Reviewed 08/01/05

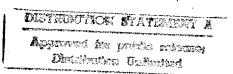
Underground Water Distribution System Fort Belvoir, Virginia

Leak Detection Survey

19971023 148

CONTRACT #DACA01-94-D-0034 SYSTEMS CORP PROJECT #94013.09

August 1, 1995



DEPARTMENT OF THE ARMY

CONSTRUCTION ENGINEERING RESEARCH LABORATORIES, CORPS OF ENGINEERS
P.O. BOX 9005
CHAMPAIGN, ILLINOIS 61826-9005

REPLYTO ATTENTION OF:

TR-I Library

17 Sep 1997

Based on SOW, these Energy Studies are unclassified/unlimited. Distribution A. Approved for public release.

Marie Wakef**k**eld,

Librarian Engineering



Heath Consultants Incorporated

July 24, 1995

Headquarters — Mideast Region R.D. #3, Box 325 Belle Vernon, PA 15012 412-929-2300 1-800-HEATH US (432-8487) FAX 412-929-4872

Mr. Charles Belt Systemscorp Cherokee Place, Suite 306 2200 Sutherland Avenue Knoxville, Tenn. 37919

Dear Mr. Belt;

This is the final report of your recently completed Heath Consultants Leakage Detection Survey. The survey was conducted by myself, Donald Muir, Operations Coordinator, and required 12.25 working days. This was not a survey of the entire water distribution system but instead a survey of water mains 8 inch and larger. A total of 31 leaks were detected with an estimated loss of 243 gallons per minute. This would result in a loss of 349,920 gallons per day and a loss of 127,720,800 gallons per year.

The Heath Aqua-Scope was used to perform the survey. The Aqua-Scope is an electro-sonic amplification device capable of detecting leakage as small as 10 gallons per hour. The Aqua-Scope consists of a headset worn by the operator, a direct contact microphone, a ground microphone, and a control console with a volume control and an on/off switch. In addition, a computerized leak correlator was used to pinpoint the location of several leaks.

As with most water systems, the majority of leaks detected were small leaks. 20 of the 31 leaks were either leaking fire hydrants or leaking main valves. Only 1 service line was found leaking. This was a yard hydrant outside of an airplane hanger at the airfield. The small number of service line leaks can be contributed to the fact that the majority of buildings are supplied by mains that are less than 8 inch in diameter and therefore were not part of the leakage detection survey. The remaining 10 leaks were leaks found on the mains themselves. These 10 leaks were responsible for 76% of the total water loss.

It is impossible to stop water system leakage entirely. Proper preventative maintenance of the distribution system and an ongoing leakage detection and repair program can keep leakage to a minimum. Very few water leaks actually appear above ground. The majority of

Mr. Charles Belt July 24, 1995 Page 2

leaks find their way into the surrounding rock structure or into nearby utility line ditches and never appear above ground.

Knowing this, some type of leakage detection program is needed. The program can be contracted to an outside firm or performed in-house. Detection equipment can be as sophisticated as an Aqua-Scope and leak correlator or as simple as placing your ear onto a valve key and listening for leakage noise. Leakage detection can be incorporated into routine system maintenance. Listening for the presence of leakage noise on fire hydrants during flushing and listening on valve keys while exercising valves will tell if any leaks are nearby. The key to leakage detection is the number of contact points available onto the water line. Therefore it is necessary that all main line valve and service line valves be located and brought to ground level if buried. What must be remembered though is that any type of leakage detection progam is better than no leakage detection program.

Several recommendations can be made to improve the water system at Fort Belvoir. They are as follows:

- 1. Not all large leaks are on large diameter water mains. A comprehensive survey of the remainder of water system should be undertaken.
- 2. An ongoing leakage detection program must be initiated. This program can be performed in-house or by an outside firm.
- 3. A large number of the leaks detected were fire hydrant leaks. These hydrants are very old and ideally need replaced. In lieu of this, repairing the leaking hydrants and verifying that hydrants are completely shut off after flushing will reduce water loss.
- 4. A water system can not have too many valves. All main line valves and service line valves should be located and if buried, valve boxes should be brought up to ground level.
- 5. During the survey it was found that water mains are exposed at several creek crossings. These lines need to be buried and/or reinforced to prevent damage due to freezing or damage due to foreign objects striking mains.
- 6. A large amount of the water main on the post runs through wooded areas. Leakage in these areas can occur for long periods of time before being discovered. These lines need to be located, their location marked, and inspected regularly to insure leakage is not present

Mr. Charles Belt July 24, 1995 Page 3

7. Individual buildings on base do not have water meters. Leakage inside the buildings needs to be identified and repaired. Leakage inside the buildings is actually more expensive than underground leakage due to the fact that sewage flow is metered.

Heath Consultants was requested by Fort Belvoir personnel to note during the survey any areas that needed maintenance. The following is a list of such areas.

- 1. Washington Village The majority of service line curb boxes are filled with stone and need cleaned out
- 2. Water main is exposed in creek crossing at intersection of Soldier Road and Statesman Road
- 3. Both 12 inch mains are exposed at the creek crossing north of Building #1494.
- 4. 12 inch main exposed in woods behind Building #1422.
- 5. 12 inch main exposed at blow-off at creek crossing in woods behind Youth Services Center .
- 6. Head for air release valve on 16 inch main at Cheney School not installed.
- 7. 10 inch main valve box knocked over in woods behind Building #1000.
- 8. 10 inch main valve boxes northeast of Building #1000 washed out and missing
- 9. Main valve box near Building # 2604 paved over.
- 10. Air release valve at intersection of Abbott Road and Forster Road buried.
- 11. Main valve boxes at intersection of Gorgas Road and Woodlawn Road buried
- 12. Blow-off valve along Route 1 at Accotink Creek buried.
- 13. Could not locate 10 inch main valve boxes on north side of Route 1 at Gunston Road
- 14. Could not locate main valve boxes on west side of Belvoir Road at Farrell Road near DeWitt Hospital

Mr. Charles Belt July 24, 1995 Page 4

Concern was raised as to whether our leakage detection survey was performed in accordance to the AWWA Standard M-36 "Water Audits and Leak Detection." All Heath Consultants surveys are conducted in accordance to the AWWA Standard M-36. In fact, Mr. Tim Brown of Heath Consultants sits on the Advisory Board overseeing Standard M-36.

Very little survey at Fort Belvoir was performed at night. The water mains running along Route 1 were an exception. Several nights were required to survey along Route 1 since survey could only be performed between the hours of 3:00 a.m. and 5:00 a.m. when traffic was its lightest. The majority of water main at Fort Belvoir does not run under paved road. Most of the line runs in the soil off the road on the road shoulder. Once the morning rush of base employees was over, the base was actually a very quiet place to survey.

Noise created by water consumption was not a problem. A large number of the buildings on base are supplied from water mains that are less than 8 inch in diameter and, therefore, was not part of the survey. Buildings supplied by mains that were surveyed in general do use great amounts of water. Buildings such as classrooms and office buildings in general need water only for restrooms and drinking fountains. In addition, noise created by a water line will be constant. This noise will not stop while noise created by consumption will stop and start indicating to the survey consultant that this noise is not a leak.

