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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

DOCKETED
USNRC

In the Matter of)
)
PHILADELPHIA ELECTRIC COMPANY)
)
(Limerick Generating Station,)
Unit 1 and 2))

Docket Nos. 50-35204
50-35302

'84 MAY -7 P2:23

**COMMONWEALTH OF PENNSYLVANIA'S PROPOSED FINDINGS OF FACT ON
CONTENTIONS V-3a AND V-3b**

In accordance with 10 C.F.R. §2.754, the Commonwealth of Pennsylvania hereby files proposed findings of fact on issues in which it participated concerning Contentions V-3a and V-3b.

Introduction

Contentions V-3a and V-3b concern the effects on safety-related structures of postulated ruptures in the ARCO petroleum and Columbia Gas pipelines that run near the Limerick Generating Station site.

Contention V-3a states:

In developing its analysis of the worst case rupture of the ARCO pipeline, the Applicant provided no basis for excluding consideration siphoning. Thus, the consequences from the case pipeline accident are understated.

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Contention V-3b reads:

In discussing deflagration of gas and petroleum due to pipeline rupture, no specific consideration has been given to the effect of radiant heat upon the diesel generators and associated diesel fuel storage facilities.

Testimony was filed by the Applicant, the NRC staff and Friends of the Earth (FOE). Testimony concerned the structure and operation of the pipelines, the impacts upon the safety-related structures of postulated breaks in the pipelines, and the structural integrity of safety-related structures to withstand postulated overpressures from a detonation following a pipeline break.

In accordance with its status as an interested governmental participant, the Commonwealth participated through cross-examination in hearings held December 12-16, 1983 and January 9-10, 1984. The Commonwealth did not participate in all hearings held on these contentions. The Commonwealth's purpose in participation has not been to advocate a position with regard to these contentions; rather, its role is to aid in the development of a record. Consequently, the Commonwealth's proposed findings are limited to matters in which it participated, and are proffered for the limited purpose of aiding the Board in evaluating the record.

1. The ARCO pipeline runs approximately 49 miles from the Boot Pumping Station to the Fullerton Terminal, traversing Chester and Montgomery Counties, Pennsylvania. It was laid in 1955 and is the only ARCO pipeline in the vicinity of the Limerick facility. Christman, ff. Tr. 5093, at 2; Tr. 5099, 5205 (Christman).

2. The ARCO Pipeline has a capacity of 31,700 barrels/day and operates at a maximum pumping pressure of 1,100 psig. Christman, ff. Tr. 5093, at 3; Tr. 5152 (Christman). Normal operating pressures for gasoline are 850 to 875 psig, and 950 to 1000 psig for diesel and furnace oil. Ibid.

3. The present tariffs on file with the Pennsylvania Public Utilities Commission authorize ARCO to transport gasoline, kerosene, jet engine fuel, and light and medium fuel oil. The tariffs have not been revised since 1978, and no new products have been carried since then. Christman, ff. Tr. 5093; Tr. 5120-22 (Christman).

4. ARCO Pipeline and Philadelphia Electric Company have entered into an agreement whereby ARCO has agreed not to transport propane through the line. The pumping units and terminal facilities would have to be modified in order for

the pipeline to carry propane. Christman, ff. Tr. 5093, at 4; Tr. 5109, 5218, 5219 (Christman); Böyer, ff. Tr. 5412, Attachment.

5. The ARCO pipeline has no defined design life. The line is coated with coal tar to protect against corrosion. Corrosion is also controlled through "impressed current cathodic protection." Hydrostatic testing is not performed on the pipeline. Christman, ff. Tr. 5093, at 3; Tr. 5154, 5204-06 (Christman).

6. The Boot Pumping Station is the only pumping station on this ARCO pipeline segment. Boot Station activities are remotely controlled from ARCO's Point Breeze Pumping Station in Philadelphia and Control Center in Independence, Kansas. A single sensor at the Boot Station detects changes in pressure on the pipeline. Should pressure drop below 365 psig, the sensor would automatically shut off the pumpage. Christman, ff. Tr. 5093, at 5, 6; Tr. 5151, 5234-35 (Christman).

