Colorado Stream Lines

QUARTERLY NEWSLETTER OF THE OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

1313 Sherman St. Room 818, Denver, CO 80203 - (303) 866-3581

Spring 1995, Vol. IX, No. 1

Arkansas River Coordinating Committee Begins Work

The Governor's appointed Arkansas River Coordinating Committee has begun meeting to attempt to meet its responsibilities: *"The Arkansas River Coordinating Committee shall provide a forum for ensuring that affected interests in the basin coordinate among themselves and work with and provide advice to state agencies charged with responding to the ruling in the Kansas V. Colorado lawsuit and carrying out other projects and programs in the basin."* (Governor's Executive Order)

The Committee is comprised of individuals representing diverse water interests from throughout the Arkansas River valley, and is co-chaired by Chuck Lile, Director of Colorado Water Conservation Board, and Hal Simpson, State Engineer. After initial deliberations and presentation on the lawsuit with Kansas, the Compact, and the John Martin operating plan, the Committee subdivided itself into three smaller groups to focus on 1) water acquisition, 2) augmentation water and 3) water for recreation and wildlife. The three subcommittees are meeting separately to accomplish their assigned responsibilities.

The Committee expects to consider and identify possible sources of water to meet our obligations to Kansas with minimum economic impact to the valley water users, and to advise the State's political leadership of an effective and cost efficient process for meeting these complex needs. The Committee hopes to have early recommendations formulated by the fall of 1995.

Water Resources - Reorganization of Denver Office

As a result of staff input and management needs, the Denver office is undergoing reorganization to more effectively meet the needs of the public. The reorganization of the South Region was effective December 19, 1994, while the North Region continues to fine tune its structure.

The South Region, headed by Assistant State Engineer Steve Lautenschlager, will include two teams in the Water Supply Branch: one team comprised of Water Divisions 2, 3, and 7, and another team comprised of Water Divisions 4, 5, and 6. In addition, Steve's section includes the Geotechnical Services Branch, and the Permit and Licensing Services Branch, as well as supporting the Board of Examiners. The North Region, headed by Assistant State Engineer Richard "Dick" Stenzel, will include Water Division 1 and the Designated Basins, Dam Safety Branch, and Hydrographic Branch.

For now, individuals extensions remain the same, but as always (303) 866-3581, the main reception line, is the most effective means of contacting this office.

REORG:

South Region:
Divisions 2, 3, 4, 5, 6, & 7, Geotechnical & Licensing Services Branches & BOE

North Region:
Division 1 & Designated Basins, Dam Safety & Hydrographic Branches

Update in filing Well Ownership/Address Change Forms

In the last issue of *Stream Lines*, we clarified which well owners are affected by the recently adopted law requiring owners of wells to notify this office by January 1, 1995 of an address or ownership change. Subsequent address or ownership changes must be filed within 60 days after the effective date of the change. Compliance with this new law has been very good. What we are experiencing, however, is that many well owners acquired their property without being provided information about the well, whether it is registered, its permit number, and so on. To find this information, the well owner must contact our Records Section and provide as much of the following information as possible in order for us to determine if a well permit has been issued for the property.

Essential information when contacting Records Section. May need to contact County.	1. County 2. Range, township, section, 1/4, 1/4 3. Subdivision, lot, block, and filing. 4. Names of current and <u>all</u> previous owners (please have the correct spelling of all owners names.)
For items 1 through 4, the necessary information may be obtained from the real estate purchase documents or the county assessors office, if necessary. NOTE: Records cannot search on a street address. Even if this were possible, the address may be a mailing address and not the address of the property.	
Information which, although not essential, is good to have available.	5. Age of well. 6. Use of well (historic and current). 7. Size of parcel. 8. Name of driller.

Thank you for your attention to this matter. The Records Section is available to answer questions between the hours of 10:00 am to 3:30 pm weekdays. The number is (303) 866-3447.

Colorado River Decision Support System (CRDSS) Development News

This is an update on the status of the CRDSS project, a decision support system designed to assist in the management and administration of water resources on the rivers of Western Colorado.

STATUS

State representatives completed initial reviews of Phase IIa work products (databases, models, documentation, etc.) delivered to the state on January 10, 1995. Meetings were held in late January between the state and the RTI consulting team to identify work items to be completed under the first year CRDSS scope and budget. The consultant team is currently completing these scope items.

CHANGE TO THE WATER RESOURCE PLANNING MODEL?

