



Doug Wilson, Interim Director
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DEPARTMENT OF PUBLIC WORKS

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COUNTY
OF
INYO

INYO COUNTY DISADVANTAGED COMMUNITIES METERS PROJECT

Supporting Documentation List

1. Excerpts of A & N Technical Services, Inc. "BMP COSTS & SAVINGS STUDY A Guide to Data and Methods for Cost-Effectiveness Analysis of Urban Water Conservation Best Management Practices" 2005, prepared for The California Urban Water Conservation Council. 3 pages
2. Los Angeles Department of Water and Power annual overallotment pumping and cost data. 1 page
3. Excerpts of American Water Works Association, ANSI/AWWA G200 "Distribution Systems Operation and Management" AWWA Standard, AWWA Denver, CO. 2 pages
4. Excerpts of "2012 SANITARY SURVEY OF INYO COUNTY DPW-LONE PINE"; Cover letter, Sanitary Survey, Deficiency List; California Public Health Department, September 4, 2012. 10 pages
5. Excerpts of "2012 SANITARY SURVEY OF INYO COUNTY DPW-INDEPENDENCE"; Cover letter, Sanitary Survey, Deficiency List"; California Public Health Department, September 4, 2012. 10 pages
6. Inyo County Department of Public Works: 3 Year Water Systems Audit, 1 page
7. Inyo County Department of Public Works: 11.75 year Water Systems Audit, 1 page
8. Inyo County Department of Public Works: Water Systems Allowable Loss Calculations, 1 page
9. Inyo County Department of Public Works: Mileage Difference Analog and AMR meter reading, 1 page
10. USA Bluebook Catalog 2012/2013 excerpts, Water Meters, 3 pages
11. Eisel Enterprises "Specifications for Manufacture of Precast Concrete Boxes & Steel Covers", 1 page
12. Mueller(R) Angle Meter 300™ Ball Valve Specifications, 1 page
13. Mueller(R) Angle Meter 300™ Ball Curb Valve Specifications, 1 page

14. Inyo County Department of Public Works, Typical 1" Water meter installation drawing, 1 page
15. Inyo County Planning Department Memo, August 13, 1997, LADWP Pumping Data 1989-1996, 1 page
16. Excerpts of "Inyo/LA Long Term Water Agreement", City of Los Angeles, Department of Water and Power and Inyo County, 1991, 3 pages
17. Excerpts of "Volume 1 Draft Environmental Impact Report", City of Los Angeles, Department of Water and Power and Inyo County, September 1990, 11 pages
18. Excerpts of "Inyo County Needs Assessment", California Rural Water Association, 4 pages

BMP COSTS & SAVINGS STUDY

**A Guide to Data and Methods for Cost-Effectiveness Analysis of
Urban Water Conservation Best Management Practices**

March 2005

Prepared for

The California Urban Water Conservation Council

455 Capitol Mall, Suite 703
Sacramento, CA 95814
916.552.5885

By

A & N Technical Services, Inc.

839 2nd St, Suite 5
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2.5 Universal Metering and Multi-Family Submetering

2.5.1 Device/Activity Description

In general, meters are instrumental to a number of conservation efforts because they provide information on water use to consumers. *Universal metering* for conservation consists of installing water meters in existing customer sites where they do not currently have meters, and assuring new construction is metered. Installing a meter where none exists provides the customer the information needed to recognize volumetric price incentives. An associated activity is the *replacement of existing meters* that are not operating properly. Replacing meters that are not operating properly may “true up” the price signal sent to customers.⁷

Meters can also be added to individual units in a multi-family building; so called “submetering” allows separate household-level water usage measurement where there was previously only a master meter. Note that this section includes submetering but not ratio utility billing systems (RUBS).

2.5.2 Applicable BMPs

- BMP 4 – Metering with Commodity Rates.
- Metering is a necessary condition for implementing BMP 11 – Pricing.

2.5.3 Available Water Savings Estimates

Summary of Individual Studies

Speedwell (1994) analyses data from a sample of 590 multi-family buildings in New York City and a sample of 676 multi-family buildings in Jamaica, New York. The Jamaica service area was metered and the New York City buildings were not. A statistical model was developed, regressing housing density, median income in the census tract, building size water use, and a dummy variable for Jamaica service area on water use. Controlling for these independent variables, metered billing resulted in a 36 percent decrease in water use, which the authors attribute to the metering of water consumption.

Bishop and Weber (1995) report the results of a statistical analysis of Denver’s universal metering program. The average annual water savings is reported as 28 percent, with a summer peak seasonal reduction of 38.4 percent in 1991. The authors cite landscape irrigation as the reason for the large summer savings with metering. The authors report that controlling for season, weather, and the effect of metering and conservation practices, 98 percent of the monthly variation is explained in the model. However, savings estimated in the statistical model cannot be separated from savings from concurrent programs used to promote the installation of conservation devices, such as bathroom retrofits. The savings effect is also not separated from

⁷ Metering can also be used to separately measure indoor from outdoor use. In this document, we refer to these meters as “dedicated [landscape] meters” and this topic is covered in the section on Large Landscape Measures.

Koch (undated) estimated savings in warm water consumption are 52% as compared to the norm, and 55% as compared to the real consumption prior to the installation of the energy conservation systems. The results for cold water savings are 68% and 37% respectively. The average heat economies are 45% and 23% respectively.

Source: Reproduced from Lund (1984) as reported in Mitchell (2002)

Persistence

No study considering the persistence of savings from water metering has been found.

Limitations

None of the studies have fully controlled for all possible and reasonable explanatory variables. In particular, other conservation programs may have been concurrent with the metering program evaluations.

Confidence in Estimates

Low. Future efforts should include empirical measurement of water savings considering an appropriate range of explanatory variables. It is important to consider the interactive effect of metering along with other conservation programs; savings from metering and other conservation programs may not be additive. Savings may also be considerably different depending on the amount of outdoor use.

2.5.4 Program and Device/Activity Cost Estimates

Program Costs

Participant program costs may include:

- Meter installation cost, if not paid by the supplier.

Supplier program costs may include:

- Staff time to develop meter program and new rates structure
- Meter and installation costs, if the supplier pays.
- Administration
- Contractors
- Marketing

Denver Water Department (1993) reports the average cost per meter setting to be \$425, including purchase, installation, repair of deteriorating lines, and public education.

Bishop and Weber (1995) report costs in the range of \$250 to \$750 per meter for purchase and installation. The cost to install a meter in a new construction residence is cited as \$175.

Town System	Year	Annual Actual Usage Acre-Feet	Annual Allowed Usage Acre-Feet	Difference
Independence	2002-03	524	450	74
	2003-04	566	450	116
	2004-05	467	450	17
	2005-06	465	450	15
	2006-07	506	450	56
	2007-08	505	450	55
	2008-09	495	450	45
	2009-10	462	450	12
	2010-11	449	450	
	2011-12	476	450	26

Independence

YEAR	WATER PUMPED
	(AF)
1998/99	461
1999/00	1362
2000/01	572
2001/02	567
2002/03	524

Lone Pine	2002-03	604	550	54
	2003-04	620	550	70
	2004-05	621	550	71
	2005-06	652	550	102
	2006-07	695	550	145
	2007-08	899	550	349
	2008-09	612	550	62
	2009-10	605	550	55
	2010-11	547	550	
	2011-12	634	550	84

Lone Pine

YEAR	WATER PUMPED
	(AF)
1998/99	2128
1999/00	748
2000/01	664
2001/02	701
2002/03	792

Total

\$ 230,299



**American Water Works
Association**

The Authoritative Resource on Safe Water®

ANSI/AWWA G200-09
(Revision of ANSI/AWWA G200-04)

AWWA Standard

Distribution Systems Operation and Management



Effective date: April 1, 2010.
First edition approved by AWWA Board of Directors Jan. 18, 2004.
This edition approved June 14, 2009.
Approved by American National Standards Institute Feb. 5, 2010.

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Advocacy
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Sections

4.2.8 *Metering.*

4.2.8.1 Metering requirements. Utilities shall meter the volume of water entering the distribution system and accumulate historical data related to the volume of water used throughout the year to determine daily peak flows and maximum day peak flows.

4.2.8.2 Metering devices. All metering devices shall meet the requirements of AWWA or other applicable standards.

4.2.8.3 Testing. To ensure meter accuracy, the utility shall have a goal to test or replace meters at the frequencies recommended in AWWA Manual M6.

4.2.8.4 Repair and replacement programs. The utility shall have a program to replace or repair defective meters. The program shall include the necessary records to verify conformance with the guidelines as defined in AWWA Manual M6 and the manufacturer's recommendations.

4.2.9 *Flow.*

4.2.9.1 Flow requirements. The system shall be designed and constructed to be capable of delivering the maximum-day demand and fire flow for individual and public fire requirements. The utility shall evaluate flows, on a basis to be determined by the utility, and corrective action plans established and implemented when deficiencies are identified.

4.2.10 *External corrosion.*

4.2.10.1 Leaks/breaks. The utility shall have a standardized system for recording and reporting pipeline leak or break information. At a minimum, the data collected on a leak or break report shall include pipe location, pipe material, pipe size, apparent type of leak or break, visual assessment of surrounding soil type (e.g., sand, clay, etc.), pipe's depth, and best assessment of saturation conditions of the soil prior to break or proximity to water table.

4.2.10.2 Monitoring program. Utilities shall have an external corrosion-monitoring program. The program shall include surveys of pipeline route before construction, pipeline and metallic tanks not under cathodic protection, and pipeline and metallic tanks under cathodic protection. Corrosion surveys shall include potential measurements, line current measurements, soil resistivity, and soil chemical analysis. This data may be used to evaluate an infrastructure improvement program.

4.2.11 *Design review for water quality.*

4.2.11.1 Policies and procedures. Utilities shall have a formal, standardized design procedure that provides for comprehensive review of all construction



RON CHAPMAN, MD, MPH
Director & State Health Officer

State of California—Health and Human Services Agency
California Department of Public Health



EDMUND G. BROWN JR.
Governor

September 4, 2012

Doug Wilson
Interim Director
Inyo County Department of Public Works
P.O. Drawer Q
Independence, CA 93526

Dear Mr. Wilson:

2012 SANITARY SURVEY OF INYO COUNTY DPW – LONE PINE (SYSTEM NO. 1410009)

On July 16, 2012, Mr. Andrés Aguirre, an engineer with this office, completed a sanitary survey of the water supply facilities and operations of Inyo County Department of Public Works (DPW) Lone Pine water system. A completed Sanitary Survey Report and deficiency list are enclosed documenting the findings of the inspection.

Overall, the system was found adequately maintained and operated. Areas that need to be addressed are funding for system improvements and the cross connection control program. This letter will briefly discuss some findings of the inspection.

Operations/Management

Facilities were found well maintained indicating that current funding for maintenance is adequate. However, the Department is concerned that there may not be adequate funding for capital improvement or future operations. Review of the 2010-2011 budget for the Lone Pine water system shows that revenues do not meet expenses. The budget noted that "under the current rate structure, the revenues being provided from water service fees are insufficient to generate funds for both operation and capital improvement . . . in future years, the revenues most likely will not be sufficient to offset operating costs alone."

Approximately 44 percent of the Lone Pine distribution mains are nearing the end of the estimated useful life. While no problems have been reported the Department strongly encourages water systems to properly plan for replacement of aging equipment and operations to ensure continued reliable operation of the water system. It was noted that a rate study was begun some years back but the contract expired and the study was not completed.

Inyo County DWP – Lone Pine
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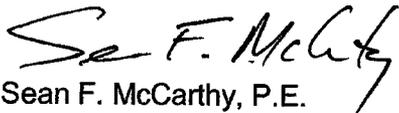
Water Quality Monitoring

The Department is pleased to note that the Lone Pine system is in compliance with all distribution system monitoring. A draft bacteriological monitoring plan was submitted and comments were provided in the March 19, 2012 e-mail to Mr. Keith Pearce. Please forward a copy of bacteriological monitoring plan when finalized for approval.

Please review the enclosed survey report and provide changes or comments as needed. A written response to this letter is requested by **October 5, 2012** along with a plan to correct the deficiencies indicated in the deficiency list. Please note the dates of correction, or planned dates of correction, of the deficiencies outlined in the deficiency list and return a copy to the Department along with your reply.

The Department greatly appreciates the assistance of Mr. Keith Pearce, with your staff, and that of Ms. Jaque Hickman, Mr. Tim McCall, and Ms. Anissa Eaton with Owenyo Services during and after the inspection. If you have any questions regarding this letter or report, please contact Andrés Aguirre at (909) 383-4308 or by e-mail at andres.aguirre@cdph.ca.gov.

Sincerely,



Sean F. McCarthy, P.E.
Senior Sanitary Engineer
San Bernardino District

Enclosure

cc: Jaque Hickman, Owenyo Services

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INYO COUNTY
PUBLIC WORKS

California Department of Public Health
Division of Drinking Water
Sanitary Survey Report

Purveyor: Inyo County DPW – Lone Pine Water System System No. 1410009
Person(s) Contacted/Position: Keith Pearce/Associate Civil Engineer, Jaqueline Hickman/Owenyo Services Contractor, Tim McCall/Owenyo Services Contractor, Anissa Eaton/Owenyo Services Contractor
Date of Inspection(s): July 16, 2012 Reviewing Engineer: Andrés Aguirre
Last S.S. Date: July 7, 2004 (Jay Das and Nader Naguib) District Engineer: Sean McCarthy

A. INTRODUCTION

1. Permit Status (Date Issued/Amendment Purpose)

Full: Permit No. 03-13-04P-007 issued August 30, 2004

Amendment(s): None.

Are the permit provisions complied with? Yes

Is the permit up to date? No, need to update condition 7 on operator requirement.

List Data Sheets on file (permit, files, etc.) Reservoirs, chlorination, transmission main, and distribution.

2. Changes in System

a) Since last sanitary survey:

2004 – 2008 Annual Report not available.

2009 – No changes reported.

2010 – No changes reported.

2011 – No changes reported.

b) Planned future changes: No planned changes.

3. Consumer and Production Data

No. of service connections: 566 total (554 active) per 2011 Annual Report

No. with meters: All 566 connections are metered.

