Milk River Basin – Preliminary Feasibility Study October, 2003
By Klohn Crippen Consultants Ltd.

EXECUTIVE SUMMARY

Introduction

The Milk River is the smallest of Alberta's major river basins. Its headwaters and that of its principal tributary, the North Milk River, originate in Montana, and flow through southern Alberta before returning into Montana and eventually into the Missouri and Mississippi River systems. The Milk River and its tributaries are the principal source of water for domestic, municipal, agricultural, and industrial needs in the south central portion of Alberta. This region has an extremely arid climate with an average annual precipitation of only 330 mm.

Historically, the Milk River Basin has experienced numerous water supply shortages including periods of drought where the river has run dry. Since 1989, Alberta Environment (AENV) has maintained a moratorium on issuing new water licenses for diversion and use of water from the Milk and North Milk Rivers. The Milk River Basin Water Management Committee (MRBWMC), a local group of water users and representatives from the communities of Milk River, Coutts and Warner, the Counties of Warner, Cardston and Forty Mile, several rural water coops and local irrigators, requested that the Government of Alberta evaluate various water supply alternatives to alleviate the chronic water shortages. In response to this request, AENV commissioned this preliminary feasibility study to investigate on-stream and off-stream water storage options in the basin.

The study was assigned to Klohn Crippen Consultants Ltd. in association with Mack, Slack & Associates Inc., AXYS Environmental Consulting Ltd., Marv Anderson and Associates Ltd., and Hart Water Management Consulting. AENV also retained Equus Consulting Group to hold two public workshops to gain stakeholder input for the feasibility study. The workshops were held on March 17 and 18, 2003 in Lethbridge and Milk River, respectively, and had a combined attendance of approximately 190 people. Input received was documented and the report made available to the public on AENV's website.

Due to the international orientation of the basin and its dry climate, the apportionment of the streamflows between Canada and the United States is a major issue. Presently, the apportionment of flows in the Milk River and the nearby St. Mary River are subject to the 1909 Boundary Waters Treaty and the 1921 Order established by the International Joint Commission (IJC) which apportions flows in both rivers, as presented in Table 1.

Each country has recognized the importance of developing storage facilities to make use of their respective water entitlements. Since the Treaty, the United States (US) has constructed a number of dams on the downstream portion of the Milk River. To date, however, Canada has not developed any major water storage facilities and has been forfeiting an average of 45 000 dam3 of water annually to the US.

Table 1 Canadian – US River Flow Apportionment

Description	Canadian Entitlement	US Entitlement
Milk River - Irrigation Season - Non-irrigation Season	 - 25% of the first 18.9 m3/s (666 cfs) of natural flow and 50% thereafter. - 50% of the natural flow	 - 75% of the first 18.9 m3/s (666 cfs) of natural flow and 50% thereafter. - 50% of the natural flow.
St. Mary River - Irrigation Season - Non-irrigation Season	 - 75% of the first 18.9 m3/s (666 cfs) of natural flow and 50% thereafter. - 50% of the natural flow.	 - 25% of the first 18.9 m3/s (666 cfs) of natural flow and 50% thereafter. - 50% of the natural flow.

Previous studies have been completed to identify possible storage sites in Canada. The most recent study, by Prairie Farm Rehabilitation Administration (PFRA) in 1986, identified a preferred site known as the Forks Site for on-stream storage. For the Forks Site, evaluation of three alternative reservoir levels, including an Intermediate II dam (38.8 m high), a High Level dam (42.7 m high) and a Topographic Limit dam (44.8 m high), were considered. The reservoir storage for these alternatives ranged from approximately 158 000 dam3 to 300 000 dam3.

This study reassesses and updates the 1986 PFRA designs for the three alternatives at the Forks Site taking into account the Canadian Dam Association (CDA) 1999 guidelines. The study also identifies environmental and historical resources concerns, and evaluates the various costs and benefits. In addition, the feasibility of off-stream storage sites was also examined within the basin. Of the 19 off-stream sites identified, the design requirements, environmental issues, historical resources and other concerns, and cost and benefits, were assessed for four sites, including Shanks Lake, Lonely Valley, Verdigris Lake and MacDonald Creek.

Government officials in Montana were informed about this study, however no input or comments were received.

