				
	WEST	NORTHWEST	UPPER YELLOWSTONE	SOUTHWEST
Q50 Jan	0.849	0.853	0.879	1.007
Q50 Feb	0.873	0.867	0.899	1.034
Q50 Mar	0.900	0.910	0.959	1.032
Q50 Apr	0.904	0.971	0.899	0.971
Q50 May	0.828	0.931	0.937	0.705
Q50 Jun	0.766	0.912	1.009	0.697
Q50 Jul	0.705	0.875	0.898	0.687
Q50 Aug	0.718	0.863	0.838	0.767
Q50 Sep	0.779	0.873	0.795	0.797
Q50 Oct	0.790	0.814	0.852	0.884
Q50 Nov	0.810	0.771	0.879	1.037
Q50 Dec	0.810	0.802	0.917	1.016

From Table 1-3, USGS Scientific Investigations Report 2015-5019-G

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Technical Memorandum: Physical Availability of Surface Water Without Gage Data

Date: April 18, 2019

To: Millie Heffner, Water Rights Bureau Chief

From: Mike Roberts, Hydrologist, Water Management Bureau
Melissa Brickl, Hydrologist, Kalispell Water Resource Office
Dave Amman, Hydrologist, Water Management Bureau
Aaron Fiaschetti, Hydrologist, Water Management Bureau

The purpose of this technical memorandum is to describe the standard practices DNRC uses to calculate physical availability of surface water as required in §85-2-311, MCA (1)(a)(i) and ARM 36.12.1702 for streams where stream gage data are not available on the source of supply. Separate documents detail standard practices DNRC uses to calculate physical availability of surface water for sources with gage data, for ponds, and for ephemeral streams. Specific provisions of standard practices for surface water address:

- Estimating physical availability on ungaged streams
- Acceptable flow estimation methods
- Estimating physical availability where no acceptable regional regression equation is available

Estimating Physical Availability – Overview

§85-2-311, MCA (1)(a)(i) requires applicants prove by a preponderance of evidence that water is physically available at the proposed point of diversion in the amount that the applicant seeks to appropriate. If stream gage records are available for a source, ARM 36.12.1702(1) specifies that physical availability be demonstrated by the median of the mean monthly flow rates and volumes for the stream gaging station period of record during the proposed months of diversion. In the absence of gage records or other measurements by a public entity, ARM 36.12.1702(2) specifies that physical availability be estimated using an accepted estimation method in conjunction with discharge measurements to validate the estimation technique used. Department rule requires that streamflow measurements must be collected at least once per month during the period of diversion "validate" the estimation techniques. If it is not possible to take measurements every month due to high spring flow conditions or other limiting conditions as described below, the department may grant a variance to the measurement requirements (36.12.1702(4)). In addition

to validating estimation techniques, ARM 36.12.1702(6) provides that stand-alone measurements may be used upon approval by DNRC as evidence of physical availability.

Estimation Methods Used by DNRC

Methods DNRC uses to estimate physical availability on ungaged surface water sources include:

- *StreamStats*, a GIS application available from U.S. Geological Survey (USGS) that provides streamflow characteristics for ungaged sources based on regional regression equations and drainage area adjustment methods (USGS, 2015).
- USGS reports listed in ARM (36.12.1702(7)) that provide streamflow characteristics based on regional regression equations and drainage area adjustment methods for ungaged sources.

All estimation methods must be validated using streamflow measurements unless a variance is issued. The estimation of flow is considered valid when streamflow measurements fit within either standard errors reported for the regression equations used in the USGS reports listed in ARM 36.12.1702(7) ARM, or within the prediction intervals for the 90% confidence levels reported in *StreamStats*.

Models that could be used by an applicant in an alternative analysis include but are not limited to the Hydrologic Modeling System (HEC-HMS) (USACE, 2000), the Precipitation-Runoff Modeling System (PRMS-IV) (Markstrom et al, 2015), and Hydrological Simulation Program - FORTRAN HSPF (Mohamoud, 2012).

Estimation of Flow Using only Measurements

StreamStats excludes large regions of the state (northern and eastern tiers) from estimation due to a lack of viable station data. Similarly, USGS estimation techniques listed in the ARM do not apply to non-perennial streams, spring-fed streams, and smaller perennial streams with drainage areas less than the range specified by the USGS equations. In these cases, measurements may be used by themselves if the following considerations are met:

- Measurements are taken monthly during the proposed period of diversion, as prescribed in ARM 36.12.1702(3)
- Measurements are considered valid based on measurement technique, location, and site conditions during which the measurement was taken.
- Measurements are representative of average conditions for the source. The Department will examine the validity of measurements to ensure they are representative of typical conditions. If they are not, the Department will assess these measurements to ensure their proper context, relative to the water year. The Department may accept or deny the measurements as evidence of physical availability.

Streamflow Measurement Methods

Streamflow measurements used to validate estimation techniques or by themselves must follow DNRC approved methodology. The recommended method of measuring instantaneous streamflow is using a current meter (e.g. Flowtracker, Marsh-McBirney, Price AA) following the standard USGS discharge measurement methodology (Rantz, 1982). The float-area method, strictly adhered to as described by DNRC (2016) is an alternative to approximate streamflow if a current meter is not available. Other methods must be justified and approved by the Department. The Department may take measurements at an applicant's request depending on the availability of personnel.

Measurement frequency may be less than monthly for ephemeral or intermittent streams, or where conditions that physically prohibit access to measurement locations such as high spring flows or accessibility.

Miscellaneous measurements obtained from the approximately 3200 USGS and 150 DNRC stations not included with the active real-time USGS gages may be used in lieu of actual measurements if they are in locations pertinent to the physical availability analysis.

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Technical Memorandum: Physical Availability of Ponds

Date: April 22, 2019

To: Millie Heffner, Water Rights Bureau Chief

From: Melissa Brickl, Hydrologist, Kalispell Water Resource Office
Mike Roberts, Hydrologist, Water Management Bureau
Dave Amman, Hydrologist, Water Management Bureau
Aaron Fiaschetti, Hydrologist, Water Management Bureau

The purpose of this technical memorandum is to describe the standard practices DNRC uses to calculate physical availability of surface water for ponds. This standard practice also is followed to evaluate physical availability as part of an evaluation of adverse effect of a proposed ground water application that depletes a pond. Separate technical memoranda describe standard practices for calculating physical availability of surface water for ponds in ephemeral drainages.

Determination of Physical Availability

The following are methods used to evaluate physical availability:

1. Existing ponds fed or drained by surface water
   - Streamflow measurements of either the inflow and/or outflow, or
   - Pond volume

2. Existing ponds fed or drained by ground water
   - Methods described in the Physical and Legal Availability of Ground Water memorandum for estimating physical availability of groundwater, or
   - Pond volume

3. Proposed ponds fed by surface water or ground water.
   - Streamflow measurements on the source of supply for surface water, and/or
   - Methods described in the Physical and Legal Availability of Ground Water memorandum for estimating physical availability of groundwater, or
   - Pond volume

Sources of Information

Information for use in calculating physical availability of surface water for ponds:

1. U.S. Fish and Wildlife Service National Wetlands Inventory Wetland Mapper (https://www.fws.gov/wetlands/Data/mapper.html). The mapper displays wetland type and extent using biological definition of wetlands. It can provide information on the open surface area of a wetland/pond/lake for average water years.

2. Montana Fish, Wildlife and Parks, Montana Fisheries Information System (FishMT) contains biological/physical data and management information pertaining to each water body in the state of Montana. Some examples of information available are lake elevation at full pool, surface area, maximum depth, and shore length.

3. Lake bathymetry GIS layer available from the Montana State Library Geographic Information Clearinghouse or through the FishMT interactive website can be digitized to provide a lake/pond volume.

4. Chapter 12 in Schneider (2000) provides examples of pond volume calculations.

5. Engineering Field Manual, US Department of Agriculture Soil Conservation Service, (USDA, 1979) provides pond design information.

Quantifying Pond Volume

Below is a summary of the different methods and/or resources DNRC uses to quantify the volume of water physically available in a pond. The DNRC Standard Practice is to use the equation that most appropriately matches the available data (i.e.- if only minimal data is available use equation 1, if more detailed data exists use equations 2 or 3).

1. Standard equations for estimating a man-made or natural pond volume:

   Dam: **Surface Area × Max Depth × 0.4**

   Pit: **Surface Area × Max Depth × 0.5**

   - The full pool surface area of a **man-made** pond is used to quantify the volume of the pond.

   - The surface area of a **naturally-occurring** pond is the average of values determined from aerial photographs for dry, normal and wet years.

2. Method for Estimating the Volume of an Excavated Pond (Engineering Field Manual, US Department of Agriculture Soil Conservation Service, June 1979, p 11-44). The slope of the lake bed, bathymetric or survey data aides in this calculation.

The volume of an excavation can be estimated using the prismoidal formula:

$$V = \frac{(A + 4B + C)}{6} x \frac{D}{27}$$

V = volume of excavation, in cubic yards
A = Area of excavation at the ground surface, in square feet
B =Area of the excavation at the mid-depth point (1/2D), in square feet
C = Area of the excavation at the bottom of the pond, in square feet
D = Average depth of the pond, in feet
27 = Factor converting cubic feet to cubic yards

3. The following two methods provide equations for calculating lake/ reservoir/pond volume when bathymetric data are available. For further information see chapter 12 of Schneider (2000):

Method 3-1:

The formula in solid geometry for calculating the volume of a frustum of a circular cone has been applied by limnologists and fisheries biologists to compute the volume of a lake. This formula is:

$$V = \frac{1}{3} H\left(A_1 + A_2 + \sqrt{A_1 \times A_2}\right)$$

Where: V = volume of water;

H = difference in depth between two successive depth contours;

A_1 = area of the lake within the outer depth contour being considered;

A_2 = area of the lake within the inner contour line under consideration.

The procedure consists of determining the volumes of successive layers of water (frustums), and then summing these volumes to obtain the total volume of the lake.

Method 3-2:

Another formula has occasionally been used for computing lake volume. This method is employed by engineers for computing reservoir volumes, and is derived from the "end-area formula" sometimes applied to find the volume of prismoidal forms. The formula is:

$$V = \frac{1}{2} H(A_1 + A_2)$$

Variables and general procedures are the same as in Method No. 1.

Additional Considerations

The Department can ask the Applicant to quantify the max depth, survey the pond or construct a bathymetric map by using a tape measure and weight (more easily done on frozen lakes) or a fish-finder. The Department may conduct a site visit to investigate factors that may affect pond volume, such as dredging or filling.

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Technical Memorandum: Pond and Wetland Evaporation/Evapotranspiration

Date: June 7, 2023

To: Administrator, Water Resources Division

From: Water Sciences Bureau

The DNRC published a memorandum on November 18, 2019, outlining standard practices followed by the DNRC to estimate evaporation and evapotranspiration from ponds and wetlands for water right administrative purposes (DNRC, 2019). This memorandum replaces the 2019 publication and includes updated weather/site considerations, climate data, and estimation procedures.

Net Evaporation (Open Water)

When administering all water rights, evaporation from ponds and evapotranspiration from wetlands should be evaluated using net evaporation (accounting for precipitation). Net evaporation is calculated on a monthly timestep by subtracting monthly average precipitation from monthly estimates of gross evaporation. Annual estimates of net evaporation are calculated as the sum of the positive monthly net evaporation values. Average precipitation and gross evaporation data should be for matching locations and periods of record.

Evaporation Data Sources

Evaporation from shallow, open bodies of water such as ponds and wetlands should be calculated using methods found in Potts (1988) or SCS (1974). If using Potts (1988), the adjusted Penman-Linacre (P/L), which is 75% of the P/L estimates should be used. Methods specifically developed for deep water bodies should not be used because shallower water bodies maintain higher water temperatures than deeper water bodies, such as reservoirs, at similar locations. This is mainly due to higher concentrations of solar heat-absorbing vegetation, a thinner water column to filter solar heat, and lower thermal mass to offset daytime solar warming.

Evaporation standards set forth in ARM 36.12.116 are a mix of deep and shallow water body methods. As such, not all methods are appropriate for estimating pond and wetland net evaporation. Evaporation data collected by a standard USGS evaporation pan is an acceptable yet less reliable

alternative to the methods provided in Potts (1988) or SCS (1974). Pan evaporation data are often not collected during winter months, which results in gaps that disqualify annual and winter month estimates. The methodologies in both the BLM's (1998) and the Meyer's (1942) document are not recommended for use on ponds or wetlands as they provide evaporation standards for large reservoirs.

Gridded Monthly Net Evaporation

The DNRC utilized gridded climate data to produce a 4km by 5km gridded polygon shapefile of net evaporation statewide. 30-year monthly gridded climate normals for the period from 1991 to 2020 were downloaded from the NOAA National Centers for Environmental Information. Gridded monthly average temperature, gridded monthly minimum temperature, elevation (64m DEM), and latitude were used to calculate gross evaporation using the adjusted P/L method and the Raster Calculator tool in ESRI ArcGIS Pro. Monthly gridded precipitation data was subtracted from the gridded gross evaporation data to produce monthly net evaporation. Grid cells with negative monthly net evaporation (precipitation exceeds gross evaporation) were set to zero following DNRC standards.

The gridded net evaporation dataset was calculated using the same DNRC method previously applied to individual weather stations (adjusted P/L procedure), but produces a site-specific evaporation estimate for a waterbody of interest rather than extrapolating a value from regional weather station data. The gridded net evaporation dataset varies slightly from values calculated at individual weather stations due to differences in elevation, latitude, and precipitation as well as the interpolation methods used to derive the input data. Therefore, the gridded net evaporation dataset should be used instead of individual weather stations to maintain consistency and standardization of the estimation method.

Other Net Evaporation Considerations

Annual net evaporation for ponds and wetlands that dry up outside the irrigation season can be calculated from the gridded net evaporation dataset for the months where the NRCS Irrigation Water Requirements (IWR) NIR value is non-zero (NRCS, 2003). Annual evaporation from the SCS (1974) report can be apportioned by month according to the monthly percentages produced by the gridded net evaporation dataset.

Monthly net evaporation for ponds and wetlands that ice over should be calculated from the gridded net evaporation dataset until permanent icing occurs. Annual evaporation from the SCS (1974) report can be apportioned to ice-free months according to monthly percentages produced by the gridded net evaporation dataset.

Freezing degree days (FDD) can be used to corroborate when ice over conditions occur on ponds and wetlands. FDD is calculated from weather station data by subtracting the average daily temperature from the freezing temperature (32 °F)(NWS, 2022). The average daily temperature for each Montana weather station was derived from the daily high and low values from 30-years of Western Regional Climate Center Data. FDD start when the average daily temperature drops below 32 °F (positive FDD value) and ends when the average daily temperature is 32 °F or warmer (negative FDD value). The

FDD value indicates the departure from freezing on that day, while the sum of positive FDD values over a season is the magnitude of below freezing conditions for that location. The ice-over period for each weather station is the start and end of positive FDD rounded to the nearest month.

Wetland Evapotranspiration

Wetland evapotranspiration estimates should be calculated using the NIR for alfalfa as calculated by IWR (NRCS, 2003) and an appropriate coefficient from Allen, et al. (1994). The estimates for alfalfa should correspond to a NIR estimate from IWR for flood irrigation systems, consistent with the methods described in the DNRC's Historic Consumptive Use Methodology Memorandum (DNRC, 2010) and Use of the IWR Program Memorandum (DNRC, 2013). NIR values should not be reduced by management factors.

When wetlands contain both wetland vegetation and open water, both wetland evapotranspiration values and surface water net evaporation values are additively used to determine consumptive use.

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Eastern Montana: https://wrcc.dri.edu/summary/Climsmemt.html

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Technical Memorandum: Numerical Groundwater Modeling Guidance

Date: October 7, 2019

To: Water Rights Bureau Chief

From: Water Sciences Bureau

1. Introduction

The purpose of this memorandum is to describe standard practices that the Department or applicant follow when building a numerical groundwater model and the systematic review to ensure that modeling is conducted and documented appropriately. The Department and applicant may model a proposed groundwater use for the purpose of evaluating the criteria for a groundwater application for beneficial use or change in use. Groundwater models may also be used to support Stream Depletion Zone and Controlled Groundwater Area determinations. Because major decisions are frequently based on modeling results, it is essential that modeling be conducted in a manner that provides results that reasonably portray the physical system.

It is important to recognize that models are conceptual descriptions, or approximations, that describe physical systems through the use of mathematical equations – they are not exact descriptions of physical systems or processes (Anderson et al., 2015). Groundwater models are not a substitute for field investigations but should be used as supplementary tools. The applicability, or usefulness, of a model depends on how closely the mathematical equations approximate the physical system being modeled. For this reason, models that are based on a thorough understanding of the physical system and the assumptions of the mathematical equations produce better predictions. They produce estimates, not absolute answers. Results depend on the quality and quantity of the data available to define input parameters and boundary conditions (Anderson et al., 2015).

Numerical models (e.g., finite difference or finite element) solve the partial differential flow equations through numerical approximations using matrix algebra and discretization of the modeled domain (Anderson et al., 2015). In discretization, the model domain is represented by a network of grid cells or elements and the time of the simulation is presented by time steps. The accuracy of numerical models depends on the model input data, the time periods, and the numerical method used to solve the model equations. Numerical models may be of limited value when there are limited data and in simple hydrogeologic settings where the cost of creating such a model outweighs the information they provide. For example, the Department uses transient superposition numerical models in MODFLOW following the general approach described in the **Appendices**.

This guidance outlines the general groundwater modeling protocol used by the Department and ensures that numerical groundwater modeling is conducted and documented appropriately. The modeling process is shown in **Figure 1**. For more complex modeling projects, the Department recommends meeting with staff hydrogeologists to discuss distinctions of the specific modeling process.

This guidance is not intended as a standalone step-by-step manual for groundwater modeling. It is not the intent of this document to provide a detailed discussion of all groundwater modeling concepts or procedures. This guidance has resulted from a thorough review of available groundwater modeling documentation and a review of current Department modeling procedures. Throughout this document references are cited that provide a more thorough discussion of the concepts presented and additional references that provide examples, standards, and guidance are located in **Section 11**.

This modeling guidance is divided into the following sections:

- Objectives
- Data
- Conceptual Model
- Model Development
- Calibration
- Uncertainty
- Predictions
- Documentation
- Model Review
- References
- Appendices

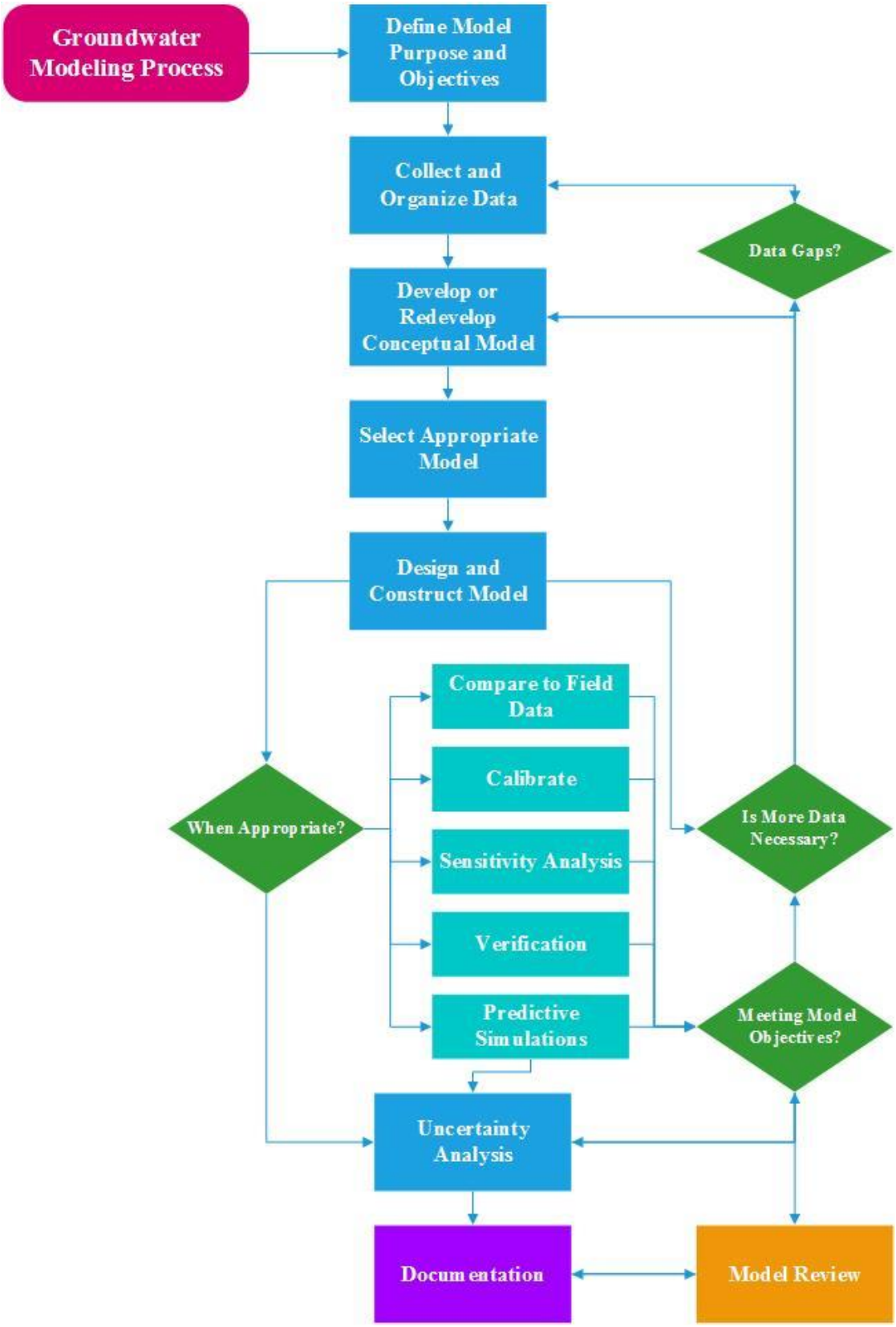

Figure 1. Groundwater Modeling Process.