Approx. population served: 2,035 permanent (2011 Annual Report)

Description of service area: The Inyo County Department of Public Works (DPW) operates the Lone Pine Water System which distributes water to the town of Lone Pine. The Los Angeles Department of Water and Power (LADWP) owns the wells and is responsible for piping and appurtenances from the meter upstream. The town of Lone Pine is located along State Highway 395 in the Owens Valley between two mountain ranges; the Sierra Nevada Mountains on the west side and Inyo Mountains on the east. The community is mainly rural with no major industries and consists mostly of single family dwellings with commercial properties stretching the length of Highway 395. Water is provided to the system under a contract with LADWP.

Inyo County DPW – Lone Pine Water System
2012 Sanitary Survey Report

Table 1: Purchased for Past Ten Years (2002-2011)

Year	Maximum Day, MG	Maximum Month, MG	Month	Annual Purchased, MG
2011	0.47 / 1.12	11.17 / 30.3	October / July	90.5 / 199.3
2010	0.45 / 1.09	19.2 / 29.0	June / July	112.2 / 198.7
2009	1.38 / 1.01	28.3 / 30.0	July / July	183.6 / 205.2
2008	1.31	30.3	March	244.0
2007	1.22	36.5	August	267.4
2006	0.93	28.3	July	209.8
2005	1.00	28.7	July	187.0
2004	1.00	28.6	July	201.0
2003	1.02	28.4	July	193.9
2002	1.11	32.5	July	206.6

Notes: Source is Annual Reports submitted to the Department. All water is obtained from contract with LADWP Lone Pine. 2002-2008 information obtained from LADWP Lone Pine. 2009, 2010, and 2011 show Inyo County values reported first and then LADWP values. NA = not available.

B. SOURCE DATA

Table 2: Inyo County DPW Lone Pine Sources

Sources	Status	Capacity (gpm)	Comments
Groundwater – NONE			
Surface Water – NONE			
Connections with other systems			
LADWP Lone Pine	Active	1,200	LADWP Well 344 capacity. Backup Well.
	Active	2,643	LADWP Well 346 capacity. Primary well with emergency generator.
	TOTAL	3,843 gpm	5.5 MGD

Note: Well 344 capacity is from August 11, 2004 LADWP permit and Well 346 from August 1, 2012 e-mail from Charlotte Rodrigues with LADWP.

Discussion and Appraisal: (i.e. Does source capacity comply with Waterworks Standards?)

The Waterworks Standards require in Title 22, California Code of Regulations (CCR), Section 64554 (a) that at all times a public water system shall meet the Maximum Day Demand (MDD) with source capacity alone. The MDD is defined as the highest day demand in the previous ten years and if unavailable, an estimate may be made using the maximum month, as

described in Title 22, CCR, Section 64554 (b) (2), or maximum annual usage, as described in Title 22, CCR, Section 64554 (b) (3).

For compliance determination, purchased water is considered equal to system demand. System demand is the water needed to supply customers and it includes customer demand, system losses, and maintenance activities (i.e. flushing). Available purchased water information from the previous ten years is summarized in **Table 1**. The amount of water reported used in the Lone Pine system by Inyo County DPW and LADWP differs significantly. Keith Pearce noted the town flow meters may not be working correctly. LADWP calibrates flow meters annually and the reported figures will be used for compliance. The maximum demand was in 2008 at 1.31 MGD using LADWP figures.

The current source capacity is 5.5 MGD (**Table 2**) which adequately meets the MDD. For reliability, it is recommended that a water system be able to meet the MDD with the highest capacity source offline. With Well 346 offline, the capacity is 1.7 MGD which would still meet the MDD. Inyo County DPW – Lone Pine is in compliance with the source capacity requirements. It should be noted that these estimates do not take in to account fire flow.

Drinking Water Source Assessment and Protection (DWSAP)

LADWP completed a Drinking Water Source Assessment and Protection (DWSAP) surveys for Wells 344 and 346 in June 2002. At the time of the DWSAP survey, the Department did not issue a vulnerability summary. A summary of vulnerabilities is shown in the table below with concentrations of contaminants that may be associated with possible contaminating activities (PCA) at the time of the assessment and recent results.

Table 3: Summary of Vulnerability to Possible Contaminating Activities (PCA)

Source	Most Vulnerable Activities (PCA)	Chemical Detected as of 2002	Chemical Detected as of July 2012
Well 344	Sewer collection systems	None	None
Well 346	Sewer collection systems	None	None

There were no contaminants detected in the initial survey and no current detections. All well sites were visited and all were found to be in sanitary conditions. From the chemicals monitored and the source assessment, the source wells are not considered immediately vulnerable to contamination. In regards to contamination by organic contaminants, there has been no detection or associated PCA and the sources are considered non-vulnerable.

C. TREATMENT

1. Surface Water Sources – NONE

6. **Are Distribution facilities** constructed in accordance with Waterworks standards?
The distribution system was acquired in 1967 by LADWP and changes/upgrades were made per standards at the time of construction. There are a few areas where the horizontal separation is less than 10 ft as noted in 1999 engineering evaluation. There is currently 723 ft of main that is less than the minimum 4 inch that should be upgraded at the next replacement. Inyo County DPW indicated that it follows the Waterworks Standards and maintains standards drawings for service connection installation.

New mains are either C900 PVC or ductile iron. Class 150 is used except when there are sewer crossing and class 200 is used. A minimum of 30 inches of cover is provided and new mains are a minimum 6 inch. These materials and size are approved in Title 22, CCR, Section 64570 and Section 64573. New service lines are copper and the existing service lines are galvanized. Systems repairs are done by the Inyo County DPW's contractor Owenyo Services. There has been no new main installation since 2002. Please note that installation standards were revised in 2007. For new main installation please refer to Title 22, CCR, Section 64570.

7. Describe water main and sewer line/sewage disposal **separation practices**
The distribution system is sewer. Inyo County DPW notes that it follows the Department's guidance. Minimum separation requirements are noted in Title 22, CCR, Section 64572. Where this is not possible, Department review and approval is required per Title 22, CCR, Section 64572 (h) and Section 64551.100.

8. Does the system have **low head lines** and what is their program to eliminate them?
There are no low head lines (less than 5 psi). The pressure range is 60 to 80 psi.

9. Extent of **lead pipes, joints, and/or lead solder** used in distribution system and present policy:
Some cast iron mains have bell and spigot joints where oakum (a fibrous material, usually hemp) was packed into the joints and molten lead was poured into the joint creating a permanent seal. However, no problems have been reported and distribution lead and copper monitoring has been in compliance. Inyo County DPW replaces these type of joints when new mains are installed.

10. **Discussion and Appraisal:** Adequate pressure is maintained throughout the distribution system. The oldest portions of the distribution system were installed around 1960s/1970s which places the oldest parts of the system at 37 to 47 years old. Life expectancy for mains varies depending on material with some mains exceeding typical lifes. Typical life expectancy for well-maintained mains is estimated at 35 to 40 years.² The number of main leaks does not indicate the distribution system is failing. However, approximately 44 percent the system is nearing the end of its useful life. Inyo County DPW currently does not have a funded capital improvement plan. Adequate planning for replacement should be completed to avoid a large financial obligation when much of the system is in need of replacement at the same time.

² USEPA, *Asset Management: A handbook for Small Water Systems* EPA Publication 816-R-03-016 September 2003

Does the system comply with **Operator Certification** regulations?: Inyo County DPW – Lone Pine has been reclassified as a D2 system. Inyo County DPW contracts out operation and maintenance of the Lone Pine system. The contractor at the time of survey has certified operators that meet this requirement. Inyo County DPW also has a staff member that is certified and meets the D2 requirement.

During the survey it was asked what the requirements are for operators. Title 22, CCR, Section 64413.7 describes distribution system staff certification requirements and Section 63770 describes certified operator responsibilities. Additionally, condition 7 of the permit issued August 30, 2004 requires that the system have “24-hour per day supervision by a chief operator.” These are the minimum requirements but can be made more stringent as required by Inyo County DPW.

2. **Water System Management**

Describe management structure: The Lone Pine system is overseen by the Department of Public Works of the County of Inyo. The County is governed by a five member Board of Supervisors. The water system operations are under the Department of Public Works and the Director of this Department is the person responsible for taking water system issues to the Board. The County contracts out operation and maintenance of the water system. At the time of the survey, the contractor was Owenyo Services. Day-to-day operation, including customer relations, of the system is vested in Owenyo Services with administrative responsibility remaining with Inyo County. The Board of Supervisors meets weekly and is able to consider any water system issues at the time.

Is the system self-supporting?: Review of the 2010-2011 budget for Water System – Lone Pine shows that revenues do not meet expenses. The 2010-2011 budget only included operation and maintenance of the system. The projected 2011-2012 budget includes money for infrastructure but also projects an imbalance. The budget notes that “under the current rate structure, the revenues being provided from water service fees are insufficient to generate funds for both operation and capital improvement . . . in future years, the revenues most likely will not be sufficient to offset operating costs alone.”

Inyo County DPW noted that it began a rate study some years back but that the contract expired and the study was not completed. An undated technical, managerial, and financial (TMF) assessment was submitted September 1, 2004 that included a five-year budget projection. The TMF required that the budget include “projected expenses to be incurred as a result of implementing the water system’s capital improvement plan [CIP] and its equipment replacement schedule.” It does not appear that the system has a CIP but it does maintain an upgrade fund. Inyo County DPW notes funds have not been allocated to the upgrade fund in the past couple of years. The Department strongly encourages water systems to properly plan for replacement of aging equipment and operations to ensure continued reliable operation of the water system.

Is there funding to provide the appropriate maintenance and to support the number of personnel to operate the system correctly? The tank and chlorination facilities were found to be adequately maintained during the survey. Distribution maintenance activities, such as flushing and valve exercise have been completed indicating staffing levels may be adequate. Inyo County DPW does not have a CIP and in the previous budget did not allocate funds for system improvements. Funding for future maintenance may be inadequate. A template for preparing a CIP is available at the Department's website at the following link. A CIP may help Inyo County DPW in its rate study.

<http://www.cdph.ca.gov/certlic/drinkingwater/Pages/TMF.aspx>

3. Cross-Connection Control Program

Name of Cross-connection control inspector(s): Keith Pearce/USC Cross Connection trained is the person designated to carry out the cross connection program.

Does the utility have a Cross-Connection Control Ordinance on file? No, Inyo County DPW is currently working on approving a new ordinance. A draft was submitted by e-mail July 13, 2012 and comments were provided in the August 13, 2012 e-mail.

Discussion and Appraisal: Inyo County DPW and not the contractor administers the cross connection program for Lone Pine. A Cross Connection Survey Program information form was provided in the July 9, 2012 e-mail but not completed to review program elements. Please forward a completed form for review.

Customers are responsible for testing devices and are sent annual reminder notices. Records for testing are maintained by Inyo County DPW. Changes in service connection require plumbing plans to be reviewed by the County Public Works/Building Department and are forwarded to the Water Department when a cross connection device may be needed. New services also go through both Departments.

Annual Reports were not available from 2004 to 2009 to review backflow testing history. Reports for 2009 and 2011 did not indicate how many devices were tested. In 2010, less than half of all backflow devices were tested. It does not appear all backflow devices are tested annually as required by Title 17, CCR, Section 7605 (c). Inyo County DPW needs to ensure all backflow devices are tested at least annually. Where houses are abandoned or a service connection is not in use, Inyo County DPW should note why a device was not tested. A finalized cross connection ordinance is needed.

Table 12: Inyo County DPW – Lone Pine Backflow Testing

	2009	2010	2011
Total Devices	NR	36	NR
Total Tested	NR	17	NR

Note: Source is Annual Reports submitted to the Department. 2004-2008 Annual Reports not available. NR: not reported.

Finished Water Storage: The storage tanks was found in sanitary conditions and adequately maintained. Inspections are scheduled every three years.

Water Quality Monitoring: Inyo County DPW Lone Pine has a very good water quality monitoring program and is in compliance with all distribution monitoring.

Operations and Management: Inyo County DPW has a certified operator on staff and contracts certified operators. Review of the 2010-2011 budget for Water System – Lone Pine shows that revenues do not meet expenses. Facilities were found in sanitary conditions indicating that current funding for maintenance is adequate. However, it does not appear that adequate funding is allocated for system improvements or future operation. Adequate planning for replacement should be completed to avoid a large financial obligation when much of the system fails at the same period. Inyo County DPW maintains a good emergency response program. It is recommended that the emergency response plan be updated as noted in the Emergency Response section.

J. APPENDIX

- Deficiency List
- Lone Pine Water System Schematic
- Chlorination Data Sheet
- Reservoir Data Sheet
- Transmission Main Data Sheet
- Distribution Data Sheet
- Distribution Operator Classification

Report prepared by: Andrés Aguirre, P.E.