A recommendation is being prepared by the state CRDSS technical team on whether it is appropriate to change the CRDSS water resource planning model. Technical subcommittee advisors will be consulted and a decision by the state is expected by February 28.

PHASE IIB STARTS

Consultant activities for the second year of CRDSS development (Phase IIb) are currently anticipated to start on March 1, 1995.

Metro Water Alternative Study Update

The state-initiated study of alternatives for assuring adequate interim water supplies exist to meet the future needs of Front Range communities moved into its second phase with solid support from a wide range of statewide water interests.

Governor Roy Romer launched the study a year ago as an outgrowth of the January 1993 Colorado Water Convention. A recurring theme at the convention was the interconnection between Front Range efforts to secure future water supplies and growing concern from other parts of the state that regional water supplies would be diverted for Denver-area municipal use at the expense of rural and Western Slope economies.

To oversee the study, Romer created the Front Range Water Forum which includes more than 40 elected officials and water leaders from the Denver metro area and other parts of the state. Forum members selected their own representatives to a technical advisory committee, which has been meeting for the past nine months to define the scope of the study and implementation.

At a September 13, 1994 briefing for the Colorado Water Conservation Board, which is funding the study, consultant Lee Rozaklis outlined four concepts identified during the first phase of the study. During phase two, the study team will research specific opportunities within the concept categories.

The first concept is conjunctive use of ground and surface water supply systems. Because ground water resources are finite, communities that are dependent on ground water must find alternate supplies for the future. Providing them with access to surface water when there are surpluses in existing systems in exchange for the use of ground water during low-water years could significantly extend the life of the ground water resources.

The study will also explore the feasibility of effluent management options, such as using waste water for urban and agricultural irrigation to maximize re-use of existing water supplies while reducing treatment costs.

Interruptible supplies is a third concept being researched. The institutional framework by which water can be transferred to municipal uses in dry years without permanently transferring the underlying water right will be explored.

The fourth area of study will be system integration, i.e., the coordinated management of water systems to find ways to stretch the water supply.

Several study participants emphasized the progress made since the study team's first meeting, which Doug Kemper of the City of Aurora describes as "one of the iciest meetings I've ever sat in." The water wars of the past 100 years had created distrust and in some cases outright animosity among water interests within the metro area and between the Front Range and other regions of Colorado.

Town of Limon joins the Upper Big Sandy Designated Ground Water Basin and Water Management District

On March 22, 1988, the Upper Big Sandy Designated Ground Water Basin was expanded to include the Town of Limon and land area in the vicinity. Please be advised that on November 8, 1994, by pubic vote, this expansion area was also incorporated into the Upper Big Sandy Ground Water Management District. As a result, the boundaries of the Management District are now identical to the boundaries of the Upper Big Sandy Designated Ground Water Basin.

DWR's *Philosophy of Service*

Commitment to Service

The Division of Water Resources is aware that the quality of our service is greatly dependent upon the competence, sensitivity, dedication and effort of the individual employee. Whether the employee's assignment is to provide a support function within the agency or to provide a service to the public, it is expected that each of us is committed to the following philosophy of service.

1st: Quality service

First, we are committed to delivering quality service in the same way we would like to be served. This requires demonstrating a willingness to extend ourselves, resources, and skills above and beyond the effort expected and conveying understanding, sensitivity and concern. Understanding that our clients' experiences have sometimes driven them to frustration, anger and emotional outbursts, yet never responding in kind, but rather with an attitude of "how can I assist in offering a constructive solution to the problem which brings him/her to our agency."

2nd: Our image is important, we realize that we can make a lasting impression

Second, we realize that as public servants, the image that we project for the agency, whether good or bad, can be and often is a lasting perception. We also realize that while we are sometimes unable to accommodate the customers' desires due to statutory requirements or limitations, the customer deserves a patient and clear explanation of our actions. We recognize that our resources are limited, but we will make every effort to maximize every resource, be it time or money, to assure that we may serve the most people in the best way. Realizing that while there is no substitute for technical expertise and programmatic knowledge, when these are combined with a positive helping attitude, our public is well served.

