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December 20, 2010

BY HAND DELIVERY

Ms. Ann Cole, Director
Commission Clerk and Administrative Services
Room 110, Easley Building
Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

Re: Docket No. 100128-WU

Dear Ms. Cole:

Enclosed for filing in this docket is a copy of the Capacity Analysis Report Update prepared by Preble-Rish, Inc. for Lighthouse Utilities. This report was referenced in the revised MFRs filed in this docket.

A copy of the report, less the maps, which had previously been filed, has been provided to Staff.

Please indicate receipt of this document by stamping the enclosed extra copy of this letter and returning same to me.

Thank you for your assistance with this filing.

Sincerely,

Norman H. Horton, Jr.

NHH/amb

cc: Mr. Stan Rieger

DOCUMENT NUMBER DATE

10064 DEC 20 09

FPSC-COMMISSION CLERK

100128-WU

CAPACITY ANALYSIS REPORT UPDATE

LIGHTHOUSE UTILITIES COMPANY, INC. FDEP PUBLIC WATER SYSTEM ID# 1230848

Gulf County, FL

April 2009

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DOCUMENT NUMBER DATE

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1.0 PUBLIC WATER SYSTEM DESCRIPTION

Lighthouse Utilities Company, Inc. (LUCI) is a privately owned company which owns and operates the LUCI Water System serving unincorporated areas in South Gulf County, Florida. LUCI is a stand alone operation with an emergency interconnection agreement with the adjacent City of Port St. Joe Public Water System (PWS). LUCI's service area encompasses approximately 13 square miles covering the St. Joseph Peninsula, Jones Homestead and Indian Pass communities. The service area map is shown in Appendix A. The existing service area is bounded by the City of Port St. Joe water system to the North, the Gulf County line to the East, and the Gulf of Mexico to the South and West. The land use for the extended service area shown in the service area map is currently timberland, which has potential for future growth as the city of Port St. Joe expands.

LUCI's estimated average service population for 2008 is 3,386 people. This population was calculated by multiplying the average number of service connections for the period (1,328) by the average household size (2.55 persons per household based on historical data) as shown in Appendix D, tables D-1 and D-2. The number of service connections for each of the 12 months was obtained from LUCI's Florida Department of Environmental Protection (FDEP) monthly operation reports (MORs).

The LUCI system consists of approximately 149,800 feet (28.37 miles) of distribution mains of varying sizes, two water plants (LUCI I & LUCI II), and a booster station (LUCI III). LUCI I contains a 6" potable water production well while LUCI II has a 16" well. LUCI I is located off of C-30 north of C-30A with LUCI II three miles to

the southeast. The booster station, located just north of Rish Park on the Cape San Blas Peninsula, was designed to serve the St. Joseph Peninsula from the "Stump Hole" to the end of the Peninsula (State Park) until 2023. Appendix B includes tables B-1 through B-4 that describe the existing source, treatment, pumping, and finished water storage facilities along with the capacities of these facilities. Also included in Appendix B is a system diagram (Sheets B through B-3) illustrating LUCI's distribution system and flow directions.

The amount of fire protection LUCI can provide is restricted by the existing distribution system. The pipe sizes of the existing distribution system create head losses that the existing plants cannot overcome thus limiting LUCI's ability to provide fire protection to the extents of its service area.

2.0 PAST WATER PRODUCTION

The LUCI water production data was obtained from the FDEP combined plant MORs. Thirteen years of MOR data (1996-2008) is presented in tabular form in Appendix C, Table C-1. This information is also presented graphical in Figure C-1. As is shown, LUCI's Maximum Day Production (MDP) has exceeded its permitted maximum day operating capacity once in the past ten years, August 2004. This excessive production was the result of a ground storage tank implosion at LUCI II. LUCI has also come within 25% of its permitted average day operating capacity five times beginning in 2002.

3.0 TEN YEAR PROJECTIONS

3.1 POPULATION PROJECTION

Appendix D, Figure D-1 shows the growth trend over the past 13 years based on the number of service connections to the LUCI system. These numbers were obtained from LUCI's FDEP MORs. The population was calculated from the number of connections using 2.55 persons per residence. A linear trendline was extrapolated to make the 10 year population projection. The linear trendline was chosen as it was the most reliable trendline for the given data set. The reliability of a trendline is measured by the R-squared value, the coefficient of determination. The R-squared values are from 0 to 1 with a value of 1 being the most and 0 the least reliable.

Trendline Equation:

$$Y = 69.52x + 551.98$$

where : $Y = \text{Service Connections}$

$$x = \text{year}(1 = 1997, 20 = 2018)$$

Ten Year Projection:

$$\Rightarrow Y_{2018} = 69.52(20) + 551.98 = 1,943 \text{ Connections} = 4,955 \text{ persons}$$

3.2 PROJECTED WATER DEMAND & FINISHED WATER STORAGE

The total Future Average Daily Flow (FADF) for the entire LUCI system was calculated using a 100 gpcd flow demand. The total Future Maximum Daily Flow (FMDF) was calculated using a peaking factor of 2.21 based on LUCI's historical MOR data, Table C-1. A peaking factor of 4 was assumed to calculate the Future Peak Hour Flow (FPHF). The 2018 design flows for LUCI are:

$$\begin{aligned} \text{FADF} &= (4,955 \text{ persons}) * (100 \text{ gpcd}) = 495,500 \text{ gpd} = 344 \text{ gpm} \\ \text{FMDF} &= 2.21 * \text{FADF} = 760 \text{ gpm} \\ \text{FPHF} &= 4 * \text{FADF} = 1,376 \text{ gpm} \end{aligned}$$

Total useful finished water storage need is defined as the water storage capacity needed for operational equalization to meet peak water demand plus the water storage capacity needed to meet any fire-flow requirements. The fire flow currently required in the LUCI service area is 500 gpm for two hour duration per the Recommended Standards for Water Works¹. The 2018 finished water storage is calculated below using the Water Distribution Systems Handbook method².

$$V_{\text{Useful Storage}} = \text{ES} + \text{FS}$$

$$\begin{aligned} \text{Where:} \quad \text{ES} &= (\text{PHD} - \text{TPC}) * 4 \text{ hr} \\ \text{FS} &= \text{FF} * 2\text{hr} + \text{PHD} * 1\text{hr} + \text{ADD} * 1\text{hr} \end{aligned}$$

$$\begin{aligned} \text{Where:} \quad \text{ES} &= \text{Equalization Storage} \\ \text{PHD} &= \text{Peak Hour Demand} \\ \text{TPC} &= \text{Treatment Plant Capacity} \\ \text{FS} &= \text{Fire Storage} \end{aligned}$$

$$\begin{aligned} \rightarrow \quad \text{ES} &= (1,376 \text{ gpm} - 850 \text{ gpm}) * (60 \text{ min}/1 \text{ hr}) * 4 \text{ hr} \\ \text{ES} &= 126,240 \text{ gallons} \end{aligned}$$

$$\begin{aligned} \rightarrow \quad \text{FS} &= 500 \text{ gpm} * 120 \text{ min} + 1,376 \text{ gpm} * 60 \text{ min} + 344 \text{ gpm} * 60 \text{ min} \\ \text{FS} &= 163,200 \text{ gallons} \end{aligned}$$

$$\begin{aligned} V_{\text{Useful Storage}} &= 126,240 \text{ gal} + 163,200 \text{ gal} \\ \rightarrow \quad V_{\text{Useful Storage}} &= \mathbf{289,440 \text{ gallons}} \end{aligned}$$

¹ "Recommended Standards For Water Works", Great Lakes - Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 2003 Edition.

² "Guidelines for Preparation of Source/Treatment/Storage Capacity Analysis Reports For Public Works Systems", Florida Department of Environmental Protection, July 2004.

Appendix E, Table E-1 shows the projected water demands and finished-water storage needs for 2009-2018. Figure E-1 shows the projected total water demand plotted as a continuation of the past total water production. As presented in Figure E-2 the projected total finished-water storage need is less than the existing total finished-water storage through 2018. As shown in Table E-1, the projected total MDD for LUCI will not exceed LUCI's total permitted operating capacity in the ten year projection. Figure E-4 shows that in 2014 LUCI's ADF will exceed LUCI I's permitted operating capacity.

4.0 RECOMMENDATIONS FOR NEW OR EXPANDED FACILITIES

In the 2006 Initial Capacity Analysis Report the following recommendations were made. As is shown, Lighthouse Utilities Company, Inc. has been working towards completing these improvements.

