

# RECLAMATION

*Managing Water in the West*

November 2, 2009

Dear Customer:

Attached are the monthly water supply outlook and projected reservoir and river operating plans as prepared on November 2, 2009. If you have any questions or concerns, please call me at (406) 247-7334.

Chuck Heinje  
Reservoir and River Operations



U. S. Department of the Interior  
Bureau of Reclamation  
Montana Area Office  
River and Reservoir Operations

## CLARK CANYON RESERVOIR OPERATIONS

### Water Supply Forecasts and Reservoir Operations November 1, 2009

Reservoir	Elevation	Storage (af)	% Average	% Full
Lima Reservoir:	6571.13	32,684	108	38
Clark Canyon Reservoir:	5540.55	146,619	117	84

#### Actual Inflows (1,000 Acre-Feet):

<u>Month</u>	<u>Inflow</u>	<u>Percent of Normal</u>
April-July, 2008	52.9	47
April-July, 2009	104.1	96
Water Year 2008	143.2	54
Water Year 2009	213.2	80
October	15.0	65
November	12.5	56
December	11.5	60
January	11.5	72
February	14.0	96
March	12.7	68
April	20.0	92
May	19.5	72
June	45.2	126
July	19.5	71
August	16.0	84
September	15.8	80
October	24.0	103

#### November 1 Forecast of November Inflow (1,000 Acre-Feet):

<u>Agency</u>	<u>Inflow</u>	<u>Percent of Normal</u>
USBR	18.8	94
NRCS	N.A.	N.A.
Corps	N.A.	N.A.
Average	18.8	94

**Clark Canyon Reservoir**  
**Based on Most Probable Inflow Forecast**

	2009	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Clark Canyon Reservoir		Initial Cont: 146.6 kaf			Minimum Cont: 10.0 kaf			Maximum Cont: 310.1 kaf						
		Elev: 5540.55 ft			Elev: 5489.22 ft			Elev: 5569.57 ft						
Hydrology	2009	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Monthly Inflow	kaf	18.8	15.2	12.8	11.6	18.9	20.5	21.4	32.4	24.7	18.2	18.9	20.2	233.6
Evaporation Loss	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
River Release	kaf	12.0	12.0	14.1	12.7	10.8	10.4	21.2	31.2	48.1	33.4	14.6	14.9	235.4
River Release	cfs	202	195	229	229	176	175	345	524	782	543	245	242	
Min Release	cfs	175	175	175	175	175	175	100	100	100	100	100	100	
Excess Release	kaf	1.6	1.2	3.3	3.0	0.0	0.0	0.0	0.0	8.8	8.8	8.6	8.8	
Gordon Spring Gain	kaf	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
End-Month Elevation	ft	5541.94	5542.59	5542.32	5542.10	5543.73	5545.72	5545.76	5545.99	5541.33	5538.14	5539.06	5540.17	
End-Month Content	kaf	153.4	156.6	155.3	154.2	162.3	172.4	172.6	173.8	150.4	135.2	139.5	144.8	
Net Change Content	kaf	6.8	3.2	-1.3	-1.1	8.1	10.1	0.2	1.2	-23.4	-15.2	4.3	5.3	-1.8
Diversions	2009	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
East Bench Demand	kaf							7.0	8.9	12.0	5.1	0.7		33.7
East Bench Req Rels	kaf							12.8	16.2	21.9	9.2	1.2		61.3
East Bench Div	kaf							12.8	16.2	21.9	9.2	1.2		61.3
East Bench Short	kaf													
CCWSC Tot Demand	kaf							13.8	20.5	25.3	22.1	4.3		86.0
CCWSC Req Rels	kaf							8.7	12.9	15.9	13.9	2.7		54.1
CCWSC Div	kaf							8.7	12.9	15.9	13.9	2.7		54.1
CCWSC Shortage	kaf													
Non-proj Demand	kaf							1.9	5.7	4.7	4.7	1.9		18.9