Signature: 

Date: September 4, 2012

**STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH
DIVISION OF DRINKING WATER**

2012 DEFICIENCY LIST

System Name: Inyo County Department of Public Works – Lone Pine **System No.:** 1410009
Source of information: Sanitary Survey
Updated by: Andrés Aguirre **Date:** July 16, 2012

Date Found	DESCRIPTION OF DEFICIENCY	Order of Hazard	Date Corrected - Reported	Date Corrected - Confirmed
	SOURCE:			
7/16/12	Lone Pine Demand Flow Meters: It is recommended that demand number discrepancy between Inyo County DPW and LADWP be investigated. Inyo County DPW may need to calibrate it flow meters.	N/A		
	TREATMENT:			
7/16/12	Well 344 chlorination room hose bibs: Hose bibs should have hose bib vacuum breakers.	D	7/18/12	7/18/12
7/16/12	Well 344 chlorination room storage: Sodium bisulfite bottle (empty) was stored with chlorine. These chemicals should not be stored together.	D	7/16/12	7/16/12
7/16/12	Well 346 chlorination room hose bibs: Hose bibs should have hose bib vacuum breakers.	D	7/18/12	7/18/12
7/16/12	Chlorine contact tank assessment: There is no information on file on the condition of the chlorine contact tank which was likely installed in 1960. It is recommended that the condition of the tank be assessed.	N/A		
	DISTRIBUTION:			
7/16/12	Undersized mains: There is currently 723 ft of main that is less than the minimum 4 inch that should be upgraded at the next replacement.	N/A		
7/16/12	Cross-connection control: A finalized ordinance needs to be submitted to the Department.	D		
	MONITORING:			
7/16/12	Bacteriological monitoring plan: Please forward an updated monitoring plan.	D		
	OPERATIONS/MANAGEMENT			
7/16/12	Capital improvement plan: It is strongly recommended that Inyo County DPW develop a capital improvement plan. Approximately 44 percent the system is nearing the end of its useful life. Inyo County DPW currently does not have a funded capital improvement plan.	N/A		



RON CHAPMAN, MD, MPH
Director & State Health Officer

State of California—Health and Human Services Agency
California Department of Public Health



EDMUND G. BROWN JR.
Governor

September 4, 2012

Doug Wilson
Interim Director
Inyo County Department of Public Works
P.O. Drawer Q
Independence, CA 93526

Dear Mr. Wilson:

**2012 SANITARY SURVEY OF INYO COUNTY DPW – INDEPENDENCE
(SYSTEM NO. 1410008)**

On July 17, 2012, Mr. Andrés Aguirre, an engineer with this office, completed a sanitary survey of the water supply facilities and operations of Inyo County Department of Public Works (DPW) Independence water system. A completed Sanitary Survey Report and deficiency list are enclosed documenting the findings of the inspection.

Overall, the system was found adequately maintained and operated. Areas that need to be addressed are chlorination facility maintenance, funding for system improvements, and the cross connection control program. This letter will briefly discuss some findings of the inspection.

Operations/Management

Facilities were found adequately maintained indicating that current funding for maintenance is adequate. However, the Department is concerned that there may not be adequate funding for capital improvement or future operations. Review of the 2010-2011 budget for the Independence water system shows that revenues do not meet expenses. The budget noted that "under the current rate structure, the revenues being provided from water service fees are insufficient to generate funds for both operation and capital improvement . . . in future years, the revenues most likely will not be sufficient to offset operating costs alone."

In five years, approximately 27 percent of the distribution system will be 40 years or older which is the typical life expectancy for well-maintained mains. The Independence transmission main is 84 years and without adequate cover in some areas. While no problems have been reported the Department strongly encourages water systems to

Water Quality Monitoring

The Department is pleased to note that the Independence system is in compliance with all distribution system monitoring.

Please review the enclosed survey report and provide changes or comments as needed. A written response to this letter is requested by **October 5, 2012** along with a plan to correct the deficiencies indicated in the deficiency list. Please note the dates of correction, or planned dates of correction, of the deficiencies outlined in the deficiency list and return a copy to the Department along with your reply.

The Department greatly appreciates the assistance of Mr. Keith Pearce, with your staff, and that of Ms. Jaque Hickman, Mr. Tim McCall, and Ms. Anissa Eaton with Owenyo Services during and after the inspection. If you have any questions regarding this letter or report, please contact Andrés Aguirre at (909) 383-4308 or by e-mail at andres.aguirre@cdph.ca.gov.

Sincerely,


Sean F. McCarthy, P.E.
Senior Sanitary Engineer
San Bernardino District

Enclosure

cc: Jaque Hickman, Owenyo Services

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California Department of Public Health
Division of Drinking Water
Sanitary Survey Report

Purveyor: Inyo County DPW – Independence water system System No. 1410008
Person(s) Contacted/Position: Keith Pearce/Associate Civil Engineer, Jaqueline Hickman/Owenyo Services Contractor, Tim McCall/Owenyo Services Contractor, Anissa Eaton/Owenyo Services Contractor
Date of Inspection(s): July 17, 2012 Reviewing Engineer: Andrés Aguirre
Last A. I. Date: July 7, 2004 (Jay Das and Nader Naquib) District Engineer: Sean McCarthy

A. INTRODUCTION

1. **Permit Status (Date Issued/Amendment Purpose)**
Full: Permit No. 03-13-04P-006 issued August 30, 2004
Amendment(s): One amendment, No. 05-13-10PA-054 issued November 2, 2010 to add the West and East tanks.
Are the permit provisions complied with? Yes
Is the permit up to date? Yes
List Data Sheets on file (permit, files, etc.) Reservoirs, chlorination, and distribution.

2. **Changes in System**
 - a) Since last annual inspection:
2004 – Annual Report not available.
2005 – Annual Report not available.
2006 – Annual Report not available.
2007 – Annual Report not available. Independence Reservoir was damaged in fire and taken out of service. Temporary tanks were set-up.
2008 – Annual Report not available. Two new 250,000 gallon tanks added.
2009 – Annual Report not available.
2010 – No changes reported.
2011 – No changes reported.

 - b) Planned future changes: No planned changes.

3. **Consumer and Production Data**
No. of service connections: 374 total (365 active + 9 inactive) (2011 Annual Report)
No. with meters: All 374 connections are metered.
Approx. population served: 669 permanent (2011 Annual Report)

Description of service area: The Inyo County Department of Public Works (DPW) operates the Independence Water System which distributes water to the town of Independence. The Los Angeles Department of Water and Power (LADWP) owns the wells and is responsible for piping and appurtenances from the meter upstream. The town of Independence is located along State Highway 395 in the Owens Valley

Inyo County DPW – Independence Water System
2012 Sanitary Survey Report

between two mountain ranges; the Sierra Nevada Mountains on the west side and Inyo Mountains on the east. The community is mainly rural with no major industries and consists mostly of single family dwellings with commercial properties stretching the length of Highway 395. Water is provided to the system under a contract with LADWP.

Table 1: Purchased for Past Ten Years (2002-2011)

Year	Maximum Day, MG	Maximum Month, MG	Month	Annual Purchased, MG
2011	0.72 / 0.79	22.2 / 22.1	August / August	131.8 / 141.0
2010	1.8 / 0.85	21.3 / 22.8	August / July	135.4 / 149.8
2009	0.80	23.4	August	158.6
2008	0.82	22.5	July	158.0
2007	1.42	29.6	July	176.9
2006	0.79	21.5	July	149.2
2005	0.88	23.8	June	138.1
2004	0.84	23.8	July	152.1
2003	0.92	23.8	July	157.7
2002	0.94	25.1	July	166.8

Notes: Source is Annual Reports submitted to the Department. All water is obtained from contract with LADWP Independence. 2002-2008 information obtained from LADWP Independence. 2010 and 2011 show Inyo County values reported first and then LADWP values. In 2007 there was a wildfire in Independence.

B. SOURCE DATA

Table 2: Inyo County DPW Independence Sources

Sources	Status	Capacity (gpm)	Comments
Groundwater – NONE			
Surface Water – NONE			
Connections with other systems			
LADWP Independence	Active	879	LADWP Well 357 capacity. Primary well and has backup power.
	Active	807	LADWP Well 384. Backup well and also supplies irrigation water.
	TOTAL	1,686 gpm	2.4 MGD

Note: Well capacity for Well 384 provided by Randy Riesche/LADWP during survey from production records and for Well 357 from August 1, 2012 e-mail from Charlotte Rodrigues/LADWP.

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Discussion and Appraisal: (i.e. Does source capacity comply with Waterworks Standards?)

The Waterworks Standards require in Title 22, California Code of Regulations (CCR), Section 64554 (a) that at all times a public water system shall meet the Maximum Day Demand (MDD) with source capacity alone. The MDD is defined as the highest day demand in the previous ten years and if unavailable, an estimate may be made using the maximum month, as described in Title 22, CCR, Section 64554 (b) (2), or maximum annual usage, as described in Title 22, CCR, Section 64554 (b) (3).

For compliance determination, purchased water is considered equal to system demand. System demand is the water needed to supply customers and it includes customer demand, system losses, and maintenance activities (i.e. flushing). Available production information in the previous ten years is summarized in Table 1. The amount of water reported used by Inyo County DPW and LADWP differs significantly. LADWP calibrates flow meters annually and the reported figures will be used for compliance. The maximum demand, using LADWP figures, was in 2007 at 1.42 MGD.

The current source capacity is 2.4 MGD (Table 2) which adequately meets the MDD. For reliability, it is recommended that a water system be able to meet the MDD with the highest capacity source offline. With Well 357 offline, the capacity is 1.16 MGD would not meet the MDD. The Independence system is in compliance with source capacity requirements. It should be noted that this review does not take in to account fire flow.

Drinking Water Source Assessment and Protection (DWSAP)

LADWP completed a Drinking Water Source Assessment and Protection (DWSAP) survey for Wells 357 and 384 in June 2002. At the time of the survey, the Department did not issue a vulnerability summary. A summary of vulnerabilities is shown in the table below with concentrations of contaminants that may be associated with possible contaminating activities (PCA) at the time of the assessment and recent results.

Table 3: Summary of Vulnerability to Possible Contaminating Activities (PCA)

Source	Most Vulnerable Activities (PCA)	Chemical Detected as of 2002	Chemical Detected as of June 2012
Well 357	Recreational area – surface water source	None	None
Well 384	Sewer collection systems	None	None

Review of the DWSAP survey of Well 384 found that the agricultural checklist for possible contaminating activities was not completed. It was noted during the field inspection that there are alfalfa fields irrigated next to the well and a small area falls under the 2 year time of travel. This activity is considered a PCA; however, the ranking is much lower than sewer systems. There have been no contaminants detected in the initial survey and no current detections.

estimated at 35 to 40 years.² The number of main leaks does not indicate the distribution system is failing. Approximately 9 percent of the distribution system is currently older than the typical life and in five years an additional 18 percent of the distribution system will be 40 years or older. Inyo County DPW currently does not have a funded capital improvement plan. Adequate planning for replacement should be completed to avoid a large financial obligation when much of the system fails at the same period.

G. WATER QUALITY AND MONITORING

1. Bacteriological (Distribution and Sources)

Description of program: Inyo County DPW does not own the source wells but LADWP samples the well monthly. For distribution, one sample per month is collected and rotated among 12 sites. For the Groundwater Rule, Inyo County DPW is required to notify LADWP if there is a positive sample in its distribution system. LADWP is required to sample its active wells.

Sampling plan approved and current (do we have a copy). The current plan is dated March 13, 2012 and was approved in the Department letter dated March 20, 2012.

Population: 669 (2011) Connections: 374 (2011)
Samples/Wk? One sample per month is required based on population and service connections as noted in Title 22, CCR, Section 64423 (a)(1).
MCL violations since previous inspection? None.

Compliance and Appraisal: Coliform monitoring and reporting is currently in compliance.

2. Chemical (Sources)

All water is from LADWP which completes source monitoring.

3. Disinfectant/Disinfection Byproduct (D/DBP) Distribution Monitoring

Description of program: For Stage 1 of the Disinfectants/Disinfection Byproduct (D/DBP) monitoring rule, a groundwater system with a population less than 10,000 is required to collect one Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5) sample per treatment plant per year during the warmest month from within the distribution system [Title 22 CCR Section 64534.2 (a)].

Samples are taken from locations representing the maximum residence times. This frequency may be reduced to one sample every three years if after one year of monitoring TTHM is ≤ 0.020 mg/L and HAA5 is ≤ 0.015 mg/L. Each groundwater basin is considered one treatment plant [Title 22, CCR, Section 64534 (d)]. Compliance is based upon a running annual average of quarterly sample results or annual results if on

² USEPA, *Asset Management: A handbook for Small Water Systems* EPA Publication 816-R-03-016 September 2003

Table 10: Certified Operators at Independence system

Name	Title	Grade Certificate - Expiration	
		Treatment	Distribution
Jacque Hickman	Contract Operator/Owenyo	T1 – 1/1/2015	D2 – 12/1/2013
Keith Pearce	Associate Civil Engineer	T2 – 5/1/2013	D3 – 8/1/2015

Does the system comply with **Operator Certification** regulations?: Inyo County DPW – Independence has been reclassified as a D1 system. Inyo County DPW contracts out operation and maintenance of the Independence system. The contractor at the time of survey has certified operators that meet this requirement. Inyo County DPW also has a staff member that is certified and meets the D2 requirement.

During the survey it was asked what the requirements are for operators. Title 22, CCR, Section 64413.7 describes distribution system staff certification requirements and Section 63770 describes certified operator responsibilities. Additionally, condition 7 of the permit issued August 30, 2004 requires that the system have “24-hour per day supervision by a chief operator.” These are the minimum requirements but can be made more stringent as required by Inyo County DPW.

2. Water System Management

Describe management structure: The Independence system is overseen by the Department of Public Works of the County of Inyo. The County is governed by a five member Board of Supervisors. The water system operations are under the Department of Public Works and the Director of this Department is the person responsible for taking water system issues to the Board. The County contracts out operation and maintenance of the water system. At the time of the survey, the contractor was Owenyo Services. Day-to-day operation, including customer relations, of the system is vested in Owenyo Services with administrative responsibility remaining with Inyo County. The Board of Supervisors meets weekly and is able to consider any water system issues at the time.

Is the system self-supporting?: Review of the 2010-2011 budget for Water System – Independence shows that revenues do not meet expenses. The 2010-2011 budget only included operation and maintenance of the system. The projected 2011-2012 budget includes money for infrastructure but also projects an imbalance. The budget notes that “under the current rate structure, the revenues being provided from water service fees are insufficient to generate funds for both operation and capital improvement . . . in future years, the revenues most likely will not be sufficient to offset operating costs alone.”

Inyo County DPW noted that it began a rate study some years back but that the contract expired and the study was not completed. An undated technical, managerial, and financial (TMF) assessment was submitted September 1, 2004 that included a five-year budget projection. The TMF required that the budget include “projected expenses to be incurred as a result of implementing the water system’s capital improvement plan

[CIP] and its equipment replacement schedule.” It does not appear that the system has a CIP but it does maintain an upgrade fund. Inyo County DPW notes funds have not been allocated to the upgrade fund in the past couple of years. The Department strongly encourages water systems to properly plan for replacement of aging equipment and operations to ensure continued reliable operation of the water system.

