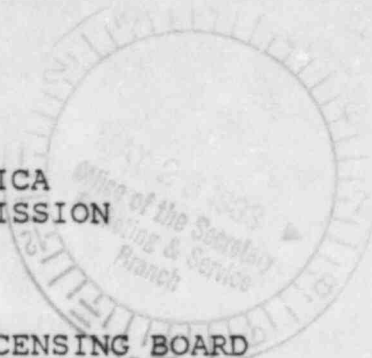


UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION



BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
UNION ELECTRIC COMPANY) Docket No. STN 50-483 OL
(Callaway Plant, Unit 1))

AFFIDAVIT OF KENNETH V. MILLER
ON REED CONTENTION 17
(RADIOLOGICAL MONITORING)

County of Cole)
State of Missouri) ss.

KENNETH V. MILLER, being duly sworn, deposes and says as follows:

1. I am Administrator of the Bureau of Radiological Health of the Missouri Division of Health. My business address is P.O. Box 570, Jefferson City, Missouri 65102. In the event of an accident at the Callaway Plant, it would be the responsibility of the Bureau of Radiological Health to direct operations specifically related to nuclear radiation affecting the environment outside the Callaway Plant exclusion area. This

responsibility includes radiological monitoring, determining the need for implementing protective actions, advising other agencies regarding actions that should be taken, determining individual exposure levels and determining the need for decontamination.

2. This statement addresses only radiological monitoring. I make this affidavit in response to Reed Contention 17 (Radiological Monitoring). I have personal knowledge of the matters stated herein and believe them to be true and correct. A summary of my professional qualifications and experience is attached hereto as Exhibit "A".

3. The Bureau of Radiological Health has a staff of six professional personnel. In the event of an accident at the Callaway Plant, four Radiological Health personnel will be available to serve on monitoring teams. Other personnel of the Bureau will be assigned to the emergency off-site facility or to the emergency operations center.

4. Each monitoring team will consist of one person provided through the State Emergency Management Agency ("SEMA") and one person from the Bureau of Radiological Health ("BRH"). The SEMA will be responsible for transportation and communications essential to monitoring activities. The team member provided by SEMA will serve as driver and assistant and will have been trained in the use of radiation detection instruments. The BRH member will act as team leader and will be responsible for radiological monitoring. The deployment of the

field monitoring teams is fully described in the BHR section of Annex A to the Missouri Nuclear Accident Plan - Callaway ("State Plan") (at BRH 12 and Attachment A6B, which are attached hereto as Exhibit "B").

5. The emergency instruments, equipment and supplies to be used by BRH for radiological assessment are listed in the BRH plans and procedure (in Annex A to the State Plan, at Attachment A2B, a copy of which is attached hereto as Exhibit "C"). As indicated in the Attachment, BRH will have the capability to measure radioiodine levels as low as 10^{-7} uCi/cc under field conditions. This reflects a change in the portion of the State Plan which was the basis of Reed Contention 17.B.

6. All members of the BRH staff have participated in emergency response training programs sponsored by federal agencies. They periodically review and discuss emergency procedures. BRH personnel are regularly engaged in radiation protection activities. That is their primary responsibility. They are experienced in conducting radiological surveys and in the use of radiation detection instruments and are familiar with the instruments and protective equipment which is available to them. They routinely respond to various kinds of radiological incidents and are accustomed to working both individually and as team members. The following quotation from the Final Report Evaluation of the Exercise for Radiological Accidents at Cooper Nuclear Station, Brownville, Nebraska,

March 10, 1982 prepared by Federal Emergency Management Agency, Region VII, tends to support the competence and adequacy of training of BRH monitoring teams: "Field monitoring teams were well managed and capably directed from the FCP [Forward Command Post]. Monitoring procedures were excellent and rigorously followed. Field data was received by the FCP, promptly analyzed, and used as the basis for recommending appropriate protective actions."

