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16 March 2010

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Subject: Commentary on and Critique of Draft Environmental Impact Statement for  
“Moffat Collection System Project” (Enlargement of Gross Reservoir) and Statement of  
Opposition to the Project.

## **Critique of Draft Environmental Impact Statement for “Moffat Collection System Project” (Enlargement of Gross Reservoir)**

### **Executive Summary**

The Draft Environmental Impact Statement (DEIS) for the Moffat Project is technically incompetent, materially incomplete, and heavily biased in favor of a project that is *not* the most reasonable alternative to address Denver Water Board’s future water delivery needs. Thus it violates the primary purposes of NEPA. The DEIS should be shelved and the Gross Reservoir project should be abandoned. Recognizing that its service area is located within a near-desert climate zone, Denver Water should adopt a more sustainable approach to serving its customers, an approach illegally excluded without analysis in the DEIS.

Among the major failures of the DEIS are:

The DEIS states that “development of 18,000 AF/yr of new firm yield is the only

action to be analyzed in the EIS,” thus restricting analysis to engineering options and illegally ignoring proactive options including conservation that would enable Denver Water’s customers to use water in a sustainable way.

The models that arrive at the 18,000 AF/yr “requirement” do not consider probabilities that the assumptions are wrong or that the projections will be off. Yet they base the purported “need” on a probability that sometime in future decades there may be a drought that, were the water not available, would require a temporary ban on watering of lawns (and similar restrictions), whereas the citizens of Boulder, Jefferson, and Gilpin County foothills neighborhoods who would be most impacted by Gross Reservoir enlargement are already prohibited by Colorado State law from any outside watering 24h a day/365 days per year. This is an unjust and biased “requirement.”

The DEIS fails to evaluate whether Denver’s current and projected uses of water are ultimately sustainable, which should be required before approving an augmented water supply to provide for future perceived “need”. In fact, Denver uses more water per capita than many cities in the dry American West and it fails to employ steeply tiered water rate structures used in other Western cities to curtail wasteful usage. Furthermore, other Americans who do not benefit from Denver Water help subsidize Denver rate payers in many ways. In particular, when this DEIS provides only partial mitigation or no mitigation for adverse impacts of the project to citizens not customers of Denver Water, those citizens thereby subsidize artificially low water rates in Denver. This is an unfair and untenable long-term stance on the part of Denver Water.

The “study area” is extremely limited in scope, mainly extending just a thousand feet beyond the boundaries that would be inundated by the larger reservoir. By excluding analysis of serious impacts extending up to a mile or more away (except along roads and streams), the DEIS fails to consider mitigation of such omitted impacts.

The formalism for analysis of environmental consequences in the DEIS (chap. 4) focuses on comparisons of the “current” (2006!) conditions with the situation at the end of (2016) and with conditions in 2030. Thus it downplays the extremely serious impacts *during construction*. The near-term construction and restoration period is supposed to take ~5 years, though experience suggests that the duration would likely be longer. Situations more distant in the future are discounted in professional economic analyses, but not in the DEIS; the construction period deserves enhanced focus and emphasis. Many years of construction in a region the USFS has managed for protection of wildlife, adjacent to rural neighborhoods, constitutes one of the greatest impacts of the project,

yet construction impacts are given short shrift in the DEIS because of the biased formalism of the analysis.

Citizens in the Magnolia/Winiger Ridge neighborhoods west of Gross Reservoir prepared, in consultation with a professional land use planner and under the aegis of the Preserve Unique Magnolia Association (PUMA), a comprehensive 250-page “Magnolia Environmental Protection Plan” (MEPP), which was officially incorporated into the Boulder County Comprehensive Plan in late 2000. It evaluated 22 sq. miles of lands south of Boulder Canyon, north of South Boulder Creek, east of Peak-to-Peak Highway, and west of Gross Reservoir, and contained recommendations for Denver Water Board, among other parties. During early phases of development of the Moffat Project DEIS, in late 2003, the Boulder County Commissioners informed both Denver Water and the Army Corps of Engineers of the importance of MEPP and requested that they keep MEPP in mind in developing the DEIS. However, nowhere throughout the six volumes of the DEIS can we find any mention of MEPP or its policies, which are summarized at <http://www.puma-net.org/popupmepppol.htm>.

The DEIS exhibits an appalling lack of familiarity with facts on the ground around Gross Reservoir and in adjacent neighborhoods. It claims access to Gross where none exists. It claims roads connect when they do not. Parts of the DEIS exhibits zero awareness that there is a long-standing USFS seasonal closure to motor vehicles (November to May) in lands west of the reservoir, and thus there is no discussion of how to mitigate the impacts of revoking the closure that is implicit in the construction schedule. DEIS lists of affected roads omit some that would logically be affected by proposed operations (e.g. CR 68 and 97E can be accessed only from Magnolia Road, but Magnolia [CR 132] is never listed). One of the major fire departments, covering all regions north and west of the reservoir, is High Country Fire Department, but the DEIS only discusses fire departments covering lands to the south and east. The most important local natural feature that would be inundated by the project is Forsythe Falls; even though it is located within the official study region, neither it nor its threatened loss are mentioned anywhere in the DEIS.

A major concern of local citizens is dust during and following the long construction period. Yet, despite Gross Reservoir’s location in one of the windiest neighborhoods in the United States, there is zero consideration of this factor in the DEIS analysis of “fugitive dust control.” The words “chinook” and “wind speed” simply do not appear in analysis of the Proposed Action. Nor are winds mentioned with respect to project trucks on SH 93, a road frequently closed to high-profile vehicles due to hurricane-force winds

or closed to all vehicles by drifting snow.

The DEIS estimates socioeconomic impacts in the hundreds of dollars, wholly and falsely discounting the temporary and potential long-term impacts on home values in neighborhoods whose character would be grossly disrupted during construction and permanently changed in ways antithetical to the amenities for which people moved here. It unrealistically concludes that nobody would move away due to the project. There is no appreciation of rural lifestyles and values in Colorado.

While noting that a major wintering grounds for elk is immediately adjacent to Gross Reservoir, there is no analysis in the DEIS of how the project could disrupt the entire migration route, extending west toward the Continental Divide. The DEIS absurdly suggests that the only impact to elk would be a minuscule diminishment of their grounds by inundation; it wholly fails to consider that the noise/traffic/activity during construction might temporarily or even permanently drive these skittish animals far away from their habitual wintering grounds. There is no consideration of or reference to the extensive scientific literature on the impact of human disturbance on the movement of elk.

There are many major impacts of the project for which no mitigation is recommended in the DEIS and/or no mitigation is proposed (Appendix M) by Denver Water Board. In some cases this is because the analysis falsely claims zero or minor impacts, but in other cases despite findings of significant impacts. Among the impacts for which “**no compensatory mitigation**” is proposed are noise, visual (viewshed) impairment, socioeconomic impacts (e.g. home values), and land use issues (e.g. “improvements” to and heavy use of local roads, violation of stipulations in Boulder County’s “Forestry” zoning of these lands, violation of USFS land management regulations).

There are many other serious deficiencies in the DEIS. On issues dealing with the vicinity of Gross Reservoir, near which we live, and on topics about which we are knowledgeable, the DEIS is replete with errors of fact, major omissions, serious misunderstandings, and evidence of sheer sloppiness. It is reasonable to suspect that other aspects of the DEIS beyond our familiarity and expertise (e.g. issues involving stream flows on the western slope) are similarly erroneous. If the whole report has the same character, then it deserves the waste basket as its final resting place.

The supposed necessity of the project is based on false assumptions and reasoning, the analysis of the DEIS is faulty and omits consideration of major alternatives, and the

project would have extreme adverse impacts during construction and significant permanent consequences for which insufficient or zero mitigation is proposed. The project is not needed, it is a waste of money (~\$149 million), and its overall effects would be seriously negative. The project should not be built.

## Introduction

We are residents of Boulder County, located less than 2 miles west of Gross Reservoir. We believe that we, and several thousands of our neighbors in the vicinity of Gross, would be seriously impacted by the years of construction of the Proposed Action and that there would be deleterious temporary and permanent effects on the natural features, flora, and fauna in the vicinity. From our understanding of water usage in the American West, we find no compensating reasons for the destructive consequences of the project. Denver Water may be proud of its fledgling attempts to conserve, but objectively there is absolutely no need for the additional water storage that the Proposed Action would develop. Therefore, we strongly oppose implementing the project.

The present document is primarily an analysis and critique of the Draft Environmental Impact Statement (DEIS), for which comments are due on March 17th. We are aware of widespread opposition to the project, having attended numerous public meetings about it during the past several years. At most of these meetings, there have been *zero* supporters of the project, aside from individuals representing Denver Water or the Army Corps of Engineers and their hired consultants. So we are aware of concerns about commuter traffic and safety in lower Coal Creek Canyon, concerns about streams on the Western Slope, and concerns about impacts east of the foothills. But we choose to apply our local knowledge and professional expertise in this critique, so we emphasize issues affecting lands and communities northwest and west of the reservoir. We summarize our relevant experience and professional expertise in a footnote to this page<sup>1</sup>.