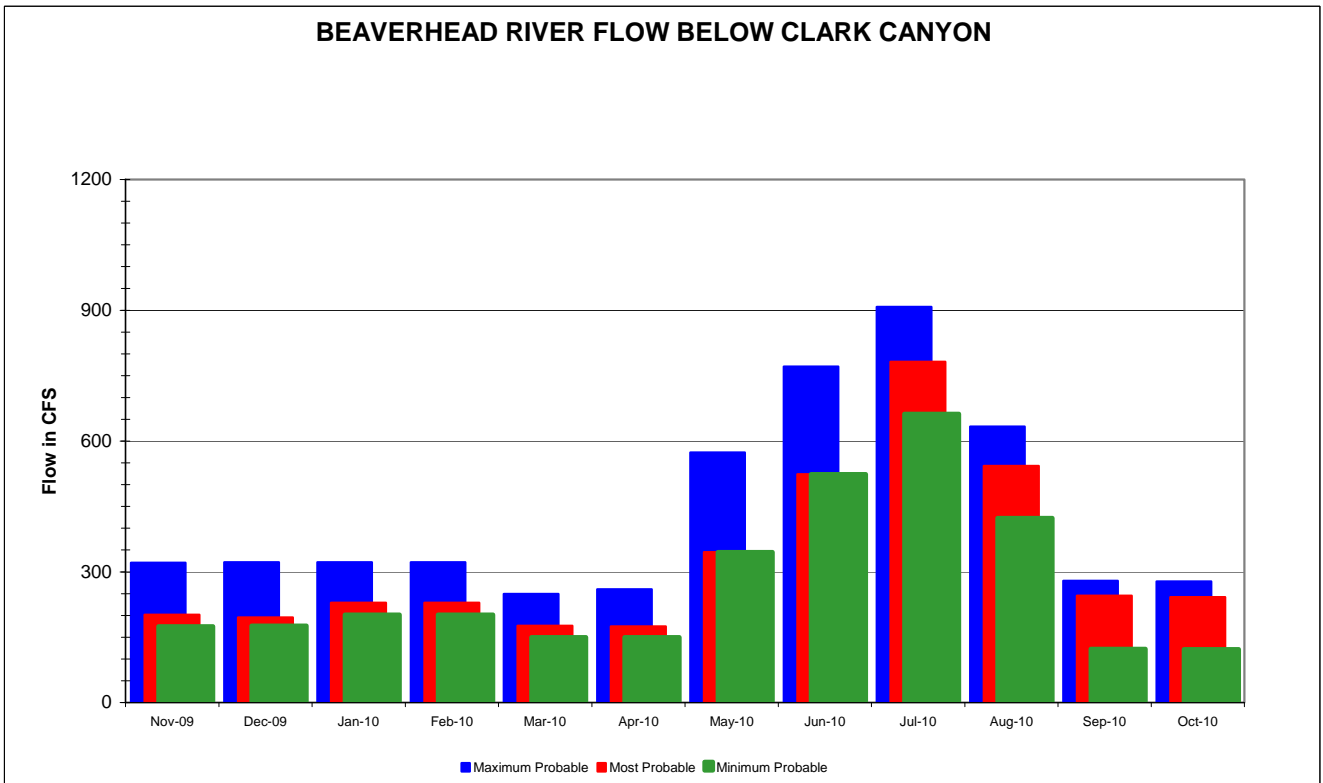
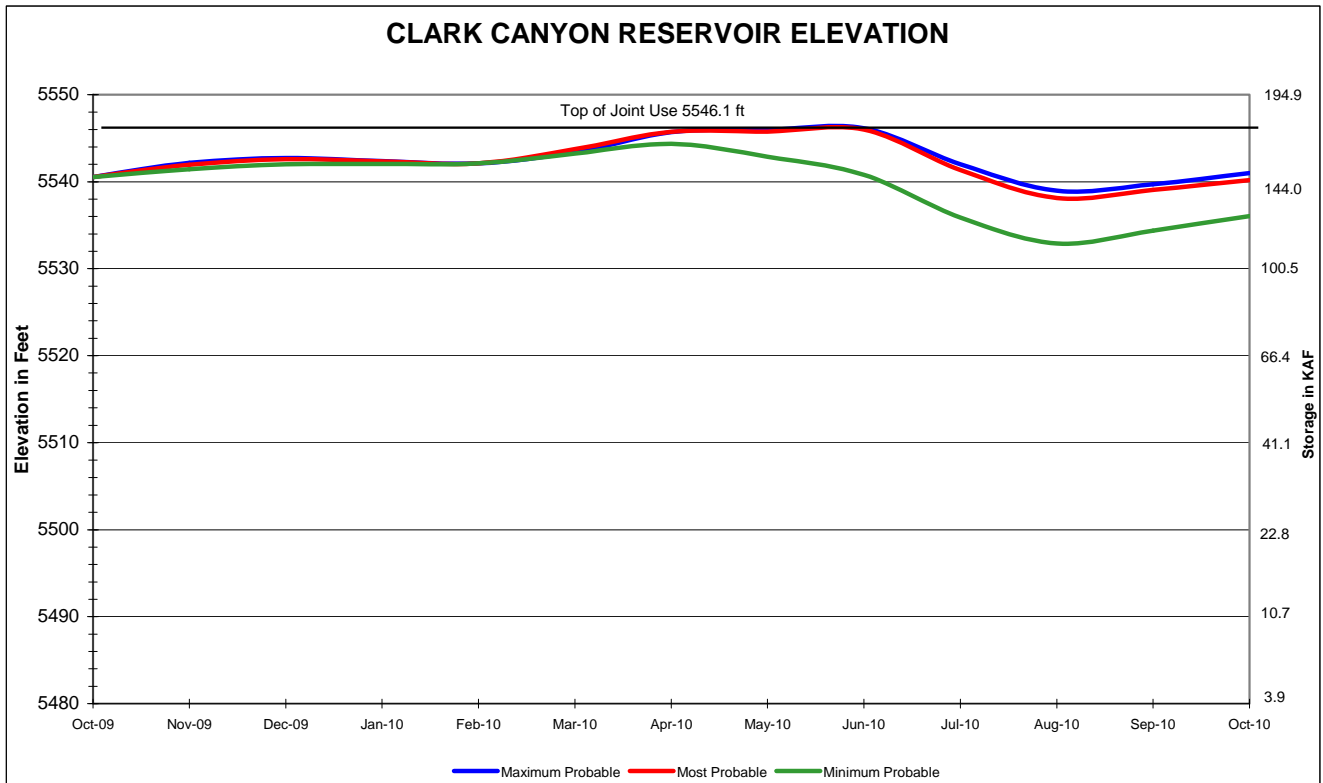
**Clark Canyon Reservoir**  
**Based on Min Probable Inflow Forecast**