7. There is no back-up sensor for the single sensor at Boot Station. Tr. 5196 (Christman).

8. Point Breeze and Independence Stations also monitor pipeline flow activity. These stations are manned and are

Independent of the sensory equipment at Boot. Christman, ff. Tr. 5093, at 6; Tr. 5196-99 (Christman). Should the sensor at Boot Station fail to operate, monitoring equipment at Point Breeze or Independence would detect pressure changes. Tr. 5198-99, 5241 (Christman).

9. Leaks on the ARCO pipeline are detected primarily through remote monitoring capability at Point Breeze and Independence, Kansas Stations. Another, secondary method of leak detection is weekly aerial inspections of dead vegetation, or saturation of canes, along the pipeline. This method is not reliable when the ground is snow-covered. Leakage may also be detected during right-of-way maintenance activities -- e.g., brush cleaning. Brush cleaning takes place every five years, or as needed. Christman, ff. Tr. 5093, at 5; Tr. 5192-95, 5230 (Christman).

10. Monitoring equipment is inspected on an undefined periodic basis. Tr. 5219-5200 (Christman).

11. Upon noting a sudden radical pressure change, monitoring personnel would consider whether to shut down Boot Pumping Station. Such action would be taken on observation of a large change, e.g., 100 psig, although equipment at Point Breeze and Independence can observe pressure changes as low as one psig. Christman, ff. Tr. 5093, at 6, 7; Tr. 5220-21 (Christman).

12. Isolation of known or suspected leaks is effected following pumpage shutdown by work crews dispatched from the ARCO Montello District Office. Isolation of the pipeline is effected at both the Boot and Fullerton ends of the line. Tr. 5241-42, 5251 (Christman). There are 10 valves on the Boot to Fullerton line. The nearest valve below Limerick is 3,000 feet south of the Limerick Station; the nearest valve downstream is 7.9 miles away, these valves are manually operated. The valves at both Boot and Fullerton Stations are remotely controlled; thus the segment may be isolated by remote control. Christman, ff. Tr. 5093, at 7; Tr. 5202, 5254 (Christman).

13. Columbia Gas Transmission Pipelines 1278 and 10110 run generally southwest to northeast through Montgomery County, Pennsylvania. Pipeline 1278 was constructed in 1949, is 14 inches in diameter and operates at a normal pumping pressure of 750 psig. Pipeline 10110 was constructed in 1965, is 20 inches in diameter and operates at a normal pumping pressure of 1100 psig. The pipelines run parallel, 20-30 feet apart, and share a common right-of-way. Brown, ff. Tr. 5261, at 4; Tr. 5321 (Brown).

14. The Columbia pipelines carry only methane in a gaseous state. Tr. 5318, 5325, 5327 (Brown).

15. The Eagle and Easton Compressor-Stations are the compressors nearest the Limerick Station. The Eagle Station is 9.7 miles south of the Schulkyill River; Easton Station is 44.4 miles to the north. Brown, ff. Tr. 5261, at 4; Tr. 5308 (Brown). The Eagle Station is manned on a 24 hour basis. The Easton Station is manned 5 days a week, 8 hours a day. Brown, ff. Tr. 5261, at 4; Tr. 5284 (Brown). Line 10110 ends at Hellertown Station, and does not extend to Easton Station. Tr. 5309 (Brown). Hellertown is a measuring, not a compressor station. Tr. 5308 (Brown).

16. The pipelines are protected against corrosion by impressed current cathodic protection. The pipelines do not undergo periodic pressure testing; however, there is no industry-wide standard requiring such testing. Brown, ff. Tr. 5261, at 4; Tr. 5311 (Brown).

17. Leakage is detected by monthly air patrols which look for dead vegetation in the right-of-way. Air patrols cannot observe the vegetation when the ground is snow-covered. Brown, ff. Tr. 5261, at 5; Tr. 5304 (Brown). Annual foot patrols, semi-monthly inspections, and hydrogen flame ionization are also employed to detect leaks. Brown, ff. Tr. 5261, at 5.