2. Objectives

The purpose/objectives of modeling should be clearly defined and understood because it dictates the selection and development of the model. These objectives will dictate the level of detail and accuracy required in model simulation. The objectives will be used during the review process as criteria to judge whether the model is fit for the purpose and is able to answer the questions posed.

3. Data

The availability of data may influence model selection and construction. Basins with a large amount of data may support a more complex modeling effort than a basin with limited data. The data will be used not only during the conceptual model, but also during the design and calibration of the model. Information gathered includes data about the model layers and hydraulic parameters as well as observations of hydraulic head, water table elevation, and fluxes.

The data collection process involves:

- Confirming the location and availability of data
- Assessing the geospatial distribution, richness, and validity of data
- Developing a database which includes data source organized and available upon request after model submittal.

Often, the complexity of the model chosen is dictated by the amount and credibility of data. As shown in **Figure 1**, additional data gathering efforts may be required to meet the modeling objectives.

4. Conceptual Model

A conceptual model is a simplified description and schematic that outlines the components of the system to be modeled. Conceptual models are one of the most important parts of the groundwater model and should adhere to the principle of parsimony; that is the conceptual model should be the simplest possible description of the system while including all relevant processes and containing enough complexity to represent important system behavior (Wels et al., 2012; Anderson et al., 2015). The model must be based on a thorough understanding of site hydrogeologic conditions derived from field investigations or data obtained from credible studies. At a minimum, the conceptual model should include the geologic (eg., lithology and geologic structure) and hydrologic framework, hydraulic properties, areas of recharge and discharge (sources and sinks), groundwater flow directions, hydrogeologic discontinuities boundary, groundwater budget components, and spatial and temporal dimensionality. An in-depth discussion of the aspects and importance of conceptual model development is provided in ASTM D5979-96, Bredehoeft (2003; 2005), and Anderson et al. (2015).

5. Model Development

5.1 Model Selection

A model should be chosen based on its applicability to the conceptual model, availability of the required input data, and the defined purpose/objective of the modeling effort. It is important to choose a model that simulates the natural system as accurately as possible. Likely, the amount of

data will determine the complexity of the model selected. For instance, limited available data may necessitate the use of an analytical model or superposition numerical model versus a more data intensive numerical model. In addition, it is important that any model selected be code-verified, peer-reviewed, and well documented. For example, the USGS MODFLOW finite difference groundwater model and the various iterations have been code-verified, extensively peer-reviewed, and well documented (Harbaugh, 2005).

5.2 Parameters

Of the quantities assigned to the hydrogeologic units during model creation, the hydraulic properties are some of the most uncertain and most important in governing final predictions (Anderson et al., 2015). Hydraulic properties assigned to hydrogeologic units include hydraulic conductivity (K), transmissivity (T), specific yield (Sy), specific storage (Ss), and porosity. Inputs should be based on field data and, in some cases, literature values. These hydraulic parameters may be determined by a number of methods including aquifer tests and borehole geophysical methods (Freeze and Cherry, 1979; Keys, 1990; ASTM 5979-96; Fetter, 2001). The use of literature values may depend on how sensitive the model is to the particular parameter whether the approach is conservative, and in some cases, whether there is data available. The Department requires that groundwater models be built with realistic aquifer parameters and that modelers don't force calibration with aquifer properties that aren't realistic.

5.3 Boundary Conditions

There are generally three mathematical classes of boundary conditions: specified head boundaries, specified flow boundaries, and head-dependent. Examples of boundaries are hydraulically connected surface water bodies, and in some cases, bedrock and geologic structures. The implementation of these different boundaries in numerical models is beyond the scope of this document, but modelers are strongly encouraged to consult ASTM D5447-04, and Reilly and Harbaugh (2004), Anderson et al. (2015), during the assignment of boundary conditions. Care should be taken when selecting the type of flow or head boundary, with the modeling objectives carefully considered. For example, the use of specific head boundaries to represent recharge may yield invalid results from modeling depletion to streams by allowing recharge to increase unrealistically to offset pumping effects. The Department requires that the model accurately represent perennial surface waters of interest within the model domain. It is desirable to represent only existing natural hydrogeologic boundaries in a model; however, in some cases a nested or sub-model may be constructed within a larger domain. In these instances, the grid boundaries should be sufficiently remote from the area of interest so that the artificial boundary does not significantly impact the predictive capabilities of the model (Anderson et al., 2015).

The influence of climate (precipitation, evaporation, etc.) over the surface of the model domain constitutes another important boundary condition depending on the modeling objectives. For example, change in climate would not be a consideration for simple superposition modeling with the objective of assessing stream depletion. However, climate should be considered for larger scale models such as ones for controlled groundwater areas. There are a variety of methods for the implementation of recharge boundaries and are discussed in detail in Healy (2010) and Anderson et al. (2015).

5.4 Grid Design

Most numerical methods require the development of a grid overlay. The formation and input of this database is specific to the computer code chosen. Grid spacing should be an appropriate scale for the problem. Grid spacing should be closer together in areas where there are large spatial changes in transmissivity or hydraulic head. Large changes in hydraulic head typically occur in recharge and discharge areas and may be especially significant near pumping wells. In the case of modeling Stream Depletion Zones, the Department requires grid spacing to be between 50 and 100 feet near river and stream cells. Outside of these areas requiring finer grid detail, a coarser grid may be utilized for computational efficiency. However, as a general rule, grid spacing should not be more than 1.5 times the previous spacing (Anderson et al., 2015). For more discussion on grid development and proper grid spacing, see Anderson et al. (2015).

6. Calibration

Calibration consists of changing values of input parameters in an attempt to match field conditions within acceptable criteria. Calibration requires that field conditions be properly characterized. Lack of proper characterization may result in a calibration to a set of conditions that do not represent actual field conditions. There are a variety of methods that may be used to calibrate groundwater flow models, including both manual methods (e.g., trial-and-error) and automatic methods (e.g., PEST; Doherty and Hunt, 2010, and UCODE; Poeter et al., 2014). Calibration targets (the points in the model domain assessed for agreement) may include: hydraulic heads, hydraulic fluxes, or water mass balance (Wels et al., 2012; Anderson et al., 2015).

When the best calibrated match is achieved, a final input data set should be established and demonstrated to be reasonable and realistic. There are no universally accepted "goodness-of-fit" criteria that apply in all cases and professional judgment is needed in evaluating calibration results. In some circumstances, groundwater models are needed to predict behavior in regions where there is limited data. Without data, it is impossible to calibrate a model. This does not mean that modelling is not worthwhile. It simply means that there is a lower degree of confidence in models that are not calibrated. Whether or not a model is calibrated is dictated by the original modeling objectives. For example, the Department uses uncalibrated models for evaluating stream depletion by modeling pumping effects directly, using the principle of superposition (see **Appendices**). In the case of an investigation for a proposed controlled groundwater area or stream depletion zone, a calibrated model may be necessary.

For additional information on model calibration see ASTM D5490-93, ASTM D5981-96, Reilly and Harbaugh (2004), and Anderson et al. (2015).

Whether or not a sensitivity analysis, field verification, and/or post-audit is performed is dictated by the modeling objectives. For additional information, see ASTM D5611-94 (2002) and Anderson et al. (2015).

7. Uncertainty

Groundwater models intrinsically contain uncertainty because they are built on a simplified conceptual model of the actual system and the history of observations is nearly always less than the period of the prediction (Bredehoeft, 2003; 2005). It is important for the model report to

address this uncertainty. The performance of a formal uncertainty analysis is not always necessary; however, at a minimum, a qualitative description of the modeling uncertainties should be reported. The degree of acceptable model uncertainty is dictated by the modeling objectives.

8. Predictions

In the majority of cases, a groundwater model submitted to the Department is used for predicting the future hydraulic conditions (e.g., hydraulic heads, groundwater fluxes, etc.) in an area of interest. Upon model completion (after completion of calibration, sensitivity analysis, and field verification if performed), the model can be used to predict future scenarios. Predictive simulations can also be used to predict responses to the system as natural- or man-induced stresses are applied. The predictive simulations should be viewed as estimates and not as certain. There is always some uncertainty in predictive models. Predictive simulations should be conservative. That is, given the uncertainty in model input parameters and the corresponding uncertainty, model input values are selected that result in a "worst-case" simulation (Barnett et al., 2012; Wels et al., 2012).

The length of time that a transient predictive scenario is run compared to the length of time over which the model has been calibrated can influence the confidence-level classification of the prediction (Barnett et al., 2012). When the predictive model duration substantially exceeds the period of transient calibration the uncertainty associated with the prediction increases. This guidance recommends limiting the duration of predictive model runs to less than five times the duration of the calibration whenever possible. However, exceedance of this timeframe may occur and depends on the initial modeling objectives and acceptable level of uncertainty. The time interval of predictions varies on a project-by-project basis, and as such, the Department makes no strict rules for this aspect of groundwater modeling. The rationale for the period of predictions, however, should be logically determined and described in the model report.

9. Documentation

Documentation of a model is important to show that the interpretations represent site conditions. This will facilitate peer review and also enable further verification by allowing the model to be reproduced by future modelers. Results should be presented clearly, concisely and include appropriate documentation. Model documentation includes written and graphical presentation of the assumptions and objectives, the conceptual model, code description, model construction, calibration, predictive simulations, and conclusions. **Table 1** provides an outline of suggested components incorporated into a groundwater modeling report. Depending on the modeling objectives, complexity, and modeling code chosen will determine the necessary components of documentation. Additionally, some reports may include sections not listed in **Table 1**. Numerous details and considerations with respect to model reporting are outlined in ASTM D5718-95, Reilly and Harbaugh (2004), Barnett et al. (2012), and Anderson et al. (2015).

Table 1. Suggested Components of a Groundwater Modeling Report.

Objectives	Specific and clearly stated.
Data Needs	Methods and techniques for collecting, analyzing and interpreting data explained with levels of confidence. Identification of data gaps or strengths. Location of where data can be obtained.
Conceptual Model	Detailed narrative, maps, and figures of geologic and hydrologic framework, hydraulic properties, areas of recharge and discharge, groundwater flow directions, boundaries, groundwater budget components, and spatial and temporal dimensionality. All sources of data used.
Model Description	Rationale for choice of model. Simplifying assumptions and limitations of model and impact on results.
Model Construction	All input data, including initial conditions, boundary conditions, and hydraulic parameters defined. All sources of data used, whether derived from published sources, measured, or calculated from field data or laboratory testing documented.
Model Calibration	Specific goals and procedures of calibration, results of the final calibrated model, departure from the calibration targets, the effects of the departure on the model results, and the overall water balance.
Sensitivity Analysis, Verification	Describe goals, procedures, inputs, and results.
Uncertainty	Description of modeling uncertainty and how they relate to the modeling objectives.
Prediction	Output from predictive simulations presented and interpreted in detail. Limitations of and confidence in predictions stated.
Summary and Conclusion	Summarize the modeling effort and draw conclusions related to the study objectives. The limitations of the modeling and all assumptions discussed. Also, discuss uncertainties inherent to the model and their effects on conclusions.
Model Records	Provide upon request, input and output data sets for model runs (in digital form), including final calibration, and all predictions.
Modeling Team and Reviewers	Documentation and credentials of the modeling team and peer reviewers.

10. Model Review

The aim of the review process is to provide an objective assessment of whether the model has been developed and used in a manner that is appropriate for the stated modelling objectives and the target model confidence level classification. There are two types of reviews that will be covered in this section; peer review and Department review.

The peer review will take place before the model is submitted to the Department. The peer review is a thorough in-depth review of all stages of the groundwater model by an experienced hydrogeologist or preferably groundwater modeler whose involvement has been less than 20 percent of the total project. The reviewer does not have to be external and can be an experienced professional within the same company. A Department hydrologist with complementary skills and experience in groundwater modeling will perform an agency review of the submitted model. The reviewer may request all data and model files. **Table 2** is a compliance checklist that will be used by the Department reviewer of the submitted groundwater model.

For models produced by the Department, a Department hydrologist who did not develop the model will act as an internal peer reviewer.

Table 2. Department Review Compliance Table.

Questions

Does the modeling report contain enough information to complete a Department review?
Are the model objectives clearly stated?
Are the model objectives satisfied?
Is the conceptual model consistent with objectives?
Is the conceptual model based on all available data and presented clearly?
Does the conceptual model represent a reasonable representation of actual field conditions?
Is there sufficient data to develop the model? Are there any significant data gaps?
Is the model code chosen appropriate and conforms to best practice?
Is the model design appropriate and conforms to best practice?
If performed, is the calibration, sensitivity analysis, and verification satisfactory?
Are the model predications appropriate and conforms to best practice?
Are the modeling parameters and modeling results (fluxes, water balance, etc.) plausible?
Does the model submission apply sound and accepted modeling practices consistent with this guidance?
Are model limitations and model uncertainties adequately addressed?

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Appendix A – DNRC Standards for Numerical Superposition Modeling

This appendix describes the process of numerical superposition modeling performed by the Department for purposes of calculating net depletion or return flow analysis to surface water bodies as a result of groundwater withdrawal. A specific example of this type of modeling is provided in **Appendix B**.

Assumptions

Numerical superposition modeling is consistent with the Department's effort to avoid representing more detail than could be supported by existing data. Therefore, the Department has developed simplified assumptions for the numerical models used to investigate the impacts of groundwater pumping on stream flows.

Evaluations of the net depletions are based on the basic concept that groundwater pumping eventually is offset by an equivalent increase in recharge or decrease in discharge (Theis, 1940; Leake et al, 2008), a process defined as capture by Lohman (1972). Capture occurs as drawdown propagates to surface water and areas of phreatophyte vegetation that takes water directly from groundwater. In the absence of credible evidence to the contrary, capture of ET by phreatophytes is neglected and net depletion is assumed to equal total capture. This assumption is justified because published estimates for conditions common in Montana alluvial valleys indicate capture of ET generally is less than 10 percent of total capture (Xunhong, 2006). Capture of ET in ephemeral drainages may be significant and will be evaluated on an application by application basis.

Aquifer Parameters

The aquifer properties are estimated from site specific aquifer test results required as part of the groundwater permitting process (ARM 36.12.121). The aquifer test drawdown results are analyzed using AQTESOLV® (HydroSOLVE, Inc., 2007) by a Department hydrologist to obtain estimates of aquifer properties. AQTESOLV® is an analytical modeling software that uses image well theory and the principle of superposition to simulate aquifer stress tests.

When site specific aquifer test data is not available, results of aquifer tests conducted for other groundwater investigations in the area may be available from the Montana Bureau of Mines and Geology Groundwater Information Center (GWIC) or published values are generally suitable. For example, aquifer transmissivity can be calculated from an estimate of hydraulic conductivity from **Table 1** adapted from Bear (1972) and an estimated saturated thickness from well logs. The specific yield (Sy) of 0.1 for an unconfined aquifer (Lohman, 1972) is recommended when site specific aquifer test results are not available.

Table 1: Hydraulic conductivity values (from Bear, 1972).

Unconsolidated Sediment	Hydraulic Conductivity (ft/day)
Well Sorted Sand or Sand and Gravel	10 – 1,000
Very Fine Sand, Silt, Loess, Loam	0.001 - 1
Unweathered Clay	0.0000001 – 0.0001

Net Depletion

Net depletion is used in evaluations of legal availability and adverse effects to surface water required under §85-2-311, MCA. Net depletion is the calculated volume, rate, timing, and location of reductions to surface water flow resulting from a groundwater appropriation. Net depletion is evaluated in three steps: identification of potentially affected surface waters, calculation of consumption (DNRC, 2010), and calculation of the rate and timing of depletions to the identified affected surface waters following the procedures described in DNRC's Memo: Net Surface Water Depletion from Groundwater Pumping (DNRC, 2018).

Return Flows

Return flows are evaluated by identifying the likely receiving stream(s), determining monthly volumes of water that infiltrate past the root zone (non-consumed), and modeling the monthly timing of return flows. The receiving stream is determined by proximity and evidence of hydraulic connection to groundwater and generally does not depend on groundwater flow direction or land slope (Theis, 1938; Leake, 2011). The assumption is made that water applied for irrigation that is not consumed by a crop infiltrates to groundwater becoming return flow and does not run off. The amount of water not consumed is the difference between the amount of water consumed and the amount of water applied to a field. The amount of water consumed is equal to crop consumption from ARM 36.12.1902 and Irrigation Water Requirement (IWR) software (NRCS, 2003) plus irrecoverable losses calculated as a percent of applied amounts. The amount of water applied to a field is determined from estimates of application efficiency and crop consumption. This type of analysis is consistent with DNRC's Memo: Calculating Return Flows (DNRC, 2019).

Numerical Superposition Modeling

Monthly depletions and return flows can be modeled using an uncalibrated transient superposition model in MODFLOW 2000 following the general approach described by Hubbel et al. (1997), Johnson and Cosgrove (1999), and Leake et al. (2008) with potentially affected streams represented by drains as described by Johnson and Cosgrove (1999). Additional modeling procedures including parameters, boundaries, and grid development are consistent with those described in **Section 6** of this document.

The modeled pumping rates are based on a monthly consumptive volume calculated from the acreage and used as described in the previous section. Modification of the models for return flow analysis includes adding injection wells. The volume of return flow is evenly distributed on a monthly basis to the injection wells needed to cover the areal extent of the irrigated acreage.

The model is run until equilibrium or approximately one hundred years with each stress period representing one year with twelve time steps (months). The water balance for the twelve time steps of the 100th year of of the model for each of the potentially affected streams (drain cells) are exported. The net depletion or return flow results are usually less than the total consumed and non-consumed volume, respectively, and are scaled up to match the total volume input into the model. The result is a model predicted timing of monthly net depletion or accretions to the potentially affected surface water bodies.

The modeling is completed by a Department hydrologist and the results are internally reviewed by a Department hydrologist.