3rd: Consistency ... reflecting the spirit & intent of the laws and regulations

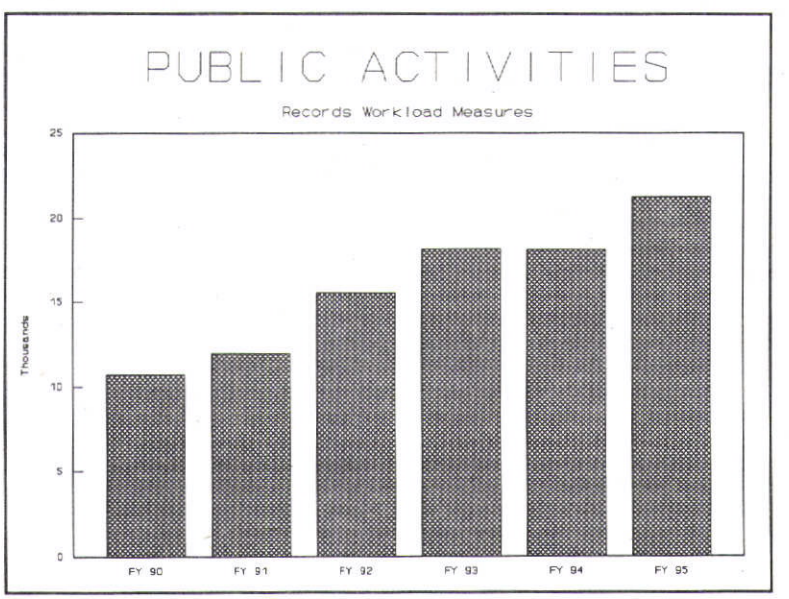
And third, being consistent in our application but guided by an approach that reflects the spirit and intent of the laws and regulations under which we operate.

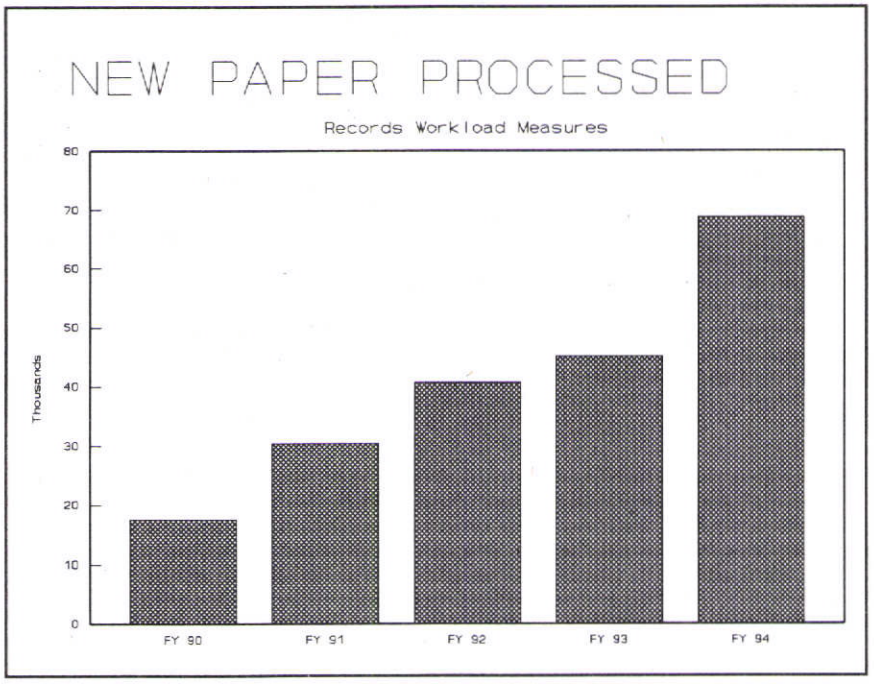
In summary, we want to never lose sight that the value of our service is ultimately determined not by our own definition, but by the public's perception of its worth. And foremost, that we are committed to being a pro-active agency which is accountable, imaginative, innovative and known for its integrity.

Records Sections Inundated by Requests for Service

There has been a huge increase in the demand placed upon the services of the Records Section. This is demonstrated by the two graphs shown here. Graph 1 shows the steady increase in the number of people served by Records. That number increased to roughly 18,000 in Fiscal year 1994 from roughly 11,000 in fiscal year 1990, and is projected to be almost 22,000 for this fiscal year, 1995. Services reflected by this graph include researching permits, water court decrees, water rights tabulations, and more.

Graph 2 demonstrates the steady increase in the number of documents processed by the Records staff.





Data collected thus far for fiscal year 1995 indicates that the amount of new paper processed is likely to greatly surpass previous years.

In order for the Records staff to continue to provide high quality service despite the increased demand, we ask for the public's cooperation by planning requests ahead of time and following these suggestions:

1) FAX orders can be received 24 hours a day. However, they will be processed in order by the date received.