It has been a pleasure working with Systemscorp at Fort Belvoir. If you have any questions on this survey or if we can be of any further service, please do not hesitate to contact our Regional Office at 412-929-2300.

Sincerely,

Don Muir Jr.

Area Operations Coordinator

Don Muir Jr., ml.

DM/mh cc: File



Summary of WATER LEAKAGE CONTROL SURVEY

FOR

SYSTEMSCORP/FORT BELVOIR	FORT BELVOIR, VA	
COMPANY	CITY AND STATE	DISTRICT OR DIVISION
Conducted by Our Consultant(s)	Donald Muir Jr.	
DATE STARTED6-21-95	DATE COMPLETED 7-17-95	

				ESTIMATED LEAKAGE		
	CLASSIFICATION	NUMBER	GPM	GPD	GPY AF/Y	
1	15 to +15 gpm	4	160 gpm	230,400 gpd	84,096,000 gpy	
2	5 to 14 gpm	. 4	35 gpm	50,400 gpd	18,396,000 gpy	
3	1 to 4 gpm	23	48 gpm	69,120 gpd	25,228,800 gpy	
	TOTALS	31	243 gpm	349,920 gpd	127,720,800 gpy	

GPM = Gallons/Minute

GPD = Gallons/Day

GPY = Gallons/Year

AF/Y = Acre Feet/Year

SOURCE OF LEAKAGE	NUMBER	GPM	% OF TOTAL NO.	% OF TOTAL EST. GPM
MAINS	10	185 gpm	32.3%	76.1%
SERVICES	1	1 gpm	3.2%	0.4%
VALVES	6	14 gpm	19.4%	5.8%
HYDRANTS	14	43 gpm	45.1%	17.7%
TOTALS	31	243 gpm	100.0%	100.0%

TYPE OF SURVEY PERFORMED Comprehensive Water-8" & larger MILES OF MAIN INSPECTED 32.0 mi.

NUMBER OF SERVICES INSPECTED N/A (If applicable)

NUMBER OF LEAK INDICATIONS 31

LEAK INDICATION CLASSIFICATION

Leak indication classification is not an exact science. In spite of the use of the most modern instruments plus complete training and experience by the consultant, it is impossible to determine the exact condition of underground piping without actually exposing same. In view of this limitation, our classification (including estimated volume loss) is intended as an aid in scheduling repairs based upon the information available, the consultant's judgement, and site conditions at the time the report is prepared. Variable factors beyond our control may alter this classification at any time. Once the leak is exposed for repair, the utility may wish to revise the volume loss estimate, in order to establish a more accurate estimate of actual water loss.

Grade 1 (C)	15	to +1!	5 GPM
Grade 2 (B) _		to1	4 GРМ
Grade 3 (A)	1	to	4GPM

SPECIAL CASES

Contact Heath Consultants Incorporated for further information regarding any Special Case such as: emergency assistance, inspecting river/canal crossings, analysis/audit of in-house leakage programs, third party verification, hands-on training, etc.

Our consultants will be available on a 24-hour notice to assist you.

POSITIVE STREET REPORTS

INDEX

POSITIVE STREET REPORTS

LOCATION	PAGE NO.	LEAK CLASSIFICATION
Abbot Road @ #2115	26	3
Arnold Rd. south of 9th St.	12	2
Belvoir Rd. behind #1000	10	3
12" main valve at Building #1003	14	3
Building T-1426 @ Fire Hydrant	2	3
Davidson Airfield @ #1351	31	3
Davison Airfield @ Building #1357	30	3
Goethals Rd. @ Beauregard Rd.	23	3
Gunston Rd. @ #S-1147	9	2
Guston Rd. @ #1195 - Fire Hydrant	8	3
Gunston Rd. @ Fifth St.	5	3
Hall Rd. @ Bldg. #1464 - Fire Hydrant	: 4	3
Hurley Road ! #805	15	3
Iry Road @ #1970	24	3
Iry Rd. @ #1972	25	3
Jackson Loop at Building #1434-Valve	3	3
Jackson Loop @ 1440 - Fire Hydrant	1	3
Lyman Loop @ Fire Hydrant	18	1
Meeres Road @ #1741	13	3
Rossell Loop @ 21st St.	21	3
Spengler Loop @ 21st St.	19	2
Theote Rd. near S-628	28	1
Totten Rd. @ #338	29	3
Third St. east of Gunston Rd.	6	3
Third St. west of Chapek St.	7	3
12th St. @ #1017 (Barden School)	11	3
16th St. @ #740	16	1
16th St. @ Building #193	27	2
16th St. west of Dalrymple St.	17	3
18th St. @ Rear of #130	22	3
21st Street @ Rear of #165	20	1



Page No		
Date	6-21-95	
	Public (Private) Easement	
Ownership	Public Private Easement	
Leak Indicat	ion Classification	
	I(C) II(B) (III(A)	
•	(Oli cia Olia)	

9030 Monroe Road, Houston, TX 77061

LEAKAGE CONTROL REPORT WATER SURVEY

	J		
Company System corp Dity Accor	FUNT BELVOIR	District	
city ACCOT	INK	State	
	•	Street Address	
JACKSON LOQ	P. AT. 1440- P	The hydrant	
NDICATION OF LEAK	LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON:	COVER
Sonic	Main Valve	Main	Concrete
Surfaced Water	Curb Valve	Service	Asphalt
Other	Meter Box	Joint Connection	Brick
	Selected Test	Hydrant	Gravel
STIMATION OF LEAKAGE:	Hydrant	Valve	Soil
3 9PM		Misc.	Other
J - J // / /	See Remarks		
		1 1.	
		11,	
	· · · · · · · · · · · · · · · · · · ·	11,	
		11	
		1 184	
		116	
		- ·· · · · · · · · · · · · · · · · · ·	CALIFORNIA CONTRACTOR OF
		· · · · · · JACKSON	1:Loop
Remarks	h 1 = 111	Ca + of south	SIDE OF
# 1440 OF	TOURANT IN	front of south	37./2 0/
# 1440 off	JACKSIA LOUP	1546113	
		ma	P I-7
		MA	1-/
			1
		Novel (1)	11/2
	- Danasantotica	Heath C	onsultant
Company	Representative	neath Ci	Onduitent



Page No. _ Date _ Public Private Ownership Easement Leak Indication Classification II(B) (Circle One) (A)III I(C)

9030 Monroe Road, Houston, TX 77061

Company <u>Systemico</u> Dity <u>Accorting</u>	20 / rou Delva	<u> </u>	District		
City /ACCOTING	C. Near	est St	_ State reet Address		
Building T-	1426 AT FINE		ydigni	1 1 1	
NDICATION OF LEAK	LEAKAGE DETECTED AT	1	LEAK APPEARS TO BE ON:		COVER
Sonic	Main Valve		Main		Concrete
Surfaced Water	Curb Valve		Service		Asphalt
Other	Meter Box		Joint Connection		Brick
COMMITTION OF LEAVACE.	Selected Test	\sqcup	Hydrant	<u></u>	Gravel
STIMATION OF LEAKAGE:	Hydrant	124	Valve	+	Soil
2 gpm	See Remarks	\square	Misc.	Ш	Other
Remarks	T.H3 T.H30		r. Max		
Fine	hydrant AT 1	VES	5 side of	Buck	1.2 T-14.2C
LEAKING	•				
					M.AP. I.7
			Nousil (M	Jun L
Compan	y Representative			eath Co	nsultant



