TECHNICAL MEMORANDUM

SUBJECT: **Green River Basin Plan**
Criteria for Screening Future Water Use Opportunities
PREPARED BY: States West Water Resources Corporation, Watts and Associates

Long List of Future Water Use Opportunities

A "long list" of potential projects, structural and non-structural, was retrieved from earlier planning projects in the basin and from Basin Advisory Group (BAG) members. The primary planning documents reviewed for potential projects include:

- Person, H.T., Lee, C.A., and Moir, C.D., Workers on WPA Project 65_83_107, February 1938, "Report on Water Resources of Colorado River Basin in Wyoming (Green River and Little Snake River)," Wyoming State Engineer's Office.

  ***Focus**: This was probably the first comprehensive hydrologic study of the Green and Little Snake River Basins in Wyoming. The report evaluated climate, runoff, irrigated lands, and future needs and studied 16 potential irrigation projects and 36 reservoir sites. A recommended plan of development was proposed which included three groups of priorities; those projects needed immediately, those that were desirable but needed further study, and those that could be deferred. The concept of transbasin diversion of water was discussed, but caution was advised in taking water that could ultimately be needed in-basin.*

- J. T. Banner & Associates, Inc., July 1969, "Report on Preliminary Reconnaissance of Potential Reservoirs: Green River Basin, Wyoming," Department of Economic Planning and Development, and Wyoming Water Planning Program, State Engineer's Office.

  ***Focus**: This report discussed physical studies of Upper and Lower Kendall, New Fork Narrows, and Lower Green Reservoir sites. It did not review needs or depletions, but relied upon the Wyoming Water Planning Program for those details.*

- Wyoming Water Planning Program, September 1970, "Water and Related Land Resources of the Green River Basin, Wyoming," Wyoming Water Planning Program Report No. 3, Wyoming State Engineer's Office.

  ***Focus**: The predecessor plan to the current study, this document evaluated water resources of the basin and proposed alternative plans to meet future municipal, industrial, agricultural, recreation and environmental needs for water.*

- United States Bureau of Reclamation Region 4, May 1972, "Alternative Plans for Water Resource Developments: Green River Basin, Wyoming," United States Department of the Interior.

  ***Focus**: Another broad planning document, this report focused primarily on the Kendall, New Fork, Boulder Lake and Lower Green Reservoir sites. The study also evaluated delivery of significant amounts of water for industrial use to Baggs Junction and Point of Rocks. Out-of-basin diversions to the North Platte River drainage were included.*

- Tipton and Kalmbach, Inc., October 1972, "Engineering Report on the Development of Presently Unused Water Supplies of the Green River Basin in Wyoming: With Particular Reference to the Feasibility of Providing Additional Reservoir Storage," Wyoming Department of Economic Planning and Development.

  ***Focus**: This relatively complete planning study used depletion estimates from the WWPP Report No. 3 (above) for agricultural uses, although the report looked primarily at providing water for industrial use. At the time this report was prepared, significant industrial growth in the lower basin was anticipated. Storage evaluation was limited to the Plains and Lower Green sites. This report gives a relatively strong discussion of the effects of such development on Wyoming's compact allotments.*

- Hanson, Michael L., Buhel R. Heckathorn and Robert A. Rathjen, April 1978, "Environmental Base Working Paper," Green River Basin Wyoming, Type IV Study, Based on a Cooperative Survey by the State of Wyoming – Wyoming State Engineer and the U.S. Department of Agriculture.

  ***Focus**: One of a series of working papers under the Type IV umbrella, this document presents a descriptive overview of environmental and recreational characteristics and needs in the basin. Significant discussion is devoted to the fishing resource including relative "use vs. capacity" analyses.*

- Economics, Statistics, and Cooperatives Service, Forest Service, and Soil Conservation Service, September 1978, "Green River Basin, Wyoming: Cooperative River Basin Study," United States Department of Agriculture and State of Wyoming.

  ***Focus**: An overall planning study, this report is among the first to discuss in detail the recreational aspects of water development, and acknowledged the already-developing problem of limited stream fishing access. In addition to traditional water development via storage, this was also one of the first studies found to mention conservation of water by evaluating conveyance system efficiencies.*

- ARIX, January 1983, "Pre-Feasibility Study of the Upper Green River Drainage Potential Reservoir Sites," Wyoming Water Development Commission.

  ***Focus**: This report was confined to evaluation of supplemental irrigation supplies at eight small reservoir sites in the northwestern part of the basin. Relatively complete analysis is provided including geotechnical evaluation of the damsites, storable flow estimation (with water rights considerations) and construction cost estimates.*

- Western Water Consultants, Inc., November 1991, "Little Snake River Basin Planning Study, Level I Feasibility Study," Wyoming Water Development Commission.

  ***Focus**: This broad-based investigation evaluated 20 potential reservoir sites within the Little Snake River Basin and was preceded by several related studies. Most notably, previous work had focused upon Sandstone Dam and the City of Cheyenne's Stage I and Stage II (and also Stage III, preliminarily) studies. Further aspects of the 1991 work included studies of irrigation structure rehabilitation, evaluation of the West Side and First Mesa canals, and water supply for the Town of Baggs.*

The long list of structural projects reviewed, including a description of the features of each project (e.g. legal location, water course, land ownership, etc.) is appended to this memorandum. Table 1 presents the long list, and Figure 1 shows the associated locations of these features.

Screening Criteria

Based upon comments received during BAG meetings, review of previously published criteria and questionnaire results, and the Scope of Services, the following procedure for screening opportunities for future water use. The following sets the stage for selection of the criteria:

- From the notes and recording of the October BAG meeting it is obvious that at least some BAG members would like to establish a set of priorities that are more general than project specific criteria. For instance, the view that existing uses and economic dependencies should have first priority with respect to future plans seemed to enjoy general acceptance.

- A nested set of criteria were developed that take into consideration the comments of BAG members, the study results with respect to both current and future needs, and the previously proposed draft criteria.

- The individual criteria will be applied to projects grouped by priority as given below:

Priority	**Description**
1	Rehabilitation projects that preserve existing uses and economic dependencies.
2	Projects that rectify existing demands/needs/shortages.
3	Projects that meet projected future demands/needs/shortages
4	Trans-basin diversions of water that enhance in-state uses.

Six criteria will be evaluated under each of these priorities to present an overall picture of the favorability of a project or opportunity. These criteria, and the method by which they will be applied, are:

1 Water Availability

This criterion reflects the general ability of a project to function given likely bypasses for environmental uses and prior rights. It is not a reflection of the relative size of the project.

2 Financial Feasibility

This criterion reflects the effects of the combination of technical feasibility (high or low construction cost) and economic use to which the water would be put (e.g. irrigation of native meadow vs. cultivation of alfalfa or row crops). The intent of this ranking is to indicate the likely ability to afford the project or meet Wyoming Water Development Commission (or other) funding source criteria. A low number represents a project with suspect ability to be repaid, whereas a high number represents a project that should easily meet funding and repayment requirements.

3 Public Acceptance

This criterion reflects the extent to which a project will encounter or create public controversy (low number) versus a project that would likely engender broad public support (high number). For example, on-stream storage in environmentally sensitive areas would be very controversial, while off-channel storage in less sensitive areas would likely be supported.

4 Number of sponsors/beneficiaries/participants

This criterion reflects the desirability, all other things being equal, that a project serving a larger segment of the population should rank higher (higher number) than one serving only a few (lower number).

5 Legal/Institutional concerns

This criterion reflects the perceived relative ease (high number) or difficulty (low number) with which a project could be authorized and permitted under existing state and federal law.

6 Environmental/Recreation benefits

This criterion reflects the net effect of positive environmental and recreational aspects of a project as offset, to the extent it can be determined, by potential negative impacts on these attributes.

Table 2 indicates how various opportunities are rated using this procedure. This table effectively constitutes a short list of future supply opportunities. In Table 2, conservation was considered under Priority 1, and groundwater development was considered under Priorities 2 and 3.

Screening of the initial list resulted in the removal of certain projects from further consideration. Examples of these include most projects that exist on what now are dedicated Wilderness lands. While Wilderness boundaries have been known to be moved to allow project construction, such an action is singularly rare and in most cases creates a fatal flaw for that feature. The one project involving Wilderness boundary issues that made it past the initial cut was the BAG-suggested project involving the enlargement of Green River Lakes. This project was kept alive in the process for several reasons, notwithstanding the fact that the Wilderness issue could render it unbuildable: first, its location could serve many users currently experiencing agricultural shortages; second, review of earlier studies did not indicate that it had been studied in depth as yet; and finally, while there are obvious environmental impacts associated with construction of the project, the benefits associated with augmented late season flows have not been evaluated.

Another example of a previous project that did not pass initial muster is the oft-discussed Sandstone Dam in the Little Snake River Basin. The subject of considerable study in the 1980s, this project has been effectively replaced with the imminent construction of High Savery Dam in the same drainage.

From the long list, projects of minimal size were also deleted. Generally, if a project stored or depleted 1000 acre-feet or less, it was not considered further. This decision is not intended to reflect on the importance of small projects or to diminish their need. Instead, it is simply a matter of keeping the planning process from becoming unwieldy having to consider a multitude of smaller projects.

Some discussion of the scoring system used in Table 2 is warranted. First, the scores in and of themselves are meaningless other than to place the projects in some relative order. The resulting ranking, with higher scores placing projects higher within their respective priorities, represents the relative likelihood that a project is desirable, functional and

could receive enough public support to be constructed. Projects with similar "scores" but under different priorities should not be considered equally desirable or equally likely, because the weighting factors for the different criteria can change depending on the priority. Potential projects are grouped by sub-basin so that plan readers can review the studied projects by geographic locale.

References

1. Western Water Consultants, Inc., November 1991, "Little Snake River Basin Planning Study, Level I Feasibility Study," Wyoming Water Development Commission.

2. Tipton and Kalmbach, Inc., October 1972, "Engineering Report on the Development of Presently Unused Water Supplies of the Green River Basin in Wyoming: With Particular Reference to the Feasibility of Providing Additional Reservoir Storage," Wyoming Department of Economic Planning and Development.

3. Person, H.T., Lee, C.A., and Moir, C.D., Workers on WPA Project 65_83_107, February 1938, "Report on Water Resources of Colorado River Basin in Wyoming (Green River and Little Snake River)," Wyoming State Engineer's Office.

4. Wyoming Water Planning Program, September 1970, "Water and Related Land Resources of the Green River Basin, Wyoming," Wyoming Water Planning Program Report No. 3, Wyoming State Engineer's Office.