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<sup>1</sup> Clark and Y Chapman have lived since 1997 on the south side of Winiger Ridge two miles west of Gross Reservoir, near the gate that terminates public right-of-way of Lazy Z Rd. (CR 97E). They have been members of the Preserve Unique Magnolia Association (PUMA, a neighborhood association) since 1997 and co-authored the “Transportation” section of the Magnolia Environmental Protection Plan (MEPP, which was incorporated into the Boulder County Comprehensive Plan in 2000). Y Chapman coordinated with the U.S.F.S. to produce a video program of the 1999 controlled burn along the south side of Winiger Ridge from the shore of Gross Reservoir for two miles west. Dr. Clark Chapman

Clearly we, and other citizens and NGOs, have far fewer resources to devote to this matter than the Army Corps of Engineers and their hired environmental consultants (URS Corporation). But we have enough expertise and knowledge of local conditions, and have spent enough time evaluating the proposed enlargement of Gross, so that our evaluation and conclusions should be sufficient to merit postponement of this project until a completely new effort is undertaken to prepare a competent, balanced DEIS. We believe that if such a DEIS were prepared it would conclusively demonstrate that the project is not warranted at this time and perhaps not warranted ever.

An overwhelming feature of the DEIS, despite its length, is its *generic* character, as if it were copied from a standardized template with minimal, incomplete input concerning relevant literature and with inadequate on-the-ground fieldwork to determine the specific local conditions at Gross Reservoir and in surrounding neighborhoods. Some of the most significant attributes of the locale, and primary concerns of citizens in the region, are wholly overlooked, or represented in erroneous ways. Because of the superficial, faulty treatment of local conditions and issues, the conclusions drawn from the DEIS analyses are themselves faulty.

Beyond such inadequacies, the DEIS is replete with unsupported judgments, which frequently are biased in favor of the adopted Proposed Action. Except in a few portions, such as treatment of visual impacts, the report exudes a bias that seems to reflect an eastern, urban perspective (where everyone waters their lawns), is insensitive to sustainable living in the dry American West, and is wholly indifferent to the lifestyles and values of residents of rural mountain neighborhoods. We and our neighbors have made many inputs to this Moffat Project process since 2003 (including a meeting between PUMA and Denver Water in May 2007 and numerous meetings, including formal hearings, during the last two years), but we see little evidence in the DEIS that our oral and written input was even read, let

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received his MS degree from MIT's Meteorology Dept. and his PhD from MIT's Earth and Planetary Sciences Dept., and thus has professional competence to address geological and meteorological issues in the DEIS. He also was a member of the American Planning Association and a member of the Planning and Zoning Commission of Pima County (AZ), a large suburban/rural Western county with many public and USFS lands, similar to Boulder County. Dr. Chapman is currently working on a study sponsored by the World Bank to evaluate the implications of low-probability high-consequence natural disasters on understanding more common risks that society faces. Since the DEIS recommendations seem predicated on protecting Denver's water from an unlikely but possible drought, he is qualified to address this issue. For many years, Clark and Y Chapman conducted regular bird counts, for the Audubon Society, along Winiger Ridge.

alone seriously considered. In short, we appreciate that Denver Water and the Army Corps have undertaken the legally required solicitation of public input, even though many residents have, understandably, become aware of the issues only recently as the deadline for comment has approached. But, despite input given, it has not been seriously included in the DEIS. It is our hope that each of our specific criticisms of bad logic, bad facts, missing pertinent analysis, and so on concerning the DEIS *will* finally be addressed this time, which we understand is legally mandated.

We begin by addressing major issues that underpin our belief that the DEIS is fundamentally faulty and unacceptable. Later, we list many individual errors in the DEIS, which cumulatively undermine the reliability of the analysis; we address those issues with which we are familiar. We infer that similar errors might be characteristic of the entire report, including portions that address issues beyond our knowledge or expertise.

## Major Conceptual and Legal Flaws

### *Illegal Failure to Consider Reasonable Options Other than Developing 18,000 AF/yr*

The DEIS states: “The Corps independently reviewed Denver Water’s Near-Term Strategy and concluded that the development of 18,000 AF/yr of new firm yield is the only action to be analyzed in the EIS.” This is an astonishing restriction of the scope of the DEIS. It appears to rule out-of-order consideration not only of alternative options to addressing the adopted criteria of reliability, vulnerability, flexibility, and firm yield (e.g. water usage conservation, upgrading existing plants) but also rules out evaluation of *on-going* strategies by Denver Water that are *currently being implemented!* (These ongoing measures include “(1) conservation, (2) non-potable recycling, (3) system refinements, (4) cooperative projects, and (5) new supply projects.”) NEPA requires that all “reasonable” alternatives be examined, so exclusion of such alternatives appears to be illegal. At a minimum, since such alternatives are widely advocated by the public, NGO’s, and media commentators, it must somewhere be demonstrated that they are “unreasonable” and require no further consideration. There is no such demonstration in the DEIS.

Furthermore, the DEIS continues: “Implementation of the near-term strategies described in the IRP is beyond the scope of this EIS because there is no Federal nexus

with the components that would require a Corps action, decision, or permit.” This basis for not considering the near-term strategies and other components of a reasonable alternative to developing 18,000 AF/yr appears to explicitly violate 40 CFR 1502: “An alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS if it is reasonable.”

The DEIS’s “Purpose and Needs” chapter concludes with this statement: “It is Denver Water’s opinion that additional water supply and the associated distribution facilities would help meet these needs.” But a desire is not a “need”. An “opinion” is not a robust technical “demonstration.” The basis for this project should be a *demonstration* that the project meets demonstrated “requirements” and that negative consequences of the project would be less severe than the projected consequences for Denver Water users if the requirements aren’t met. That this demonstration is absent from the DEIS is a major failure.

### *Unfair Failure to Consider Sustainable Water Usage in a Near-Desert Environment*

Denver Water prides itself on its water conservation efforts, yet they are hardly more than cosmetic. Denver receives only 3 inches more rain annually than Tucson, Arizona. So it should behave like a city in an arid climate. Instead, Denver’s per capita usage of water exceeds that of many other dry-climate cities in the American West. Tucson’s tiered water rate structure, beginning for basic services at a rate similar to Denver Water’s, climbs to around \$12 per 1000 gallons for amounts above ~35,000 gallons monthly usage. In the last few years, Denver has charged less than \$4 per 1000 gallons at this usage level, and charges less than \$8 per 1000 gallons for consumption over 80,000 gallons per month! This hardly provides incentive for conservation.

The DEIS references some old studies (roughly a decade old) but provides no modern analysis of how well various measures to conserve water (fixing leaks, installing water-efficient appliances, promoting xeriscaping, adopting a more steeply tiered water rate structure, stopping wasteful watering of medians, etc.) -- beyond the superficial, tentative measures currently in place – would suffice without requiring more water storage.

The DEIS does evaluate the “No Action Alternative,” but this is not intended to constructively and proactively assess an option that would obviate the fixed requirement of developing more stored water. Instead, its purpose is to assume, *without* evaluation of

conservation alternatives or even of on-going strategies, that simply *nothing* is done. In particular, in Sect, 2.10.2, the DEIS states: “non-structural concepts were evaluated and eliminated from further consideration for the No Action Alternative because they did not meet the Purpose and Need.” In other words, because the “need” has been defined to be an additional 18,000 AF/year, the DEIS refuses to evaluate positive alternatives that would eliminate the need for the extra water...an extreme example of tautology and circular reasoning.

The DEIS thus concludes that Denver Water would, in some future drought, be forced to draw down the Strategic Reserve and/or “rely on more frequent and severe mandatory water use restrictions.” In particular, the DEIS declares that Stage 3 or Stage 4 responses might be necessary during some unlikely, “extraordinary” future drought, and that such a possibility is unacceptable. Stage 3 mandatory restrictions include “prohibiting lawn watering, watering only trees and shrubs and high public use turf areas once a week, and other measures.” There is no up-to-date quantitative analysis in the DEIS, as there should be, of the actual probabilities that such prohibitions would have to be enforced, what probable durations there would be for such temporary curtailments, nor evaluation of the likely damage from such restrictions. The mere *possibility* is held up as unacceptable.