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Appendix B – Transient Numerical Superposition Depletion Analysis

Example: Lower Yellowstone Buried Channel Aquifer (LYBCA)

The Department has performed stream depletion analysis for proposed wells located in the Lower Yellowstone Buried Channel Aquifer (LYBCA) using a superposition numerical model. The LYBCA is incised into the Fort Union Formation, and the Fort Union Formation acts as lateral boundaries and the base of the aquifer (Reiten, 2008; Reiten and Chandler, 2019). This example is a proposed production well (GWIC #300586), 142 feet deep and completed in sand and gravel of the LYBCA that has a width that varies between 0.6 miles and 2 miles. The proposed well is located 5.2 miles and 4.1 miles from Burns Creek and Yellowstone River, respectively (**Figure 1**). Depletion to surface water for the example is evaluated for Burns Creek and Yellowstone River. The annual consumption for the 134 irrigated acres of alfalfa at Savage, Montana is estimated to be 297.0 AF based on a net irrigation requirement of 26.6 inches (2.22 feet) obtained from Irrigation Water Requirement (IWR).

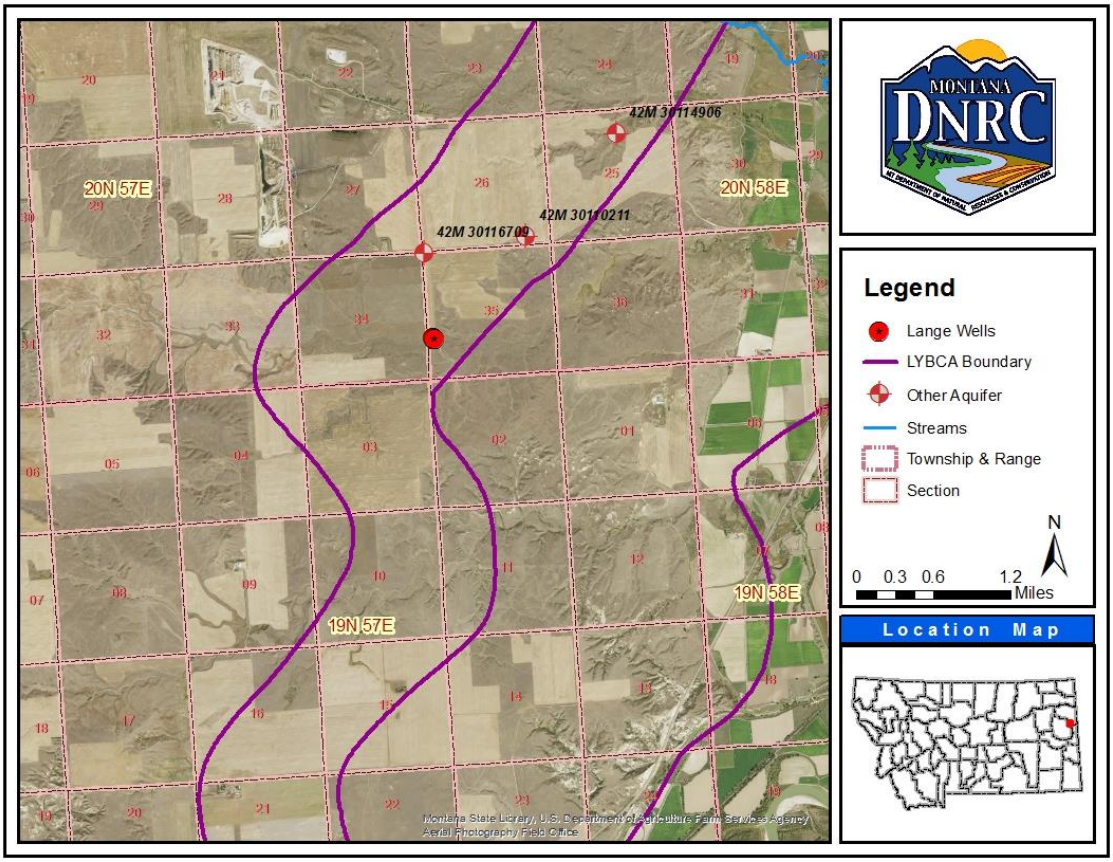

Figure 1: Map of the Lange Test Location (LYBCA Boundary from Reiten and Chandler, 2019).

Monthly depletions in **Table 1** are modeled using a transient superposition model in MODFLOW 2000 following the general approach described in **Appendix A** with Burns Creek and the Yellowstone River represented by drains. The model is run using a transmissivity of 29,970 ft^2/day and specific yield of 0.01 for the LYBCA generated from an aquifer test. The aquifer material surrounding the LYBCA is less transmissive and is run using 75 ft^2/day and specific yield of 0.02 from well log data and published values of similar aquifer material.

Calculated monthly consumption (Column 1, **Table 1**) is distributed based on IWR (Column 2, **Table 1)** and is modeled for 100 years. At the 100th year, the water balance output for the drain cells is scaled up to match the total consumed input into the model. Ultimately, total net depletions accumulate in the Yellowstone River downstream of Burns Creek and are reported as depletions in **Table 1**.

Table 1: Example of consumption, modeled pumping rates, modeled output for drain cells, and net depletion to Yellowstone River below confluence of Burns Creek.

Month	**Crop Consumption (AF)**	**Modeled Pumping Rate (gpm)**	**Modeled Drain Output (Burns Creek) (gpm)**	**Modeled Drain Output (Yellowstone River) (gpm)**	**Modeled Total Drain Output After Confluence (gpm)**	**Modeled Net Depletion (AF)**
January	0.0	0.0	102.8	42.4	145.2	19.5
February	0.0	0.0	142.3	52.7	195.0	26.2
March	0.0	0.0	141.1	51.9	193.0	26.0
April	2.3	17.69	139.1	50.8	190.0	25.6
May	44.0	321.13	136.7	49.5	186.2	25.1
June	64.0	482.60	134.2	48.4	182.6	24.6
July	82.0	598.25	132.5	47.8	180.3	24.3
August	72.8	531.42	132.3	47.9	180.3	24.3
September	31.9	240.88	133.7	48.9	182.7	24.6
October	0.0	0.0	136.3	50.4	186.7	25.1
November	0.0	0.0	139.2	51.8	191.0	25.7
December	0.0	0.0	141.4	52.7	194.1	26.1
	297.0					297.0

*gpm = gallons per minute

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Technical Memorandum: Physical and Legal Availability of Ground Water

Date: April 22, 2019

To: Administrator, Water Resources Division

From: Water Sciences Bureau

The purpose of this memorandum is to describe standard practices followed by DNRC to evaluate legal availability in the amount requested during the period of diversion for permits to appropriate ground water under §85-2-311(1)(a)(ii), MCA.

Legal availability, whether for an appropriation of ground water or surface water, is determined by analyzing physical availability, identifying legal demands on the source of supply throughout the area of potential impact, and comparing the physical water supply at the proposed point of diversion with the legal demands on the supply. ARM 36.12.1704 specifies procedures for evaluating existing legal demands and ARM 36.12.1705 specifies procedures for comparing physical availability and existing demands. ARM 36.12.1704 specifies procedures for evaluating physical ground water availability criteria under §85-2-311(1)(a)(i), MCA; however, different procedures are used to evaluate the physical water supply for evaluations of legal availability of ground water.

Legal availability of ground water is an evaluation of whether the physical supply at a proposed point of diversion is adequate to meet current as well as additional demands. For surface water, physical availability for comparing to legal demands is based on flow, specifically the median of mean monthly stream flow. That practice also has been followed for ground water applications where ground water flow or flux, ground water recharge, and ground water discharge are alternative metrics for physical supply transmitted through a ground water system. Selection of which metric to use depends on the hydrogeologic setting and available information to complete a calculation.

A technical evaluation of legal availability of ground water requires information on the area of potential impact and physical availability within that area. Legal demands within the area of potential impact are compiled from the water rights database.

Area of Potential Impact

The standard approach for delineating the area of potential impact to evaluate legal availability of ground water under §85-2-311(1)(a)(ii), MCA is to calculate the extent of drawdown from pumping for the period of diversion with an analytical model and inputs from an aquifer test. A zone of influence (ZOI) is most often delineated from a distance-drawdown plot produced using an analytical model such as the Theis (1935) solution, a constant pumping rate for the period of diversion, Transmissivity and Storativity from an aquifer test of a proposed well. The result is generally a circular area known as the zone of influence which is defined by the 0.01-foot drawdown contour that is truncated at aquifer boundaries.

Physical Availability

Physical availability within the area of potential impact can be evaluated by estimating 1) ground water recharge, 2) ground water flux, or 3) ground water discharge.

Ground Water Recharge

Calculations of ground water recharge must be based on credible measurements of stream losses or a modeling investigation to provide reliable estimates of the physical ground water supply for comparison to legal demands. An estimate based on percent of precipitation or another rule of thumb are unreliable and generally are not accepted. One example of an evaluation of stream losses to estimate ground water recharge is a study of recharge to the Madison Group aquifer in central Montana by Feltis and Shields, (1982). An example of an investigation where recharge was estimated as part of a modeling investigation is work by Briar and Madison (1992) where recharge was estimated from measurements of streamflow and ditch losses, estimates of deep percolation of irrigation water, and calculation of ground water inflow.

Scale is an important factor that must be considered when characterizing the physical supply for comparison to legal demands from estimates of ground water recharge. Recharge estimates must be tributary entirely to the ZOI or be amenable to apportioning to a smaller ZOI to be a credible measure of the physical supply.

Ground Water Flux

Ground water flux (Q) through a ZOI corresponding to the 0.01-foot drawdown contour is calculated from Darcy's Equation:

$Q = Twi$, where:

- T = Transmissivity (ft^2/day)
- w = Width of Zone of Influence (ft)
- i = Ground Water gradient

Example: Irrigation well in unconfined alluvium in Richland County Montana

The ZOI extends beyond aquifer boundaries and is subsequently truncated at the boundaries for the purpose of determining aquifer flux. The width of the ZOI then determined from the distance between the boundaries perpendicular to the gradient.

T = 20,490 ft^2/day from applicant's aquifer test
Width = 6,200 ft, distance between boundaries perpendicular to gradient
i = 0.001 from ground water levels in wells

Q = (20,490 ft^2/day)*(6,200 ft)*(0.001) = 127,038 ft^3/day = <u>1,064 acre-feet/year</u>

<u>Ground Water Discharge</u>

Discharge of ground water to surface water base flow can be calculated from Base Flow Index (BFI) information from the USGS. Two pieces of information, annual flow and BFI, are required when using this method to determine the annual quantity of ground water that contributes to the baseflow of streams within the contributing watershed area of a proposed new well, pond or pit. This annual value will be used to evaluate the physical ground water supply for comparison to existing legal demands. BFI values that represent the ratio of base flow to total annual flow are estimated by the USGS using automated hydrograph separation and are available for many historic gage sites across Montana (Wolock, 2003-146). Where no gage exists, or for sites that are influenced by reservoir storage, BFIs can be estimated from an interpolated grid of BFI values (Wolock, 2003-263).

When possible, the BFI's taken from a gage site are preferable, provided the gage site is free of reservoir effects that can lead to overestimation of baseflow contribution. Gridded BFI maps that are interpolated from gaged information should be substituted when reservoir effects are expected to be significant.

Example: Ground water pit/pond in unconfined alluvium in Lincoln County

The initial investigation of physical availability resulted in a relatively small ZOI, which taken in combination with the aquifer properties and hydraulic gradient, indicated that there was insufficient flux to maintain the pond, or any additional groundwater rights. However, the persistence of water in the pond, it's construction within the shallow alluvial aquifer, and the hydraulic connection of the shallow aquifer to the Fisher River all provided contrary information suggesting that water was physically available. Given this, and the limited and well defined extent of both the aquifer and watershed drainage area (encompassing the pond and the downstream depleted reach) the Department investigated physical availability of

groundwater at the local watershed scale using an estimate of annual flow at a point in the Fisher River and an appropriate BFI.

The appropriate regression equation for the ungaged location on the Fisher River provides an estimate of 335 cfs (242,112 acre-feet/year) for the mean annual flow. A representative BFI of 0.727 value is from representative data from HUC 8 level gage on the Fisher River near Libby (USGS 1230255).

Contributing watershed: Upper Fisher River HUC 12 (489.3 square miles)
Precipitation: 28.6 inches

Mean annual streamflow = 335 cubic feet per second (242,112 acre-feet/year)
BFI for Fisher River HUC 8 = 0.727

Physical supply = 0.727 x 242,112 acre-feet/year = 176,014 acre-feet/year

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Technical Memorandum: Net Surface Water Depletion from Ground Water Pumping

Date: July 6, 2018

To: Water Rights Bureau Chief

From: Water Sciences Bureau

The purpose of this technical memorandum is to describe the standard practices DNRC use to calculate net depletion to evaluate criteria under §85-2-311, MCA for ground water permits and §85-2-402, MCA for ground water changes. Net depletion calculations also are subject to provisions of §85-2-360, MCA for ground water permits in basins closed to new surface water appropriations.

Net depletion of surface water resulting from ground water pumping is the calculated volume, rate, timing, and location of reductions to surface water flow resulting from a ground water pumping. Net depletion is evaluated by:

1. developing a hydrogeologic conceptual model
2. identifying potentially affected surface waters,
3. calculating monthly consumption, and
4. calculating monthly net depletion.

The standard practices for evaluating net depletion are believed to be generally adequate to provide substantial credible evidence necessary to evaluate criteria under §85-2-311, MCA. DNRC may deviate from standard practices for evaluation of net depletion if an applicant provides credible information to support a different evaluation. Additional information provided by an applicant might refine the hydrogeologic conceptual model, support delineation of different potentially affected surface waters, justify different consumption calculations, and/or support more detailed modeling. DNRC will assess the value of additional information and justify whether or not to deviate from the standard practice.

Hydrogeologic Conceptual Model

A hydrogeologic conceptual model is a description of the physical characteristics of an aquifer that control the flow and storage of ground water including interactions with surface water. Hydrogeologic conceptual models developed in net depletion evaluations by DNRC rely on aquifer testing and information readily available in published reports, maps, and databases. Reports and maps published primarily by the U.S. Geological Survey (USGS) and the Montana Bureau of Mines and Geology (MBMG) provide fundamental information on geology, aquifer

boundaries, and aquifer properties. The Ground Water Information Center (GWIC) and Montana Board of Oil and Gas Online Oil and Gas Information System databases provide information pertaining to lithology and well construction reported on driller's logs as well as water level and water chemistry monitoring, and aquifer test data. Aquifer testing conducted by applicants provides site-specific information on aquifer properties and boundaries.

A hydrogeologic conceptual model in a net depletion evaluation incorporates information on the hydraulic connection and interactions between a source aquifer and surface water. Information incorporated in a conceptual model may include the depth a stream penetrates the saturated thickness of an aquifer, character of streambed sediments, and measured stream losses or gains.

Potentially Affected Surface Waters

Potentially affected surface waters in a net depletion evaluation are identified by their hydraulic connection to the source aquifer of a prospective ground water diversion based on the hydrogeologic conceptual model. Procedures for evaluating hydraulic connection and identifying one or more potentially affected surface water(s) depend on whether a proposed well is in an unconfined aquifer, in a confined aquifer in western Montana intermontane basins, or in eastern Montana regional bedrock aquifers. Aquifer type is determined from information obtained from geologic maps, lithology from well logs, or published reports by the USGS, MBMG, or other researchers, or hydrogeologic assessments conducted by consultants. Procedures in this document pertain to unconfined aquifers and confined aquifers in intermontane basins. Procedures for regional bedrock aquifers in eastern Montana are presented in a separate document.

Net depletion is apportioned between multiple potentially affected surface waters generally following procedures described in Section 3.2 of a guidance document developed by the Province of British Columbia (2016) for determining the effect of ground water diversion on specific streams. Depletions are apportioned through an iterative process based on inverse-distance squared stream weights. Once an initial set of streams has been identified, calculated stream weights are assigned. These weights represent the percent of depletions assigned to individual streams and sum to one. If any of the streams initially evaluated have scaled weights less than 0.1, representing less than 10% of total depletion attributed to that source, they are eliminated from consideration and the weights are recalculated for the remaining potentially affected sources, with the sum of all final weights equal to one.

<u>Hydraulic Connection - Unconfined Aquifer</u>

Hydraulic connection of surface water(s) to an unconfined source aquifer of a proposed well is based on an iterative consideration of proximity and comparison of ground water elevations relative to surface water bed elevations of potentially affected sources. For an initial screen, potentially affected surface waters are identified in the area surrounding a proposed ground water diversion that lies between the source aquifer boundary and the highest order stream transecting the source aquifer. Hydraulic connection of individual stream reaches to ground water is evaluated by comparing streambed elevations to static ground water elevations measured in wells less than 50 feet deep and within 1,000 feet of surface water or from published water table maps. Surface water within that area is considered hydraulically connected to the source aquifer if static ground water elevations are above or within 10 feet of the elevation of the stream bed.

Hydraulic Connection - Confined Basin-Fill Aquifers

Tertiary-age basin-fill sediments that underlay shallow alluvial aquifers in intermontane basins in western Montana can be 1,000s of feet thick and contain thick confining layers. Drawdown caused by pumping may spread over large distances, often extending to basin margins and ultimately depleting either the main outflow from the basin or surface waters at locations where confining layers are thinner, more permeable, or absent. Hydraulic connection of a confined aquifer to surface water depends on the continuity and properties of its confining layer as well as the hydraulic connection of the overlying unconfined aquifer to surface water.

The existence, continuity, and thickness of confining units are examined to determine whether depletions will occur at local or basin scales. Examinations of confining layers are based on the occurrence of fine-grained sediments in lithology descriptions from driller's logs obtained from GWIC, geologic cross sections constructed by DNRC or other sources, or published confining unit thickness maps by USGS or MBMG.

Hydraulic Connection- Fractured Bedrock Aquifers

Fractured bedrock aquifers in western Montana may be tapped for ground water beneath basin-fill sediments, but typically are important around basin margins or in valleys without significant basin fill sediments. Fractured bedrock aquifers may be unconfined at shallow depths or confined where fracturing does not extend to the water table.

Hydraulic connection of surface waters to fractured bedrock aquifers in intermontane basins is based on a geologic conceptual model describing the location and character of mapped geologic structures, outcrops or sub-crops, karstic conditions, and a confining unit. Generally, wells completed greater than 100 feet deeper than the bed of a potentially affected surface water are considered confined. Geologic maps are key evidence of the location and character of geologic structures that may connect a source aquifer in fractured bedrock to surface water or an overlying unconfined aquifer. Surface drainage patterns also often provide evidence of the presence of faults or fracture patterns that can reveal hydraulic connection between a bedrock aquifer and surface water. Distance measured to evaluate hydraulic connection and weight depletion among potentially affected surface waters is measured along the strike of any geologic structures believed to provide hydraulic connection.

Consumption

Consumption is evaluated according to the use of a proposed ground water appropriation following standard practices adopted by DNRC.

Ponds and Wetlands

Standard procedures for estimating evaporation from ponds and evapotranspiration (ET) from wetlands fed by ground water are described in the Technical Memorandum: Pond and Wetland Evaporation/Evapotranspiration dated March 14, 2018.

Crop Irrigation

Monthly consumption for crop irrigation is equal to the net irrigation requirement (NIR) calculated using the USDA Natural Resources Conservation Service (NRCS) Irrigation Water Requirements (IWR) program plus irrecoverable losses not associated to crop growth. The IWR Program computes total monthly crop ET, effective precipitation and NIR. The Blaney-Criddle

Method (TR21) used by DNRC, is described in detail in the National Engineering Handbook (1993). The following inputs to IWR for calculation of NIR are consistent with inputs used to develop the DNRC consumptive use rules in ARM 36.12.1902:

1. System and Local defaults in the Options Tab in IWR are unchanged.
2. The closest weather station is selected for climate data unless there is a more representative station based on elevation or another factor.
3. Site elevation and precipitation ratios are unchanged.
4. Start and end dates are calculated by IWR using default temperatures.
5. Net irrigation depth applied each irrigation is set to 1" for center pivot irrigation and 4" for other irrigation methods.
6. Carryover used at the beginning and at the end of each season is 25% of the net application depth.

Irrecoverable losses are equal to 5% for flood, wheel line, or hand line sprinkler, and 10% for center pivot irrigation sprinkler. Application rate is equal to NIR divided by an appropriate on-farm efficiency (Table 1). Values presented in Table 1 are similar to those percentages associated with the Irrigation Standards presently in rule for permit applications (ARM 36.12.115). An additional value for wild flood on-farm efficiency is presented as 25% (Neibling 1997, Utah State 2008).