5. ARIX, January 1983, "Pre-Feasibility Study of the Upper Green River Drainage Potential Reservoir Sites," Wyoming Water Development Commission.

6. States West Water Resources Corporation, 2000 In-Progress, "Green River Basin Water Plan," Wyoming Water Development Commission.

7. Economics, Statistics, and Cooperatives Service, Forest Service, and Soil Conservation Service, September 1978, "Green River Basin, Wyoming: Cooperative River Basin Study," United States Department of Agriculture and State of Wyoming.

8. J. T. Banner & Associates, Inc., July 1969, "Report on Preliminary Reconnaissance of Potential Reservoirs: Green River Basin, Wyoming," Department of Economic Planning and Development, and Wyoming Water Planning Program, State Engineer's Office.

9. United States Bureau of Reclamation Region 4, May 1972, "Alternative Plans for Water Resource Developments: Green River Basin, Wyoming," United States Department of the Interior.

10. Project brought forth by members of the Green River Basin Advisory Group.

Table 1: Long List of Potential Reservoir Sites

PID	NAME	SIZE (AF)	SOURCE	SECTION	TOWNSHIP	RANGE	USE	PRIORITY	REF1	REF2	REF3	REF4
Upper Green												
1	Fish Creek	1,400	Fish Creek	26	30	115	irr	2	5	7		
2	Fontenelle No. 1	2,500	Fontenelle Creek	4	24	115	irr	2	3	6		
3	Fontennelle Creek	15,950	Fontennelle Creek	30	26	115	irr	2	7			
4	Green River Lakes Enl.	250,000	Green River	2	39	109	irr, pow	2	10			
5	Green River Supplemental Supply Project	Canal Enlargement Only	Green River	4	33	110	irr	2	4	10		
6	Kendall	100,000	Green River	33	36	111	ind, mun, irr	3, 4	9			
7	LaBarge Meadows	4,800	LaBarge Creek	8	29	116	irr	2	5	7	3	
8	Lower Green Reservoir	450,000	Green River	25	19	108	irr	3, 4	9	2	4	8
9	Lower Kendall	100,000	Green River	4	35	111	irr, rec, wl, pow	3, 4	4	8	3	
10	McNinch Wash	5,600	North Piney Creek	10	30	113	irr	2	5			
11	Middle Piney Lake	4,200	Middle Piney Creek	8	30	115	irr	1	3			
12	North Piney Cr	5,600	North Piney Creek	24	31	115	irr	2	5	7	3	
13	Plains Reservoir	480,000	Green River	8	23	109	irr, ind, mun, wl	3, 4	2			
14	Sand Hill	14,100	Middle Piney Creek	36	30	113	irr	2	5			
15	Seedskadee Project	57,000 ac	Green River		23	111	irr	3	4			
16	Sixty-Seven Enl.	5,600	North Piney Creek	17	30	112	irr	1	5			
17	Snider Basin	4,300	South Piney Creek	11	29	115	irr	2	5	7		
18	South Cottonwood	6,000	Cottonwood Creek	12	32	115	irr	2	5			
19	Warren Bridge Res	33,400	Green River	4	35	111	irr	2	4			
20	Cottonwood No. 1*	1,465	S Cottonwood Cr	16	32	115	irr	3	3			
21	Fogarty Creek*	700	Dry Piney Creek	24	28	114	irr	2	7			
22	Horse Creek*	36,660	Horse Creek	7	34	114	irr	2	7			
23	LaBarge Reservoir*	4,030	LaBarge Creek	12	29	116	irr	2	3			
24	Middle Beaver Creek*	5,905	Middle Beaver Creek	29	36	112	irr	2	7			
25	North Cottonwood Creek*	10,805	North Cottonwood Creek	24	33	115	irr	2	7			
26	South Beaver Creek*	5,905	South Beaver Creek	24	35	114	irr	2	7			
27	South Cottonwood Creek*	10,805	South Cottonwood Creek	11	32	115	irr	2	7			
28	South Horse Creek*	36,660	South Horse Creek	30	34	114	irr	2	7			
29	Straight Creek*	4,815	Straight Creek	4	30	115	irr	2	7			
New Fork												
30	East Fork	2,100	East Fork River	10	31	106	irr	2	3			
31	East Fork # 1	4,735	East Fork River	4	31	105	irr	2	3			
32	East Fork Gorge	unknown	East Fork River	12	31	106	irr	2	10			
33	East Side Project	22,000 ac	East Fork River		30	106	irr	3	4			
34	Burnt Lake	15,570	Fall Creek	31	34	107	irr	2	3	7		
35	Halfmoon Enl.	95,000	Pole Creek	15	34	108	irr, pow	2	7	3		
36	New Fork Narrows	100,000	New Fork River	14	30	110	irr, wl, rec	3	9	4	8	
37	Silver Creek	17,740	Silver Creek	11	32	107	irr	2	7			
38	Dad's Lake*	740	Dad's Creek	18	32	104	irr	3	3			
39	East Fork River*	46,070	East Fork River	7	31	105	irr	2	7			
40	Feltner*	1,280	Pole Creek	12	34	108	irr	2	3			
41	Mack No. 1*	766	Skeleton Draw	5	30	108	irr	3	3			
42	Marm's Lake*	562	Dad's Creek	7	32	104	irr	2	3			
43	New Fork Lake Enl.*	45,937	New Fork River	15	36	110	irr, pow	3	3			
44	Pyramid*	636	Pyramid Creek	17	33	104	irr	3	3			
Big Sandy												
45	Eden No. 2 (Sander's Ranch)	60,000	Big Sandy Creek	17	30	104	irr, ind	2, 4	4	3		
46	Eden Reservoir Rehabilitation	6,300	Little Sandy River	17	26	105	irr	1				
47	Eden Valley Improvements	3,100 ac	East Fork/Big Sandy		25	106	irr	3	4			
Blacks Fork												
48	Meeks Cabin Dam Enl.	unknown	Blacks Fork	11	12	117	irr	3				
49	State Line Enl.	unknown	E Smiths Fork Cr		Utah		irr	3	6			
50	BB*	650	Blacks Fork	18	18	112	irr	2	3			
51	Deer Lake*	1,000	E Smiths Fork Cr	29	13	115	irr	2	3			
52	Hams Fork*	215,475	Hams Fork	12	21	116	irr, mun, ind	2	3			
53	McWinn*	800	Hertley Hollow Cr.	16	22	117	irr	2	3			
54	Uinta Canal No. 3*	16,790	Uinta Can. Blacks Fk	34	17	114	irr	3	3			
Little Snake												
55	Big Gulch	10,000	Big Gulch	19	13	88	irr	2	1			
56	Dutch Joe Creek	14,000	Dutch Joe Creek	35	13	90	irr	2	1			
57	Grieve Res.	4,860	Grieve Res.	5	12	88	irr	1	1			
58	Lower Willow Creek, Wy	7,000	Lower Willow Creek, Wy	8	12	90	irr	2	1			
59	Pot Hook, Co	20,000	Pot Hook, Co	Colorado			irr	2	1			
60	Upper Willow Creek, Co	10,000	Upper Willow Creek, Co	Colorado			irr	2	6	1		
61	Cottonwood Creek*	2,500	Cottonwood Creek	34	13	90	irr	2	1			
62	East Willow*	12,000	East Willow, Co	Colorado			irr	2	1			
63	Loco Creek*	3,000	Loco Creek	34	14	89	irr	2	1			
64	Lower Battle Creek*	20,000	Lower Battle Creek	13	12	88	irr	2	1			
65	Middle Battle Creek*	20,000	Middle Battle Creek	7	12	87	irr	2	1			
66	Muddy Creek*	12,000	Muddy Creek	9	13	91	irr	2	1			
67	Negro Creek*	1,000	Negro Creek	16	13	89	irr	2	1			
68	Old Upper Savery Cr*	20,000	Old Upper Savery Cr	36	15	89	irr	2	1			
69	Roaring Fork*	5,000	Roaring Fork	28	13	86	irr	2	1			
70	Sandstone*	20,000	Sandstone	2	13	89	irr	2	1			
71	South Fork Little Snake*	17,000	South Fork Little Snake, Co	Colorado			irr	2	1			
72	Upper Battle Creek*	20,000	Upper Battle Creek	20	13	87	irr	2	1			
73	Upper Slater*	20,000	Upper Slater, Co	Colorado			irr	2	1			
Henrys Fork												
74	Big Basin Antelope*	107,680	Henrys Fork	Utah			irr	3	3			
Vermilion/Red Creek												
75	Vermilion/Red Creek Basin	unknown	Vermilion/Red Creek	19	13	101	irr	2	6			

