

ARVIN-EDISON WATER STORAGE DISTRICT

REPORT OF DISTRICT OPERATIONS

May 2022



Pump Removal for Repairs (Balancing Reservoir)

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WATER SUPPLY

Friant Division Central Valley Project (CVP)

- The 2022 Water Year allocation is 15% which amounts to 6,000 AF.
- Exhibit “A” provides additional supply information for 2022 Water Year supplies.

San Joaquin River (SJR) Restoration Program (SJRRP)

- The 2022 Runoff Year is estimated at 1,169,000 AF of natural river runoff in the SJR watershed, which is a “Normal-Dry” year type pursuant to SJR settlement and accordingly, the SJRRP would receive a 245,528 AF of water supply.
- Given a “Normal-Dry” year type there is likely no Unreleased Restoration Flows or Recapture/Recirculation opportunity (no additional supplies).
- District’s RWA credit beginning balance is approximately 90,630 AF (subject to reconciliation and staff review). RWA credits allow the District to purchase water for \$10/AF during wet periods when RWA water is declared.

Shasta System CVP

- The 2022 allocation for south of Delta Ag remains at 0%.

State Water Project (SWP)

- The 2022 Table A allocation remains at 5%.

Kern River

- 2022 supplies are currently estimated at 25% of average.

Water Bank Facilities

- Given limited initial surface supply allocations, heavy reliance on wellfields and previously banked water is expected for the 2022 Water Year (93,700 AF).

Metropolitan Water District (MWD) Program

- MWD beginning balance is 119,127 AF in water bank reserves.
- The District obtained its twelfth consecutive year approval from the State Water Resources Control Board regarding a Petition for a Consolidated Place-of-Use (CPOU), which now expires on July 15, 2022.
- The CPOU petition includes the ability to exchange all types of Arvin-Edison supplies with MWD including unbalanced exchanges.
- The District’s 10-year NEPA documentation is complete and approved until March 21, 2024.
- District has begun communicating with MWD staff regarding 2022 call on the program for surface supplies.

Rosedale-Rio Bravo Water Storage District (RRBWSD) Program

- The District’s 2022 beginning account balance for water held in RRBWSD is at 54,461 AF.
- District anticipates receiving 10,000 AF from the program to supplement other surface water supplies
- Districts executed a “2022 Use of CVC/FKC Intertie Agreement” for the RRBWSD-Delano Earlimart banking program.

Kern Delta Water District (KDWD)

- Staff continues meeting with KDWD staff to advance water management opportunities including joint partnership in groundwater recharge facilities and interconnection facilities between Forrest Frick Pumping Plant Discharge Pipeline and the Eastside Canal.
- AEWS-DKWD-RRBWS executed a 2022 operational exchange in which AEWS's 10,000 acre-feet from RRBWS would be delivered via KDWD from April through September.

District Partnerships

- The District has participated in water management programs with the following districts/agencies in Water Year 2022:

Cawelo Water District	Lindmore Irrigation District
Chowchilla Water District	Lindsay-Strathmore Irrigation District
Del Puerto Water District	Orange Cove Irrigation District
Delano-Earlimart Irrigation District	Rosedale-Rio Bravo Water Storage District
Exeter Irrigation District	San Joaquin River Exchange Contractors
Fresno County	San Joaquin River Restoration Program
Ivanhoe Irrigation District	Stone Corral Irrigation District
Kern Delta Water District	Tea Pot Dome Water District
Kern Water Bank	

WATER DEMAND

- District surface water deliveries for the month were 14,2559 AF.
- The following is a summary of surface water deliveries for May 2022:

	May 2022		Year to Date	
	Historical	2022 WY	Historical	2022 WY
Turnout Deliveries	16,720	14,255	36,054	32,639
In-Lieu Deliveries	-	-	-	-
Temporary Water	-	-	-	-
Spreading	-	-	-	-
Total	16,720	14,255	36,054	32,639

- Exhibit "B" illustrates the delivery data
- The month's peak daily in-District demand was 389 cfs, which occurred on the 25th
- Exhibit "C-1" details Canal Water Quality information
- Exhibit "C-2" presents the Aquatic Pest Control Treatments (\$33,514) for Calendar Year 2022

GENERAL



Annual Employees Dinner held at Hungry Hunter (May 6, 2022)

- District vehicles consumed an estimated 5,012 gallons of fuel during the month (average fuel efficiency of 10.0 mpg)
- There were 221 hours lost due to illness (including COVID-19 hours) and 168 hours lost due to on-the-job injuries with one (1) employee out on Workers' Compensation Claim
- Exhibit "D" highlights precipitation, temperature, and wind speed
- Exhibit "E" summarizes energy consumption and power demand to date and for Water Year 2022 it is expected to generate an electrical demand of approximately 138 million kilowatt hours

ENGINEERING DEPARTMENT ACTIVITIES

Routine Activities

- Review and accounting of District's water supply and related contracts
- Administration or proposals of water management and wheeling agreements
- Groundwater level surveys and associated exhibits
- Water quality testing
- ArcGIS database updates and maintenance (facilities, water service areas, boundaries, etc.)
- Inspection/evaluation and/or repair of cathodic protection rectifiers and test stations
- CIMIS station management (<https://cimis.water.ca.gov/Stations.aspx>)
- Land use/crop surveys with data entry
- Monthly/annual reports regarding water deliveries, water use, and energy use

Grants & Funding Opportunity Updates

- District **was awarded** 2020 USBR WaterSMART grant application for the Forrest Frick Pipeline/Eastside Canal Intertie at \$500,000 (with a \$500,000 local cost share) and a grant contract was executed; the cultural portion for the NEPA Categorical Exclusion has been completed and executed.
- NRCS landowner incentive programs assist with implementing various conservation

activities, including but not limited to, irrigation system improvements, filtration needs, water/nutrient/pest management, and engine replacement:

- Phone (661) 336-0967
- Website (www.ca.nrcs.usda.gov)
- North West Kern Resource Conservation District provides discounted on-farm irrigation distribution uniformity and efficiency testing
 - Phone (661) 281-2746
 - Website (<http://northwestkernrcd.org>)

