



United States Department of the Interior
U.S. GEOLOGICAL SURVEY
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MEMORANDUM

Date: May 25, 2001

To: Rick Gold, Acting Director
Upper Colorado Region, Bureau of Reclamation

From: Barry D. Gold, Chief *BG*
Grand Canyon Monitoring and Research Center (GCMRC)

Subject: FY 2001 Annual Aerial Photography for Baseline Monitoring in FY 2001

Consistent with the July 31, 1998 protocols on aerial photography in low water years, the GCMRC is requesting 4.5 days of 8,000 cfs constant flows in FY 2001. Given the current power situation in the West, the executive order issued by the President on May 18, 2001, and our reanalysis of the historical aerial photography, we are asking that you consider the following options for scheduling releases from Glen Canyon Dam in support of aerial photography for baseline monitoring.

In developing the options described below, GCMRC has attempted to plan for these flows in a way that minimizes the impact on power production without substantially compromising the quality of the aerial photography for baseline monitoring. We have done this by balancing the following factors: 1) waiting until late June or early July to ensure the solvency of the Basin fund, 2) conducting the monitoring flows contiguous with a weekend and holiday period when flows would normally be low so as to minimize the impact on power customers, and 3) extending the daily flight window in June/July to minimize the number of days of steady flows, even though this will result in some reduced quality of the aerial photography due to shadowing.

This request differs from the July 31, 1998 protocols only in that we recommend that these flows be conducted closer to the summer solstice, while the original protocols call for these flights to be conducted over the Labor Day weekend. This change is based on a recent analysis of historic aerial photography, presented at the Science Symposium on April 26, 2001 demonstrate that the amount of shadowing that results from Labor Day overflights, substantially reduces the quality of the aerial photography. In addition, Labor Day flights can be affected by tributary inputs associated with monsoons and less stable weather.

The annual aerial photography data set is one of the longest and most consistent data sets available for evaluating change in the Colorado River ecosystem. In FY 2001 the GCMRC will collect both black and white and color infrared imagery in a digital format for subsequent monitoring program use. The data are a critical as part of the annual monitoring programs related to: (1) the area and volume of system-wide fine-sediment storage in beaches and sandbars, (2) near-shore physical habitat in terms of the abundance and distribution of features such as backwaters, (3) riparian vegetation, (4) cultural resources within pre-dam terraces, (5) annual impacts from tributary debris flows and floods, and (6) camping beach surveys, among others. These resources are monitored in compliance with the 1992 Grand Canyon Protection Act and the 1995 Record of Decision as part of the Glen Canyon Dam Adaptive Management Program (AMP). If these data are not acquired, monitoring by GCMRC and its contractors, in support of the AMP will be compromised.

The following options were developed by GCMRC after consultation with stakeholders who have voiced specific concerns over aerial photography. These included the: Western Area Power Administration (Western), Colorado River Energy Distributors Association (CREDA), Grand Canyon River Guides, and Lees Ferry Trout Guides. Western and CREDA voiced concerns about options 2 and 3 because of potential impacts to power. They were supportive of Option 1 assuming it has a neutral impact to power.

Option 1 – Request 4.5 days of 8,000 cfs flows during the last two to three weeks of June. These flows would begin on a Friday evening and continue through the following Tuesday. Flows would be triggered when the Western Area Power Administration has acquired up to 15,000 MWh of power credits for delivering power to Western System Coordinating Council (WSSC) utilities under emergency circumstances. This would allow the aerial photography to be conducted during a weekend and a contiguous Monday and Tuesday when flows would be held almost constant while power was paid back from California. The impact to power customers should be almost non-existent under this scenario.

GCMRC requests 14 days notification in order to conduct these overflights at no additional cost to GCMRC. GCMRC could accommodate notification as short as 5 days; however, GCMRC would incur an additional \$15,000 in mobilization fees due the contractor under this condition. The availability of the color infrared sensor and the ability to obtain a permit from the National Park Service for this option could not be determined at this time.

Option 2 – Request 4.5 days of 8,000 cfs constant flows between June 30 – July 4. Conducting aerial photography during this weekend and holiday period would greatly minimize the impacts to power customers, allow sufficient lead-time to plan the overflight, and maximize the value of the aerial photography by scheduling the mission close to the summer solstice.

Option 3 – Request 10 days of 8,000 cfs constant flows from September 1 – 10. This would occur over two weekends and the Labor Day holiday to minimize the impacts to power customers. Even with a shortened daily flight window and an extended overall flight period, the shadowing will likely be greater the flights described under Options 1 and 2 above. The longer

flight window increases the probability that spikes to meet California power emergencies will occur during this 10-day period. In addition, the potential for tributary inflows and bad weather may further compromise the value of the aerial photography collected during this period.

GCMRC recognizes that any of the aerial photography overflights proposed under these scenarios could be interrupted by short duration emergency releases to provide emergency power to California. Options 1 and 2 appear to minimize that probability.

Recommendation – GCMRC recommends Option 1 or Option 2. We recommend against selecting Option 3.

We appreciate your consideration of this request.

c: Secretary's Designee, AMWG members, TWG members, Principal Investigators, GCMRC staff



United States Department of the Interior

BUREAU OF RECLAMATION
Upper Colorado Regional Office
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IN REPLY REFER TO:

UC-700
RES-3.50

JUN 12 2001

MEMORANDUM

To: Barry D. Gold
Grand Canyon Monitoring and Research Center, USGS

From: Rick L. Gold
Regional Director

Subject: FY 2001 Annual Aerial Photography for Baseline Monitoring

We received your memo dated May 25, 2001, requesting 4.5 days of 8,000 cfs constant flow from Glen Canyon Dam to conduct aerial photography. You describe several options for accomplishing this effort.

Reclamation agrees to implement this period of constant flow under the conditions outlined in option 1, but will extend the period of consideration through July 4, 2001, if needed. Our providing these flows is contingent on their occurring during a Friday evening through Tuesday time frame, coincident with a Monday and Tuesday energy credit payback or energy pre-purchase from California, currently being explored by the Western Area Power Administration. Such an energy payback period has the effect of producing basically steady releases from Glen Canyon Dam, thus essentially eliminating the financial impacts of modifying releases for the aerial photography. Conversations with Western Area Power Administration staff has indicated they intend to negotiate with California to facilitate our conducting the aerial photography. The amount of advance notice of these flows will depend on California energy payback arrangements.

We appreciate the recent dialog between our staffs in searching for a solution to the aerial photography proposal.