Water Supply, Use, and Demand

Streamflows in the Milk River are derived from mountain snowmelt in the headwaters, tributary inflows throughout the basin, and inter-basin transfer of water by the US via the St. Mary Canal. The St. Mary Canal was completed in 1917 and diverts water from the St. Mary River into the North Milk River. It originally had a design capacity of 24 m3/s, however in its current state of disrepair, the capacity has been reduced to approximately 18.4 m3/s. The canal may be upgraded in the future, however, the extent and schedule for completing any upgrades are unknown.

Historical streamflows in the Milk River have averaged about 292 000 dam3 per year. Of that amount, approximately 63 000 dam3 (22%) originates from the main stem Milk River basin in Montana, 22 000 dam3 (8%) originates from the North Milk River basin in Montana, 178 000 dam3 (61%) is diverted from the St. Mary River via the St. Mary Canal, and the remaining 29 000 dam3 (10%) is runoff from the North Milk and Milk River basins in Canada.

In an average year, streamflows vary from less than 0.7 m3/s in winter to about 20 m3/s in June, and then remain above 12 m3/s until September. The effect of the St. Mary Canal diversion is to significantly raise the average flow throughout the summer months above natural flow levels (i.e. flows due to basin runoff only, without diversion). Without the diversion, the average river flow would rise to 11 m3/s by April, remain between 6 m3/s and 12 m3/s until June, then fall to 1.5 m3/s by August. In many years, there have been periods with no flow in the river.

On an annual basis, a total of approximately 15 000 dam3 of water is licensed for diversion from the Milk and North Milk Rivers. Of this volume, 93% is for irrigation purposes, 6% for municipal use, and 1% for commercial and agricultural. In many years, however, the available natural flows have been insufficient to supply these demands, and periods of low flows have prevented withdrawals to meet municipal needs. The need for a reliable secure supply of water is paramount to the local communities and residents including the Town of Milk River, Village of Coutts which also supplies the Village of Sweetgrass, Montana, and rural water coops including the 501 Water Coop Ltd. and the North Milk River Water Users.

It is estimated that Canada historically uses approximately 8 900 dam3 (15%) of its annual entitlement of 54 000 dam3, and since there are no storage facilities, the unused water, which averages around 45 000 dam3 per year, is forfeited to the US.

The development of water storage is required to capture more of Canada’s entitlement and provide a reliable source of water to meet existing demands and enhance the potential for future development, particularly for irrigation, in the region. Within the basin, 170 300 ha of irrigable land exists of which 52 700 ha is within range of direct pumping from the mainstem river or the reservoir sites.

Preliminary Feasibility Design of the On-Stream Forks Site

The Forks Site is located approximately 4.5 km downstream of the confluence of the Milk and North Milk Rivers, and about 20 km upstream of the Town of Milk River. Due to the potential for significant storage within the two river valleys, the Forks Site has been considered as a prime candidate for a dam site in the Milk River Basin for some time.

The preliminary feasibility design for each of the three reservoir alternatives includes an earthfill dam, a diversion/low level outlet structure, a service spillway structure, and an auxiliary spillway channel. The main design features, irrigation expansion, and costs for the Forks Site alternatives are provided below in Table 2. Further information is summarized on the data sheet at the end of the executive summary.

Table 2 Main Features of Forks Site Alternatives

Pertinent Data	Intermediate II	High Level	Topographic
Dam and Reservoir			
Top of Dam Elevation (m)	1112.4	1116.2	1118.1
Maximum Dam Height (m)	38.4	42.2	44.1
Full Supply Level (FSL)	1105.0	1110.0	1113.0
Capacity at FSL (dam3)	157 800	238 900	299 900
Flooded Area at FSL (ha)	1414	1862	2170
Irrigation Expansion (ha)	14 435	16 150	17 790
Costs			
Construction Costs	$106.0 M	$115.0 M	$123.4 M
Operating and Maintenance (50 Years)	$20.3 M	$22.0 M	$23.6 M
On Farm Costs	$20.2 M	$24.1 M	$26.9 M
Environmental and Other Costs	$8.6 M	$8.6 M	$8.6 M

Various configurations of the dam, diversion/low level outlet, and spillways were considered.