7. All BRH personnel will be familiar with both the terrain around the Callaway Plant and with preselected monitoring points prior to plant operation. In the event of an emergency at the plant, BRH monitoring team members will be dispatched from the emergency off-site facility or directly from the Jefferson City office of the BRH. In either case the teams will be under the direction of the PRH representative in the emergency off-site facility and should be in the field within one hour after initial notification. Radio communications will be available between the emergency off-site facility and monitoring teams dispatched by the BRH and the Callaway Plant. Monitoring activities will be coordinated from the EOF.

8. In conclusion, the Bureau of Radiological Health can, if necessary, provide four trained radiological monitors. Augmented by personnel provided by the State Emergency Management Agency, this would result in four off-site monitoring teams (two for each of two 12-hour shifts) equipped by and under the direction of the BRH. These, in conjunction with

Callaway Plant personnel, should meet the critical needs for off-site radiological monitoring during the early stages of an accident at the Callaway Plant. Although the need is not anticipated, additional monitors would be available from the Missouri Nuclear Emergency Team - a group of some forty individuals who have been trained by the SEMA or whose qualifications have been reviewed and found acceptable by that agency. It is anticipated that after the first twenty-four hours assistance would be available from federal agencies if needed. In my opinion, and contrary to Reed Contention 17, State resources in trained personnel and radiation monitoring equipment are adequate to properly perform monitoring tasks in the plume exposure EPZ and the ingestion exposure EPZ, and without support from local governments.

Kenneth V. Miller
Kenneth V. Miller

Subscribed and sworn to before me
this 17th day of May, 1983.

Dan David Anderson
Notary Public

My Commission expires MARCH 24, 1985.

PROFESSIONAL QUALIFICATIONS STATEMENT
FOR
KENNETH V. MILLER

Education: B.S. Degree in Physics from Western Illinois University

One academic year of graduate study in radiological
health, University of Michigan

Experience: Twenty-two years with Missouri's radiological health program.

BRH field monitoring teams will be dispatched from the Forward Command Post as deemed warranted by BRH, but not later than at the declaration of a Site Area Emergency classification. At least two teams, consisting of at least two persons, will be deployed to predesignated monitoring and sampling points (see Attachment A5B). Each team will be comprised of one person from BRH who will be responsible for actual monitoring and one emergency worker provided by SEMA who will act as monitoring assistant, communicator, and driver. Transportation and communications equipment will be provided to each team by SEMA. The BRH representative will be experienced in the use of monitoring instruments and will have received emergency response training. The SEMA emergency worker will also be trained in emergency response and in the use of field monitoring equipment. The field monitoring equipment and appropriate protective gear will be provided to each team by BRH from the Forward Command Post. The radiological monitoring equipment, protective gear, and miscellaneous equipment to be utilized by field monitoring teams is listed in Attachment A2B.

The time required for deployment of Bureau of Radiological Health personnel at the site of an emergency will depend upon several factors including the specific site and the locations of BRH personnel at the time of the emergency. In the case of the Callaway Nuclear Power Plant, it is estimated that this could be accomplished in less than one hour. Mobilization and transportation will be coordinated by SEMA.

Various RADCON and/or MONET Team members may be utilized with other individuals of Federal, State, and local agencies, as appropriate, in forming additional teams if required.

