

# RECLAMATION

*Managing Water in the West*

## Central Valley Project Friant Division and Millerton Lake Operations



U.S. Department of the Interior  
Bureau of Reclamation

# Reclamation Mission Statement

Is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.



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# Friant Division

- **Main river in the southern part of California's Central Valley; about 350 miles long**
- **Water is used for:**
  1. **Domestic**
  2. **Irrigation**
  3. **Fishery**
  4. **Recreation**



# Friant Division



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# Upper San Joaquin River Watershed



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# Upper San Joaquin River Watershed

- **The San Joaquin River drainage basin above Friant Dam consists:**
  1. **Approximately 1,638 square miles of mountains and foothills**
  2. **About 97 miles in length**
  3. **Range in elevation: 580 feet – 12,978 feet**
  4. **Characterized by cold, snowy winters, and dry summers**

# Upper San Joaquin River Watershed

- 5. **Precipitation varies from 43 inches in the headwaters areas to 14 inches at Friant Dam**
  - 1. **85% of precipitation occurs during November – April**
- 6. **Produces an average natural river runoff of:**
  - 1. **1.8 million acre-feet between Oct – Sept (Water Year)**
  - 2. **1.2 million acre-feet between April – July**
- **Snowmelt produces ~70% of the Annual Water Supply**



# Friant Division Water Contracts

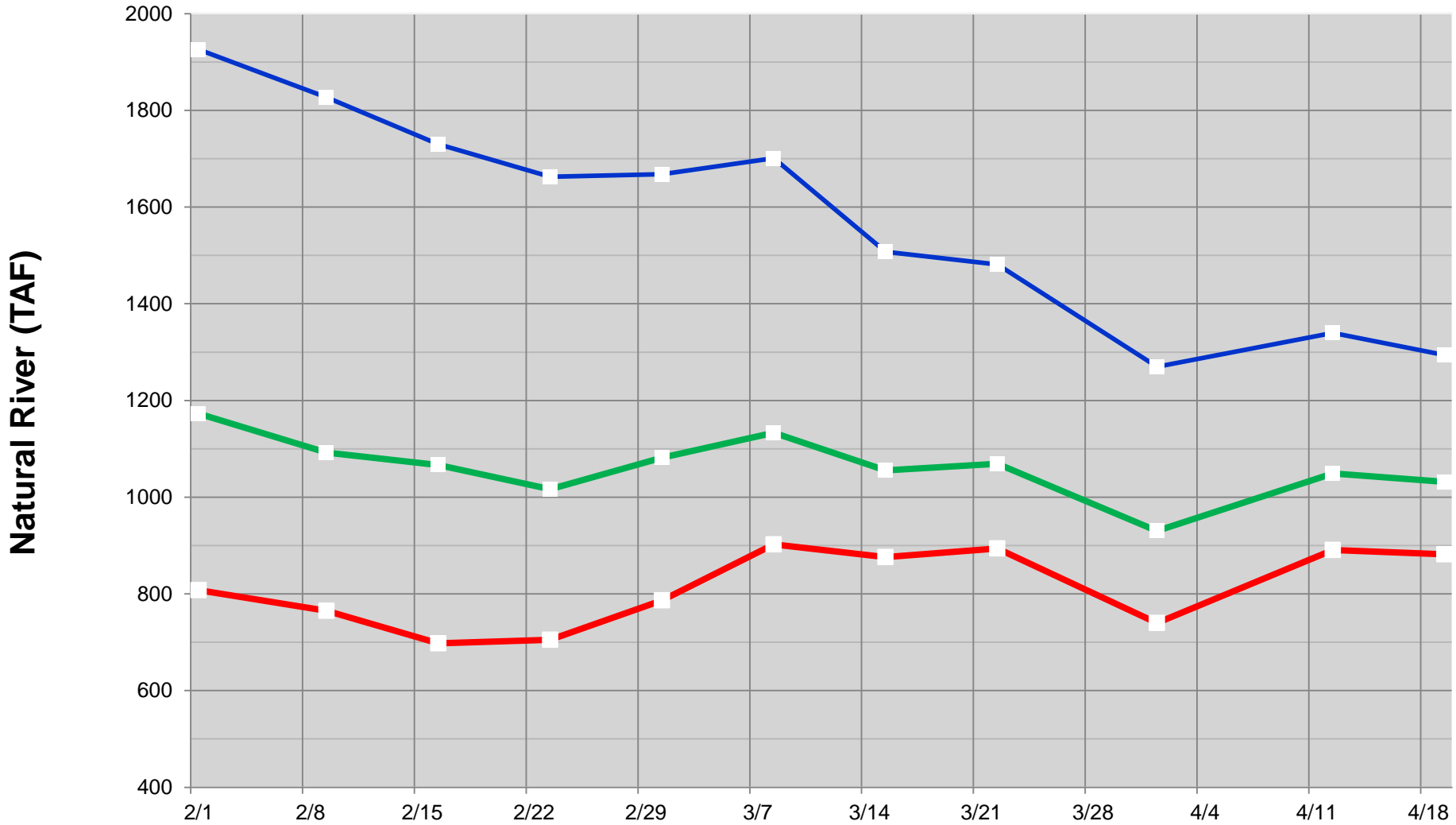
- **Exchange Contract**
- **Holding Contracts**
- **Friant Contractors Long-Term Contracts**