Other Activities

- Administration and accounting of on-going water management programs
- Technical support and review of ongoing projects/studies such as:
 - Sunset Groundwater Recharge Facility (w/Kern Delta WD)
 - Coordinating power extension (PG&E, contractors, consultants)
 - Pump station and pipeline design coordination
 - Forrest Frick and Eastside Canal Intertie (w/ Kern Delta WD)
 - Completed environmental compliance with USBR
 - Working with PG&E on facilities extension for new service
 - Draft O&M agreement pending approval
 - Finalizing plans to go out to bid
 - Potential Interconnections (w/ Wheeler Ridge-Maricopa WSD)
 - Coordination with both Districts' staff continued to deliver District water into the 850 Canal, which will ultimately be delivered back into AEWSD overlap lands with Wheeler-Ridge
 - Pump Replacement Program
 - Staff continues to make progress on phase 2 of the program
 - Turnout Modification Requests
 - Temporary and/or In-Lieu Water Service Contract Requests
 - Freedom Farms
 - Cathodic protection system upgrades
 - Pump Efficiency Testing
 - As needed for replaced pumps
 - Real Time Water Quality Monitoring
 - Remote connection for data access completed and website display is in progress
 - Intertie Pipeline Inspection
 - Coordinating potential use of pipeline diver tool with Xylem
 - Groundwater Metering
 - Coordinate warranty repairs with Manufacturer
 - 123 TCP Treatment Plant Facilities RFP
 - Standtank Painting
 - Reviewing received bids

SGMA Activities

- Continued coordination meetings and outreach activities
- Continued review of well permits and submitted comment letters to those within or near AEWSD
- Attended various GSA meetings
- Development of a potential Well Mitigation Policy

- Development of County's "Proof of Water" Policy
- Evaluate various Water Budget methodologies
- Development of a customized model for the Arvin Management Area (MODFLOW)
- Participated in the Multi-Benefit Land Repurposing Program Grant Interview for WWGSA
- Continued coordination efforts to complete SOKR GSP

Requests for Information/Easements/Planning Notices

- Water supply
- Water costs
- Historical groundwater levels
- Monitoring well conversions
- Water quality
- Land use data
- Easements and/or right-of-way encroachments
 - Shell Oil (Intake Canal)
 - Quad Knopf development (Intake Canal)
 - City of Bakersfield (Intake Canal)
 - Kern Delta Water District (Intake Canal)
- Reviewing/responding to multiple planning notices
 - Kern County (various developments/potential facility conflicts)
- Reviewed/responded to environmental documents, as necessary

Power Related Activities

- Assisted PWRPA consultants with
 - Power coordination and monitoring
 - PWRPA invoice and demand data changes
 - Monthly billing anomalies/meter reconciliations
 - Load forecast updates and rate analysis
 - Contract demand analysis
 - WDT 3 impact review
 - Power accounting report
 - Renewable Portfolio Standards review
- PG&E Power Safety Public Shutoff coordination
- Coordinated meter database changes with PG&E
- Reviewed long-term power management activities
 - Continued investigation of low head hydro potential (Intake Canal)
 - District Headquarters Solar construction coordination
 - Currently under construction and completion is anticipated by May 2022
 - Reviewed available local solar renewable energy certificates to Western Renewable Energy Generation Information System (credits to be used by District/PWRPA)
 - Review and coordinate Demand Response Program
 - MWD power correspondence review
 - District Power Master Planning and MicroGrid investigations
 - Forrest Frick Pumping Plant load capacity coordination
- Coordinate long term power analysis for Sunset GW Recharge Facility
- Calendar Year and Water Year power reconciliations and summaries
- Groundwater Service Program

- Monthly invoicing and program coordination

SPREADING WORKS OPERATIONS (WELLFIELDS AND BASINS)

- Exhibit “F” summarizes wellfield production, which totaled 12,397 AF for the month
- Exhibit “G” summarizes gross direct spreading of 79 AF for the month
- Exhibits “H-1” and “H-2” summarize current static and/or pumping water in table and graphic forms

Following is a summary of repairs associated with “active” District wells:

<u>Field</u>	<u>Well #</u>	<u>Year</u>	<u>HP</u>	<u>Reason</u>	<u>Work</u>
Sycamore	2	1967	300	Low Production and Excess Vibrations	Pulled equipment, replacement pump install to be scheduled
Sycamore	17*	1967	300	Low Production Excess Vibrations	Pulled and inspected equipment, replacement pump installed, startup scheduled
Sycamore	21	1970	300	Low Production	Pulled equipment, evaluating options
Tejon	77*	1966	300	Excess Vibrations	Pulled equipment, replacement pump installs to be scheduled
Tejon	78	1966	300	Low Production	Pulled and inspected equipment, pump install to be scheduled
Tejon	83	1970	300	Excess Vibrations	Pulled and inspected equipment, replacement pump installed, startup scheduled
Tejon	95	1998	300	Low Production and Excess Vibrations	Equipment pulled, video, replacement pump install to be scheduled

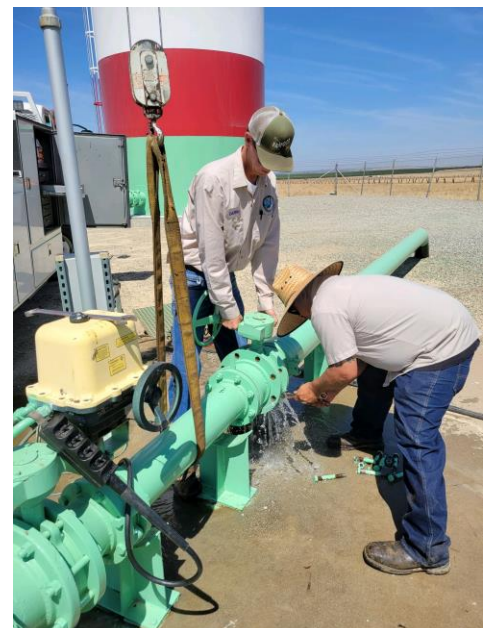
*Back in Service

- Seven (7) out of 86, or 8%, of District wells are currently out of service and consultants are reviewing repair options
 - Two (2) long-term failures in Sycamore 34 and Tejon 91
 - Five (5) see above table

OPERATIONS DEPARTMENT ACTIVITIES

Routine Activities

- Operate and monitor the District’s water distribution and delivery systems including canals, wells, and reservoirs
- Conducted monthly safety meetings



Valve Replacement (N1-P4)