Page No	3	
Date	6-21-95	_
Ownership	Public Private	Easement
Leak Indicat	ion Classification	

TH CONSULTANTS INCORPORATED 1

1 2 3

LEAKAGE	CON	ITROL	REPORT
WA	TER	SURV	EY

tu 176011	NIC	_ State	
ty		reet Address	
JACKSON Loop	AT Bulding #	1434 - VALUE	
DICATION OF LEAK	LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON:	COVER
Sonic	Main Valve	Main	Concrete
Surfaced Water	Curb Valve	Service	Asphalt
Other	Meter Box	Joint Connection	Brick
54701	Selected Test	Hydrant	Gravel
TIMATION OF LEAKAGE:	Hydrant	Valve ×	Soil
4 G/m		Misc.	Other
17/"	See Remarks		
			
		. !	
	į		
		.	
		.	
		.6	
	٦, ١	2 0	
		· · · JACKSON	1 20
		JACESON	
	• • • • • • • • • • • • • • • • • • • •	X	
	• • • • • • • • • • • • • • • • • • • •		
	· · · · · ; · ·	<u> </u>	
		4 .	
	143		
1			
emarks			
VALVE	CONTROLLING FI	ow North ON	8" LINE
1	······································	A 1	LEAKING, VAlue
	/.1	1 \	11
15 OFF SU		KSUA LOOP AT NO	unthens: Lorner
d- BUILDING	#1434		
	,		MAP IS
		[1]	1



9030 Monroe Road, Houston, TX 77061

Company Representative

E DETECTED A' alve alve Box ad Test at	64	LEAK TO BE Mair Serv Join	APPEARS E ON: n vice nt Conne Irant	hyd: s	14m/5		COVER Concr Aspha Brick Grave Soil Other	alt I		
E DETECTED AT alve alve Box ed Test	r:	LEAK TO BE Mair Serv Join Hyd Valv	APPEARS E ON: n vice nt Conne Irant	s	1 4 m 5		Concr Aspha Brick Grave Soil	alt I		
alve alve Box ed Test		Mair Serv Join Hyd Valv	e ON: n vice nt Conne lrant				Concr Aspha Brick Grave Soil	alt I		
alve Box ed Test		Join Hyd Valv	vice nt Conne Irant ve	ction	· · · · · · · · · · · · · · · · · · ·		Aspha Brick Grave Soil	alt I		
Box ed Test et		Join Hyd Valv	nt Conne Irant /e				Brick Grave Soil	ı		
ed Test et		Hyd Valv	Irant /e	ction			Grave Soil			
it		Valv	/e				Soil			
		 								
marks		Misc	Li Ras				Other		· · · · · · · · · · · · · · · · · · ·	
marks			Li Ross				· · · · · · · · · · · · · · · · · · ·			
			Li Ras	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·					
			Li Ras	· · · · · · · · · · · · · · · · · · ·	 			· · · · ·		
			Li Pass		· · · · · · · · · · · · · · · · · · ·					
			Li Ras						· · · · · · · · · · · · · · · · · · ·	
			Li Rons						· · · · · · · · · · · · · · · · · · ·	
	 		Li Ron						· ·	
			27 . 77			•				
	• •		77			•				
			77			•		•		
			7							
	•	• • • •	. 4-							
		- 11	1							
	•	• • • •	• 1			•		•	• •	
			. }			•		•		
		43								
		1/2	. [-				
	ŧ .	- XX I.	· }		• •	•		•	• •	
		. ()				•				
		'	-							
	• •	• •	. ,	•	•	•				
1 t - 0 /	F	157	SiDA	<i>'</i> ,	F	BU	ر إطء	1.	#	1464
PARCIA		·		·						
(//- /- /	}									
							MAP	I.	-8	
			\triangle							
	٠٠٠.	UT 02/ E1		NT ON EAST SIDE		UT ON EAST SIDE of	NT ON EAST SIDE OF BU	NT ON EAST SIDE of Building	NT ON EAST SIDE of Building	NT ON EAST SIDE of Building #1



Page No	3	
Date	0-22-95	
Ownership	Public Private Easement	
Leak Indicat	ion Classification	
	(Circle One	

9030 Monroe Road, Houston, TX 77061

LEAKAGE	CON	NTROL	REP	ORT
WΔ	TER	SURVE	ΞY	

ity Acco	Hur Belion	State	
Gunsson Rd	AT FIFTH ST	- 	<u> </u>
IDICATION OF LEAK	LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON:	COVER
Sonic 🗸	Main Valve	Main	Concrete
Surfaced Water	Curb Valve	Service	Asphalt
Other	Meter Box	Joint Connection	Brick
<u>. </u>	Selected Test	Hydrant	Gravel
STIMATION OF LEAKAGE:	Hydrant	Valve	Soil
1 9/m		Misc.	Other
	See Remarks		
		7	
		· · 	
			₇₊ 5+
		1.F1	<u>7F.</u>
		\&\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
		/	
		Gynsraw	
		3.	
		1:31	
			· · · · · · · · · · · · · · · · · · ·
		· · · · · · ·	
·		1	
lemarks Z	huderno AT	- intersection of	GUNSTON Rd
of FIFTH	St learing	Joseph Grand	<u> </u>
- + F ₁ F ₁ /F	3 13139		
			<i>I-8</i>
		\cap	
			11
		X II CI	7/1. 2



Page No		6		
Date	6	1-27-9	רן ?	
Ownership	Public	Private	Easement	
Leak Indicat		\	_	
Evan more	1	2	$\sqrt{3}$	
		(Circle One,		

WATER	For Belson	District	
, ,	ACCOTINE	./.	
ity		StateStreet Address	
Third ST, E		\circ \emptyset	
IDICATION OF LEAK	LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON:	COVER
Sonic	Main Valve	Main .	Concrete
Surfaced Water	Curb Valve	Service	Asphalt
Other	Meter Box	Joint Connection	Brick
	Selected Test	Hydrant	Gravel
STIMATION OF LEAKAGE:	Hydrant	Valve	Soil
4 9pm		Misc.	Other
	See Remarks	J	
	1		
	2		
	5	Third ST	
	Gunston	````	
	2		
	1.2.	900°	
		·	
emarks /	1	hind ST Apprex	200 FEET
Fine hy	. 1 1		1 /
EAST of	INT of Third	St + Gurston ku	CLAKING
			MAP- H-8
		-	
		- Xall MM.	<u> </u>
Company	Representative	Heath Con	isultant



Page No	7	
Date	6-22-85	
Ownership	Public (Private) Easement	
	ion Classification	
Leak mulcat	1 2 (3)	
	(Circle One)	