Due to a requirement for relatively flat slopes on the dam embankment, the service spillway is located on the south abutment rather than on the north side as previously proposed by PFRA. In order to ensure the capability of releasing flows from the reservoir is maintained even in the event that stability or seepage problems occur on one abutment, the low level outlet structure is located on the north abutment opposite from the service spillway. The auxiliary spillway is located on the south upland area, 900 m south of the service spillway and in excess of 1200 m from the dam.

Positioning of the auxiliary spillway on the north upland area was considered unacceptable because of the two deep extensive coulees that would discharge spills toward the toe of dam and service spillway stilling basin possibly resulting in damages.

Construction of a dam and appurtenant facilities involves a number of technical issues that are addressed in the preliminary feasibility design as follows:

- Weak bentonite layers with low residual strengths are present in the bedrock foundation underlying the dam embankment. It is assumed that these layers control embankment stability resulting in relatively flat slopes for the dam. The dam is symmetrical with the upper embankment slope set at 3H:1V to facilitate placement of erosion protection on the upstream side, a 15 m wide berm at approximately the mid point elevation, and the lower embankment slope set at 15H:1V.
- The alluvial and bedrock foundation materials are relatively pervious resulting in a significant potential for seepage. Therefore an impervious cutoff trench up to 10 m deep and bedrock grouting across the entire valley width is incorporated in the design.
- Glaciofluvial sands on the south upland area also pose a risk of seepage and therefore require an extensive slurry trench installation to minimize potential seepage.
- Very erodible glaciofluvial sands are present at the invert level of the auxiliary spillway. Therefore it is designed with a very low risk of being activated (i.e. 1:10 000 year return period). In the unlikely event that flows do occur in the auxiliary spillway, it is offset significantly from the dam and spillway structures and any resulting erosion will not damage these facilities.

- The glaciofluvial sands are also exposed along the reservoir shoreline adjacent to the dam. As a result, a section of reservoir shoreline approximately 2.5 km in length is very vulnerable to wave erosion and is therefore protected with gravel armour.
- Riprap slope protection is provided on the upper dam embankment slopes and in spillway areas. Local sources of riprap are not available and the supply of these materials will require long hauls.
- Due to potential seepage losses in the glaciofluvial sands, a long service spillway structure is required on the south side of the dam. The groundwater table on this side of valley is higher than the spillway invert and subdrainage measures below the structure slab will be required. The design slope of the chute section is set at 5H:1V.
- The buried preglacial Whiskey valley is located south of the Forks Site at a lower elevation than the existing Milk River valley. The buried valley underlies portions of the Forks reservoir and therefore poses some risk to potential reservoir seepage.
- The large excavations for the service spillway and auxiliary spillway result in an imbalance in excavation and fill material thereby necessitating large quantities of waste fill disposal. For the two higher dam alternatives it is anticipated that insufficient clay till will be obtained from the spillway excavations and borrow sources will be required on the north side of the dam for supply of impervious fill.
- A preliminary screening-level assessment of the hydropower potential at the Milk River Forks Site dam indicates that hydro development at this site is at best marginal and was therefore not included as part of the overall cost/benefit assessment for the site.

Preliminary Feasibility of the Off-Stream Storage Sites

For the four selected off-stream storage sites, site investigations, engineering studies, environmental and historical resources assessments have not been conducted, except at Verdigris Lake where a limited number of test holes were drilled at the east dam during earlier PFRA studies. Therefore the preliminary feasibility designs are based on limited data.

The main design features, costs and benefits for the off-stream storage sites are presented below on Table 3. Further information on these sites is summarized on the data sheets included at the end of the executive summary.

Table 3 Design Features of Off-Stream Storage Site Alternatives

Pertinent Data	**Shanks Lake**	**Lonely Valley Site A**	**Lonely Valley Site B**	**Verdigris Lake**	**MacDonald Creek**
Dam and Reservoir					
Top of Dam Elevation (m)	1257.6	1183.3	1189.3	962.4	916.0
Maximum Dam Height (m)	10	42	45	18.5	25
Full Supply Level (FSL)	1254.0	1179.0	1185.0	958.0	911.0
Capacity at FSL (dam3)	34 600	107 800	105 800	129 000	55 200
Flooded Area at FSL (ha)	589	807	886	1175	492
Costs					
Construction Costs	$35.9 M	$88.7 M	$77.5 M	$64.9 M	$64.6 M
Irrigation Expansion (ha)	1825	4870	4375	5700	3510
Operating and Maintenance (50 Yr)	$30.6 M	$20.9 M	$18.2 M	$15.3 M	$29.8 M
On Farm Costs	$3.6 M	$9.7 M	$8.7 M	$11.4 M	$7.0 M
Environmental and Other Costs	$2.8 M	$4.0 M	$4.0 M	$5.6 M	$2.4 M