2) All orders must be pre-paid. FAX orders will not be delivered until payment is received.

3) When calling or visiting, please have all pertinent information available. The requisite information is described back on page 2 relating to Ownership/Address Change forms and is also described in the recorded message heard when calling Records. The telephone number for Records is (303) 866-3447.

4) Please plan to call or visit the Records Section between the hours of 10:00 am to 3:30 pm.

The Records staff cannot do extensive research. Customers may come in to the office for large research and/or copying projects and the staff will assist as much as possible.

Policy regarding Remediation Project Recovery Wells

The following standards are adopted as policy for the consistent evaluation of recovery wells for remediation projects in stream systems where water is not available for appropriation. This policy shall be implemented as a rebuttable presumption of non-injury when the following conditions are met. Only wells located in tributary aquifers are affected.

This policy became effective as of November 8, 1994, and can only be modified or revoked in writing.

Well Applications and Remediation System Review

CRS, 37-90-137(2).

1. Recovery well permit applications are evaluated pursuant to C.R.S. 37-90-137(2).

Consumptive use of the project

2. The applicant must document that the consumptive use of the ground water for the entire recovery project shall not exceed 1/30 acre-foot (10,862 gallons per year). Those remediation projects consuming greater than 10,862 gallons per year must provide for replacement of depletions through a substitute water supply plan approved by the State Engineer or a court approved plan for augmentation prior to approval of a recovery well permit.

Consult with Division Engineer

3. The Division Engineer shall be consulted for potential injury to existing water rights or other concerns that may need to be incorporated in the conditions of approval on the permit.

Return flow ... discharge

4. The return flow from the remediation process must be discharged into the same stream system in location, time, quality, and amount so as to prevent injury to vested water rights.

Permit applications

5. All permit applications shall be accompanied by an estimate of the date when recovery will be completed. Approved permits will contain a condition that the well be plugged and abandoned within 60 days of that date. Should the recovery program require additional time, the applicant may, prior to such completion of recovery date, request an extension in writing. If the extension is granted, the conditions of approval on the permit shall be amended.

Permanent records required

6. Permanent records of all diversions, consumption, and return flows must be maintained by the well owner and submitted to the Division Engineer upon request.

Recovery wells

7. A recovery well must be constructed by a licensed water well contractor or other authorized individual, and in accordance with the standards as specified in the Water Well Construction and Pump Installation Rules, 2 CCR 402.2.

Marking of recovery wells

8. The owner shall mark each recovery well in a conspicuous place with the well permit number, name of the aquifer, and court case number as appropriate. The recovery well owner shall take necessary means and precautions to preserve these markings.

Change in recovery process

9. Should there be a change in the recovery process after approval of the recovery well permit the applicant shall obtain written approval from State Engineer for such changes including any changes in the estimated consumptive use of ground water.

Subsequent changes in ownership, location

10. Any subsequent changes in ownership or location of the wells must be filed with the State Engineer on form GWS-11 within 60 days after the effective date of such changes.

600 foot spacing

11. The provisions of Colorado Revised Statute 37-9-137(2) prohibits the issuance of a permit for a well to be located within 600 feet of any existing well, unless the State Engineer finds that circumstances so warrant after a hearing held in accordance with the procedural rules in 2 CCR 402-5. This hearing may be waived if the applicant is able to obtain statements from owners of all wells within 600 feet, verifying that they have no objection to the proposed recovery well.

CONSIDERATIONS AND BACKGROUND FOR POLICY MEMO 94-5

PROBLEM

Upon close examination of remediation processes there are consumptive uses whether the system is open or closed. Pursuant to CRS 37-90-137(2) permits cannot be approved if there is unreplaced consumption of ground water in an overappropriated area. The request for additional information and subsequent evaluation has caused some delays in obtaining permits for the recovery wells, thus, delaying the remediation of ground water contaminants.

GENERAL GUIDELINES FOR SUBSTITUTE WATER SUPPLY PLANS FOR SAND AND GRAVEL PITS SUBMITTED TO THE STATE ENGINEER PURSUANT TO SB 89-120 & SB 93-260

Note: The following are the proposed gravel pit guidelines as of February 1995. There will be a public informational meeting to discuss the guidelines on March 31, 1995, at 9:00 a.m. in Room 318 of the Centennial Building, 1313 Sherman, Denver. We recommend submitting all questions and comments in writing by March 24, thereby allowing time for the preparation of responses prior to the meeting. Written comments or questions should be addressed to Dick Wolfe, Water Supply Branch, North Region, at this office. The comments and remarks will be acted upon in drafting the final version of the guidelines, which is scheduled for completion by May 31st.

