Docket Files

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

Docket Nos: 50-361, 362

April 22, 1977

Southern California Edison Company
ATTN: Mr. Jack B. Moore, Vice President
2244 Walnut Grove Avenue
P. O. Box 800
Rosemead, California 91770

Gentlemen:

SUBJECT: STANDARD FORMAT FOR METEOROLOGICAL DATA ON MAGNETIC TAPE

Regulatory Guide 1.70, Revision 2, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants" (September 1975), recommends that, if possible, hour-by-hour meteorological data should be provided on magnetic tape. The draft Environmental Standard Review Plan for meteorology (included in NUREG-0158, Part 1, January 1977) provides some guidance on the types of magnetic tapes that are acceptable and identifies limitations on block size and density. We have also developed a standardized format (Enclosure 1) for providing hour-by-hour meteorological data on magnetic tapes that would facilitate our review of atmospheric diffusion characteristics and cooling system impacts. Enclosure 2 provides a sample tape dump using this format. We would prefer receiving meteorological data magnetic tapes in the standard format; however, we will accept data on magnetic tape in any reasonable format, if the format is completely described (per guidance in NUREG-0158, Part 1) and a sample tape dump is provided. Questions on this standard format should be referred to William Snell, Hydrology-Meteorology Branch, Division of Site Safety and Environmental Analysis, phone number 301-492-7384.

This request for generic information was approved by GAO under blanket clearance number B-180225 (R0072). This clearance expires July 31, 1977.

Sincerely,

Domenic B. Vassallo, Assistant Director
for Light Water Reactors
Division of Project Management

Enclosures:
As Stated

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Enclosure 1

PROPOSED FORMAT FOR HOURLY METEOROLOGICAL DATA TO BE PLACED ON MAGNETIC TAPE

Use: 9 track tape (7 will be acceptable)

Standard Label which would include

Record Length = 160

Block Size (3200 - fixed block size)

Density (1600 BPI - 800 will be accepted)

Do Not Use: Magnetic tapes with unformatted or spanned records.

At the beginning of each tape, use the first five (5) records (which is the equivalent of ten cards) to give a tape description. Include plant name, and location (latitude, longitude) dates of data, information explaining data contained in the "other" fields if they are used, height of measurements, and any additional information pertinent to identification of the tape. Make sure all five records are included, even if some are blank. Format for the first five records will be 160A1. Meteorological data format is (I6, I2, I3, I4, 25F5.1, F5.2, 3F5.1). Decimal points should not be included when copying data onto the tape.

All data should be given to a tenth of a unit except solar radiation which should be given to a hundreth of a unit. This does not necessarily indicate the accuracy of the data. (e.g. wind direction is usually given to the nearest degree but record it with a zero in the tenth's place. That is 275 degrees would be 275.0 degrees and placed on the tape as 2750.)

All nines in any field indicates a lost record (99999). All sevens in a wind direction field indicates calm (77777).

If only two levels of data, use the upper & lower levels. If only one level of data, use the upper level.

Enclosure 1

MAGNETIC TAPE
METEOROLOGICAL DATA

LOCATION:

DATE OF DATA RECORD:

		ACCURACY
I6	Identifier (can be anything)	
I2	Year	
I3	Julian Day	
I4	Hour (on 24 hr clock)	
F5.1	Upper Measurements: Level = meters	
F5.1	Wind Direction (degrees)	_____
F5.1	Wind Speed (meter/sec)	_____
F5.1	Sigma Theta (degrees)	_____
F5.1	Ambient Temperature (°C)	_____
F5.1	Moisture: _____	_____
F5.1	Other: _____	_____
F5.1	Intermediate Measurements: Level = meters	
F5.1	Wind Direction (degrees)	_____
F5.1	Wind Speed (meters/sec)	_____
F5.1	Sigma Theta (degrees)	_____
F5.1	Ambient Temperature (°C)	_____
F5.1	Moisture: _____	_____
F5.1	Other: _____	_____

