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 DENTON, H. R. Office of Nuclear Reactor Regulation, Director (post 851125)

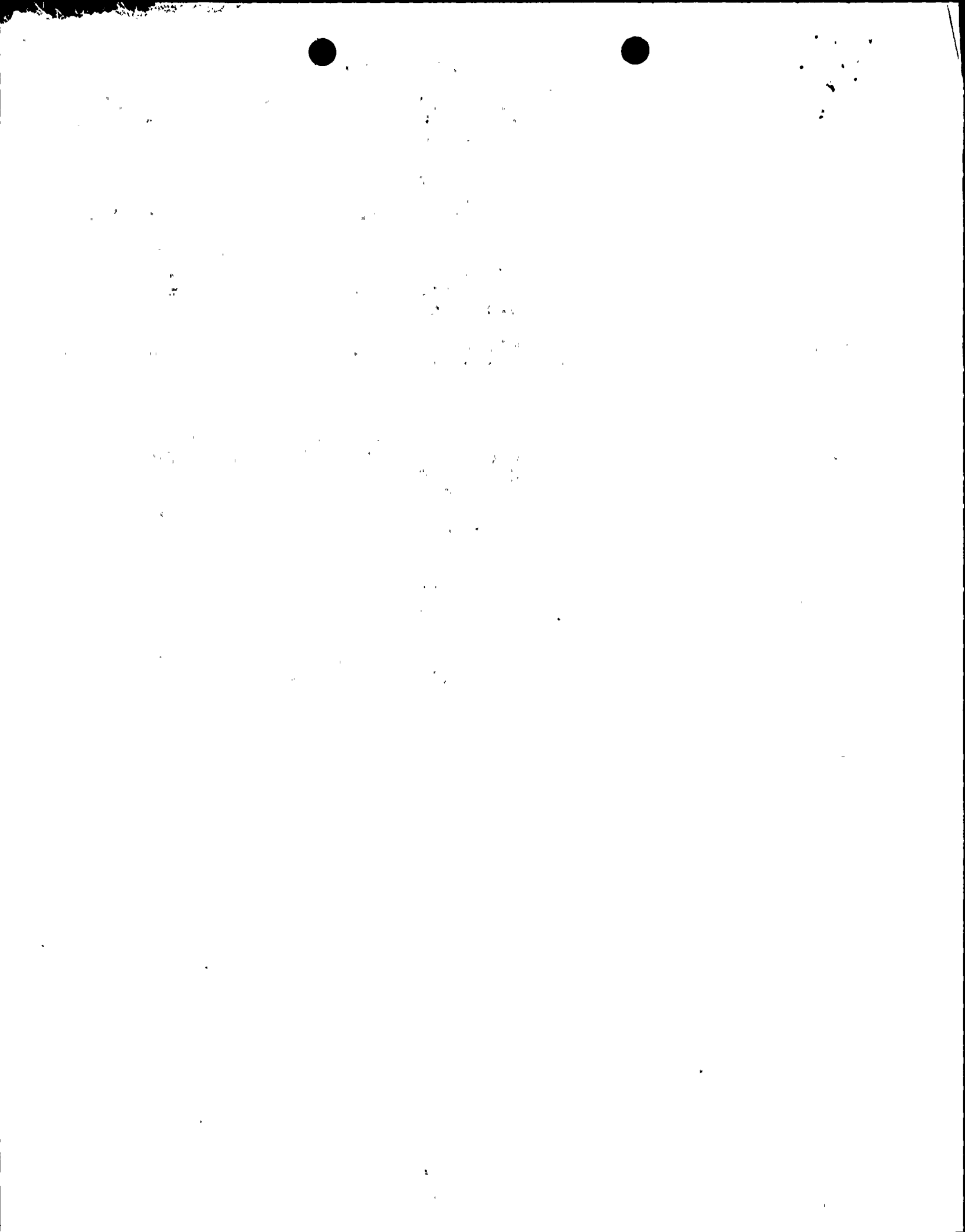
SUBJECT: Requests exemption by 860701 from 10CFR20, App A, Footnote d-2(c), forbidding use of sorbents against radioactive gases or vapors. Use of personnel protection factor of 50 w/MSA GMR-I sorbent canisters proposed.

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PACIFIC GAS AND ELECTRIC COMPANY

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JAMES D. SHIFFER
VICE PRESIDENT
NUCLEAR POWER GENERATION

April 18, 1986

PGandE Letter No.: DCL-86-105

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2
Exemption Related to 10 CFR Part 20 - Use of a Protection Factor With MSA
GMR-1 Canisters

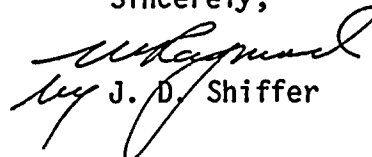
Dear Mr. Denton:

In accordance with the provisions of 10 CFR 20.103(e) and 10 CFR 20.501, PGandE requests an exemption from 10 CFR 20, Appendix A, footnote d-2(c), for Diablo Canyon Units 1 and 2. This footnote states "No allowance is to be made for the use of sorbents against radioactive gases or vapors" in establishing personnel protection factors (PF). PGandE requests permission to use a PF equal to 50 while using a sorbent iodine canister in an atmosphere containing radioiodine. A safety analysis justifying the requested exemption has been performed and demonstrates the exemption will not result in undue hazard to life or property (enclosure).