	2009	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Clark Canyon Reservoir		Initial Cont: 146.6 kaf			Minimum Cont: 10.0 kaf			Maximum Cont: 310.1 kaf						
		Elev: 5540.55 ft			Elev: 5489.22 ft			Elev: 5569.57 ft						
Hydrology	2009	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Monthly Inflow	kaf	14.7	13.7	12.6	11.4	14.8	14.5	13.8	21.0	17.8	13.3	13.5	14.8	175.9
Evaporation Loss	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
River Release	kaf	10.4	10.8	12.4	11.2	9.2	8.9	21.2	31.2	40.7	26.0	7.3	7.5	196.8
River Release	cfs	175	176	202	202	150	150	345	524	662	423	123	122	
Min Release	cfs	175	175	175	175	150	150	100	100	100	100	100	100	
Excess Release	kaf	0.0	0.0	1.6	1.5	0.0	0.0	0.0	0.0	1.4	1.4	1.3	1.4	
Gordon Spring Gain	kaf	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
End-Month Elevation	ft	5541.43	5542.02	5542.06	5542.10	5543.23	5544.34	5542.87	5540.79	5535.87	5532.90	5534.37	5536.05	
End-Month Content	kaf	150.9	153.8	154.0	154.2	159.8	165.4	158.0	147.8	124.9	112.2	118.4	125.7	
Net Change Content	kaf	4.3	2.9	0.2	0.2	5.6	5.6	-7.4	-10.2	-22.9	-12.7	6.2	7.3	-20.9
Diversions	2009	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
East Bench Demand	kaf							7.0	8.9	12.0	5.1	0.7		33.7
East Bench Req Rels	kaf							12.8	16.2	21.9	9.2	1.2		61.3
East Bench Div	kaf							12.8	16.2	21.9	9.2	1.2		61.3
East Bench Short	kaf													
CCWSC Tot Demand	kaf							13.8	20.5	25.3	22.1	4.3		86.0
CCWSC Req Rels	kaf							8.7	12.9	15.9	13.9	2.7		54.1
CCWSC Div	kaf							8.7	12.9	15.9	13.9	2.7		54.1
CCWSC Shortage	kaf													
Non-proj Demand	kaf							1.9	5.7	4.7	4.7	1.9		18.9