- Inspected control systems at pumping plants (transducers, Cla-valves, battery back-ups, etc.)
- Assisted personnel in the repair, replacement, and/or maintenance of facilities on an as-needed basis for the following items:
 - Replaced flowmeter batteries (turnouts and wells)
 - Flushed and cleaned various turnouts and appurtenances
 - Greased turnout valve operators
 - Maintained weed control (pumping plants, turnouts, air vents, and isolation valves)
 - Changed lights and panel bulbs (as needed)
 - Inspected/replaced water quality warning labels at turnouts
 - Cleaned and/or replaced air-chamber sight glasses
 - Replaced missing locks and chains (canal gates and turnouts)
- Staff performed end-of-month meter readings at Interties, Wells, Turnouts, and Pumping Plants (power)

Additional Activities

- Continued wellfield operations
- Train personnel for water patrol during the prorated period
- Replace leaking air vents on discharge manifolds (Wellfields)
- Respond to standtank overflows (N55-P2, N1-S6, and S73-P3)
- Isolate and drain mainline for air vent damage (Lateral N55-A)
- Reset displaced isolation valve concrete rings (North and South side)
- Clear out turnout base isolation valves (North and South side)
- Responded to various Pumping Plant alarms (reset and primed laterals)
- Review and edit updated Facilities Guidebook
- Responded to reservoir blow out supplied by Turnouts C-20 and C-111
- Attended startup and test run for FFPP Unit #2
- Report on vandalism/wire theft at Balancing Reservoir (Well #15)
- Prorate water use patrol throughout North and South turnouts
- Monitor FFPP day and night security
- Located various buried isolation valves for marking (Underground Service Alert)



Recalibration of North Check Gate

Underground Service Alert (USA) Report

- District initiated 0
- Responded to 118 USA notices to locate District underground facilities
 - 23 required markings of District facilities
 - 37 were renewals
 - 58 with no conflicts

Power Outages and/or Interruptions Involving the Following Systems

- There were no power outages for the month

Laterals Prorates (number of days)

- , S38 (4), S64 (2), and S93 (4)

MAINTENANCE DEPARTMENT ACTIVITIES

Routine Activities

- Aquatic and terrestrial weed control (South Canal)
- Routine gardening and maintenance at Headquarters and CIMIS station
- Fence and gate repair (Intake Canal, and Balancing Reservoir,)
- Grading (Sycamore wash and Sycamore Ponds)
- Discing (Valos Road and Sycamore Spreading Works)
- Mowing (CIMAS Station, and Tejon Spreading Works)
- Cleared out forebays (North and South Canal)
- Assisted other Departments as needed (Operations and Pump Shop)
- Conducted monthly safety meeting



President Camp (L) Presenting Maintenance II Kevin McGill (R) with Twenty-five (25) Year Service Award

Additional Activities

- Installed new 10-inch turnout with new spool (C-19)
- Run water truck behind pre-emergent crew
- Haul dirt to well site #21 with dump truck and trailers to assist Pacific Irrigation on well repairs (Sycamore Spreading works)
- Remove live cow at FFPP
- Use Gopher machine smoke machine (North Ponds)
- Use personnel and equipment to remove homeless encampment and installed new fencing (Colony Street)
- Installed drywall and insulation (Tejon Motor Control building)
- Prepared and painted various facilities
 - Pumping plants (N24-P1, and N55-P7)
 - Turnouts (C-19 and C-111)

Mechanic's Shop Repair Activities

- Routine weekly inspection on the fuel tank, gas pumps, and generator
- Fleet repairs/replacement parts

Part	Repair/Replaced	Part	Repair/Replaced
Brakes	6	A/C Compressor	6
Tires	10	Headlights	1
Tire Repairs	5	Tail Lights	2
Rotors/Drums	2	Wiper Blades	6
Batteries	2	Cabin Filter	4
Fuel Filters	6	Trailer Lights	2

- Heavy Equipment Repairs
 - Repaired hydraulic ram (dump truck)
 - Repaired pony motor (Water Truck)
 - Replaced blades (rotary cutter)
 - Replaced gangs (disc)

PUMP DEPARTMENT ACTIVITIES

Routine Pump Maintenance Activities

- Replacing pump packing
- Pump bearing lubrication at various pumping plants
- Maintain drip oil on District Wells
- Inspection and maintenance of air compressors
- Inspection and/or adjustment of travelling water screens/moss screens

Additional Activities

- Continued working with Engineering Department on Pump Replacement Program
 - Continued pilot testing for Phase 2 (horizontal pumps)
- Coordinated with consultants on various well repairs
- Installed 10-inch swing, check valve at Tejon wells (#77 and #79) due to leakage
- Replaced bypass valve (N1-P4)
- Changed operator (Sycamore Well #10)

PUMP & MOTOR REPAIR SUMMARY

	<u>Pumping Plant/Wells</u>	<u>Unit</u>	<u>Size</u>	<u>Time/Hours</u>	<u>Reason</u>
<u>Vertical Pumps</u>	Balancing Reservoir	3	50 CFS	771	Suction Column Failure
<u>Vertical Motors</u>	None				
<u>Horizontal Pumps</u>	N55-P9	1	5 CFS	14,693	Damaged sleeves/bearings
<u>Horizontal Motors</u>	N1-P8	3	5000 HP	32,854	Burnt windings
	N1-P8	2	100 HP	16,752	Burnt windings

CONTROLS DEPARTMENT ACTIVITIES

Routine Activities

- SCADA/radio maintenance or troubleshooting
- Monthly and annual inventory
- Testing and repair/replacement of distribution system and well facility electrical components as needed



Installation of Batter Backup (Lateral 38)

Component	Replaced/Repaired	Component	Replaced/Repaired
Starter Contacts	1	Softstart	1
Battery Backups	3	Fuses	1
Hour Meters	1	Wiring	4
PLC's/Control Modules	3	Panel Wiring/Circuit Breaker	4

Additional Activities

- Programming for SCADA and radio system updates and monitored performance
- Worked with consultants on cybersecurity upgrades
- Worked with consultants to repair upstream canal water level sensor (North Canal Spreading Works)
- Worked with Consultants to trouble shoot the “loss of signal” alarms at N1 Lateral

FORREST FRICK PUMPING PLANT

- 2,456 AF of water was pumped during the month
- Consultants are designing reverse flow facilities into the Intake Canal to assist in regulating wellfield production during shoulder months to increase peaking water supplies