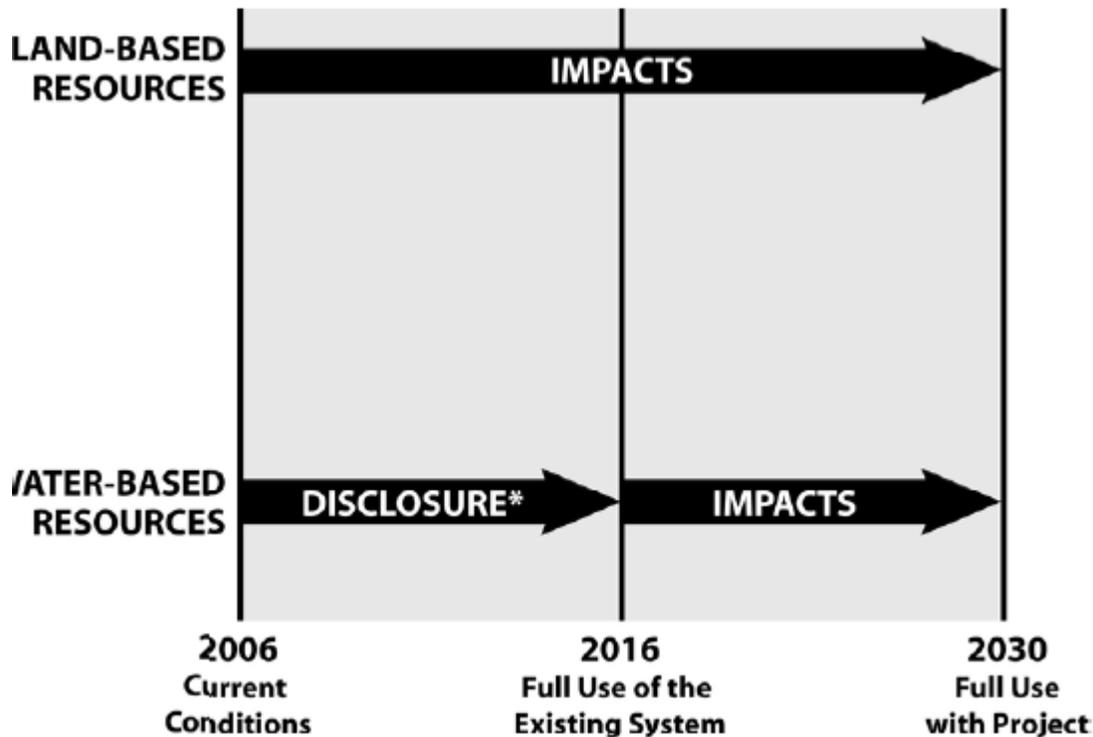
For context, consider residents of rural Colorado (in neighborhoods surrounding Gross Reservoir, in the Fraser River Valley, etc.). By Colorado State law adopted in 1972, such rural residents (who depend on well water, outside of municipal water districts) are *currently* prohibited from *any* outside use of water, 24 hours a day, 365 days a year, into perpetuity! Yet we rural citizens of Colorado near Gross Reservoir would suffer the negative consequences of this project because of slight possibilities that during some future decade, a similar but temporary ban (Stage 4) might apply to residents of Denver. (It can be said that we chose to live in rural neighborhoods where such a permanent ban is in effect, though few people moving here are actually made aware of the ban; but people moving to Denver can hardly be unaware that they are moving to one of the driest states in the country where water is regarded as a precious resource. Guaranteed ability to keep your grass green every year for the rest of your life is hardly a constitutional right.) The stance of Denver Water toward water “need” is hypocritical, preposterous, and unjust.

### *Incomplete, Premature Information Preventing Analysis of Consequences*

Throughout this process, information has been developed too late, or not developed at all, thus precluding objective analysis of impacts and potential mitigation. Time and time again, the public has been told that the studies (e.g. of the geology underlying the reservoir) will be done only after the project is approved. A specific example in the DEIS is its reliance on an assumption that gravel would be hauled from a site near Longmont, Colorado. Thus there is frequent reference in the DEIS to roads that would be used for trucks between that site and the dam site (e.g. SH 128). But in public meetings (e.g. Nederland Community Center, 23 Feb. 2010) project officials have stated that the Longmont site is just “an example” among many possibilities of where the gravel might be hauled from. Other potential sites would involve wholly different roads east of the intersection of SH 72 and SH 93. Since these have not been identified, citizens who use those roads and other stakeholders remain unaware of possible impacts to them, and the DEIS wholly fails to evaluate consequences or mitigation options for those alternatives. Such postponement of consideration of alternatives that would plausibly be implemented after project approval is an unacceptable omission for a DEIS.

### *Structure of Analyses in Chapter 4 Downweights Impacts During Construction*

Chapter 4 adopts “three impact-related time frame definitions [to be] used in the Environmental Impact Statement (EIS)”: Comparison of Current Conditions (absurdly, 2006 is considered to be “current”), Full Use of the Existing System (2016, apparently assumed to be the end of construction, just before the enlarged reservoir is utilized), and Full Use with Project (2030). This formulation for impacts (see Figure below) omits the “short-term”, near-term impacts that would occur during the 4-to-5 years estimated time for construction and final restoration. While “temporary impacts” are addressed in Chapter 4, they are generally treated in a dismissive fashion, as in this statement: “Temporary impacts generally occur during construction activities and are considered short-term disturbances that can be reclaimed (e.g., pipelines) or would cease upon completion of construction activities (e.g., construction noise).”



Most professional economic analyses rather sharply discount effects decades in the future compared with the near-term. This DEIS, by its formal structure, downplays the relatively near-term element of the 4-to-5 year long construction phase.

By 2016 or 2030, whoever remains or has just moved into the foothills communities surrounding the reservoir will regard it as an in-the-ground attribute of the landscape. But during the years of construction, the long-standing environment for people who moved to these regions during past decades for its rural/wilderness character will be badly disrupted or destroyed. We exemplify these impacts in this critique, and how they have been inappropriately dismissed or downweighted by this DEIS, but the essential issue is that by design of this DEIS, they have been largely ignored as illustrated above. The appropriate time-markers should instead have been:

- \* 2009 Current Conditions (2006 is obsolete)
- \* 2012 – 2016 Construction/restoration phase (if that’s right)
- \* post 2016 System operating, landscape begins recovery
- \* post 2030 Full Use with Project

Most (rather than least) weight should be given to the near-term 2012-2016 construction period, with discounted emphasis given to the later phases...although, ultimately, Denver must become a sustainable city that lives within its means *without* this proposed desecration of the vicinity of Gross Reservoir.

*Failure to Consult the Magnolia Environmental Protection Plan (MEPP)*

In the late 1990s, a large number of residents – mainly living within 1 to 3 miles of Gross Reservoir to its west and northwest, members of PUMA (Preserve Unique Magnolia Association) – undertook a major study of the environmental attributes of the region south of Boulder Canyon, north of South Boulder Creek, east of the Peak-to-Peak Highway, and west of the shores of Gross Reservoir. They hired a professional land use planner and prepared a comprehensive document, complete with recommendations, that is more than 250 pages long. In late 2000, this Magnolia Environmental Protection Plan (MEPP) was officially incorporated into the Boulder County Comprehensive Plan by the Boulder County Commissioners.

This study evaluated resource domains central to the analysis of the Gross DEIS, including: Geology, Mineral Resources and Geologic Hazards; Water Resources, Hydrology and Hydrogeology; Vegetation and Ecosystems; Wildlife; Cultural Resources; Public Recreation Resources; Scenic Resources; Transportation; and Noise. The extensive recommendations, which include many specifically addressed to Denver Water, are available at <http://www.puma-net.org/popupmepppol.htm>. Yet there is no reference to MEPP throughout the six volumes of the DEIS.

One could imagine that this was a simple oversight, but that is not the case. In December 2003, as work was beginning on the Moffat DEIS, the Boulder County Commissioners specifically admonished the Denver Water Board and the Army Corps of Engineers to bear the MEPP and its recommendations in mind. Unfortunately, this recommendation was not followed through, resulting in a shoddy, incomplete alternative analysis of the issues addressed in MEPP. Instead of relying on the knowledge and information assembled by local residents, the non-local, outside consultants hired by the Army Corps ignored previous work and substituted their own uninformed evaluations.

This is not the only example of the failure of the study team that drafted the DEIS to search for relevant documents in the literature (searching on Google for “Winiger

Ridge”, “Gross Reservoir”, and other such terms identifies resources in seconds), but it is a major faux pas.

### *Intractable Transportation Issues Not Resolved in DEIS*

Gross Reservoir is located in very rugged country. Although much of its periphery can be accessed by small 4-wheel-drive and off-the-road vehicles, it is difficult to imagine that more than a modest fraction of the lands to be cleared can be accessed on public roads by logging trucks. In addition, many of the roads in the area – ranging from SH 72 (in Coal Creek Canyon) to neighborhood dirt roads – have special value to rural residents, whose lives would be badly disrupted by the threatened enhanced level of vehicular traffic, both by workers at the Gross site and by construction, gravel, and logging vehicles.

The DEIS does a terrible job of addressing these issues. First, the analysis is woefully preliminary. For example, the DEIS describes that many road segments would have to be realigned, “improved”, or built afresh, but nowhere does it provide even a cursory summary of what roads would be affected and in what specific ways.

It is well known to residents of the foothills west of Boulder that there are few routes to travel between these neighborhoods and the Front Range cities below. There are only three access roads between US 6 west of Denver and the road from Lyons to Rocky Mountain National Park. One of these is SH 72, currently a windy, paved, 2-lane road with almost no opportunities to pass or pull over. It is difficult to imagine that heavy equipment and haul trucks could access Gross Reservoir any other way, yet this road is the lifeline for communities along its length and beyond. The threatened increased traffic would obviously delay commuters in these neighborhoods. Yet the DEIS concludes, absurdly, “the frequency (times per day) and duration (total minutes) of traffic delays, and the numbers of people affected by them, pose no significant indirect impacts.” No professional criteria have been applied to make this assertion. One can expect that the degraded travel conditions during frequent windy, snowy, and foggy conditions have been ignored by the DEIS, since these factors aren’t mentioned.