In 1989, the Colorado Legislature passed Senate Bill 120 which affects gravel pits in operation after December 31, 1980. §37-90-137(11)(a)(II), C.R.S. requires any gravel pit which exposed ground water to the atmosphere after December 31, 1980 to replace all out of priority depletions of ground water. In 1993, the Colorado Legislature passed Senate Bill 260 which basically changed the fees associated for review of the substitute water supply plans. To maintain consistency and to streamline the review process, the Office of the State Engineer is requesting that substitute water supply plan applications for sand and gravel pits submitted pursuant to Senate Bill 89-120 and Senate Bill 93-260 follow the format presented below, where applicable. These general evaluation guidelines are provided to assist the applicant preparing the substitute water supply plan request and are not to be construed as formal policy making procedures. Even though most of these guidelines are engineering related issues, there are some that contain policy issues by the State Engineer as well as statutory requirements.

PROJECT DESCRIPTION

1. A narrative description shall be submitted summarizing the water resource aspects of the proposed or existing operation including water usage and consumption and a proposed plan for replacing out-of-priority depletions.

2. Two maps should be provided showing the water resource aspects of the operation, including the existing or proposed lake(s), streams, wells, ditches, dewatering pumps and trenches, and points of discharge for the washing and dewatering operations. One of the maps should be a USGS 7-1/2' quadrangle. The second map can be hand drawn showing current, proposed and ultimate lake surface area. The scale, section, township, range, and meridian should be clearly identified on each map. Additionally, aerial photographs (if applicable) need to be provided delineating the lake surface area prior to 1981 and after.

3. The statutory fee for a new substitute water supply plan request is $1,343.00 regardless of the number of acres exposed and is applicable for the first two years. Plans and fees are necessary only if the gravel pit operation exposes groundwater in an over-appropriated stream system. The exception to the fee for the substitute water supply plan in an over-appropriated stream system is a submittal using a pre-1989 written agreement with a water users' association [§37-90-137(11)(a)(I), C.R.S.] (e.g., Water Users Association of Water District No. 6 and St. Vrain and Left Hand Water Conservancy District) or a plan of inclusion in a recognized District (e.g., Middle Park Water Conservancy District, West Divide Water Conservancy District, Basalt Water Conservancy District, and the Bureau of Reclamation project water in Green Mountain Reservoir and Ruedi Reservoir) by this office for making sufficient replacements in time, location and quantity. Fees are not required for proposed augmentation plans submitted to the water court which do not propose to expose groundwater until after a decree is entered by the water court.

   The deepening of an existing pit may not warrant a substitute water supply plan. If the surface area of the existing pit to be deepened has not expanded, it is grandfathered pursuant to §37-90-137(11)(b), C.R.S., and no plan and fees are necessary.

   Renewal fees for existing substitute water supply plans is $217 if the renewal is made prior to the expiration of the existing plan. Plans which expire and subsequently resubmitted are considered new plans requiring a fee of $1,343.00. The fee for a well permit application is $60, even if the operation is not in an over-appropriated stream system. These fees must be paid at the time of application and are not refundable. All new substitute water supply plan requests will be reviewed by an outside consultant. All renewals will be processed by the Office of the State Engineer.

DEPLETIONS

4. Gross evaporation (free water surface) shall be calculated based upon evaporation atlases in NOAA Technical Report NWS 33 or more site specific information if available. Any other estimate should be

within 10% of the NOAA estimate. The net replacement of depletions shall be determined as gross evaporation less any historic consumptive use credit available for the area replaced by the free water surface. The total gross evaporation estimate from NOAA 33 shall be distributed to all months. The monthly distribution for elevations below 6500 feet msl is: Jan-3.0%, Feb-3.5%, Mar-5.5%, Apr-9.0%, May-12.0%, Jun-14.5%, Jul-15.0%, Aug-13.5%, Sep-10.0%, Oct-7.0%, Nov-4.0%, and Dec-3.0%. The monthly distribution for elevations above 6500 feet msl is: Jan-1.0%, Feb-3.0%, Mar-6.0%, Apr-9.0%, May-12.5%, Jun-15.5%, Jul-16.0%, Aug-13.0%, Sep-11.0%, Oct-7.5%, Nov-4.0%, and Dec-1.5%. The percent distribution of evaporation will still apply for periods when ice cover occurs.