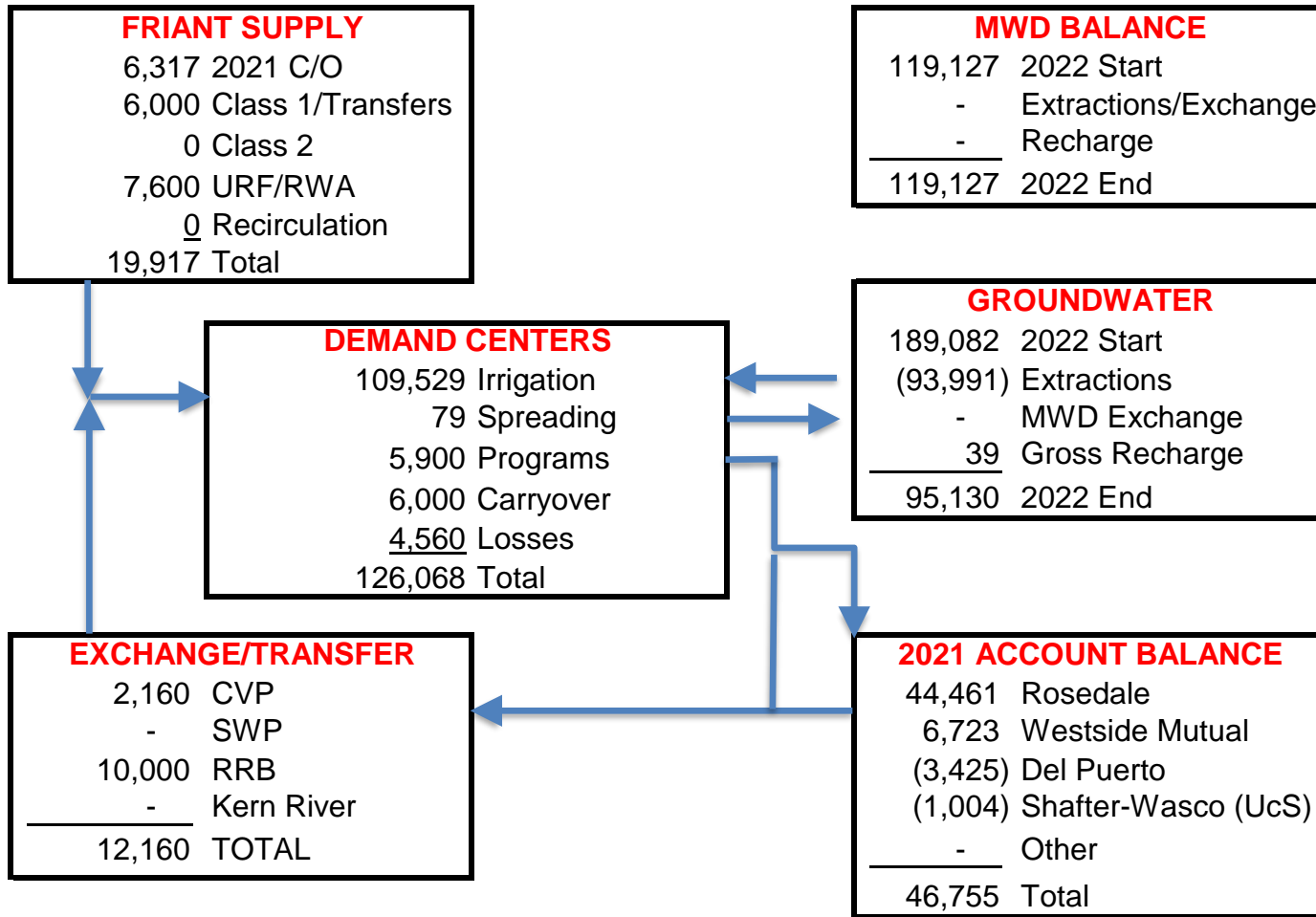
INTERTIE PUMPING PLANT

- There was no import (gravity delivery) or export (pumped delivery) of water (0 AF) through the Howard Frick Pumping Plant/Pipeline

EXHIBIT "A-1"
ARVIN-EDISON WATER STORAGE DISTRICT
2022 WATER SUPPLY AND DEMAND

<u>SUPPLY</u>	<u>AF</u>	<u>%</u>
FRIANT-KERN (F-K)		
CARRYOVER OF 2021 WATER	6,317	
15% OF 40,000 AF CLASS 1	6,000	
0% OF 311,675 AF CLASS 2 (Uncontrolled Season)/RWA	0	
0% OF 311,675 AF CLASS 2	0	
URF TIER 2 BLOCK 1	2,000	
PRIORITY URF	5,600	
SUBTOTAL	19,917	
FRESNO COUNTY	-600	
SJRRP RETURN	-3,500	
DELANO-EARLIMART ID	-500	
EXETER ID	-350	
IVANHOE ID	-325	
LINDMORE ID	-100	
LINDSAY-STRATHMORE ID	-225	
ORANGE COVE ID	-50	
STONE CORRAL ID	-50	
TEA POT DOME WD	-200	
TOTAL F-K	14,017	11.7%
CROSS VALLEY CANAL (CVC)		
ROSEDALE-RIO BRAVO WSD (KDWD EXCHANGE)	0	
CAWELO WD (SUN PACIFIC EXCHANGE)	2,160	
TOTAL CVC	2,160	1.8%
STATE WATER PROJECT (AQUEDUCT)		
KT EXCHANGE	0	
TOTAL AQUEDUCT	0	0.0%
INTERTIE PIPELINE (IPL)		
RETURN TO MWD	0	
TOTAL IPL	0	0.0%
KERN RIVER		
FRESNO COUNTY	0	
MWD BANKING	0	
KERN DELTA (RRBWSO EXCHANGE)	10,000	
TOTAL IPL	10,000	8.3%
INTAKE CANAL PUMP-IN (IC)		
KERN DELTA WELLS	0	
KERN DELTA H STREET	0	
TOTAL KR	0	0.0%
TOTAL IMPORT	26,177	21.8%
GROUNDWATER PUMPING		
IRRIGATION DEMAND	93,991	
FARM PUMP IN	0	
RETURN TO MWD	0	
TOTAL PUMPING	93,991	78.2%
TOTAL WATER SUPPLY	120,168	100.0%
DEMAND		
IRRIGATION DEMAND (MARCH-MAY)	32,639	27.2%
IRRIGATION DEMAND (JUNE-FEBRUARY)	76,890	64.0%
SPREADING (MARCH-MAY)	79	0.1%
SPREADING (JUNE-FEBRUARY)	0	0.0%
CARRYOVER TO 2023	6,000	5.0%
LOSSES/METERING INACCURACIES	4,560	3.8%
TOTAL DEMAND	120,168	100.0%