# Millerton Lake Operations

- **Department of Water Resources (DWR) Forecast**
- **National Weather Service (NWS) Forecast**
- **Water Contractual Obligations**
- **Delivery Schedules**
- **San Joaquin River Restoration Program**

# WY 2016 Millerton Lake April - July Natural River Forecast

— Avg 90% Exceedance    
 — Avg 50% Exceedance    
 — Avg 10% Exceedance



	2/1/2016	2/9/2016	2/16/2016	2/23/2016	3/1/2016	3/8/2016	3/15/2016	3/22/2016	4/1/2016	4/12/2016	4/19/2016
Avg 90% Exceedance	808	765	698	705	787	903	876	894	740	891	882
Avg 50% Exceedance	1173	1093	1067	1017	1082	1134	1056	1069	930	1049	1032
Avg 10% Exceedance	1926	1827	1730	1663	1668	1701	1508	1482	1270	1340	1294



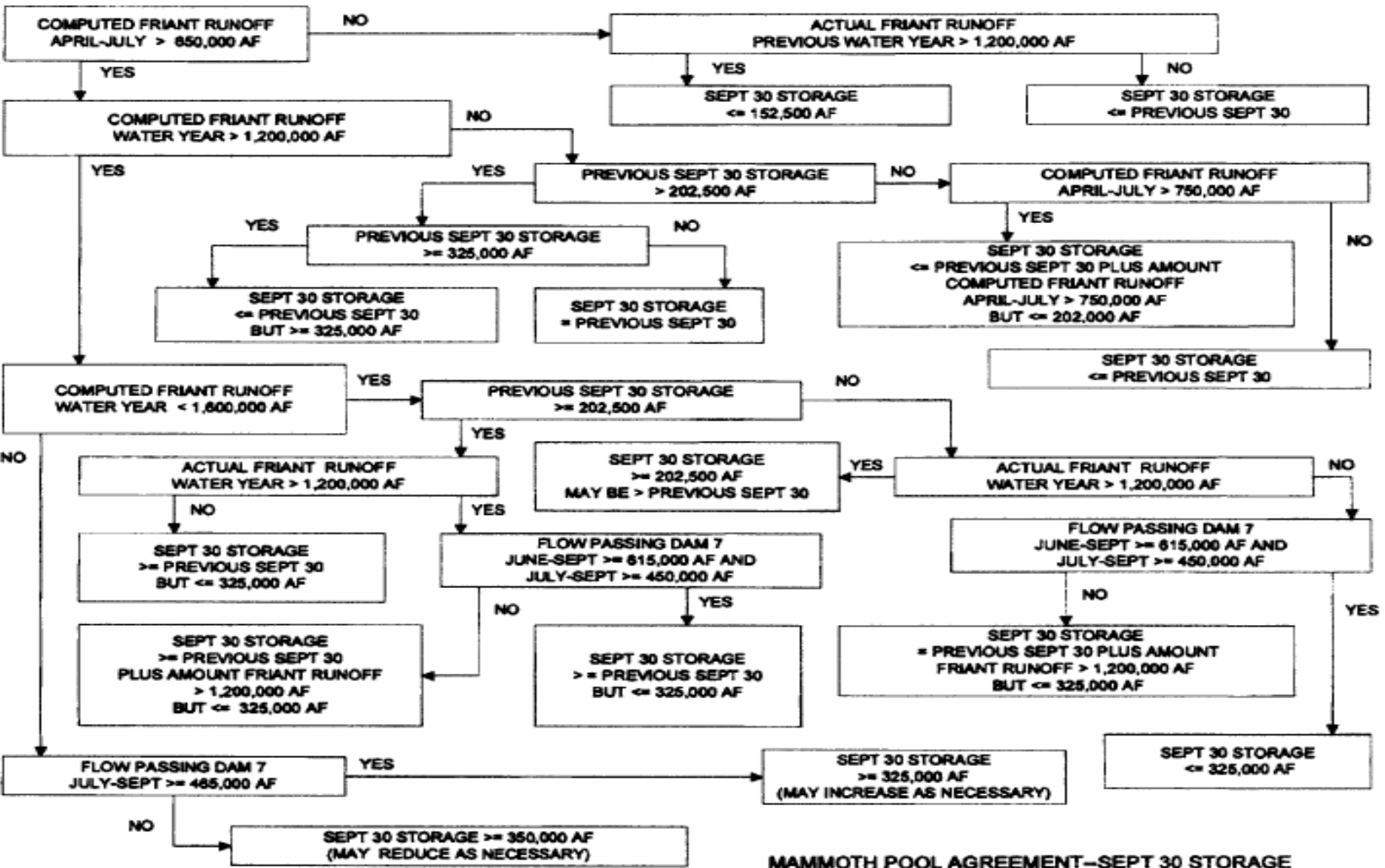
**90% EXCEEDANCE WATER SUPPLY FORECAST**  
**SOUTH-CENTRAL CALIFORNIA AREA OFFICE (CVP)**  
**FORECAST OF MILLERTON LAKE OPERATIONS**  
 Water Year Index  
 Normal Dry