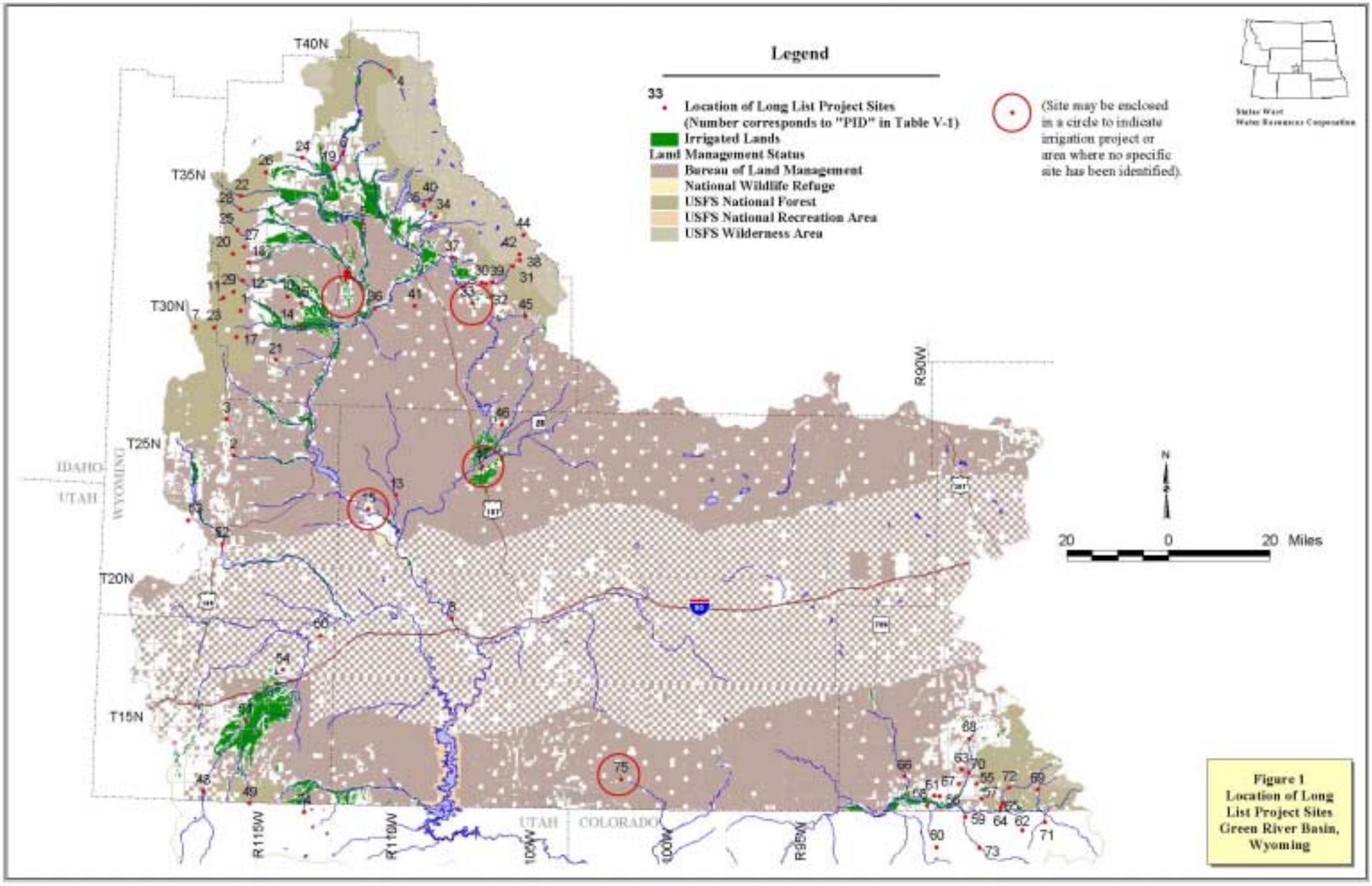

Figure 1
Location of Long List Project Sites
Green River Basin, Wyoming

Table 2: Green River Basin Plan - Ranking Water Use Opportunities - Short List

Priority Type	PID	Est. Yield(y), Cap(c) or Depl(d) (AF)	CRITERIA: Water Availability	Financial Feasibility	Public Acceptance	No. of Sponsors/ Beneficiaries	Legal/ Institutional	Environmental/ Recreation Benefits	Score***
Priority 1*			***3***	***9***	***3***	***9***	***5***	***5***	
Eden Reservoir Rehabilitation**	46	6,300 c	6	9	9	8	8	2	248
Misc. Canal Rehab (Conservation)		unk	9	7	8	6	6	2	208
Middle Piney Reservoir	11	4,200 c	8	5	5	5	3	4	164
Sixty Seven Enlargement (off ch)	16	5,600 c	5	5	6	4	6	2	154
Grieve Reservoir	57	4,860 y	4	4	6	4	6	4	152
Priority 2			***8***	***5***	***8***	***6***	***10***	***3***	
Upper Green River									
Green River Supplemental Supply	5	22,000 d	7	6	6	8	5	2	238
Sand Hill (off ch)	14	14,100 c	5	6	7	6	6	3	231
Fontenelle Creek Narrows	2	2,500 c	6	5	6	4	6	5	220
McNinch Wash (off ch)	10	5,600 c	5	5	7	4	6	3	214
Snider Basin	17	4,300 c	6	6	5	5	5	5	213
South Cottonwood	18	6,000 c	6	5	5	5	5	5	208
Groundwater Development		unk	2	2	9	2	9	2	206
North Piney Creek	12	5,600 c	6	2	5	5	5	5	193
LaBarge Meadows	7	4,800 c	5	3	5	4	5	5	184
Warren Bridge	19	33,400 c	8	5	2	8	1	4	175
Fish Creek	1	1,400 c	3	5	5	2	5	4	163
Green River Lakes Enl.	4	<250,000 c	9	5	0	9	0	2	157
New Fork River									
East Fork	30	2,100 c	7	5	5	5	5	5	216
East Fork Gorge	32	unk	7	5	5	5	5	5	216
Boulder Lake Enl.		<120,000 c	8	7	4	6	3	5	212
Groundwater Development		unk	2	2	9	2	9	2	206
Silver/Spring Creeks	37	17,000 c	5	5	5	4	5	5	194
Burnt Lake Enl.	34	15,570 c	8	7	2	5	2	5	180
Halfmoon Enl.	35	<95,000 c	8	7	2	5	2	5	180
East Fork No.1	31	4,700 c	8	3	2	5	2	5	160
Big Sandy River									
Sander's Ranch (Leckie Ranch)	45	60,000+ c	7	5	5	6	5	5	222
Groundwater Development		unk	2	3	9	2	9	2	211
Black's Fork River									
Groundwater Development		unk	2	2	9	2	9	2	206
Little Snake River									
Groundwater Development		unk	2	2	9	2	9	2	206
Lower Willow Creek	58	2,700 y	5	5	5	5	4	5	190
Big Gulch	55	5,250y	3	6	5	4	5	5	183
Upper Willow Creek (Co)	60	1,500 y	4	5	5	4	4	5	176
Pot Hook	59	6,700 y	6	4	4	6	1	5	161
Dutch Joe	56	5,000 y	4	6	5	5	2	3	161
Vermilion/Red Creek Basins									
Groundwater Development		unk	2	2	9	2	9	2	206
Storage Project	75	unk	5	4	7	3	5	4	196
Priority 3			***8***	***5***	***8***	***6***	***10***	***3***	
Green Below Fontenelle									
Groundwater Development		unk	2	2	9	2	9	2	206
Eden Project Improvements (USBR)	47	10,000 d	6	5	6	6	2	2	183
Seedskadee Project (USBR)		86,000 d	9	3	4	5	1	2	165
Upper Green River									
Green River Supplemental Supply	5	22,000 d	6	6	6	8	5	2	230
Groundwater Development		unk	2	2	9	2	9	2	206
East Side Project	33	32,000 d	6	5	4	4	3	3	168
Kendall (Upper Kendall)	6	>100,000 c	9	5	1	8	0	4	165
Lower Kendall	9	>100,000 c	9	5	1	8	0	4	165
New Fork Narrows	36	>100,000 c	9	4	1	5	0	4	142
Black's Fork /Ham's Fork Rivers									
Viva Naughton Enlargement		36,000 c	7	5	6	5	5	6	227
State Line Enlargement	49	unk	6	5	6	7	4	5	218
Meek's Cabin Enlargement	48	unk	5	5	6	7	4	5	210
Groundwater Development		unk	2	2	9	2	9	2	206
Little Snake River									
Groundwater Development		unk	2	2	9	2	9	2	206
Lower Willow Creek	58	2,700 y	5	5	5	5	4	5	190
Upper Willow Creek (Co)	60	1,500 y	4	5	5	4	4	5	176
Dolan Mesa Canal		2,700 d	5	3	5	3	4	4	165
Savery-Pot Hook Project (USBR)		5,000 y	6	4	4	6	1	5	161
Priority 4			***3***	***5***	***10***	***6***	***9***	***5***	
Green Below Fontenelle									
Plains Reservoir (off ch)	13	<480,000 c	9	3	3	3	1	4	89
Lower Green Reservoir	8	<450,000 c	9	2	2	2	1	3	73
Upper Green River									
Kendall (Upper Kendall)	6	>100,000 c	9	4	0	7	0	3	104
Lower Kendall	9	>100,000 c	9	4	0	7	0	3	104
New Fork Narrows	36	>100,000 c	9	3	0	5	0	3	87

Notes:

* Each criteria has a different weighting under each priority; 10 is most important, 1 is least important

** Under each project, the criteria are individually ranked; 10 means largely favorable, 0 is unfavorable

*** Scores are the additive result of multiplying each project criteria weighting by the associated priority criteria ranking

Priorities:
1. Preserves existing uses and dependencies
2. Addresses existing shortages
3. Addresses future projected needs
4. Addresses future out-of-basin, in-state needs

Addendum 1

Green River Basin Plan

Future Water Use Opportunities

Long List of Structural Projects

Green River Basin Plan
Future Water Use Opportunities
Long List of Structural and Non-Structural Projects
(numbers associated with each project correspond with site labels in Figure 1)

Upper Green Sub-Basin

1. Fish Creek Reservoir
    a) Purpose – late season irrigation to existing lands. Located in 26-30-115.
    b) Priority – 2
    c) Water Availability – 1,600 - 5,500 AF/Yr storable (on-channel; limited tributary area).
    d) Cost Effectiveness – Most costly among those in ARIX report due to limited water availability.
    e) Beneficiaries – Located on USFS; limited number of beneficiaries due to small size. Acres served are unstated.
    f) Legal/Institutional Concerns – Public land reduces ownership conflicts but raises federal role. Instream Flow application segment would be affected. Permitting on USFS will be difficult.
    g) Environmental/Recreational Benefits – uncertain, probably moderate because of location on forest.
    h) Reversibility – not expected to be an issue
    i) Economic stimulus – limited to the few beneficiaries and to local economy during construction. Possible recreational benefits. Single-purpose reservoir.
    j) Source – ARIX Report (5)

2. Fontenelle No. 1
    a) Purpose – Irrigation (Fontenelle Creek).
    b) Priority – 2
    c) Water Availability – 2,500 AF (Storage Capacity). Serves 3043 acres.
    d) Cost Effectiveness – (8.0 relative index = cost/storage capacity)
    e) Beneficiaries – Fontenelle Creek Irrigation area 4-24-115
    f) Legal/Institutional Concerns – Located on BLM/Private lands.
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – uncertain
    j) Source – (3-1938)

3. Fontenelle Creek
    a) Purpose – Supplemental irrigation supply
    b) Priority – 2
    c) Water Availability –Model results available for this tributary are applicable at the mouth and not at this location; availability difficult to

assess. Site could hold up to 15,950 AF, but shortages served are only about 1,400 AF.

d) Cost Effectiveness – Study shows cost of $21.70 per AF of storage.
e) Beneficiaries – Irrigators along Fontenelle Creek.
f) Legal/Institutional Concerns – Located on private and BLM land and very near USFS. Not affected by instream flow segments. Typical permitting issues, but will be difficult if USFS impacted.
g) Environmental/Recreational Benefits – some environmental benefits of stored water and late season flows; low recreational benefit.
h) Reversibility – not expected to be a concern
i) Economic Stimulus – low.
j) Source – 7 (1978)