Is there funding to provide the appropriate maintenance and to support the number of personnel to operate the system correctly? The tank and Well 357 chlorination facilities were found to be adequately maintained during the survey. The Well 384 chlorination facility was found in need of routine maintenance. Distribution maintenance activities, such as flushing and valve exercise have been completed indicating staffing levels may be adequate. Inyo County DPW does not have a CIP and in the previous budget did not allocate funds for system improvements. Funding for future maintenance may be inadequate. A template for preparing a CIP is available at the Department’s website at the following link. A CIP may help Inyo County DPW in its rate study.

<http://www.cdph.ca.gov/certlic/drinkingwater/Pages/TMF.aspx>

3. **Cross-Connection Control Program**

Name of Cross-connection control inspector(s): Keith Pearce/USC Cross Connection trained is the person designated to carry out the cross connection program.

Does the utility have a Cross-Connection Control Ordinance on file? No, Inyo County DPW is currently working on approving a new ordinance. A draft was submitted by e-mail July 13, 2012 and comments were provided in the August 13, 2012 e-mail.

Discussion and Appraisal: Inyo County DPW and not the contractor administer the cross connection program for Independence. A Cross Connection Survey Program information form was provided in the July 9, 2012 e-mail but not completed to review program elements. Please forward a completed form for review by December 1, 2012.

Customers are responsible for testing devices and are sent annual reminder notices. Records for testing are maintained by Inyo County DPW. Changes in service connection require plumbing plans to be reviewed by the County Public Works/Building Department and are forwarded to the Water Department when a cross connection device may be needed. New services also go through both Departments.

Annual Reports were not available from 2004 to 2008 to review backflow testing history. Annual Reports from 2009 to 2011 do not report anything on backflow devices. It does not appear all backflow devices are tested annually as required by Title 17, CCR, Section 7605 (c). Inyo County DPW needs to ensure all backflow devices are tested at least annually and testing adequately reported. Where houses are abandoned or a service connection is not in use, Inyo County DPW should note why a device was not tested. A finalized cross connection ordinance is needed.

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years and without adequate cover in some areas. There is currently 3,347 ft of main that is less than the minimum 4 inch that should be upgraded at the next replacement. It was noted that the system was incorrectly assigned a D3 distribution classification in the permit. The system is classified as a D1 system. Valves are exercised annually and records are maintained.

Finished Water Storage: The storage tanks were found in sanitary conditions and adequately maintained. Storage capacity alone does not meet the MDD but the additional source capacity puts the system in compliance with the storage capacity requirements.

Water Quality Monitoring: Inyo County DPW Independence has a very good water quality monitoring program and is in compliance with all distribution monitoring.

Operations and Management: Inyo County DPW has a certified operator on staff and contracts certified operators. Review of the 2010-2011 budget for Water System – Independence shows that revenues do not meet expenses. Facilities were generally found in sanitary conditions indicating that current funding for maintenance is adequate. However, it does not appear that adequate funding is allocated for system improvements or future operation. Adequate planning for replacement should be completed to avoid a large financial obligation when much of the system fails at the same period. Inyo County DPW maintains a good emergency response program. It is recommended that the emergency response plan be updated as noted in the Emergency Response section.

J. APPENDIX

- Deficiency List
- Well 384 air gap photos
- Independence Water System Schematic
- Chlorination Data Sheet
- Reservoir Data Sheet
- Transmission Main Data Sheet
- Distribution Data Sheet
- Distribution Operator Classification

Report prepared by: Andrés Aguirre, P.E.

Signature: 

Date: September 4, 2012

**STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH
DIVISION OF DRINKING WATER**

2012 DEFICIENCY LIST

System Name: Inyo County Department of Public Works - Independence **System No.:** 1410008
Source of Information: Sanitary Survey
Updated by: Andrés Aguirre **Date:** July 18, 2012

Date Found	DESCRIPTION OF DEFICIENCY	Order of Hazard	Date Corrected - Reported	Date Corrected - Confirmed
	SOURCE:			
7/17/12	Well 384 check valve: Swing check valve is buried. Valve should be brought above grade or put in vault. LADWP indicated it would coordinate with Inyo County.	D		
7/17/12	Independence Demand Flow Meters: It is recommended that demand number discrepancy between Inyo County DPW and LADWP be investigated. Inyo County DPW may need to calibrate its flow meters.	N/A		
	TREATMENT:			
7/17/12	Well 357 chlorination room hose bibs: Hose bibs should have hose bib vacuum breakers.	D	7/18/12	7/18/12
7/17/12	Well 384 chlorination room hose bibs: Hose bibs should have hose bib vacuum breakers.	D	7/18/12	7/18/12
7/17/12	Well 384 chlorination pit: Lock should be provided to chlorination vault.	D	7/18/12	7/18/12
7/17/12	Well 384 chlorination room cleanliness: Rodent droppings and general upkeep needed. Well has not been used but facilities should be maintained clean and ready at all times.	C	7/18/12	7/18/12
7/17/12	Well 357 chlorine contact tank assessment: There is no information on file on the condition of the chlorine contact tank. It is recommended that the condition of the tank be assessed.	N/A		
	DISTRIBUTION:			
7/17/12	Emergency Generator at Well 357: Locks should be provided to the doors to the generator doors.	D	7/18/12	7/18/12
7/17/12	Undersized mains: There is currently 3,347 ft of main that is less than the minimum 4 inch that should be upgraded at the next replacement.	N/A		
7/17/12	Cross-connection control ordinance: A finalized ordinance needs to be submitted to the Department.	D		
7/17/12	Backflow device testing: Need to ensure all backflow devices are tested annually and summary reported to Department in Annual Report.	D		

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 Department of Water Resources Integrated Regional Water Management
 Proposition 84 Round 2 Implementation Grant

If, as expressed within AWWA M6 that metered water is the means by which utilities generate needed revenue to maintain the utility, the lack of that accurate metering implies the opposite-lack of revenue to sustain the utility. The following table may highlight the problem. It is a summary of the provided water (LADWP), accounted for metered water, accounted for unmetered water, and resultant percent unaccounted for water, by fiscal year for the systems of Independence, Lone Pine, and Laws, aggregated into one table

3 YEAR WATER SYSTEMS AUDIT
 Determination of Unaccounted for Water

Fiscal Year	LADWP Produced (AF)	County Metered (AF)	Total County Accounted for Un-Metered Water (AF)	Total County Accounted for Water (AF)	Unaccounted for Water (AF)	Unaccounted for Water (%)
09-10	1086	891.3006	17.2471	908.5477	177.4524	16.34
10-11	1014	901.5639	17.2471	918.8110	95.1890	9.39
11-12	1135	830.5587	17.2471	847.8058	287.1942	25.30
					559.8356	

LADWP Produced (AF) is the amount of water, in acre-feet, produced or pumped by LADWP into the three water systems.

County Metered (AF) is the total of all customer meter reads for the given year.

Total County Accounted for Un-Metered Water (AF) is the sum of known firefighting training in Independence and Lone Pine, use by the Lone Pine Airport, system flushing within Independence and Lone Pine, and the allowable calculable loss, within the three water systems, of water mains as provided within AWWARF, Water and Revenue Losses: Unaccounted for Water, 1987, Figure D-2, pg 177. Laws does not have firefighting training ongoing within the community, nor does the system employ system flushing.

Total County Accounted for Water (AF) is a sum of the two prior columns.

Unaccounted for Water (AF) is the amount of water, pumped into the systems by LADWP, that cannot be accounted for.

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Water Consumption for 11.75 year period
 (Short first three months of fiscal year 99/00- total of 11.75 years)

Data Source	Calendar Year	Indy	LP	Laws	Total	
Billing Record:	9/99-1/1/00	62,362	64,953	2,839	130,154	
DWR Reports	2000	189,232.60	263,252.80	8,734.41	461,219.81	
DWR Reports	2001	199,625.20	252,598.90	9,205.36	461,429.46	
DWR Reports	2002	203,823.00	252,598.90	6,524.73	462,946.63	
DWR Reports	2003	203,661.20	266,390.10	18,151.46	488,202.76	
DWR Reports	2004	200,782.80	249,238.50	4,730.32	454,751.62	
DWR Reports	2005	197,883.97	237,359.40	2,797.64	438,041.01	
DWR Reports	2006	175,435.80	236,095.40	2,667.68	414,198.88	
DWR Reports	2007	222,060.70	272,773.10	5,626.16	500,459.96	
DWR Reports	2008	188,876.40	259,836.00	8,031.24	456,743.64	
DWR Reports	2009	158,514.00	230,912.00	4,786.00	394,212.00	
DWR Reports	2010	181,714.00	221,259.00	3,699.00	406,672.00	
Billing Record:	1/11-7/1/11	63,190.00	86,335.00	927.00	150,452.00	AF consumed
Total (Billing Units)		2,247,161.67	2,893,602.10	78,720.00	5,219,483.77	11,981.47

This is an 11.75 year period from 9/1/99 through to 7/1/11

The data used was from two sources, our billing records- for those periods outside the calendar years 2000 through 2012, and our annual DWR reports- for calendar year data.

Changing to fiscal year was necessary to compare with LADWP's fiscal year pumping data.

Ladwp Pumped (AF)

	Indy	LP	Laws	Total
9/1/99-6/30/00	430.5	561	25.5	1,017.0
2000/01	572	664	36	1,272.0
2001/02	567.00	701	39	1,307.0
2002/03	524.00	604	39	1,167.0
2003/04	566.00	620	33	1,219.0
2004/05	467.00	621	28	1,116.0
2005/06	465.00	652	28	1,145.0
2006/07	506.00	695	65	1,266.0
2007/08	505.00	699	41	1,245.0
2008/09	495.00	612	21	1,128.0
2009/10	462.00	605	19	1,086.0
2010/11	449.00	547	18	1,014.0
Acre-Feet	6,008.5	7581	392.5	13,982.0
430.5 AF, 561 AF, & 25.5 AF is for period 9/1/00 thru 6/30/00				13,982.0

Total County Accounted for Un-Metered Water (Acre-feet)

9/99-6/00 $17.2471 \times 0.75 = 12.9353$ AF

11 years thereafter

$17.2471 \times 11 = 189.7181$ AF

Total County Accounted for Un-Metered Water (Acre-feet) for 11.75 years:

12.9353

189.7181

202.6534

LADWP PUMPED:	13,982.0
Inyo Purveyed:	11,981.47
Allowable loss:	<u>202.6534</u>
Total accounted for water (AF)	12,184.12
Unaccounted for water (AF):	1,797.88

Lone Pine 2007/08 delivery of 699 AF is an estimate. Known pumping was 899 AF.

We know 200-300 AF went into aqueduct by mistake.

Using 899 Af vs 699 AF yields 1,997.88 unaccounted for water and 14,182 LADWP Pumped for unaccounted for water percent of 14%

Independence Allowable Loss:

Main Size	Footage	Miles	Gallons*	Days	Loss (AF)
4	115	0.02	65	30	0.00052
6	26079	4.94	65	30	0.17735
8	15703	2.97	65	30	0.14238
10	2135	0.40	65	30	0.0242
12	3068	0.58	65	30	0.04173
					0.38618
		8.92			

Average system monthly loss in AF: 0.39
 Average system yearly loss in AF: 4.63
 Average system daily loss in AF: 0.01

Firefighter training: twice per month, 2 hoses @ 150 psi, 1 hour each 400 gpm
 1.7677 AF/yr

Lone Pine Allowable Loss:

Main Size	Footage	Miles	Gallons**	Days	Loss (AF)
4	1310	0.25	60	30	0.00548
6	18659	3.53	60	30	0.11713
8	19814	3.75	60	30	0.16584
10	0	0.00	60	30	0
12	2553	0.48	60	30	0.03205
16	3692	0.70	60	30	0.0618
					0.3823
		8.72			

Average system monthly loss in AF: 0.38
 Average system yearly loss in AF: 4.59
 Average system daily loss in AF: 0.01

Firefighting training: Identical to Independence: 1.7677 AF/yr

Indy & LP system flushing: 120 hydrants total, 10 minutes per hydrant, 5000 gpm, once per year:
 Flushing loss==> 1.8413 AF

Lone Pine Landfill: 4,500 gal/day==> 3.5906 AF/yr

Laws Allowable Loss:

Given:

5972 Lin Ft 8" C-900 PVC pipe
 2135 Lin Ft 6" C-900 PVC pipe
 Utilizing same methodology as for Independence and Lone Pine,

Laws System Allowable Loss per year: 0.7713 AF

Total Annual Accountable Unbilled Water for Three Systems:

$$2 \times (1.7677) + 3.5906 + 4.6985 + 4.6513 + 0.7713 = 17.2471 \text{ AF}$$

AWWARF, Water and Revenue Losses: Unaccounted-for Water, 1987, Figure D-2, pg 177

* 65 gallons per (minute mile day inch) is an approximation of the factor for a system average pressure of app 70 PSI

** Average system pressure of approximately 60 psi yields 60 gallons per minute per mile per day per inch of main diameter leak

Main size less than 4" is not considered.

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Mileage difference between Analog and AMR meter reading:

With AMR:

Laws: No change in milage

Independence:

1 pass thru: 20 mi
 Total Reads Indy: 25 mi in Indy, 20 miles 1 way LP to Indy
 Total Mileage/Bill Period **65 miles**

LP:

1 pass thru: 38 mi
 Total Reads LP: 53 mi in LP
 Total Milage/Bill Period: **53 miles**

Total/Billing Period: **118 Miles**

6 B.P. per year

W/AMR Annual Miles: 708

Cost per mile: \$0.565

Annual Vehicle cost, AMR **\$400.02**

With ANALOG:

Laws: No Change in miles

Independence: Requires 3.5 days to read.