5. Water consumption by the gravel operation including, but not limited to, dust control, water removed with the mined product, and reclamation irrigation must also be determined. From previous experience, 4% of the product mined (i.e. any product excavated from below the groundwater table or any product excavated above the groundwater table and washed) by weight is water. All water diverted from the pit shall be measured. All diversions, including water for dust control and irrigation for vegetation establishment, shall be considered 100% consumptive unless it can be documented otherwise.

   Any dewatering operation that results in an exposed free water surface that will not be backfilled or lined upon reclamation shall need sufficient replacement water available in the event the dewatering pumps were stopped for any reason. If the final reclamation does not include backfilling or lining, the applicant can still provide sufficient bonding (through the Division of Minerals and Geology) to cover lining or backfilling during operation.

6. The effect of stream depletions from the operation shall be evaluated. It will not be assumed that depletions occur instantaneously unless the outside edge of the pit is located within 100 feet from the river or site specific geologic and hydrologic information warrant this assumption. Generally, timing of depletions may be calculated using Glover techniques [parallel drain theory, stream depletion factor (SDF)], or numeric modeling. Special procedures may be necessary to analyze depletions and injury on intermittent streams.

7. Historic native vegetation (including phreatophytes) consumptive use may be credited against monthly gross evaporation only if engineering documentation is included. The credit shall only be applied for the area under the free water surface and cannot exceed the amount of evaporation calculated in item 4. Documentation of the vegetative growth shall be based on aerial and perspective photographs depicting the growth. Consumptive use analysis of this growth shall be based upon published engineering studies acceptable to our office and engineering analysis of site specific information for the type of growth, ground water depth, and soil information.

   The historic consumptive use credit may be assigned to precipitation or ground water. The amount of consumptive use credit from precipitation and ground water during the growing season can not exceed the total potential consumptive use of the native vegetation. No benefit is given for excess consumptive use credits. Maximum effective precipitation for non-irrigated sites is equal to 90% of total precipitation for each month. The amount of effective precipitation not consumed by the native vegetation will go to soil moisture storage. The historic consumptive use credit during the non-growing season and non-ice cover period shall be 20% of the total precipitation for the month. The consumptive use during the ice-covered will depend on the available soil moisture from precipitation. The ice cover period shall be determined as the period between days less than 32 degree mean daily temperature. The historic consumptive use credit assigned to precipitation during the ice cover period shall be equal to the gross evaporation if sufficient soil moisture storage was available.

REPLACEMENT SOURCES

8. Replacement water to compensate out-of-priority depletions must be available either directly or by exchange in the proper quantity, quality, place and time to assure that existing water rights are not injured. All plans, whether the pit has exposed water or not, submitted to this office will be required to have concurrent replacement water available in order to obtain approval from the State Engineer.

   Plans for replacement generally utilize three primary sources of water to compensate the stream system for depletions resulting from evaporation and mining losses. These sources include direct flow water rights, reservoir storage, and nontributary and transbasin water. Water right decrees and other pertinent information regarding the replacement sources shall be included. The applicant shall also provide signed lease agreements or recorded non-encumbered ownership documents authorizing use of the proposed replacement

sources. Although the substitute water supply plan may be approved on a temporary basis using leased or nontributary water for the replacement water, this office may object to the use of these sources in a proposed decreed plan for augmentation. The decision to accept these sources as adequate to protect the senior water rights may be determined by the Water Court in which the plan is filed.

Nontributary, transbasin, or other consumptive use sources may be used for replacement purposes in a substitute water supply plan provided adequate engineering and documentation is supplied. Use of nontributary water must also comply with the **Statewide Nontributary Ground Water Rules** and may not be used for more than 98% of the fully consumptive use losses, i.e., evaporation, dust control and water removed in the product. Lawn irrigation return flow credits will not be acceptable unless established by the water court. Irrigation return flows from the Colorado-Big Thompson Project water cannot be used for replacement purposes. All replacement water must be made appurtenant to the gravel pit site for the duration of the substitute water supply plan.

9. Many plans utilize the historic consumptive use associated with irrigation water rights as part of their replacement sources. All or a portion of the land irrigated by the surface water right is dried up to provide historic consumptive use replacement credits. This source of consumptive use replacement water will only be available to replace irrigation season depletions unless sufficient water is placed in an acceptable storage vessel for release during the non-irrigation season, or as provided by change of use decree.

