

REPORT B

METHODOLOGY AND RESULTS OF THE 1992  
SURVEY AND ANALYSIS OF PIPELINES AND  
EXPLOSIVE HAZARDS IN THE VICINITY  
OF WATERFORD SES UNIT NO. 3

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## Report B

### METHODOLOGY AND RESULTS OF THE 1992 SURVEY AND ANALYSIS OF EXPLOSIVE HAZARD IN THE VICINITY OF WATERFORD SES UNIT 3 WATERFORD 3

#### INTRODUCTION

Technical Specification 6.9.1.10 for Waterford SES 3 requires Entergy Operations Inc. to do "a survey of major pipelines [greater than four inches in diameter] within a 2-mile radius of Waterford 3, which contain explosive or flammable materials and may represent a hazard to Waterford 3, including scaled engineering drawings or maps that show the pipeline locations," and to submit the results to the NRC at least once every four years. This report provides the results of the required 1992 survey.

#### PIPELINE SURVEY

##### Participating Facilities

Two sources were used to compile a list of companies operating inter-plant pipelines within a 2-mile radius of Waterford 3 (pipelines carrying significant quantities of hazardous materials located entirely within the boundaries of a single facility were reported as part of the survey of hazardous chemicals stored, processed or transported in the Waterford 3 vicinity). One source was the results of the 1988 pipeline survey, which were summarized in Table 2.2-6 of the Waterford 3 FSAR, Rev. 2, and illustrated in Fig. 2.2-3a. The other was two maps, "St. Charles Parish Natural Gas" and "St. Charles Parish Crude & Product," both published by DTC, Incorporated, P.O. Box 925383, Houston, TX 77292, tel. (713) 688-5933. These maps listed and depicted the location of all major pipelines in the parish. Companies operating pipelines within the two mile radius of Waterford 3 are listed in Table B-1.

##### Conduct of the Survey

As has been done for the toxic chemical survey and as in the 1988 survey, a map of the affected area was prepared by assembling the four U.S. Geological Survey 7.5 Minute Series (topographic) maps that covered the two-mile radius. These were the quadrangles titled Reserve, LaPlace, Hahnville and Lac Des Allemands. The sheets were trimmed and joined together to prepare a composite map, with a scale of 1:24,000.

Telephone calls were placed to each company listed in Table B-2 to identify the person who would furnish the information. After being contacted by telephone, this individual was furnished with a color copy of the map of the two mile zone and a questionnaire form. They were asked to indicate on the map the location of all pipelines operated by the company and to show for each pipeline the location and type of isolation valve nearest to Waterford 3. We indicated that site plans or site plots could be substituted. The questionnaire form included the following information:

- Person Contacted
- Agency
- Address
- Telephone
- Name or designation of line
- Type of gas or liquid carried
- Pipe size
- Pipe age
- Operating pressure
- Flow rate
- Depth of burial
- Can the pipeline carry a different product
- Type of Valve Manual or Automatic
- Name, title, and date of employee validating the above information.

A letter of inquiry, a complete map and a questionnaire were sent to those individuals listed in Table B-2.

#### Processing of Survey Responses

All the companies contacted responded to the information request. One company, Occidental Chemical, which owns a brine pipeline, referred the request to the Texas Brine Corp., which operates the pipeline. Although this pipeline does not carry a hazardous material, it was included in the survey for the sake of completeness, as was done in the previous survey.

Responses were verified by comparing them to the DTC maps, to the results of the 1988 survey, as reported in the Waterford 3 FSAR Section 2.2.3, Rev. 2, and to each other.

As in the previous survey, matching the connections of pipelines operated by different companies created problems. The maps that were returned by the respondents showed pipeline terminations that were supposed to connect but sometimes did not. Additional information was obtained, to determine the actual terminations and connection points of these lines. The information received confirmed that the connections were the same as in the previous survey.

### Survey Results

There are a total of 25 pipelines operating within two miles of Waterford 3 and there were 27 lines listed in the 1988 survey. Dow Chemical has disconnected a 16" natural gas line built in 1975. Bridgeline Gas has purchased the other 16" natural gas line from Dow which has reduced Dow's operational natural gas lines to zero. Additionally, Texas Brine Corp. now operates and maintains the Oxychem 12" brine pipeline as indicated in Table B-3.