Table 1: On-farm efficiency.

Irrigation Method	Efficiency
Sprinkler	0.70
Level Border	0.60
Graded Border *(Design Slope = .1-.4%)*	0.70
Graded Border *(Design Slope = .75-1.5%)*	0.65
Graded Border *(Design Slope = 3%)*	0.60
Furrow *(Design Slope = .1-.4%)*	0.70
Furrow *(Design Slope = .75-1.5%)*	0.65
Furrow *(Design Slope = 3%)*	0.60
Contour Ditch *(Design Slope = .75%)*	0.60
Contour Ditch *(Design Slope = 1.5-3%)*	0.55
Contour Ditch *(Design Slope = 6%)*	0.45
Wild Flood	0.25

Public Water Supplies and Other Multiple Use Appropriations

Consumption for public water supplies and combined appropriations results from evaporation during cooking, showering, and other indoor uses, evaporation during wastewater treatment and disposal, and NIR for lawn and garden irrigation. Withdrawals for specific uses can be obtained from DNRC or DEQ administrative rules or from values in publications such as the Manual of Small Water Supply Systems (EPA, 1991). Consumptive use coefficients listed in Table 2 are multiplied by withdrawal values to calculate consumption for evaluations of net depletion. These coefficients are based on the results of studies by Kimsey and Flood (1987), Vanslyke and Simpson (1974), and Paul, Poeter, and Laws (2007). Consumptive use coefficients for other purposes can be obtained from published reports such as Shaffer and Runkle (2007).

Table 2: Consumptive use coefficients for public water supply use with wastewater disposal and treatment.

Wastewater Treatment / Disposal	Consumed
Individual drainfields	10 %
Central treatment facility with minimal consumption	5 %
Evaporation basin or land application	100 %

Consumption for lawn and garden irrigation is based on the NIR for pasture grass calculated using IWR with inputs consistent with ARM 36.12.1902 and estimates of irrigated acreage provided by applicants.

Other Uses

Consumption for evaluating net depletion is assumed to be 100% for municipal, stock water, industrial, oil well flooding, water marketing for water depots, agriculture spraying, and some commercial uses. Open-loop geothermal systems where ground water is pumped and reinjected into the same source aquifer are considered non-consumptive if the pumping and injection rates are equal.

Rate and Timing of Net Depletion

Net depletion is the calculated difference between the amount of water depleted from a surface water source by pumping ground water and the amount of that water put to beneficial use but not consumed that accretes to surface water. Depletion results from propagation of drawdown from a pumped well to potentially affected surface waters. Drawdown can propagate in any direction independent of ground water flow rate or direction (Leake, 2011). Drawdown also can propagate through a confining layer to an overlying aquifer (Konikow and Neuzil, 2007) or to outcrops of a confined aquifer located miles away from a pumping well. Capture occurs as drawdown propagates through an aquifer to hydraulically connected surface waters and areas of phreatophyte vegetation that takes water directly from ground water. In the absence of credible evidence to the contrary, capture of ET by phreatophytes is neglected and net depletion is assumed to equal total capture. This assumption is made because published estimates for conditions common in Montana alluvial valleys indicate capture of ET generally is less than 10 percent of total capture (Xunhong, 2006). Return flows accrete to surface water in a process opposite of capture as mounding propagates to hydraulically connected surface waters and areas of phreatophyte vegetation. Similar to depletion, mounding propagates in all directions independent of ground water flow rate or direction and generally does not depend on surface topography.

Net depletion is calculated based on the fundamental concept that the amount of water withdrawn eventually is offset by an equivalent increase in ground water recharge or decrease in ground water discharge (Theis, 1940; Leake et al., 2008), a process defined as capture by Lohman (1972). The rate and timing of depletion to surface water source resulting from pumping from an unconfined aquifer typically is modeled by DNRC using analytical models including the Alluvial Water Accounting System (AWAS) and the Well Pumping Depletion Model (WPDM). A source aquifer is assumed to behave as an equivalent porous medium with constant aquifer properties and the model is run until equilibrium conditions are achieved.

Return flows also are modeled using AWAS and WPDM using recharge wells distributed across the place of use instead of pumping wells used in a depletion analysis. Return flows also may be calculated using the Glover parallel drain model implemented in a spreadsheet or the Stream Accretion Model (SAM). All analytical models used by DNRC have specific assumptions regarding the properties, geometry, and boundaries of an aquifer being modeled that need to match the conceptual model of a specific application. Complex numerical ground water flow models may be used to calculate net depletion if they are available from MBMG, the USGS, other researchers or consultants and appropriate for that purpose. However, appropriate numerical models generally are not available and the ground water models used most frequently by DNRC are analytical models that represent simple aquifer and stream geometries that are suitable where input data are limited.

Net depletion is evaluated by calculating depletion from ground water pumping and return flows of non-consumed water separately where return flows go to a different source or occur at a different location than ground water pumping. However, the timing of depletion from pumping ground water and timing of associated return flows are assumed to be the same under circumstances where a pumped well and the place of use where return flows occur are the same relative distance from a potentially affected surface water. Under those common circumstances, net depletion is modeled directly by setting the monthly pumping rate equal to the monthly consumption (e.g. from IWR). Net depletion equals consumption from a source on an annual basis whether pumping withdrawals and return flows are modeled in separate steps or whether the difference between withdrawals and return flows (i.e. consumption) is modeled in one step.

Standard inputs to models used to calculate net depletion are transmissivity, specific yield, distance to a surface water source, and distance to any no-flow boundaries that are modeled. Aquifer transmissivity is taken from the Department's Aquifer Test Report unless more representative values are available or where an aquifer test was not conducted under a variance. Transmissivity also may be calculated by multiplying tabulated values for hydraulic conductivity from published sources such as Bear (1972) by saturated aquifer thickness determined from representative driller's logs from GWIC. A specific yield of 0.1, based on Lohman (1972), is the default value for modeling net depletion. Distances to potentially affected surface waters and no-flow boundaries are representative values taken from mapped hydrography and/or geology.

The rate and timing of net depletion is assumed to be constant year-round where a proposed use from any aquifer type is constant year-round or where a well pumps from a confined basin-fill aquifer or from a depth greater than 100 feet in a fractured bedrock or a karstic limestone aquifer.

Return Flow Analysis

The following procedures are followed when net depletion is evaluated by modeling return flows depletion from ground water pumping separately. Monthly volumes of non-consumed water that returns to a source from a proposed new ground water use that are input to an appropriate model are calculated by dividing total consumption including irrecoverable losses by on-farm efficiency.

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Technical Memorandum: Surface Water Depletion for Regional Bedrock Aquifers

Date: September 16, 2019

To: Millie Heffner, Water Rights Bureau Chief

From: Attila Folnagy, Ground Water Hydrologist, Water Management Bureau
Todd Netto, Water Resource Specialist, Glasgow Water Resources Office
Mark Elison, Deputy Manager, Billings Water Resources Office

The purpose of this technical memorandum is to describe procedures for determining where appropriations under §85-2-311, MCA for ground water permits and §85-2-402, MCA for ground water changes from regional bedrock aquifers have the potential to deplete surface water sources and adversely affect existing water rights. The following discussion clarifies where the Department will consider surface water depletions from ground water pumping in consolidated bedrock aquifers as part of a standard evaluation of a ground water appropriation. Aquifers considered in this memorandum include all consolidated bedrock aquifers stratigraphically below the Bear Paw Shale. The standard practices DNRC follows to calculate net depletion from ground water pumping are described in a separate technical memorandum. This standard practice for regional bedrock aquifers also incorporates the results from the Madison Group Aquifer Guidance Memo which identifies surface water depletion from ground water pumping in the Madison Group Aquifer.

Net Depletion Background

Net depletion of surface water resulting from ground water pumping described in a related technical memorandum is the calculated volume, rate, timing, and location of reductions to surface water flow resulting from a ground water pumping. Net depletion is calculated by DNRC by:

1. developing a hydrogeologic conceptual model
2. identifying potentially affected surface waters,
3. calculating monthly consumption, and
4. modeling monthly net depletion.

Note: The Madison Group Aquifer Guidance Memo cited here contains identical text as the document previously cited in the Aquifer Test Reports under the "Draft Madison Group Aquifer" moniker. The latter, incorrectly cited as published in 2014, contained a "DRAFT" watermark on the first page. The Madison Group Aquifer Guidance Memo does not have this watermark, but is otherwise identical.

The information presented in the following sections describes the general hydrogeologic conceptual model and procedures for identifying potentially affected surface waters for ground water pumping from regional aquifers in consolidated bedrock, primarily in central and eastern Montana.

Exclusions to this Guidance

This technical memorandum does not apply when regional bedrock aquifers are at or near the surface and may potentially impact local surface water sources. This technical memorandum does not supersede restrictions related to closed basins, controlled ground water areas, compacts, and/or administrative actions.

Determining Surface Water Depletion

To determine where surface water depletions are likely to occur due to withdrawal from a regional bedrock aquifer, a buffer region is drawn around formation outcrops of the source aquifer and around geologic structures that are likely to provide preferential flow pathways within the aquifer (Figure 1). The procedures described in this memorandum are similar to those in the Madison Group Aquifer Guidance Memo which identifies buffers around outcrop areas in which the Madison Group Aquifer is not considered hydraulically connected to surface water. Buffers delineated in this memorandum identify regions in central and eastern Montana where ground water appropriations in regional bedrock aquifers are considered to have no surface water connection for the purpose of standard evaluations of ground water appropriations conducted by the Department. If a new appropriation is located within a buffered area, new ground water appropriations will continue to be evaluated under the standard practices found in the related technical memorandum. New ground water appropriations outside the buffer are not considered to deplete surface waters unless there is information suggesting otherwise, including but not limited to hydrogeologic studies and geologic mapping in the area of interest. Site specific evaluations will be confirmed by a Department ground water hydrologist using the best available geologic structure information for the region.

Buffers Around Outcrops

In areas where an aquifer crops out at the surface, it is likely that ground water appropriations will result in decreased discharge from the aquifer to surface water. This probability decreases with distance from the outcrop as the aquifer lies deeper beneath overlying units. An outcrop buffer of 10 miles is based on the buffer distance used by the Department in the Madison Group Aquifer Guidance Memo. In areas greater than 10 miles from an aquifer outcrop, ground water pumping from regional bedrock aquifers are not considered to deplete surface waters unless there is evidence to the contrary.

Buffers Around Geologic Structures

Regional-scale geological structures have the potential to provide preferential pathways for propagation of drawdown to surface water due to ground water pumping. In general, increasing confining pressure at depth compresses fractures and reduces the hydraulic conductivity of geologic structures and, consequently, constrains propagation of drawdown to areas near outcrops. At shallower depths, pore pressures are less, fractures are more open, and hydraulic conductivities of geologic structures are much higher. Furthermore, regional-scale geologic structures are interconnected with more local scale geologic structures, creating fracture zones. A buffer of 10 miles is to be used for geologic structures. In areas greater than the buffer distance from a regionally significant geologic structure, barring any evidence to the contrary, the Department would not consider surface water depletions from ground water appropriations from that regional bedrock aquifer as part of a standard evaluation of applications for ground water appropriation.

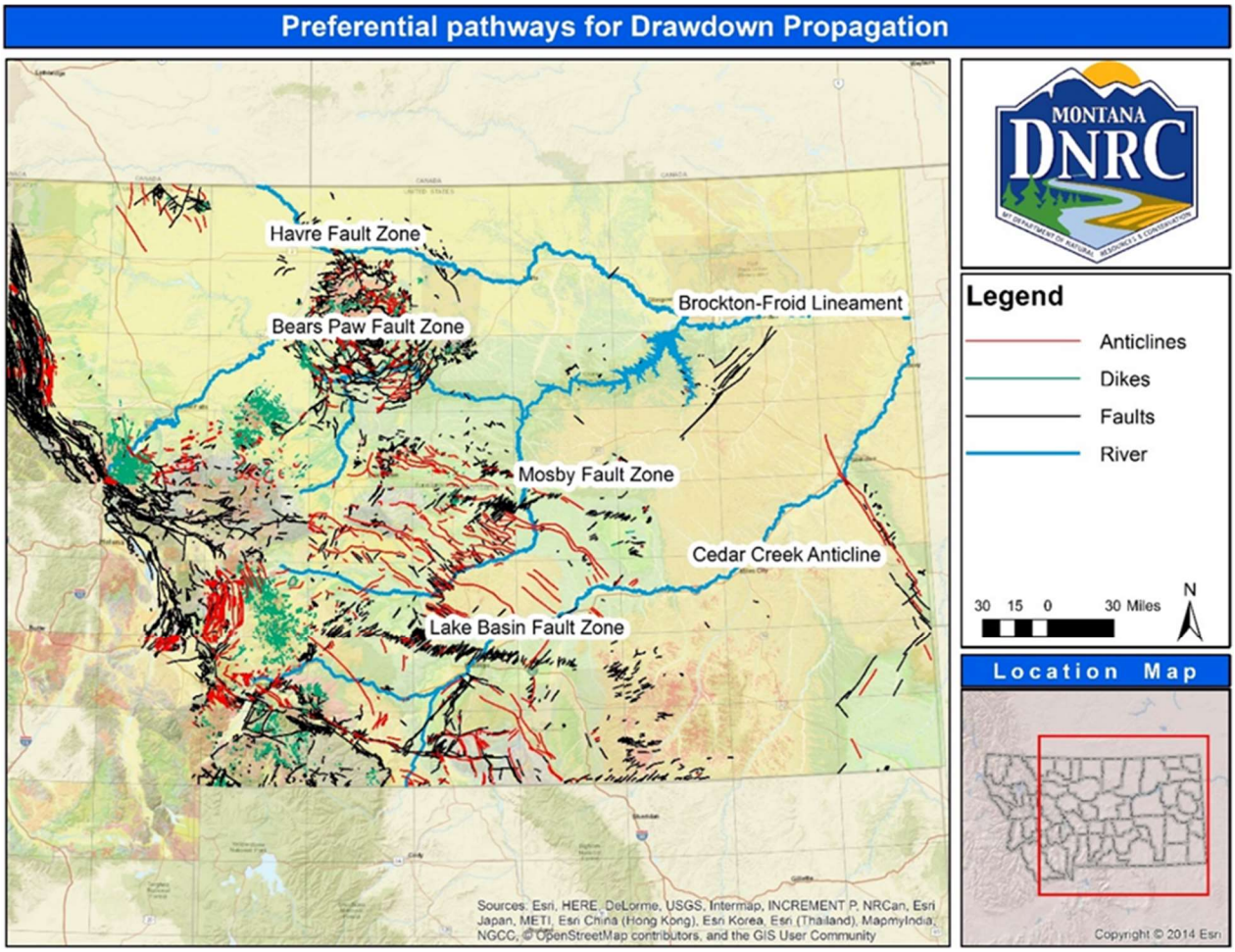

Figure 1: Preferential pathways for drawdown propagation (from geologic map 1:100,000 scale).

Additional information the applicant or objector can provide

If an applicant or objector disagrees with the Department's determination potentially affected surface waters for an appropriation of ground water from a regional bedrock aquifer, they have the option to provide the Department with additional information and analysis. The new data and analysis should include a hydrogeologic conceptual model of geologic structural control of ground water flow and discharge, and propagation of drawdown from the applicant's proposed well including a map showing where depletions to surface water are expected to occur.

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DNRC Consumptive Use Methodology – Turf Grass (New Projects)
March 23, 2010

Introduction

Insofar as new groundwater appropriations, an area of continued confusion and potential disparity is the estimation of consumptive use for turf grass. Estimates for turf grass are seldom available for ready use by applicants and are not currently consistent across all jurisdictions. The only known estimates directly provided can be found in the Montana Irrigation Guide. However, this information relies upon an older precipitation dataset, and is only available at a few stations. Given this, applicants have frequently attempted to use pasture grass estimates as a proxy for turf grass. Historically, the Water Management Bureau has not accepted this, noting that the management and species composition of pasture and turf grass are not necessarily interchangeable. As a result, applicants have frequently adjusted pasture grass estimates upward by the average difference in net irrigation requirements required for each crop (approximately 3 inches). This accounted for, at least in the case of the Irrigation Guide, differences in net irrigation application and carryover moisture. With the advent of IWR and its expanded use by the department and applicants, this upward adjustment was frequently carried over to IWR pasture grass estimates. However, much of the disparities between the management assumptions in the Irrigation Guide are not present in most uses of IWR (net irrigation application, carryover moisture).

A second area of confusion has also existed over the use of "dry year" or "normal year" estimates. Historically (recent) the Water Management Bureau has provided guidance that "normal year" estimates be utilized. However, with the recent adoption of the historic consumptive use rules (which utilize IWR "dry year" estimates), any new consumptive use estimates for turf grass should likewise utilize "dry year" estimates for consistency.

Given this, the Water Management Bureau is accepting the use of IWR pasture grass estimates as a proxy for turf grass under the following conditions:

1. Applicants use dry year estimates
2. Applicants do not use the default start and end dates, but re-calculate these dates using the default temperature and grow data in the IWR database (45 degrees F)
3. Applicants use the default 1" net irrigation application
4. Applicants apply 0.5 inches of carryover moisture (0.25 inches applied at the beginning, and 0.25 inches applied at the end of the season)

Ultimately, it is anticipated that rules similar to those for historic consumptive use will be proposed, with a similar table of acceptable values made available for applicants. In the interim, recognizing that there are active applications that were initiated using normal-year, upward adjusted pasture grass estimates, a comparison between existing and proposed methodologies will be provided to the regional offices for their use.

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

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03-19-2012

Ditch Rights General Information

The Montana DNRC and in particular the Water Rights Bureau is often asked to answer questions pertaining to ditch rights. Ditch rights are rights of access across another's land to convey water. They may be mere licenses, or actual easements. Ditch rights and water rights are separate. A water right does not convey a ditch right and a ditch right does not convey a water right.

The Water Rights Bureau of the DNRC does not administer, maintain or enforce ditch rights. That said we have a responsibility to provide whatever useful information we have in order to best serve the public.

The following is a list of Montana Code Annotated (MCA) sections and readings that may be helpful regarding ditch rights. This list is not exclusive. If one has questions regarding their ditch rights, he or she should contact their legal counsel. DNRC cannot give advice, legal or otherwise, concerning ditch rights.

- MCA 70-17-112 Interference with canal or ditch easements prohibited
- MCA 85-2-202 Road or ditch right-of-way
- MCA 7-31-4205 Procedure to close and fill ditch – notice
- MCA 7-31-4203 Open ditch declared nuisance
- MCA 85-2-414 Conduction of water
- MCA 85-5-106 Maintenance and repair of ditches or systems
- MCA 85-7-1933 Diversion of waters
- MCA 85-7-2211 Safety
- Chapter 8. Ditch Rights. Taken from: Montana Water Law Handbook, by Ted Doney, 1981, published by State Bar of Montana.

Recent opinions by the Montana Supreme Court may also be helpful in understanding ditch rights: *Sitz Angus Farms V. Dallaserra*, 2002 MT 295N (non-cite); *Byrum v. Andren et al*, 2007 MT 107; and *Musselshell Ranch Co. v. Joukova*, 2011 MT 217. These opinions can be found on the Montana Supreme Court's website, http://searchcourts.mt.gov/index.html

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DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
WATER RIGHTS BUREAU
NEW APPROPRIATIONS PROGRAM

* *

ADMINISTRATIVE POLICY NO. 7

[X] PROPOSED, DATE 10/20/81

[X] FINAL, DATE 12/11/81

APPROVED: Ronald D. Duse
NEW APPROPRIATIONS PROGRAM MANAGER

APPROVED: Laurence Siroky
CHIEF, WATER RIGHTS BUREAU

* *

DEWATERING (Drainage) POLICY

The intent of this policy is to address the following question in order to consistently administer the water right permit system in Montana.

Question: In what situations is a Permit Application (Form 600) or Completion (Form 602) not required from the Department when dewatering of a water source is involved?

I. DEFINITION:

"Dewatering" (drainage) - means the process whereby water (usually groundwater) from surrounding aquifers must be removed by pumping or gravity flow so another activity can go on, such as, mining, agriculture, etc. In some cases it could mean the process of removing surface water from a reservoir, lake, or pond for the purpose of regulating the water level, draining for repairs or construction, etc.