F5.1	Lower Measurements: Level = meters	
F5.1	Wind Direction (degrees)	_____
F5.1	Wind Speed (meters/sec)	_____
F5.1	Sigma Theta (degrees)	_____
F5.1	Ambient Temperature (°C)	_____
F5.1	Moisture: _____	_____
F5.1	Other: _____	_____
F5.1	Temp Diff (Upper-Lower) (°C/100 meters)	_____
F5.1	Temp Diff (Upper-Intermediate) (°C/100 meters)	_____
F5.1	Temp Diff (Intermediate-Lower) (°C/100 meters)	_____
F5.1	Precipitation (mm)	_____
F5.2	Solar Radiation (cal/cm^2/min)	_____
F5.1	Visibility (km)	_____
F5.1	Other: _____	_____
F5.1	Other: _____	_____

Enclosure 2

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[redacted] NUCLEAR POWER FACILITY - METEOROLOGICAL DATA TAPE                    DATA PERIOD : JULY 1  REC     1, LENGTH  3200
974-JUNE 1975    /////      TAPE CREATED MARCH 1977           LOCATION: LAT=[redacted]DEG [redacted]MIN [redacted]SEC N    LO
NG=[redacted]DEG [redacted]MIN [redacted]SEC W             WIND DIRECTION: 150 FT AND 33 FT     DATA TO NEAREST 1.0 DEG
REE        WIND SPEED: 150FT AND 33FT     DATA TO NEAREST 0.1 METER/SEC
DELTA T (150-33FT):    DATA TO NEAREST 0.1 DEGREE C/100METERS                   TEMPERATURE: 150 AND
 33 FT     DATA TO NEAREST 0.1 DEGREE C                   THIS IS A COPY OF THE ORIGINAL TVA TAPE
WITH THE FORMAT CHANGED AND THE UNITS  |  CHANGED AS FOLLOWS: DEGREES F TO DEGREES C ; MPH TO METER
S/SEC ; FT TO METERSOTHER FIELDS: WIND DIRECTION PERSISTENCE (%)
|     |74182| 100| 457| 1980|   29|    | 225|    | 73|   |   |   |  |   |   |   | 100| 1700|    4|
|     | 218|     |   4|   19|     |    |    |    |   |   |   | 74182 200  457 1800   26        221
     1000                                              100 1900     4      212        0   23
                          74182 300  457 1900   29         215      1000
     100 1700     4       201        0   39                                          74182 400  457
1890  35       211        1000                                  100 1700     9       195        0
  44                                          74182 500  457 1900   37        205       960
                          100 1600     9      191        0   41
     74182 600  457 1950   43        197      1000                                   100 1700     9
     186        0   31                                          74182 700  457 2050   36        194
     1000                                     100 1800     9      187        0   20
                          74182 800  457 2100   34        204       980
     100 1800     4       201        0    9                                          74182 900  457
2140  31       218        860                                   100 2000    13       220        0
  -6                                          741821000  457 2170   38        245       830
                          100 2000    22      249        0  -11
     741821100  457 2420   51        258      710                                    100 2300    31
     262        0  -11                                          741821200  457 2340   53        266
     750                                      100 2300    36      271        0  -12
                          741821300  457 2440   50        276       590
     100 2100    36       280        0  -12                                          741821400  457
2210  44       281        660                                   100 2100    27       285        0
 -12                                          741821500  457 1870   44        287       590
                          100 1900    22      291        0  -11