LEAKAGE CONTROL REPORT WATER SURVEY

	Street Address FEX ST LEAK APPEARS	
(AGE DETECTED AT:	LEAK APPEARS	1-1-1-1-1-1-1
(AGE DETECTED AT:	LEAK APPEARS	
in Valve	TO BE ON:	COVER
	Main	Concrete
rb Valve	Service	Asphalt
ter Box	Joint Connection	Brick
ected Test	Hydrant	Gravel Soil
drant	Valve Misc.	Other
Remarks		
Hemarks		
	[31.19]	
	1485	
	<u></u>	·
	1	
· · · · · · · · · · · · · · · · · · ·	THIRD ST	
		• • •
	, · · • T. · · · · · ·	
185		
• • • • • •		
1 .	· / 1	10-1
TRAFT ON	Third ST APPRIX	185 West
1110 ST K	CHAPER ST L	EAKING
		MAP H-8
	Λ	
	11 11	1/1/1/1/1/1
		rentative Heath C



Page No	8
Date	6-23-95
Ownership	Public Private Easement
	ion Classification
Louis Morous	1 2 3
	(Circle One)

		CONTR		

Company Systemco	10 FONT Belvoir	State	
City	Nearest S	Statetreet Address	
GUSTON R		Fire hydraus	
INDICATION OF LEAK	LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON:	COVER
Sonic X	Main Valve	Main	Concrete
Surfaced Water	Curb Valve	Service	Asphalt
Other	Meter Box	Joint Connection	Brick
	Selected Test	Hydrant	Gravel
ESTIMATION OF LEAKAGE:	Hydrant 🗡	- Valve	Soil
1 90m		Misc.	Other
. //	See Remarks		
		· 17 T# · C- · · ·	
	<u>.</u> . ;	: 12 ^{T#} : ST: : :	<u>.</u>
	[3]		
	.		
		.\	
	Guston	· · · · · · · · · · · · · · · · · · ·	
	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	/	
	3	LV: 1195	
	$ \bigcirc $		
	1 . 1		
	1189	ā · · · · · · ·	
	1. 1	ا ل ا ل ا	
Remarks	re hydrony in	grass in from	t of
Du. 121.		2179	
1247.01	7		
			MAP J-8
		X/ //	(M)
		Varit	Mun L
Compa	ny Representative	Heath C	onsultant





Page No		
Date	6-26-75	
Ownership	Public Private Easement	
Leak Indicati	ion Classification _ 1	

	SURVEY	
Company Systems corp City According According to the Acc	/Fr Belvoin	District
City Acc	TINE	State
_	Nearest	st Street Address
Gunston, Rd	M # 5-11	
INDICATION OF LEAK	LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON: COVER
Sonic X	Main Valve	Main Concrete
Surfaced Water	Curb Valve	Service Asphalt
Other	Meter Box	Joint Connection Brick
	Selected Test	Hydrant Gravel
ESTIMATION OF LEAKAGE:	Hydrant	Valve Soil
10 9pm		Misc. Other
	See Remarks	
LOWEN Rd.	30, 5-1147	X 2018 1471 57
Remarks LEAK	on 8" MAIN	off 12" MAIN. LEAR IS
	NS lINE South	of Building # S-1147. LEAK
N. A. C.		South Building Wall of # 5-1147
15 Approx		1 1 0
AND APPRIX	0	Gunstin Rd + 14th ST
ACMIS ROAD	from INTO	Gunston 14 + 14th ST MAP J-8
		Denoll Men 2
Company	Representative	Heath Consultant



Page No	10	
Date	6.26-95	
Ownership	Public (Private) Easement	
Leak Indicat	ion Classification	
	1 2 (3	
	(Circle One)	

	P/FT Belvanc	StateStreet Address	
Belvoir Ron	d Defind #	1000	
DICATION OF LEAK	LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON:	COVER
onic X	Main Valve	Main 🔀	Concrete
urfaced Water	Curb Valve	Service	Asphalt
ther	Meter Box	Joint Connection	Brick
	Selected Test	Hydrant	Gravel
TIMATION OF LEAKAGE:	Hydrant	Valve	Soil
3 gpm		Misc.	Other
	See Remarks	J	
		7	
		SELVOI POOL PA	
		Dool Control C	
	(156. 156. 156. 156. 156. 156. 156. 156.	
		7. 0/	
	XI,		
,	_	10"	
· · · · · · · · · · · · · · · · · · ·			
	6.7H . St		· · · · · · · · · · · · · · · · · · ·
	(e''' 3)		
	/ / / / / / / / / / / / / / / / / / / /	•	
marks (EAIC	AMEAN TO De	on MAIN, AT	ON NEAR
VALUE (PESS.	186 F/1200) on	rate line Running	5 INEST Along
c de of	Building #1000, Le		N wooded men
Behind Bui	11 62	F 77.003 (E)	<i>T</i>
Behind Bui	12 ing # 1000.		MAP J-9
	,		MAP J-9
		$\overline{}$	
		- 1 1 1	1



Page No		
Date	6-26-95	
Ownership	Public (Private) Easement	
Leak Indicat	ion Classification	
	1 2 (3)	
	(2) 1 2 2	

Company <u>Jystem cury</u> Dity <u>Accor</u>	P FONT Belvoin Nearest S	District	
		Street Address	
12 th ST 4	4 1017 (BARD	EN School	
NDICATION OF LEAK	LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON:	COVER
Sonic	Main Valve	Main	Concrete
Surfaced Water	Curb Valve	Service	Asphalt
Other	Meter Box	Joint Connection	Brick
	Selected Test	Hydrant	Gravel
STIMATION OF LEAKAGE:	Hydrant	Valve	Soil
29pm		Misc.	Other
//	See Remarks	15	
		· · / · · · · · · · · · · · · · · · · ·	
		/ ێ 🐎 . :	
• • • • • • • •		(2003)	
	/	· · /· · · · • · · • · · · • · · · · • · · · · • · · · · • · · · · • · · · · • · · · · • · · · · · • · · · · • · · · · • · · · · • · · · · • · · · · • · · · · • · · · · • · · · · • · · · · · • · · · · · • · · · · · • · · · · · • · · · · · · • ·	
• • • • • • • • • • • • • • • • • • • •	/.		
12	1711 ST.	! <i>ò</i>	174 S
		t	1
			- 8"
• • • • • •			
	· · · · · · · ·	,	
		1017	
	$ \varnothing $. Sutou	
			**/a
Remarks	le controlling	How EAST on	1219 ST
		th ST IN FRONT	M F 1017
From value		NATEL SURFACE	
(BALDEN S	chaul J. leaking - 1	NATEL SURPAGE	
			MAI J-9
		\cap	
			. 0
		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	1/1/
		_ Vand \	1 Limb
Compan	ny Representative	Heath C	consultant /



Page No		$\overline{\mathcal{T}}$		
Date		-26-8	<u></u>	
Ownership	Public	Private	Fasement	
			Lusement	
Leak Indicati	ion Class	sification	3	
	,	(Circle One)	3	

LEAKAGE CONTROL REPORT WATER SURVEY

	_	State/Aest Street Address	
ARNOLD ROAD	& south of	9th 57	
CATION OF LEAK	LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON:	COVER
nic	Main Valve	✓ Main	Concrete
faced Water	Curb Valve	Service	Asphalt
er	Meter Box	Joint Connection	Brick
	Selected Test	Hydrant	Gravel
MATION OF LEAKAGE:	Hydrant	Valve	Soil
10 cpm		Misc.	Other
	See Remarks]	
		9TH	. S.T
			