An example of shoddy analysis in the DEIS is this: “Roads used for access would include Flagstaff Road (CR 77) east and north of the dam, Gross Dam Road (CR 77S) from SH 72, and CR 97 and CR 68. Additional traffic from tree removal and disposal

would also occur on SH 72 and SH 93. Although CR 77 is used for vehicular access, logging truck access is prohibited. The closest landfill that accepts whole trees is located near the intersection of SH 72 and SH 93, and other landfills are located at much greater distances. Tree harvesting and removal would also use several existing unpaved and four-wheel drive roads on USFS lands, as well as several new temporary access roads that would be built within the reservoir expansion area and the existing reservoir area, which would need to be partially drawn down during tree harvest. Some portions of the existing roads at the reservoir would need to be improved to accommodate the heavy equipment required for tree removal. Traffic related to tree removal would result in moderate temporary impacts.”

What vehicles relevant to this project would use Flagstaff Road, which is extremely curvy and passes through the environmentally protected City of Boulder Mountain Park? CR 97 connects SH 72 with Magnolia Road (which is nowhere mentioned in the DEIS, but would have to be used if CR 68 were to be used). It not only is difficult to imagine logging trucks on the narrow, steep, curvy, dirt road that is CR 97, but also on CR 68 which is an especially narrow, dirt neighborhood road. Residents of the Pine Glade and Aspen Meadows neighborhoods would bitterly oppose any “improvements” to CR 68. And residents of the entire region west of Gross Reservoir have on several occasions been polled on whether Magnolia should be paved and have overwhelmingly opposed that idea. Nobody who lives here would consider the impacts “moderate”. They would destroy the character of the neighborhoods. Mitigation measures listed in 4.10.7 are extremely vague and unconvincing.

Below we show that there are major errors in the maps and text about the network of roads in the vicinity of the reservoir. Access and road connections are claimed that simply do not exist. Road numbers and locations are badly confused on the maps and in the text of the DEIS. Residents should be fearful that, once the project managers become aware of the true conditions, massively adverse road construction would be necessary to achieve the requirements of reservoir enlargement.

### *Failure to Competently Address Elk Migration and Home Range*

The DEIS takes a very uninformed position on the elk. One of the major elk migration routes in this entire part of Colorado leads from the mountains above Eldora down along Winiger Ridge to the broad peninsula sticking out into Gross Reservoir

between Forsythe Canyon and Winiger Gulch. Part of the herd passes by our house every November and spring. A major part of its winter home range is adjacent to the reservoir. The winter range is shown on Fig. 3.7-2 (though with insufficient specificity and detail), but the DEIS fails to describe this as the end of a migration corridor that is maybe 15 miles long. (The severe winter range can sometimes extend to much lower elevations, possibly even down to Rocky Flats.) The USFS Boulder Ranger District has long planned that the highest and best use of Winiger Ridge is for wildlife conservation, with elk being a major element of the designation for the Winiger Ridge Environmental Conservation Area...the USFS has managed roads, trails, and fire mitigation with the elk in mind.

There can be little doubt, given the skittish nature of elk, that a four-to-five-year-long construction project in their wintering grounds would be extremely harmful. They might even be permanently driven from their grounds. There is abundant scientific literature on the effects of human disturbance of elk ranges on their movements. Much of it pertains to logging activities, which are generally of much shorter duration and intensity than the construction activities contemplated for Gross Dam. For example, it has been found that elk typically stay 500 to 1000 meters away from areas of disturbance and it is concluded that “displacement of elk may cause substantial reductions in habitat availability” (Edge et al., *J. Wildl. Manag.* 49, 926-930). Since, at its broadest point, the Winiger Ridge peninsula is only 865 meters across, logging activity around the periphery of the reservoir would necessarily displace the elk from this central part of their winter range. But nowhere in the DEIS is any of this literature referenced.

Instead, there are incompetent, unsubstantiated, and blatantly wrong assertions that there would be minimal effect on elk. The analysis restricts itself to describing the relatively small diminished range that would result from inundation by the enlarged reservoir. Even this is described as a “moderate impact.” There is also discussion of the obstacles big game would face from having to travel around the enlarged reservoir. The DEIS concludes that “displacement of big game from areas on the west side of the reservoir is unlikely due to the distance from construction disturbance.” What??!! Logging operations around the periphery of Gross Reservoir, helicopters flying overhead, and construction (remember the dam itself is only 500 meters away from Winiger Ridge peninsula) won’t affect the elk?! Have any of the writers of this DEIS ever seen an elk...or a herd of elk? Apparently not.

Elk are a major amenity to the Magnolia community. If the elk are forced to go elsewhere, we might lose this remarkable feature of our lives. We have, on occasion, had

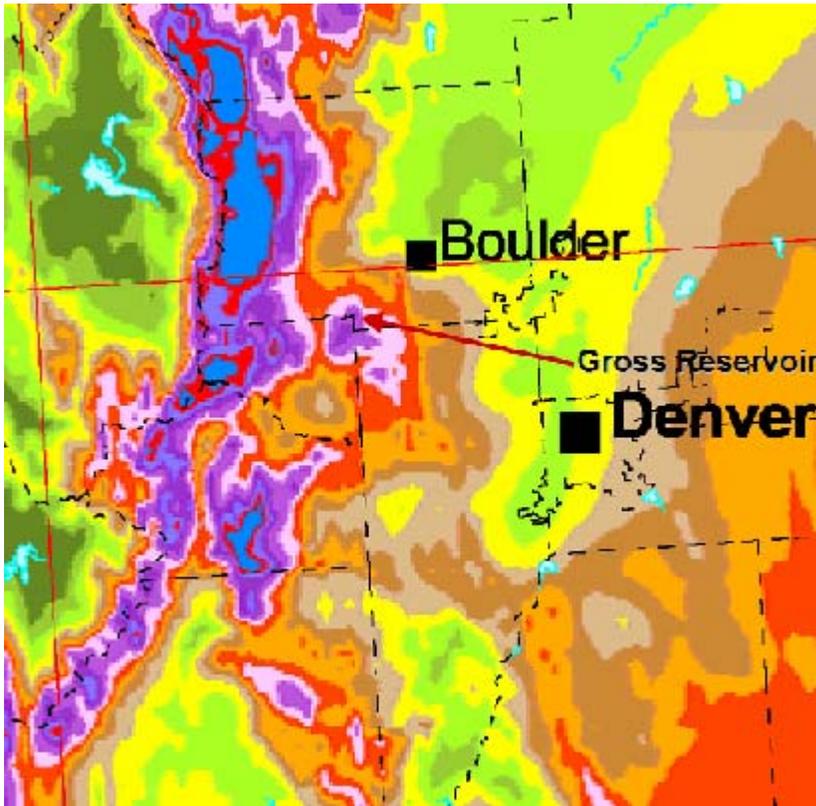
over 90 elk within 100 feet of our house on the south side of Winiger Ridge. It is for the proponents of this Project to demonstrate that we along the Winiger Ridge elk migration corridor would not lose – perhaps forever -- these elk, which we look forward to every November, during the 5 years of the project and restoration activities. These issues are not mentioned at all in the DEIS.

Sections 4.7.7 and 4.7.8 wholly fail to address consequences of the project for elk. Ultimately, the only mitigation measures proposed for wildlife of any sort is to comply with existing laws concerning migratory birds. There is no mention of issues that would seriously impact elk, mountain lions, and bears. This whole topic is treated incompetently in the DEIS.

#### *Failure to Consider Extreme Winds in Vicinity of Gross Reservoir*

There is brief, standard mention of ways to mitigate dust from disturbed soils during construction. But there is no awareness at all in the DEIS that Gross Reservoir is in one of the windiest populated places in Colorado, and thus one of the windiest places in the United States. Winds in excess of hurricane force are common nearly every spring and autumn. Winds in excess of 125 mph have been recorded in Wondervu (1 mile southwest of Gross Reservoir) within the last decade. The weather bureau commonly issues warnings for high winds with special mention of Nederland, Coal Creek Canyon, and Rocky Flats...and Gross Reservoir sits right within this windy corridor. Highway 93 through Rocky Flats, proposed as a haul route for this project, is frequently closed to high-profile vehicles because of high winds or closed to all vehicles due to drifting, windblown snow in the winter. The strongest winds are commonly from the northwest so dust would preferentially be blown into neighborhoods in lower Coal Creek Canyon and El Dorado Springs. There is NO mention of these windy conditions, or ways to mitigate them, throughout Chapter 4. The words “chinook” or “bora” never appear in the DEIS, and the word “wind speed” is absent from all considerations of the Proposed Action.

Wind speeds are mapped in the Figure below, from [http://www.windpoweringamerica.gov/wind\\_maps.asp](http://www.windpoweringamerica.gov/wind_maps.asp). Gross Reservoir is in the intermediate purple region, within the blob of high winds southwest of Boulder, in the zone of 8.0 to 8.5 m/sec measured at 80 meters height.