Exhibit "A-2"
 ARVIN-EDISON WATER STORAGE DISTRICT
2022 WATER MANAGEMENT



Surface Water	15,617	14%
Groundwater (58% of Max)	93,991	86%
Projected Irrigation Demand	109,608	100%

EXHIBIT "B" ARVIN-EDISON WATER STORAGE DISTRICT 2022 WATER YEAR DELIVERIES

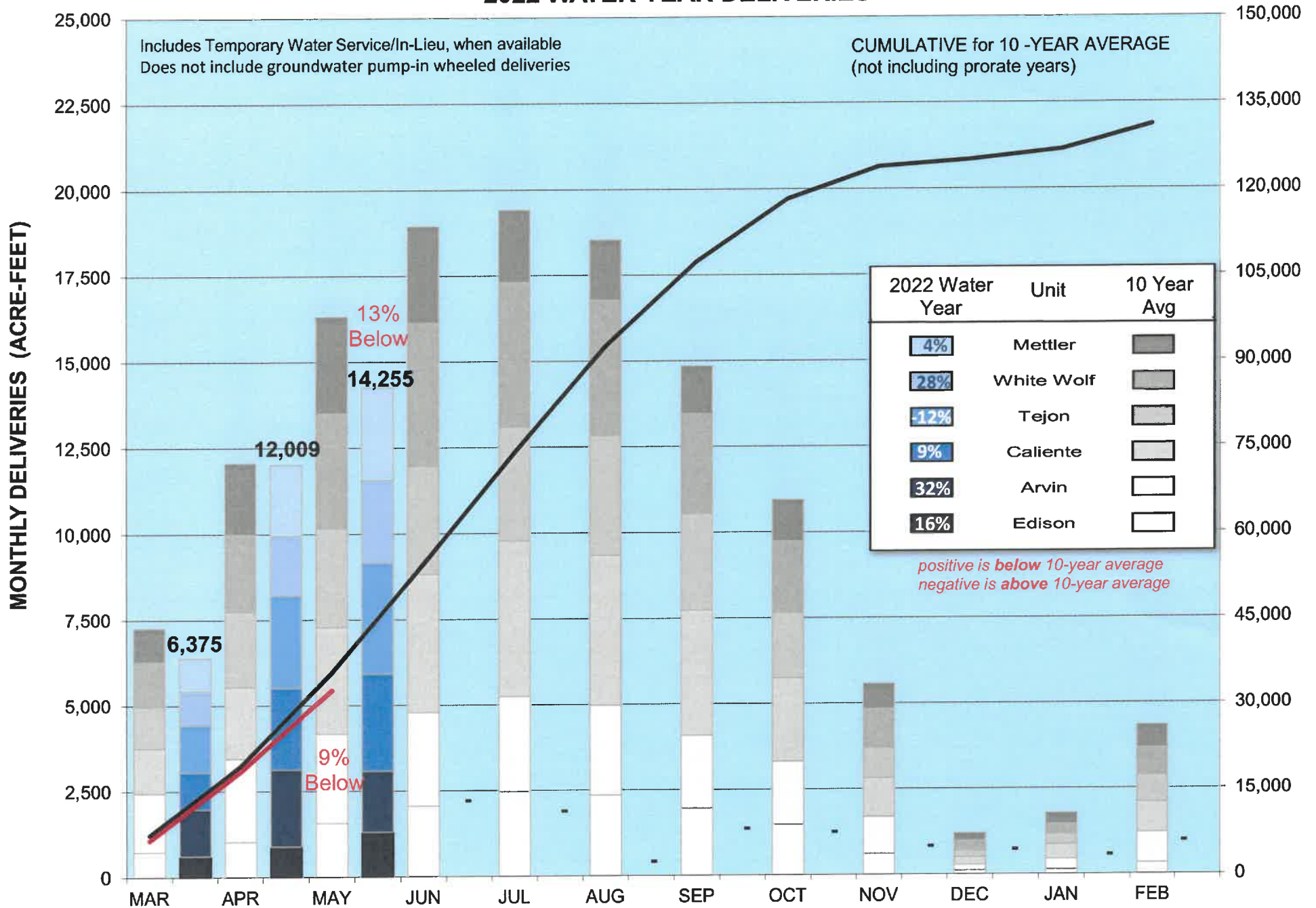


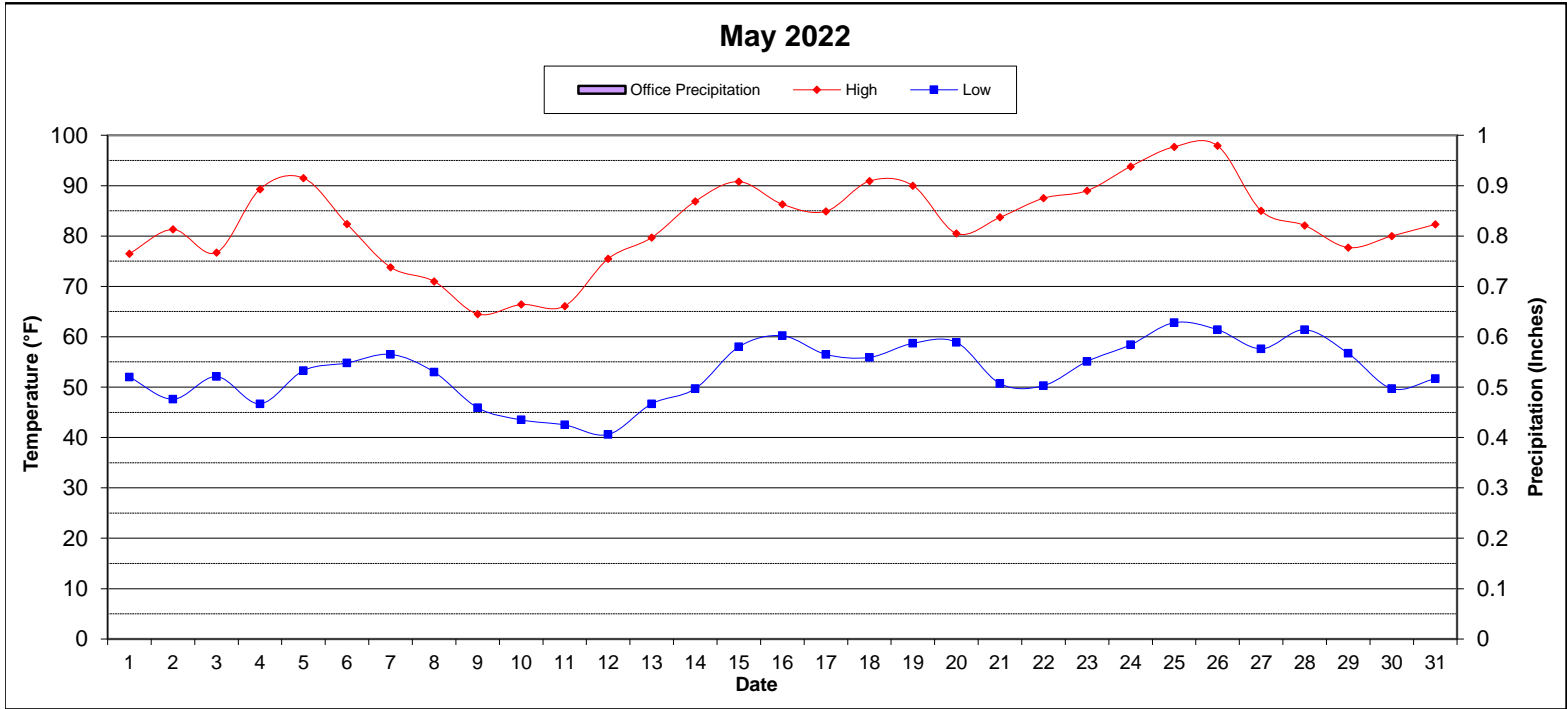
EXHIBIT "C1"
ARVIN-EDISON WATER STORAGE DISTRICT
WATER SUPPLY WATER QUALITY SUMMARY