4. Green River Lakes Enlargement
    a) Purpose – Irrigation (Main stem Green River, plus lower lands on western tributaries: Horse creek, Cottonwood Creek, Piney Creeks).
    b) Priority – 2, 3
    c) Water Availability – Model shows dry year physical availability of 219,000 AF, reservoir is 250,000 AF (Storage Capacity).
    d) Cost Effectiveness – uncertain
    e) Beneficiaries – Numerous irrigators along main stem and tribs; some recreation benefits
    f) Legal/Institutional Concerns – Would affect wilderness boundary, very difficult to obtain permits. Likely strong public opposition.
    g) Environmental/Recreational Benefits – recreational benefits due to larger flat water recreation area and environmental benefits due to more stable flows below the dam (maintenance flows). Loss of riparian habitat within the enlarged reservoir high water line that extends significantly upstream onto wilderness.
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – recreation expenditures, improved farm economies due to increased water supply.
    j) Source – BAG comments

5. Green River Supplemental Supply Project
    a) Purpose – late season irrigation to existing lands on North/Middle/South Piney Creeks. Some new lands could also be irrigated. Located in 4-33-110.
    b) Priority – 2, 3.
    c) Water Availability – Availability of water enhanced by diversion directly from Green River proper. Will require enlargement of existing Green River Supply Canal. Has been studied alone and in concert with a Kendall Reservoir. Could also be served by a reservoir at Warren Bridge.
    d) Cost Effectiveness – unknown.

e) Beneficiaries – Irrigators on North/Middle/South Piney Creeks.
f) Legal/Institutional Concerns – Traverses private, some state, and federal (BLM) lands.
g) Environmental/Recreational Benefits – Probably few to none. Canal enlargement would increase diversions from the Green River proper.
h) Reversibility – not expected to be an issue.
i) Economic stimulus – Increased yields from agricultural lands; few other stimuli.
j) Source – WWPP (4)

6. Kendall
   a) Purpose – Industrial, municipal and irrigation via canal to areas of projected industrial growth.
   b) Priority – 2, 3
   c) Water Availability – 141,800 AF/Yr (storable flow) depending on route.
   d) Cost Effectiveness – ~$1,300/AF annual yield; Annual operation is $480,000-$1,560,000 depending on route.
   e) Beneficiaries – Point of Rocks area, Baggs Junction area (Great Divide Basin) if used for downstream industry. Could provide late season water for enlarged Green River Supply Canal.
   f) Legal/Institutional Concerns – inundates upper 5 miles of Canyon Canal. HWL ends 2 miles downstream of Kendall Warm Springs. Difficult permitting on main stem. Private landholders in vicinity may oppose the project. Instream Flow segment would be affected.
   g) Environmental/Recreational Benefits – inundates 20 miles of fishery and winter range for 600 moose & big game; could provide recreation, fish & wildlife uses also.
   h) Reversibility – ?
   i) Economic Stimulus – Industrial growth in benefited areas.
   j) Source – USBR (9-1972)

7. LaBarge Meadows
   a) Purpose – Irrigation (La Barge Creek).
   b) Priority – 2
   c) Water Availability – 4,823 (Storage Capacity in absence of LaBarge Reservoir #38)
   d) Cost Effectiveness – (15.6 relative index = cost/storage capacity)
   e) Beneficiaries – LaBarge Creek Irrigation area 8-29-116
   f) Legal/Institutional Concerns – see above
   g) Environmental/Recreational Benefits – see above
   h) Reversibility – not expected to be a concern
   i) Economic Stimulus – uncertain
   j) Source – (3-1938)

7. LaBarge Meadows Reservoir
    a) Purpose – late season irrigation to existing lands
    b) Priority – 2
    c) Water Availability – 4,800 - 7,900 AF/Yr storable (on-channel).
    d) Cost Effectiveness – 2nd-worst ranked among those in ARIX report. Highly complex foundation conditions could greatly increase construction costs.
    e) Beneficiaries – Located on USFS; moderate number of beneficiaries. Acres served are unstated.
    f) Legal/Institutional Concerns – Public land reduces ownership conflicts but raises federal role. Instream Flow application segment would be affected.
    g) Environmental/Recreational Benefits – uncertain, probably moderate because of location on forest.
    h) Reversibility – not expected to be an issue
    i) Economic stimulus – limited to the few beneficiaries and to local economy during construction. Possible recreational benefits. Single-purpose reservoir.
    j) Source – ARIX Report (5)

8. Lower Green Reservoir
    a.) Purpose – Future industrial, municipal, irrigation and fish and wildlife uses
    b.) Priority – 3, 4
    c) Water Availability – Located on main stem of the Green River where maximum water is available in the basin. Yield could be as high as 450,000 AF/yr for industry and other uses, in concert with Fontenelle Reservoir.
    d) Cost Effectiveness –At $97/AF, the cost of this reservoir is $10/AF higher than the Plains Reservoir also studied in this report. Will require modifications to improvements at the OCI (formerly Stauffer) chemical plant.
    e) Beneficiaries – Located on federal (BLM), state and private lands; large number of potential beneficiaries including industry, municipalities, irrigation (minor) and fish and wildlife (recreation and environmental uses). Acres served are unstated. Does not allay agricultural shortages higher or elsewhere in the basin.
    f) Legal/Institutional Concerns – Public land reduces ownership conflicts but raises federal role. Lack of current purpose and need is a problem without defined users and with unsold capacity in Fontenelle Reservoir. Less favorable for transbasin diversion than Plains Reservoir also studied. Possible conflicts with trona industry
    g) Environmental/Recreational Benefits –Probably moderate to high considering the tradeoff between the reservoir and tailwater habitats that would be developed and the riverine ecology that currently exists.

h) Reversibility – water developed at this site is not available higher or elsewhere in the basin for agricultural shortages *if* compact allocation is approached.
i) Economic stimulus – Probable long-term recreational benefits due to proximity to I-80 and Green River/Rock springs. Multi-purpose reservoir.
j) Source – Tipton and Kalmbach Report (2)

8. Lower Green
   a) Purpose – Industrial, municipal and irrigation via canal or pipeline to areas of projected industrial growth.
   b) Priority – 3
   c) Water Availability – 612,400 AF/Yr (storable flow)
   d) Cost Effectiveness – $250/AF annual yield ($700 for pipeline); Annual operation is $1,560,000 ($1,230,000 for pipeline). Smaller storage, but pumping from the reservoir necessary to meet needs in the basin.
   e) Beneficiaries – Point of Rocks area, Baggs Junction area (Great Divide Basin)
   f) Legal/Institutional Concerns – encroachment on trona leases and plants need investigation. Adverse environmental effects less than at other sites, right-of-way costs also relatively low. Potential percolation into trona beds needs investigation.
   g) Environmental/Recreational Benefits – fishing and water sports.
   h) Reversibility – ?
   i) Economic Stimulus – Industrial growth in benefited areas; provides recreation near basin population center.
   j) Source – USBR (9-1972)

9. Lower Kendall
   a) Purpose – Upper Green near Daniel (T35, R111, 4)
   b) Priority – 2, 3
   c) Water Availability – 100,000 AF (Live Storage)
   d) Cost Effectiveness – $45.00/AF Live Storage
   e) Beneficiaries – agricultural/industrial users. Could provide late season water for enlarged Green River Supply Canal.
   f) Legal/Institutional Concerns – difficult permitting on main stem. Private landholders in vicinity may oppose the project. Instream Flow segment would be affected.
   g) Environmental/Recreational Benefits – 15,000 AF storage pool for fish & recreation assumed.
   h) Reversibility – unlikely a concern.
   i) Economic Stimulus – uncertain
   j) Source – Banner (8)

10. McNinch Wash Reservoir
    a) Purpose – late season irrigation to existing lands. Located in 10-30-113.
    b) Priority – 2
    c) Water Availability – 5,200 - 6,000 AF/Yr storable (off-channel).
    d) Cost Effectiveness – Mid-ranked among those in ARIX report. Costly diversion works.
    e) Beneficiaries – Private reservoir; limited number of beneficiaries. Acres served are unstated.
    f) Legal/Institutional Concerns – Private land reduces ownership conflicts
    g) Environmental/Recreational Benefits – uncertain, probably low.
    h) Reversibility – not expected to be an issue
    i) Economic stimulus – limited to the few beneficiaries and to local economy during construction. Impacts to existing oil and gas facilities and paved highway. Single-purpose reservoir.
    j) Source – ARIX Report (5)

11. Middle Piney Reservoir
    a) Purpose – late season irrigation to existing lands on Middle/South Piney Creeks. Location 8-30-115.
    b) Priority – 1
    c) Water Availability – Located on upper Middle Piney Creek. Availability of water not expected to be an issue. Reservoir has been delivered to USFS ownership and needs rehabilitation. Rehab will require transfer back to private ownership because USFS wants dam breached. Capacity is 4,200 AF.
    d) Cost Effectiveness – unknown.
    e) Beneficiaries – Irrigators on South/Middle Piney Creeks.
    f) Legal/Institutional Concerns – Located on federal (USFS) lands. Reservoir will probably either be breached or transferred to private ownership and rehabilitated. Instream Flow application segment would be affected.
    g) Environmental/Recreational Benefits – Probably moderate if flatwater habitat and minimum flows could be created.
    h) Reversibility – not expected to be an issue.
    i) Economic stimulus – Possible recreational benefits. Single-purpose reservoir.
    j) Source – Permits/State Engineer's Office personnel

12. North Piney Creek Reservoir
    a) Purpose – late season irrigation to existing lands. Located in 25-31-115.
    b) Priority – 2

c) Water Availability – unstated; ARIX report uses 5,600AF capacity for cost purposes (on-channel). Alternative to McNinch Wash and Sixty-Seven.
d) Cost Effectiveness –Worst ranked among those in ARIX report. Highly complex foundation conditions could greatly increase construction costs.
e) Beneficiaries – Located on USFS; moderate number of beneficiaries. Acres served are unstated.
f) Legal/Institutional Concerns – Public land reduces ownership conflicts but raises federal role. Instream Flow application segment would be affected.
g) Environmental/Recreational Benefits – uncertain, probably moderate because of location on forest.
h) Reversibility – not expected to be an issue
i) Economic stimulus – limited to the few beneficiaries and to local economy during construction. Possible recreational benefits. Single-purpose reservoir.
j) Source – ARIX Report (5)

12. North Piney
    a) Purpose – Irrigation (Piney Creeks).
    b) Priority – 2
    c) Water Availability – 6846 (Storage Capacity)
    d) Cost Effectiveness – (11.0 relative index = cost/storage capacity)
    e) Beneficiaries – North Piney Creek Irrigation area (Piney Creeks) 24-31-115
    f) Legal/Institutional Concerns – Located on USFS. Instream Flow application segment would be affected.
    g) Environmental/Recreational Benefits – uncertain, probably moderate because of location on forest.
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – uncertain
    j) Source – (3-1938)