During the survey it was revealed that the two Santa Fe Pacific Pipeline Inc. pipelines were sold to Gulf Central Pipeline. Santa Fe Pacific operated two liquid Anhydrous Ammonia lines and from conversations and correspondence with a representative of Gulf Central Pipelines, he noted that their 4" liquid Anhydrous Ammonia line was taken out of service. Figure B-1 outlines the location of the hazardous materials pipelines within the two mile radius of Waterford 3.

The survey revealed a new 20" natural gas pipeline constructed by Acadian Gas Pipeline System. A 10CFR50.59 evaluation was completed before it was put into operation to ensure that there were no unreviewed safety questions associated with the line. Based on the analysis performed, it has been concluded that this line poses no potential hazard and is bounded by previously analyzed explosive events. The FSAR will also be updated to describe the new pipeline.

### Assessment of Explosive Hazards in the Area

No new significant sources of explosive material were found as a result this most recent survey of pipelines and industrial facilities. The new survey ascertained the exact location of the major sources of hazardous and explosive material in the area. As a result, it has been determined that sources are the same or in some cases reduced when compared to the previous survey. Consequently, these materials pose no more of a hazard than previously calculated.

The potentially most severe explosive event involving a stationary source continues to be the Union Carbide propylene tank, as discussed in the Waterford 3 FSAR, Section 2.2.3.1.3.3, Rev. 2. The potentially most severe transient explosive event remains the LPG truck exploding on Louisiana Route 18 in front of Waterford 3, as discussed in the Waterford 3 FSAR, Section 2.2.3.1.2. No new materials capable of posing comparable hazards have been introduced in the area.



Table B-1

COMPANIES OPERATING PIPELINES WITHIN TWO MILES OF WSES-3

- Acadian Gas Pipeline System
- Bridgeline Gas Distribution Company
- Dow Chemical USA
- Louisiana Power and Light
- Gulf Central Pipelines Co. (formerly Santa Fe Pacific Pipelines Inc.)
- Shell Pipe Line Corporation
- Texas Brine Corporation
- Ucar Pipeline Incorporated

Table B-2

Names, Addresses and Phone Numbers of Respondents to 1992  
Survey

Actual Respondent

Mr. James P. Schwarz  
Asst. Operation Manager  
Acadian Gas Pipeline System  
P.O. Box Drawer 5778  
Thibodaux, LA 70302-5778  
(504)446-2791

Mr. Gary A. Giorano  
Pipeline Safety Coordinator  
Bridgeline Gas Dist. Co.  
P.O. Box 60252  
New Orleans LA. 70160  
(504)595-6575

Mr. F.R. Cavell, Jr.  
Pipeline Department  
Dow Chemical USA  
Louisiana Division  
P.O. Box 35  
Plaquemine, LA 70764  
(504)389-8000

Mr. Gus M. VonBodungen  
Chemistry Supervisor  
Waterford 1 & 2 G.P.  
Louisiana Power & Light  
P.O. Box 50  
Killona, LA 70066  
(504)465-8107

Mr. Henry Paker  
Gulf Central Pipeline  
P.O. Box 227  
Hermann MO 65041  
(314)486-5488

D.F. Carrere  
Sr. Eng. Asst.  
Gulf Coast Division  
Shell Pipe Line Corp.  
P.O. Box 52163  
New Orleans, LA 70152  
(504)588-8211

Table B-2 (cont'd)

J.H. Tichenor, Jr.  
Manager, Operations & Engineering  
Texas Brine Corporation  
200 West Loop South  
Houston, TX 77027  
(713)877-2700

Ms. Jere H. Dial  
Right-of-Way Supervisor  
UCAR Pipeline Inc.  
P.O. Box 552  
Victoria, TX 77903-0552  
(512)578-9711

B.M. Gainer  
Ucar Pipeline Inc.  
P.O. Box 186  
Port Lavaca, TX 77979  
(512)552-7511