1. Water Loss Reduction 2006 – **Completed 2006**
2. Upgrade the capacity of both LUCI wells 2006
 - a. LUCI I from 150 gpm to 300 gpm = 432,000 GPD. - **Completed August 2006**
 - b. LUCI II from 450 gpm to 625 gpm = 900,000 GPD.
 - c. Upgrade the LUCI I aerator – **Completed 2007**
3. Connection to the City of Port St. Joe distribution system – **Completed August 2007**
4. Upgrade the LUCI II High Service Pumps, 2007
5. Connect the LUCI I treatment plant to LUCI II storage and pumping facilities, 2008 – **Emergency connection Completed March 2009**

Since the initial CAR, LUCI's service area has experienced a reduction in water usage due to the real estate downfall. As shown in Table E-2 LUCI's MDF will come within 75% of the MDP in 2015. Also shown LUCI's ADF will exceed LUCI I's ADP in 2014. As such, some improvements shall be made in preparation for this time. The following improvements shall be made by the dates shown to keep the LUCI water system in FDEP compliance and provide their customers with adequate pressure.

1. Upgrade the capacity of LUCI II from 450 gpm to 625 gpm = 900,000 GPD, 2014
2. Purchase water from the City of Port St. Joe, 2014
3. LUCI II Improvements and LUCI I to LUCI II connection, 2014

4.1 LUCI II WELL UPGRADE

LUCI requested and received a Consumptive Use Permit from the NFWFMD increasing its combined average annual withdrawal to 592,000 gallons of water per day and a maximum combined withdrawal of 1,332,000 gallons during a single day. To achieve the requested withdrawal amounts the LUCI I well pump was increased from 150 gpm to 400 gpm in August 2006. LUCI II's well pump capacity will be increased by 175 gpm bringing LUCI II's future capacity to 625 gpm = 900,000 GPD. The Florida Administrative Code Rule 62-555-315(3) states:

"the total well capacity for the combined systems shall equal at least the total design maximum-day water demand for the combined systems and, with the largest producing well out of operation for the combined systems, shall equal at least the design average daily water demand."

This increase to LUCI II's well capacity will satisfy the first part of the above rule through 2018 as is shown in Appendix E, figure E-3. As is shown in Figure E-4 the LUCI will be out of compliance with the second part of FAC 62-555-315(3) in 2014. In order to remain in compliance LUCI must take the necessary steps to prepare for the purchase of water from the City of Port St. Joe before 2014.

4.2 PURCHASE OF WATER FROM CITY OF PORT ST. JOE

The LUCI/PSJ interconnection construction was completed in August 2007. This interconnection was designed and constructed as an emergency supply until the City of Port St. Joe Surface Water Treatment Plant becomes operational. The SWTP is currently

under construction and scheduled to come online this month. With this plant's completion date upon us and the projections showing a noncompliance in 2014 as discussed in the previous section, LUCI is now looking into the possibility of gaining the funding necessary for the construction of additional system components necessary to purchase water from the City of Port St. Joe. Currently LUCI is working with the City of Port St. Joe and its engineers to determine the most cost effective solution for the purchase of all or most of the its water from the City of Port St. Joe. Some of the options for improvements include a booster station in the Jones Homestead vicinity, a supply main from the PSJ/LUCI interconnection to LUCI II, or raising the City of Port St. Joe's elevated storage tank.

4.3 LUCI II IMPROVEMENTS AND LUCI I TO LUCI II CONNECTION

The LUCI I storage and high service pumping facilities are in poor condition. Its best use is to pump raw water to the LUCI II storage tank and to serve as a backup, providing minimal water to LUCI's customers in the case of an emergency. This connection will be designed in conjunction with the LUCI II improvements.

The LUCI II improvements are preliminarily designed based on a 20 year design life and fire flow. As shown in Appendix D there are currently 1,328 service connections. By 2028 this customer base will grow to 2,638 connections which yields an ADF of 672,538 GPD or 467 gpm.

LUCI II Demands:

FADF = 467 gpm

F MDF = $2.21 * \text{FADF} = 2.21 * 467 \text{ gpm} = \underline{1,032 \text{ gpm}}$

F PHF = $4 * \text{FADF} = 4 * 467 \text{ gpm} = \underline{1,868 \text{ gpm}}$

Total Pumping Required:

$$\begin{aligned} &= \text{FPHF} + \text{Fire Flow} \\ &= 1,868 \text{ gpm} + 500 \text{ gpm} \\ &= 2,368 \text{ gpm} \end{aligned}$$

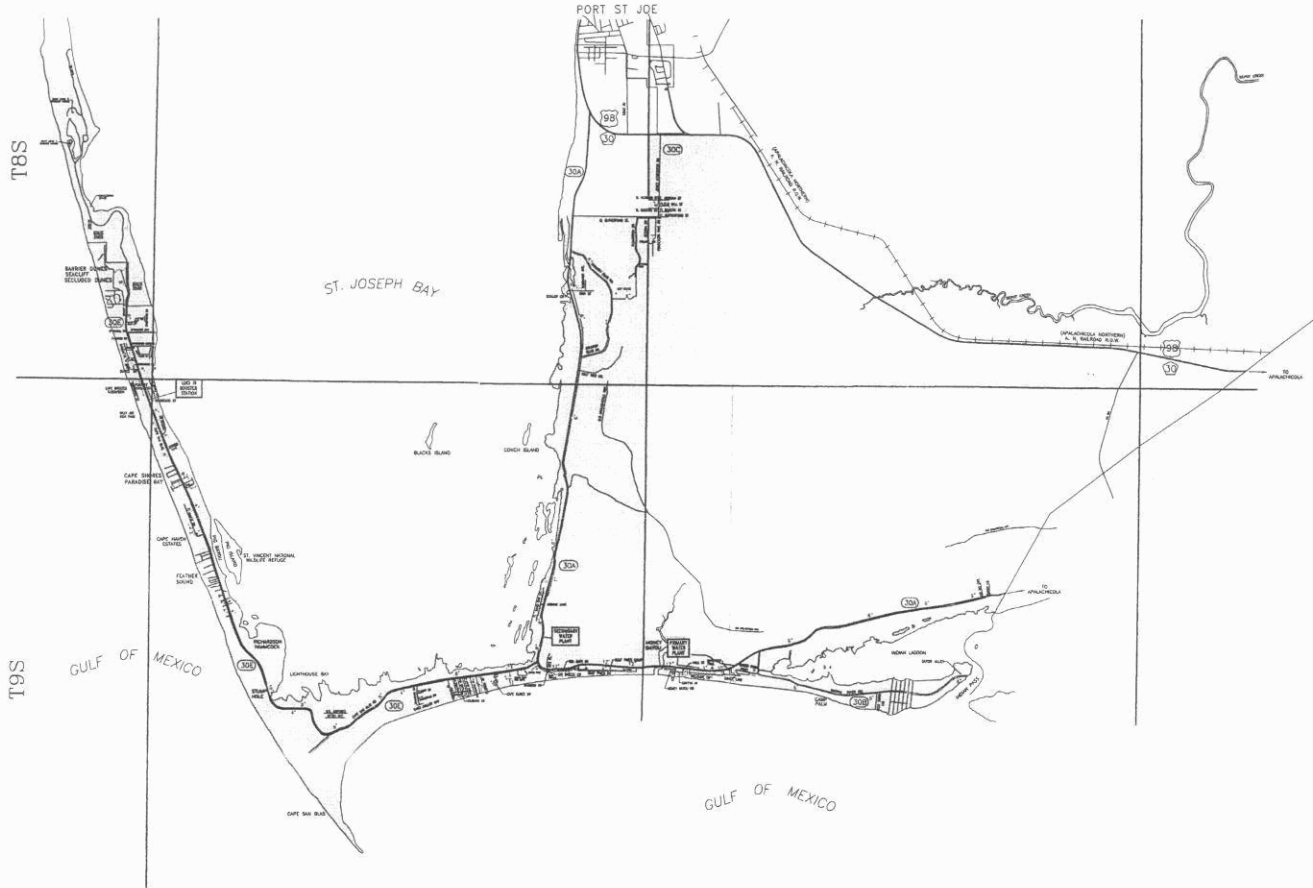
Therefore, use 5-600 gpm high service pumps and utilize the existing 2-260 gpm pumps as jockey pumps. With this pump lineup and one high service pump out of service the system will deliver 2,400 gpm which is greater than the required 2,368 gpm. The pump curves are attached in Appendix F. It should be noted that the LUCI II plant will pump to the LUCI III booster station approximately 12 hours per day at full build out.