Shanks Lake
Shanks Lake is an existing lake formed by a small containment dyke and control structure situated on Shanks Creek near Del Bonita. Expansion of this site for off-stream storage would include constructing a dam, containment dykes and a combined low level outlet and drop inlet structure. Raising of the lake level by approximately 8 m would provide approximately 34 600 dam3 of additional storage. The lake is approximately 65 m above the North Milk River and development of this reservoir would therefore require a diversion structure, pump station and connecting pipeline to pump water from the North Milk River. Releases would flow into Shanks Creek and then into the North Milk River at a location approximately 60 km upstream of the Town of Milk River. Ground levels around the lake are relatively flat and the raising of the lake level would impact on several farmsteads and buildings located around the perimeter of lake.

Lonely Valley
Lonely Valley is a glacial meltwater channel that is drained by a small creek that flows into the North Milk River approximately 47 km upstream of the Town of Milk River. Two dam locations, Sites A and B, were evaluated. Site A is located nearest to the confluence with the North Milk River where the width of valley is approximately 2 km and valley slopes are relatively gentle, particularly on the west side. Site B is located approximately 1.5 km north (upstream) of Site A where the valley width narrows to 1.5 km.

Site A and B would provide approximately 108 000 dam3 and 106 000 dam3 of storage, respectively. Appurtenant facilities would include a low level outlet structure, a service spillway structure, and an auxiliary spillway. Supply of water would be provided from the North Milk River via a diversion structure and a 16 km long inlet canal.

Geological mapping indicates that the thalweg of the buried North Whiskey Valley underlies Lonely Valley near the confluence with the North Milk River. The buried valley is expected to flow eastward where it joins the Whiskey Valley near the Forks Site. The presence of this buried valley may account for the gentle valley slopes with no visible bedrock outcrops in the south portion of Lonely Valley. It is not known whether the buried valley is located in the vicinity of both dam sites in Lonely Valley and its location may affect the selection of one site in preference to the other.

Verdigris Lake
The Verdigris Lake site represents the most extensively studied off-stream site. It was developed as a small scale reservoir project to supply local irrigation users in 1983. Supplemental water was diverted into the lake from Ridge Reservoir, which is supplied from the St. Mary River. Annual diversions ranged from 6 170 dam3 to 13 570 dam3. Due to poor water quality, associated with salt loading from surface runoff and sediments in the lake bed, this project was abandoned in 1994, and affected irrigators were compensated for damages.

Expansion of this site for off-stream storage would include constructing two dams, various containment dykes, a low level outlet, and an auxiliary spillway in order to raise the lake level by approximately 17 m and provide 129 000 dam3 of additional storage. Supply of water would be provided from the Milk River via a diversion structure and a 28 km long inlet canal. Releases from the reservoir via the low level outlet would flow into a small tributary creek that joins with the Milk River approximately 30 km downstream of the Town of Milk River.

Although much greater volumes of water would be diverted (from the Milk River) and stored within the reservoir, the implications of the existing salt content of the lake bed sediments and salt loading due to surface runoff on the quality of water within the reservoir is a significant issue of concern.

MacDonald Creek

MacDonald Creek is a glacial meltwater channel consisting of a small tributary creek that flows into the Milk River approximately 60 km downstream of the Town of Milk River. The site would provide approximately 55 000 dam3 of storage. Appurtenant facilities would include a low level outlet structure, a service spillway structure, and an auxiliary spillway. The reservoir is approximately 16 m higher in elevation than the Milk River on the upstream side and therefore supply of water would require a diversion structure, a pumpstation and connecting pipeline.

Water quality may be an issue at this site particularly since saline areas within the coulee have been observed and the adjacent lands may be potentially salt-affected. The downstream location of this storage site within the Milk River basin may not improve the reliability of water supply to many of the existing licenses including the municipalities.