     741821600  457 1930   42        288      730                                    100 1700    22  REC     2, LENGTH  3200
     292        0   -9                                          741821700  457 1910   45        292
     960                                      100 1800    22      295        0   -9
                          741821800  457 1930   42        291       960
     100 1800    18       292        0   -5
1740  32       286        980                                   100 1700
  -3                                          741822000  457 1800   29
                          100 1600     4      276        0    2
     741822100  457 1770   30        266      1000
     260        0   16                                          741822200
     930                                      100 1700     4      248
                          741822300  457 1700   35        248       1000
     100 1500     4       239        0   25
1760  30       241        980                                   100 1700
  22                                          74183 100  457 1820   33
                          100 1600     4      228        0   20
     74183 200  457 1790   33        230      1000
     221        0   26                                          74183 300
     940                                      100 1600     4      215
                          74183 400  457 1830   26        222       1000
     100 1500     4       214        0   20
1810  24       219        980                                   100 1500
  17                                          74183 600  457 1780   25
                          100 1400     4      208        0   25
     74183 700  457 1810   26        213      940
     205        0   23                                          74183 800
     780                                      100 1600     9      216
```

The first data record gives the following:

Year: 1974
Day: 182
Time: 0100

Height: 45.7 meters
Wind Direction: 198 degrees
Wind Speed: 2.9 m/sec
Ambient Temperature: 22.5°C
Wind Direction Persistence: 73%

Height: 10.0 meters
Wind Direction: 170 degrees
Wind Speed: 0.4 m/sec
Ambient Temperature: 21.8°C
Wind Direction Persistence: 0%

Temperature Difference (Upper-Lower): 1.9°C/100 meters

Distribution
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Local PDR
LWR #2 File
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RHeineman
JMcGough
TIppolito
RTedesco
JMiller
IE (3)
HRood
JLee
ACRS (16)
JRBuchanan, NSIC
TBAbernathy, TIC

APR 1 1 1977

Docket Nos: 50-361
and 50-362

Southern California Edison Company
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Rosemead, California 91770

San Diego Gas & Electric Company
ATTN: Mr. Jack E. Thomas
Vice President - Electric
101 Ash Street
P. O. Box 1831
San Diego, California 92112

Gentlemen:

SUBJECT: INSTRUMENT TRIP SETPOINT VALUES
(San Onofre Nuclear Generating Station, Units 2 and 3)

Our review of facility operating experience indicates the need for additional information regarding the proper selection of instrumentation trip setpoint values. This conclusion is supported by the large number of Licensing Event Reports (LERs) received by the Commission related to instrument setpoint drift beyond the limits permitted by facility technical specifications.

We have structured the Standard Technical Specifications (STS) to minimize the need for licensees to submit LERs related to instrument drift provided that allowances for drift have been properly accounted for in the analyses supporting the selection of the trip setpoint values.

In view of the above, we require explicit information concerning each Reactor Protection System (RPS) and Engineered Safeguards Features (ESF) trip setpoint value as part of the documentation to be provided for review of your facility.

Since your FSAR does not contain sufficient information necessary for our evaluation, you should provide the following values for each RPS and ESF instrumentation channel:

(a) The technical specification trip setpoint value,

(b) The technical specification allowable value (i.e., the technical specification trip setpoint plus the instrument drift assumed in the accident analysis),

(c) The instrument drift assumed to occur during the interval between technical specification surveillance tests,

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SURNAME ➤						
DATE ➤						

NRC FORM 318 (9-76) NRCM 0240 ☆ U. S. GOVERNMENT PRINTING OFFICE: 1976 — 626-624

(d) The components of the cumulative instrument bias (e.g., instrument calibration error, instrument drift, instrument error, etc.), and

(e) The minimum margin between the technical specification trip setpoint and the trip value assumed in the accident analysis.

You should advise us within 30 days of receipt of this letter, your proposed schedule for submittal of this information.

Should you desire further information regarding this subject, please contact us.

Sincerely,

Original Signed by

Karl Kniel, Chief
Light Water Reactors Branch No. 2
Division of Project Management

cc: See Page 3

OFFICE ➤	DPM:LWR #2	DPM:LWR #2	DPM:LWR #2			
SURNAME ➤	JLee:mt	HRood	KKniel			
DATE ➤	3/28/77	3/ /77	3/ /77			

cc: Rollin E. Woodbury, General Counsel
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Distribution:

Docket File	FWilliams	GChipman	TAbernathy,
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RSBoyd	WGammill	ACRS (16)	
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MAR 3 0 1977

Docket Nos. 50-361
and 50-362