R12W

R11W

R10W

R9W

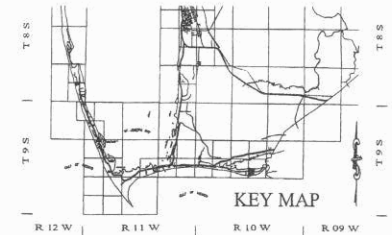


LEGEND:

- PAVED HIGH TRAFFIC ROADS OR HIGHWAYS
- PRIVATE ROADS OR DIRT TRAILS
- NON - SERVICE AREA
- EXISTING SERVICE AREA
- SECONDARY ROADS PAVED OR DIRT SURFACE
- EXISTING WATER MARKS (DEEPS NOTED)

NOTE:

THIS DRAWING IS BASED ON THE "GULF COUNTY PROPERTY MAPS" DIGITIZED IN 1997 AND COUNTY APPROVED.



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 (850) 822-0644 (850) 227-7200 (850) 219-8020 (850) 231-3662

SERVICE AREA MAP
 LIGHTHOUSE UTILITIES COMPANY
 GULF COUNTY, FLORIDA

DATE: 03/02	PROJECT NO. 11.021
SCALE: NTS	
DRAWN: MEL/KLW	SHEET A-1
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EB# 0006155

Table B-1: LUCI Source Facilities

Name/Location of Well	Pumps from: (Name of Aquifer)	Pumps to: (Name/Location of Water Treatment Plant)	Design Capacity of Well Pump, MGD
LUCI-1 6" Well/5610 CR-C30	Floridan	LUCI-1/5610 CR-C30	0.576
LUCI-2 16" well/7521 CR-C-30	Floridan	LUCI-2/7521 CR-C-30	0.648

MGD = million gallons per day.

Table B-2: LUCI Water Treatment Plants

Name/Location of Plant	Type of Treatment	Total Design Capacity of Source Facilities (Wells, ETC.), MGD	Design Capacity of Plant, MGD		Permitted Operating Capacity of Plant, MGD	
			Maximum Day	Peak	Maximum Day	Peak
LUCI 1- 6" well / 5610 CRd C-30	Aeration/Chlorination				0.432	
LUCI 2-16" Well/ 7521 CRd C-30	Aeration/Chlorination				0.900	
Total or Combined Permitted Operating Capacity of All Treatment Plants:					1.332	

MGD = million gallons per day.

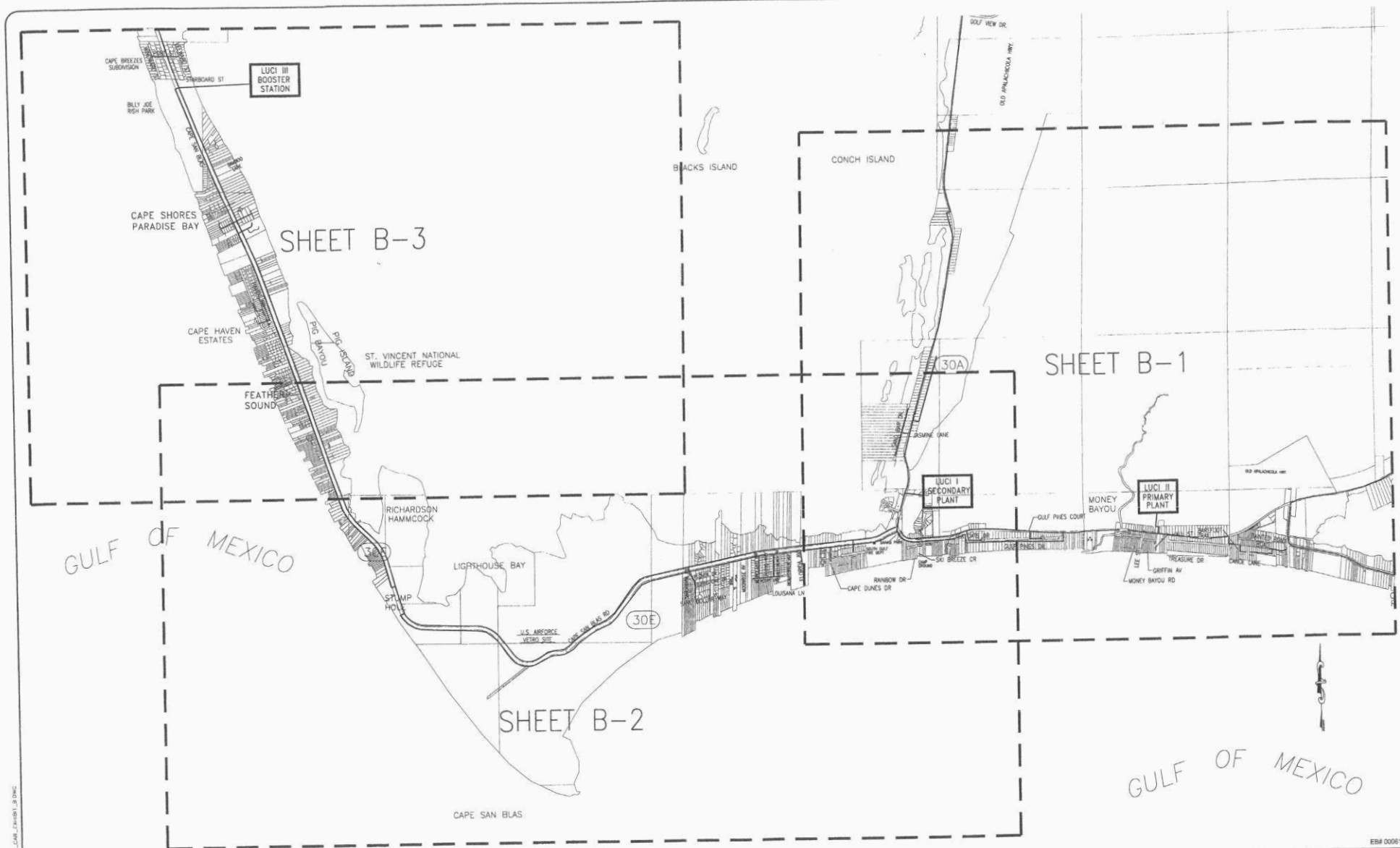
Table B-3: LUCI High Service Pumping Stations

Name/Location of Pumping Station	Pumps from:	Pumps to:	Number & Capacity of Pumps	Total Firm Design Capacity of Pumping Station (Excluding Standby Pump), MGD
LUCI 1- 6" well / 5610 CRd C-30	Ground Storage	Distribution	2 @ 100 gpm	0.28
LUCI 2-16" Well/ 7521 CRd C-30	Ground Storage	Distribution	2 @ 260 gpm	0.74
LUCI 3 - Booster Station/7182 Cape San Blas Rd	Ground Storage	Distribution	2 @ 250 gpm	0.72

MGD = million gallons per day.

Table B-4: LUCI Finished Water Storage Facilities

Name/Location of Storage Facility	Type of Storage Facility	Useful Capacity of Storage Facility, MG		
		Useful Fire Storage Capacity	Useful Equalization Storage Capacity, gal	Total Useful Storage Capacity
LUCI 1- 6" well / 5610 CRd C-30	Ground Storage			30,000
LUCI 2-16" Well/ 7521 CRd C-30	Ground Storage			189,510
LUCI 3 - Booster Station/7182 Cape San Blas Rd	Ground Storage			187,851
Total or Combined Useful Storage Capacity of All Storage Facilities:				407,361



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SYSTEM DIAGRAM KEY SHEET
 LIGHTHOUSE UTILITIES COMPANY, INC
 GULF COUNTY, FLORIDA

DATE: 11/05	PROJECT NO: 11.021
SCALE: NTS	
DRAWN: SBM	SHEET: B
CHECKED: LWI	

ESH# 0006155

CONCH ISLAND



30A

LUCI I
SECONDARY
PLANT

LUCI II
PRIMARY
PLANT

30A

30B

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SYSTEM DIAGRAM
 LIGHTHOUSE UTILITIES COMPANY, INC
 GULF COUNTY, FLORIDA