		- - 	
• • • • • • •			4,
	• . • • • • •		
			• • • • • • • • •
		. 2	
• • • • • • • • • • • • • • • • • • • •		3	
	• • • • •	. 13. 11. 5	
		Such Sign of the second	
		. [S. N. I	
		1¢ 1	
	• • • • • •		
arks /	/ /	gh Main Ai	1. FACT
LEAK AP	1000 De		Tong List
SHOULDER	of Arnold S	ST 141 South	of main value
on Arnold	Dold AT INT	T of ARNOW Rel	+ 974 5
	,		
			MAP I-8
			11111 1



Page No	13	
Date	6-27-95	
D 41.0		
Ownership	Public Private Easement	
Leak Indicat	ion Classification	
	1 2 (3)	
	(Circle One)	

ompany Systemcarp	/F Belvoin	District			
. /		State Va			
ity Hecation		StateStreet Address			
, , , , , , , , , , , , , , , , , , ,					
MEGRES K	ond 4 17		1	<u> </u>	L
DICATION OF LEAK	LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON:		COVER	
ionic 😕	Main Valve	Main 🔀	7	Concrete	
urfaced Water	Curb Valve	Service	1	Asphalt	
ther	Meter Box	Joint Connection		Brick	
	Selected Test	Hydrant]	Gravel	
TIMATION OF LEAKAGE:	Hydrant	Valve		Soil	$\perp \downarrow$
1 Gpm		Misc.	J	Other MANHOLE	K L
// //	See Remarks]			-
			•		
,	1741				
	CHENEY				
	School		•		
	¥ 7.		•		
	Mr Azlen			· · · · · · · ·	
			•		• •
	· · · · · · · · · · · · · · · · · · ·	· · P· [· · · · · ·	•		
	MEERES	- NOL			
• • • • • • •					•
		14	•		
		50.00	•		
		1,72			
				,	
marks LEAK	on of TAP P	UN AM REle. # 1741 MEERES	15e	- USINC	フル /
i j	IN FOIRT W	# 1741 MEEDES	5	RI CHENEY:	Schoo
IN MAN hol					
	× 1 21		<u>. </u>	D" TAP	
	& Ain release	NUT ATTACHED 7	7		0 /
				WW	
				NO MAP of H.	15 VH
				. 1	
				10/1	



Page No		
Date	6-27-95	
Ownership	Public Private Easement	
	ion Classification	
	1 2 (3)	
	(Circle One)	

LEAKAGE CONTROL REPORT WATER SURVEY

NDICATION OF LEAK		LEAKAGE DETECTED AT: Main Valve	TO BE ON:	COVER
Sonic Surfaced Water	 	Curb Valve	Service	Asphalt
Other		Meter Box	Joint Connection	Brick
011101	ليطب	Selected Test	Hydrant	Gravel
STIMATION OF LEAKA	GE:	Hydrant	Valve	Soil
2 gpm			Misc.	Other
		See Remarks		
	•	LANTA	FIFF	
	• •	LANGE Loop	ρ	
		/		
			1003 1/6	
			REUT 1	uTH Tivity envices
				Tivity
	• •		1 5	envices
	• •		• • • • • • • • • • • • • • • • • • • •	
			PIV	
	• •	• • • • • •		
	• •		1	
Remarks /) /	(m	and Value	in Frank or Be	ulding #1003
10		TITO PATIVE I	in Front of Be-	
- Youth	1727	IV. Fy Sequices -	CEARING	
				m 10 = 0
		LATEN SUK	FACING	MAP J-9



Page No. Private Ownership Public Easement Leak Indication Classification 2

(Circle One)

9030 Monroe Road, Houston, TX 77061

LEAKAGE	CON	NTROL	REPORT
WA	TER	SURVE	EY

		ilest Street Address	
HURLEY K	Repol AT # 80	5	<u> </u>
NDICATION OF LEAK	LEAKAGE DETECTED AT	LEAK APPEARS TO BE ON:	COVER
Sonic	Main Valve	Main .	Concrete
Surfaced Water	Curb Valve	Service	Asphalt
Other	Meter Box	Joint Connection	Brick
	Selected Test	Hydrant	Gravel
STIMATION OF LEAKAGE:	Hydrant	;∕ Valve	Soil
3 gsm		Misc.	Other
	See Remarks		
	~ 12T	# ST→	
		805	
		. 0.03	
			<u> </u>
	<u></u>	<u>\</u> \ \ \ \ \	<u></u>
		() () () () () ()	24
		/ . /	
		· Har.	
	•	1817	
		Rend	<u></u>
	Ì		
			NEAK
Remarks Fire	hydrant on	HURLEY Rosel	to West
	<u> </u>		
SIDE OF	Building # 805	- Company	
			MAP - J-9
			MAP - J-9
		0	
		[,] ./	1
		Danel M.	1/11/2 1
	D	Heath Co	pneultant
Compa	pany Representative	rieatii Ot	///oundity



Page No		14		
Date	B	6-28	-55	
Ownership	Public	Private	Easement	
Leak Indicati	ion Cl ass	ification 2 (Circle One)	3	

9030 Monroe Hoad, Houston, 1X 77001

mpany	A Belvoin		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
y Accor	1.V /C		State <i>Ua</i> _			
		st Stree	et Address			
16 TH ST AT	# 740					1 1 1
DICATION OF LEAK	LEAKAGE DETECTED AT:		LEAK APPEARS TO BE ON:	;	COVER	
onic	Main Valve .		Main Kyd	LAT. X	Concrete	
urfaced Water	Curb Valve		Service		Asphalt	
ther	Meter Box		Joint Connec	tion	Brick	
	Selected Test		Hydrant		Gravel	
TIMATION OF LEAKAGE:	Hydrant	Z	Valve		Soil	
25 gam			Misc.		Other	
- 4	See Remarks			- -		
		, .	,			
		di,				,
	According to the Control of the Cont	ش ا				
	.S.T					
		<i>c.</i> ∵	,		<u> </u>	
		57-72 30.50				
0 11.00	7 . */\	N 3				
Building			• •			
740	1 6.6	w.				
	129	MOETE				
		S				
		1	• • •		• • • •	
		1				
		•				,
marks LEAK	ADDEALS to &	se_	AT FIRE	E hydran	T. PISSIS	ly hu
	4 //	71	11, TH ST	Be twee	Buil.	795 4
IATERAL AT						
4 740						
						- 1. 0
					<u>m</u> Al	p K-8
			_		mAl	ρ K-8



Page No	//	
Date	6-28-95	
Ownership	Public Private Easement	
Leak Indicat	ion Classification	
	1 2 3	
	(Circie One)	

	A / C./.	
Company Jystem Con	P/F Belvoin	District
City // Ce	COTINK	State
		t Street Address
14 TH ST U	Nest of DAlRymp	1/E St
NDICATION OF LEAK	LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON: COVER
Sonic . /	Main Valve	Main Concrete
Surfaced Water	Curb Valve	Service Asphalt
Other Other	Meter Box	Joint Connection Brick
<u> </u>	Selected Test	Hydrant 🔀 Gravel
STIMATION OF LEAKAGE:	Hydrant >	Value
1 00m	7-	Misc. Other
1 gp.n	See Remarks	
· · · · · · · · · · · · · · · · · · ·		16TH ST
• • • •		
,		
	· · · · · /2	
	. . .	
	1 1	
	\w \%	8.6
	1.5.	
	. K	
lemarks		
Fine	hydraur on 16	TH ST Between Dylaymple STX
	of learing	
		MAP K-8
		Hard OM wer
Compa	iny Representative	Heath Consultant