13. Plains Reservoir
    a.) Purpose – Future industrial, municipal, irrigation and fish and wildlife uses. Possible out-of-basin transfers from this site (to the Platte River Basin)
    b.) Priority – 3, 4
    c) Water Availability – Located on main stem of the Green River where maximum water is available in the basin. Yield could be as high as 479,000 AF/yr for industry and other uses, in concert with Fontenelle Reservoir.
    d) Cost Effectiveness –At $87/AF, the cost of this reservoir is $10/AF less than the Lower Green Reservoir also studied in this report.

e) Beneficiaries – Located on federal (BLM), state and private lands; large number of potential beneficiaries including industry, municipalities, irrigation (minor) and fish and wildlife (recreation and environmental uses). Acres served are unstated. Does not allay agricultural shortages higher or elsewhere in the basin.
f) Legal/Institutional Concerns – Public land reduces ownership conflicts but raises federal role. Lack of current purpose and need is a problem without defined users and with unsold capacity in Fontenelle Reservoir. More favorable for transbasin diversion than the Lower Green Reservoir also studied.
g) Environmental/Recreational Benefits –Probably moderate to high considering the wetlands and flatwater habitat that could be created. Could create a concern about flows through Seedskadee NWR if minimum flows are reduced.
h) Reversibility – water developed at this site is not available higher or elsewhere in the basin for agricultural shortages *if* compact allocation is approached. If used for transbasin deliveries, reliance upon this water could make any commitment thereto irreversible.
i) Economic stimulus – Probable long-term recreational benefits due to water-based habitat created. Large annual drawdowns may reduce the overall effects of such benefits. Multi-purpose reservoir.
j) Source – Tipton and Kalmbach Report (2)

14. Sand Hill Reservoir
    a) Purpose – late season irrigation to existing lands. Located in 36-30-113 and takes water from both Middle and South Piney Creeks.
    b) Priority – 2
    c) Water Availability – 14,100-23,000 AF/Yr storable (off-channel). Highest storable flow in ARIX report.
    d) Cost Effectiveness – Highest-ranked among those in ARIX report
    e) Beneficiaries – Private reservoir; number of beneficiaries on lower Middle and South Piney Creeks. Would free up water for higher up by delaying calls.
    f) Legal/Institutional Concerns – Private land reduces ownership conflicts
    g) Environmental/Recreational Benefits – uncertain, probably low.
    h) Reversibility – not expected to be an issue
    i) Economic stimulus – limited to the few beneficiaries and to local economy during construction. Impacts to existing oil and gas facilities and paved highway. Single-purpose reservoir.
    j) Source – ARIX Report (5)

15. Seedskadee Project
    a) Purpose – Irrigation (Main stem Green River below Fontenelle Dam). Would develop up to 57,000 acres of new irrigation.
    b) Priority – 3

c) Water Availability – Unused water in Fontenelle Reservoir and direct flow availability provide sufficient water for this development.
d) Cost Effectiveness – unknown; project has been shelved by the USBR because of concerns about conflicts with the trona resource and likely low returns from agriculture. Pumping of water for some portions required in study phase further reduces economic benefit.
e) Beneficiaries – Main stem irrigators; Seedskadee NWR.
f) Legal/Institutional Concerns – located largely on NWR land; permitting would be difficult.
g) Environmental/Recreational Benefits – some wetland/riparian benefits to NWR, which would be measured against riverine losses due to diversions.
h) Reversibility – not expected to be a concern.
i) Economic Stimulus – uncertain
j) Source – 4 (1970)

16. Sixty-Seven Reservoir Enlargement
    a) Purpose – late season irrigation to existing lands. Located in 17-30-112.
    b) Priority – 1 (because Sixty-Seven is an existing structure)
    c) Water Availability – 5,200 - 6,000 AF/Yr storable (off-channel)
    d) Cost Effectiveness – Mid-ranked among those in ARIX report
    e) Beneficiaries – Private reservoir; limited number of beneficiaries. Acres served are unstated.
    f) Legal/Institutional Concerns – Private land reduces ownership conflicts
    g) Environmental/Recreational Benefits – uncertain, probably low
    h) Reversibility – not expected to be an issue
    i) Economic stimulus – limited to the few beneficiaries and to local economy during construction. Single-purpose reservoir.
    j) Source – ARIX Report (5)

17. Snider Basin Reservoir
    a) Purpose – late season irrigation to existing lands. Located in 11-29-115 (South Piney Creek).
    b) Priority – 2
    c) Water Availability – 4,300 - 13,200 AF/Yr storable (on-channel).
    d) Cost Effectiveness – 2nd-best ranked among those in ARIX report. Good dam site.
    e) Beneficiaries – Located on USFS; moderate number of beneficiaries. Acres served are unstated.
    f) Legal/Institutional Concerns – Public land reduces ownership conflicts but raises federal role. Instream Flow application segment would be affected. Permitting on USFS will be difficult.
    g) Environmental/Recreational Benefits – uncertain, probably moderate because of location on forest.
    h) Reversibility – not expected to be an issue

i) Economic stimulus – limited to the few beneficiaries and to local economy during construction. Possible recreational benefits. Single-purpose reservoir. Will require mitigation of cultural sites.
j) Source – ARIX Report (5)

18. South Cottonwood Reservoir
    a) Purpose – late season irrigation to existing lands. Located in 12-32-115.
    b) Priority – 2
    c) Water Availability – 6,000 - 9,400 AF/Yr storable (on-channel).
    d) Cost Effectiveness – 3rd-best ranked among those in ARIX report.
    e) Beneficiaries – Located on USFS; moderate number of beneficiaries. Acres served are unstated.
    f) Legal/Institutional Concerns – Public land reduces ownership conflicts but raises federal role.
    g) Environmental/Recreational Benefits – uncertain, probably moderate because of location on forest.
    h) Reversibility – not expected to be an issue
    i) Economic stimulus – limited to the few beneficiaries and to local economy during construction. Possible recreational benefits. Single-purpose reservoir.
    j) Source – ARIX Report (5)

19. Warren Bridge Site
    a) Purpose – late season irrigation to existing lands on mainstem and Cottonwood Creek and Horse Creek as well as North/Middle/South Piney Creeks. Some new lands could also be irrigated. Located in 4-35-111.
    b) Priority – 2, 3.
    c) Water Availability – Availability of water from Green River proper. Could be used in conjunction with enlargement of existing Green River Supply Canal.
    d) Cost Effectiveness – unknown.
    e) Beneficiaries – Irrigators on Main stem/Cottonwood/Horse/North/Middle/South Piney Creeks.
    f) Legal/Institutional Concerns – Difficult permitting on the main stem of the Green River.
    g) Environmental/Recreational Benefits – Storage on Green River proper will affect an Instream Flow permit that is already issued. Will inundate quality trout stream habitat.
    h) Reversibility – not expected to be an issue.
    i) Economic stimulus – Increased yields from agricultural lands; few other stimuli.
    j) Source – WWPP (4)

20. Cottonwood No. 1
    a) Purpose – Irrigation (Cottonwood).
    b) Priority – 2
    c) Water Availability – 1,465 (Storage Capacity)
    d) Cost Effectiveness – (13.7 relative index = cost/storage capacity)
    e) Beneficiaries – South Cottonwood Creek Irrigation area (Cottonwood) 16-32-115
    f) Legal/Institutional Concerns – Located on USFS; permitting will be difficult. Instream Flow application segment would be affected.
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – uncertain
    j) Source – (3-1938)

21. Fogarty Creek
    a) Purpose – Supplemental irrigation supply
    b) Priority – 2
    c) Water Availability – No model results available for this tributary. Storage capacity is very low at < 1,000 AF.
    d) Cost Effectiveness – Study shows highest cost of $103 per AF of storage.
    e) Beneficiaries – Irrigators along Fogarty and Dry Piney Creeks (minimal acres).
    f) Legal/Institutional Concerns – Located on private and BLM land. Not affected by instream flow segments. Typical permitting issues.
    g) Environmental/Recreational Benefits – some environmental benefits of stored water and late season flows; low recreational benefit.
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – low.
    j) Source – 7 (1978)

22. Horse Creek
    a) Purpose – Supplemental irrigation supply
    b) Priority – 2
    c) Water Availability – Model shows 24,000 AF dry year physically available for total storage capacity of 11,400 AF; storage is well above available flow point.
    d) Cost Effectiveness – Study shows relatively high cost per AF of storage, but less costly than Beaver Creeks at $35/AF.
    e) Beneficiaries – Irrigators along Horse Creeks.
    f) Legal/Institutional Concerns – Located on USFS land. No instream flow segments. Difficult permitting issues because of forest.
    g) Environmental/Recreational Benefits – some environmental benefits of stored water and late season flows; moderate recreational benefit.
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – low to moderate.

j) Source – 7 (1978)

23. La Barge Reservoir
    a) Purpose – Irrigation (La Barge Creek).
    b) Priority – 2, 3
    c) Water Availability – 4,029 (Storage Capacity in absence of LaBarge Meadows #39)
    d) Cost Effectiveness – (4.1 relative index = cost/storage capacity)
    e) Beneficiaries – LaBarge Creek Irrigation area 12-29-116 (legal location from report appears to be in error; description is actually in South Piney Cr. Drainage).
    f) Legal/Institutional Concerns – Location on USFS would make permitting difficult. Instream Flow application segment would be affected.
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – uncertain
    j) Source – (3-1938)

24. Middle Beaver Creeks
    a) Purpose – Supplemental irrigation supply
    b) Priority – 2
    c) Water Availability – Model shows 7,000 AF dry year physically available for total storage capacity of 3,490 AF.
    d) Cost Effectiveness – Study shows relatively high cost of $49.55per AF of storage.
    e) Beneficiaries – Irrigators along Beaver Creeks.
    f) Legal/Institutional Concerns – Located on private land. No instream flow segments. Typical permitting issues.
    g) Environmental/Recreational Benefits – some environmental benefits of stored water and late season flows; moderate recreational benefit.
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – low.
    j) Source – 7 (1978)

25. North Cottonwood Creeks
    a) Purpose – Supplemental irrigation supply
    b) Priority – 2
    c) Water Availability – Model shows 15,000 AF dry year physically available for total storage capacity of 6,270 AF.
    d) Cost Effectiveness – Study shows high cost of $68.20 per AF of storage.
    e) Beneficiaries – Irrigators along Cottonwood Creeks.