**Clark Canyon Reservoir**  
**Based on Max Probable Inflow Forecast**

	2009	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Clark Canyon Reservoir		Initial Cont: 146.6 kaf			Minimum Cont: 10.0 kaf			Maximum Cont: 310.1 kaf						
		Elev: 5540.55 ft			Elev: 5489.22 ft			Elev: 5569.57 ft						
Hydrology	2009	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Monthly Inflow	kaf	27.1	22.5	18.1	16.5	21.7	27.2	36.6	47.0	34.8	24.2	20.1	23.3	319.1
Evaporation Loss	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
River Release	kaf	19.1	19.8	19.8	17.9	15.3	15.5	35.3	45.9	55.8	38.9	16.6	17.1	317.0
River Release	cfs	321	322	322	322	249	260	574	771	908	633	279	278	
Min Release	cfs	175	175	175	175	175	175	175	100	100	100	100	100	
Excess Release	kaf	8.7	9.0	9.0	8.2	4.5	5.1	10.9	10.5	11.0	11.0	10.6	11.0	
Gordon Spring Gain	kaf	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
End-Month Elevation	ft	5542.18	5542.73	5542.38	5542.10	5543.39	5545.70	5545.95	5546.16	5542.00	5538.96	5539.69	5540.98	
End-Month Content	kaf	154.6	157.3	155.6	154.2	160.6	172.3	173.6	174.7	153.7	139.0	142.5	148.7	
Net Change Content	kaf	8.0	2.7	-1.7	-1.4	6.4	11.7	1.3	1.1	-21.0	-14.7	3.5	6.2	2.1
Diversions	2009	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
East Bench Demand	kaf							8.1	10.2	13.8	5.8	0.8		38.7
East Bench Req Rels	kaf							14.7	18.6	25.1	10.5	1.4		70.3
East Bench Div	kaf							14.7	18.6	25.1	10.5	1.4		70.3
East Bench Short	kaf													
CCWSC Tot Demand	kaf							15.8	23.4	28.9	25.3	4.9		98.3
CCWSC Req Rels	kaf							10.0	14.7	18.2	15.9	3.1		61.9
CCWSC Div	kaf							10.0	14.7	18.2	15.9	3.1		61.9
CCWSC Shortage	kaf													
Non-proj Demand	kaf							1.9	5.7	4.7	4.7	1.9		18.9

# CLARK CANYON RESERVOIR



WATER YEAR 2010

# Snowpack above Clark Canyon