NUCLEAR ACCIDENT PLAN

ATTACHMENT A6B

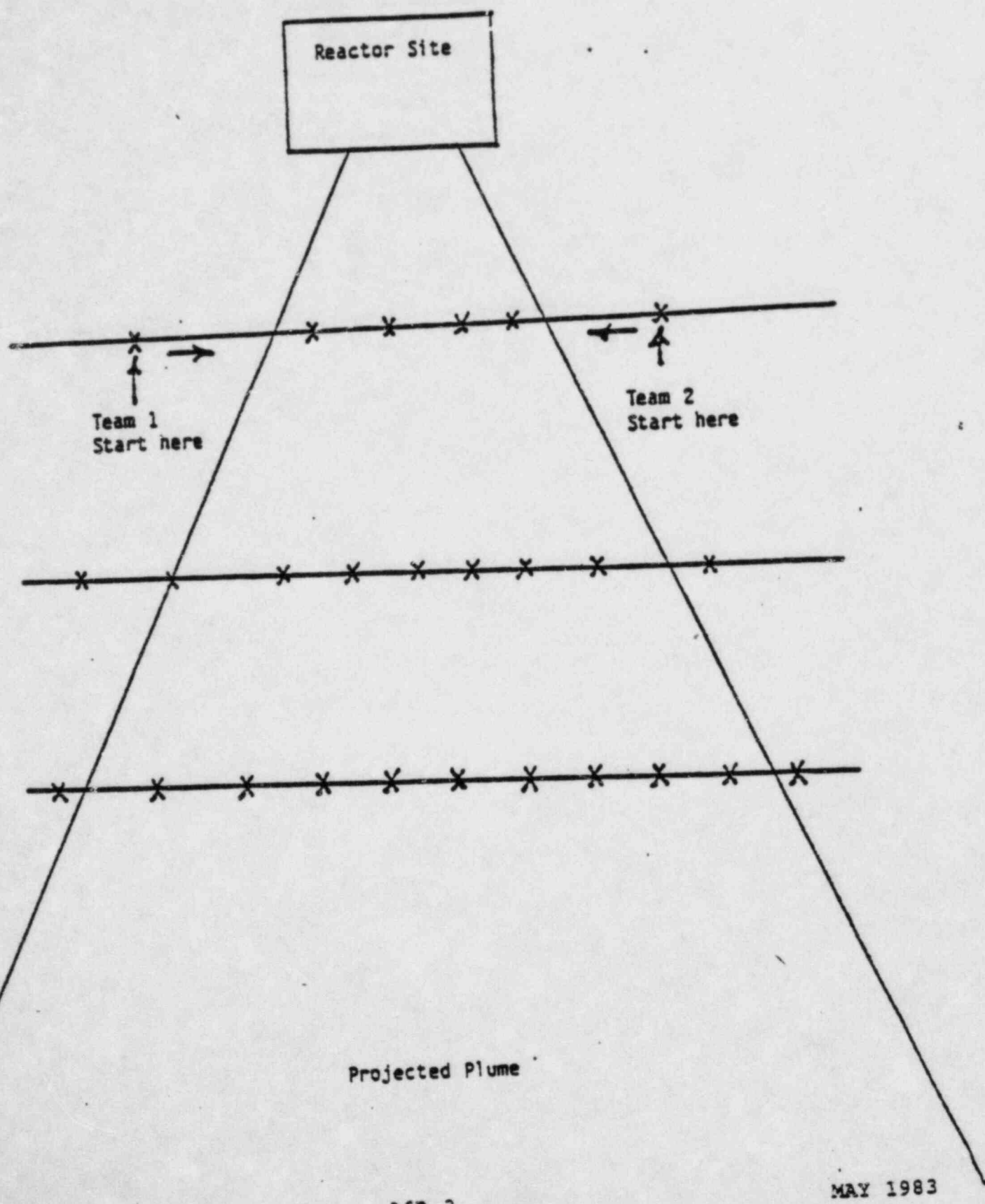
FIELD MONITORING AND PLUME VERIFICATION

The objectives of field monitoring defined by this procedure are to define the plume edges of a projected radiological release, to determine the doses at the plume centerline, and to verify dose projections of the utility. For this purpose, the following procedures will be used by BRH field monitoring personnel:

- ___ 1. Two field monitoring teams composed of a BRH staff person and a SEMA designated emergency worker will be deployed into the field simultaneously from the EOF/Forward Command Post.
- ___ 2. Field monitoring team personnel will acquire protective gear, radiological monitoring equipment, and communications equipment at the EOF Forward Command Post.
- ___ 3. Radiological monitoring equipment and communications (high band portable radios provided by SEMA) will be operationally checked by field monitoring personnel at the Forward Command Post prior to deployment into the field. Portable radio communications between the field monitoring teams and the EOF Forward Command Post will be established at this time.
- ___ 4. Communication of information between state and utility field monitoring teams will be coordinated by BRH and utility personnel at the EOF/FCP. The purpose of this coordination will be to maximize information about the plume and to avoid unnecessary duplication of effort.
- ___ 5. Monitoring tracks will be established along pre-designated monitoring points (see Attachment A5B) by BRH personnel at the EOF/FCP.
- ___ 6. The teams will be deployed initially to predesignated monitoring points near the site. The two teams will be sent into the plume from opposite directions along a monitoring track, and will take readings at pre-designated monitoring points located along the track. (See TAB 1 for illustration.)
- ___ 7. Teams will report instrument readings to the BRH field monitoring coordinator in the EOF/FCP as they proceed into the projected plume toward the plume centerline.
- ___ 8. Specific dose reading levels will be established by BRH personnel in the EOF/FCP as turn back values. When a dose reading at or above the turn back value is reached, the teams will return to the edge of the plume, move farther away from the site to more distant monitoring points, and repeat the procedure.

9. The BRH field team coordinators in the EOF/FCP will map and define the plume based on information reported by the field monitoring teams. The BRH coordinators will compare doses with those projected by the utility by conferring with utility radiological assessment personnel in the EOF.

TAB 1 TO ATTACHMENT A6B



NUCLEAR ACCIDENT PLAN

ATTACHMENT A2B

BUREAU OF RADIOLOGICAL HEALTH

EMERGENCY INSTRUMENTS, EQUIPMENT & SUPPLIES

Radiation Detection Instruments

Alpha detection instrument, Eberline PAG-6. 1 scintillation probe	2
Alpha detection instrument, Nuclear Chicago, Model 2672. 1 alpha probe	1
Neutron Survey Meter, Nuclear Chicago Model 2671. 1 neutron probe	1
Geiger-Mueller survey instrument, Nuclear Chicago, Model 2650. 1 beta, gamma side window probe	2
Geiger-Mueller survey instrument, Texas Nuclear, Model 2650. 1 beta, gamma side window probe. 1 alpha, beta, gamma end window probe	2
Ion chamber survey meter. Eberline Model PIC 6	2
Ion chamber survey meter. Texas Nuclear Model 2590. 1 low-range probe, 1 hi-range probe	8
Ion chamber survey meter. Nuclear Chicago Model 2500. 1 low-range probe, 1 hi- range probe	1
Ion chamber survey meter, Nuclear Chicago Model 2500. 1 low-range probe	4

Protective Clothing

Rain suits, large
Coveralls, (3 large, 3 medium)
Gloves, rubber
Gloves, cotton
Gloves, disposable
Boots, rubber (large)
Boots, paper disposable
Boots, disposable

Respirators

Half mask, Comfo II	6
Full mask	2
Filters, type H	
Filter, canister	

Dosimeters

Charger	2
Dosimeters, 200R	4
Dosimeters, x-ray, 200 mR	4
Dosimeters, gamma, 200 mR	8

Air Samplers

Four (4) RADECO Model H809-c air samplers with radioiodine and/or particulate filters. Operates on 12V or 24V DC with jumper-cable type attachments.

Miscellaneous

Rope
Flashlights
Batteries: 6V & 1.5V
Tape, radioactive
Tape, masking 1"
Warning signs, 8 x 10
Warning signs, 5 x 7
Wipe smears
Towelettes
Plastic sheeting
Notepads
Steno pads
Paperclips
Heavy duty markers
Pencils, #2
Ballpoints
Tongs
Hex wrench sets
Screwdriver sets
Channel lock pliers
Sponges
Oven cleaner
Liquid detergent

Instruments for Measuring Radioiodine Concentration

The Bureau of Radiological Health (BRH) will sample for airborne radioiodine using a low volume air sampler with a silver zeolite cartridge. Analysis of the cartridge will be performed using an Eberline "RASCAL" PRS-1 portable Ratemeter-Scaler with an SPA-3 probe. The sensitivity of this method enables measurement of iodine concentrations as low as $1E-7$ microcuries/cubic centimeter.

In addition, backup monitoring support for this function can be provided by the DOE through implementation of FRMAP.