	Date	Flow ¹ cfs	Import Source	Calcium		Magnesium		Sodium		Bicarbonate		Chloride		Nitrate		TDS mg/l	pH	EC umhos/cm	Hardness mg/l	SAR	Gypsum lbs/AF	Boron mg/l	Turbidity NTU	
				mg/l	me/l	mg/l	me/l	mg/l	me/l	mg/l	me/l	mg/l	me/l	mg/l	me/l									
Intertie Pipeline	05/09/22	0	KD WELLS & KD CENTRAL(12%)/WELLS(88%)	30.0	1.50	8.7	0.71	42.0	1.81	130	2.13	37.0	1.04	10.00	0.16	230	8.5	440	110	1.8	0.75	0.19	5.4	
	04/07/22	0	KD WELLS & KD CENTRAL(12%)/WELLS(88%)	33.0	1.65	9.5	0.78	36.0	1.55	140	2.30	35.0	0.98	9.50	0.15	220	8.2	402	120	1.4	ND	0.12	2.7	
	03/09/22	0	WELLS(100%)	15.0	0.75	3.0	0.25	15.0	0.65	65	1.07	10.0	0.28	4.10	0.07	90	8.2	187	51	0.9	0.24	0.07	4.4	
	02/08/22	-40	FKC(100%)	6.7	0.34	0.8	0.06	4.5	0.19	26	0.43	4.4	0.12	0.50	0.01	29	8.1	76	20	0.0	0.00	0.10	7.0	
	01/10/22	-40	FKC(100%)	9.8	0.49	0.9	0.08	5.7	0.25	41	0.67	3.5	0.10	0.54	0.01	44	7.9	87	28	0.5	0.45	0.05	4.5	
	12/13/21	N/A	DOWN FOR WINTER MAINTENANCE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/09/21	0	FKC(100%)	22.0	1.10	4.6	0.38	31.0	1.34	93	1.52	18.0	0.51	4.90	0.08	150	8.4	299	73	1.6	0.72	0.20	4.0	
	10/07/21	0	CVC(17%)/WELLS(83%)	38.0	1.90	12.0	0.98	48.0	2.07	150	2.46	49.0	1.38	12.00	0.19	270	8.3	477	140	1.7	ND	0.17	4.5	
	09/09/21	0	CVC(23%)/WELLS(77%)	37.0	1.85	12.0	0.98	44.0	1.90	160	2.62	49.0	1.38	13.00	0.21	260	8.2	496	140	1.6	ND	0.14	5.3	
	08/09/21	0	CVC(7%)/KD WELLS(5%)/WELLS(88%)	31.0	1.55	10.0	0.82	43.0	1.85	130	2.13	44.0	1.24	11.00	0.18	240	8.5	451	120	1.7	ND	0.15	2.4	
	07/08/21	0	CVC(7%)/KD WELLS(6%)/WELLS(87%)	32.0	1.60	9.9	0.81	43.0	1.85	150	2.46	40.0	1.12	11.00	0.18	240	8.3	453	120	1.7	0.04	0.17	1.8	
	06/04/21	0	FKC(21%)/CVC(5%)/KD WELLS(4%)/WELLS(70%)	28.0	1.40	8.6	0.70	42.0	1.81	130	2.13	35.0	0.98	9.70	0.16	220	8.3	411	110	1.8	0.58	0.19	7.0	
	05/07/21	0	KD WELLS & KD MAIN(12%)/WELLS(88%)	36.0	1.80	11.0	0.90	40.0	1.72	150	2.46	38.0	1.07	11.00	0.18	240	8.1	439	130	1.5	ND	0.13	3.4	
	04/07/21	0	KD WELLS & KD MAIN(9%)/WELLS(91%)	36.0	1.80	12.0	0.98	41.0	1.77	150	2.46	39.0	1.10	10.00	0.16	240	8.3	431	140	1.5	ND	0.15	4.1	
	Average			27.3	1.4	7.9	0.6	33.5	1.4	116.6	1.9	30.9	0.9	8.2	0.1	190.2	8.2	357.6	100.2	1.4	0.4	0.1	4.3	

Water Supply Water Quality Note: ¹ Positive flow rate is reverse flow into the District. Where the reported value is ND, the method detection limit is entered.
Water Supply Water Quality Note: ² Reverse flow into the District South Canal (Sycamore check gate was closed).
Water Supply Water Quality Note: ³ Constituent ran past sample hold time.