There is no doubt that disturbance of soils at Gross Reservoir would result in periodic dusty conditions in regions far beyond the vicinity of the construction, including residential communities downwind. Anyone who has spent any time in this region during spring and autumn (especially) would appreciate that ignoring these conditions is a major omission. Since the authors of this DEIS were apparently unaware of the winds, there is no pertinent discussion of

the environmental and health consequences, nor any consideration of mitigation (beyond the standard water treatment, windbreaks, etc. used in any project in the United States). Ridiculously, the DEIS concludes that, “During the construction phase of the Proposed Action, air quality impacts would be minor.”

It is hardly surprising, therefore, that the only approach to mitigating dust and particulates in the DEIS is to “implement a fugitive dust control plan,” the features of which are nowhere described in the DEIS. Also ignored are other possible impacts of the winds on project-related transportation. The weather bureau frequently warns against driving high profile vehicles in this windy corridor. During snowy winters, SH 93 (shown as a gravel haul route in the DEIS transportation section) can be closed for days due to badly drifting snow across this north-south highway. It is possible that high winds might affect other construction or logging activities, not addressed in the DEIS. And the winds augment the dangers of fire beyond what would be contemplated for a generic project in the United States. Failure to address this region’s exceptional chinook winds is a major failing of the DEIS.

### *Invalid Analysis of Socioeconomic Impacts*

A major concern of residents within several miles of the proposed reservoir enlargement is that the qualities of their neighborhoods would be so severely and adversely impacted that potential home buyers would be dissuaded from moving here and that house and property values would suffer. Astonishingly, the DEIS contains many preposterous statements that reveal no understanding of the values of people who live in this mountainous, rural community...and the amenities that would attract others to move here. (The DEIS evaluates the Gross Reservoir PIA, which is a census area surrounding Gross Reservoir that appears to include most of the Magnolia neighborhoods, but not all of them since the northwestern boundary is Magnolia Road, and also the Lakeshore and Flagstaff Road neighborhoods, but not much of the Coal Creek Canyon community nor Wondervu.)

The DEIS states that: “Construction activity, described in Section 4.17.1.1 Economic Impacts, and in Section 2.8, would likely cause some minor nuisances to local residents, including noise from operating machinery and increased traffic on local roads, but these temporary impacts would be unlikely to cause permanent residents to leave the area.” It also states, “Construction-related activities would temporarily impact adjacent land uses including the Lakeshore residential subdivision. Impacts would include increased noise levels, dust pollution, and possibly ground vibrations from quarrying activities. Although the impacts may present temporary inconveniences, none of these impacts would be long term or impede existing or future land uses during or following the construction period.” What eastern city-dweller author of the DEIS has the temerity to describe the construction activities as “minor nuisances” or “temporary inconveniences”? With regard to people moving out, what polling has been done on perceptions of neighbors about the seriousness of the adverse impacts and whether they might move instead of enduring them? To people living in an industrial city or off the end of an airport runway, the noise might seem “minor” but here it would be perceived as destroying – for a period of 4 years or more – one of the chief amenities of the neighborhood. For people accustomed to urban stop-and-go traffic, the impacts on Coal Creek Canyon Road might seem “minor”, but many studies of perceived traffic congestion show that even modest *changes* in numbers and types of vehicles are the primary considerations.

The DEIS goes on to conclude that, because nobody would move out because of the project and the construction activities would not affect potential home buyers, there would be no demographic changes to the community and no “environmental justice” issues would arise. (There are, of course, larger “environmental justice” issues raised by grass-loving urban population of Denver foisting this project off on rural citizens, who are already prohibited from watering gardens and grass every day of their lives.) The DEIS goes on to claim that “Vacancy rates in affected areas would not change as a result of the Proposed Action. Given that the population and number of housing units in these areas would not change as a result of this Alternative, vacancy rates would also be unaffected.” All of the above conclusions are wrong because the assumptions are wrong, or at least unsupported. Some people would feel that they were forced to move in order to maintain the rural serenity they thought they moved to. Property values and sale opportunities would surely be severely depressed during construction and for some years after until the surrounding environment had healed.

The DEIS states an unsupported, bald-faced lie: “Construction activities would be temporary and would not affect home prices. In addition, the population of the Gross Reservoir PIA, Boulder County, Denver metropolitan area counties, and Grand County would remain unchanged and demand for homes in these areas would not increase or decrease as a result of the Proposed Action. Therefore, home values in these areas would also be unaffected by the Proposed Action.” Nothing in the DEIS supports this absurd conclusion. The DEIS might as well assert that the Earth is flat. Nobody who lives here believes that home values would be unaffected. The DEIS authors have no grasp of why people move to, or choose to remain in, these neighborhoods. Just imagine a would-be home-buyer driving behind a slow gravel haul truck up SH 72 to view a home in a neighborhood west of Gross Reservoir and encountering noisy logging trucks on recently widened dirt roads, spewing clouds of dust behind them. Seeking a near-wilderness home location within driving distance of Golden or Boulder, they would be put off. New folk who don’t care for a rural mountain lifestyle wouldn’t replace them, but would concentrate their searches for a home in the flatlands.

“Property values and property tax rates for private residents and businesses in Boulder County, Denver metropolitan area counties, and Grand County would not be affected by the Proposed Action. No loss of property tax funding would accrue to service providers or to any special districts in the Denver metropolitan area or in Grand County as a result of the Proposed Action,” says the DEIS, following a trivial and irrelevant analysis that claims that Boulder County, the School District, and Coal Creek Fire

District would lose only \$182 in annual tax revenues. This dismissal of inevitable loss in home values during and following the construction phases of this project is unprofessional and unconscionable. Where is the testimony from local realtors? Where are references to studies of comparable impacts of big projects done within communities in the rural West? These are unsupported assertions by disconnected analysts who have no clue.

### Specific Issues and Errors (Chapter 1, Purpose and Need)

\* *Denver Rate Payers do Not Bear Full Costs:* There is no acknowledgement here or in the rest of the DEIS that, apart from tiered rate structure, Denver water users are actually being subsidized by the American people. The long-term unsustainable character of current (and assumed in this DEIS) Denver water usage, is encouraged by the fact that full costs are not accounted for and therefore not paid by rate payers. As a minor example, the American taxpayers pay for the involvement of the Army Corps of Engineers in this EIS process, yet those costs are not borne by Denver Water rate payers. The widespread and long-term impacts of this project on the Fraser and Colorado rivers, which are only partially mitigated in promises made in this DEIS, are also not borne by the rate payers. There is a whole variety of rather subjective but large factors that are not accounted for in the narrow economic analysis at the foundations of this DEIS. Among these are the many adverse impacts (some acknowledged by the DEIS) on people who do not receive Denver Water, which are proposed to be inadequately mitigated or not mitigated at all. In effect, residents of the Magnolia, Lake Shore, and Coal Creek Canyon neighborhoods would be *subsidizing* Denver rate payers if this project is implemented.

As a gedanken experiment, one could consider raising Denver water rates so that every resident within X miles of Gross Reservoir (and users of more distant roads, streams, and other features negatively affected by the project) would be paid to recompense them for the estimated cost of impacts that are not fully mitigated by other actions. This admittedly wholly impractical solution to the inequities of the project illustrates one way in which Denver water users are not paying their full fair share.

## Specific Issues and Errors (Chapter 2, Proposed Action and Alternatives)

\* *Road “Improvements”*. The DEIS states that: “improvements to some existing roads at the reservoir are needed to accommodate the heavy equipment required for tree removal. The main access points would include Flagstaff Road, Gross Dam Road, and across Winiger Ridge using Forest Road (FR) 359 and County Road (CR) 68.” The DEIS fails to be specific about what kind of “improvements” would be made and which road segments would be involved. There appears to be no recognition that residents of, for example, CR 68 consider the features of this narrow, dirt road to be an *amenity* of their rural neighborhood. Far from considering such changes “improvements”, they would regard it as highly destructive to the character of their neighborhood. Indeed residents of the Magnolia area (which includes CR 68) have several times been polled about whether they want Magnolia Road paved, and a substantial majority have always opposed it. (Magnolia is a road ignored by the DEIS, although it would necessarily be affected if CR 68 is used, because CR 68 can be accessed only from Magnolia Road.)

\* *Access to FR 359 from CR 97E*. The DEIS states that: “Gross Reservoir can be accessed from Boulder via Flagstaff Road (CR 77), as well as via CR 68 and CR 97E, which turns into FR 359 (Figure 3.10-1). Numerous road segments would need to be abandoned and relocated or newly constructed in order to facilitate construction operations at Gross Reservoir.” The last sentence is alarming and suffers from the same lack of specificity as the previous quote.

But, in addition, it is *false* that 97E “turns into” FR 359. County Road 97E (Lazy Z Road) dead-ends approximately 2.1 miles east of Magnolia and 2 miles west of the Winiger Gulch inlet of Gross Reservoir. There is a locked gate at that point with public motor vehicle access prohibited at that point. Beyond the gate, the road continues across ¼ mile of private land. It then proceeds east, next to the Winiger Gulch creek, across USFS and then Denver Water lands, ending (after another gate) at the inlet. This road is shown as FR 238 and called “Gross Reservoir Road” on the relevant USGS topographic quadrangle map; locally, it is known to some as the “Haul Road” (not to be confused with the Haul Road near the dam, discussed in the DEIS).