**REPORT FOR APRIL CONTRACT YEAR 2016**

MONTHS	SAN JOAQUIN NATURAL RIVER RUNOFF <sup>(90%)</sup>	MILLERTON LAKE																														
		UPSTREAM OF MILLERTON LAKE <sup>(90%)</sup>			SAN JOAQUIN RIVER <sup>(90%)</sup>								MADERA CANAL <sup>(100% 10/15/14/15)</sup>								FRONT-KERN CANAL <sup>(100% 10/15/14/15)</sup>											
		SCE	PG&E	Change	Inflow	Riparian	Restoration Flows	Total SJR Release for Gravelly Ford Compliance	Flood Releases	Exchange Contractors Releases	Total SJR Releases	Class 1 Water	Class 2 Water	Carryover	Uncontrolled Season	Section 215	RWA	URF	Total MC Releases	Class 1 Water	Class 2 Water	Carryover	Uncontrolled Season	Section 215	RWA	URF	Total FKC Releases	Loss	Evap	Total Releases	Storage	
EOM FEB	R		188.4	30.8			1.8																									267.5
MARCH	E	184.0	212.0	32.9	25.7	158.4	7.8	5.1	12.9	0.0	0.0	12.9	2.9	0.0	0.0	8.0	0.0	0.0	10.9	15.3	0.0	13.5	19.8	0.0	0.0	0.0	48.6	7.1	0.9	72.4	345.5	
APRIL	E	242.0	319.1	37.7	111.9	130.1	13.5	7.1	20.6	0.0	0.0	20.6	3.7	0.0	0.0	16.7	0.0	0.0	7.9	28.3	31.6	0.0	13.7	55.5	0.0	0.0	27.6	128.4	5.5	1.4	177.3	291.4
MAY	E	345.5	426.5	44.0	113.7	231.8	13.4	0.0	13.4	0.0	78.9	92.2	1.6	0.0	0.0	0.0	0.0	10.5	12.0	22.8	0.0	0.0	0.0	0.0	0.0	38.0	60.8	5.5	2.1	165.1	350.5	
JUNE	E	227.5	477.8	43.2	50.5	177.0	15.3	2.2	17.5	0.0	53.1	70.7	37.7	0.0	0.0	0.0	0.0	1.0	38.7	59.2	0.0	0.0	0.0	0.0	0.0	31.0	90.2	8.9	2.6	199.6	316.5	
JULY	E	68.5	505.4	43.3	27.7	40.8	15.5	7.6	23.1	0.0	0.0	23.1	19.7	0.0	0.0	0.0	0.0	0.0	19.7	84.8	0.0	0.0	0.0	0.0	0.0	23.1	107.9	9.2	2.9	150.6	194.7	
AUGUST 15	E	16.8	479.9	40.8	-28.1	44.9	7.5	3.7	11.2	0.0	0.0	11.2	6.9	0.0	0.0	0.0	0.0	0.0	6.9	34.5	0.0	0.0	0.0	0.0	0.0	12.9	47.4	5.6	1.2	65.5	167.3	