ND:	NONE DETECTED.	pH:	A MEASURE OF ACIDITY. A pH < 7 IS ACIDIC, pH = 7 IS NEUTRAL, pH > 7 IS BASIC. NORMAL RANGE IS 6.5 - 8.4. A pH > 8 MAY NEED TO BE BUFFERED FOR PESTICIDE APPLICATION. AFFECTS NUTRIENT AVAILABILITY.
NA:	NOT AVAILABLE OR NOT TESTED.		
mg/l:	MILLIGRAMS PER LITER; SAME AS PARTS PER MILLION (ppm).		
me/l:	MILLEQUIVALENTS PER LITER; SAME AS EQUIVALENTS PER MILLION (epm).	EC:	ELECTRICAL CONDUCTIVITY. A MEASURE OF WATER SALINITY; SOIL - IN MILLIMHOS PER CENTIMETER (mmho/cm); WATER - MORE OFTEN, IN MICROMHOS PER CENTIMETER (umhos/cm). EC < 700 (umhos/cm) HAS NO RESTRICTIONS FOR AGRICULTURAL USE. EC < 200 (umhos/cm) CAN REDUCE INFILTRATION RATE.
INTAKE:	SAMPLE TAKEN AT COTTONWOOD RD. SOUTH OF PANAMA LANE.		
NORTH:	SAMPLE TAKEN DOWNSTREAM OF SYCAMORE CHECK GATE.		
SOUTH:	SAMPLE TAKEN DOWNSTREAM OF TEJON CHECK GATE.		
INTERTIE:	TERMINUS OF SOUTH CANAL (S93 FOREBAY).		
SODIUM:	FOR SURFACE IRRIGATION: SAR < 3 IS GOOD. FOR SPRINKLER IRRIGATION: SODIUM < 3 me/l IS GOOD.	HARDNESS:	HARD WATER, INDICATING CALCIUM AND MAGNESIUM, IS BENEFICIAL FOR AGRICULTURE.
NITRATE:	NITRATE IN WATER SLIGHTLY REDUCES FERTILIZER REQUIREMENT.		
BICARBONATE:	BICARBONATE < 1.5 me/l IS SATISFACTORY FOR OVERHEAD SPRINKLERS.	SAR:	SODIUM ADSORPTION RATIO. A RATIO OF SODIUM TO CALCIUM AND MAGNESIUM. EVALUATE WITH EC. SAR = 0 - 3 AND EC > 400 ACCEPTABLE SAR = 3 - 6 AND EC > 900 ACCEPTABLE
CHLORIDE:	FOR SURFACE IRRIGATION CHLORIDE < 4 me/l IS GOOD.		
TDS:	TDS < 450 IS ACCEPTABLE FOR UNRESTRICTED USE.		
GYPSUM:	AMOUNT OF CALCIUM SULFATE IN POUNDS PER ACRE-FOOT OF WATER APPLIED. INCREASES WATER PERMEABILITY AND HELPS CORRECT EXCESS SODIUM. INCREASES CLAY FLOCCULATION FOR INCREASING PERMEABILITY.	BORON:	BORON < 0.50 mg/l IS SATISFACTORY FOR ALL CROPS. EXCESSIVE BORON IS PHYTOTOXIC (BURNS) TO PLANTS.

EXHIBIT "D"
ARVIN-EDISON WATER STORAGE DISTRICT
SUMMARY OF CLIMATOLOGICAL OBSERVATIONS



PRECIPITATION	BAL RES (1)		OFFICE (2)		SYCAMORE (3)		TEJON (4)		INTERTIE (5)	
	INCHES	% AVG.	INCHES	% AVG.	INCHES	% AVG.	INCHES	% AVG.	INCHES	% AVG.
AVG. MONTHLY	0.65		0.33		0.31		0.33		1.13	
AVG. YEAR TO DATE	7.28		8.37		8.06		7.06		7.35	
CURRENT MONTH	0.00	7%	0.00	0%	0.00	0%	0.00	0%	0.00	0%
CUMULATIVE (07/01/21 - 06/30/22)	6.76	93%	7.81	93%	9.60	119%	6.98	99%	7.16	97%

TEMPERATURE (6)	(°F)	DATE	TIME
MAXIMUM TEMPERATURE	97	5/26/2022	4:00 PM
AVERAGE MAXIMUM TEMPERATURE	83		
# DAYS THIS MONTH ABOVE 100 °F	0		
MINIMUM TEMPERATURE	43	5/12/2022	2:00 AM
AVERAGE MINIMUM TEMPERATURE	53		
# DAYS THIS MONTH BELOW 32 °F	0		

WIND (6)	M.P.H.	DATE	TIME	DRCTN
MAXIMUM WIND SPEED	12.5	5/19/2022	9:00 AM	SW
AVERAGE WIND SPEED	4.8			
AVERAGE WIND SPEED @ 8:00 AM	4.0			

BAROMETRIC PRESSURE (7)	IN. HG	DATE	TIME
AVERAGE PRESSURE @ 8:00 AM	29.47		
MAXIMUM PRESSURE	29.77	5/12/2022	9:00 AM
MINIMUM PRESSURE	29.16	5/19/2022	8:00 PM

NOTES

(1) October 2018 to Present data gathered from District rain gauges
(2) 1975 to Present data gathered from District rain gauges
(3) 1968 to Present data gathered from District rain gauges
(4) 1967 to Present data gathered from District rain gauges
(5) October 2018 to Present data gathered from District rain gauges
(6) Data retrieved from CIMIS (<http://www.cimis.water.ca.gov/WSNReportCriteria.aspx>)
(7) Data retrieved from Weather Underground (<https://www.wunderground.com/us/ca/arvin/zmw:93203.1.99999>)
Precipitation Day is 8:00 AM to 8:00 AM

EXHIBIT "E"
ARVIN-EDISON WATER STORAGE DISTRICT
WY2022 ENERGY CONSUMPTION AND POWER DEMAND

ENERGY CONSUMED - KWH							TOTAL DEMAND - KW						
Month	Forrest Frick PP	Distrib. System	Spreading	Wells	Intertie PP	Total	Forrest Frick PP	Distrib. System	Spreading	Wells	Intertie PP	Total	Load Factor
MAR 22	97,947	2,033,650	1,275	5,215,376	3,443	7,351,691	1,904	12,244	2	14,649	7	28,805	34%
APR	389,787	3,790,053	1,224	9,611,736	3,469	13,796,269	1,515	13,874	2	19,143	6	34,540	55%
MAY	607,866	4,566,990	13,773	11,461,732	3,770	16,654,130	2,715	14,821	341	19,138	6	37,022	60%
JUN													
JUL													
AUG													
SEP													
OCT													
NOV													
DEC													
JAN 23													
FEB													
TOTAL	1,095,599	10,390,692	16,272	26,288,844	10,682	37,802,090							

Notes: - Since 2005 KW records reflect non-simultaneous demands.
- Energy use for lighting accounts for approximately 90,000 kWh/month at District wellfields and 4,000 kWh/month at the Intertie Pumping Plant