TABLE B-3

## DESCRIPTION OF THE MAJOR PIPELINES WITHIN TWO MILES OF WATERFORD-3

SURVEY 1992

DESIGNATION ON FIGURE B-1	COMPANY	NAME OR DESIGNATION OF LINE	TYPE OF GAS OR LIQUID CARRIED AT PRESENT	PIPE SIZE (in)	PIPE AGE (yrs)	OPERATING PRESSURE (psi±)	DEPTH OF BURIAL (ft)	TYPE OF ISOLATION VALVES	USED TO CARRY A DIFFERENT PRODUCT?	DISTANCE & DIRECTION FROM WATERFORD 3 SITE TO NEAREST ISOLATION VALVE AND/OR TERMINUS
1	Acadian Gas Pipeline System	Chico Line	Natural Gas	20	24	1,000	3	Manual	Unknown	Valve located 1.1 miles S of Waterford 3 location
2	Acadian Gas Pipeline System	Taft Line	Natural Gas	12	18	1,000	3	Manual	No	Valve located 1.5 miles SE of Waterford 3 location
3	Acadian Gas Pipeline System	LP&L Line	Natural Gas	10	11	1,000	3	Manual	No	Valve located 1 mile S of Waterford 3 location
4	Acadian Gas Pipeline System	Occidental Line	Natural Gas	4	8	1,000	3	Manual	No	Line terminates 1.1 miles SE of Waterford 3 location
5	Acadian Gas Pipeline System	Acadian Carbide	Natural Gas	12	29	1,000	3	Manual	No	Valve located 1.3 miles SE of Waterford 3 location
6	Acadian Gas Pipeline*	LP&L Waterford Lateral	Natural Gas	20"	1992	240	3	Manual	No	Valve located 0.45 miles SE of Waterford 3 location
7	Shell Pipe Line Corporation	Ethane Line	Ethane	6	18	300-400	>3	Manual	No	Line terminates 1.4 miles SE of Waterford 3 location
8	Shell Pipe Line Corporation	Chlorine Line	Chlorine	6	18	200	>3	Manual	No	Valve located 1.5 miles SE of Waterford 3 location

TABLE B-3 (Cont'd)

## DESCRIPTION OF THE MAJOR PIPELINES WITHIN TWO MILES OF WATERFORD-3

SURVEY 1992

DESIGNATION ON FIGURE B-1	COMPANY	NAME OR DESIGNATION OF LINE	TYPE OF GAS OR LIQUID CARRIED AT PRESENT	PIPE SIZE (in)	PIPE AGE (yrs)	OPERATING PRESSURE (psie)	DEPTH OF BURIAL (ft)	TYPE OF ISOLATION VALVES	MAY BE USED TO CARRY A DIFFERENT PRODUCT?	DISTANCE & DIRECTION FROM WATERFORD 3 SITE TO NEAREST ISOLATION VALVE AND/OR TERMINUS
9	Shell Pipe Line Corporation	Propane Line	Propane	4	18	650	>3	Manual	No	Valve located 1.8 miles SE of Waterford 3 location
10	Shell Pipe Line Corporation	Ethylene Line	Ethylene	6	18	1750	>3	Manual	No	Valve located 1.8 miles SE of Waterford 3 location
11	Ucar Pipeline Incorporated	Fuel Gas Line	Natural Gas	10	22	900	4-5	Manual	No	Line terminates 0.9 miles SE of Waterford 3 location
12	Ucar Pipeline Incorporated	Ethylene Line	Ethylene	8	22	1,400	4-5	Manual	No	Line terminates 1.4 miles E of Waterford 3 location
13	Ucar Pipeline Incorporated	Ethane/ Propane Line	Liquid Propane Gas	8	22	1,400	4-5	Manual	No	Line terminates 1.4 miles E of Waterford 3 location
14	Louisiana Power and Light	10 Inch Line	Natural Gas	10	19	200	10-12	Manual	Yes	Line terminates 0.6 miles SW of Waterford 3 Unit
15	Louisiana Power and Light	14 Inch Line	Natural Gas	14	8	800	10-12	Manual	No	Valve located 0.6 miles SW of Waterford 3 Unit
16	Gulf Central Pipeline	East/West Line	Liquid Anhydrous Ammonia	6 5/8	23	1340-1405	3	Manual	Yes	Valve located 1 mile SE of Waterford 3 Unit

TABLE B-3 (Cont'd)