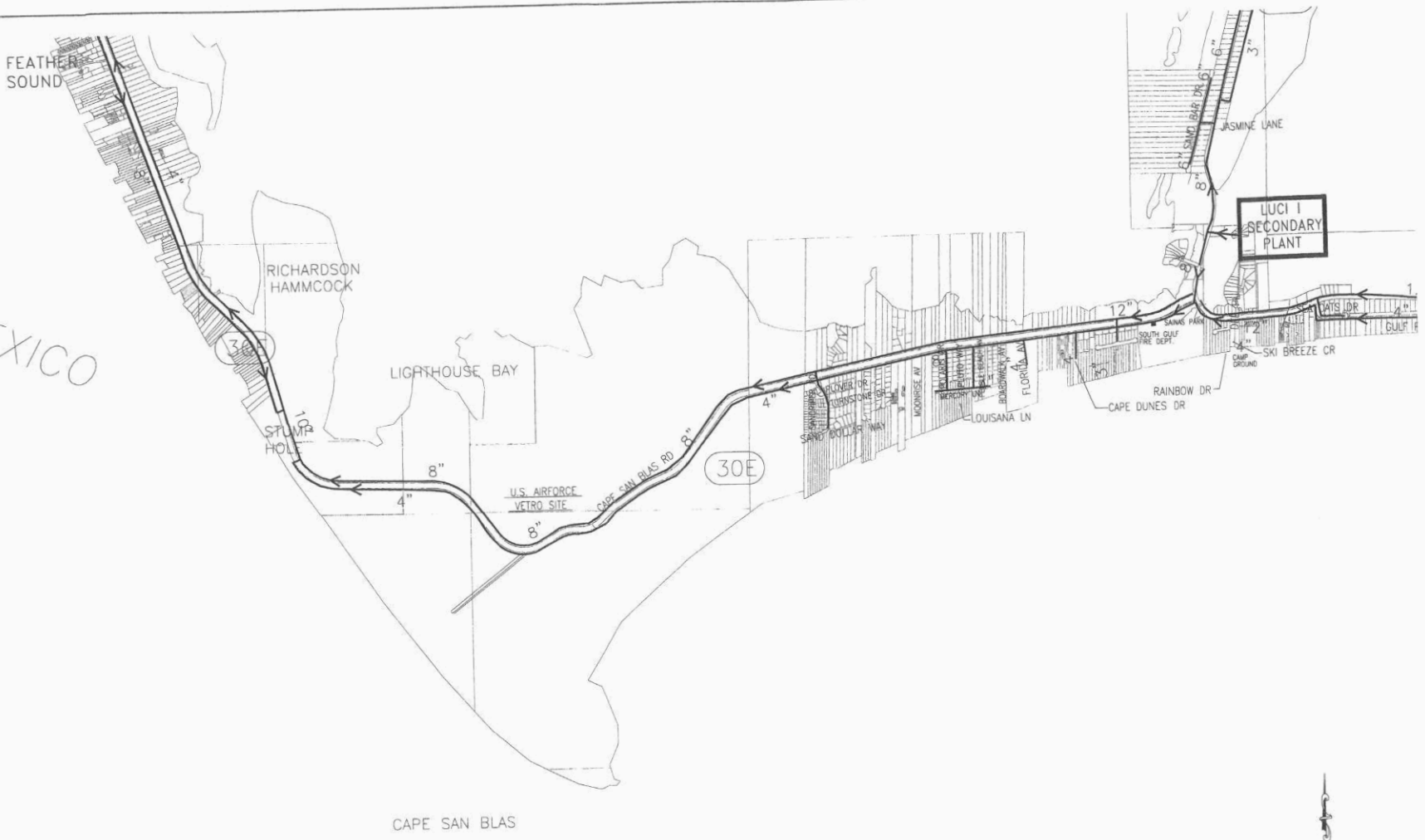
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PROJECT NO: 11.021
 SHEET: B-1

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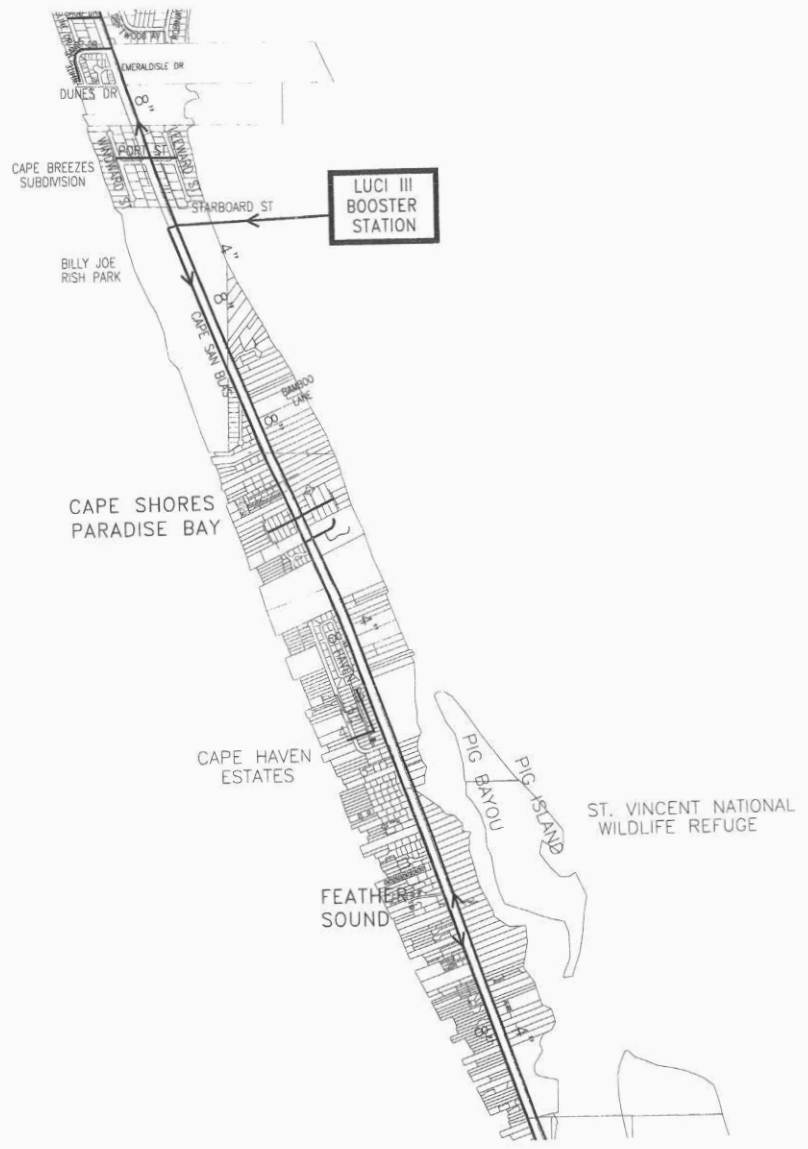
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SYSTEM DIAGRAM
LIGHTHOUSE UTILITIES COMPANY, INC
GULF COUNTY, FLORIDA

DATE: 11/05	PROJECT N: 11.02'
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5366 SCENIC HWY 30A, SUITE 104
 SANTA ROSA BEACH, FL 32459
 (850) 221-3902