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San Diego Gas and Electric Company
ATTN: Mr. Jack E. Thomas
Vice President - Electric
101 Ash Street
P. O. Box 1831
San Diego, California 92112

Gentlemen:

SUBJECT: FUEL HANDLING ACCIDENT
(San Onofre Nuclear Generating Station, Units 2 and 3)

We are in the process of evaluating a refueling accident inside the containment building since it may not have been adequately considered in the licensing review.

Based on our preliminary review, potential site boundary radiation exposures due to such an accident at your facility would be within the exposure guidelines of 10 CFR Part 100 even assuming no isolation of containment.

In order to confirm these results and determine if the acceptance criteria of Standard Review Plan 15.7.4 are met, and to document the factors involved in the evaluation, we request that you provide a detailed evaluation of the potential consequences of such an accident at your facility in your FSAR. Your analysis should utilize assumptions comparable to those given in Regulatory Guide 1.25, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors," assuming the worst single failure. It should consider, in a conservative manner, any mixing in the containment atmosphere which would delay release of material, any filtration of effluent which would reduce releases, and any automatic isolation of the containment which would limit releases. Your analysis should utilize parameters (e.g., maximum allowable valve closure times) as limited by the proposed technical specifications. Clearly indicate any credit taken in the analyses for nonsafety grade equipment and provide appropriate justification for this credit. Detailed questions which should be addressed in your response are enclosed.

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DATE ➤						

You should compare proposed technical specifications (e.g., valve closure times, filter-testing) with results of the above analyses to show that parameters important in the evaluation are maintained at levels which will assure that conservatively calculated offsite consequences are well within the exposure guidelines of 10 CFR Part 100 over the plant lifetime.

Submit your analysis with your responses to Q-1 (not currently scheduled, but we anticipate Q-1 response to be scheduled for mid-summer, 1977).

This request for generic information was approved by GAO under a blanket clearance number B-180225 (R0072). This clearance expires July 31, 1977.

Original signed by
K. Kniel

Karl Kniel, Chief
Light Water Reactors Branch No. 2
Division of Project Management
Office of Nuclear Reactor Regulation

Enclosure:
Information Needed to
Evaluate Containment
Refueling Accident

cc w/enclosures:
See page 3

OFFICE➤	DPM:LWR #2	DPM:LWR #2	DPM:LWR #2			
SURNAME➤	JLee:mt	HRood	KKniel			
DATE➤	3/ /77	3/ /77	3/ /77			

MAR 3 0 1977

cc: Rollin E. Woodbury, General Counsel
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DATE ➤						

INFORMATION NEEDED TO EVALUATE CONTAINMENT ISOLATION CAPABILITY DURING REFUELING ACCIDENT

1) Describe all instrumentation which would detect a fuel-handling accident (FHA) inside containment. Your response should include the following information:
   a) instrumentation function, e.g., close containment isolation valves;
   b) type of instruments and setpoints, e.g., mr/hr, and normal background reading;
   c) safety class, redundancy, power sources, and technical specification requirements;
   d) a description of instrument response following a FHA taking into account instrument location;
   e) response time for the instrument to signal containment isolation after the FHA.

2) Describe the response of the containment isolation and ventilation valves following the FHA. Include valve closure times including expected valve closure time as well as technical specification requirements.

3) Provide the transit time from the point where a monitor can respond to a release from the FHA to the inboard isolation valve based on the maximum air velocity (peak centerline velocity) at maximum exhaust flow. Also include the transit time based on average velocity and normally expected air flows. Conservatively assume that the FHA is a puff release from the pool at a point closest to an exhaust grill.

4) Provide drawings of the containment which clearly show the location of the radiation monitors relative to the ventilation exhaust system including all exhaust inlets, filters, dampers, and duct arrangement up to the outboard isolation valves.

5) If the summation of the instrument response time (question 1.e) and valve dampers closure time (question 2) is greater than the gas transit time (question 3), provide an analysis as to the volume and amount of radioactive exhaust air which could be released. Your response should include the following:

   a) duct sizes;

   b) maximum (peak) air velocity;

   c) average air velocity;

   d) containment isolation valve closure characteristics;

   e) exhaust system flow rates;

   f) methodology used to calculate gas transit times from the pool surface to the exhaust system;

   g) air velocity profiles over the pool surface. You should consider the effects of pool water temperature on air flow trajectories.

6) Describe any charcoal filters which would mitigate the consequence of the FHA. If so, include the following information: type (e.g., kidney), redundancy, power sources, safety grade, technical specification requirements.

In responding to the above, reference can be made to specific pages or figures in the Safety Analysis Report.