None of these road segments in Winiger Gulch “turn into” FR 359. Rather, FR 359 (also called Winiger Ridge Road on some maps) begins at CR 68, approximately 2 miles east of Magnolia Rd. at a seasonally-closed gate (called Winiger Ridge Recreation Access on Fig. 3.13-1, although the adjacent road is labeled with an incorrect number in that figure). It proceeds south up to the top of Winiger Ridge, then turns east and

continues to the planned-to-be-inundated recreation areas along the western shore of Gross Reservoir. (Both Figs. 3.13-1 and 3.10-1 incorrectly label the Gross Reservoir Road in Winiger Gulch as “CR 97E/FR 359”; at that point, neither designation is correct.)

There used to be a very steep 4-wheel-drive trail dropping 200 feet from Winiger Ridge (near the point that FR 359 turns east) down into Winiger Gulch. This road was closed to motor vehicles several years ago by the USFS, in part because vehicles became trapped on the Gross Reservoir Road (it was [a] impossible to return up the steep trail and [b] access across the private segment of the road to the west is not permitted and was blocked).

It is preposterous to imagine that access between Gross Reservoir Road and Winiger Ridge (a 200 foot elevation difference) could be climbed by tree-hauling vehicles, even if legal access to Gross Reservoir Road from Lazy Z Road could be obtained. One supposes that arm-chair engineers looked at a map showing the trail connecting the two roads and failed to realize that topography prohibits vehicles from connecting at that point.

In short, the DEIS is hopelessly confused about routes that would be used to haul trees away from lands west of Gross Reservoir. (One suspects that at many places in the DEIS the term “CR 97” is used when “CR 97E” was intended; of course, CR 97E cannot be accessed from SH 72 without also using CR 97 and CR 132 [Magnolia].)

\* *“Unpredictable” Droughts.* On page 2-87 it says: “Since droughts are natural events that occur with unpredictable frequency and variable intensity and duration it is unknown how long the drought would last or how severe it would be.” While nobody has a crystal ball to predict specific future droughts, attributes of droughts are predictable, in a statistical sense and with uncertainties that can be estimated. Nothing is known for sure, but rational estimates can be made. The reliance of these studies on a major drought in the early 1950s during a “study period” from 1947 through 1991, plus anecdotal commentary about the 2002 drought, is only a partial approach to the problem. There are tree-ring data that go back hundreds of years and there is also a range of forecasts about the implications of future climate change for precipitation in Colorado. There is, in fact, an enormous literature about how past measures of climate may be expected to change in the future. The studies in this DEIS are incomplete and not up to technical standards in the field of analysis of risks from natural hazards such as droughts.

## Specific Issues and Errors (Chapter 3, Affected Environment)

\* *Minimal Study Area.* On page 3-1 a study area is described, and subsequently utilized, which is effectively defined by the squared-off boundaries of the proposed enlarged reservoir, although it extends somewhat beyond those limits (see Fig. 3.6.1). By restricting study to within those perimeters, the DEIS effectively forecloses in-depth consideration of impacts that would extend beyond the study area (except along roads and streams). This is prejudicial to the concerns of many residents out to distances of a mile or more that they will be impacted by project activity beyond affects on roads and streams.

\* *Failure to Mitigate “Major” Land Use Impacts.* Chapter 3 asserts: “The CNHP (CNHP 2004) has identified two globally rare plant communities in the Gross Reservoir study area.... *Alnus incana*/mesic forb (thinleaf alder/mesic forb) riparian shrubland occurs on Winiger Gulch just upstream of the reservoir. The CNHP Conservation Site Report identified this community as a ‘small but nice quality occurrence within a narrow V-shaped gulch.’”

Later in Chap. 3, this region is identified as a Potential Conservation Area (Colorado Natural Heritage Program). Furthermore, this is part of a very large area, covering both Winiger Gulch and Forsythe Canyon, and extending 2.5 miles west of Gross Reservoir, that is designated by the U.S.F.S. as the Winiger Ridge Environmental Conservation Area. As stated in the DEIS, “the U.S.F.S. management goals for the area are to maintain and enhance the flora and fauna in the Winiger Ridge critical elk winter range...” by various actions. These include prescribed burns and seasonal road closures. As the DEIS states here, but seems to ignore later, “Road (FDR) 359, a high-clearance vehicle roadway, runs from the intersection with Boulder CR 68J to the shoreline at Winiger Ridge. Access along this road is restricted from December through May to protect elk winter range.” [We say more about this seasonal closure elsewhere.]

Further, the DEIS states: “Boulder County has zoned the study area as Forestry, which permits rural land uses that conserve forest resources, protect the natural environment, and preserve open areas (Boulder County 2005b). Winiger Ridge... is listed as a Natural Landmark in the Boulder County Comprehensive Plan (1999). A Natural Landmark is defined as a prominent landscape feature designated for scenic, visual, and aesthetic values. Upper and lower South Boulder Creek, including lands surrounding Gross Reservoir, are classified in the Boulder County Comprehensive Plan – Open Space Plan Map as Open Streamside Corridors (Boulder County 2006). The intent of the

open streamside corridors classification is to ensure that natural water courses remain free from development.”

Sect. 4.5.1.1 asserts that this panoply of overlapping environmental concerns present “moderate” to “minor” to “moderate to major” impacts. These inconsistent, biased evaluations are most egregiously illustrated by the finding that conflict between the Proposed Action and these conservation designations is “minor”! On page 4-392, the DEIS asserts: “The Proposed Action would present minor conflicts with Boulder County zoning regulations stipulating that the Gross Reservoir area is zoned as ‘Forestry’ to conserve forest resources, protect the natural environment, and preserve open areas. Under the Proposed Action, no areas of the Winiger Ridge Natural Landmark would be inundated.” This is an appalling, unsupportable conclusion. It refers only to inundation, without consideration of the larger, integrated ecosystem impacts that are the basis for the conservation designations.

Land use impacts during the many years of construction are dismissed: “Impacts would include increased noise levels, dust pollution, and possibly ground vibrations from quarrying activities. Although the impacts may present temporary inconveniences, none of these impacts would be long term or impede existing or future land uses during or following the construction period.” The DEIS also concludes (4.14.1.1) that, “overall, impacts to existing land uses at or adjacent to Gross Reservoir are expected to be minor.” This is a wholly false conclusion.

The egregious final conclusion of the DEIS (Table M-1) is that “No compensatory mitigation is recommended...[or] proposed” for land use impacts! Unspecified mitigation of inundation of rare plant species is proposed. As for wildlife, no mitigation is proposed other than adherence to existing law regarding birds. It is simply an outrage that long-standing land-use policies can be dismissed in such a cavalier fashion.

\* *No Public Access to Winiger Gulch Inlet.* The DEIS states: “Winiger Gulch Inlet can be accessed through USFS lands via Boulder CR 97E. The road is closed to motorized vehicles at the USFS boundary; however, it is open to foot, bicycle, and equestrian use.” This is incorrect. The road is *not* closed at the USFS boundary but rather at the boundary to private property, which the closed road crosses for ¼ mile. Furthermore, at the USFS boundary to the east, the road is closed to motorized traffic by the USFS from autumn to spring (seasonal closure to protect wildlife, land, and ecosystem).

\* *No Mitigation of “Major” Visual Resource Impacts.* The evaluation of visual

impacts in chapter 3 says that they would be serious. Major areas in the Gross Reservoir area are rated as having “very high scenic quality” and others “have the potential to have high to very high scenic quality.” Furthermore, the DEIS states, “Due to the recreational nature of users and the scenic amenities valued by residents, user sensitivity to visual change is considered to be high.” With regard to impacts during the lengthy construction period, the DEIS says, “These activities would be incompatible with the recreational and scenic nature of the area, and would be a major short-term impact.”

The DEIS states that: “Scenery guidelines in the Denver Water Article 414 Visual Resource Protection Plan and USFS Arapaho & Roosevelt National Forest’s Forest Plan require that ‘the overall landscape character around the reservoir should remain natural appearing with limited human intervention,’ (Denver Water 1999b), and that the valued landscape character appear intact.” Furthermore, it states that major areas associated with the construction “would not be compliant with management guidelines and would be considered major adverse long-term impacts.”

Yet, despite all of the above, the DEIS concludes that, “It is not possible to completely mitigate the major short-term direct construction impacts in order to meet these objectives.” And finally, in Appendix M, the stark conclusion is the “No compensatory mitigation is recommended ...[or] proposed.” All of the analysis of impacts is ultimately disregarded in the DEIS: “not possible to completely mitigate” turns into zero mitigation at all! [We can just see the Army Corps “correcting” this by simply omitting the word “completely” and failing to address the major disconnect between the findings of chapters 3 and 4 and the ultimate failure to act on destruction of viewsheds in the mitigation plans.]