II. DEWATERING - A NON-BENEFICIAL USE:

The process of dewatering a water source does not require a Permit Application (Form 600), nor the filing of a Completion (Form 602) with the Department where there is no intent to apply any of the water to a beneficial use. There has to be a beneficial use intended for the water before the Department can have jurisdiction. The mere dewatering of a water source without a beneficial use does not constitute an appropriation; therefore, no water right can be established solely by dewatering.

III. GENERAL LEGAL REVIEW:

Montana's Constitution under Article IX, Environment and Natural Resources, Section 3 Water Rights, subsection (3) provides, "All surface, underground, flood, and atmospheric waters within the boundaries of the state are the property of the state for the use of its people and are subject to appropriation for beneficial

uses (underlined for emphasis) as provided by law." This specific subsection of the Montana Constitution is again reiterated in Section 85-2-101(1), MCA of Montana water law under "Declaration of policy and purpose."

The definition of "beneficial use" is stated in Section 85-2-102(2), MCA as meaning, "a use of water for the benefit of the appropriator, other persons, or the public, including but not limited to agricultural (including stock water), domestic, fish and wildlife, industrial, irrigation, mining, municipal, power, and recreational uses."

Section 85-2-301, MCA provides in part that, "A person may only appropriate water for a beneficial use."

The word "appropriate" is defined in Section 85-2-102(1), MCA, "to divert, impound, or withdraw (including by stock for stock water) a quantity of water or, in the case of a public agency, to reserve water in accordance with 85-2-316."

Lacking a constitutional standard, the courts have held that the determination of beneficial use depends upon the circumstances of each case.

There are at least two requirements for acquiring a water right - - there must be a taking of the water and an application to a beneficial use.

In any event, any taking of water must be accompanied by the second requirement for establishing a valid appropriation: beneficial use.

IV. SITUATIONS WHERE A PERMIT APPLICATION (FORM 600) OR COMPLETION (FORM 602) IS NORMALLY NOT NECESSARY:

The following is a list of specific dewatering situations where normally a Permit Application (Form 600) or Completion (Form 602) is not necessary; however, caution should be excercised to obtain all available facts on the particular case before deciding that a permit or completion is unnecessary.

a.) Water withdrawn from a mine for the purpose of extracting some mineral. (This could be an open pit coal mine, gravel pit, shaft-type hard-rock mine, etc.)

b.) Water withdrawn from a well for the sole purpose of mining a mineral such as uranium, oil or gas, etc.

c.) Water withdrawn from a well or pit to drain an area for construction purposes such as sewer lines, housing construction, etc.

d.) Water withdrawn by means of buried drainpipe for the purpose of draining a field to make it more productive.

e.) Water withdrawn from a basement of a structure for the purpose of making it liveable or useable.

f.) Water withdrawn by means of an open drain ditch for the purpose of draining a field to make it more productive.

g.) Water withdrawn from a reservoir, lake or pond for the purpose of regulating the water level, draining for repairs or construction, or some other purpose.

h.) A well drilled and used solely for groundwater level observation and record keeping or minor occasional sampling for water quality purposes.

V. ADVERSE AFFECT TO WATER USERS DUE TO DEWATERING PRACTICES:

It is apparent that dewatering practices may ultimately affect the exercise of existing water rights. However, the issue here is not whether the Department should be accorded the authority to assess such impacts, but rather, in fact, has such power been delegated. Administrative agencies have only that authority expressly or by necessary implication granted to them. It appears clear that the Department does not have the authority to require a Permit Application (Form 600) or Completion (Form 602) for dewatering practices where there is no intended beneficial use. (Review Section III, General Legal Review.)

Dewatering disputes involve and are determined by principles relatively foreign to the law of water rights. They raise property law issues of the type that the legislature might reasonably suppose admit more properly of judicial resolution. Therefore, a water user who is alledging to be adversely affected by a dewatering practice will always have the right and remedy to resolve the problem in the appropriate court of law.

Any individual who will undertake a dewatering program for whatever purpose, where no beneficial use is intended, should consider using a waiver agreement whenever practical. Mining companies frequently use waiver agreements as a practical device to overcome the legal uncertainties of dewatering. The effect of these waivers has been to release mining companies from liability resulting from past, present, or future pumping in exchange for a stated consideration. Companies or individuals can also agree to provide water if a water user is harmed.

VI. WASTING WATER VS DEWATERING:

Montana water law specifically provides in Section 85-2-505(1) MCA (waste and contamination of groundwater), that when groundwater is not being put to a beneficial use it is not a waste in the following cases:

"a.) The withdrawal of reasonable quantities of groundwater in connection with the construction, development, testing or repair of a well or other means of withdrawal of groundwater;

b.) the inadvertent loss of groundwater owing to breakage of a pump, valve, pipe, or fitting, if reasonable diligence is shown by the person in effecting the necessary repair;

c.) the disposal of groundwater without further beneficial use that must be withdrawn for the sole purpose of improving or preserving the utility of land by draining the same, or that must be removed from a mine to permit mining operations or to preserve the mine in good condition; and

d.) the disposal of groundwater used in connection with producing, reducing, smelting, and milling metallic ores and industrial minerals or that displaced from an aquifer by the storage of other mineral resources."

If the groundwater situation does not fit into the above categories or there is a wasting of water coupled with a beneficial use, the practice would be a wasting of water. Where there is a wasting of water, refer to Section 85-2-114, MCA which is entitled, "Prevention of Waste".

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
WATER RIGHTS BUREAU
NEW APPROPRIATIONS PROGRAM

* *

ADMINISTRATIVE
POLICY NO. 11

[X] PROPOSED, DATE 3/31/82

[ ] FINAL, DATE _____

APPROVED: Ronald L. Lusse
New Appropriations Program Mgr.

APPROVED: Lawrence Siroky
Chief, Water Rights Bureau

* *

INFILTRATION GALLERY POLICY

Montana Water Law statutes defines the following terms as follows:

1.) "Groundwater" - means any water beneath the land surface or beneath the bed of a stream, lake, or reservoir, or other body of surface water, and which is not a part of that surface water. (It is unclear what "which is not a part of that surface water, " means.) Section 85-2-102 (8) M.C.A.

2.) "Well" - means any artificial opening or excavation in the ground, however made, by which groundwater is sought or can be obtained or through which it flows under natural pressures or is artificially withdrawn. Section 85-2-102 (18) M.C.A.

An infiltration gallery for purposes of this administrative policy is a screen or series of screens, a perforated or open-ended pipe or series of pipes, or any combination of the former, installed in a natural or man-made gravel filter pack in a bed of a lake, stream or river, or along the shore of a lake or bank of a stream or river, whereby surface water is being appropriated.

~~The primary application of an infiltration gallery is in a situation~~ where there is an adequate saturated thickness (shallow aquifer) to support a well or well field to provide sufficient quantities of water for the beneficial use. A second common application of an infiltration gallery would be in a situation where a barrier, such as an impermeable rock formation which would greatly affect well efficiency or in other situations where a well or well field is not feasible.

The decision to place the infiltration gallery in a bed or a lake, stream or river, or along the shore of a lake or bank of a stream or river is dictated largely by characteristics of the site selected for the gallery. Obviously each location offers certain advantages and disadvantages with respect to the other.

The classical argument of defining the terms "surface" and "groundwater" is virtually endless. What is surface water today, may be groundwater tomorrow, or vice versa, is a fact in the study of hydrology and an unending problem in administering Montana's water right permit system.

In order to consistently administer the water laws of Montana, the following policy will be followed when infiltration galleries are encountered, as defined previously.

1.) Water users proposing or presently appropriating water for a beneficial use by means of an infiltration gallery, as previously defined, must file an Application for Beneficial Water Use Permit (Form No. 600), since surface water is directly being appropriated. (The less than 100 gpm exclusion for groundwater - Form No. 602, doesn't apply in this situation.)

2.) Obviously in some situations it may be unclear if in fact the applicant is or will be appropriating surface water by means of an infiltration gallery, as defined herein. If the available facts are not clear cut advise the applicant of the impact of the situation, document your discussion in the file and accept either the 600 or 602 Form.

3.) This problem should be addressed, if and when possible, before a 600 or 602 Form is filed with the Department. We will not return 602 Forms that have been filed unless facts obviously show the Applicant should have properly filed a Form 600.

Montana Department of Natural Resources and Conservation

~ Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities ~

This document offers guidance for the development and implementation of wetland and stream restoration projects as they pertain to Montana water rights. These guidelines are not intended to offer official departmental policy nor do they serve as a substitute for administrative rules established through the rulemaking process. DNRC's intention in the development of these guidelines is to provide an educational resource to the public and restoration practitioners involved in the work of stream and wetland restoration efforts.

This document discusses restoration techniques in terms of whether or not they constitute a diversion, impoundment or withdrawal of a quantity of water for beneficial use, which is how the Montana Water Use Act defines an appropriation of water that requires a water right. This document only pertains to State of Montana water right issues and does not contemplate other aspects of private property rights or civil law. This document also does not contemplate permitting requirements in addition to those directly relating to Montana water rights, but other permitting information can be found here: http://dnrc.mt.gov/licenses-and-permits/stream-permitting

DNRC strongly encourages individuals engaged in restoration work to contact their local DNRC Regional Office staff to obtain assistance regarding water rights questions for specific restoration projects:

Billings: (406) 247-4415 Bozeman: (406) 586-3136 Glasgow: (406) 228-2561 Havre: (406) 265-5516 Helena: (406) 444-6999 Kalispell: (406) 752-2288 Lewistown: (406) 538-7459 Missoula: (406) 721-4284

Background:

There is concern that inappropriately assuming a water right is required for wetland and stream restoration projects, including beavery mimicry, might limit ongoing ecological restoration efforts. Conversely, there is concern that some projects described as restoration are not comporting with water right laws when water is artificially manipulated through diversion, impoundment, excavation, groundwater pumping, or other means. Some of these activities may require a water right and some may not.

Appropriations under Montana Law:

Article IX, section 3(3) of the Montana Constitution provides that all surface, underground, flood, and atmospheric water within the boundaries of the state are the property of the state for its people and are subject to appropriation for beneficial uses as provided by law. These constitutional provisions are the basis of state laws that mandate an individual acquire a water right when intentionally ***Appropriating*** water for a ***Beneficial Use***. There are various types of water rights, including but not limited to *Statements of Claim*, *Permits*, and *Groundwater Notices of Completion*

(aka groundwater exceptions to a permit or exemptions from a permit or 602 wells), but this principal is consistent throughout: a water right is required to appropriate water for a beneficial use in the State of Montana.

Montana Statute defines ***Appropriate*** to divert [through Means of Diversion], impound, or withdraw, including by stock for stock water, a quantity of water for a *Beneficial Use* (MCA 85-2-301(1)). The Administrative Rules of Montana further describes appropriations by defining ***Means of Diversion*** as the type of structures, facilities, or methods used to *Appropriate*, impound, or collect water. Examples include, but are not limited to the following: dike, dam, ditch, headgate, infiltration gallery, pipeline, pump, pit, or well (ARM 36.12.101(36)). ***Beneficial Use*** means a use of water for the benefit of the appropriator, other persons, or the public, including but not limited to agricultural, stock water, domestic, fish and wildlife, industrial, irrigation, mining, municipal, power, and recreational uses. *Beneficial Use* includes specific instances of instream flow to protect, maintain, or enhance streamflows to benefit the fishery resource; *Beneficial Use* includes aquifer recharge, mitigation, and aquifer storage and recovery projects (MCA 85-2-102(4)). The DNRC has determined as a matter of policy that some wetland projects constitute a beneficial use under the Montana Water Use Act, as wetland habitat is inextricably linked to the beneficial uses such as aquifer recharge and fish and wildlife. Furthermore, these laws assume that a water user has intent to put the water to beneficial use and intent to protect those uses, which is why water right uses are governed by prior appropriations for purposes of prioritizing among multiple water users.

Wetland and stream restoration projects that intentionally divert, impound, or withdraw a quantity of water through a human-controlled diversion for a beneficial use clearly require a water right. However, these types of projects are highly variable and diverse which can make them difficult to categorize with respect to water rights. Wetland and stream restoration projects often rely on human initiated alterations to the landscape and/or hydrology with the purpose of restoring or resetting the natural functionality of wetland and stream systems. Sometimes these alterations are very similar to activities commonly associated with appropriation and beneficial use and as a result require water rights. Because restoration methods are so diverse, these activities are neither entirely exempt from water right requirements nor collectively mandated to acquire water rights. This document outlines a number of specific restoration practices as they relate to water right requirements.

The necessity of a water right for a particular restoration project depends upon numerous factors. For this reason, DNRC recommends that you contact your regional office with any water right related questions regarding this guidance document. The fact that a water right may not be required for some restoration activities does not mean that the activity is legal. An activity that results in the waste of water, prevents water from moving to another person, or violates the Montana Water Use Act is illegal and may be subject to judicial enforcement proceedings initiated by the department or another water user. Section 85-2-114, -122, and -125, MCA. Furthermore, restoration projects may be subject to other permitting or regulatory requirements under Montana law. DNRC recommends that you consult the appropriate regulatory agency and seek additional counsel regarding non-water right issues associated with wetland and stream restoration projects.

Water Rights Information:

Depending upon the specifics of the project, it may be necessary or advantageous to secure a water right even on a temporary basis for some restoration projects. The Montana Water Use Act provides numerous methods for obtaining a water right to facilitate or enable restoration efforts on a temporary or permanent basis. For more information on seeking a groundwater certificate (602 form), new right to appropriate (85-2-301 MCA), temporary change in an appropriation right (85-2-407 MCA), short term lease of an appropriation right (85-2-410 MCA), temporary permit (85-2-311 MCA), or other means of ensuring restoration projects comply with regulations, please contact your regional DNRC office or refer to the "Water Rights in Montana Handbook" available online at http://dnrc.mt.gov/divisions/water/water-rights/docs/2014-water_rights_in_mt_handbook.pdf.

Wetland Projects:

For the purpose of this discussion, wetland projects are categorized in terms of *Creation [Construction]*, *Restoration*, and *Enhancement*.

Wetland *Creation* [*Construction*] is the construction of an artificial wetland on a site that was historically non-wetland. Their uses include, but are not limited to landscaping, wildlife enhancement, water quality improvement, and sewage treatment. These wetland projects will always require a water right since water is artificially controlled and diverted to a place-of-use to create artificial wetland features in areas where natural wetland features have not existed in the past. It is noteworthy that some wetland creation [construction] projects used for treatment of wastewater from a public sewage system may not necessarily require a water right specific to reusing wastewater [or purposed as wetland] but that the use of this water is still predicated on an existing water right.

Wetland *Restoration or Historic Restoration* is the rehabilitation of a degraded wetland or the reestablishment of a wetland so that soils, hydrology, vegetative community, and habitat are restored to a close approximation of the original *natural* condition that existed prior to modification to the extent practicable. The term "natural" is emphasized here because a restored wetland should have characteristics similar to other natural wetlands in the area. Pool depths, water conveyance, vegetation and wetland water period of impoundments should share similar characteristics to other wetlands in the area. In the long-term, restored wetlands should function entirely in the absence of artificial controls and diversions of water that intentionally appropriate water for wetland use.

Wetland *Enhancement* is the modification of an existing wetland that augments specific wetland characteristics. Some augmentations, such as the non-irrigated promotion of specific plant species, are unlikely to artificially control water and increase water consumption above and beyond natural levels. However, in some wetland enhancements, impoundments and excavations are used to deepen wetland pools, diversions and headgates are used to impound water for longer periods, or the artificial control of water is used to encourage a larger area of wetland vegetation. Any of these types of enhancements that ultimately increase the amount of consumed or diverted water use beyond natural levels, require a water right.

To determine whether or not a wetland project results in a natural, constructed, or enhanced wetland, it is essential to compare the final project design to local natural wetlands characteristics. Characteristics to consider may include relative standing water (pool) dimensions, wetland plant species composition, wetland periods-of-impoundment, baseflow streamflow outputs, elevation

profiles, and floodplain connectivity. Any wetland project (restoration) whose final design approximates the natural characteristics of adjacent natural wetlands or approximates something smaller in magnitude does not require a water right. Any wetland project that results in deeper than normal wetland pools, higher in elevation water profiles, longer than typical periods of impoundment, curtailment of normative streamflow outputs, or diminished connection to the floodplain are wetland projects (enhancement or creation) that are more likely to require a water right. Wetland project designs should include descriptions of these characteristics as they pertain to water right demands.

It is worth looking at some specific techniques associated with wetland restoration projects, as they relate to water rights:

1. Excavations – The removal of fill (soil and rock) that was historically used to level and dry wetland areas so that they could be repurposed, through excavation, does not typically require a water right so long as the final wetland structure approximates natural characteristics. In contrast, an excavation that creates a wetland that will not be connected to a floodplain or not be located in an area that historically contained wetlands will require a water right. An excavation that results in the enlargement of a natural wetland or the enhancement beyond natural dimensions of a wetland will require a water right. Pool deepening beyond natural wetland conditions through excavation requires a water right.

2. Diversion – Any wetland that uses water sourced from a dike, dam, ditch, headgate, infiltration gallery, pipeline, pump, pit, or well will require a water right. [Groundwater Certificates (form 602), also known as exceptions to permits, are a type of water right]

3. Impoundments – Wetlands naturally impound water through natural depressions in the landscape and/or the existence of hydric soils that absorb and store water during periods of high flow and precipitation. These types of natural impoundments result in wetland associated aquifer recharge and storage and do not require a water right. In contrast, wetlands that use human-created berms, human-created dams, and dikes that result in wetlands that are perched in excess of elevation profiles of natural wetlands in the local area, require a water right for those portions of the wetland that are in excess of a natural wetland formation, as they are “enhanced wetlands” as compared to “natural wetlands.” All impoundments that result in “created wetlands” require a water right for the entire appropriation.

4. Removal of Drains – Many wetlands have historically been converted to agricultural land through the process of installing drain-ditches to remove wetland impounded water thereby converting wetland hydric soils to agricultural soils and converting wetland vegetation to agricultural crops. Restoration of drained wetlands often involves elimination of drains that can include the installation of drain-plugs, the filling of drain-ditches, removal of drain tiles, or otherwise causing cessation of the draining of soil and the eventual promotion of hydric soil development. This activity typically does not require a water right. However, activities that affect the water availability or supply of other water users may result in other types of private property liability issues

5. Wetland Vegetation Planting, Seeding, and Establishment – Wetland plant evapotranspiration (ET) is part of a natural system, but some restorations projects require temporary irrigation of newly seeded, planted, and waddled vegetation during the first years of plant establishment after a restoration action has occurred. So long as water is being applied for the establishment of what will become naturally occurring wetland plants associated with a

restoration activity, and the resulting consumptive use is not more what will be the naturally occurring ET of the wetland vegetation after it becomes established, no water right is needed.

Stream Restoration Projects:

Stream or river restoration projects involve activities intended to restore degraded ecosystems to a stable, healthy condition. Channel restoration, floodplain reconnection, the addition of channel structural complexity, bank stabilization, riparian planting and seeding, dam removal, fish passage construction, biological restoration, beaver dam analogues and flow augmentation are discussed here. Stream restoration typically does not include the protection of water under the Prior Appropriations Doctrine.

1. Channel Restoration – Channel restoration or modification is typically used to address channels degraded from down-cutting/incising, widening, artificial braiding, irregular lateral scour, or other impacts to channel morphology. Channel restoration can include full re-sculpting and grading of the channel, installation of cross-vanes or other water velocity reduction structures, engineered log jams, or other channel features designed to raise the stream bed elevation of incised channels and restore floodplain and hydraulic connectivity. Channel restoration does not include channel modifications designed to improve diversions or impoundments of water for withdraw or instream protection under the Montana Water Use Act. Accordingly, channel restoration activities typically do not require a water right. Some grade control structures, developed to address channel incision for example, result in the formation of low velocity backwater and pool areas. Generally speaking, in-channel grade control structures that pool or pond less than 0.1acre-foot of water will not require a water right.