40 mi round trip x 4 days = 160 mi. travelled. 160 miles
 Within Indy, 1 mile to far end two times 2 miles
 0.5 miles to near point, 2 times 1 mile
163 miles

LP: Requires 5 days to read

2 miles travel to far corners, twice => 8 miles
 6 mi round trip LP Gas: 6 miles
 1 mi travel 1 way 4 times==> 8 miles total
 5 miles point to point. **27 miles**

Total/Billing Period: **190**

6 Billing Periods per year:

With ANALOG Annual Miles: 1140

Cost per mile: \$0.565

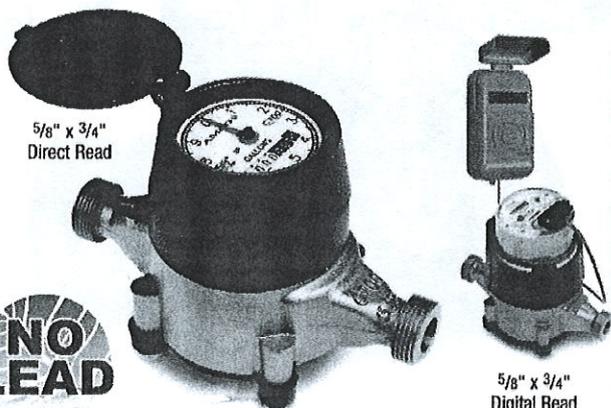
Annual Vehicle costs, ANALOG: 644.1

#10
P. 1

FLOW METERING Water Meters & Accessories

Product SPOTLIGHT

Lead-free water meters & accessories...



Elster AMCO C-700 California Compliant Positive Displacement Meters

- Meet NSF-61 and California Proposition 65 requirements for low lead content
- Highly accurate measuring chamber
- Exceeds applicable AWWA C-700 standards

Accurate, dependable Elster C-700 positive displacement water meters ensure your water system will have the highest possible revenue and lowest possible maintenance costs. The unique oscillating piston measuring chamber has a proven track record of durability and accuracy. The easy-to-read magnetically driven register is filled with inert gas and sealed to prevent condensation buildup.

These environmentally friendly meters have the same great features as the standard C-700 models, except the main case and bottom plate material are constructed of low-lead Envirobrass II. They meet NSF-61 and California Proposition 65 requirements for lead content. See page 351 for other specifications and flow rate information for the C-700 low-lead meters.

Choose from our stock meters in sizes from 5/8" x 1/2" to 2" with either direct-read register or digital output (remote reader included).

Note: Digital output meters equipped with remote read include the remote reader unit but not the connecting wire (order separately on page 358).

Meters Reading in Gallons

SIZE	DIRECT-READ		DIGITAL OUTPUT (T210 ELECTRONIC OUTREADER)	
	STOCK #	EACH	STOCK #	EACH
5/8" x 1/2"	13947	\$ 66.95	13953	\$ 169.95
5/8" x 3/4"	13948	66.95	14151	169.95
1"	13949	99.95	14152	199.95
1 1/4"	13950	164.95	14153	269.95
2"	13951	569.95	14164	679.95
2 1/2"	13952	699.95	14155	799.95

Meters Reading in Cubic Feet

SIZE	DIRECT-READ		DIGITAL OUTPUT (T210 ELECTRONIC OUTREADER)	
	STOCK #	EACH	STOCK #	EACH
5/8" x 1/2"	13333	\$ 66.95	13339	\$ 169.95
5/8" x 3/4"	13334	66.95	13340	169.95
1"	13335	99.95	13341	199.95
1 1/4"	13336	164.95	13342	269.95
2"	13337	569.95	13343	679.95
2 1/2"	13338	699.95	13344	799.95

22-GA Meter Wire, 500 ft Roll

Elster AMCO Solid-State SmartMeter®

- No moving parts—nothing to wear out
- Retains accuracy throughout meter life
- Replaceable battery

Elster AMCO SmartMeters provide accurate measurement of water flow for the lifetime of the meter. Their unique air detection system prevents measurement of air flow that often occurs at the start of water delivery and at high points in the water network. This ensures precise readings every time.

SmartMeters are built to last. Since they don't have any moving parts, they're not affected by wear and accuracy problems typically caused by sand and grit—there's nothing to wear out! A polymer lining over the meters' bronze body and a replaceable 15-year battery also help extend life.

Note: SmartMeters are available in all AMR (automatic meter reading) configurations as special order. Contact USABlueBook for details.

DESCRIPTION	STOCK #	EACH
5/8" x 1/2" SmartMeter	50527	\$ 149.95
5/8" x 3/4" SmartMeter	50528	149.95
1" SmartMeter	50529	178.95

See pages 366-371 for our complete selection of

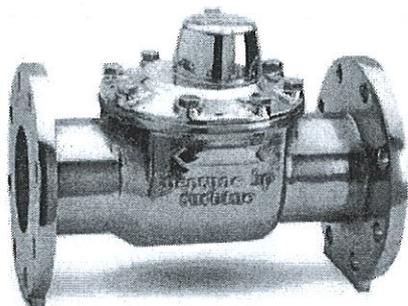
A.Y. McDonald No-Lead Meter Brass



Drinking Water Systems Components
ANSI / NSF 61-8

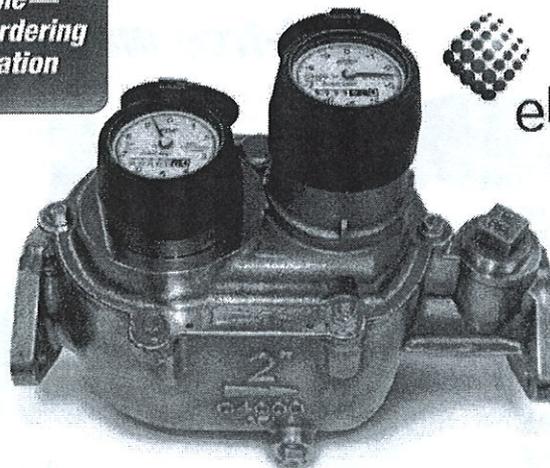
#10
p.2

Water Meters & Accessories **FLOW METERING**



Larger sizes available—call for ordering information

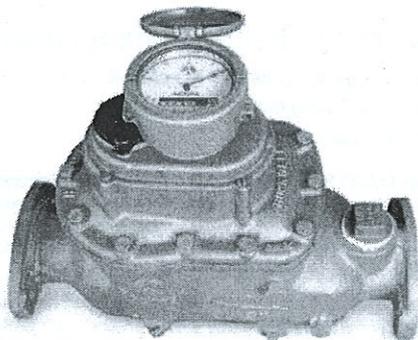
Low-lead available!



Rebuilt Turbine Water Meters

We supply several major brands 2" and larger (subject to availability). Check dimensions of existing installations because the laying length of different brands may vary. Call for quote on sizes larger than 4".

SIZE	END/#BOLTS	BRAND	OVERALL LENGTH	STOCK #	EACH
DIRECT READ GALLONS					
2"	FL/2	Neptune	10"	62265	\$ 459.95
2"	FL/2	Badger	10"	62266	529.95
3"	FL/4	Neptune	12"	62287	689.95
4"	FL/8	Neptune	14"	62286	1,139.95
DIRECT READ CUBIC FEET					
2"	FL/2	Neptune	10"	63586	\$ 459.95
2"	FL/2	Badger	10"	63576	549.95
2"	FL/2	Sensus	10"	63598	574.95
3"	FL/4	Neptune	12"	63577	759.95
4"	FL/8	Neptune	14"	63578	1,109.95



Rebuilt Sensus Compound Meters

- Big savings
- Accurate metering over a wide range of flow

Compound meters are like having two meters in one. One housing contains both a small positive displacement meter for accurately measuring low flow rates during periods of low demand, and a large turbine meter for high rates of flow during peak hours. Schools, public buildings and condominium complexes are typical of locations where compound meters are used.

Our compound meters are supplied on a "subject to availability" basis, so we recommend that you have us check stock when you order. If you are replacing an existing meter, be sure to measure its laying length because the overall length of the replacement compound meters may be different. If the replacement meter is shorter, we can provide spacer kits to make up the difference in length.

Note: Other brands like Neptune, Badger and Hersey are available—call for a quote. Stock numbers listed below are for direct read in gallons. Cubic foot readouts are also available. Contact USABlueBook for more information.

SIZE	OVERALL LENGTH	STOCK #	EACH
2" Fig, Direct Read Gallons	15 1/4"	62262	\$ 1,059.95
3" Fig, Direct Read Gallons	17"	62264	1,569.95
4" Fig, Direct Read Gallons	20"	62294	1,759.95

Elster AMCO C4000 Compound Meters

- A great choice for schools, motels and apartments
- For services where flows extend from very high to very low

AMCO's C4000 compound meters are designed for installations where large variations in flow rate can be expected, such as schools, smaller motels, apartments and condos. The C4000 exceeds the performance required in AWWA standard C-702. Long-life design for both the turbine and positive displacement meters, coupled with a high-performance valve, provides a high level of reliability.

Note: This meter is for use with potable cold water up to 120°F and working pressures up to 150 psi.

Accuracy:	98.5 to 101.5%
Max operating pressure:	150 psi
Max operating temp:	120°F
Case material:	bronze

The AWWA M6 manual recommends 10 pipe diameters upstream and 5 pipe diameters downstream of straight pipe for optimal accuracy of all differential type flowmeters. It is recommended that a plate strainer be used to protect the turbine and help reduce the effects of turbulence.

operator notes

Flow Ranges for AMCO C4000 Compound Meters

Size	Flow Range (gpm)	
	Min-Max	Max Continuous
2"	1 to 160	100
3"	1 to 650	325
4"	2 to 1150	575

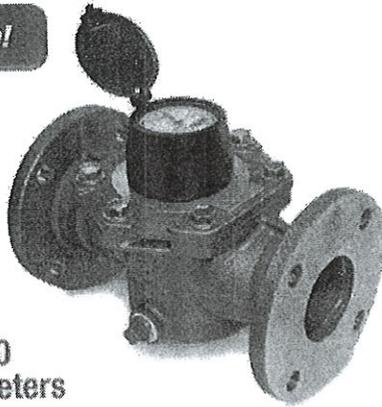
SIZE	FLANGE CONNECTION	OVERALL LENGTH	STOCK #	EACH
STANDARD BRASS				
2" Direct Read Gallons	2 Bolt, Oval	15.25"	69102	\$ 1,639.95
3" Direct Read Gallons	4 Bolt, Round	17"	69103	2,099.95
4" Direct Read Gallons	8 Bolt, Round	20"	69104	2,399.95
LOW-LEAD BRASS				
2" Direct Read Gallons	2 Bolt, Oval	15.25"	14194	\$ 1,934.95
3" Direct Read Gallons	4 Bolt, Round	17"	14195	2,649.95
4" Direct Read Gallons	8 Bolt, Round	20"	14196	2,999.95

NO LEAD

6" COMPOUND, 180 Lbs \$5320 ←

FLOW METERING Water Meters & Accessories

No-lead available!



Elster AMCO T4000 Class II Turbine Meters

- Unitized measuring element for easy in-place servicing
- NSF-61 approved low-lead models available
- Direct read and battery-powered remote-equipped versions

T4000 turbine meters are designed for use in potable cold water applications where occasional low flows and moderate to high sustained flows are required. These meters comply with all performance and material requirements of the AWWA Standard C701, Class II In-Line (High-Velocity) Type.

Install meter in horizontal, inclined or vertical lines. 1-1/2" and 2" meters have 2-bolt oval flanges. 3 to 8" are standard round flanges.

Accuracy:	98.5 to 101.5%
Max operating pressure:	150 psi
Max operating temp:	120°F
Case material	
1-1/2 to 2":	waterworks bronze
3 to 8":	cast iron

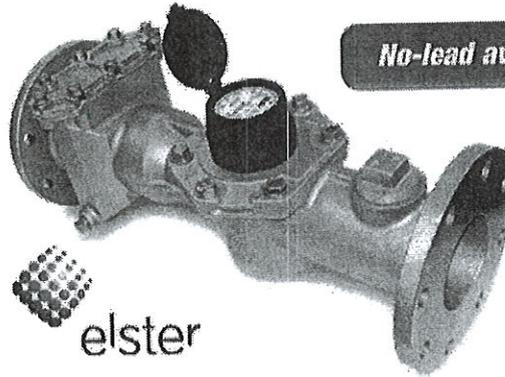
Flow Ranges for AMCO T4000 and TS4000 Turbine Meters

Size	Flow Range (gpm)		Flange Connection	Lay Length
	Min-Max	Max Continuous		
1-1/2"	3 to 400	220	2 Bolt, Oval	10"
2"	3 to 400	220	2 Bolt, Oval	10"
3"	7.5 to 900	600	4 Bolt, Round	12"
4"	7.5 to 1500	1200	8 Bolt, Round	14"
6"	13 to 3100	2500	8 Bolt, Round	18"
8"	18 to 5000	4000	8 Bolt, Round	20"
10"	27 to 8000	6500	8 Bolt, Round	17 3/4"
12"	50 to 10,000	8000	8 Bolt, Round	19 3/4"

NO LEAD

SIZE	STANDARD BRASS		NO-LEAD BRASS	
	STOCK #	EACH	STOCK #	EACH
DIRECT READ GALLONS				
1-1/2" Oval	17730	\$ 709.95	14166	\$ 799.95
2" Oval	17732	709.95	14157	809.95
3" Round	17734	984.95	14158	1,199.95
4" Round	17736	1,419.95	14159	1,569.95
6" Round	17738	2,509.95	14160	2,759.95
8" Round	17740	4,499.95	14181	5,499.95
DIGITAL REGISTER HEAD (REMOTE READ) GALLONS				
1-1/2" Oval	17759	\$ 784.95	14182	\$ 954.95
2" Oval	17760	804.95	14183	979.95
3" Round	17761	1,139.95	14184	1,349.95
4" Round	17762	1,529.95	14185	1,799.95
6" Round	17763	2,549.95	14186	3,099.95

No-lead available!



Elster AMCO TS4000 Class II Turbine Meters with Integral Z-Plate Strainers

- Built-in strainer protects meter from debris damage and increases meter life
- Strainer straightens out water flow—reduces water turbulence and maximizes meter performance
- Less costly than purchasing turbine and strainer separately

Use TS4000 turbine meters in potable cold water applications where occasional low flows and moderate to high sustained flows are expected. These meters comply with all performance and material requirements of the AWWA Standard C701, Class II In-Line (High-Velocity) Type.

Install meter in horizontal, inclined or vertical lines. The integral plate strainer protects the turbine and reduces the effects of turbulence. The integral strainer also reduces the required pipe diameters of undisturbed flow to five upstream and three downstream. All meters are direct read gallons.