Another problem is that the temporary and permanent impacts on viewsheds are clearly (and stated in the DEIS to be) incompatible with Denver Water’s FERC license, Article 414 (“Visual Resource Protection Plan”), which emphasizes “limited human intervention” and requires that “the valued landscape character ‘appear’ intact.” The sole response in the DEIS to this issue is that Denver Water would amend Article 414 “as part of the license amendment process.” There is no discussion at all of what the amendment would consist of. If the license is to be amended, it should be required that the EIS describe *how* it would be amended so that the public can comment.

\* *No Mitigation of Major Noise Violations and Impacts.* As the DEIS states, “The CDOT guidelines also state that noise abatement should be considered when the new noise levels resulting from a proposed action ‘substantially exceed the existing noise levels.’ This criterion is defined as an increase in the Leq of 10 dBA or more above existing noise levels.” Later, the DEIS states that background noise levels in the more remote portions of the Gross Reservoir study area are estimated to be in the range of 30



to 40 dBA, in which case an increase to 40 to 50 dBA would violate CDOT criteria. It is indisputable that construction and logging activities would – at times -- cause noise levels dramatically louder than these threshold levels over major parts of the study area and far beyond, including the rural neighborhoods through which logging trucks would pass. (The DEIS notes that “Less developed portions of the Project Area, however, would be more affected by temporary noise than more urbanized areas,” but is clueless about the fact that there are no neighborhoods that approach the definition of urban within many miles of this project.)

The DEIS does acknowledge that “Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.” Living as we do in this area, we can testify that the remarkably quiet environment is a major amenity for us, and an essential feature of the habitat for the remarkable array of animals that live here. The DEIS analysis falsely discusses “50 feet” distance as a criterion that would lessen noise impacts, which exemplifies the incompetence of the analysis of noise for rural/near-wilderness settings. The issue isn’t breaking eardrums in close proximity to the dam construction. It is the combination of activities, including truck traffic, helicopters, etc. – many associated with tree disposal – that completely degrade the existing, very-low noise levels. Here we listen to bird songs and coyotes howling a mile away. We are disturbed by barking dogs a quarter mile away, a train a couple miles away, occasional aircraft flying miles overhead, someone’s chainsaw half a mile away...noises at levels that would not even be “heard” by most city dwellers. The noise character of the vicinity for miles around would be transformed for the worse by many of the proposed activities. The discussion talks about “urbanized areas” but there are no urbanized areas within many miles of Gross. This is a rural community, with large portions effectively wilderness.

The DEIS attempts to rationalize that noise is already allowed: “Off-road vehicles, however, are allowed on the land surrounding the reservoir.” Of course, this is not true for the months of roughly November to May, when motor vehicles are appropriately excluded, at least from lands west of the reservoir. But the Moffat Project intends to be undertaking construction activities year-round.

Inconsistent with the objective noise impacts (which, however, are not treated quantitatively in the DEIS), the false conclusion is reached (4.12.8) that “Noise from

construction is unavoidable, but is a short-term impact that is not predicted to be significant for any action alternatives.” This statement is grotesquely untrue. The final “finger” is given to the people and animals in this region in Appendix M, where it is stated that “No compensatory mitigation is recommended...[or] proposed” for noise impacts.

\* *Inadequate Discussion of Local Birds.* In Table 3.7-2 and adjoining text on page 3-172, roughly 1/3 of the birds are listed of the >125 documented as being in the area in the Magnolia Environmental Protection Plan. It is indicative of the sloppy work that such an incomplete accounting of birds has been done and that the consultants who prepared the DEIS failed to look into previously published bird data for this region.

\* *No Reference to a Major Natural Feature, Forsythe Falls.* One of the most beautiful destinations in the entire Gross Reservoir region is Forsythe Falls (see photo). This is reached along the lovely Forsythe Trail. Although the falls is close to the Forsythe Creek inlet of Gross Reservoir and is located within the official study area, no mention is made of it in the entire DEIS, despite the fact that the falls would be totally inundated and destroyed by the project. This is a major oversight and raises the question of whether anyone has actually examined Gross Reservoir on the ground in preparation of this document.

## Specific Issues and Errors (Chapter 4, Environmental Consequences)

\* *Disturbed Grounds, Noxious Weeds, etc.* The DEIS states, “the Proposed Action would temporarily disturb vegetation resulting from temporary construction impacts until fully restored. Despite revegetation efforts, the post-revegetation communities would remain different for years following construction completion. The Project would unavoidably create favorable conditions for the establishment of noxious weeds, as a result of construction and operation.”

Unfortunately, the above are permanent adverse impacts. Various mitigations are discussed immediately before these words, but they would be very ineffective. Disturbances (noxious weeds, non-native plants, etc.) to forest ecosystems like these are likely to last decades where the forest hasn’t been permanently inundated or cleared.

Appendix M mentions only superficial attempts to revegetate ground that has been disturbed, which would mitigate the expected adverse impacts only marginally.

\* *Raptor Nests.* The DEIS says that “CDOW recommends that no activities (beyond those historically present) occur within 0.33 mile of an active red-tailed hawk nest.” The DEIS presents no credible way of accomplishing this. Red-tailed hawks are very common in the skies in the Gross Reservoir region and one must assume that nests are common. How could construction activities proceed, unless this recommendation is not followed?

\* *Benefits from an Enlarged Reservoir.* At several points the DEIS assumes that increased recreational opportunities would be derived from an enlarged reservoir and that would be beneficial. While many might agree with this assessment, an equal number would not. When car-top boating was proposed and eventually mandated some years ago, there were as many opponents as proponents who appeared at FERC hearings, citing increased pressures on the ecosystem, dangers from the high winds, and other issues.

\* *Inadequate Treatment of Archaeological Impacts.* In 4.16.1.1, the DEIS states that “Enlargement of Gross Reservoir would have no impact on paleontological resources, nor would there be any impact to cultural or archaeological resources from inundation.” This appears to be the totality of the *evaluation* of potential impacts on historical or archaeological artifacts or resources. It is apparently based on surveys conducted several years ago (described in 3.16.1.1) for different purposes (renewal of the FERC hydroelectric license). It is not demonstrated in this DEIS that those surveys are applicable to the inundation, logging, new roads, and other proposed activities for the Moffat project.

\* “SH 77”? The DEIS states (4-437): “The number of haul trucks and commuter vehicles required under the Proposed Action would have a negligible impact on traffic volume on SH 77.” There is something wrong with this statement. If this is meant to be “CR 77” (Flagstaff Road) then there is a disconnect, because haul trucks are prohibited on Flagstaff Road (according to statements elsewhere in the DEIS, although ignored in some other paragraphs). If this is meant as “SH 72” (Coal Creek Canyon), then the statement is wrong. The DEIS suggests that daily traffic on that road would be increased by more than 100 (currently it averages about 5000 AADT, according to State Transportation Dept. data). But that includes heavy, slow-moving haul trucks. And the number does *not* include (according to the DEIS) the heavy, slow-moving trucks hauling

logs or tree refuse away from Gross Reservoir, all of which not disposed of on-site or hauled away expensively by helicopter would have to come down SH 72. The DEIS further states that the advertised AADT does not include “the tree harvest workforce and equipment.” Even if these substantial additional trips were included, the augmented traffic volume might remain numerically modest, but the impacts would hardly be “negligible” and they are qualitatively serious impacts.

\* *“Modest” Adverse Impacts to Destroyed Recreational Facilities?* The DEIS states that “There would be moderate adverse unavoidable impacts to existing recreational facilities at Gross Reservoir due to the expanded inundation area.” Obviously, the impact is more than “moderate” to sites that would be inundated by the expanded reservoir. One simply cannot say that impacts on existing sites, where people may have fond memories, are just “moderate” when they are totally destroyed. To be sure, the intention is to replace them with new sites elsewhere, but that is a separate consideration.

\* *No Connection between Growth and Water Development?* The DEIS asserts that “Several recent studies have suggested that there is no substantive causal relationship between population growth and the development of water, or vice versa.” This is a complex topic, but the DEIS argument is based on reports and case studies dating from the 1980s and 1990s. One quoted study says that growth is highest in driest regions (e.g. Las Vegas), but circumstances are now very different. At some point, hopefully sooner than later, Denver will have to act as a sustainable community and curtail lawns and other green amenities that currently attract people from Ohio. When water prices get very high, as they must eventually for greater-than-basic usage to meet the restrictions of western water contracts, people may move instead to more sustainable communities.

\* *Has USFS Agreed that Impacts are “Minor”?* The DEIS asserts that “Conflicts with USFS management direction include minor, permanent impacts to wildlife and plant habitats (refer to Section 4.5 Vegetation, and Section 4.7 Wildlife)...” This is a bald, unsupported judgment. There is no supporting documentation in the DEIS that the USFS management (e.g. in the Boulder Ranger District) agrees that the impacts would be “minor”.

\* *Acquisition of Private Property.* The DEIS says, “The Proposed Action would require the acquisition of approximately 15 acres of private lands within the southern Project area boundary. At this time, it is not possible to know the future land uses or the



interests of respective property owners; however, long-term adverse effects would occur if the landowners were unwilling to cooperate with Denver Water.” We disagree. Long-term adverse impacts would result from

enlargement of the reservoir. If the private property owners refuse to sell and the reservoir cannot be enlarged, society would benefit.