2. Adding Channel Structural Complexity – This category of restoration activity often overlaps with channel restoration, and may use engineered log jams, root wads, and the insertion of large woody debris to provide slow water habitat and promote scour pool formation. The objectives are typically more focused upon improving aquatic habitat conditions for fish and other aquatic organisms as opposed to channel restoration which is typically designed to address issues of high flow energy and undesirable channel meandering. As far as water rights are concerned, the same principles apply as those articulated in the channel restoration section.

3. Beaver Analogues - The construction of beaver dam analogues generates approximations of naturally occurring beaver dams and beaver ponds, done in a manner intended to also promote the channel stability, diverse aquatic habitat conditions, flow energy dissipation, floodplain connectivity, and other benefits associated with naturally occurring beaver formations. These features are typically deformable grade structures that are not entirely water tight allowing for fish passage both upstream and downstream as well as the conveyance of base streamflows. They may include dam anchors of large buried logs that are incorporated into the dam and are typically constructed from biodegradable materials and designed to inundate as well as incorporate flow deposited cobble, gravel, and other non-organic materials. So longs as beaver analogues do not use control gates, culverts, headgates, ditches, or pipelines, they typically do not require a water right.

If installing a series of structures, deformable or otherwise, within close proximity of each other, it is highly recommended that you discuss project specifics with your regional DNRC office. Projects that pool or pond more than 0.1acre-foot of water per structure or per series of structures in close proximity may require a water right.

4. Bank Stabilization - Bank stabilization takes many forms, all of which tend to focus on the armoring of stream and river banks. Projects focused on the installation of hard- and bio-engineered structures typically do not have any water rights requirements.

5. Riparian Vegetation Planting, Seeding, and Establishment – Riparian plant ET is part of a natural system, but some restorations projects require temporary irrigation of newly seeded, planted, and waddled vegetation during the first years of plant establishment after a restoration action has occurred. So long as water is being applied for the establishment of what will become naturally occurring riparian plants associated with a restoration activity, and the resulting consumptive use is not more than what will be the naturally occurring ET of the riparian vegetation after it becomes established, no water right is needed.

6. Dam Removal – Any removal of human-made dams will likely involve water rights, as all legally operating existing dams are required to have obtained a water right for their use and those water rights must be considered when decommissioning a dam. It is necessary to identify each and every existing water user who is legally entitled to the continuation of the operation of any dam being removed, as each of those water users may have unique claim to title and use that needs to be addressed before dam removal.

7. Fish Passage Construction – Dedicated fishways, fish passages, or fish ladders are similar to side-channels of a river. They only serve to route water and therefore do not require a water right.

8. Biological Restoration – Biological restoration is the restoration of biological organisms and focuses on the manipulation of species composition with actions that aide the desirable or removal of undesirable organisms. Biological Restoration projects typically do not involve water rights issues.

9. Flow Augmentation – Flow augmentation, as presented here, is the increase of instream flow through water transactions that include, but are not limited to: acquiring instream flow water rights and protecting water instream through prior appropriations, acquiring other purposed water rights and changing them to instream flow and protecting water instream through prior appropriations, storing/releasing water, and the establishment of diversionary reduction agreements. Any flow augmentation project that involves the acquiring of protectable [prior appropriations] water supplies, including storage, to purpose or repurpose for instream use always involves water rights, often of a complex nature.

DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION

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RECEIVED
MAR 24 1986

MEMORANDUM

TO: Gary Fritz, Administrator
Water Resources Division

FROM: James M. Madden
Legal Counsel

APPROVED: Tim D. Hall
Legal Counsel

Post-it™ Fax Note 7671	Date	# of pages ▶
To Kim O.	From Scott L.	
Co./Dept.	Co.	
Phone #	Phone #	
Fax #	Fax #	

SUBJECT: Private Fish and Wildlife Appropriations under the Water Use Act.

DATE: January 22, 1986

ISSUE

Should the Department (DNRC) issue new water use permits or final certificates to individuals for private fish and wildlife purposes? Does the Water Use Act authorize individual appropriations for these uses? Does the Department of Fish, Wildlife and Parks (FWP) have any countervailing interests?

BRIEF ANSWER

Private appropriations for fish and wildlife purposes are authorized by the Water Use Act and its amendments. This is in accord with prior case law and with the legislature's intent to maximize the beneficial use of waters in Montana. The Act imposes two restrictions on these appropriations. First, private appropriations for fish and wildlife must involve some kind of a diversion, impoundment, or withdrawal of water. Second, proposed fish and wildlife apropriations must be measured against amounts reasonably needed for that use. Uses that cannot reasonably be quantified cannot be recognized as a right.

The Department of Fish, Wildlife and Parks has statutory authority to supervise the fish and wildlife of the state, but FWP does not have the exclusive right to appropriate water for fish and wildlife purposes. However, in some private fish and wildlife uses, DNRC and FWP interests overlap.

The DNRC should issue rules defining acceptable private fish and wildllife uses. These rules should be preceded by DNRC study of the quantification problems inherent in these uses, and should be based on the DNRC's interpretation of its duties under the Water Use Act.

DISCUSSION

1. Private appropriations for fish and wildlife under the Water Use Act.

The plain language of the Water Use Act, Title 85, Chapter 2, MCA, appears to authorize private appropriations for fish and wildlife purposes. After July 1, 1973, no person may appropriate water except as provided by the Act. A person may only appropriate water for a beneficial use. §85-2-301(1), MCA. The Act defines "beneficial use" as:

> a use of water for the benefit of the appropriator, other persons, or the public, including but not limited to agricultural (including stock water), domestic, fish and wildlife, industrial, irrigation, mining, municipal, power and recreational uses . . .
>
> §85-2-102(2)(a), MCA (emphasis added)

Several other states have also statutorily approved fish and wildlife appropriations as beneficial uses of water. See Ariz. Rev. Stat. Ann. §45-141(A); Cal. Water Code §§ 1242, 1243, 1257; Colo. Rev. Stat. Ann. 37-92-103(4); North Dakota Code Ann. 61-04-01.1; Or. Rev. Stat. 537.170(3)(a); Tex. Rev. Civ. Stat. Ann. 7470, 7471; Wash. Rev. Code Ann. 90.14.031. See also R. Clark, Waters and Water Rights §19.3(c) p. 59 (1967), and Hutchins, v.I Water Rights Laws in the Nineteen Western States, p. 523-24 (1971). A noted commentator has concluded that fish and wildlife uses are undoubtedly "beneficial", as that term is used in western water law. Trelease, The Concept of Reasonable Beneficial Use in the Law of Surface Streams, 12 Wyo. L.J. 6, 11 (1957). No court decisions have been found holding otherwise although an early Utah case, applying a local rule that appropriations must "inure to the exclusive benefit of the appropriator", held that an individual could not irrigate public land to supply food for wild waterfowl. Lake Shore Duck Club v. Lake View Duck Club, 166 P. 300 (Utah 1917).

In 1936 the Montana Supreme Court recognized a private appropriative right for purposes of a swimming pool and fish pond. Osnes Livestock Co. v. Warren, 103 Mont. 284 (1936). With no discussion of the matter, the Osnes court ruled:

> If we assume it to be the fact that the Hudson brothers did nothing more with the water diverted than to use it for the purpose of maintaining a swimming pool or fish pond, it is not clear that such a use would not be a beneficial use and hence the basis of a valid appropriation.

Id. at p. 302, citing Kinney on Irrigation, §697; Cascade Town Co. v. Empire Water & Power Co., 181 F. 1011 (D. Colo. 1910), aff'd 205 F. 123 (8th Cir. 1913) (scenic falls are a beneficial use). In a more recent case, the Montana Court assumed that a diversion for a private fishpond was a "lawful appropriation", although the beneficial use question was not directly raised. Paradise Rainbow et al v. Fish and Game Commission, 148 Mont. 412, 418-19 (1966). See also Quigley et. al. v. McIntosh, 110 Mont. 495 (1940). At the time these cases were decided, Montana statutes did not define beneficial use but simply required that an appropriation be for some "useful or beneficial purpose". RCM 1947, 89-802. It was left to the courts to determine what were beneficial purposes.

The Osnes holding that a private fishpond is a beneficial use of water is probably still good law. Both the 1973 and pre-1973 statutes contain the requirement that appropriations be for a beneficial use. See §85-2-301, MCA; §89-802, RCM 1947. In adopting a statute, the legislature is presumed to have acted with knowledge of the judicial construction of previous similar statutes, and to have adopted that construction, unless the contrary is clearly shown in the language of the new statute. Vantura v. Montana Liquor Control Board, 113 Mont. 265 (1942). As a judicial construction of the term "beneficial use", Osnes thus remains valid. Moreover, the Osnes ruling seems to have been expressly incorporated in the Water Use Act's designation of fish and wildlife appropriations as beneficial uses. §85-2-102(2)(a), MCA. Arguably, Osnes' authorization of private fishpond appropriations is incorporated in the 1973 Act as well.

The legislative history available for the Water Use Act gives no indication of the legislature's intent on this issue. However, some perspective on the water law climate at the time of the 1973 Act may be provided by reviewing the transcripts of the 1972 Montana Constitutional Convention. See Verbatim Transcript Vol. V pp. 1301-1351. One proposed constitutional subsection would have listed beneficial uses of water, and was

similar to the present §85-2-102(2)(a), MCA. The proposed subsection stated in pertinent part:

> Beneficial uses include but are not limited to domestic, municipal, agriculture, stockwatering, industry, recreation, scenic waterways, and habitat for wildlife, and all other uses presently recognized by the law, together with future beneficial uses as determined by the Legislature or courts of Montana.

Id. at p. 1312. (emphasis added). There was considerable debate at the convention as to whether the proposed recreational and wildlife uses might usurp older, more traditional uses. Nevertheless, the delegation was in agreement that downstream states might soon obtain prior rights to Montana's unappropriated water. An extensive list of beneficial uses was seen as a means of maximizing Montana's claim to the unused waters in the state. See id. at pp. 1316, 1319, 1328, 1334. Moreover, it was clear that the proposed subsection was intended to authorize individual filings for recreational and wildlife appropriations. Id. at p. 1315.

The proposed constitutional listing of beneficial uses was ultimately deleted, in part because of disagreement as to how or whether to rank the uses, and in part based on the realization that the matter was more properly one for the legislature. Id. at p. 1334. The constitutional delegation clearly anticipated that the next legislature would likewise be interested in protecting Montana's water against downstream states, and thus would expand the list of uses for which Montana water could be appropriated. Id. at pp. 1334-35. And in fact, the 1973 legislature incorporated into the Water Use Act a definition of beneficial use very similar to the proposed constitutional subsection. §85-2-102(2)(a), MCA.

The 1973 legislature probably shared the water law concerns of the 1972 constitutional delegation. Thus, one purpose of the Water Use Act was to authorize a broad range of acceptable uses for Montana water. To prohibit private parties from making appropriations for fish and wildlife would not be consistent with that purpose.

In any case, private appropriations for fish and wildlife uses are consistent with the plain language of the Water Use Act and its amendments. This fact, in the absence of indications to the contrary, provides sufficient legal basis for concluding that such appropriations are authorized by the Act.

The Water Use Act does place two restrictions on private appropriations for fish and wildlife. First, as defined in the

Act, "appropriate" means to divert, impound, or withdraw a quantity of water. §85-2-102(1), MCA. A special provision of the Act allows public agencies to claim water without a diversion, impoundment or withdrawal. §85-2-316, MCA. These special claims can take the form of reservations of water for existing or future beneficial uses, or of maintaining a minimum flow level or quality of water. It is clear, both from the Act's definition of "appropriate" and from the separate section allowing public agencies to apply for instream flows, that private individuals cannot make instream appropriations. See, In the Matter of the Application for Beneficial Water Use Permit No. 35527-s41H by Glenn H. and Lyla E. Lehrer, p. 1.2 (1984). Thus, private fish and wildlife appropriations require some kind of a diversion, impoundment, or withdrawal.

The requirement of a diversion or some other exercise of physical control over water in order to obtain a water right has been criticized. One commentator has observed:

> It was natural for our water laws to grow up with terminology which required a 'diversion' for beneficial use, because both placer mining and irrigation generally required it, and they were the only principal uses which concerned our courts and legislatures at the time that water law was developing.
>
> But now there are other uses which do not require a diversion, e.g., hydro-power. And some modern uses do not require impoundment or withdrawal either, e.g. all manner of water-based recreation: swimming, fishing, water skiing, gold mining, scuba diving and so on.

Stone, Montana Water Law for the 1980's, p. 51 (1981). Agruably, the true test of an appropriative water right is the application of the water to some beneficial use, not whether a diversion is employed. Nevertheless, the diversion requirement does reflect the possessory element inherent in a traditional appropriative right. See, Fullerton v. Cal. State Water Resources, 193 Cal.Rptr. 518, 522-23 (Cal.App. 1979). Further, nonpossessory water rights present special problems of notice and quantification, which may justify their receiving special treatment in the Water Use Act.

The second restriction imposed by the Water Use Act on private fish and wildlife appropriations results from the Act's requirement that water rights be quantified. Before a water use permit will issue, an applicant must prove, inter alia, that there are unappropriated waters in the source of supply in the amount requested, and that the proposed use will not harm prior

appropriators or interfere with other planned uses. §85-2-311(1), MCA. This section requires that the proposed use be measured against the existing water supply and the needs of other appropriators. Further, the Act prohibits the DNRC from issuing a permit for more water than can "be beneficially used without waste for the purpose stated in the application." §85-2-312(1), MCA. This section requires the DNRC to measure the proposed use against amounts reasonably needed for that use.

These sections of the Act make quantification of the use an essential step in the granting of a water right. This is in accord with the traditional rule that an appropriative water right extends only to the quantity of water that is in fact beneficially used. Huffine v. Miller, 74 Mont. 50 (1925). See also, Toohey v. Campbell, 24 Mont. 12 (1900); Allen v. Petick, 69 Mont. 373, 377-79 (1924) (beneficial use is the basis and limit of a water right; the amount that can usefully be put to the intended use is the limit of the right itself.) However, the permit procedures of the Water Use Act were also a response to an express constitutional mandate that the legislature provide for the "administration, control, and regulation of water rights" and "establish a system of centralized records". Article IX, section 3(4), 1972 Mont.Const. Thus, the Act was intended to implement a definitive water use system:

> The legislature declares that this system of centralized records recognizing and establishing all water rights is essential for the documentation, protection, preservation and future beneficial use and development of Montana's water for the state and its citizens and for the continued development and completion of the comprehensive state water plan.
>
> §85-2-101(2), MCA.

Quantification of rights is especially important to achieve the systematic documentation of water rights contemplated by the Water Use Act.

Appropriations for fish and wildlife are notoriously difficult to quantify, except in certain limited and carefully controlled situations. This quantification problem necessarily will restrict the scope of private appropriations for fish and wildlife under the Water Use Act. A use that cannot be quantified cannot become a right under the Act.

2. FWP Supervision over Fish and Game

It has long been the rule in Montana that the state "owns" its wild fish and game for the use and benefit of its citizens.

Heiser v. Severy, 117 Mont. 105 (1945); Rosenfeld v. Jakways, 67 Mont. 558 (1923). The Department of Fish, Wildlife, and Parks (FWP) has been given authority to supervise all the wildlife, fish, game, game and nongame birds, waterfowl, and the game and fur-bearing animals of the state. §87-1-201(1), MCA. Much of FWP's supervisory activity consists of licensing private and commercial activities that affect the state's fish and game resource. See, Title 87, chapter 2, MCA. A license is required not only for hunting, fishing and trapping, but also for any other activity involving the "possession" of wild fish or game:

> It is unlawful for any person to: (1) pursue, hunt, trap, take, shoot, or kill or attempt to trap, take, shoot, or kill any game animal, any game bird, or any fur-bearing animal or take, kill, trap or fish for any fish within this state or have, keep, or possess within this state any game animal, game bird, fur-bearing animal, game fish, or parts thereof, except as herein provided or as provided by the department . . .
>
> §87-2-103(1), MCA (emphasis added)

Another statute also generally regulates possession of fish or game:

> It is hereby made unlawful for any person to purchase, sell, offer to sell, possess, ship, or transport any game fish, game bird, migratory game bird, game animal, or fur-bearing animal or part thereof protected by the laws of this state, whether belonging to the same or different species from that native to the state of Montana, except as specifically permitted by the laws of this state.
>
> §87-3-111(1), MCA (emphasis added)

Aside from hunting and fishing, only a few kinds of wildlife "possession" are actually regulated by statute or FWP regulation. Regulations are promulgated for game farms (§87-4-401, et seq, MCA; 12.6.1501, et seq, ARM), menageries and zoos (§87-4-801, et seq, MCA; 12.6.1301, et seq, ARM), and fur farms (§87-4-1001, et seq, MCA; 12.6.1701, et seq, ARM). Restrictions also are placed on the captive breeding of raptors (§85-5-201, et seq, MCA; 12.6.1401, et seq, ARM). As a rule, existing FWP regulations concerning possession of wildlife focus on the possession of animals for commercial purposes. For

example, the licensing provisions for game bird farms expressly do not apply to "a person who owns, controls, or propagates game birds for purposes other than sale or conveyance." §87-4-902, MCA. (Nevertheless, any person that possesses migratory game birds for propagation needs state and federal permits. See, §87-2-807, MCA)

Considerably more extensive are FWP's statutes and regulations concerning private possession of wild fish. Owners of fish ponds must apply to FWP for a private fish pond license. §87-4-603, MCA. A significant limitation on private fishponds is that they must be located in artificial lakes or ponds. Id. The apparent purpose of this limitation is to avoid interfering with natural habitats and migration routes. See, Paradise Rainbow et. al. v. Fish and Game Commission, 148 Mont. 412, 416-18 (1966). FWP also restricts the rearing of fish in "live cages" in public waters. 12.7.301, ARM. The purpose of this regulation is "to protect the recreational and aesthetic use of such water from pollution, excessive private use, and the introduction of disease." §87-3-208, MCA. The effect of the foregoing restrictions is to substantially limit private use of natural streams for the purpose of cultivating fish.

Other statutes and rules also show the FWP's extensive regulatory presence in the fisheries area. Besides enforcing complex regulations concerning fishing methods, FWP supervises a number of state fish hatcheries, and has undertaken a fish planting program throughout the state. See, §87-3-202, MCA; 12.7.601-602, ARM. Also, to further its policy of preventing fish diseases, FWP has developed an inspection and certification procedure for imported salmonid fish or eggs. 12.7.501, ARM.

In summary, FWP has statutory authority to supervise the fish and wildlife of the state. General statutes prohibit the "possession" of any animal or fish except as permitted by statute or FWP regulation. Specific FWP regulations focus on the possession of wildlife for commercial purposes, although FWP has asserted broad regulatory jurisdiction over private possession of wild fish.

3. Policy Approaches

In setting a policy concerning private fish and wildlife appropriations, DNRC must act within the legal guidelines imposed by the Water Use Act. Two basic principles relevant here are:

1. Private fish and wildlife appropriations are a beneficial use of water under the Act. The DNRC is obligated to issue permits for these uses.

2. The Act requires that water use rights be quantified. The DNRC cannot issue a permit for a use that cannot reasonably be quantified.

These principles appear to conflict where, as with fish and wildlife appropriations, a recognized beneficial use is inherently difficult to quantify. This conflict simply reflects two disparate purposes of the Water Use Act: a) to maximize the use of Montana water by authorizing a broad range of beneficial uses, and b) to implement a definitive water appropriation statute, one that quantifies and documents all water rights.

At the outset it is clear from 1) and 2) that two approaches to private fish and wildlife claims are not legally sound. DNRC cannot deny permits on the grounds that private fish and wildlife appropriations are not beneficial uses. Nor can DNRC routinely issue permits for amounts as claimed, without determining that the claimed amount is reasonably related to the proposed use.

A second consideration in setting a policy in this area is the possibility of overlapping interests of DNRC and FWP in private fish and wildlife appropriations. FWP has supervisory authority over Montana's fish and wildlife resources, and in two instances FWP is granted special authority to claim water rights. First, FWP, as a public agency, is allowed to make claims for instream flows and water reservations. §85-2-102(1), 316, MCA. As noted above, private individuals cannot make instream appropriations for fish and wildlife or for any other purpose. Second, the legislature has designated FWP as the exclusive representative of the public for pre-1973 public recreational uses. §85-2-223, MCA. Nevertheless, nothing in the Water Use Act or in FWP's enabling statutes gives FWP the exclusive right to appropriate water for fish and wildlife purposes. On the contrary, as noted above, the Water Use Act by its plain language authorizes private appropriations for fish and wildlife. FWP statutes are consistent with allowing private appropriations for these purposes. For example, FWP licenses private fish ponds. §87-4-603, MCA.