Note: See AMCO T4000 ad on this page for flow ranges. Order flange pack separately on page 358.

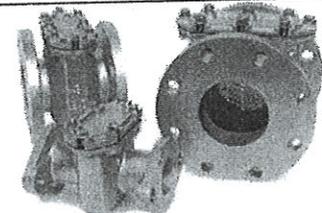
Accuracy:	98.5 to 101.5%
Max operating pressure:	150 psi
Max operating temp:	120°F
Case material:	waterworks bronze

NO LEAD

SIZE	FLANGE CONNECTION	OVERALL LENGTH	STANDARD BRASS		NO-LEAD BRASS	
			STOCK #	EACH	STOCK #	EACH
1-1/2"	Oval, 2-Bolt	13"	19727	\$ 899.95	14188	\$ 1,139.95
2"	Oval, 2-Bolt	17"	19728	969.95	14189	1,199.95
3"	Round, 4-Bolt	19"	19729	1,399.95	14191	1,729.95
4"	Round, 8-Bolt	23"	19730	1,999.95	14192	2,199.95
6"	Round, 8-Bolt	27"	19731	3,449.95	14193	4,199.95

Meter Strainers

- Meter collision insurance
- Protects turbines from damage from pebbles
- Straighten out water flow when turbine inlets are mounted next to an elbow



A pebble the size of a raisin can destroy a turbine meter costing hundreds of dollars. We strongly recommend that you install a strainer in the line in front of all meters located in lines which may contain damaging particles. Attach meter strainers directly to the meter flange. Their straightening vanes eliminate water turbulence and maximize meter performance. We also offer Y and basket strainers (see page 1631) which reduce effects of water turbulence when located at least 6 to 8 pipe diameters from meter inlet.

SIZE	MATERIAL	OL	STOCK #	EACH
2"	Bronze	7"	69097	\$ 289.95
3"	Bronze	6"	69098	489.95
4"	Bronze	7 1/2"	69099	759.95
6"	Bronze	9"	69100	1,049.95

11



714 South Fee Ana Street • Placentia, California 92870-6705
(714) 993-1706 • FAX (714) 993-6197

Specifications for Manufacture of Precast Concrete Boxes & Steel Covers

- Aggregates – All Aggregates will be in compliance with ASTM C-33 specifications.
- Cement – All Cement will be in compliance with ASTM C-150 specifications for Portland Type II Cement and will have a minimum design strength of 4,000 PSI @ 28 days.
- Reinforcing Wire – All Reinforcing Wire will be properly placed and be in compliance with ASTM A-150 REV-11.
- Steel Diamond Plate Covers – All Steel Diamond Plate Covers will be in compliance with ASTM A-786.

ANGLE METER - MUELLER® 300™ BALL VALVE

#12
Mueller Co.

8.3

Rev. 4-99

The MUELLER 300 Ball Angle Meter Valve is an optimized design combining a strong, reliable ball/stem connection with other desirable features, including a blow-out-proof stem, double O-rings and a 300 psig working pressure rating. The design offers true bi-directional (two-way) flow.

These valves are also available on MUELLER Copper Meter Yokes. Critical centerline to end dimensions of the MUELLER 300 Ball Angle Meter Valve are the same as the MUELLER Ground Key Angle Meter Stops assuring interchangeability of existing meter installations.

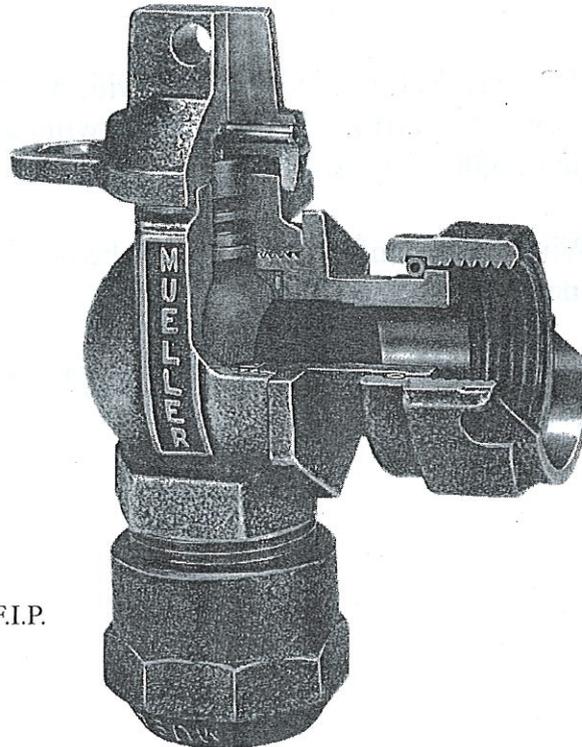
MUELLER 300 Ball Angle Meter Valve

- QUARTER TURN CHECK** - is integrally cast on body to assure positive action. Checkless 360° turn or clockwise-to-open are available as options.
- LOCKWING** - accepts bullet lock.
- OPTIMIZED KEY TO BALL CONNECTION** provides strong, reliable performance and resists breakage.
- FLUOROCARBON COATED BALL** ensures smooth, easy turning operation.
- END CONNECTIONS** include copper flare, MUELLER 110® Compression Connection, Pack Joint Connection and F.I.P. thread.

MANUFACTURED AND TESTED - in accordance with ANSI/AWWA C800 standard.

- FULL THREAD DEPTH-** and drill depth on F.I.P. thread ends (meets ANSI/AWWA C800 standard).

- LEVER HANDLES** are available as optional items.



- HEAVY BRASS COMPONENTS** - constructed of ASTM B62 (85-5-5-5) brass for strength and durability.

- 300 PSIG** - maximum working pressure.
- DOUBLE O-RING SEALS** - are supported in precision machined grooves and provide secure, leak-tight sealing.
- BLOW-OUT PROOF STEM DESIGN** prevents separation and assures dependable, safe operation.
- STAINLESS STEEL REINFORCED SEAT O-RING** - assures reliable seal under full flow and pressure.
- RUBBER SEAT** - is nitrile (BUNA -N) rubber for long life.
- SADDLE FEATURE** on meter swivel nut speeds installation and removal of meter. Plain meter swivel nut is available on request.
- FULL ROUNDWAY** - provides straight-through flow (reduced port available).

The MUELLER 300 Ball Valve is an optimized design combining a strong, reliable ball/stem connection with other desired features, including a blow-

out-proof stem, double O-rings and a 300 psig working pressure rating. The design offers true bi-directional (two way) flow.

MUELLER 300 Ball Curb Valve

BLOW-OUT-PROOF STEM DESIGN - prevents separation and assures dependable, safe operation.

OPTIMIZED KEY TO BALL CONNECTION provides strong, reliable performance and resists breakage.

FULL THREAD DEPTH - and drill depth on F.I.P. thread ends (meets ANSI/ AWWA C800 Standard).

FULL ROUNDWAY provides straight - through flow (reduced port available).

END PIECES O-RING SEALED - to provide additional protection against leaking.

DOUBLE O-RING SEALS - are supported in precision machined grooves and provide secure, leak - tight sealing.

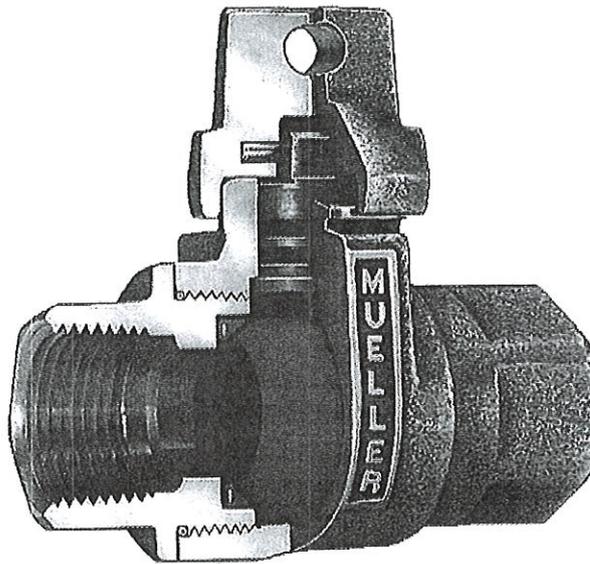
300 PSIG - maximum working pressure.

QUARTER TURN CHECK - is integrally cast on body to assure positive action. Checkless 360° turn is optional.

FLUOROCARBON COATED BALL - ensures smooth, easy turning operation.

STAINLESS STEEL REINFORCED SEAT assures reliable seal under full flow and pressure.

END CONNECTIONS include copper flare, MUELLER 110® Compression Connection, Pack Joint Connection, Copper Flare, M.I.P and F.I.P. thread.



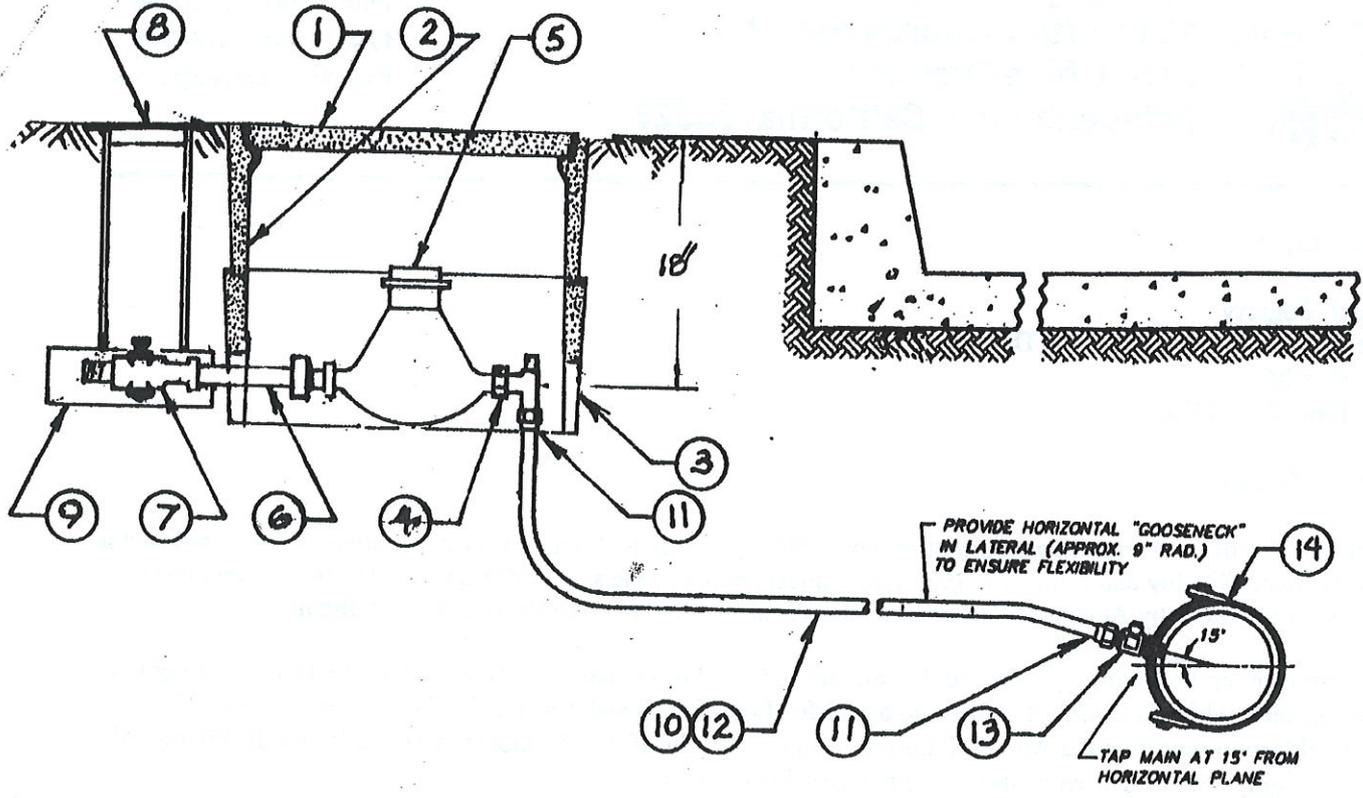
MANUFACTURED AND TESTED - to ANSI/AWWA C800 Standard.

SUITABLE - for use as test valves on Backflow Preventers (complies with Notice 89-001 of F.C.C.C. and H.R.).

HEAVY BRASS COMPONENTS - constructed of solid 85-5-5-5 ASTM B62 brass for strength and durability.

Typical 1" Water meter installation drawing

#14



NOTES:

- 1 IF MAIN MATERIAL IS D.I., C.I., PVC, OR A.C., USE BR2B SERIES SERVICE SADDLE AND B25028-1" CORP
- 2 IF MAIN MATERIAL IS STEEL, USE DR2A SERIES SERVICE SADDLE AND N35028-1" CORP
- 3 FLUSH LINE TO REMOVE DIRT & DEBRIS PRIOR TO PUTTING LINE INTO SERVICE .
- 4 NO STOP & WASTE VALVES PERMITTED.
- 5 PLACE BRICKS ON EACH SIDE OF INSULATED METER BALL VALVE & STAND PVC PIPE ON BRICKS AS A SUPPORT FOR PVC PIPE. CAST IRON LID TO BE FLUSH WITH GROUND.
- 6 SERVICE LINES MAY BE EITHER TYPE K SOFT COPPER TUBE OR CTS POLYETHELYNE TUBE APPROVED FOR DRINKING WATER USE.