## DESCRIPTION OF THE MAJOR PIPELINES WITHIN TWO MILES OF WATERFORD-3

SURVEY 1992

DESIGNATION ON FIGURE B-1	COMPANY	NAME OR DESIGNATION OF LINE	TYPE OF GAS OR LIQUID CARRIED AT PRESENT	PIPE SIZE (in)	PIPE AGE (yrs)	OPERATING PRESSURE (psie)	DEPTH OF BURIAL (ft)	TYPE OF ISOLATION VALVES	MAY BE USED TO CARRY A DIFFERENT PRODUCT?	DISTANCE & DIRECTION FROM WATERFORD 3 SITE TO NEAREST ISOLATION VALVE AND/OR TERMINUS
17	Bridgeline Gas Distribution Co.	Riverlands System Main Line 1	Natural Gas	20	32	868	3	Automatic	No	Valve located 0.7 miles E of Waterford 3 Unit
18	Bridgeline Gas Distribution Co.	Riverlands System Main Line 2	Natural Gas	26	26	868	3	Automatic	No	Valve located 0.7 miles E of Waterford 3 Unit
19	Bridgeline Gas Distribution Co.	LP&L Waterford Lateral	Natural Gas	16	8	867	3	Manual	No	Line terminates 0.3 miles W of Waterford 3 Unit
20	Bridgeline Gas Distribution Co.	Texaco LPG Main Line 1	Butane	6	26	250	3	Automatic	No	Valve located 0.7 miles E of Waterford 3 Unit
21	Bridgeline Gas Distribution Co.	Texaco LPG Main Line 2	Propane	6	26	800	3	Automatic	Yes	Valve located 0.7 miles E of Waterford 3 Unit
22	Bridgeline Gas Distribution Co.	Texaco LPG - Union Carbide Lateral	Propane	4	27	800	3	Manual	No	Valve located 0.8 miles SE of Waterford 3 Unit
23	Bridgeline Gas Distribution Co.	Riverlands Spore River Line	Natural Gas	18	26	868	3	Automatic	No	Valve located 0.7 miles E of Waterford 3 Unit
24	Bridgeline Gas Distribution Co.	Hooker Lateral	Natural Gas	4	27	868	3	Automatic	No	Valve located 0.7 miles E of Waterford 3 Unit
25	Texas Brine Corporation	Occidental	Sodium Chloride Brine	12	27	600	2.5	Automatic	Yes	Valves located 16.4 miles W of Waterford 3 Unit

\*: Constructed in 1992

Source: Response to Entergy Operations, Inc. Questionnaire



LEGEND

- MANUAL ISOLATION VALVE
- AUTOMATIC ISOLATION VALVE
- ACADIAN GAS PIPELINE SYSTEM
- 1 CHICO LINE
- 2 TAFT LINE
- 3 LP&L LINE
- 4 OCCIDENTAL LINE
- 5 ACADIAN CARBIDE LINE
- 6 ACADIAN GAS PIPELINE (1992)
- SHELL PIPELINE CORPORATION
- 7 ETHANE LINE
- 8 CHLORINE LINE
- 9 PROPANE LINE
- 10 ETHYLENE LINE
- UCAR PIPELINE INCORPORATED
- 11 FUEL GAS LINE
- 12 ETHYLENE LINE
- 13 ETHANE/PROPANE LINE
- LOUISIANA POWER AND LIGHT
- 14 10 INCH LINE
- 15 14 INCH LINE
- GULF CENTRAL PIPELINES (SANTE FE PACIFIC LINES INC.)
- 16 EAST/WEST LINE
- BRIDGELINE GAS DISTRIBUTION CO
- 17 RIVERLANDS SYSTEM MAIN LINE 1
- 18 RIVERLANDS MAIN LINE 2
- 19 LP&L WATERFORD LATERAL NATURAL GAS
- 20 TEXACO LPG MAIN LINE 1
- 21 TEXACO LPG MAIN LINE 2
- 22 TEXACO LPG - UNION CARBIDE LATERAL
- 23 RIVERLANDS SPARE LINE
- 24 HOOKER LATERAL

SOURCE: INDIVIDUAL PIPELINE COMPANY CONTACT REPORTS

LOUISIANA POWER & LIGHT CO.  
Waterford Steam Electric Station #3

OIL, NATURAL GAS AND  
PRODUCT PIPELINES  
OPERATING WITHIN  
2 MILES OF THE SITE

FIGURE B-1

SCALE 1:24000