18. The Columbia pipelines are depreciated over a 50-year period. Thus 50 years can be estimated as the pipelines' "design life." See Tr. 5311 (Brown).

19. Pressures on these pipelines are electronically monitored by Columbia's Control Center in Bethel Park, Pennsylvania. If pressures fall below 425 psi on line 1278, or 770 psi on line 10110, alarms are triggered at Bethel Park and at Eagle Station. Brown, ff. Tr. 5261, at 5.

20. The pressure sensory devices and alarm system are inspected every six months. Tr. 5306 (Brown).

21. Easton Station is not staffed on a continuous basis. In periods where it is not staffed, pressure drop sensory, inflammation is transmitted to the Bethel Park Control Center via electronic transducers, where pressures are then analyzed. Easton Station is capable only of sensing and transmitting information on line 1278, as line 10110 stops at Hellertown. See Tr. 5304, 5305, 5309 (Brown).

22. When alarm set points activate indicating pressures on the pipelines have dropped below normal operating range, operators either at Eagle or Easton Stations or the Bethel Park Center can turn off the compressor units and close the

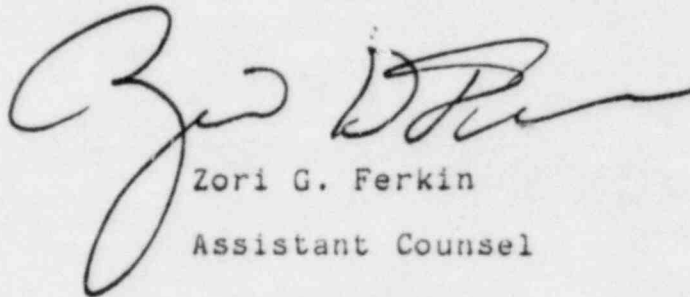
isolation valves, shutting down the flow of gas in to the pipeline. Christman, ff. Tr. 5261, at 5-6; Tr. 5288, 5307-08, 5323, 5337 (Brown).

23. The valves at Eagle and Easton Stations can be either manually or remotely controlled. Tr. 5308, 5339-40 (Brown) Between Eagle and Easton there are six manual valves on line 1278, and 3 manual valves on line 10110. Tr. 5339-40 (Brown). The valves closest to Limerick and those at the compressor stations would be closed should a pipeline leak occur near Limerick. Tr. 5330-31 (Brown).

24. In the event of a leak resulting in a drop in pressure on either line 1278 or line 10110, Columbia Gas does not have the clearly established capability of shutting down the pipeline absent operator intervention either at the compressor stations, Hellertown, or at the Bethel Park Control Center. See Tr. 5288, 5301-02, 5318-19, 5320-21, (Brown).

25. The Applicant has not established that a breach of either the ARCO or Columbia Gas pipelines will not occur. Tr. 5656 (Board).

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Zori G. Ferkin". The signature is fluid and cursive, with a large initial "Z" and a long, sweeping underline.

Zori G. Ferkin

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Date: May 2, 1984

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

DOCKETED
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'84 MAY -7 P2:24

In the Matter of)
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PHILADELPHIA ELECTRIC COMPANY)
)
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(Limerick Generating Station,)
Units 1 and 2))

Docket Nos. 50-352F SECRET
50-353NG & SERV
50-354 BRANCH

CERTIFICATE OF SERVICE

I hereby certify that copies of "Commonwealth of Pennsylvania's Proposed Findings of Fact on Contentions V-3a and V-3b" in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class, or, as indicated by an asterisk, through deposit in the Commonwealth of Pennsylvania's internal mail system, or, as indicated by a double asterisk by deposit in the United States Postal Service express mail, this 2nd day of May 1984:

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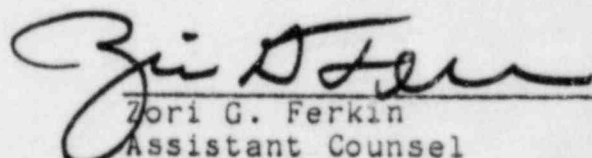
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Date:

May 2, 1984