



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

APR 5 1984  
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MEMORANDUM FOR: Richard Vollmer, Director  
Division of Engineering

FROM: Frank J. Congel, Chief  
Radiological Assessment Branch, DSI

SUBJECT: DIABLO CANYON RADIATION EXPOSURE  
LEVELS EXPECTED AT LOW POWER

RAB has provided estimates of radiation exposure levels in reply to your request for an estimate of expected personnel radiation exposure during Diablo Canyon plant walk down to inspect seismic provisions for adequacy. Our estimates were based on the following assumptions:

- (1) The inspection will begin at least 24 hours following the first plant shut down from not more than 10% reactor power operation,
- (2) The inspection will be conducted in compliance with ALARA policy,
- (3) One person will be exposed to radiation,
- (4) Fuel assemblies in the core will be essentially leak free, and
- (5) Inspection will exclude the vicinity of reactor vessel cavity.

Data and experiences gained previously from other facilities during similar conditions were adjusted to this particular case. The results show that average radiation levels in the vicinity of most seismically affected piping at Diablo Canyon should be less than 1 mRem/hr. Thus, assuming personnel exposure time of ~10 hours, the average personnel exposure should be approximately 10 mRem.

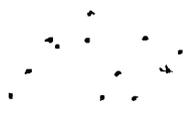
Higher personnel exposure could be expected in the case that reactor water cleanup system was in operation during 10% reactor power (one or two days long) operation. Radiation fields in the vicinity of the cleanup system components could reach in such case, the R/hr range. Thus, in this case a total personnel exposure of approximately 100-200 mRem could be expected.

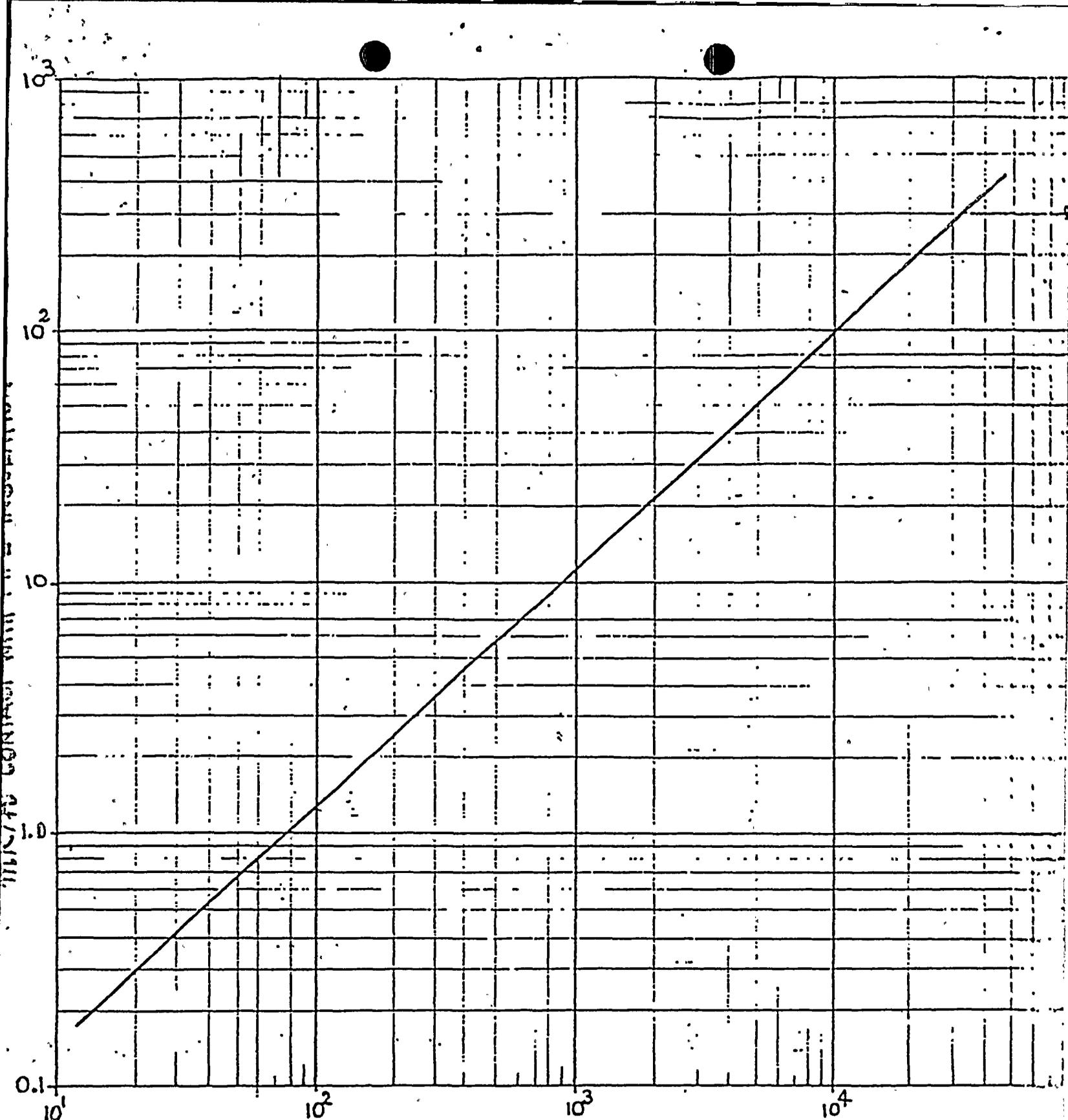
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*Frank J. Congel*

Frank J. Congel, Chief  
Radiological Assessment Branch  
Division of Systems Integration

cc: . Mattson  
D. Muller  
O. Lynch  
F. Skopec





EFFECTIVE FULL POWER HOURS OF OPERATION  
SHUTDOWN RADIATION LEVELS-LONG ACTIVITY  
PRIMARY COOLANT RECIRCULATION PIPES



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