Page No	18	···
Date	6-29-95	
	Public Private Easement	
Louis Indiana	1 2 3	
Leak Indicat	ion Classification 2 3	

LEAKAGE CONTROL REPORT WATER SURVEY

mpany											Ne	eare			tate Add	dress		<i>V.</i> 4		1					11				
ICATIO				-,						ECT						K AI BE C		ARS					cc	VEF	₹				
onic				×]	I	Mair	Val	ve				\neg		M	ain								one	crete	;			
urfaced	Wate	er		1			Curt	Va	lve						Se	rvic	е						A	sph	alt				\perp
ther		-				1	/ete	r Bo	ЭX						Jo	int (Con	nec	tion				- ⊢	rick					
					•	5	Sele	cted	Te	st					H	/dra	nt				\times		_	irav	el				
IMATI	ON OF	LEA	KAG	iE:	_	ŀ	lydi	ant				·	1		-	lve						4		oil					\dashv
15	200	91	2,31												М	sc.					\bot			the	r				X
		7				(See	Rem	ark	s						,													
					-	_					•			SPE	-20	5/e	~	L	730		>								
•		•		•	•	٠	•	•	-	•	ŀ	•	•	•	. 1	•	•	•	•	•	•	 I	•	•	٠	•	•	•	•
											-				.					i			•	•	•		•	•	•
-												_		_															
•		•	•	•	•	•	•	•	ľ	•		•	•	•	•	•	•												
•		•	•	•	•	•	•	•	ŀ	•		•	•	•	٠ ١	•	•	•	•		•	·	•	•	•	•	•	•	•
															.			•					•		•	•	•	•	•
																						l .		٠.					
•		•	•	•	•	•	•	•	Ì	•	Ī	•	•	•	. 1	•						1							
•		•	•	•	•	•	•	•	ł	•		•	•	•	٠,	•	•	•	•		•	١.	•	•	•	•	•	•	•
									1]	•		•	•	•	٠	•	•	•
										L	1.M	111	ر		.							١.							
•		•	•	•	•	•	•	•		. 7	-00	0			1							1							
•	• ` •	•	•	•	•	•	•	•	i		00				•	7				•	•		•	•	•	•	•	•	•
								•		· • · ·	•				.]	K.	F.	ÍŦ	•	•	•		•	•	•	•	•	•	•
							_	_							./	.\													
•	•	•	•	•	•	-	-																						
•		•	٠	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•
				•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	٠	•
narks			,				1		1			_	, ,	,		,	,		مسحد			Ĺ		/					
			1	70			Δ	y d	RA	w		<u> </u>	rd	4		1	<u></u>		<u> </u>	LE		17	rd	11	UT	,	2.	1	
	Bry	Ľ.	΄ς,	4		M	, /	7	د مإ ـ	411	U	4	Lol	.1		C1	1/	10	-06	乂			ne			الميما	112	nr	
	has		14	, //	Cs	Q.	~	26	,	B	.10	2		/															
	1145		//	·-	<u>Ca</u>	776	<u> </u>				"	_																	
																							40	<u> </u>					
																							$\overline{\mathbb{W}}$	NY	<u> </u>	<u>-8</u>			
																	1			/		_	1						
																	V		11		//	N	7		,				



Page No		19
Date	6-29-95	
	Public Private	Easement
Leak Indicat	ion Classification 1 2 2 (Circle One)	3

ompany Systemcusp ty Accuti	Nagreet C	State treet Address	
- 0		Treet Address	
SPENGLER	Loop AT d	57	
DICATION OF LEAK	LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON:	COVER
onic X	Main Valve	Main	Concrete
urfaced Water	Curb Valve	Service	Asphalt
ther	Meter Box	Joint Connection	Brick .
	Selected Test	Hydrant	Gravel
TIMATION OF LEAKAGE:	Hydrant	Valve	Soil
3 ypm		Misc.	Other
//	See Remarks		
• • • • • •	a	155 551	
	i · [175	
		$\cdots $	
	02		
	3	ا تا	
	1 3		
		1 13	·
	· · · · · · · · · · · · · · · · · · ·	··· / · · · · · · · · · · · · · · · · ·	
	1		
marks /	/ A	1 22 4	- 1
Marks LEAK	on a main la	LUMMING on west	5100
Spenglen	loop AT DIST	Sunning on west ST - LEAK SUR: Uto Sail	ACING - LEAK
15 N 25	off 2155 87 11	uto Sail	
			MAP K-8
		-	



Page No	4	20
Date		7-11-95
Ownership	Public	Private Easement
Leak Indicat	ion Class	sification
	(1)	2 3
		(Circle One)

Nearest St		
Λ	reet Address	
st Resn of	# 165	
LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON:	COVER
Main Valve	Main	Concrete
Curb Valve	Service	Asphalt
Meter Box	Joint Connection	Brick
Selected Test	Hydrant	Gravel
Hydrant	Valve	Soil
	Misc.	Other
See Hemarks		
. 5		
$[\delta_{\alpha}]$		
· 1 · 1 1——— 1		
· 1 · 된 1 2시 1		
	1 X	
5 5	SERVICE ROAD	
. . 3 ' '		
		
	65	
1		
· 1 · 1 · · · -		
! . !	<u> </u>	
	· · · · · · · · · · · · · · · · · · ·	
	21 37	
200 200 %	1	Thing North
Appenes 10	De in 197110 1	Fring Nontry
Service Rand	Behind Flus	21 51
		MAP- K-9
	Main Valve Curb Valve Meter Box Selected Test Hydrant See Remarks	LEAK APPEARS TO BE ON: Main Valve



Page No	21	
Date	7-11-95	
	Public Private Easement	
Ownership	Public (Private) Easement	
Leak Indicat	ion Classification	
	1 2 3	

LEAKAGE CONTROL REPORT WATER SURVEY

	LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON:	COVER
DICATION OF LEAK	Main Valve	Main	Concrete
onic urfaced Water	Curb Valve	Service	Asphalt
Other Dither	Meter Box	Joint Connection	Brick
Attiel	Selected Test	Hydrant	Gravel
TIMATION OF LEAKAGE:	Hydrant	Valve	Soil
2 9/1	-	Misc.	Other
11/1	See Remarks		
	21 ST ST	Posseul France	31 51
Rossell Lo	PAIN VALUE AT	STATET / 14KIN	9. UNIEN SUNFACE
1033611 90	of F or Leg	Sylie Cy Jevin	



Page No	22	
Date	7-11-95	
	Public Private Easement	
Leak Indicat	on Classification	
	(Circle One)	