MATERIAL LIST -- SEND SUBMITTALS PRIOR TO INSTALLATION OF MATERIALS				
ITEM	QTY.	DESCRIPTION	MFR	PART #
1	1	METER BOX LID, CONCRETE, TRAFFIC RATED LID IF IN TRAVELED WAY	BROOKS	#37-1 PIECE
2	1	METER BOX	BROOKS	#37
3	1	BOX EXTENSION	BROOKS	#37-EXT-12"
4	1	ANGLE METER BALL VALVE, BRONZE W/ LOCKWING, 360 DEG, W/SWIVLE N	MUELLER/EQUAL	B-24258-1
5	1	METER, BRONZE, READS IN 100'S CUFT, WITH TATTLE TALE DIAL	BADGER/EQUAL	M70
6	1	METER TAIL PIECE, BRONZE, 1" DIA x 8" LONG	JONES/EQUAL	J-130
7	1	INSULATED METER BALL VALVE, BRONZE, 360 DEG TURN	MUELLER/EQUAL	N-30283-3
8	1	VALVE CAN & LID; SCH 80 PVC PIPE & CAST IRON LID W/ REGISTER & LIP	---	---
9	2	BRICKS	---	---
10	VAR.	TUBING TYPE K COPPER OR CTS POLYETHELYNE, CLASS 200 AWWANSF	---	---
11	2	LINER INSERTS FOR CTS POLY TUBE	---	---
12	VAR.	PLASTIC SLEEVE FOR COPPER SERVICE TUBE AND BRONZE PARTS	MUELLER/EQUAL	504385
13	1	BALL CORP. BRONZE, MIPT x COMPRESSION CONNECTION FOR CTS TUBE	MUELLER/EQUAL	B25028-1
14	1	SERVICE SADDLE, DOUBLE STRAP, BRONZE, IPS THREAD	MUELLER/EQUAL	BR2B-IP100

#15



Planning Department
168 North Edwards Street
Post Office Drawer L
Independence, California 93526

Phone: (619) 872-1168
FAX: (619) 873-5695
E-Mail: bmettam@telis.org

August 13, 1997

Mr. Bill Fogarty
Lone Pine Community Services District
P. O. Box 36
Lone Pine, CA 93545

Dear Mr. Fogarty:

Thank you for the call regarding information you need regarding the Lone Pine water system. I have enclosed a letter to Glenn Singley dated July 29, 1997 that requests much of the same information. I expect to receive a response from DWP by August 15th giving me an estimate of the time needed to assemble the information.

There were several questions you raised that are not included in my letter to DWP. You asked for a full copy of the agreement, which is enclosed. You also asked for Lone Pine's water usage for the last three years. The Technical Group report on the Annual Pumping Program for the 1997/98 runoff year includes the following table (on page eight) regarding town water usage per year in acre-feet:

<u>Calendar Year</u>	<u>Lone Pine</u>	<u>Independence</u>	<u>Laws</u>
1989	538	342	15
1990	490	359	11
1991	520	349	36
1992	576	382	21
1993	562	381	27
1994	543	392	28
1995	575	377	11
1996	495	364	33

As you can see, Lone Pine exceeded the annual supply to be provided free by DWP(per the agreement) in three of the last eight years, although the average for the period is 537.4 acre-feet. I called DWP on August 7th, to have them verify the source of these numbers, but I'm working on the assumption these figures are accurate.

I have also sent a written request to County Counsel regarding the effect of Proposition 218 on water rate structure, but some of the other questions you have raised will likely have to wait until we are further along. So the information doesn't get lost, I have listed the remaining questions here:

- Will maintenance of the system include hydrants as well as meters?
- What will be the availability of Lone Pine Creek water in the event of an extended power outage?
- What equipment will be included when the system is transferred?

Please call me whenever you have a question.

Sincerely,

Brad Mettam
Special Projects Coordinator

[ICWD Home](#) > [Water Policy](#) >

Inyo/LA Long Term Water Agreement

Click [here](#)  for the LA/Inyo Long Term Water Agreement in PDF (5 MB)

Agreement Between the County of Inyo and the City of Los Angeles and Its Department of Water and Power on a Long Term Groundwater Management Plan for Owens Valley and Inyo County

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SECTION I -- History and Preliminary Statement

SECTION II -- Agreement Between the County of Inyo and the City of Los Angeles and Its Department of Water and Power on a Long Term Groundwater Management Plan for Owens Valley and Inyo County

Goals and Principles for Groundwater Management

I. Management Areas

II. Management Maps

A. Type A Classification

B. Type B Classification

C. Type C Classification

D. Type D Classification

E. Type E Classification

III. Management Strategy

A. Overall Goal

B. Groundwater Mining

C. Definitions

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H. Indian Lands

I. Rare and Endangered Species

J. Bishop Creek Water Association

IV. Vegetation Management Goals & Principles

A. Vegetation Management

B. Determination of "Significant" and "Significant Effect on the Environment"

V. Groundwater Pumping Program

Valley and in Rose Valley are subject to agreement of the Inyo County Board of Supervisors and the Department, acting through the Standing Committee. The Inyo County Board of Supervisors shall not unreasonably refuse to agree to a feasible groundwater banking facility that will not cause significant decrease or change in vegetation or a significant effect on the environment. The EIR describes the implementation of selected groundwater recharge facilities. The operation of such facilities shall be consistent with these goals and principles. The development of any future groundwater recharge and extraction facilities not covered by the EIR will be the subject of a subsequent "CEQA" review.

IX. COOPERATIVE STUDIES

It is recognized that additional cooperative studies related to the effects of groundwater pumping on the environment of the Owens Valley are necessary. The reasonable costs of studies implemented under the Stipulation and Order or the Green Book shall be funded by the Department. If necessary, such funding will be in addition to funds provided under section XIV below.

Projects and Other Provisions

X. ENHANCEMENT/MITIGATION PROJECTS

All existing enhancement/mitigation projects will continue unless the Inyo County Board of Supervisors and the Department, acting through the Standing Committee agree to modify or discontinue a project. Periodic evaluations of the projects shall be made by the Technical Group. Subject to the provisions of section VI, enhancement/mitigation projects shall continue to be supplied by enhancement/mitigation wells as necessary. New enhancement projects will be implemented if such projects are approved by the Inyo County Board of Supervisors and the Department, acting through the Standing Committee.

XI. TOWN WATER SYSTEMS

Los Angeles shall transfer ownership of the water systems in the towns of Lone Pine, Independence, and Laws to the County or to another Owens Valley public entity or entities. The transfer of ownership will be for a price of one dollar (\$1.00) per water system. The method of transfer will be a lease purchase agreement wherein the transfer of the ownership of each system will be complete at the end of five (5) years from the date of entry of this Stipulation and Order.

Prior to the transfer of the water systems, the County and the Department will jointly select and will have an independent engineering firm inspect each of the systems for compliance with all applicable requirements (including water quality) of the California Department of Health Services and other agencies, and perform a structural assessment of the Independence Reservoir including its ability to withstand seismic events. The costs of this inspection shall be funded by the Department. Prior to the transfer of the systems, the Department will make any repairs or alterations necessary to bring each distribution system into compliance with all such applicable requirements.

During the five (5) year lease period, Los Angeles shall be responsible for the operation and maintenance of the wells, pumps, reservoirs and chlorination equipment supplying the water systems of the three towns. Treated water shall be supplied by the Department as needed to each of the three town water systems at no cost up to the annual amounts set forth below:

System	Amount in Acre Feet
Lone Pine	550
Independence	450

The County (or other public entity operating the water system) shall pay the Department for water used in excess of these totals in an amount that would reflect the actual incremental cost to the Department of operating and maintaining the wells and reservoirs to provide the excess amount.

Also during the five (5) year lease period, the Department will improve the Independence town reservoir, if needed, to provide a facility with an expected service life of at least fifteen (15) years with routine maintenance and that meets all applicable Department of Health Services requirements. Further, the Department, at its option, shall either upgrade the reservoir as needed to meet seismic requirements as agreed upon by the Inyo County Board of Supervisors and the Department, or shall fully repair any damage to the reservoir caused by earthquake during a fifteen (15) year period following the transfer of the water system. The Lone Pine reservoir shall be replaced by the Department with a new reservoir with a five hundred thousand (500,000) gallon capacity. (Once a replacement well and the new reservoir are in service, groundwater shall no longer be exported via the Los Angeles aqueduct from the wells supplying the Lone Pine Water System.)

During the five (5) year lease period, the County or the public entity or entities shall set the water rates for the three town water systems, operate and maintain all components of the water systems (except the wells, pumps, chlorination equipment, and reservoirs), begin the transition for operating and maintaining the chlorination equipment, handle all billing and related matters, and establish a capital reserve fund for replacement of components of the systems in the event of emergency or deterioration.

At the end of the five (5) year lease period, the County or other public entity or entities shall assume total ownership and operation of each town water system, except that the Department shall continue to own and operate the wells. The Department shall supply untreated water to each water system at no cost up to the annual amounts described above. The County (or other public entity) operating each water system shall pay the Department for water used in excess of these totals in an amount that reflects the actual incremental costs of supplying water in excess of these totals.

It is recognized that Los Angeles has leased the town water system in Big Pine to the Big Pine Community Services District. It also is recognized that the lease requires certain considerations favorable to the District in the event of a permanent transfer of the town water systems in the other Owens Valley towns as part of an overall settlement of litigation. In view of this, the same benefits and opportunities will be provided to the Big Pine water system as are available to the three other Owens Valley water systems. This includes providing untreated water to the system without charge up to five hundred (500) acre feet per year.

XII. LOWER OWENS RIVER

The parties, together with the California Department of Fish and Game will complete a management plan that is now in preparation for the Lower Owens River by June 1, 1992. The County and the Department shall actively seek to secure funding for the construction and operation of the Lower Owens River project from the State of California and from other funding sources. Construction of the project shall be commenced by the Department within three (3) years after Court approval of this Stipulation and Order unless otherwise agreed by the Inyo County Board of Supervisors and the Department. Prior to implementation, the project will be the subject of a CEQA review separate from the EIR which describes this Stipulation and Order.

The project plan will include the construction of a pumpback station from the river near Keeler Bridge to the Los Angeles aqueduct. The pumpback system will be capable of pumping up to fifty cubic feet per second (50 cfs) from the river to the aqueduct. Due to seasonal fluctuation in the flow of the river, the average annual

VOLUME I
Draft
Environmental Impact Report

**WATER FROM THE OWENS VALLEY TO SUPPLY
THE SECOND LOS ANGELES AQUEDUCT**

- 1970 TO 1990
- 1990 ONWARD, PURSUANT TO A LONG TERM
GROUNDWATER MANAGEMENT PLAN

SCH #89080705

**City of Los Angeles,
Department of Water and Power
and County of Inyo**

Technical Assistance Provided by
EIP Associates

September 1990

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- F. The Green Book (Bound Separately)

To prescribe mitigation to reduce all of the overall cumulative impacts of Los Angeles' activities in the Owens Valley is beyond the scope of the EIR; however, the EIR identifies two overall mitigation measures designed to avoid significant cumulative impacts.

Grazing Management

The following grazing management program will continue to be implemented by LADWP:

- o Mapping of all LADWP lands for documentation of the vegetation species present, percent cover, and percent composition.
- o Establishment of carrying capacity based on the above-noted vegetation documentation.
- o Documentation of livestock use on Los Angeles lands in terms of lessee range practices.
- o Identification of problem areas and imbalance in either over or under utilization.
- o Development, application and enforcement of appropriate range management practices.

Town Water Systems

Between 1934 and 1972, water systems supplying the towns of Lone Pine, Independence and Laws were purchased by Los Angeles. Prior to and after the purchases of these systems, the amount of water available in the soil to supply vegetation in and near these towns was reduced due to several factors. It should be noted that not all of these factors were under the control of LADWP.

Los Angeles will transfer the town water systems in Lone Pine, Independence, Big Pine and Laws to Inyo County or to another public entity. As part of this transfer, for the first five years following the approval of the Final EIR, Los Angeles will supply treated groundwater to each of the town water systems up to certain specified amounts at no cost. At the end of the fifth year, the systems will be transferred to Inyo County (or to another public entity), but LADWP will permanently supply untreated groundwater to each town system up to certain specified amounts at no cost.

The provision of groundwater at no cost to each of the town water systems will allow Inyo County (or another public entity) to have the option of maintaining water rates at a level substantially below the rates that would have to be charged if all of the costs of pumping groundwater and of maintaining the well equipment were to be passed along to the users. The rates could also be

substantially less than the rates that would be charged by Los Angeles if the systems were to remain in the control of Los Angeles.

SECONDARY IMPACTS

Secondary impacts are those environmental impacts that do not result directly from the project, but are caused indirectly by economic activity induced or permitted by the proposed project. The proposed project would provide water which would sustain urban development in the City of Los Angeles. The secondary impacts of growth include the conversion of undeveloped land to urban uses and the generation of air and water pollutants.

If the proposed project was not implemented, it is unlikely that the secondary impacts of growth would be avoided. The demographic and economic forces propelling growth in Southern California are powerful. In the absence of voter-approved growth control measures or an economic recession, urban development will most likely continue because water to support growth will be found somewhere. If the proposed project is not implemented, an alternative will be. Water will not likely limit urban growth in California while a substantial proportion of the state's water supply is used to grow crops of modest economic value.

ALTERNATIVES

Seven alternative water management strategies for the Owens Valley are evaluated in this Draft EIR. One of them, the No Project Alternative, would involve no increase in water gathering beyond 1970 levels. The other six alternatives all involve increased water gathering and export to Los Angeles compared to 1970 levels.

In its role as a responsible agency, Inyo County will use this EIR as an informational document to assist it in deciding whether or not to approve the Agreement. (The Agreement is one of several elements of the proposed project.) In this role, Inyo County can only approve or disapprove the Agreement. If Inyo County were to disapprove the Agreement, Los Angeles would choose one of the alternatives to the proposed project, or another course of action, and the County would respond through legal, regulatory, legislative and/or other means. Since Inyo County lacks authority to unilaterally cause the no-project alternative or any other alternative to be implemented,

Owens Valley area. This effort is to be conducted by Inyo County. The salt cedar control effort will commence as soon as feasible following Court approval of the Agreement.

The initial salt cedar control effort is to be focused on those acres of the Valley floor identified in the Technical Group's "Salt Cedar Control Study Report" as having a high density of salt cedar composition. The priority for implementation of control will be as follows:

- o Lower Owens River Channel
- o Tinemaha Reservoir and Owens Valley North of Tinemaha Reservoir
- o Perennial Streams, Canals and Ditches
- o Springs and Seep Areas
- o High Water Table Meadows
- o Spreading Areas That Normally Receive Water
- o Spreading Areas That Receive Water Only in Very High Runoff Years

The annual control program is to be based on the same control priorities as described above.