SYSTEM DIAGRAM
 LIGHTHOUSE UTILITIES COMPANY, INC
 GULF COUNTY, FLORIDA

DATE: 11/05	PROJECT A
SCALE: 1" = 2000'	11.02
DRAWN: SBM	SHEET
CHECKED: LW	B-3

Table C-1: LUCI Historical Water Production

Month/Parameter		Year												
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
January	ADP	80,000	86,000	81,000	89,000	150,000	181,000	203,000	203,000	260,000	235,903	295,000	333,000	316,000
	MDP	111,000	97,000	88,000	95,000	250,000	320,000	304,000	433,000	379,000	557,000	396,000	420,000	498,000
February	ADP	108,000	104,000	93,900	92,000	172,000	164,000	220,000	190,900	264,000	272,250	291,000	338,000	291,000
	MDP	291,000	120,000	103,000	101,000	235,000	207,000	318,000	299,000	424,000	445,000	420,000	460,000	389,000
March	ADP	101,000	111,000	110,000	111,000	198,000	157,000	229,000	179,100	269,000	278,290	363,000	376,000	314,000
	MDP	114,000	127,000	126,000	122,000	380,000	228,000	335,000	318,000	457,000	398,000	476,000	492,000	475,000
April	ADP	105,000	107,000	128,000	121,000	219,000	208,000	256,000	265,400	297,000	266,567	393,000	400,000	361,000
	MDP	156,000	122,000	142,000	127,000	287,000	310,000	385,000	352,000	503,000	427,000	617,000	580,000	678,000
May	ADP	124,000	114,000	140,000	135,000	208,000	235,000	270,000	314,000	366,000	297,065	418,000	470,000	403,000
	MDP	204,000	127,000	147,000	141,000	337,000	468,000	387,000	458,000	683,000	509,000	611,000	750,000	616,000
June	ADP	142,000	127,000	150,000	208,000	255,000	275,000	364,000	337,500	390,000	401,867	400,000	548,000	506,000
	MDP	169,000	136,000	163,000	274,000	355,000	404,000	592,000	468,000	566,000	786,000	526,000	743,000	702,000
July	ADP	180,000	146,000	181,000	248,000	285,000	302,000	369,000	390,600	453,871	426,935	466,000	563,000	526,000
	MDP	259,000	162,000	193,000	280,000	531,000	422,000	674,000	570,000	885,000	662,000	719,000	996,000	697,000
August	ADP	121,000	122,000	161,000	234,000	219,000	226,000	234,000	324,100	465,000	342,194	431,000	439,000	463,000
	MDP	185,000	134,000	176,000	274,000	417,000	434,000	395,000	423,000	680,000	545,000	534,000	549,000	632,000
September	ADP		94,000	130,000	180,000	178,000	217,000	175,800	362,100	289,839	328,233	373,000	391,000	358,000
	MDP		110,000	138,000	235,000	254,000	311,000	323,000	559,000	479,000	456,000	550,000	597,000	518,000
October	ADP	103,000	84,000	121,000	153,000	155,000	202,000	179,700	343,100	317,903	334,000	364,000	355,000	292,000
	MDP	126,000	92,000	131,000	189,000	218,000	385,000	406,000	450,000	591,000	416,000	460,000	496,000	580,000
November	ADP	91,000	82,000	97,000	129,000	143,000	142,000	183,400	290,500	178,700	313,000	320,000	278,000	228,000
	MDP	114,000	89,000	120,000	179,000	221,000	260,000	284,000	384,000	320,000	532,000	410,000	380,000	419,000
December	ADP	91,000	85,000	85,000	134,000	225,000	210,000	162,200	221,000	302,452	283,000	339,000	275,000	243,000
	MDP	162,000	93,000	89,000	228,000	517,000	294,000	267,000	351,000	550,000	387,000	475,000	420,000	430,000
Annual	ADP	103,833	105,167	123,158	152,833	200,583	209,917	237,175	285,108	321,147	314,942	371,083	397,167	358,417
	MDP	291,000	162,000	193,000	280,000	531,000	468,000	592,000	570,000	885,000	786,000	719,000	996,000	702,000
	MDP/ADP Peaking Factor	2.80	1.54	1.57	1.83	2.65	2.23	2.50	2.00	2.76	2.50	1.94	2.51	1.96
Average Peaking Factor		2.21												

Figure C-1: LUCI Historical Water Production

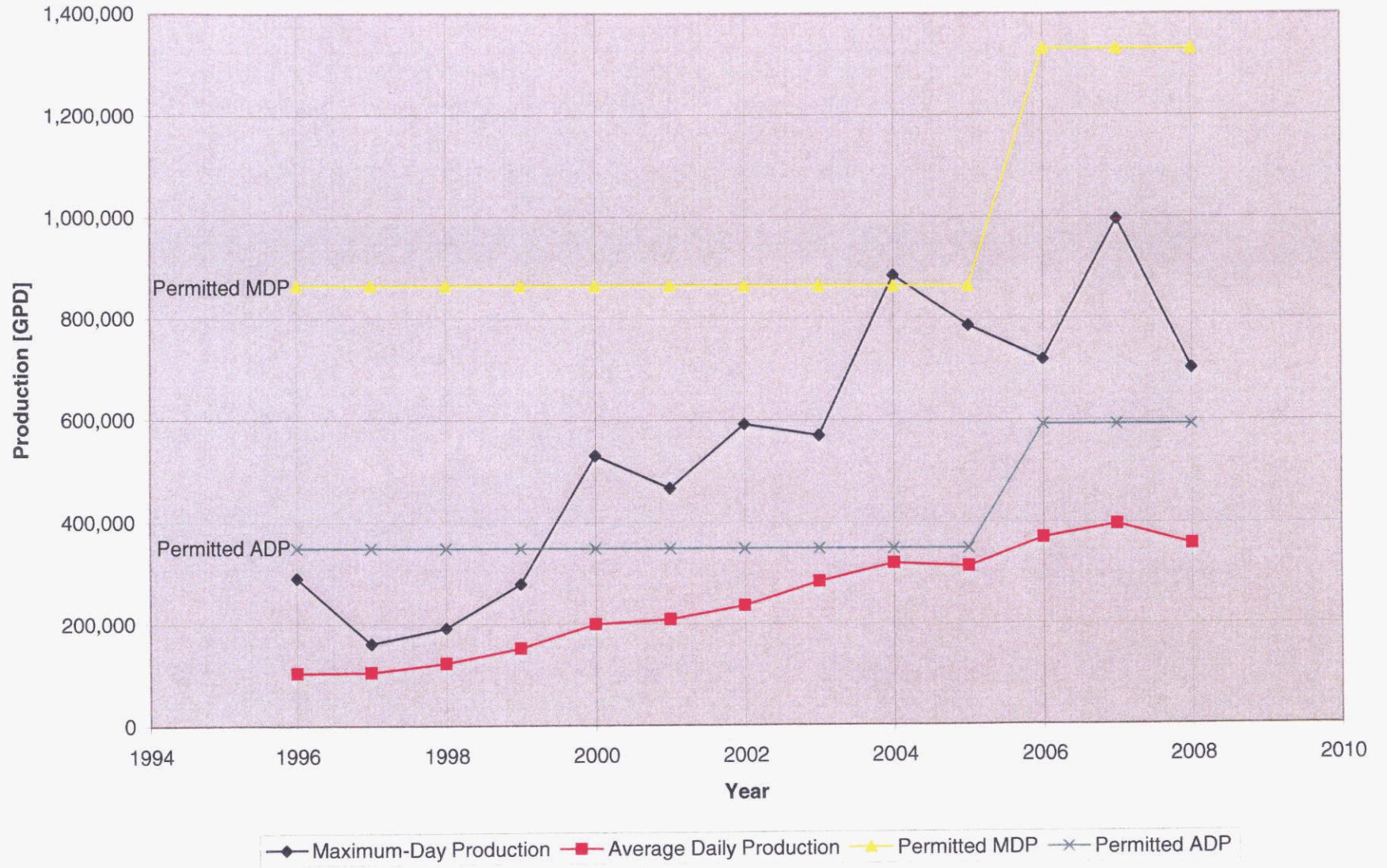


Table D-1: Historical Service Connections

Month	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
January			688	773	852	931	1,044	1,126	1,184	1,251	1,290	1,322
February			692	772	863	939	1,054	1,137	1,183	1,069	1,290	1,327
March			704	799	865	953	1,055	1,140	1,219	1,254	1,290	1,327
April			707	784	868	958	1,055	1,154	1,229	1,259	1,290	1,327
May			717	794	868	962	1,060	1,152	1,231	1,259	1,313	1,327
June			718	815	875	983	1,065	1,169	1,230	1,264	1,313	1,339
July	614	665	723	817	879	985	1,071	1,170	1,235	1,264	1,446	1,339
August		677	755	827	892	1,001	1,071	1,170	1,239	1,268	1,446	1,347
September	634	683	729		930	1,008	1,090	1,166	1,239	1,268	1,327	1,351
October		732	729		938	1,010	1,097	1,161	1,238	1,268	1,327	1,351
November		702	745	846	926	1,023	1,096	1,169	1,238	1,280	1,327	1,352
December		685	751	849	928	1,038	1,102	1,169	1,253	1,280	1,327	1,352
Average	624	691	722	808	890	983	1,072	1,157	1,227	1,249	1,298	1,328

Table D-2: Historical Usage per connection

Data	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average Historical Usage
Annual Average Production [gal]	105,167	123,158	152,833	200,583	209,917	237,175	285,108	321,147	314,942	371,083	397,167	358,417	256,391
Annual Average Service Connections	624	691	722	808	890	983	1,072	1,157	1,227	1,249	1,298	1,328	1,004
Annual Production Per Connection	169	178	212	248	236	241	266	278	257	297	306	270	255