Environmental and Historical Resources

The Milk River is unique among the province's river systems as it is the only river in Alberta that is part of the Missouri River drainage. The uniqueness of the Milk River Basin is reflected in its fish fauna assemblage that includes 28 fish species of which six are listed in the General Status of Alberta Wild Species. Species of concern include the St. Mary shorthead sculpin, western silvery minnow, brassy minnow, stonecat, sauger and northern redbelly dace.

Although most species are widely distributed in the basin, a substantive number exhibit a restricted range. The species distributions are primarily related to environmental characteristics such as stream gradient, hydrology and hydraulics, water temperature, and turbidity. Another important factor is the point of origin for certain species. Migration routes occur into the Alberta portion of the Milk River system via the Fresno Reservoir on the downstream side and the St. Mary Canal on the upstream side. Some species populations are not sustainable and are maintained via these sources. The Forks Site will result in habitat loss for the St. Mary shorthead sculpin, and the dam will create a barrier to fish migration.

The quality of aquatic habitat in the Alberta portion of the Milk River drainage is generally considered poor to moderate for sportfish. Recreational fishing opportunities within the Milk River are low as the result of frequent severe habitat limitations and the susceptibility of sportfish to over-harvesting. Habitat limiting factors include low winter flows, high summer water temperatures, high suspended sediment loads and siltation rates, limited availability of refugia, and occasional low dissolved oxygen levels in winter, especially in the lower reaches of the Milk River. Lake fisheries are also scarce within the Milk River basin. Shanks Lake does however provide some moderate angling opportunities for northern pike. Verdigris Lake, on the other hand, has a history of poor water quality and therefore it is unlikely that it currently supports a significant fish population. The Lonely Valley and MacDonald Creek sites have few fishery issues since only small tributary streams presently exist at these locations.

Riparian areas that border the main rivers are an important component of prairie ecosystems. Within these riparian areas, plants such as Cottonwood trees provide critical habitat for wildlife species. Cottonwoods, which are more frequent towards the eastern end of the Milk River valley, are susceptible to detrimental effects due to changes in the river flow regime. Habitat alteration resulting from dam and reservoir construction often results in change in plant species composition and may also accelerate the invasion and establishment of non-native species.

The natural flow regime of the Milk River has already been altered considerably since the commencement of diversions via the St. Mary Canal. Changes to the original river have included increased erosion, channel widening, and sedimentation. Construction of an on-stream reservoir will again alter the river flow regime and thereby have further associated environmental impacts, whereas an off-stream reservoir will have little effect on the flow regime in the river.

The five storage sites identified are spread across three subregions in the Grassland Natural Region including the Dry Mixedgrass, Mixedgrass, and Foothills Fescue Subregions. Within each of these subregions, there are a large number of rare plants and species some of which have been identified at each of the reservoir sites and therefore some impacts will be incurred due to reservoir development. Without irrigation water, the environment of this part of southern Alberta is very dry and therefore not optimal for crop production. Therefore much of the Dry Mixedgrass Subregion remains in its native state and is used primarily for grazing domestic livestock. Most of the native prairie is located in the western portion of the Milk River Basin, around Lonely Valley and in the Twin Rivers Heritage Rangeland and grazing reserves near the Forks Site; and in the eastern portion, from MacDonald Creek east. Lands around the Shanks Lake and Verdigris Lake sites have been transformed into agricultural lands.

The Grassland Ecoregion provides unique habitat for a diversity of mammals, birds, reptiles and amphibians. At various times of the year, the Milk River Basin may support up to 135 avian species, 40 species of mammals, 5 species of amphibians, and 8 species of reptiles. Of these, 13 species are listed federally as endangered, threatened or of special concern. The species of concern include the Swift Fox, Pronghorn Antelope, Ferruginous Hawk, Burrowing Owl, Shorteared Owl, Long-billed Curlew, Sprague's Pipit, Loggerhead Shrike, Great Plains Toad, Plains Spadefoot Toad, Northern Leopard Frog, Greater Short-horned Lizard, and Prairie Rattlesnake.

Issues related to construction and operation of the dam and storage sites that could affect wildlife may result from individual or combined effects of habitat loss, alteration, and fragmentation; disturbance and reduced habitat effectiveness; blockage of movements; and direct wildlife mortalities. The Forks and Lonely Valley sites are within a key Pronghorn antelope winter range, and Swift fox burrows have been identifed at the Lonely Valley site.