FWP's interest in private fish and wildlife appropriations can be analyzed in either of two ways. First, it is arguable that the only activities for which a private fish or wildlife appropriation should be allowed are those activities specifically permitted and/or licensed by FWP (e.g., licensed fish ponds, game farms, game bird farms, zoos.) This approach is based on the statutes prohibiting "possession" of fish and game except as specifically provided by FWP statute and regulation. §§87-2-103(1), 87-3-111(1), MCA. DNRC's duty to quantify fish and wildlife appropriations will necessarily limit acceptable uses to those where some degree of <u>control</u> is exercised over the wildlife resource. If this control amounts to "possession" of wildlife, FWP statutes and regulations will apply. The advantage of this approach is simplicity: DNRC would grant fish and wildlife permits only for FWP-licensed activities.

However, it may be hard to justify this first approach if what DNRC requires to control or quantify fish and wildlife uses is not always "possession" as contemplated in the FWP statutes. As noted above, present FWP regulations concerning "possession" of wildlife focus on private ownership of animals, or possession of wildlife for commercial purposes. It may be hard for DNRC to argue that only in these cases can the beneficial use of water for wildlife reasonably be quantified.

A second approach is to recognize that FWP's interest in private fish and wildlife appropriations may vary depending on the use for which water is sought to be appropriated. Rather than weigh the FWP interest as well as assessing the quantifiability of the use for every permit application, some general observations can be made by class of use.

Fish. Private appropriations for fish would probably involve instream impoundments or diversions to artificial ponds. To achieve sufficient control to quantify the use, fairly substantial structures may be needed. At this point, the impact on the fish resource probably invokes the regulatory jurisdiction of FWP. FWP has in effect prohibited rearing fish in public waters or locating private fishponds on natural streams. §87-3-207, MCA; §87-4-603, MCA. Moreover, private artificial fishponds are required to be licensed.

Given FWP's extensive regulatory presence in fisheries, DNRC could justify limiting private appropriations for fish to activities licensed or approved by FWP. This approach would limit permit issuance to serious private fishery uses, which may be sufficiently controlled to aid DNRC in quantifying the use. This approach also properly recognizes the overlapping interests of FWP in these uses.

Wild Game. Appropriations for freely roaming wild animals, such as deer and elk, or coyotes and jackrabbits, or grouse and grosbeaks, may be impossible to quantify. Such animals can obtain water from numerous sources or from any point along a stream. Consequently, there may be little or no correlation between the existence or size of a private diversion and a benefitted wildlife population. If, after study, DNRC concludes that this is the case, it would be justified in declining to issue permits for watering wild game.

FWP does not extensively regulate the possession of wild game, although private game farms and zoos must be licensed. §87-4-401, et seq, MCA; §87-4-801, et seq, MCA. In these controlled situations, water use can probably be quantified. If so, DNRC should issue water permits for wildlife use in these cases.

Waterfowl. Private appropriations for waterfowl would probably consist of duckponds or other impoundments, either instream or offstream. Some state and federal regulations may apply in this area. Possession of migratory game birds for propagation purposes requires state and federal permits. See, §87-2-807, MCA. Ownership or control of nonmigratory game birds for sale requires a game bird farm license from FWP. §87-4-901, MCA. This licensing requirement does not apply when birds are owned, controlled or propagated for noncommercial purposes, §87-4-902, MCA, although the bird owner is required to receive written authorization of exemption from FWP. Section 901 and 902 game bird farms probably would be quantifiable beneficial uses.

Duckponds where the birds are privately owned and controlled appear to fall under FWP supervision, either under sections 901 or 902 of Title 87, chapter 4, MCA. The ownership of the ducks is probably sufficient to create a quantifiable use. Duckponds constructed to attract and sustain wild birds are outside present FWP regulations. These uses may be quantifiable, or they may be akin to watering wild game. Since there is no FWP interest involved, the only question is whether the use can reasonably be quantified. DNRC should undertake some further study of this question.

By limiting private fish and wildlife appropriations to those that can reasonably be quantified, DNRC would take a more restrictive stand towards these uses than does the Water Court for pre-1973 rights. At present, Water Court policy seems to be to recognize and grant all private fish and wildlife claims, although no quantity of water is specified beyond the "minimum necessary" for the use. The DNRC policy would reflect the 1973 Water Use Act's mandate to document and quantify post-1973 water uses. Based on the Act, DNRC can justify rejecting unquantifiable private fish and wildlife claims.

In conclusion, DNRC should proceed by rulemaking to delimit acceptable private fish and wildlife uses. The options suggested in this memo are based on the general legal effect of the quantification problems with these uses, and on an analysis of the overlapping interests of FWP. Rules restricting private fish and wildlife appropriations will be defensible in court if they have a solid legal grounding in the Water Use Act, and are a result of express DNRC studies of the various quantification problems.

WATER RESOURCES DIVISION

WATER RIGHTS BUREAU

TO: WATER RESOURCES MANAGERS AND SPECIALISTS

FROM: MILLIE HEFFNER, CHIEF, WATER RIGHTS BUREAU

SUBJECT: **HB 52 (EFFECTIVE 10/1/2011)**

DATE: SEPTEMBER 14, 2012

CC: TIM DAVIS

"An act providing rulemaking authority to the Board of Environmental Review to regulate reclaimed wastewater from public sewage systems…"

"75-6-103. Duties of board.
(2) The board shall, subject to the provisions of 75-6-116 and as provided in 75-6-131, adopt rules and standards concerning:

(k)(iv) a requirement that an applicant who proposes to use reclaimed wastewater pursuant to this subsection (2)(k) has obtained any necessary authorizations required under Title 85 from the department of natural resources and conservation

Below is a general discussion of the applicability of §75-6-103, MCA. Each case is fact specific and the following are offered only as general guidelines.

Situations when a new water right is not required before reusing wastewater:

A new water right is not required if the disposal or discharge of effluent from a public sewage system as defined in 75-6-102, MCA, is part of the method of treatment and is employed in response to state or federal regulatory requirements. This statement generally applies to water rights reflected in statements of claim and would rarely apply to any permit issued after the Supreme Court's decision in the Trout Unlimited case (2006). The method of treatment may be to discharge water into a water source or discharge the water onto the ground, or into a pit. If the treatment is to discharge water onto the ground and there is no intent to use the water beneficially, even though a benefit may occur as a result of where the water is discharged, a permit is not required. The effluent could be land applied onto a golf course or other land that may be hayed, used to grow trees, or used as pasture and a new water right would not be required. It does not change the decision as to a new permit requirement if the ground is located inside or outside of the place of use.

Situations when a water right is required before reusing wastewater:

If someone wants to put the effluent to use after the water right holder has finished treatment of the water, then a new water right is required. It does not matter if the ground on which it is applied is located inside or outside of the place of use.

Examples:

Example:
A water right is required if an entity with a public sewage system sells its wastewater to an irrigator to irrigate outside of the entity's historic place of use. However, a water right is not required if the entity leases the land from the irrigator in order to dispose of their wastewater.

Example:
A water right is not required if an entity with a public sewage system sells its wastewater via a water depot as long as they have historically had such a system in place and it is within the historic place of use. However, a water right would be required if the depot is outside of the historic place of use.

Permits issued after the Trout Unlimited Decision

Many newer groundwater permits (post HB831) base their net depletion analysis on their type of wastewater treatment and associated return flows. If they alter their treatment system/return flow pattern in the future then they may be in violation of their permit and/or mitigation plan. If it is found that additional mitigation water is needed to compensate for a new reduction in wastewater return then a permit modification and a new change application would be required.

Memorandum of Understanding (MOU)

DEQ and the DNRC have entered into a MOU in order to establish a process for determining when approval by DNRC is necessary prior to DEQ's approval of a proposal to use reclaimed wastewater.

Upon receipt of an application to use reclaimed wastewater, DEQ will notify the applicant that a copy of the application must be forwarded by the applicant to DNRC's Water Rights Bureau for a determination on whether an authorization under Title 85 will be required. If the application is sent to the Central Office, it will be forwarded to the appropriate regional office for review. Once the application and any pertinent water rights have been reviewed, the regional office shall draft a letter stating either that:

(a) no authorization under Title 85 is required;
(b) the applicant already has the appropriate authorization under Title 85; or
(c) the applicant must obtain an authorization from DNRC under Title 85 prior to DEQ's approval.

The regional office shall send the draft letter to the Central Office for review. The regional office will send the final version of the letter to DEQ and the applicant. The DNRC must inform the applicant and DEQ in writing within 45 days after receiving the application.

WATER RESOURCES DIVISION

WATER RIGHTS BUREAU

TO: WATER RESOURCES MANAGERS

FROM: TERRI MCLAUGHLIN, CHIEF, WATER RIGHTS BUREAU

SUBJECT: **ADVERSE AFFECT DETERMINATION [MCA 85-2-311, 360]**

DATE: NOVEMBER 2011

CC: TIM DAVIS

The Department is required under MCA 85-2-360 to make a determination of adverse affect caused by a ground water appropriation in closed basins based on the following.

> *(5) For the purposes of 85-2-360 through 85-2-362, the prediction of net depletion does not mean that an adverse effect on a prior appropriator will occur or if an adverse effect does occur that the entire amount of net depletion is the cause of the adverse effect. A determination of whether or not there is an adverse effect on a prior appropriator as the result of a new appropriation right is a determination that must be made by the department based on the amount, location, and duration of the amount of net depletion that causes the adverse effect relative to the historic beneficial use of the appropriation right that may be adversely affected.*

The purpose of this memo is to explain how flexibility, under 85-2-360, can be applied to the timing (duration) of mitigation when analyzing adverse affect and legal availability. This flexibility can be applied where the existing legal demands include storage and hydropower water rights.

Mitigation or aquifer recharge that does not match the timing of depletion may be acceptable where a prior appropriator utilizes storage for their appropriation. The mitigation water left instream can be captured in storage to satisfy the prior appropriator and may offset the depletion to the source caused by a groundwater appropriation.

Regional Office Managers may find that there is no adverse effect to a prior appropriator when reviewing and approving a mitigation or aquifer recharge plan if:

1) The adverse effect and the concern with legal availability is only to a storage or hydropower right;
2) The plan offsets the entire amount of the adverse effect and the impact to legal availability; and,
3) The plan offsets the adverse effect and provides legal availability cumulatively throughout the year.

When all three conditions above are met, Regional Managers may approve a mitigation or aquifer recharge plan even if mitigation water is provided only during a portion of the year (such as irrigation season) because the storage component allows net depletion and impact to the storage/hydropower right to be offset year-round.

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

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PO BOX 201601
HELENA, MONTANA 59620-1601

To: Kim Overcast, New Appropriations Manager
From: Tim D. Hall, Chief Legal Counsel TDH
Date: December 21, 2007
Re: Stockwater Pits and Reservoirs – Pre-1973 and Post-1973

The Montana Water Use Act of 1973 established a permit system for new uses of water. Any person planning a new or expanded development for a beneficial use of water from a surface water source must obtain a Permit to Appropriate Water prior to the water being put to use. The permit system is administered by the DNRC. The Water Use Act at Mont. Code Ann. § 85-2-306 (6) & (7) has a special provision for obtaining permits for completed stockwater pits or reservoirs. If the pit or reservoir meets the following criteria, construction can begin immediately. The stockwater pit or reservoir must be located on a non-perennial stream, have a capacity of less that 15 acre-feet of water, and an annual appropriation of less than 30 acre-feet. The pit or reservoir must also be constructed on a parcel of land that is 40 acres or larger which is owned or under the control of the applicant. The proper form to file with the Department for a new water right under the above provisions is a Form 605, application for Provisional Permit for Completed Stockwater Pit or Reservoir.

The Department will not process Form 605 applications for Provisional Permit for Completed Stockwater Pit or Reservoir on federal land when the application is received in the name of the grazing permit holder. The water right must be in the name of the federal agency. The same applies for developments on state land. A federal grazing permit does not constitute control of the land. The grazing permit holder does not control other individuals from entering the land for other purposes nor do they control any resources on the land. The federal agency has control of the land, including control of the grazing. The grazing permit dictates how many animal units will occupy a pasture, when the animals will be allowed to enter the pasture, and how long they will be allowed to stay. Grazing permit holders can also be told to remove the animals at other times, such as when the condition of the pasture is severely degraded due to drought. The grazing permit holder agrees to these terms by signing the grazing permit. Failure to adhere to the terms of the grazing permit can result in cancellation of the permit and trespass charges filed against the permit holder.

Because of the variety of private leases with varying levels of "control of the land," the Department requires written permission from the landowner when a Form 605 is filed for a water right in the name of the private lessee.

There has been some confusion of late between Form 605 filings, Form 627 filings, and issues of how certain unclaimed water rights get adjudicated. The Department has been receiving numerous improper Form 627 "Notice of Water Right" filings and copies of papers filed at the courthouse attempting to "claim" stockwater pits and reservoirs. Unlike a Form 605, which is for a new water right, a Form 627, which has been discontinued as of Jan. 1, 2008, was merely a *notice* form provided by the Department for the filing of some sort of claim to a pre-1973 water right that was exempt from the filing requirements of the statewide general stream adjudication ("Claims for existing rights for livestock and individual as opposed to municipal domestic uses based upon instream flow or ground water sources...." Mont. Code Ann. § 85-2-222. All existing pre-July 1, 1973, water rights not meeting the exempt definition were to be filed with the Department during the claim filing period of 1979-1982. Stockwater pits and reservoirs were not exempt from adjudication filing requirements. The Montana State Supreme Court early on in the adjudication issued a water rights order stating that "failure to file a claim as required by law will result in a conclusive presumption that the water right or claimed water right has been abandoned" MCA 85-2-212. Existing water rights that were not filed as statements of claim during the claim filing period, or were not exempt from filing, were later deemed by the Supreme Court to have been forfeited. *Matter of Yellowstone River*, 253 Mont. 167, 832 P.2d 1210 (1992).

Therefore, a Form 605 is for filing for new surface water rights for stockwater pits and reservoirs. Pre-July 1, 1973, stockwater pits and reservoirs needed to be claimed in the adjudication or were forfeited. For water rights exempt from the filing requirements of the adjudication, claims for existing rights for livestock and individual as opposed to municipal domestic uses based upon instream flow or ground water sources, a Form 627 could formerly be filed with the Department to give notice that the filer claimed such a right. A Form 627 does not constitute a claim that the Water Court will adjudicate. The legislature has not yet made clear where or when someone who did not voluntarily file a water right exempt from the filing requirements of the adjudication can file their claim and have it adjudicated. It is clear, however, that anyone who filed a Form 627 has not placed their water right before the Water Court for adjudication and no such water rights claimed on that form will be included in water right decrees.

Water users should contact attorneys of their choice for advice on the handling of their water rights.

DEPARTMENT OF NATURAL RESOURCES
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MEMORANDUM

To: Bill Schultz, Missoula Regional Manager
Marc Pitman, Kalispell Unit Manager
Jan Langel, WRD Operations Manager
Terri McLaughlin, Water Rights Bureau Chief
Kim Overcast, New Appropriations Program Manager

From: John E. Tubbs, Administrator

Re: Permitting in the Open Clark Fork and Flathead Basins
Follow-up to June 9, 2008, Memorandum

Date: May 1, 2009

This memorandum is to clarify the direction I intended for applying the TRLC case[1] as precedent[2] for surface and ground water uses in the open Clark Fork and Flathead Basins. All applications for permits remain subject to requirements of MCA 85-2-311.

Above Reservation Boundary: (all of Basins 76I, 76J & 76K and that portion of 76L & 76LJ north of Reservation boundary)

- The TRLC case is not considered as precedent and therefore is not a consideration in evaluating issuance criteria for surface water or groundwater applications.

Below Reservation Boundary: (all of Basins 76M & 76N and that portion of 76L west of Reservation boundary)

Surface Water Sources

- For requested appropriations of 35 gpm or less and 10 acre feet of consumption per year or less, do not consider TRLC as precedent. TRLC is not a consideration in evaluating issuance criteria.
- For requested appropriations of greater than 35 gpm or greater than 10 acre feet of consumption per year, TRLC is considered as precedent and is a consideration in evaluating issuance criteria.

[1] Application for Beneficial Water Use Permit No. 76N 30010429 by Thompson River Lumber Co (2006).

[2] Precedent: An adjudged case or decision of a court, considered as furnishing an example or authority for an identical or similar case afterwards arising or a similar question of law. From Black's Law dictionary, Fifth Edition.

Ground Water Sources

- When net depletion to surface water sources is calculated to be 35 gpm or less and 10 acre feet per year or less, do not consider TRLC as precedent. TRLC is not a consideration in evaluating issuance criteria.
- When net depletion to surface water sources is calculated to be greater than 35 gpm or greater than 10 acre feet per year, TRLC is considered as precedent and is considered in evaluating issuance criteria.

Criteria Assessment: When TRLC is not a consideration in the evaluation, the following language should be added to the criteria assessment when evaluating applications in the Clark Fork and Flathead basins.

In regard to senior hydropower water rights, the facts in this application are distinguishable from those in *In the Matter of Application for Beneficial Water Use Permit No. 76N30010429 by Thompson River Lumber Co* (2006) (TRLC) concerning the Avista Company's water rights for Noxon Reservoir. Thompson River Company's proposed diversion on the Clark Fork was surface water immediately upstream of Avista's Noxon Reservoir that had an immediate calculable adverse impact on Avista's water rights and power production.

The proposed appropriation in this case is for ***[i.e. domestic lawn irrigation]*** more than ***[XX]*** miles upstream of Noxon Reservoir. Section §85-2-401, MCA, makes clear that an appropriator is not entitled under the prior appropriation doctrine to protect itself from all changes in condition of water occurrence. In this basin which is not closed to surface or ground water appropriations, priority of appropriation for a large hydropower right that may otherwise prohibit future upstream development in the basin, does not, pursuant to §85-2-401, MCA, include the right to prevent the decrease of streamflow or the lowering of a water table or water level if the prior appropriator can reasonably exercise their water right under the new conditions. Here, the Department finds that Avista's prior appropriation in this basin which has not been closed to appropriation by the Legislature does not include the right to prevent this appropriation where Avista can reasonably exercise its hydropower water right.

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MEMORANDUM

To: Bill Schultz, Missoula Regional Office Manager
Terri Eccles, Kalispell Regional Office Manager
Terry McLaughlin, Water Rights Bureau Chief
Kim Overcast, New Appropriations Supervisor

From: John E. Tubbs, Administrator

Re: Permitting in the open Clark Fork and Flathead basins.

Date: June 9, 2008

Over the last year-and-a-half the Missoula and Kalispell Regional Offices have been instructed to review each new water permit application on a case-by case basis relative to the Thompson Falls Lumber Company (TFLC) decision. Discussions between our technical and legal staff have been ongoing. As indicated by memorandum documenting various meetings, the case-by-case process is not proving to be effective for field staff. Added to this, the Bostwick case focuses the agency in a direction to make criteria decisions early in the process rather than at the end, in certain areas of the State.

The receipt of a letter from Avista Corporation (June 4, 2008) confirmed a direction that I have been moving toward over the last four months. That position being that the TFLC is precedent setting, but did not close the basin to further appropriations. This is the first permit application that Avista Corp. objected to under the Water Use Act in the Clark Fork basin, and the objection prevailed. It is precedent setting to the extent that the facts brought to the case by Avista Corp. proved that the 250 gallon per minute, 400 acre-feet per year, use of surface water in the lower Clark Fork would adversely affect their senior hydropower rights. Avista clarified their concerns regarding new appropriations to the Department. The lower Clark Fork and Flathead River basins remain open to appropriations.

The TFLC case specifically addresses the effects of a new surface water diversion just upstream of the City of Thompson Falls and within 10 miles of Noxon Reservoirs upper shores. As mentioned above, the facts in the case demonstrate that a diversion near the reservoir causes adverse affect. The letter from Avista Corp. identifies the specific issues with the TFLC application that concerned the objector.