			LEAK APPEARS				
IDICATION OF LEAK	LEAKAGE DETECTED AT	; ;	TO BE ON:		COVER		
Sonic	Main Valve	X	Main	\dashv	Concrete	<u>e </u>	
Surfaced Water	Curb Valve	+	Service Joint Connection	++	Brick		
Other	Meter Box Selected Test	+-1	Hydrant	+	Gravel		
STIMATION OF LEAKAGE:	Hydrant	+-		+	Soil		-
2 -042	Tryorant	+	Valve in PIT		Other	Dit	X
3 gn	See Remarks	+			L	- 	
							•
		•					
		. (.			• • •	• • •	•
		11	-/i · · · ·	• • •			•
			/ · ·		•	<u> </u>	•
		. Z	1				
100							
		•					
		• •	· · · · ·			• • •	•
	· · · a ·		· i				•
	· · · · · · · · · · · ·	•	1 , 24				•
			· · · · ·			·	
			•				
			. Gunston	RI			
			I. Oktobritor	./ 4/			•
emarks (E4K 1	-none to Ro	· cm	VALVE IN	value	e P,	r 19	_
A AL AL	45130 18TH	<	D.C. V. C.	// .	1/	ten	····
1001/C 19	1 1 1	<u> </u>	// /2 400		7 10	c -/1	
So Exactiy	which UNIVE	دير	leaking C	ANNO		2 CE/C	KAYI



23 Page No. ___ 7-13.55 Date ___ Ownership Public (Private) Easement Leak Indication Classification 2

(Circle One)

9030 Monroe Road, Houston, TX 77061

LEAKAGE CONTROL REPORT WATER SURVEY

SDETHALS, R	Beaute	LEAK APPEARS	
CATION OF LEAK	LEAKAGE DETECTED AT:	TO BE ON:	COVER
nic X	Main Valve	Main	Concrete
faced Water	Curb Valve	Service	Asphalt Brick
ner	Meter Box	Joint Connection	Gravel
MATION OF LEAKAGE:	Selected Test	Hydrant	Soil
	Hydrant	Valve	Other
1 gpm		Misc.	Utilet
	See Remarks		
	•		
		۶ · · · · · · · · · · · · · · · · ·	
	BEAUNEGALD	*	
	\$		
		10	
		الهزا	
			,
. ,	- 8	<i>"</i> .	
	GOETHA	us Rd	
			 ,
arks is if not	an value cont	willing water f	lon EAST
10 10/2	TO VAIVE COULT	27/15	DI
ON GOTH	ELS Kend From	int with Dagu	REGARI 14
PAFING			
	,		m.11 - 6-8
			7//3/ " 5 8



Page No		24		
Date		7-13-	95	
Ownership	Public	(rivate)	Easement	
Leak Indicat	ion Class	ification		

Company Representative

company Systemcoul	SURVEY				
company Stemconf	/ For Belvoin	<u></u>	District		
ity Accor	MIC	 '	State		
		rest Stre	et Address		
IRY Robby	1- #1970	1 1	1 1 1 1 1 1 1		<u>, , , , , , , , , , , , , , , , , , , </u>
NDICATION OF LEAK	LEAKAGE DETECTED AT	:	LEAK APPEARS TO BE ON:		COVER
Sonic	Main Valve	X	Main .		Concrete
Surfaced Water	Curb Valve		Service		Asphalt
Other	Meter Box		Joint Connection		Brick
	Selected Test		Hydrant	X	Gravel
STIMATION OF LEAKAGE:	Hydrant	X	Valve	_1_]	Soil
39pm			Misc.		Other
7/1	See Remarks		•		
· · · · · · · · · · · · · · · · · · ·				· · · · · · · · · · · · · · · · · · ·	
	19	70	IRY Port	j9:73	
	19	70	1971 1972		
	19	70	1971 1972		Ry Ryad
emarks	ydrs NT AT	70	1971 1972		Ry Rusol
emarks Fine h	ydrs NT AT	10.	1971 1972		
emarks Fine h	ydrs NT AT	10.	1971 1972		
LEAKING A	ydrs NT AT	10.	1971 1972		
LEAKING A	ydrs NT AT	10.	1971 1972		
LEAKING	ydrs NT AT	70. Res SECUL	1971 1972		- Maybe 13" X water & CATTAINS of Sunfacing



Page No	25	
Date	7-13-85	
Ownership	Public Private Easement	
Leak Indicat	ion Classification 1 2 3	

(Circle One)

LEAKAGE	CONTROL	REPORT
NA/A	TED CHEV	EV

mpany JSTEMOND ACCI	FT Belvoin	District	
y		treet Address	
Pay 01	# 1077		
TRY Rd AT	# 1972		
		LEAK APPEARS	
DICATION OF LEAK	LEAKAGE DETECTED AT:	TO BE ON:	COVER
onic X	Main Valve .	Main	Concrete
urfaced Water	Curb Valve	Service	Àsphalt
Other	Meter Box	Joint Connection	Brick
	Selected Test	Hydrant 🗸	Gravel
TIMATION OF LEAKAGE:	Hydrant /	Valve	Soil
2 9A4		Misc.	Other
//	See Remarks		
		FH	
		<u> </u>	·
		· · Ily · Road · ·	
			
	1970 1971	[1972 1973]	
	1970 197.1	''' '''	
		<u> </u>	
		• • • • • • • • • •	• • • • • •
marks	ĺ. d	Tax D / Can	P 1 #197
marks Fine	MYDRANT ACROSS I	CRY Roal from	Duildis 111
learing	7		
			
			MAP H-7
		-0 1	
			1
		X Lagell ////	111-



Page No	24 46	
Date	7-13-25	
	Public Private Easement	
Leak Indication	on Classification	
	(Circle One)	

LEAKAGE CONTROL REPORT WATER SURVEY

ABBOT ROD	d # 211		
ICATION OF LEAK	LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON:	COVER
onic X.	Main Valve	Main	Concrete
urfaced Water	Curb Valve	Service	Asphalt
ther	Meter Box	Joint Connection	Brick
	Selected Test	Hydrant	Gravel
TIMATION OF LEAKAGE:	Hydrant	Valve	Soil
1 gan		Misc.	Other
1 //	See Remarks		
		_	
		ABBOT ROAD	
		17 ===	
		XX FM	
		1014	
		2115	
		· · · · · · · ·	
	• • • • • • • •	•	
	• • • • • • •	1	
marks 🛴	<i>i i</i>	Mill a contract All R	' /1
marks Fine 1	hydran AT	N.W Corner of B CLINIC) on ABBOT	41/2/19
# 2115	NONTH HEALTH	CLINIC) on ABBOT	FOR JOKING
<u> </u>			MAD G. 7
			MAP 6-7



Page No		o' /		
Date		7-14-	45	
Ownership	Public	Private	Easement	
Leak Indicat	ion Classi 1	(Circle One)	3	