AUGUST 31	E	9.5	454.3	38.2	-28.1	37.6	8.0	4.0	12.0	0.0	0.0	12.0	6.5	0.0	0.0	0.0	0.0	0.0	6.5	33.2	0.0	0.0	0.0	0.0	0.0	0.0	33.2	5.5	1.3	51.7	146.4	
SEPTEMBER	E	12.8	325.0	29.2	-138.3	151.1	11.9	8.3	20.2	0.0	0.0	20.2	0.0	0.0	0.0	0.0	0.0	0.0	33.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.9	5.1	1.8	54.1	236.6	
SUB-TOTALS		1106.7			135.0	971.7	92.9	38.1	131.0	0.0	132.0	263.0	78.9	0.0	0.0	24.7	0.0	0.0	19.3	123.0	315.2	0.0	27.2	75.3	0.0	0.0	132.7	550.4	52.3	14.1	936.3	
OCTOBER 15	E	4.1	297.5	26.0	-30.8	34.9	6.5	5.8	12.4	0.0	0.0	12.4	0.0	0.0	0.0	0.0	0.0	0.0	10.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	1.6	0.8	22.4	246.6	
OCTOBER 31	E	4.1	270.0	22.7	-30.8	34.9	6.5	6.2	12.7	0.0	0.0	12.7	0.0	0.0	0.0	0.0	0.0	0.0	10.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.7	1.6	0.8	23.4	255.7	
NOVEMBER	E	10.7	230.0	21.2	-41.5	52.2	10.6	20.3	30.9	0.0	0.0	30.9	0.0	0.0	0.0	0.0	0.0	0.0	10.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	1.6	1.0	41.0	264.3	
DECEMBER	E	14.6	210.0	21.5	-19.7	34.3	10.7	14.1	24.8	0.0	0.0	24.8	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	1.1	1.1	29.6	266.8	
JANUARY	E	19.2	224.4	23.9	16.7	2.4	9.0	15.4	24.3	0.0	0.0	24.3	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	1.1	0.8	27.3	240.0	
FEBRUARY	E	33.6	249.5	25.5	26.8	6.7	8.3	13.9	22.2	0.0	0.0	22.2	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	1.3	0.9	27.3	217.2	
SUB-TOTALS		86.2			-79.2	165.4	51.6	75.7	127.3	0.0	0.0	127.3	0.0	0.0	0.0	0.0	0.0	0.0	43.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.8	8.3	5.4	171.1		
TOTALS		1192.9			55.8	1137.1	144.5	113.8	258.3	0.0	132.0	390.3	78.9	0.0	0.0	24.7	0.0	0.0	19.3	123.0	359.0	0.0	27.2	75.3	0.0	0.0	132.7	594.2	60.6	19.5	1107.4	
CY 2017 Carryover	E						115.6					0.0		0.0				0.0		0.0		0.0			0.0							