RELEASES OF LOS ANGELES-OWNED LAND FOR PUBLIC AND PRIVATE USE

The Agreement provides that Los Angeles is to offer for sale (either at public auction or to the County for public purposes) 75 acres of Los Angeles-owned land. This will be performed in a manner consistent with the requirements of the Los Angeles City Charter for the sale of real property. The County and Los Angeles are to jointly confer on the location of, and the schedule for, the sale of each parcel. Prior to the sale of any such parcels, there is to be available a public water system to serve such property after its sale.

In addition to the sales described above, Los Angeles is to sell at public auction, or sell directly to the City of Bishop or the Bishop Community Redevelopment Agency, properties within the Bishop City limits totaling 26 acres of surplus Los Angeles-owned land.

TRANSFER OF WATER SYSTEMS OWNED BY LOS ANGELES TO INYO COUNTY IN THE TOWNS OF LONE PINE, INDEPENDENCE, BIG PINE AND LAWS

The Agreement provides that Los Angeles is to transfer ownership of the water systems in the towns of Lone Pine, Independence and Laws to the County, or to another Owens Valley public

5. Proposed Project

entity or entities. The method of transfer is to be a lease purchase agreement wherein the transfer of ownership of each system will be complete at the end of five years from the date of court approval of the Agreement.

During the five-year lease period, LADWP will be responsible for the operation and maintenance of the wells, pumps, reservoirs and chlorination equipment supplying the water system of the three towns. Treated water is to be supplied by LADWP as needed to each of the three town water systems at no cost, up to the annual amounts set forth below:

<u>System</u>	<u>Amount in Acre-Feet</u>
Lone Pine	550
Independence	450
Laws	50

Inyo County (or other public entity operating the water system) is to pay LADWP for water used in excess of these totals, in an amount that would reflect the actual incremental cost to LADWP of operating and maintaining the wells and reservoirs to provide the excess amount.

Also during the initial five-year lease period, LADWP is to improve the Independence town reservoir, if needed, to provide a facility with an expected service life of at least 15 years with routine maintenance and that also meets all California State Department of Health Service requirements. Further, LADWP, at its option, is to either upgrade the reservoir as needed to meet seismic requirements agreed upon by the Inyo County Board of Supervisors and LADWP, or is to fully repair any damage to the reservoir caused by earthquake during a 15-year period following the transfer of the water system. LADWP will replace the Lone Pine reservoir with a new 500,000-gallon reservoir. Once a replacement well and the new reservoir are in service, groundwater is not to be exported via the Los Angeles aqueduct from the wells supplying the Lone Pine Water System.

During the five-year lease period, Inyo County (or the public entity or entities) is to set the water rates for the three town water systems, operate and maintain all components of the water systems (except the wells, pumps, chlorination equipment, and reservoirs), begin the transition for operating and maintaining the chlorination equipment, handle all billing and related matters, and establish

a capital reserve fund for replacing components of the systems in the event of emergency or deterioration.

At the end of the five-year lease period, Inyo County or other public entity or entities is to assume total ownership and operation of each town water system, except that LADWP is to continue to own and operate the wells. LADWP shall supply untreated water to each water system at no cost, up to the annual amounts described above. Inyo County (or other public entity) operating each water system is to pay LADWP for water used in excess of these totals in an amount that reflects the actual incremental costs of supplying such water.

Los Angeles has leased the town water system in Big Pine to the Big Pine Community Services District. This lease requires certain considerations favorable to the District in the event of a permanent transfer of the town water systems in the other Owens Valley towns as part of an overall settlement of litigation. The same benefits and opportunities are to be provided to the Big Pine water system as are available to the three other Owens Valley water systems. This includes providing untreated water to the system without charge on up to 500 acre-feet per year.

REHABILITATION AND EXPANSION OF PARKS AND CAMPGROUNDS ON LOS ANGELES-OWNED LANDS THAT ARE LEASED AND OPERATED BY THE COUNTY OF INYO

The Agreement provides that LADWP is to provide funding to Inyo County for rehabilitation of existing County parks and campgrounds and development of County campgrounds, parks, and recreational facilities and programs. These facilities are located on lands owned by Los Angeles. Inyo County may obtain from Los Angeles, through sale or lease, land within or adjacent to Valley towns for use as a public park or for other public purposes.

During the ten years following Court approval of the final Agreement, Inyo County is to rehabilitate certain existing parks and campgrounds and develop certain new parks, campgrounds, recreational facilities and programs. These facilities are to be developed in accordance with a master plan now being prepared by Inyo County, or in accordance with any future plans developed by Inyo County. The Agreement also provides for an annual payment toward operation and maintenance of parks and campgrounds in Inyo County, and for Bishop City Park.

- o Mapping of all LADWP lands for documentation of the vegetation species present, percent cover, and percent composition.
- o Establishment of carrying capacity based on the above-noted vegetation documentation.
- o Documentation of livestock use on Los Angeles lands in terms of lessee range practices.
- o Identification of problem areas and imbalance in either over or under utilization.
- o Development, application and enforcement of appropriate range management practices.

Town Water Systems

Between 1934 and 1972, water systems supplying the towns of Lone Pine, Independence and Laws were purchased by Los Angeles. Prior to and after the purchases of these systems, the amount of water available in the soil to supply vegetation in and near these towns was reduced due to several factors. It should be noted that not all of these factors were under the control of LADWP.

The factors are: 1) a reduction by LADWP in the amount of irrigated lands in and around the towns -- this reduced groundwater recharge; 2) construction of sewer systems and the abandonment of septic systems -- this reduced a source of supply of soil water; 3) the conversion of the source of the town water supply from surface water to groundwater -- pumping from the town supply well has lowered the water table in the vicinity of the well; and 4) the installation of water meters by LADWP and the increase by LADWP of the water rates in the towns to rates equal to those charged in Los Angeles -- this reduced water use in the towns. In 1985, under the provisions of the interim agreement between Inyo County and Los Angeles, town water rates were reduced to 50 percent of the rates in existence in August, 1983. At present, the town water rates are approximately one third of the rates that would be in effect if the reduction had not been implemented. An additional factor in the town of Lone Pine was the diversion of Lone Pine Creek in 1913 into the aqueduct. This also reduced groundwater recharge.

In addition to the enhancement/mitigation projects described in Chapter 5 that have been or will be implemented in each of the Valley towns, Los Angeles will transfer the town water systems in Lone Pine, Independence, Big Pine and Laws to Inyo County or to another public entity. As part of this transfer, for the first five years following the approval of the Final EIR, Los Angeles will

supply treated groundwater to each of the town water systems up to certain specified amounts at no cost. At the end of the fifth year, the systems will be transferred to Inyo County (or to another public entity), but LADWP will permanently supply untreated groundwater to each town system up to certain specified amounts at no cost. The transfer of the town water systems is more fully described in Chapter 5, Project Description.

The provision of groundwater at no cost to each of the town water systems will allow Inyo County (or another public entity) to have the option of maintaining water rates at a level substantially below the rates that would have to be charged if all of the costs of pumping groundwater and of maintaining the well equipment were to be passed along to the users. The rates could also be substantially less than the rates that would be charged by Los Angeles if the systems were to remain in the control of Los Angeles. The transfer of the town water systems thus will mitigate for the long-term reduction in water available in the soil in these towns since residents will have the option of supplying water to vegetation in the towns at a lower cost than if the systems remained under the ownership and operation of Los Angeles.

17.6 RELATIONSHIP TO OTHER WATER SUPPLY PLANS

Table 17-1 summarizes other water supply actions in California, the outcomes of which could affect and/or be affected by the increased groundwater pumping plan evaluated in this report.

These actions include:

- o San Francisco Bay-Sacramento Delta water quality control plan hearings currently being held by the State Water Resources Control Board (SWRCB) in Sacramento. The outcome of these hearings is to be a water quality control plan which promulgates Delta water quality standards intended to protect all beneficial uses of Delta water, including in-stream uses and water to Delta exporters.
- o Proposed expansion of the State Water Project (SWP) in the form of cross-Delta channel enlargements and construction of Los Banos Grandes Reservoir by the California Department of Water Resources.
- o Revision of LADWP's water rights licenses in Mono Basin by SWRCB. This revision involves the establishment and maintenance of instream flow standards in the Mono Lake tributaries from which LADWP diverts water, and the establishment and maintenance of water elevation standards and salinity standards in Mono Lake to provide appropriate protection for public trust resources and beneficial uses of Mono Lake.

Inyo County Public Works Needs Assessment Conclusions

By Krista Reger, CRWA

Inyo County Public Works (ICPW) is responsible for three separate systems: Lone Pine, Independence, and Laws. The Lone Pine system was established in 1880 and serves 1,800 people through 550 service connections. The Independence system was established in 1887 and serves 574 people. The current water rates for both systems are not sufficient to maintain the system. Inyo County Public Works has had many obstacles prevent them from being able to raise water rates as necessary. A recent rate study done by an outside consultant did not provide them with the information they needed

to set a new water rate. It is highly recommended that assistance be given to ICPW to install new meters in both systems. It is understood that new meters will allow ICPW to determine a fair water rate for these systems which will allow them to establish a fund for emergency and future repairs. The lack of funds available for these systems have left other parts of the systems in need. Both systems would also benefit from a new transmission main (age undetermined), a leak detection survey, new sampling stations, and an increase in water storage capacity.

The Laws system was established in the 1930s and serves 30 people through 17 service connections. ICPW is charged for their water usage by the Los Angeles Department of Water and Power. However, the meters that are currently in place are unreliable and make it difficult to determine how much water is currently being used. Therefore, there is a real concern that they are being overcharged for their water usage. New meters for this system need to be a priority to ensure that ICPW is not overcharged. The system also needs a new hydropneumatic tank as the current one is old and will likely not last much longer.

Inyo-Mono RWMG Needs Assessment Summary Information Agreement

General information from each TMF category below will be combined with results from other assessments and reported to the Inyo-Mono RWMG. Additional specific information to be reported (or specifically *not* reported) is listed within each category. Results will help identify the need for training workshops by region or identification of potential grant opportunities through the IRWMP Group.

1. System Description

- Date established 1887
- Number of service connections 365
- Population served 574
- Water quality challenges
- Is water supply reliable to meet demands?
- Infrastructure concerns or challenges
- Objectives of the system
- Recommendations to address problems, including project descriptions and associated budgets The Independence system needs to raise water rates however they are hindered by their current meters and Prop 218. They need new meters (automatic meter reading system) with billing software as needed and an outside rate study (consultant) - prop 218 process. Also a new transmission main (current main original from 1928); leak detection survey; installation of new well (mandated) interconnect with DWP well and system; sampling stations; increase storage capacity
- How do system's objectives and strategies and project needs meet up with Inyo-Mono objectives and RMS?
- Specific numbers and capacities where applicable will be provided to the group. Maps of system are not required to be provided to the group.

2. Certified Operators

3. Source Capacity

4. Operations Plan

5. Training

6. Ownership

A listing of the types of water system ownership included in the assessments will be provided to the group (private, public, Tribal, for profit, non-profit). System specific legal formation documentation is not required to be provided to the group.

7. Water Rights

System specific water rights information is not required to be provided to the group.

8. Organization

General information on organizational chart will be combined with results from other assessments and reported by region.

9. Emergency Response Plan

Inyo-Mono RWMG Needs Assessment Summary Information Agreement

General information from each TMF category below will be combined with results from other assessments and reported to the Inyo-Mono RWMG. Additional specific information to be reported (or specifically *not* reported) is listed within each category. Results will help identify the need for training workshops by region or identification of potential grant opportunities through the IRWMP Group.

1. System Description

- Date established 1881
- Number of service connections 550
- Population served 1800
- Water quality challenges
- Is water supply reliable to meet demands?
- Infrastructure concerns or challenges
- Objectives of the system
- Recommendations to address problems, including project descriptions and associated budgets The Lone Pine system needs to raise water rates however they are hindered by their current meters and Prop 218. They need new meters (automatic meter reading system) with billing software as needed and an outside rate study (consultant) - prop 218 process. Also a new transmission main (not sure of age); leak detection survey; sampling stations; increase storage capacity; water tank maintenance and repair; hydraulic analysis;
- How do system's objectives and strategies and project needs meet up with Inyo-Mono objectives and RMS?
- Specific numbers and capacities where applicable will be provided to the group. Maps of system are not required to be provided to the group.

2. Certified Operators

3. Source Capacity

4. Operations Plan

5. Training

6. Ownership

A listing of the types of water system ownership included in the assessments will be provided to the group (private, public, Tribal, for profit, non-profit). System specific legal formation documentation is not required to be provided to the group.

7. Water Rights

System specific water rights information is not required to be provided to the group.

8. Organization

General information on organizational chart will be combined with results from other assessments and reported by region.

9. Emergency Response Plan

Inyo-Mono RWMG Needs Assessment Summary Information Agreement

General information from each TMF category below will be combined with results from other assessments and reported to the Inyo-Mono RWMG. Additional specific information to be reported (or specifically *not* reported) is listed within each category. Results will help identify the need for training workshops by region or identification of potential grant opportunities through the IRWMP Group.

1. System Description

- Date established 1930s
- Number of service connections 17
- Population served 30
- Water quality challenges
- Is water supply reliable to meet demands?
- Infrastructure concerns or challenges
- Objectives of the system
- Recommendations to address problems, including project descriptions and associated budgets The Laws system is old and therefore need new hydropneumatic tank (10,000+); new meters (automatic reading system & billing software); monitor of auxillary well and automation of well. Issues with meters make it difficult to determine how much water is being used and they are charged for usage by LADWP.
- How do system's objectives and strategies and project needs meet up with Inyo-Mono objectives and RMS?
- Specific numbers and capacities where applicable will be provided to the group. Maps of system are not required to be provided to the group.

2. Certified Operators

3. Source Capacity

4. Operations Plan

5. Training

6. Ownership

A listing of the types of water system ownership included in the assessments will be provided to the group (private, public, Tribal, for profit, non-profit). System specific legal formation documentation is not required to be provided to the group.

7. Water Rights

System specific water rights information is not required to be provided to the group.

8. Organization

General information on organizational chart will be combined with results from other assessments and reported by region.

9. Emergency Response Plan

System specific emergency response plan information is not required to be provided to the group.