Figure D-1: Historical Service Connections

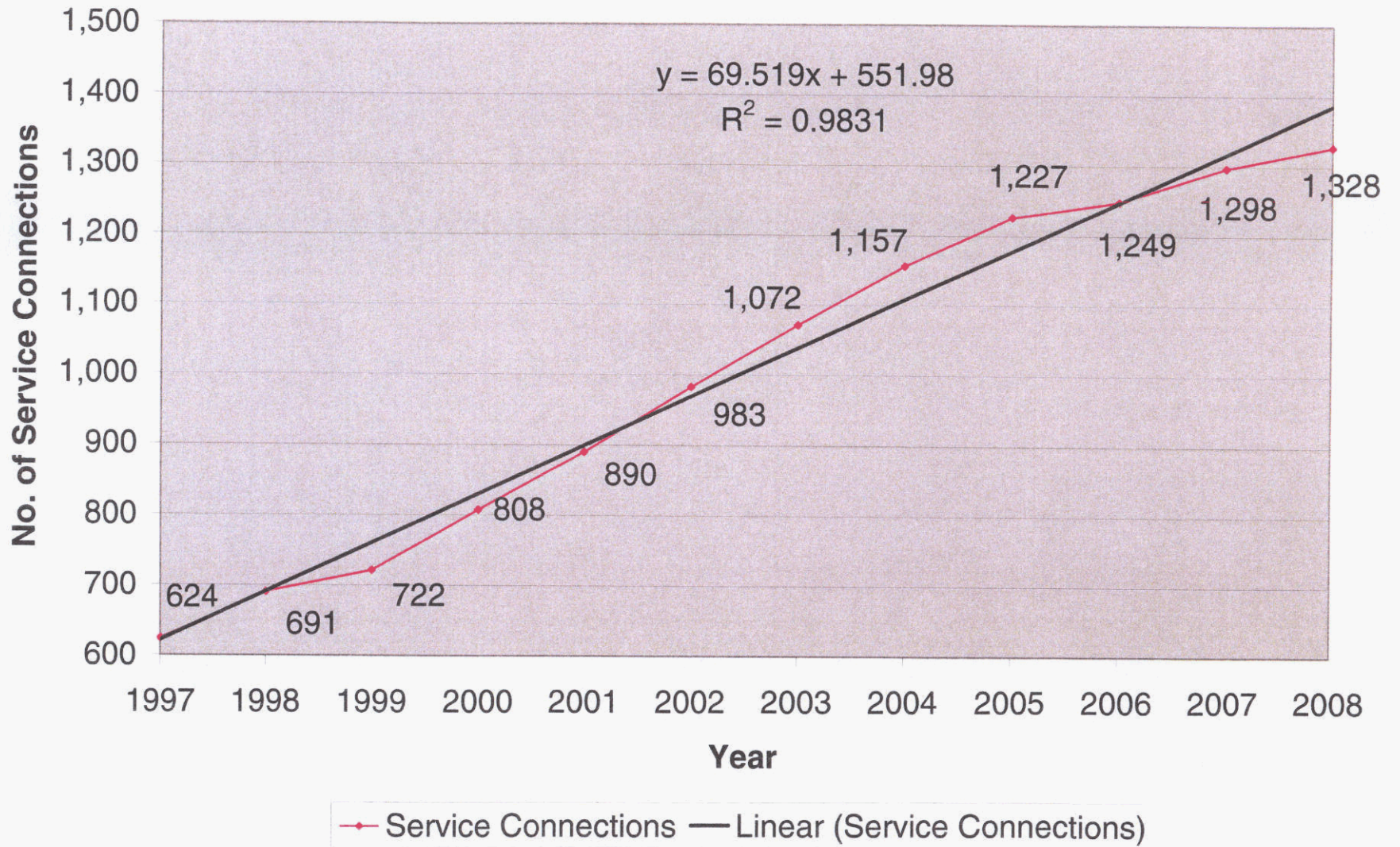


Table E-1: LUCI Projected Water Demand and Finished-Water Storage Need

Parameter		Year									
		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Projected Water Demand	Service Connections	1,317	1,387	1,456	1,526	1,595	1,665	1,734	1,804	1,873	1,943
	Average Daily Demand per connection, gpd	255	255	255	255	255	255	255	255	255	255
	Annual Average Daily Demand (ADD), gpd	335,900	353,700	371,300	389,200	406,800	424,600	442,200	460,100	477,700	495,500
	MDD/ADD Peaking Factor	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21
	Maximum-Day Demand (MDD), gpd	742,400	781,700	820,600	860,200	899,100	938,400	977,300	1,016,900	1,055,800	1,095,100
	PHD/ADD Peaking Factor	4	4	4	4	4	4	4	4	4	4
	Peak-Hour Demand (PHD), gpd	1,343,600	1,414,800	1,485,200	1,556,800	1,627,200	1,698,400	1,768,800	1,840,400	1,910,800	1,982,000
Projected Finished-Water Storage Need	Needed Fire Storage, gal	129,979	133,688	137,354	141,083	144,750	148,458	152,125	155,854	159,521	163,300
	Needed Equalization Storage, gal	20,000	31,800	43,600	55,500	67,200	79,100	90,800	102,800	114,500	126,400
	Total Needed Storage, gal	149,979	165,488	180,954	196,583	211,950	227,558	242,925	258,654	274,021	289,700