FORECAST					NOTES/ASSUMPTIONS:
FORECAST	WATER YEAR RUNOFF	WATER YEAR PERCENT OF AVG RUNOFF	APRIL-JULY RUNOFF	APRIL-JULY PERCENT OF AVG RUNOFF	
10% EXCEEDANCE DWR/NWS	1,707	98%	1,255	105%	1 All Storage Values are End of Month
50% EXCEEDANCE DWR/NWS	1,460	84%	1,023	85%	2 E = Estimate, R = From Operational Records
90% EXCEEDANCE DWR/NWS	1,314	76%	884	74%	3 Units in Thousand Acre-Feet (TAF)
					4 2016 SJRRP Restoration Allocation & Default Flow Schedule dated April 14, 2016
					5 SCE EOM Storages Based on 50% Exceedance Water Plan dated April 18, 2016 (Revised)
					6 PG&E EOM Storages Based on 50% Exceedance Water Plan dated February 4, 2016 (Revised)
					7 Natural River from October 2015 - February 2016 (AF): 206,803
					8 DWR Weekly Bulletin 120 River Runoff Forecast dated April 21, 2016 and CNRFC ESP Water Year Forecast dated April 21, 2016
					9 Natural River 90% Exceedance Numbers (WY 1945 - WY 2015): October 2016 - February 2017
					10 Total Contractual Amount: Class 1: 800,000 AF; Class 2: 1,400,000 AF
					11 Canal Deliveries Based 50% Class 1 and 100,000 AF Uncontrolled Season (March 18 - April 30, 2016) Water Schedules
					12 2016 SJR Exchange Contractors Non-Critical Water Schedule dated March 18, 2016 (Revised)
					13 CY 2016 Carryover (AF): 27,167
					14 CY 2017 Carryover Estimate (AF): -
					15 CY 2013 Pre-Use (AF): 3,289



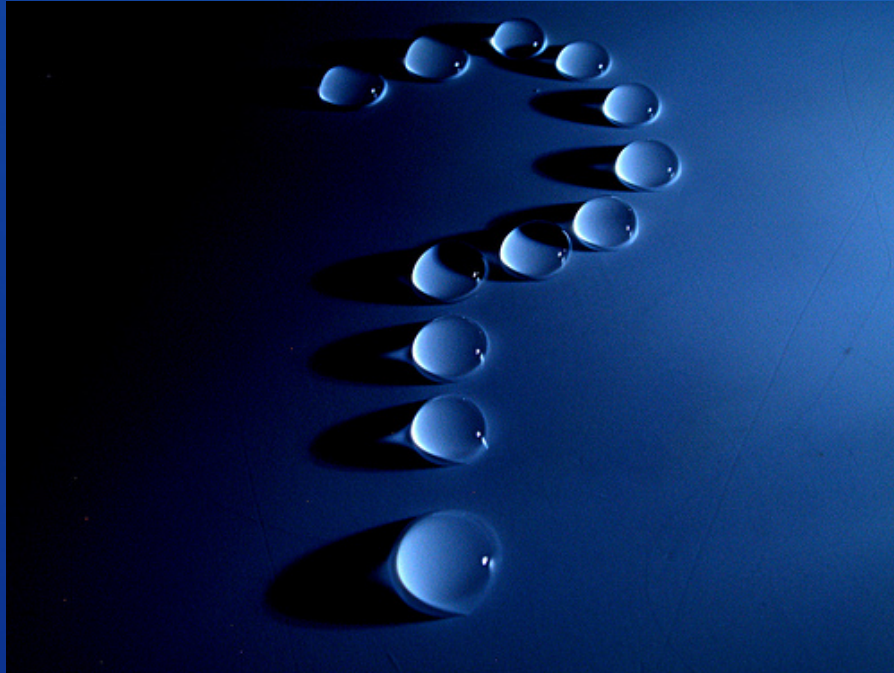


MAMMOTH POOL AGREEMENT-SEPT 30 STORAGE  
10/8/00

R W Robb Engineering

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# Questions?



## Thank You

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