A Historical Resources Impact Assessment (HRIA) conducted in 1986 for the Forks Site found a high concentration of historical resource sites in this area including campsites, stone circles, kill sites, sites with buried bone and fire broken rock, buried campsites, and a Medicine Wheel. Although HRIA studies have not been carried out at the off-stream sites, it is likely that similar sites are present in these areas. Previous studies also indicate that significant palaeontological resources may exist in the area of the reservoir sites.

The on-stream Forks Site, which has the greatest storage volume and flooded area, will have the greatest impact on vegetation, wildlife, fisheries, archeology, riparian and protected areas. The off-stream sites, which are removed from the main stem rivers, have smaller storage volumes and flooded areas, and are located away from protected areas, will have much less impacts than the on-stream Forks Site.

Environmental and historical issues for each of the storage sites are listed on the attached data sheets for each reservoir alternative.

Regional Impacts

In the past 40 years, the population of the Milk River Basin in Canada has remained relatively static ranging between 2950 to 3900 people. In recent years, the population has declined and the current estimate is 3300. In sharp contrast, during 1991-2001 the population elsewhere in Alberta has increased by more than 15%. Approximately 52% of the population is considered “rural” residents while the remaining 48% are classified as “urban” and reside in three principal urban centers including the Town of Milk River (pop. 879), Village of Warner (pop. 379), and Village of Coutts (pop. 379). Yearly incomes are typically below the provincial average and have dropped in relation to the provincial average during the period between 1996-2001. Commercial farming is comprised of approximately 40% beef producers with the remaining portion consisting of crop production.

Development of a major water storage reservoir in the Milk River Basin would have a significant regional impact primarily due to the additional irrigation opportunities. In a relatively depressed part of the province where growth is not occurring, such opportunities for expansion would be significant. Irrigation development in the Milk River Basin is expected to occur relatively quickly since the decision-making variables are generally favorable in this area. Such variables include the potential for profitability, presence of existing irrigation in the area, already well established farmers/ranchers, simple delivery systems, impetus of rural water coops, strong supporting infrastructure (mostly in Lethbridge), and the close proximity to other irrigation districts.

Economic Analysis

An economic analysis was carried out to determine the feasibility of each of the various water storage options for future development. For each option, the benefit-cost (B/C) ratio, net present value (NPV), and internal annual rate of return (IRR) were determined as indicators of project viability. The economic indicators for each of the on-stream and off-stream alternatives are summarized in Tables 4 and 5, respectively.

Table 4 Summary of Economic Analysis, On-Stream Alternatives

Site/Criterion	**B/C Ratio**	**NPV***	**IRR %**
Forks Site, Topographic Limit	.53	-65.5	1.85
Forks Site, High Level	.54	-59.7	1.90
Forks Site, Intermediate II	.53	-56.2	1.77

* Base case 5% discount rate. NPV = $ millions.

Table 5 Summary of Economic Analysis, Off-Stream Alternatives

Site/Criterion	**B/C Ratio**	**NPV***	**IRR %**
Shanks Lake	.27	-34.4	-3.85
Lonely Valley A	.31	-66.0	-0.63
Lonely Valley B	.32	-57.4	-0.53
Lonely Valley (Low Dam at Site A)	.29	-37.0	-1.72
Verdigris Lake	.37	-46.8	0.25
MacDonald Creek	.34	-49.4	-1.23

For a project to be economically viable the B/C ratio should be greater than 1, the NPV positive and the IRR equivalent or better than the discount rate. In summary, none of the reservoir alternatives are economically viable based on a comparison of benefits and costs for a discount rate of 5%. For the on-stream sites, the imputed internal rate of return for B/C=1 and NPV=0 ranges from 1.77 % to 1.9 % per annum.

Project Implementation

Storage development in the Milk River Basin would be subject to international (Canada - US), federal, provincial and municipal legislative requirements. This report includes an overview of the assessment, approval, licensing and permitting requirements within each jurisdiction. Many of these legislative requirements are related to environmental issues. In order to address these concerns, an Environmental Impact Assessment will be required to fill the many data gaps that exist relative to aquatic habitat, fish, wildlife, vegetation, historical and paleontological resources. In addition, First Nation/Aboriginal issues will require consultations with community representatives from the Kainai Tribe to determine what measures need to be taken to assess the potential impact of the project on traditional use and to address potential concerns relative to possible changes in current water use.