Figure E-1: LUCI Historical and Projected Water Demand

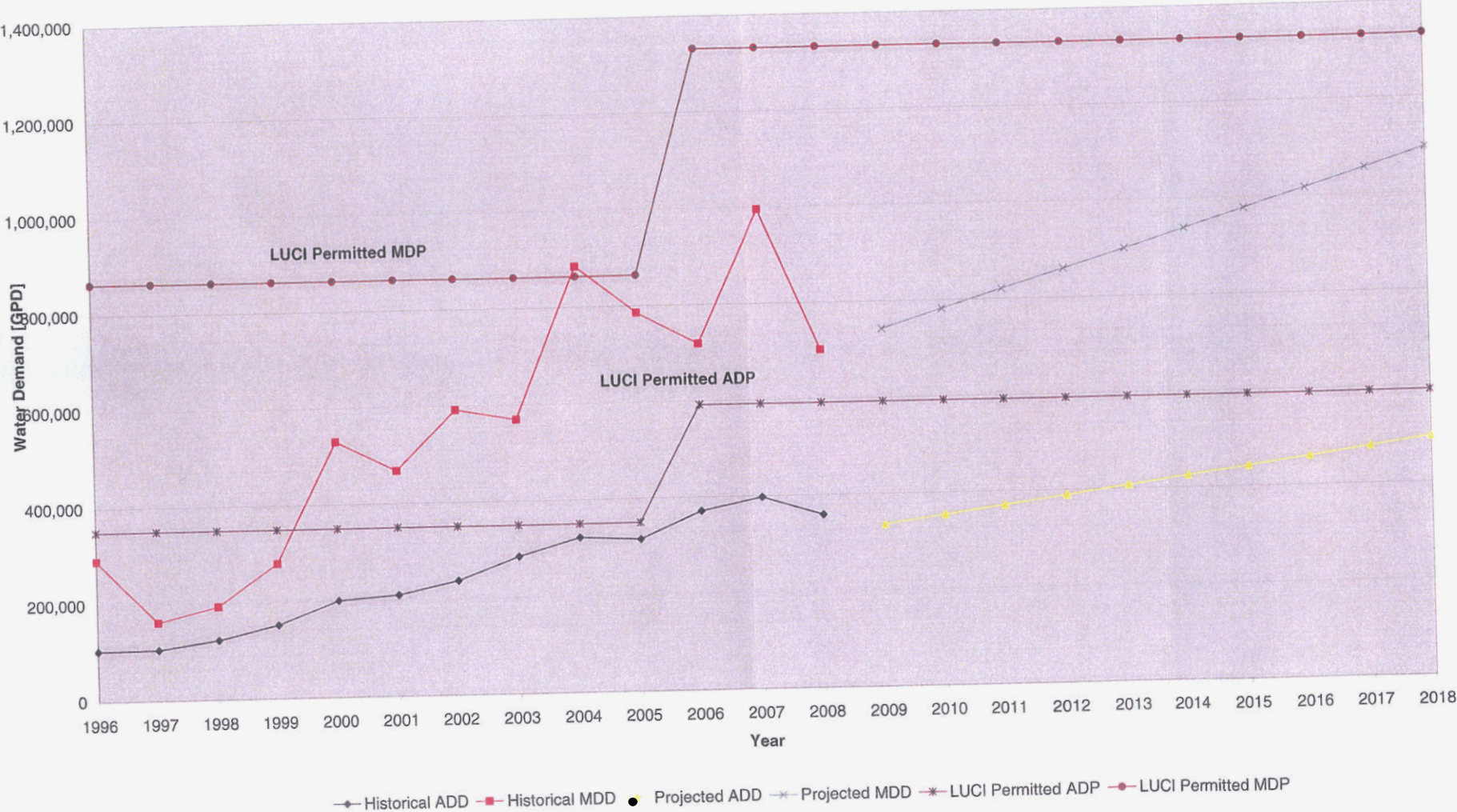


Figure E-2: LUCI Projected Total Finished-Water Storage Need

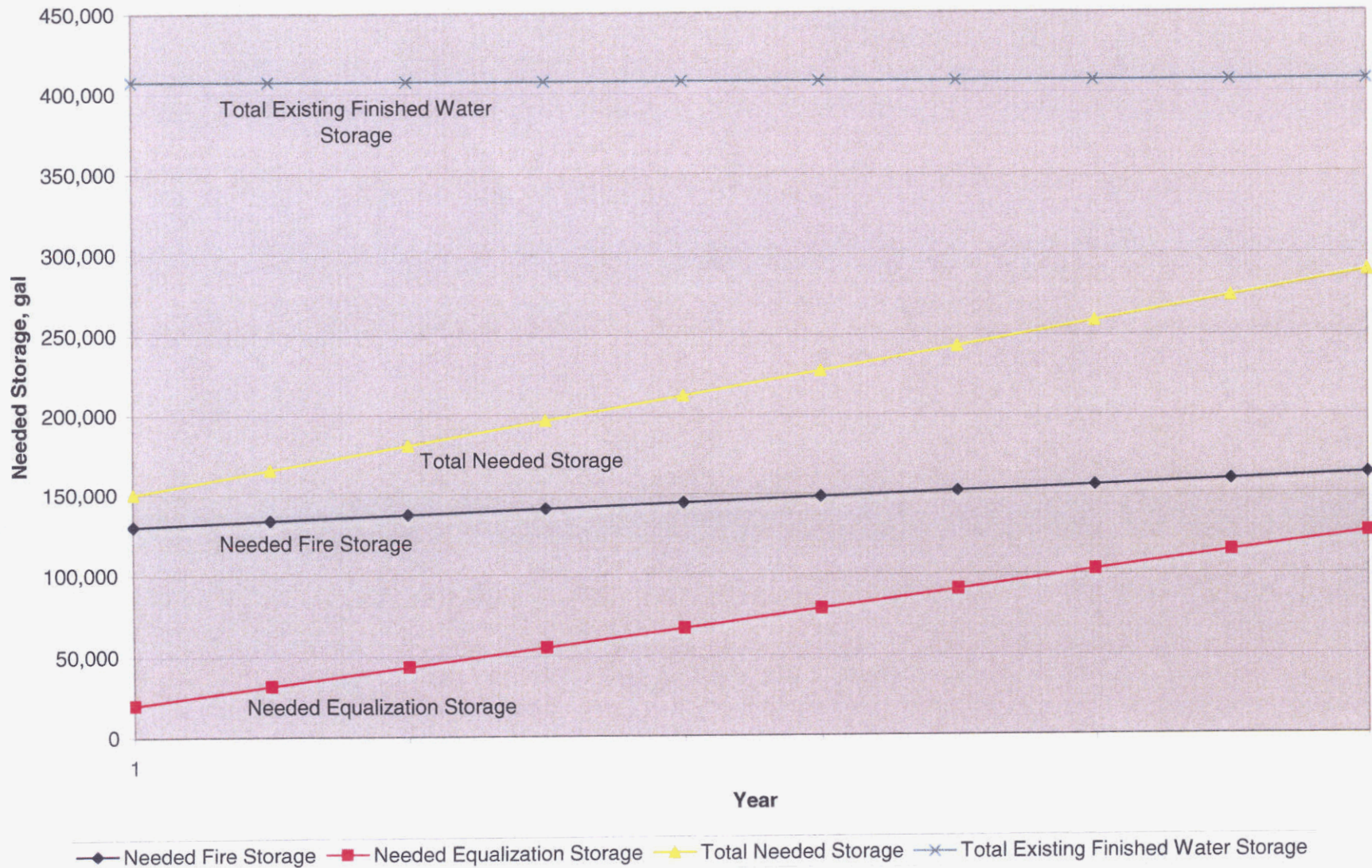


Figure E-3: LUCI Projected Capacity Compliance

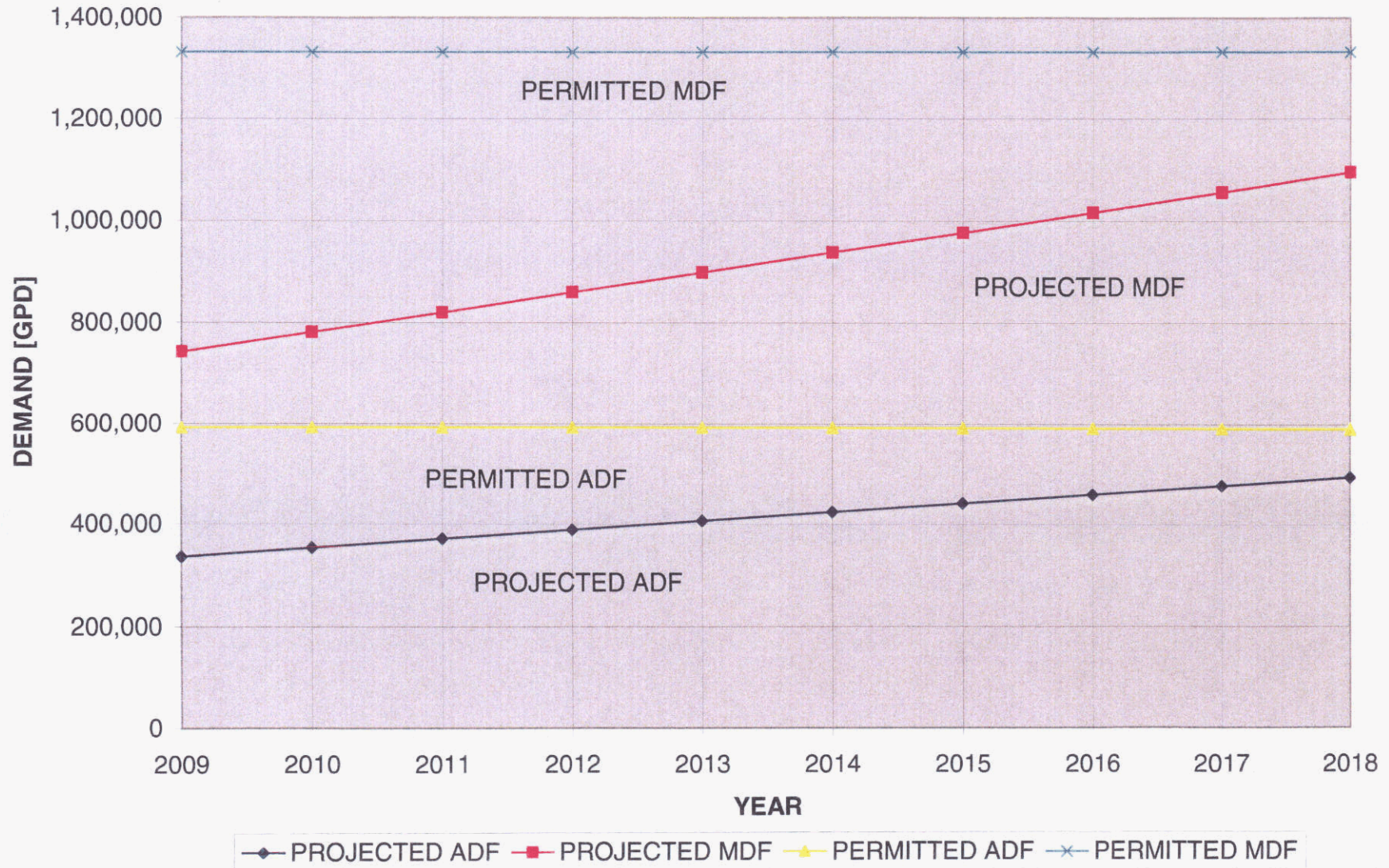
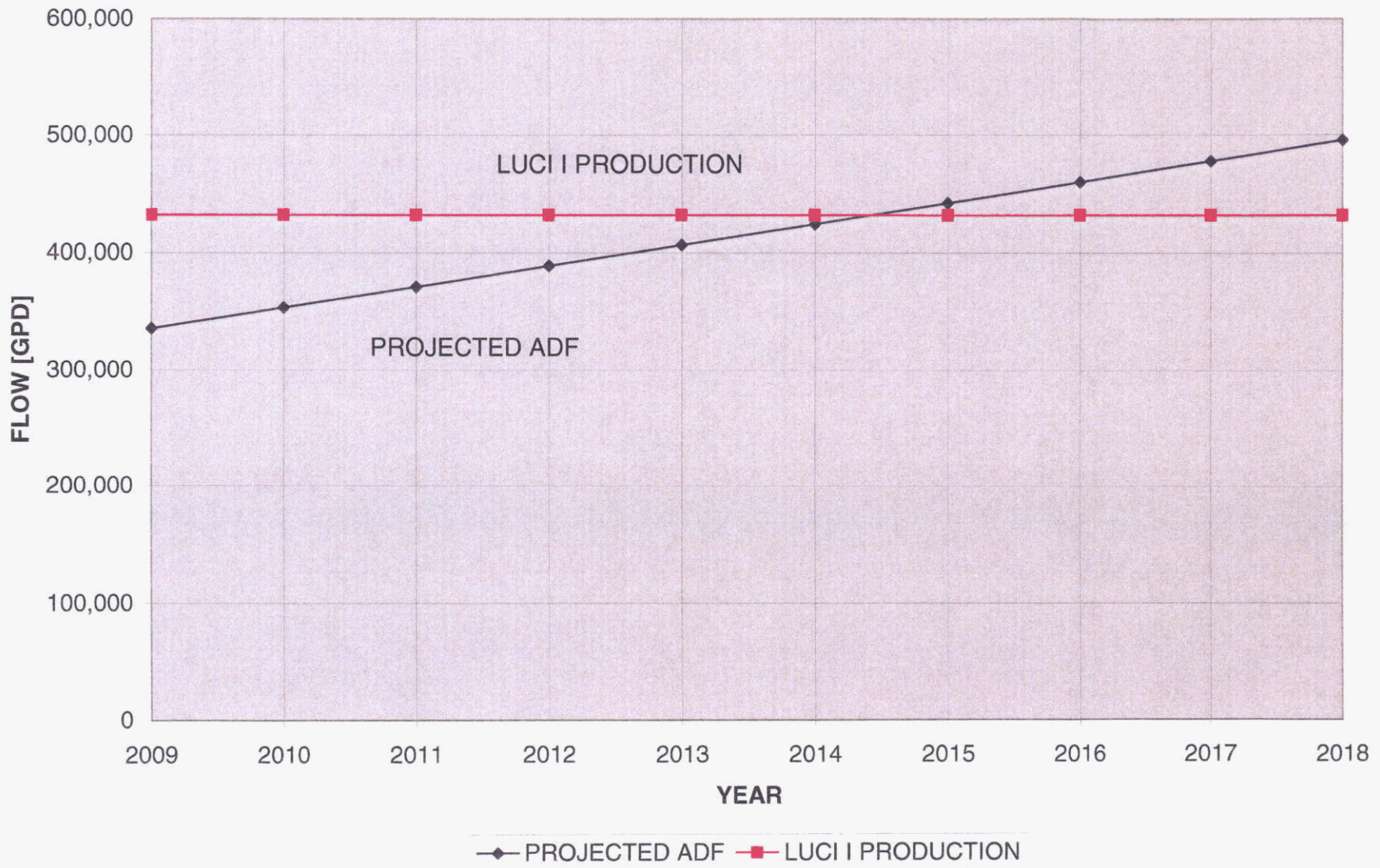