\* *Traffic on CR 77S (Gross Dam Rd.)* The DEIS states, “average daily traffic volume data for CR 77S was [*sic*] not available for analysis.” Traffic data are available from [http://www.bouldercounty.org/transportation/pdf\\_files/MAPS/TrafficCounts\\_Map\\_2009.pdf](http://www.bouldercounty.org/transportation/pdf_files/MAPS/TrafficCounts_Map_2009.pdf). It was 315 on 77S for 2009. So the impact would be great, especially on the modest number of people who use it as a commute route to Boulder.

\* *Incomplete, Trivial Analysis of Fire Potential and Fire Depts.* The DEIS states, “Similarly, the demands on the Coal Creek Canyon Volunteer Fire Department and the Cherryvale Fire Protection District would potentially increase by a small amount during the construction phase of the Gross Reservoir enlargement, stemming from emergencies at the site or along commuting routes. These fire protection agencies should be able to adequately respond to potential emergencies and additional demands are likely to be minor and temporary.”

What is the basis for these assertions? Were these departments consulted? The DEIS doesn't even mention High Country Fire Dept. which serves most regions north and west of Gross Reservoir, including along many of the access roads listed (e.g. there is a fire station near SH 72 and CR 97). High Country has responded to many fires on the western shore of Gross Reservoir. Instead, the DEIS gives prominence to an estimate that Coal Creek Canyon Fire Department would suffer a loss of just \$21 per year...what a ridiculous substitution of the trivial for a real analysis! Another relevant fire department, according to the fire department service region map on the Boulder County GIS website, is the Nederland Fire Dept.

Where is the analysis of the possibilities that the construction, logging, and/or tree-disposal operations might *cause* a fire? This is a fire-prone area and in 2000 there was a major fire around Gross Reservoir (see photo). There were also dangerous

outbreaks after a controlled burn along Winiger Ridge in 1999. Where are these factors evaluated?

\* *Impact on Nederland Library.* The DEIS states, “There would be no impacts or change in funding to libraries in Boulder County, the Denver metropolitan area, or Grand County as a result of the Proposed Action.” The impact on libraries would seem to be trivial but, but to assert that there would be “no” impacts is wrong. For example, we pay taxes for the Nederland library district, whose boundary crosses our property. If we were to move, and our home were to sell for a fraction of its current valuation, and nearby home values were to drop -- as might happen -- the Nederland library would suffer, at least slightly. The DEIS assertion is not backed up by any evidence and is probably wrong, even though it is a minor matter.

It is the widespread opinion among people in these neighborhoods that the highly visible negative aspects of the extended period of construction would cause home values to go down (even more!). Since such *perceptions*, whether backed up objectively or not, actually influence home values, the failure of the DEIS to acknowledge this is a major failing. It is simply wrong and false.

\* *Incomplete “Comparison of Alternatives”.* On the final page of Chap. 4 (“Comparison of Alternatives”) the DEIS states, “These strategies, however, do not resolve the issues of system vulnerability, flexibility, or reliability.” This refers to the over-simplified, passive, do-nothing interpretation the DEIS takes toward the “No Action Alternative,” namely using the Strategic Reserve and implementing more frequent and severe mandatory restrictions on water use...and nothing else. The DEIS utterly fails to consider proactive, constructive no-build alternatives to address these issues.

We have argued above that the DEIS fails to address the quantity of water consumed, by ignoring on-going and other potential approaches to water conservation. This quote is directed toward the *other* perceived issues concerning the present system, vulnerability, flexibility, and reliability. By adhering to its stunted interpretation of the No Action Alternative, the DEIS fails to evaluate alternative approaches (not involving 18,000 AF/yr extra water in the northern part of its system) to address these issues. For example, measures could be taken to enhance existing facilities, for example with built-in redundancies, so that they are less likely to fail. Another example would be to implement controlled burns and other forest management techniques to lessen the chances of another major fire that would otherwise potentially curtail the effectiveness of Denver Water’s southern system. Unfortunately the DEIS is wholly remiss by failing to consider

these reasonable alternatives.

## Specific Issues and Errors (Chapter 5, Cumulative Effects)

\* *Population Forecasts: Uncertainties and Biases.* This chapter states that, “By 2030, metropolitan Denver’s population is anticipated to increase by nearly 50% to almost 3.9 million.” It also projects (Table 5.1) that Boulder County’s population will increase from a bit under 300,000 currently to 385,000 in 2035. The source is listed as “Metropolitan Denver Economic Development Corporation.” From its website, this affiliate of the Denver Chamber of Commerce is clearly oriented toward pro-business, pro-growth activities and so its forecasts for future growth are dubious. With strong policies of most cities in Boulder County to confine growth within limits that are largely built-out, and to restrict development in open-space greenbelts, and with the BCC policy to restrict new development in unincorporated areas to one house per 36 acres or larger, the estimate of Boulder County’s growth is subject to challenge.

More specifically, such population projections are based on assumptions that deserve to be examined, and such projections have associated estimated uncertainties (“error bars”), which should be taken into account as alternative futures. The DEIS simply takes nominal numbers from potentially biased sources and does not consider the uncertainties or alternative projections.

\* *Old Projections, Irrelevant Data.* This DEIS chapter reports that “Denver Water estimates that by 2050, 1.9 million people will be using their supplies (Denver Water 2002a).” This unsupported, self-serving speculation is nearly a decade obsolete. Shouldn’t a DEIS being evaluated in 2010 have a more up-to-date evaluation of this vital number?

Later it is stated that “Between 1990 and 2000, the Denver region’s urban area grew from 410 square miles to 500 square miles. If this trend continues, the region would have an estimated 800 square miles of urban area by 2030.” Apart from the caveat beginning with “If”, this statement is irrelevant. Denver Water doesn’t serve “the urban area” but rather its legally and contractually defined service area.

\* *Global Warming is Not Fast.* The DEIS says, “Denver Water needs improved operational flexibility of the Moffat Collection System, including being able to respond to global climate changes and adjusting operations in response to new scientific information.” There is no rational basis for this statement, other than that flexibility feels good. The best estimates of the IPCC is that Colorado is not especially favored or disfavored in terms of expected future warming, so it is unclear whether the implications will be favorable or not. In any case, none of the dozen-or-so climate models evaluated in a presentation at last December’s American Geophysical Union conference in San Francisco show any chance of climate change happening rapidly (that is, major changes prior to the 2030 timeframe of this DEIS).

\* *“Temporary” Effects can have Cumulative Effects.* The DEIS states that “Cumulative transportation effects associated with the Project alternatives would generally be minor and temporary.” Apart from the grammatical illogic of the sentence (that cumulative effects can be temporary), the intent is presumably to suggest that since impacts on transportation are temporary, there won’t be cumulative effects. On the other hand, the DEIS repeatedly says how roads will have to be improved and new roads built, and that can only augment future use of those roads.

\* *Economic Activity.* The DEIS states that, “Minor beneficial cumulative socioeconomic effects would be experienced during construction of Project facilities due to employment and other economic factors. Another minor beneficial effect would be associated with the Moffat Project by the Project meeting the existing and future water demands of water users along the Front Range, supporting economic activity.” Such statements are obviously biased: biased in favor of certain kinds of economic activity and biased in terms of continuing many of the unsustainable water use practices of Denver Water’s customers. Had a reasonable no-build alternative been evaluated by the DEIS, it might have shown even greater potential employment opportunities for people designing and building xeriscapes, installing efficient toilets and other appliances, and so on. The economic analysis simply wasn’t done, so the quoted statements must stand as unsupported opinions. We consider that meeting “future demands of water users,” as they are projected in this DEIS is not “beneficial” but rather detrimental to Colorado and the West.

## Specific Issues and Errors (Appendix M, Denver Water's Proposed Mitigation)

\* *Unspecific Mitigation Example.* One mitigation of transportation impacts, chiefly along SH 72, is stated to be “limiting the hours of truck travel.” Well, perhaps. But what are the details? The DEIS should have made a first-cut at suggesting which hours truck travel would be limited to. Avoiding commute hours? Limit it to weekends? Limit it to nights, when the road is nearly empty? Are any of these options good or bad? Have residents who live near SH 72 or who use it regularly been consulted? What is their opinion?

Most of the mitigations recommended or proposed in this Appendix are similarly vague and unsupported, providing little basis for substantive citizen input at this time. It is most unfortunate that the treatment of these vital issues is so lightweight, because this is the primary opportunity for citizens to evaluate the proposal and make input. That right is partially withdrawn when citizens are presented with such an incomplete and inadequate document.

\* *List of FERC License Amendments.* This Appendix presents a “list of articles that the FERC will either continue or amend as part of the license amendment process.” They are the 15 Articles numbered 401 through 416, excepting 408 and 409. But nowhere is it explained *how* the articles might be amended. This list is thus wholly lacking in transparency and is an insult to evaluators of this draft EIS.

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16 March 2010