f) Legal/Institutional Concerns – Located on USFS land. Both affected by instream flow segments. Difficult permitting issues because of forest.
g) Environmental/Recreational Benefits – some environmental benefits of stored water and late season flows; detriment to ISF filing; moderate recreational benefit.
h) Reversibility – not expected to be a concern
i) Economic Stimulus – low to moderate.
j) Source – 7 (1978)

26. South Beaver Creek
k) Purpose – Supplemental irrigation supply
l) Priority – 2
m) Water Availability – Model shows 7,000 AF dry year physically available for total storage capacity of 3,490 AF.
n) Cost Effectiveness – Study shows relatively high cost of $49.55per AF of storage.
o) Beneficiaries – Irrigators along Beaver Creeks.
p) Legal/Institutional Concerns – Located on private land. No instream flow segments. Typical permitting issues.
q) Environmental/Recreational Benefits – some environmental benefits of stored water and late season flows; moderate recreational benefit.
r) Reversibility – not expected to be a concern
s) Economic Stimulus – low.
t) Source – 7 (1978)

27. South Cottonwood Creeks
k) Purpose – Supplemental irrigation supply
l) Priority – 2
m) Water Availability – Model shows 15,000 AF dry year physically available for total storage capacity of 6,270 AF.
n) Cost Effectiveness – Study shows high cost of $68.20 per AF of storage.
o) Beneficiaries – Irrigators along Cottonwood Creeks.
p) Legal/Institutional Concerns – Located on USFS land. Both affected by instream flow segments. Difficult permitting issues because of forest.
q) Environmental/Recreational Benefits – some environmental benefits of stored water and late season flows; detriment to ISF filing; moderate recreational benefit.
r) Reversibility – not expected to be a concern
s) Economic Stimulus – low to moderate.
t) Source – 7 (1978)

28. South Horse Creek
k) Purpose – Supplemental irrigation supply
l) Priority – 2

m) Water Availability – Model shows 24,000 AF dry year physically available for total storage capacity of 11,400 AF; storage is well above available flow point.
n) Cost Effectiveness – Study shows relatively high cost per AF of storage, but less costly than Beaver Creeks at $35/AF.
o) Beneficiaries – Irrigators along Horse Creeks.
p) Legal/Institutional Concerns – Located on USFS land. No instream flow segments. Difficult permitting issues because of forest.
q) Environmental/Recreational Benefits – some environmental benefits of stored water and late season flows; moderate recreational benefit.
r) Reversibility – not expected to be a concern
s) Economic Stimulus – low to moderate.
t) Source – 7 (1978)

29. Straight Creek
    a) Purpose – Supplemental irrigation supply
    b) Priority – 2
    c) Water Availability – Located in tributary to upper Middle Piney Creek. No modeling results available for this tributary.
    d) Cost Effectiveness – Study shows relatively high cost per AF of storage, but Straight Creek is not evaluated by itself.
    e) Beneficiaries – Irrigators along Middle Piney Creek.
    f) Legal/Institutional Concerns – Located on USFS land. Not affected by instream flow segments. Difficult permitting issues because of forest.
    g) Environmental/Recreational Benefits – some environmental benefits of stored water and late season flows; moderate recreational benefit.
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – low.
    j) Source – 7 (1978)

New Fork

30. East Fork
    a) Purpose – Irrigation (New Fork).
    b) Priority – 2, 3
    c) Water Availability – 2,100 (Storage Capacity)
    d) Cost Effectiveness – (12.4 relative index = cost/storage capacity)
    e) Beneficiaries – East Fork River Irrigation area (New Fork) 10-31-106
    f) Legal/Institutional Concerns – uncertain, located on State/BLM land.
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – uncertain
    j) Source – (3-1938)

31. East Fork #1
    a) Purpose – Irrigation (New Fork).
    b) Priority – 2
    c) Water Availability – 4,734 (Storage Capacity)
    d) Cost Effectiveness – (16.9 relative index = cost/storage capacity)
    e) Beneficiaries – East Fork River Irrigation area (New Fork) 24-32-105
    f) Legal/Institutional Concerns – High on USFS near Wilderness boundary.
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – uncertain
    j) Source – (3-1938)

32. East Fork Gorge
    a) Purpose – late season irrigation to existing lands on East Fork and below. Located in 4-31-105. Not formally studied in previously published reports.
    b) Priority – 2
    c) Water Availability – <83,000 AF/Yr in a dry year for location.
    d) Cost Effectiveness – unknown.
    e) Beneficiaries – Irrigators on East Fork and possibly New Fork.
    f) Legal/Institutional Concerns – Dam would be on federal (BLM) lands, and reservoir could reach up onto USFS land.
    g) Environmental/Recreational Benefits – Moderate. Reservoir and tailwater fishery must be measured against loss of stream and riparian areas.
    h) Reversibility – not expected to be an issue.
    i) Economic stimulus – Increased yields from agricultural lands; few other stimuli.
    j) Source – Loren Smith, SEO

33. East Side Project
    a) Purpose – Irrigation. Could develop new lands between the East Fork of the New Fork River and Big Sandy River. The project would probably require enlargements to Fremont and Boulder Lakes.
    b) Priority – 3
    c) Water Availability – Depending on the reservoirs included , this project could develop water for irrigation of 22,000 new acres, supplemental supply for 11,000 acres, and transbasin deliveries.
    d) Cost Effectiveness – unknown; was under study by USBR
    e) Beneficiaries – Irrigators along the East Fork and upper Big Sandy drainages.
    f) Legal/Institutional Concerns – Some components located on USFS land; permitting would be difficult. Enlargement of Fremont has already occurred; additional enlargement unlikely in the short term.
    g) Environmental/Recreational Benefits – uncertain

h) Reversibility – not expected to be a concern.
i) Economic Stimulus – uncertain
j) Source – 4 (1970)

34. Burnt Lake Reservoir
    a.) Purpose – late season irrigation to existing lands
    b.) Priority – 2
    c) Water Availability – Located on Fall Creek, tributary of the New Fork River. Availability study shows sufficient water to operate a 15,570 AF reservoir.
    d) Cost Effectiveness – apparently favorable according to USDA report.
    e) Beneficiaries – Located on federal (USFS) lands; primary beneficiary is irrigation with fish and wildlife (recreation and environmental uses) also served. 1,800 acres served. Does not allay agricultural shortages elsewhere in the basin.
    f) Legal/Institutional Concerns – Public land reduces ownership conflicts but raises federal role. Difficult permitting because of USFS land.
    g) Environmental/Recreational Benefits –Probably moderate if flatwater habitat and minimum flows could be created.
    h) Reversibility – not expected to be an issue.
    i) Economic stimulus – Possible recreational benefits. Single-purpose reservoir.
    j) Source – USDA Report (7)

35. Halfmoon Lake Enlargement
    a) Purpose – Irrigation (New Fork).
    b) Priority – 2
    c) Water Availability – 95,000 (Storage Capacity)
    d) Cost Effectiveness – (2.2 relative index = cost/storage capacity)
    e) Beneficiaries – Pole Creek Irrigation area (New Fork) 15-34-108
    f) Legal/Institutional Concerns – Difficult permitting because of proximity to and effect on USFS property.
    g) Environmental/Recreational Benefits – Reservoir and tailwater fishery must be measured against loss of stream and riparian areas.
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – uncertain
    j) Source – (3-1938)

36. New Fork Reservoir (New Fork Narrows)
    a) Purpose – Industrial, municipal and irrigation via canal to areas of projected industrial growth. Located in 14-30-110.
    b) Priority – 3
    c) Water Availability – 316,000 AF/Yr (storable flow).
    d) Cost Effectiveness – $600/AF annual yield; Annual operation is $990,000-$1,560,000 depending on route.

e) Beneficiaries – Point of Rocks area, Baggs Junction area (Great Divide Basin)
f) Legal/Institutional Concerns – blocks some wildlife migration routes. Permitting on mainstem New Fork River would be difficult; may see private ownership opposition to construction of the project.
g) Environmental/Recreational Benefits – fishing and water sports. Eliminates 20-mile stretch of river for floating and fishing, blocks some wildlife migration routes.
h) Reversibility – ?
i) Economic Stimulus – Industrial growth in benefited areas.
j) Source – USBR (9-1972)

37. Reservoir on Spring and Silver Creeks
a) Purpose – late season irrigation to existing lands. Located in 11-32-107.
b) Priority – 2
c) Water Availability – Located on Silver Creek, tributary of the East Fork of the New Fork River. Availability study shows sufficient water to operate a 17,740 AF reservoir.
d) Cost Effectiveness – apparently favorable according to USDA report.
e) Beneficiaries – Located on private lands; primary beneficiary is irrigation with fish and wildlife (recreation and environmental uses) also served. 2,200 acres served. Does not allay agricultural shortages elsewhere in the basin.
f) Legal/Institutional Concerns – Private land reduces permitting difficulties.
g) Environmental/Recreational Benefits – Probably moderate if flatwater habitat and minimum flows could be created.
h) Reversibility – not expected to be an issue.
i) Economic stimulus – Possible recreational benefits. Single-purpose reservoir.
j) Source – USDA Report (7)

38. Dad's Lake
a) Purpose – Irrigation (New Fork).
b) Priority – 3
c) Water Availability – 741 (Storage Capacity)
d) Cost Effectiveness – (7.4 relative index = cost/storage capacity)
e) Beneficiaries – Dad's Creek Irrigation area (New Fork) 18-32-104
f) Legal/Institutional Concerns – **Fatal flaw – on Wilderness**
g) Environmental/Recreational Benefits – uncertain
h) Reversibility – not expected to be a concern
i) Economic Stimulus – uncertain
j) Source – (3-1938)

40. Feltner
    a) Purpose – Irrigation (New Fork).
    b) Priority – 2
    c) Water Availability – 1,280 (Storage Capacity) (Marginal small size)
    d) Cost Effectiveness – (0.5 relative index = cost/storage capacity)
    e) Beneficiaries – Pole Creek Irrigation area (New Fork) 12-34-108
    f) Legal/Institutional Concerns – uncertain
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – uncertain
    j) Source – (3-1938)

41. Mack No. 1
    a) Purpose – Irrigation (New Fork).
    b) Priority – 3
    c) Water Availability – 766 (Storage Capacity) (Too Small – remove from consideration)
    d) Cost Effectiveness – (5.9 relative index = cost/storage capacity)
    e) Beneficiaries – Skeleton Draw Irrigation area (New Fork) 5-30-108
    f) Legal/Institutional Concerns – uncertain – on BLM (prairie)
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – uncertain
    j) Source – (3-1938)