PGandE proposes to use a PF of 50 while using sorbent canisters, designated MSA GMR-I, manufactured by Mine Safety Appliances Company. PGandE requests the exemption be issued by July 1, 1986 to allow use of the MSA GMR-I canisters with a PF of 50 during the upcoming Unit 1 refueling outage.

Kindly acknowledge receipt of this material on the enclosed copy of this letter and return it in the enclosed addressed envelope.

Sincerely,


J. D. Shiffer

Enclosure

cc: L. J. Chandler
R. T. Dodds
J. B. Martin
B. Norton
H. E. Schierling
S. A. Varga
CPUC
Diablo Distribution

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ENCLOSURE

Request for Exemption From 10 CFR 20.Appendix A, Footnote d-2(c)

In accordance with the provisions of 10 CFR 20.103(e) and 10 CFR 20.501, PGandE requests an exemption from 10 CFR 20, Appendix A, footnote d-2(c) for Diablo Canyon Units 1 and 2.

Footnote d-2(c) states that no allowance is to be made for the use of sorbents against radioactive gases or vapors in establishing personnel protection factors (PF). PGandE proposes to use sorbent canisters, designated MSA GMR-I, manufactured by Mine Safety Appliances Company as a protection against radioiodine while performing maintenance work during Diablo Canyon plant outages. The first refueling outage of Unit 1 is presently scheduled for late August 1986. However, since the outage could be as early as July due to a shutdown possibly occurring during cycle coastdown, PGandE requests that the exemption be issued by July 1, 1986 in order to allow use of the MSA GMR-I canisters with a radioiodine PF of 50.

This exemption would not present an undue risk to the public health and safety, since use of the sorbent canisters would have no effect on offsite releases. Nor would this exemption affect the environmental analysis in the FSAR Update, Environmental Report, or Final Environmental Impact Statement since the exemption would involve no significant increase in the amounts, and no significant change in the types of effluents that may be released offsite.

Further, the MSA GMR-I is to be used solely for worker protection and convenience, and would thus not impact any safety-related functions of the plant systems. Therefore, the requested exemption does not involve a significant increase in the probability or consequences of an accident previously evaluated. For the same reasons, use of the canisters does not introduce any new accident scenarios other than those accidents previously evaluated, and does not involve any reduction in the margin of safety.

As discussed below, the exemption would not cause a significant increase in individual or cumulative occupational radiation exposure. Measures would be taken to ensure that operating personnel exposures are minimized.

Pursuant to the health physics program in place at Diablo Canyon, PGandE is committed to limiting exposures to airborne contamination to as low as reasonably achievable. To the extent practicable, engineering controls, such as purging, filtration, and local containments are used to limit concentrations of radioactive materials in air to levels below which personnel access is unrestricted. During an outage, respiratory protection from radioiodine will be required in addition to the above process controls, due to the presence of iodine in the reactor coolant system. Adequate respiratory protection for radioiodine can be provided for a limited number of workers by air-line supplied or self-contained breathing air. However, use of air purifying respirators, including sorbent canisters, will offer sufficient



protection for a larger work force while enhancing worker comfort. This will, in turn, permit access to areas within containment not otherwise accessible and enable an estimated 30% reduction in time and man-rem exposure to complete tasks which require respiratory protection.

In particular, PGandE is aware that usage of MSA GMR-I, with exemption from footnote d-2(c), has been approved at the Joseph M. Farley plant of Alabama Power Company and at the San Onofre Nuclear Generating Stations of Southern California Edison. Pursuant to 10 CFR 50.32, PGandE incorporates test data and qualification information of MSA GMR-I to Dockets 50-275 (OL-DPR-80) and 50-323 (OL-DPR-82) for Diablo Canyon Units 1 and 2, by reference to the MSA data submitted in conjunction with the similar requests by Alabama Power and Southern California Edison (letters to NRC dated January 13, 1984 and March 20, 1985). Additionally, PGandE has reviewed the Farley and San Onofre exemptions and related safety evaluations, and has established usage restrictions based on those from the other two plants, with some modifications to comport with the existing Diablo Canyon respiratory protection program. Except where reference to an existing respiratory protection procedure is made, the limitations and usage restrictions noted below agree with the existing exemptions for those two plants and with the recommendations of NUREG-CR 3403.