   Since only the water court has the authority to approve changes in water rights, those substitute water supply plans approved by this office which involve a change of use may not be able to claim the period of time while operating under the approved substitute water supply plan for historic consumptive use credit.

   Analysis of historic consumptive use shall be based upon the modified Blaney-Criddle method or other acceptable methods or determination from previous court decrees for the subject water right, if applicable. The historic use analysis shall be based on average hydrologic conditions. The Water Court may impose less stringent conditions on the plan for augmentation based on a different study period. Any non-use of the water right during a study period shall be included in averaging historic use. Any occurrence of subirrigation must be documented and considered in the historic use analysis. Documentation of historic irrigation may be based on aerial photographs, sworn affidavits, court decrees, well permit files and water commissioner diversion records. Estimates of irrigation efficiencies, ditch conveyance efficiency, and subirrigation shall be based on acceptable engineering references and standards.

10. The land to be dried up shall be documented to the satisfaction of the local water commissioner. A copy of the dry-up covenant shall be submitted to our office and recorded with the county clerk and recorder. Maintenance of historic return flows from the former irrigated lands will be required if necessary to prevent injury to other water rights. The timing of return flows may be calculated using Glover techniques [parallel drain theory, stream depletion factor (SDF)], or numeric modeling.

11. Substitute water supply plans may use reservoir water released to the stream at the proper time and in the proper amount. Reservoir storage and releases are generally required to offset winter depletions. An analysis of the consumptive use of the reservoir water (if reservoir water is not decreed for augmentation purposes) should be performed similar to that performed for a direct flow water right. Dry-up of irrigated lands will be required if the only source of water available was the reservoir water. A copy of the dry-up covenant shall be submitted to our office and recorded with the county clerk and recorder.

12. An excavation which intercepts groundwater is considered a well; thus the excavation may not be used for water storage without first being lined or exist in an area surrounded by an impervious layer such as bedrock. The average seepage rate that has been accepted by this office for lining of gravel pits is 1 gpm per 100 lineal feet along the perimeter. This is subject to court approval when the storage right application is made to the water court. The pit shall remain unfilled for two or three months after construction during a high water table to determine the leakage rate. In addition, the State Engineer's Office will inspect the lined pit before the pit is filled with water. Periodic staff gauge and piezometer measurements may be required to determine calculated seepage into the pit based on the permeability of the pit. Other measuring devices such as a rain gauge and evaporation pan may be required to determine the adequacy of the lining.

13. It may be possible to introduce water into recharge sites located at desirable distances from the stream using the sources discussed previously or water diverted when

there is a free river. Water introduced into the recharge site will migrate to the stream over time. The rate of movement is a function of the transmissivity and specific yield of the alluvial material. With ideally located recharge sites, recharge water would reach the stream during all months of the year and would be creditable against stream depletions caused by the gravel mining operation. Use of these recharge plans must be specifically approved by our office unless the site has previously been approved by the water court.

14. Transportation loss charges, if applicable, will be assigned for any replacement source of water.

OPERATION OF PLAN

15. Each plan shall include a detailed accounting sheet providing monthly estimates of the following items: pit size, water surface area, gross evaporation, net replacement, amount on mined material, water removed with the mined sand and gravel, diversions for dust control, diversions for vegetation establishment, total lagged depletions impacting the river, reservoir or replacement source releases, physical flow available at the surface water right headgate, historic consumptive use credit estimate, and transportation loss charges. All items in this list may not be applicable to every proposal. Likewise, certain proposals may require additional accounting. A draft accounting form shall be submitted to the State Engineer for approval. The substitute water supply plan shall provide the name, address and telephone number of the contact person who will be responsible for the accounting and operation of this plan. The State Engineer's Office will hold the permit designee of the operation as filed with the Division of Minerals and Geology responsible for compliance but reserves the right to also pursue the landowner for eventual compliance.

    Accounting and reporting of depletions and replacements shall be made monthly to the division engineer and water commissioner. More frequent accounting may be required by the division engineer to protect other water users. Reservoir releases may also be aggregated at the division engineer's discretion for maximum benefit of the stream system.

16. Adequate flow measuring devices and measurements may be required to implement the plan. Measurements may include, but shall not be limited to, all diversions from the pit (excluding evaporation), water released from reservoirs or other sources for replacement water, and the diversion and turn back of ditch diversions.

17. A plan will not be approved unless the applicant has also applied for a well permit for the subject pit. A well permit will not be issued until the substitute water supply plan is approved. Additionally, if another well is located within 600 feet of the perimeter of the proposed free water surface, consent of the well owner(s) must be obtained or a hearing before the State Engineer to determine if a well permit can be issued. This requirement only applies to the surface area exposed after June 10, 1989.