42. Marm's Lake
    a) Purpose – Irrigation (New Fork).
    b) Priority – 2, 3
    c) Water Availability – 562 (Storage Capacity)
    d) Cost Effectiveness – (7.1 relative index = cost/storage capacity)
    e) Beneficiaries – Dad's Creek Irrigation area (New Fork) 7-32-104
    f) Legal/Institutional Concerns – On Wilderness **(Fatal Flaw)**
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – uncertain
    j) Source – (3-1938)

43. New Fork Lakes Enlargement
    a) Purpose – Irrigation (Main stem New Fork River).
    b) Priority – 2, 3
    c) Water Availability – Model shows dry year physical availability of 57,000 AF, enlargement is for 46,000 AF (20,340 AF of which has already been built).
    d) Cost Effectiveness – uncertain, probably cost effective for construction only because it is an enlargement of a morainal lake.

e) Beneficiaries – Irrigators along main stem New Fork River; some recreation benefits
f) Legal/Institutional Concerns – Could possibly affect wilderness boundary, and location on USFS land would make it very difficult to obtain permits. Likely strong public opposition.
g) Environmental/Recreational Benefits – recreational benefits due to larger flat water recreation area and environmental benefits due to more stable flows below the dam (maintenance flows). Loss of riparian habitat within the enlarged reservoir high water line that extends upstream to near wilderness boundary.
h) Reversibility – not expected to be a concern
i) Economic Stimulus – recreation expenditures, improved farm economies due to increased water supply.
j) Source – 3 (1938)

44. Pyramid
a) Purpose – Irrigation (New Fork).
b) Priority – 3
c) Water Availability – 638 (Storage Capacity)
d) Cost Effectiveness – (4.7 relative index = cost/storage capacity)
e) Beneficiaries – Pyramid Creek Irrigation area (New Fork) 17-33-104
f) Legal/Institutional Concerns – Just below continental divide in Wilderness – **Fatal Flaw**
g) Environmental/Recreational Benefits – uncertain
h) Reversibility – not expected to be a concern
i) Economic Stimulus – uncertain
j) Source – (3-1938)

Big Sandy

45. Sanders Ranch (Leckie Ranch) Reservoir
a.) Purpose – late season irrigation to existing lands as part of the previously proposed Eden Improvement and East Side projects. Also a component of some plans for transbasin diversion to the North Platte River. Located in 17-30-104.
b) Priority – 2, 3, 4
c) Water Availability – Located on upper Big Sandy River. Availability of water not expected to be an issue, but capacity not provided.
d) Cost Effectiveness – unknown.
e) Beneficiaries – Eden Valley Irrigation and Drainage District and irrigators in East Side project.
f) Legal/Institutional Concerns – Located on private, state, and federal (BLM) lands. Would face typical permitting constraints. Larger issues if used in a transbasin diversion project.
g) Environmental/Recreational Benefits – Probably moderate if flatwater habitat and minimum flows could be created.

h) Reversibility – not expected to be an issue except for transbasin water, where reversibility of use could be challenged.
i) Economic stimulus – Possible recreational benefits. Single-purpose reservoir.
j) Source – WWPP (4)

45. Eden No. 2 (Sanders Ranch—Leckie Ranch Reservoir)
    a) Purpose – Irrigation (Big Sandy).
    b) Priority – 2
    c) Water Availability – 60,000 to 104,630 (Storage Capacity) (variable sizes studied)
    d) Cost Effectiveness – (2.3 relative index = cost/storage capacity)
    e) Beneficiaries – Big Sandy Creek Irrigation area (Big Sandy) 5-30-108
    f) Legal/Institutional Concerns – Located in vicinity of state, BLM and private lands. Large reservoir could encroach upon USFS land.
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – uncertain
    j) Source – (3-1938)

46. Eden Reservoir Rehabilitation
    a) Purpose – late season irrigation to existing lands. Need for rehab is discussed on USBR website (DataWeb).
    b) Priority – 1
    c) Water Availability – Located on Little Sandy River, tributary of the Big Sandy River. Availability of water not an issue.
    d) Cost Effectiveness – unknown but probably economical.
    e) Beneficiaries – Eden Valley Irrigation and Drainage District.
    f) Legal/Institutional Concerns – not expected to be an issue.
    g) Environmental/Recreational Benefits – not expected to be an issue because it is a rehabilitation project.
    h) Reversibility – not expected to be an issue.
    i) Economic stimulus – Single-purpose reservoir.
    j) Source – local district

47. Eden Valley Improvements
    a) Purpose – Irrigation (additional acres in the existing Eden Valley Project). Would develop up to 3,100 acres of new irrigation.
    b) Priority – 3
    c) Water Availability – Diversion from the East Fork and Sanders Ranch Reservoir would be required to provide water. Expected depletion is 10,000 AF.
    d) Cost Effectiveness – USBR studies indicate a benefit/cost ratio of 1.3:1.
    e) Beneficiaries – Eden Valley irrigators.

f) Legal/Institutional Concerns – No USFS land affected depending on size of Sanders Ranch HWL. Canal from East Fork would traverse private/BLM land. Permitting would be typical.
g) Environmental/Recreational Benefits – some wetland/riparian benefits to Big Sandy River above Farson/Eden, which would be measured against East Fork riverine losses due to diversions.
h) Reversibility – not expected to be a concern.
i) Economic Stimulus – Moderate due to crop variety that can be grown in Eden Valley.
j) Source – 4 (1970)

Black's Fork Sub-Basin

48. Meeks Cabin Dam enlargement
    a) Purpose – Irrigation (Black's Fork). Would provide additional late season water to areas currently served.
    b) Priority – 3
    c) Water Availability – unknown, but model indicates 23,000 AF available in a dry year for this sub-basin.
    d) Cost Effectiveness – unknown
    e) Beneficiaries – Black's Fork/Smith's Fork irrigation area.
    f) Legal/Institutional Concerns – located on USFS land; permitting would be difficult.
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not expected to be a concern.
    i) Economic Stimulus – uncertain
    j) Source – BAG comments

49. Stateline Dam Enlargement
    a) Purpose – Irrigation (Black's Fork/Smith's Fork). Would provide additional late season water to areas currently served.
    b) Priority – 3
    c) Water Availability – unknown, but model indicates 18,000 AF available in a dry year for this sub-basin.
    d) Cost Effectiveness – unknown
    e) Beneficiaries –Black's Fork/Smith's Fork irrigation area.
    f) Legal/Institutional Concerns – located in Utah.
    g) Environmental/Recreational Benefits – Would affect instream flow filing below current dam.
    h) Reversibility – not expected to be a concern.
    i) Economic Stimulus – uncertain
    j) Source – BAG comments

50. B.B
    a) Purpose – Irrigation (Black's Fork).
    b) Priority – 2
    c) Water Availability – 648 (Storage Capacity) **Too Small**

d) Cost Effectiveness – (6.8 relative index = cost/storage capacity)
e) Beneficiaries – Black's Fork Irrigation area 18-18-112
f) Legal/Institutional Concerns – uncertain
g) Environmental/Recreational Benefits – uncertain
h) Reversibility – not expected to be a concern
i) Economic Stimulus – uncertain
j) Source – (3-1938)

51. Deer Lake
    a) Purpose – Irrigation (Black's Fork).
    b) Priority – 2
    c) Water Availability – 1,004 (Storage Capacity) **Marginally Small**
    d) Cost Effectiveness – (8.2 relative index = cost/storage capacity)
    e) Beneficiaries – East Smith's Fork Creek Irrigation area (Black's Fork) 29-13-115
    f) Legal/Institutional Concerns – uncertain
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – uncertain
    j) Source – (3-1938)

52. Ham's Fork
    a) Purpose – Irrigation (Ham's Fork).
    b) Priority – 2, 3
    c) Water Availability – 215,475 (Storage Capacity)
    d) Cost Effectiveness – (4.5 relative index = cost/storage capacity)
    e) Beneficiaries – Ham's Fork Irrigation area (Ham's Fork) 12-21-116
    f) Legal/Institutional Concerns – Very close to and upstream of the Town of Kemmerer, will be an issue. Would affect private and BLM lands.
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – uncertain
    j) Source – (3-1938)

53. McWinn
    a) Purpose – Irrigation (Ham's Fork).
    b) Priority – 2, 3
    c) Water Availability – 800 (Storage Capacity) **Too Small**
    d) Cost Effectiveness – (2.3 relative index = cost/storage capacity)
    e) Beneficiaries – Hertley Hollow Creek Irrigation area (Ham's Fork) 8-29-116
    f) Legal/Institutional Concerns – uncertain
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – uncertain
    j) Source – (3-1938)

54. Uinta Canal No. 3
    a) Purpose – Irrigation (Black's Fork).
    b) Priority – 3
    c) Water Availability – 16,787 (Storage Capacity)
    d) Cost Effectiveness – (3.5 relative index = cost/storage capacity)
    e) Beneficiaries – Uinta Canal, Black's Fork Irrigation area 34-17-114
    f) Legal/Institutional Concerns – located on private land, below literally all currently irrigated lands.
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not expected to be a concern.
    i) Economic Stimulus – uncertain
    j) Source – (3-1938)

Little Snake River Basin

55. Big Gulch
    a) Purpose – Serve lands on Savery Creek, Little Snake River.
    b) Priority – 2
    c) Water Availability – 5,250/2,650 AF/Yr (yield)
    d) Cost Effectiveness – (14) Recommended by study: Minor sedimentation, insufficient to meet all needs of basin.
    e) Beneficiaries – Ag, recreation?
    f) Legal/Institutional Concerns – Majority on State, some private lands, small effect on BLM lands, minor wetlands, no fisheries, present construction of High Savery.
    g) Environmental/Recreational Benefits –
    h) Reversibility – not an issue.
    i) Economic Stimulus – uncertain
    j) Source – WWC (1)

56. Dutch Joe Creek
    a) Purpose – Serve First Mesa canal and lower Little Snake canal (Dolan Mesa with larger reservoir)
    b) Priority – 2
    c) Water Availability – 6,400/5,000 AF/Yr (yield) given supply ditch from Savery Creek
    d) Cost Effectiveness – (10) Recommended by study
    e) Beneficiaries – Primarily Ag
    f) Legal/Institutional Concerns – private and state lands
    g) Environmental/Recreational Benefits – No recreation pool incorporated
    h) Reversibility – not expected to be an issue.
    i) Economic Stimulus – uncertain
    j) Source – WWC (1)

57. Grieve Reservoir
    a) Purpose – Serve lands tributary to Little Snake River.
    b) Priority – 1 (enlargement and rehabilitation)
    c) Water Availability – 4,860 AF/Yr (yield)
    d) Cost Effectiveness – (22) Not recommended by study: minor sedimentation; limited beneficiaries; however, rehabilitation of this reservoir would re-establish pre-existing uses.
    e) Beneficiaries – permitted for 400 AF
    f) Legal/Institutional Concerns – BLM and private lands, enlarged reservoir inundates stretch of Battle Highway, as well as power and telephone lines, present construction of High Savery.
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not an issue.
    i) Economic Stimulus – uncertain; private ownership
    j) Source – WWC (1)