9030 Monroe Road, Houston, TX 77061

LEAKAGE	CON	ITROL	RE	POI	?T
WA	TER	SURV	EY		

Company Systemical form	FT Belvom	District _	VA	
		rest Street Addres		
16 M ST AT 1	Bulding # 19	73		
NDICATION OF LEAK	LEAKAGE DETECTED AT		APPEARS ON:	COVER
Sonic	Main Valve	Main	X	Concrete
Surfaced Water	Curb Valve	Servi		Asphalt
Other	Meter Box		Connection	Brick
	Selected Test	Hydra		Gravel
STIMATION OF LEAKAGE:	Hydrant	Valve		Soil
10 gpm	See Remarks	Misc.		Other
		4	•	
			Gunston 1	Rd : : : : :
	-	· · II ·		
		火 川口	10-	
		N. 11	193	
		龙 ·	(.p :LOWE	w. Rt.
		jo. 11.	.701	
			. ,	
Remarks LEAK	Afferis	to De	an U M	TAIN RUNNING
EAST FROM LEAL IS A	MARIEL 12° E	1ST OF	Buildings	AVE AT INT
of 11, TH ST		Right Be	tween Build	1155 (LOWEN Pol
193 4 701	<u> </u>	(Se -111)	1000	
			A W sul	MAP K-8
Company I	Representative		Heath Co	posultant



Page No
Date 7-14-9'5-
Date
Ownership Public (Private) Easement
Leak Indication Classification
$\begin{pmatrix} 1 \end{pmatrix} 2 \qquad 3$
(Circle One)

LEAKAGE	CON	NTROL	REPORT
WA	TER	SURVE	ΞY

company Systemconf	/FT Belvoin	District	
city		State // A	
01	Nearest Stre	et Address	
Theore Rd	NEAR 5-628		
NDICATION OF LEAK	LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON:	COVER
Sonic	Main Valve	Main	Concrete
Surfaced Water	Curb Valve	Service	Asphalt
Other	Meter Box	Joint Connection	Brick
	Selected Test	Hydrant	Gravel
ESTIMATION OF LEAKAGE:	Hydrant	Valve	Soil
100 gpn		Misc.	Other
7/	See Remarks		
Remarks /	Ferced IN BUNKER AMEN		WATEN AT BASE OF HIM
LEAK		on 6" MAIN	1N
right of h	my off of	Theore Road.	EAR IS IN
ALEAN	Fine hodran "	T" NPAN BUILD.	19 S-628
	J. C. The Control of		
			MAP 1-8
			,
·		Dunil M	for t
Company F	Representative	Heath Con	sultant



Page No
Date
Ownership Public Private Easement
Leak Indication Classification
1 2 3
(Circle One)

,

ompany Systeming		District	
	OTINK	_ State	
TOTTEN Rd	BLOS Nearest S	treet Address	
DICATION OF LEAK	LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON:	COVER
Sonic	Main Valve	Main	Concrete
Surfaced Water	Curb Valve	Service	Asphalt
Other	Meter Box	Joint Connection	Brick
	Selected Test	Hydrant	Gravel
TIMATION OF LEAKAGE:	Hydrant	Valve	Soil
1 g/m		Misc.	Other
	See Remarks		
		2 · · · · ·	
	<i>.</i>		
		3	
		338	
	• • • • • • • • •	1 130	
		, . h	
	7)	<i>)</i>	
`	/ .	$\times \times $	
	· · · · · /· · · /	/ . ` `	
	/ /		
	Williph		s
marks	MydeANT ACROSS	POTEN Rosal	frm BUILDING
# 338 LEA			
11 338 084	7-1112		
		<u>,</u>	
			- 1 M G
			Map M-9
		<u> </u>	
			1 1 1



Page No	30	
Date	7-17-95	
	Public Private Easement	
Leak Indicat	ion Classification	

LEAKAGE CONTROL REPORT WATER SURVEY

company Systeman	/FT Belvoin	District		
city Acco	TINE	State		
DAVISON, AIN		St Street Address	7	
NDICATION OF LEAK	LEAKAGE DETECTED AT:	LEAK APPEARS TO BE ON:	COV	ER .
Sonic	Main Valve	Main	Co	ncrete
Surfaced Water	Curb Valve	Service	Ası	ohalt
Other	Meter Box	Joint Connection	Bri	ck
	Selected Test	H ydrant	Gra	avel
STIMATION OF LEAKAGE:	Hydrant	Valve	Soi	· X
C. Can		Misc.	Oth	ner
1 Gfm	See Remarks			
. A t				
The site		j	DAVISON AIN FIE	
. 10 th Di			A.L. FIF	ĹŃ
			17110 1 10	· · · · ·
	م ^{ال} .			
. '				
4	·	Yes : Spiget		
. 9	14	1 3.316		
.		· · · · · · ·		
	•			
		1 135 / 1		
	<u>なう '. </u>			
\				
1.10:0				
			• • • •	
60				
lemarks 🤌	VIC. OF VAIA	cost less	INC AT	KASS
$\mathcal{O}^{\mathcal{U}}$	CISIDE YAM	S/1/01 /(1/2	1-17 /17	<u> </u>
WATER	ITSIDE YAND SUNFACING	•		
				6-5
				0 5
		^		
		()	1 101	,
		Darel	& Mh	-2
Company	y Representative		Heath Consultar	nt T



Page No		<u> 3i</u>		
Date		7-17-	95	
Ownership	Public	Private	Easement	
Leak Indicat	ion Class	sification -	$\overline{\binom{3}{3}}$	
	•	(Circle One)		

HEATH CONSULTANTS INCO	III ONATE
9030 Monroe Road, Houston,	TX 77061

LEAKAGE CONTROL REPORT WATER SURVEY

City	<i>l</i>	A	COTINIC				_ State	_1/4	1					
,,					Nea	rest Str	eet Address	,						
DAU	idson	A	afiel	4	AT	#	1351	1_1_	11		1 1		.1	1
IDICATION	OF LEAK		LEAKAC	SE DETEC	TED AT	:	LEAK AF				COVER			
Sonic		1	Main	Valve			Main	Fire	line	1	Concre	ete		
Surfaced V			Curb				Servic		_//		Asphal	t		
Other			Meter	Вох			Joint (Connecti	on		Brick			
		1	Select	ed Test		X	Hydra	nt ·			Gravel			
STIMATION	OF LEAKA	GE:	Hydra	nt			Valve				Soil			
	1 am						Misc.				Other			
	1//		See R	emarks						•				•
			· .			•			•		• •			•
			 											
· · ·			İ						_					
			1.		• •	•	• • •		•		• •	•		
			14 ·			•			•					•
·			σ ₁	·					•					
								`						
					• •	· 1	٠		`\	•	•			
						- 1	FINEAR		. `-	− _i ·	• •		• •	•
			١		٠ -	$\prec \!$	1,00		• • •		 i ·			•
			i		. 1						<u> </u>			
		• •	'			13	51			135	4			
			· ·		.	1) 3			•	'	1.			•
					. L				•	<u> </u>	! .			• .
			1											
		• •	1		•	•	, , ,							
			· ·		. • •	•			•		• •			•
						•								•
lemarks		5 I	•	1				j		/		R	2. /	/
ioniai ko		hec	K	JAIU		on	Spr.	1k kin		INE	In	- B	27/0	110
#	1351	10	11119	The	cuah	d	RAIN	ling,	il	1/km	Comi	·19	OUT	
	NAIN	,	•	TSIDE	R	WILL	2.00							
0	NAIN	// NE	<u> </u>	J 310C		01/01	77							
												111	<u> </u>	
												10 [#j		<u>5- S</u>
								\wedge						
								T	1		1			
								V 1 7	 / 	r Ant	/			