EXHIBIT "F"
 ARVIN-EDISON WATER STORAGE DISTRICT
 2022 WATER YEAR WELLFIELD PRODUCTION - AF

Month	Bal Res		North Canal 5		Wellfield						Total		
	AF	% of Historical Max	AF	% of Historical Max	North		Sycamore		Tejon		AF	AF / Day	% of Historical Max
					AF	% of Historical Max	AF	% of Historical Max	AF	% of Historical Max			
MAR - 22	0	0%	988	81%	2,003	78%	1,886	29%	1,495	27%	6,372	206	41%
APR	0	0%	1,113	92%	2,943	96%	3,531	51%	3,503	70%	11,090	370	74%
MAY	0	0%	1,108	89%	3,402	92%	3,868	53%	4,018	74%	12,397	400	82%
JUN													
JUL													
AUG													
SEP													
OCT													
NOV													
DEC													
JAN - 23													
FEB													
Total	0		3,209		8,348		9,285		9,016		29,859	81	16%
Ratio	0%		11%		28%		31%		30%		100%	Average	
Wells	4		5		14		34		29		86		

EXHIBIT "H-1"
ARVIN-EDISON WATER STORAGE DISTRICT
STATIC VS PUMPING WATER LEVELS IN DISTRICT WELLS - MAY 2022
 ALL VALUES IN FEET

	WELL #	STATIC LEVEL	PUMPING LEVEL	BOWL DEPTH	TOTAL DEPTH	DRAW DOWN	BOWL COVERAGE
NORTH CANAL (23)	N1	428	488	610	840	60	122
	N2	448	554	700	840	106	146
	N3	381	407	610	840	25	203
	N4	439	462	550	864	23	88
	N5	456	465	650	864	9	185
	N6	520	619	640	920	99	21
	N7	482	503	600	1010	21	97
	N8	424	465	560	970	42	95
	N9	448	557	700	990	109	143
	N10	462	507	560	990	45	53
	N11	435	460	562	1020	25	102
	N12	480	505	600	1030	25	95
	N13	482	508	600	1000	25	92
	N14	445	466	540	900	21	74
	N15	386	522	700	1200	136	178
	N16	386	464	600	1200	79	136
	N17	407	513	610	1200	106	97
	N18	447	579	610	1190	132	31
	N19	477	519	760	1300	42	241
	N20	596	633	820	1020	37	187
	N21	471	550	660	950	79	110
	N22	467	488	680	990	21	192
	N23	461	475	680	990	14	205
Avg	453	509					

	WELL #	STATIC LEVEL	PUMPING LEVEL	BOWL DEPTH	TOTAL DEPTH	DRAW DOWN	BOWL COVERAGE
TEJON (29)	71	590	620	800	1050	30	180
	72	576	601	800	1045	25	199
	73	562	592	800	1018	30	208
	74	553	592	800	1084	39	208
	75	564	583	800	1045	18	217
	76	554	598	700	996	44	102
	77	532	638	800	1066	106	162
	78	532	592	800	1038	60	208
	79	536	578	700	1032	42	122
	80	532	634	800	996	102	166
	81	511	541	700	925	30	159
	82	446	497	800	996	51	303
	83	564	618	800	996	53	182
	84	427	464	700	955	37	236
	86	585	624	800	996	39	176
	87	576	604	800	984	28	196
	88	564	601	800	948	37	199
	89	539	567	800	996	28	233
	90	457	504	700	996	46	196
	91	N/A	N/A	700	996	N/A	N/A
	92	581	627	800	996	46	173
	93	600	631	800	996	31	169
	94	601	641	860	996	39	219
	95	528	554	800	996	26	246
	96	604	703	800	996	99	97
	98	571	603	760	1340	32	157
	99	565	610	760	1340	45	150
	100	514	574	760	1340	60	186
	101	456	605	760	1310	149	155
Avg	544	593					

	WELL #	STATIC LEVEL	PUMPING LEVEL	BOWL DEPTH	TOTAL DEPTH	DRAW DOWN	BOWL COVERAGE
SYCAMORE (34)	1	472	516	705	800	44	189
	2	477	526	690	876	49	164
	4	506	541	700	876	35	159
	5	519	554	720	876	35	166
	6	454	517	690	876	62	173
	7	504	557	700	830	53	143
	8	444	478	640	860	35	162
	9	520	561	700	886	42	139
	10	501	540	690	850	39	150
	11	499	543	700	880	44	157
	12	513	554	700	860	42	146
	13	476	571	700	850	95	129
	14	444	531	670	810	88	139
	15	507	638	710	820	132	72
	16	492	628	700	888	136	72
	17	451	581	650	820	129	69
	18	463	491	650	820	28	159
	20	458	491	680	804	32	189
	21	468	489	690	856	21	201
	22	441	471	610	792	30	139
	23	443	475	600	788	32	125
	24	462	499	580	780	37	81
	25	446	474	610	777	28	136
	26	452	498	690	816	46	192
	28	424	484	660	782	60	176
	29	477	512	690	787	35	178
	31	461	496	660	725	35	164
	32	425	525	640	739	99	116
	33	487	568	700	780	81	132
	34	N/A	N/A	700	781	N/A	N/A
	35	464	543	700	800	79	157
	36	457	487	600	820	30	113
	37	457	482	540	820	25	58
	38	469	505	860	1270	36	355
Avg	471	525					

MONTHLY SUMMARY - AVERAGE WATER LEVELS						
READINGS END OF	STATIC LEVELS			PUMPING LEVELS		
	N. CANAL	SYCAMORE	TEJON	N. CANAL	SYCAMORE	TEJON
MAY-21	439	454	520	506	519	575
JUN	453	464	532	510	532	599
JUL	445	469	540	504	541	600
AUG	445	462	548	501	529	605
SEP	448	464	550	506	532	607
OCT	432	445	512	489	502	566
NOV	434	429	501	488	483	547
DEC	431	426	477	486	480	524
JAN	430	421	465	484	476	512
FEB	434	421	463	491	474	510
MAR	435	435	471	492	480	517
APR	448	444	518	505	494	566
May-22	453	471	544	509	525	593
CHANGE TO-DATE	-14	-17	-24	-3	-6	-18

OUT OF SERVICE (7)	*Bowl depth measured to top of pump
AIRLINE FAILURE (14)	*Pumping levels are estimated based on
FAILED (2)	previous draw down records. (6 month average)
86 TOTAL WELLS	*Airline failure levels were obtained with acoustic sounder