58. Lower Willow Creek
    a) Purpose – Directly serve West Side Ditch and lands along Little Snake
    b) Priority – 2
    c) Water Availability – 2,700 AF/Yr (yield)
    d) Cost Effectiveness – (9.5) Recommended by study: moderate sedimentation
    e) Beneficiaries – Ag (West Side Ditch, lands along Little Snake)
    f) Legal/Institutional Concerns – BLM, state and private lands, minor wetlands, extends minimally into Colorado.
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not an issue.
    i) Economic Stimulus – uncertain
    j) Source – WWC (1)

59. Pot Hook, CO
    a) Purpose – Lands along Little Snake River
    b) Priority – 2, 3
    c) Water Availability – 9,000/6,700 AF/Yr (yield)
    d) Cost Effectiveness – (57) Recommended by study: moderate sedimentation
    e) Beneficiaries – Ag
    f) Legal/Institutional Concerns – Colorado private lands (bottom), BLM lands (sides), extensive wetlands, probable fisheries.
    g) Environmental/Recreational Benefits – recreation pool included (2,500 AF)
    h) Reversibility – In Colorado?
    i) Economic Stimulus – uncertain/For Colorado?
    j) Source – WWC (1)

60. Upper Willow Creek
    k) Purpose – Directly serve West Side Ditch only
    l) Priority – 2, 3
    m) Water Availability – 1,500 AF/Yr (yield)
    n) Cost Effectiveness – (15) Recommended by study: low to moderate sedimentation
    o) Beneficiaries – Ag (West Side Ditch)
    p) Legal/Institutional Concerns – Colorado private lands, some BLM land impact, minor wetlands
    q) Environmental/Recreational Benefits – No recreation pool
    r) Reversibility – In Colorado?
    s) Economic Stimulus – uncertain/For Colorado?
    t) Source – WWC (1)

61. Cottonwood Creek
    a) Purpose – Directly serve First Mesa Canal
    b) Priority – 2 (Given need of First Mesa Canal)
    c) Water Availability – 1,300 AF/Yr (yield)
    d) Cost Effectiveness – (4.3) Not recommended by study: high sedimentation
    e) Beneficiaries – Ag (First Mesa Canal only)
    f) Legal/Institutional Concerns – entirely on private lands/wetland inundated.
    g) Environmental/Recreational Benefits – probably unfavorable
    h) Reversibility – not expected to be an issue.
    i) Economic Stimulus – Limited to First Mesa Canal use.
    j) Source – WWC (1)

62. East Willow Creek
    a) Purpose – Lands along Little Snake River
    b) Priority – 2
    c) Water Availability – 6,800 AF/Yr (yield)
    d) Cost Effectiveness – (7) Not recommended by study
    e) Beneficiaries – Ag
    f) Legal/Institutional Concerns – Colorado private, BLM lands.
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – In Colorado?
    i) Economic Stimulus – uncertain/For Colorado?
    j) Source – WWC (1)

63. Loco Creek
    a) Purpose – Serve canals along Savery Creek
    b) Priority – 2
    c) Water Availability – 1,500 AF/Yr (yield)
    d) Cost Effectiveness – (3.8) Not recommended by study: Construction materials scarce onsite, landslides.

e) Beneficiaries –
f) Legal/Institutional Concerns – BLM and private lands, inundates wetlands along the creek
g) Environmental/Recreational Benefits – negative impacts
h) Reversibility – not an issue.
i) Economic Stimulus – uncertain
j) Source – WWC (1)

64. Lower Battle Creek
    a) Purpose – Serve lands Little Snake River.
    b) Priority – 2
    c) Water Availability – 58,900 AF/Yr (yield)
    d) Cost Effectiveness – (7) Not recommended by study: low sedimentation, permeable foundation
    e) Beneficiaries – Ag
    f) Legal/Institutional Concerns – BLM, USFS, state and private lands, considerable wetlands, Class III fishery
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not an issue.
    i) Economic Stimulus – uncertain
    j) Source – WWC (1)

65. Middle Battle Creek
    a) Purpose – Serve lands Little Snake River.
    b) Priority – 2
    c) Water Availability – 58,900 AF/Yr (yield)
    d) Cost Effectiveness – (9.5) Not recommended by study: low sedimentation, permeable foundation (more favorable than Lower Battle Creek).
    e) Beneficiaries – Ag
    f) Legal/Institutional Concerns – USFS, state and private lands, wetlands along stream, Class III fishery
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not an issue.
    i) Economic Stimulus – uncertain
    j) Source – WWC (1)

66. Muddy Creek
    a) Purpose – Irrigation of Lower Little Snake
    b) Priority – 2 (or 3 given High Savery Construction)
    c) Water Availability – 21,800 AF/Yr (yield)
    d) Cost Effectiveness – (31) Not Recommended: Low Rank (poor), high sedimentation, poor foundation
    e) Beneficiaries – Limited, poor location
    f) Legal/Institutional Concerns – Road and major gas line relocation, bottom private, sides BLM ownership.

g) Environmental/Recreational Benefits - uncertain
h) Reversibility – not expected to be an issue.
i) Economic Stimulus – negative impacts high
j) Source – WWC (1)

67. Negro Creek
    a) Purpose – Serve canals along Savery Creek
    b) Priority – 2
    c) Water Availability – 500 AF/Yr (yield)
    d) Cost Effectiveness – (5) Not recommended by study: Moderate sedimentation
    e) Beneficiaries – Ag
    f) Legal/Institutional Concerns – BLM, state, and private lands, inundates wetlands along the creek
    g) Environmental/Recreational Benefits – negative impact on wetlands (non-fisheries)
    h) Reversibility – not an issue.
    i) Economic Stimulus – uncertain
    j) Source – WWC (1)

68. Old Upper Savery Creek
    a) Purpose – Serve nearly all canals on Savery Creek and Little Snake River below Savery Creek.
    b) Priority – 2
    c) Water Availability – 36,000 AF/Yr (yield)
    d) Cost Effectiveness – (8.5) Not recommended by study: Moderate sedimentation, poor foundation
    e) Beneficiaries – Ag
    f) Legal/Institutional Concerns – BLM, state, and private lands, extensive wetlands, Class III fishery, present construction of High Savery.
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not an issue.
    i) Economic Stimulus – uncertain
    j) Source – WWC (1)

69. Roaring Fork
    a) Purpose – Serve lands Little Snake River.
    b) Priority – 2
    c) Water Availability – 2,600 AF/Yr (yield)
    d) Cost Effectiveness – (5) Not recommended by study: low sedimentation
    e) Beneficiaries – Ag
    f) Legal/Institutional Concerns – USFS and private lands, wetlands, inundate existing private reservoir, Class III fishery
    g) Environmental/Recreational Benefits – uncertain

h) Reversibility – not an issue.
i) Economic Stimulus – uncertain
j) Source – WWC (1)

70. Sandstone Dam
    k) Purpose – Serve Savery Creek, Little Snake River canals
    l) Priority – 2
    m) Water Availability – 78,500 AF/Yr (yield)
    n) Cost Effectiveness – (22) Not recommended: Moderate sedimentation, landslides, rendered moot by High Savery.
    o) Beneficiaries – Ag
    p) Legal/Institutional Concerns – BLM, state, and private lands, minor wetlands, fishery, present construction of High Savery.
    q) Environmental/Recreational Benefits –
    r) Reversibility – Reservoir treed in areas, possible conflict with future plans
    s) Economic Stimulus – uncertain
    t) Source – WWC (1)

71. South Fork Little Snake River
    a) Purpose – Lands along Little Snake River
    b) Priority – 2
    c) Water Availability – 15,650 AF/Yr (yield)
    d) Cost Effectiveness – (17) Not recommended by study: moderate sedimentation, located well upstream of need.
    e) Beneficiaries – Ag
    f) Legal/Institutional Concerns – Colorado private, Three Forks Ranch.
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – In Colorado?
    i) Economic Stimulus – uncertain/For Colorado?
    j) Source – WWC (1)

72. Upper Battle Creek
    a) Purpose – Serve lands Little Snake River.
    b) Priority – 2
    c) Water Availability – 50,000 AF/Yr (yield)
    d) Cost Effectiveness – (8) Not recommended by study: low sedimentation.
    e) Beneficiaries – Ag
    f) Legal/Institutional Concerns – USFS lands, wetlands very extensive, Class III fishery
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not an issue.
    i) Economic Stimulus – uncertain
    j) Source – WWC (1)

73. Upper Slater Creek
    a) Purpose – Lands along Little Snake River
    b) Priority – 2
    c) Water Availability – 43,700 AF/Yr (yield)
    d) Cost Effectiveness – (8.5) Not recommended by study: moderate sedimentation (poor relative to Pot Hook)
    e) Beneficiaries – Ag
    f) Legal/Institutional Concerns – Colorado private, BLM lands, extensive wetlands.
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – In Colorado?
    i) Economic Stimulus – uncertain/For Colorado?
    j) Source – WWC (1)

Henry's Fork Sub-Basin

74. Big Basin Antelope
    a) Purpose – Irrigation (Henry's Fork).
    b) Priority – 3
    c) Water Availability – 107,680 (Storage Capacity)
    d) Cost Effectiveness – (4.2 relative index = cost/storage capacity)
    e) Beneficiaries – Henry's Fork Irrigation area T3N, R16E
    f) Legal/Institutional Concerns – Located in Utah. Very little information about site available.
    g) Environmental/Recreational Benefits – uncertain
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – uncertain
    j) Source – (3-1938)

Vermilion/Red Creek

75. Vermilion/Red Creek Basins
    a) Purpose – Supplemental irrigation supply
    b) Priority – 2
    c) Water Availability – Calculations show 6,600 AF normal year runoff (undepleted), shortage for 674 irrigated acres estimated at 287 AF.
    d) Cost Effectiveness – uncertain, probably low because of small storable flows and annual demand < 1000 AF. Candidate for several small holding reservoirs, possibly.
    e) Beneficiaries – Irrigators along main channels.
    f) Legal/Institutional Concerns – Not likely to face opposition; also not likely to show great benefits.
    g) Environmental/Recreational Benefits – some environmental benefits of stored water and late season flows; little recreational benefit.
    h) Reversibility – not expected to be a concern
    i) Economic Stimulus – low.

j) Source – BAG comments

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