Figure E-4: LUCI I Projected Capacity Compliance (Largest Well Out of Service)



LUCI II Proposed Pump Curve

**3 x 4 x 10B
SERIES 410**

ENCLOSED IMPELLER

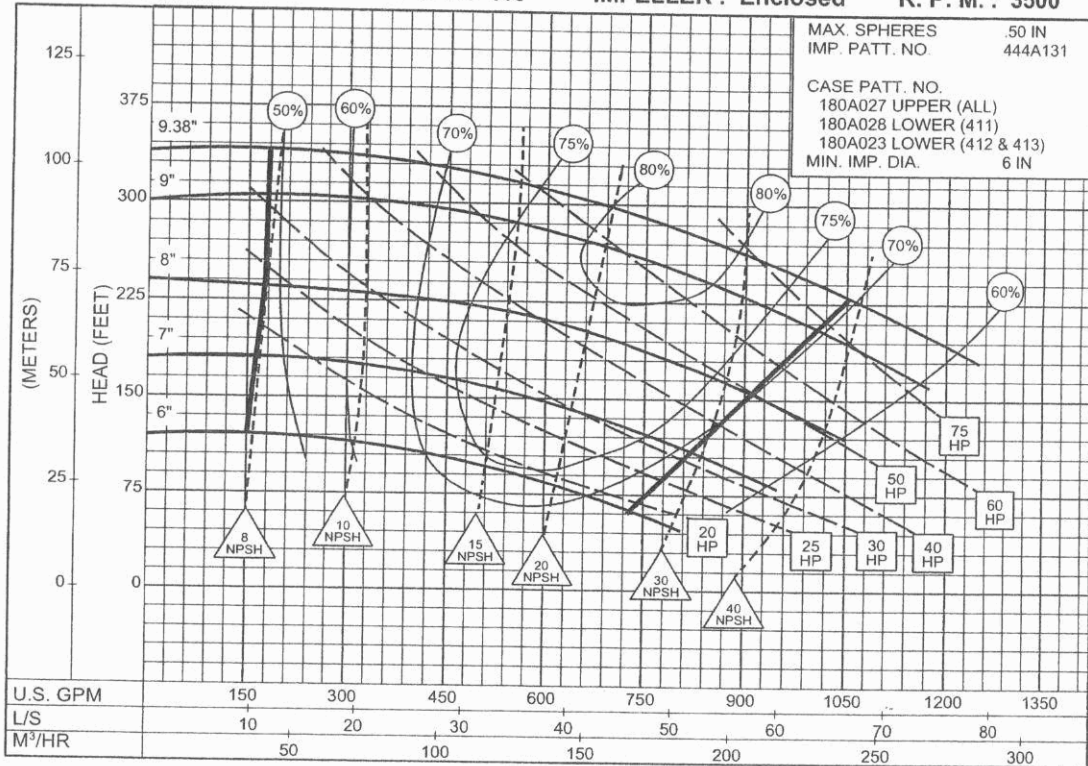
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TYPE : 410

IMPELLER : Enclosed

R. P. M. : 3500

**3500
RPM**



2PC-124752

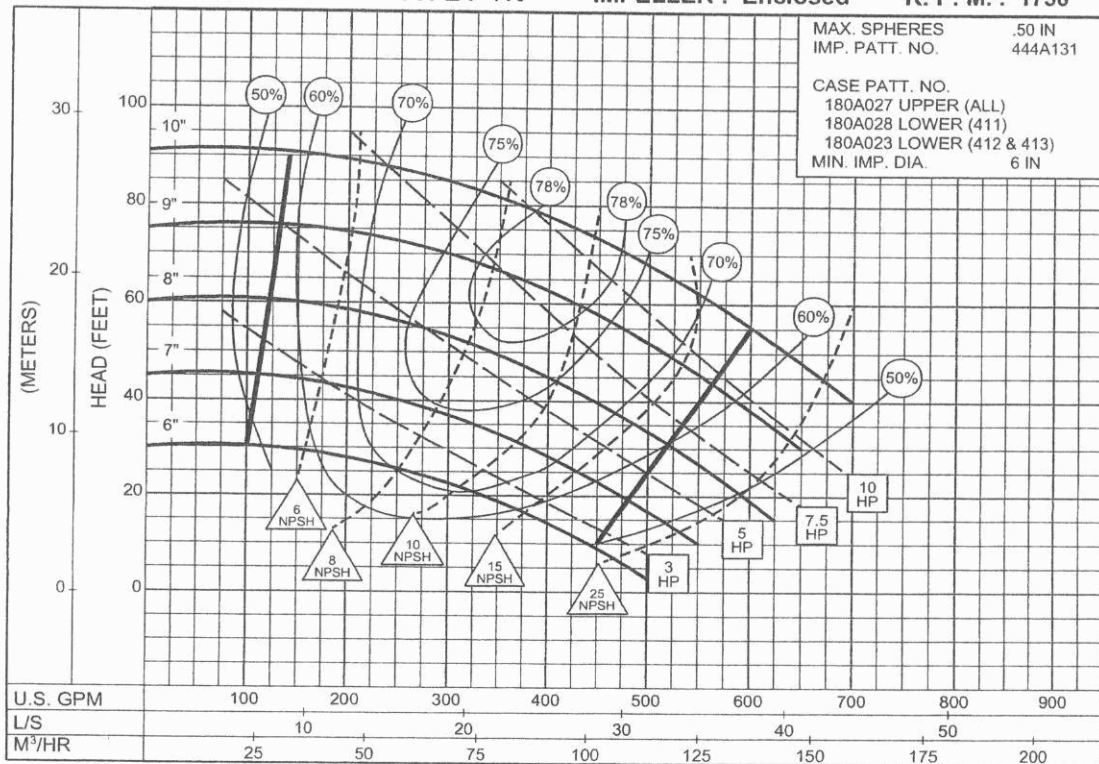
SIZE : 3x4x10B

TYPE : 410

IMPELLER : Enclosed

R. P. M. : 1750

**1750
RPM**



2PC-124760