18. Resolution 90-1, as approved by the Board of Examiners of Water Well Construction and Pump Installation Contractors, copy attached, is hereby incorporated into these guidelines.

    After initiation of excavation of the pit, plan and cross-sectional drawings are to be submitted on 8-1/2" x 11" paper. These drawings are required in lieu of the Well Completion Report and should include the extent of excavation, maximum depth of the pit and the initial static water level.

    No permanent well and pumping equipment shall be installed in the gravel pit unless a variance has been approved by the Board of Examiners of Water Well Construction and Pump Installation Contractors. A permanent well and pumping equipment does not include portable pumps used for watering needs at the gravel pit for such things as dewatering, dust control and gravel washing. When a permanent well and pump are installed, a Well Construction Report and Pump Installation Report are required.

19. Evidence that water from the gravel pit (well) has been put to beneficial use must be submitted after ground water has been exposed and prior to the expiration date of the permit on a form prescribed by the State Engineer. For purpose of acceptance of the Statement of Beneficial Use the annual appropriation claimed shall be the maximum permitted regardless of the actual surface acreage exposed. The annual appropriation will be equal to the evaporation if there are no other beneficial uses of the groundwater. A field inspection by this office will assist the water court in determining the adequacy of any water right claimed for this structure regardless of the amount of water claimed on the Statement of Beneficial Use form. The Statement of Beneficial Use must be submitted prior to the expiration date of the permit in order for the permit to remain valid.

20. An Abandonment Report must be filed if a permitted gravel pit (well) is either backfilled or lined.

21. Substitute water supply plans may be revoked or modified at any time should it be determined that injury to other vested water rights has or will occur as a result of the plan. A copy of the approved substitute water supply plan must be recorded with the county clerk and recorder.

22. The duration of the substitute water supply plan will be evaluated case-by-case by the State Engineer. Criteria for approving the plan for extended years include the approved term and conditions of mining by the Division of Minerals and Geology, senior vested water rights impacted, the source of replacement water, and diligence on a court application, if applicable.

23. All gravel mining operations that result in a permanent free water surface (i.e., exposed ground water) will be required to obtain a court decreed augmentation plan. An application to the water court for a permanent augmentation plan will be required within three (3) years of initial approval of the substitute water supply plan by the State Engineer unless specific reasons warrant an extension.

24. A data base for gravel mining operations is maintained at the State Engineer's Office. This data base includes information about the mining operation including, but not limited to, applicant, Division of Minerals and Geology status, mine name and location, well permit status, substitute water supply plan and augmentation plan status, and field inspections.

Calendar of Events

March 9-10	Hearing for the Rules for the Denver Basin Artificial Recharge Extraction, 1313 Sherman Street, Room 318, Denver, CO., at 9:00 a.m. Contact Marta Ahrens at (303) 866-3581.
March 13-14	Colorado Water Conservation Board, Holiday Inn, I-70 and Quebec, Denver, CO. Contact Susan Maul at (303) 866-3441.
March 15	Colorado Native Aquatic Species Protection Workshop, Holiday Inn, I-70 and Quebec, Denver, CO. Contact Susan Maul at (303) 866-3441.
March 23	The Rio Grande Compact Commission's annual meeting will be held in Alamosa, Colorado. Contact Marta Ahrens (303) 866-3581.
April 4	Board of Examiners of Water Well Construction and Pump Installation Contractors, 1313 Sherman Street, Room 719, Denver, CO., at 8:30 a.m. Contact Marta Ahrens at (303) 866-3581.
May 19	Colorado Ground Water Commission, 1313 Sherman Street, Room 318, Denver, CO., at 9:00 a.m. Contact Marta Ahrens at (303) 866-3581.
May 22-23	Colorado Water Conservation Board, Granby, CO. Contact Susan Maul (303) 866-3441.

OFFICE OF THE STATE ENGINEER
Colorado Division of Water Resources
Department of Natural Resources
1313 Sherman Street - Room 818
Denver, Colorado 80203

Phone (303) 866-3581
FAX (303) 866-3589

Jim Lochhead, DNR Executive Director
Hal D. Simpson, State Engineer
Joseph (Jody) B. Grantham, Editor

STREAM LINES is published by the Colorado Division of Water Resources on a quarterly basis. Subscriptions are available for $10 per year to cover the cost of printing and mailing.