The following will apply at Diablo Canyon:

- A protection factor equal to 50 as a maximum value will be used. Table 1 includes estimated data indicating the reduction in time and exposure which can be realized from the exemption.
- The maximum permissible continuous use of the canisters will be eight hours after which the canister will be discarded.
- Canister allowable service life will be calculated from the time of unsealing the canister, including periods of non-exposure.
- Canisters will not be used in the presence of organic solvent vapors. Painting or the use of organic substances will be prohibited while the GMR-I canister is in use.
- Canisters will be stored in sealed, humidity barrier packaging in a cool, dry environment.
- Canisters will be used only with a proper fit-tested full facepiece respirator.
- Canisters will not be used in total challenge concentrations of organic iodines and other halogenated compounds greater than 1 ppm, including non-radioactive compounds.
- Canisters will not be used in environments where temperatures exceed 110°F. Temperatures at work locations where GMR-I canisters are in use will be measured each shift and/or coincidentally with operations which heat the work areas to assure that this limit is not exceeded.



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- Sorbent canisters which are to be used in radioiodine atmospheres will be purchased only from Mine Safety Appliances Company. MSA Company will be added to the PGandE Qualified Suppliers List (QSL) prior to the use of these canisters with a PF of 50. Existing MSA GMR-I canisters currently being used will not be assigned a PF until MSA has been placed on the QSL. Prior to use with a PF of 50, each new and existing canister will be inspected and tested in accordance with Radiation Control Procedure D-700, "Cleaning and Inspection of Filters and Airline Respirators." This procedure was prepared to ensure proper storage and handling of canisters and respiratory protection equipment.
- PGandE will verify that the new and existing MSA GMR-I canisters meet the standards for quality control which are recognized by NIOSH (i.e. Mil-STD 414). Specifically, test parameters include a 1% AQL (Acceptable Quality Limit) in a 5 to 10 ppm challenge concentration of CH₃I, 90% relative humidity, 110°F, and 64 LPM cyclic flow, for a service life of 8 hours or more at a penetration equal to 1% of the challenge concentration. Prior to NIOSH certification of MSA GMR-I canisters this verification will be made through PGandE's acceptance and periodic review of the MSA QC controls for the GMR-I canisters.
- The following procedures and training courses will be modified as necessary to include the required information regarding the proper use and limitations of radioiodine sorbent canisters, prior to establishment of the protection factors:
 - Radiation Control Procedure G-120, "Personnel Internal Exposure Control"
 - Radiation Control Procedure G-150 "Use of Respiratory Equipment for Protection Against Airborne Radioactive Materials"
 - Training Course AP B-252, "GET Radiation Protection"
 - Training Course AP B-205, "Respirator Training"
- During initial GMR-I canister implementation, the following program verification measures will be used:
 - a. weekly whole body counts of individuals using the GMR-I canister for radioiodine protection will be performed;
 - b. a whole body count will be given to individuals who exceed 30 MPC hours in seven consecutive days prior to their next entry into a radioiodine atmosphere;
 - c. if an individual measures 35 nCi or greater iodine uptake to the thyroid during a whole body count, the individual will be restricted from further entries into radioiodine atmospheres pending a health physics evaluation; and
 - d. a whole body count survey data base will be compiled to coordinate the results of the program.



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For the foregoing reasons, the requirements for an exemption from the provisions of 10 CFR 20, Appendix A, footnote d-2(c), as specified by 10 CFR 20.103(e) and 10 CFR 20.501, are satisfied. As noted above, since the first refueling outage of Unit 1 could be as early as July due to shutdown possibly occurring during cycle coastdown, PGandE requests that this exemption be granted by July 1, 1986.



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TABLE 1

Estimated PWR Collective Dose*
 Summaries for Outage High-Dose Jobs
 (Estimated 30% reduction in time and exposure)

	Average (man-rem) Collective Dose	Canister Use (man-rem) Dose	Dose- Savings (man-rem)
1. Snubber, Hanger, and Anchor Bolt Inspection and Repair	110	77	33
2. Steam Generator Eddy Current Testing	50	35	15
3. Reactor Disassembly/Assembly	48	34	14
4. Steam Generator Tube Plugging	47	33	14
5. In-Service Inspection	46	32	14
6. Plant Decontamination	45	31	14
7. Primary Valve Maintenance and Repair	30	21	9
8. Scaffold Installation/Removal	30	21	9
9. Insulation Removal/Replacement	18	13	5
10. **Reactor Coolant Pump Seal Replacement	17	12	5
11. Steam Generator Manway Removal and Replacement	16	11	5
12. Instrumentation Repair and Calibration	12	8	4
13. Chemical, Volume, and Control System Repair and Maintenance	11	8	3
14. Secondary Side of the Steam Generator Inspection and Repair	11	8	3
15. Fuel Shuffle/Sipping and Inspections	9.2	6	3.2
16. Operations-Surveillance, Routines, and Valve Lineups	7.4	5	2.4
17. Cavity Decontamination	5.9	4	1.9
18. Pressurizer Valve Inspection, Testing, and Repair	5.5	4	1.5
19. Radwaste System Repair, Operation and Maintenance	4.9	3	1.9
20. Residual Heat Removal System Repair and Maintenance	2.7	2	<u>0.7</u>
		Total:	162.6

*Taken from NUREG CR-4254, Table 3-3

**Could be as high as 50% reduction



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