However, the letter also indicates areas where Avista, at this time, does not believe new uses will cause adverse effect. In part this may be due to the mitigating effect of storage behind Kerr Dam in Flathead Lake and behind Hungry Horse Dam. These two large storage facilities are managed based on specific rule curves and flow regimes. In other words, stream flows at Noxon Rapids are in large part managed flows (without regard to natural flow), except during high flow events. As a result, the impacts attributed to new diversions upstream of the confluence of the Clark Fork and the Flathead Rivers are diminished by the off-setting effect of storage.

For these reasons, regional offices should limit their use of the TFLC case as precedent to: new applications for surface water in the open Clark Fork River and tributaries, excluding the Flathead River and its tributaries upstream of the Flathead Indian Reservation Boundary. Again these basins are open. All appropriations must still be evaluated based on the requisite criteria, including ground water appropriations that may have an adverse effect on the ability of surface water right holders to exercise their rights.

The Department is precluded from issuing any permits within the Reservation. On-going negotiations with the Salish and Kootenai Tribes will define the availability of water in the lower Flathead Basin.

Finally, TFLC should be seen in context with the efforts the State is undertaking to seek 100,000 acre-feet of stored water in Hungry Horse Reservoir. This is a forward- looking effort but speaks to the commitment to protect all senior water rights, including hydropower. Ultimately, future water uses could have Hungry Horse storage available for mitigation water in the Clark Fork Basin.

The State constitution requires protection of senior water rights but it also recognizes the "use of all water" (Article IX, Section 3 (2), MCA). The approach outlined in this memo represents the balance of these two provisions based upon the information available. All applications must meet the 85-2-311 criteria; however, only a subset, as described above, are directly impacted by TRLC.

The Department is also issuing a new rule confirming that mitigation of surface water depletions is an acceptable method of preventing adverse affect associated with new uses. Not all water uses will fit within the sideboards that this memo provides. Either internal to a watershed, or for larger uses along the lower Clark Fork River, mitigation remains a viable method to overcome impacts to senior water right holders. This is standard operating procedure for the Department; the new rule will make it clear to the public that mitigation is a viable option.

Department Of Natural Resources and Conservation
Water Rights Bureau
New Appropriations Program

Madison Group Aquifer

Purpose

The purpose of this guidance is to identify areas where DNRC has determined that pumping groundwater from the Madison Group aquifer is unlikely to deplete surface water that is subject to prior appropriation. In the absence of objections and information to the contrary, applicants for wells in the Madison Group aquifer in those identified areas are not required to analyze depletion of surface waters.

Authority

The Department has the authority to issue water use permits for beneficial uses of water under §§ 85-2-302, MCA and to establish procedures, forms and requirements for applications under §§ 85-2-112, MCA. The applicant has the burden under §§ 85-2-311, MCA to show the proposed use is a beneficial use of water, justify the amount of water requested for the proposed purpose, and meet all the criteria for issuance of a permit.

Justification

Proving on an application-by-application basis which surface waters are hydraulically connected to the Madison Group aquifer is difficult, expensive and may be impossible. Evidence from extensive published studies of the Madison Group aquifer [see references listed below] and basic hydrologic principles provide a scientific basis on which DNRC has identified general areas and circumstances where groundwater pumping of the Madison Group aquifer will not deplete surface water. The proposed guidance should reduce unnecessary analysis and clarify the analysis that is necessary to evaluate the impacts of wells in the Madison Group aquifer on surface water users.

Boundary

The boundary on the attached map is the area outside of which applicants are <u>not</u> required to analyze depletion to surface waters, subject to limited exclusions. The area inside the boundary where analysis of depletion to surface water is required is delineated by locations of:

- outcrops of the Madison Group aquifer,
- known areas of discharge from the Madison Group aquifer, and
- faults that offset the Madison Group aquifer.

The boundary will be adjusted if justified by new information from groundwater investigations or objections to water right applications.

Requirements

Applicants for wells completed in the Madison Group Aquifer within the mapped area must identify hydraulically connected surface waters and calculate the rate and timing of depletions to those affected reaches. Applicants must evaluate legal availability of surface water and the potential for adverse effects to surface water right holders in the potentially affected reaches. Surface waters of concern within the boundary of the mapped area include at a minimum Giant Springs and the Missouri River in the Great Falls area, and Big Springs and Warm Springs in the Lewistown area.

Applicants for wells completed in the Madison Group aquifer outside of the mapped area will not need to calculate depletion to surface water, except as explained below. Applicants may refer in the Application generally to this guidance and the referenced studies and analyses.

Exclusions from Application Procedure

Applicants for wells in the Madison Group aquifer located south of the Yellowstone River are excluded from this guidance until conditions in the Madison near the Bighorn and Pryor Mountains are evaluated more closely. Applicants for wells south of the Yellowstone River must evaluate hydraulic connection of the aquifer to surface water and calculate the rate, timing and location of stream depletion the same as in other areas outside the boundaries identified in the attached map.

Applicants for wells in closed basins subject to §§85-2-360 through §§85-2-364, MCA also are excluded from this guidance. They must submit a hydrogeologic assessment as described under §§85-2-361, MCA that predicts whether their proposed use will deplete surface water.

References

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Plummer, L.N., J.F. Busby, R.W. Lee, and B.B. Hanshaw, 1990. Geochemical modeling of the Madison Aquifer in Parts of Montana, Wyoming, and South Dakota, *Water Resources Research*, Vol. 26, No. 9, p. 1981-2014.

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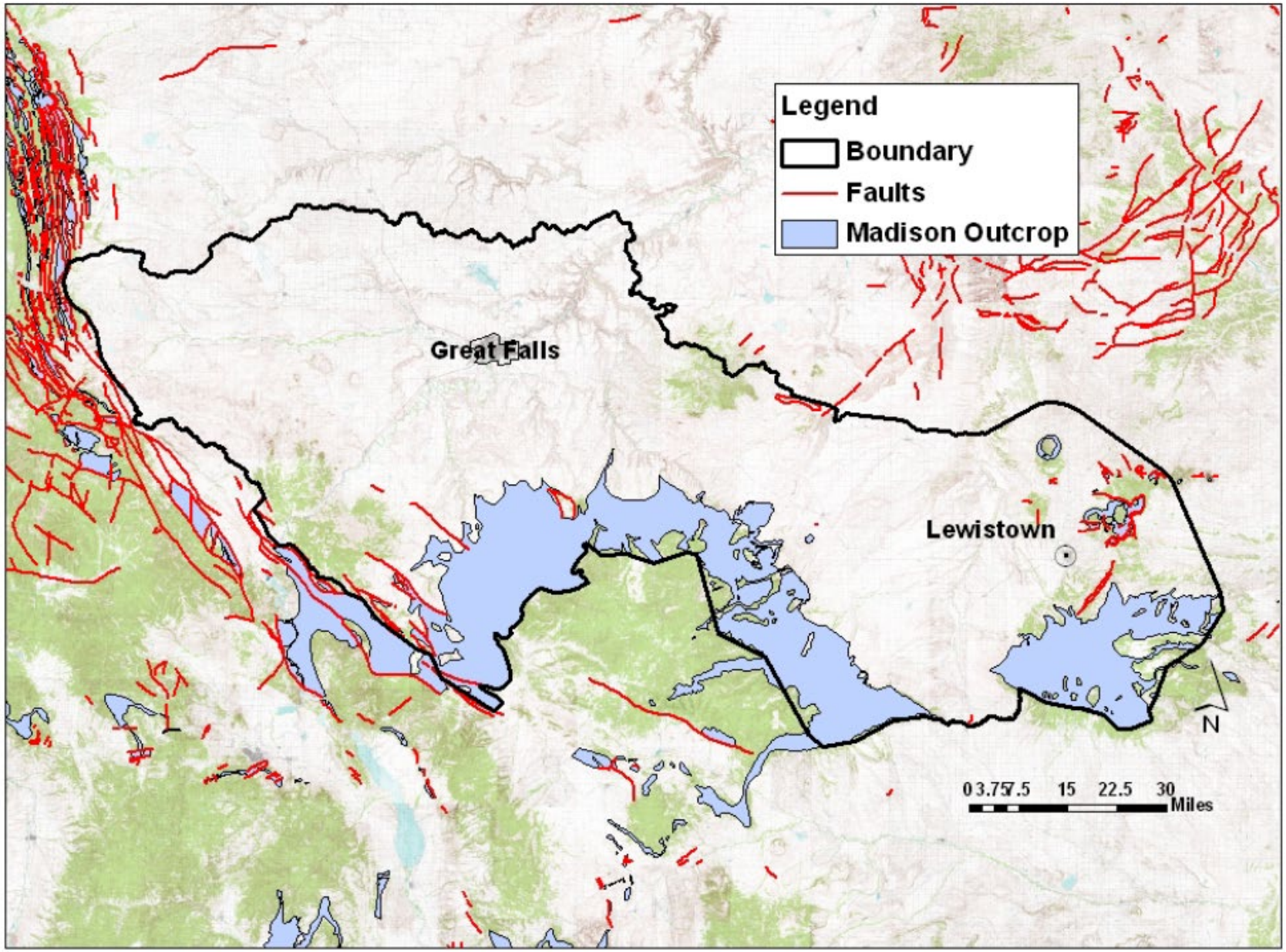

Area outside of which DNRC has determined that pumping from the Madison is unlikely to deplete surface water.

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To: Missoula Water Resources Regional Office

From: James Heffner, Hydrogeologist
Water Management Bureau

Date: March 10, 2010

RE: Variance - Missoula Valley Geothermal/Heat Exchange Wells

In regard to future requests that you receive for variance from aquifer testing requirements (ARM 36.12.121) where the proposed use is for non-consumptive geothermal/heat exchange wells in the Missoula Valley aquifer (see map), which extract and re-inject water to the same aquifer; I recommend that applicants be allowed to forgo the more rigorous aquifer testing and analysis typically required, if they use the following aquifer properties in subsequent evaluations of the criteria:

Transmissivity – 50,000 ft^2/day, Specific yield – 0.10.

Rationale:

1) The Missoula Valley aquifer has been studied extensively and sufficient documentation exists for reasonable estimates of aquifer properties.
2) Aquifer testing at flow rates typically utilized by geothermal/heat exchange systems are usually not sufficient to evaluate aquifer properties at the local scale.
3) The primary concern with geothermal/heat exchange wells are interference effects to nearby wells. The use of a conservative transmissivity value (toward the low end of values appearing in the published literature and estimated from existing aquifer tests) will allow for an adequate evaluation of the potential for adverse effect to nearby groundwater rights.
4) In cases where the specific yield cannot be estimated from an aquifer test, the Department typically utilizes and accepts an assumed specific yield of 0.10 for modeling unconfined systems.

Applicants will still need to perform limited duration testing to address short-term physical availability/adequacy of diversion. This can be me either through the completion of an 8-hour yield drawdown test or comparable well performance testing (step-tests). Longer-term physical availability/adequacy of diversion will need to be addressed via analytical model, including an estimate of well loss.

Applicants will still need to submit the variance request to the Regional Manager. If the variance request is consistent with the parameters described above, the request can be granted without further review from WRD Hydrogeologists. Applicants are not limited to the aquifer properties above, and may submit a formal variance request if they wish to use other local information available, or use an aquifer test that conforms to the aquifer testing requirements (ARM 36.12.121).

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Technical Memorandum: Variance - Yellowstone River Terrace Level 3 Aquifer Properties

Date: March 1, 2022

To: Administrator, Water Resources Division

From: Water Management Bureau

The purpose of this memorandum is to establish a streamlined approval of variance requests from aquifer testing requirements (ARM 36.12.121) where the proposed beneficial use is less than or equal to 200 acre-feet per annum and diverted from the source aquifer mapped as Yellowstone River Terrace Level 3 (Qat3) by Lopez (2000) and Olson and Reiten (2002) (**Figure 1**). The Water Management Bureau (WMB) recommends that applicants be allowed to forgo a 24-hour, or 72-hour aquifer test typically required, if the applicant agrees to use the following Department established aquifer properties in subsequent evaluations of the criteria:

Transmissivity – 6,000 ft^2/day, Specific yield – 0.10.

Rationale:

1) Qat3 has been studied extensively and sufficient documentation exists for reasonable estimates of aquifer properties that have been derived from previous water right permit applications.
2) The use of a regional transmissivity value representative of the source aquifer (i.e., the low end of transmissivity values estimated from existing aquifer tests) in a groundwater model results in larger drawdown near a proposed groundwater diversion and this allows for an adequate evaluation of the potential for adverse effect to nearby groundwater rights.
3) In cases where the specific yield cannot be estimated from an aquifer test, the Department typically utilizes and accepts an assumed specific yield of 0.10 from Lohman (1972) for modeling unconfined sand and gravel aquifers.

Applicants will still need to perform limited duration testing to address short-term physical availability/adequacy of diversion. This can be done through completion of an 8-hour duration drawdown and yield test whose data is required to be submitted to the Department on Form 633. Longer-term physical availability/adequacy of diversion and adverse effect will be addressed by the Department via analytical or numerical groundwater models using a transmissivity of 6,000 ft^2/day and specific yield of 0.10, though the burden of proof is on the applicant.

Applicants will still need to submit the variance request to the Regional Manager. If the variance request is consistent with the parameters described above, the request can be granted by the Regional Manager without further review from WMB Hydrologists. Variance requests along the edge Qat3 may not fit the purpose of the memo and will acquire additional review. Applicants are not limited to the aquifer properties above and may submit a formal variance request if they wish to use other local information available or use an aquifer test that conforms to the aquifer testing requirements (ARM 36.121.121).

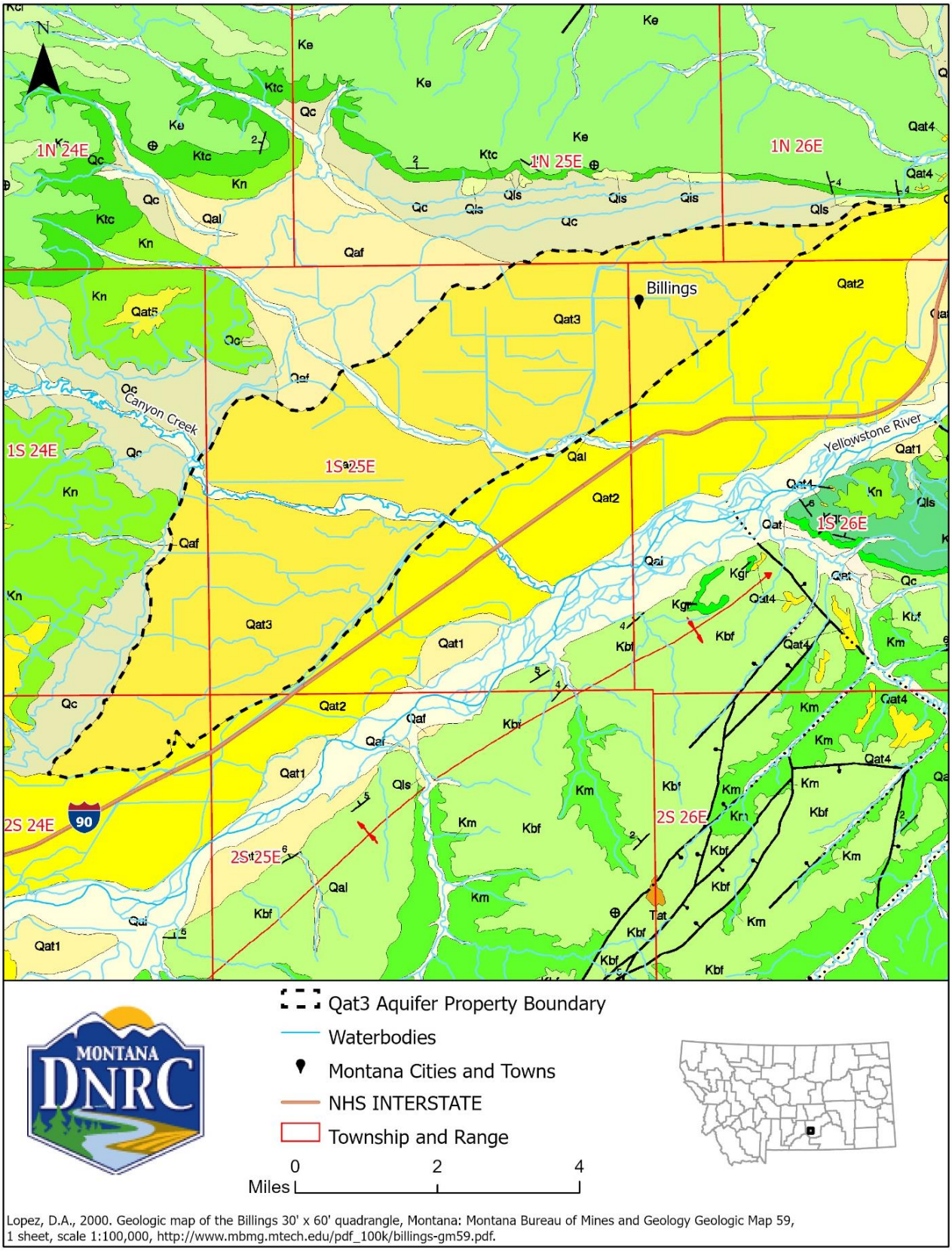

Figure 1: Extent of aquifer property boundary (Qat3) and geologic map by Lopez (2000).

Review

This document has been reviewed in accordance with Category 2 of DNRC's Water Management Bureau's Minimum Standards of Review, Version 1, March 2021.

References:

Lohman, S.W., 1972. Definitions of selected ground-water terms: Revisions and conceptual refinements, U.S. Geological Survey Water Supply Paper, 1988, 21 p., http://pubs.usgs.gov/wsp/wsp_1988/pdf/wsp_1988.pdf.

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Olson, J.L., and Reiten, J.C., 2002. Hydrogeology of the west Billings area: Impacts of land-use changes on water resources: Montana Bureau of Mines and Geology Report of Investigation 10, 32 p., 2 sheets.

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To: Kalispell Water Resources Unit Office

From: James Heffner, Hydrogeologist
Water Management Bureau

Date: March 12, 2010

RE: Variance – Evergreen Aquifer Geothermal/Heat Exchange Wells

In regard to future requests that you receive for variance from aquifer testing requirements (ARM 36.12.121) where the proposed use is for non-consumptive geothermal/heat exchange wells in the Evergreen Aquifer, which extract and re-inject water to the same aquifer; I recommend that applicants be allowed to forgo the more rigorous aquifer testing and analysis typically required, if they use the following aquifer properties in subsequent evaluations of the criteria:

Transmissivity – 92,000 ft^2/day, Specific yield – 0.10.

Rationale:

1) While site-specific data is limited with regard to the Evergreen aquifer (Kalispell Area), existing information currently available indicates transmissivities ranging from ~92,000 ft^2/day (King, 1988) to 241,000 ft^2/day (Noble and Stanford, 1986).
2) Aquifer testing at flow rates typically utilized by geothermal/heat exchange systems are usually not sufficient to evaluate aquifer properties at the local scale.
3) The primary concern with geothermal/heat exchange wells are interference effects to nearby wells. The use of a conservative transmissivity value (the low end of values appearing in the published literature) will allow for an adequate evaluation of the potential for adverse effect to nearby groundwater rights.
4) In cases where the specific yield cannot be estimated from an aquifer test, the Department typically utilizes and accepts an assumed specific yield of 0.10 for modeling unconfined systems.

Applicants will still need to perform limited duration testing to address short-term physical availability/adequacy of diversion. This can be either through the completion of an 8-hour yield drawdown test or comparable well performance testing (step-tests). Longer-term physical availability/adequacy of diversion will need to be addressed via analytical model, including an estimate of well loss.

Applicants will still need to submit the variance request to the Unit Manager. If the variance request is consistent with the parameters described above, the request can be granted without further review from WRD Hydrogeologists. Applicants are not limited to the aquifer properties above, and may submit a formal variance request if they wish to use other local information available, or use an aquifer test that conforms to the aquifer testing requirements (ARM 36.12.121).