

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9002280246      DOC. DATE: 89/09/06      NOTARIZED: NO      DOCKET #  
 FACIL: 50-275 Diablo Canyon Nuclear Power Plant, Unit 1, Pacific Ga      05000275  
 50-323 Diablo Canyon Nuclear Power Plant, Unit 2, Pacific Ga      05000323  
 AUTH. NAME      AUTHOR AFFILIATION  
 THOMPSON, G.A.      Stanford Univ., Stanford, CA  
 RECIP. NAME      RECIPIENT AFFILIATION  
 SEISS, C.P.      Illinois, Univ. of, Urbana, IL

SUBJECT: Discusses potential for earthquakes on two small sites near plant, per 890808-10 meeting on source characterization.

DISTRIBUTION CODE: RS01D      COPIES RECEIVED: LTR 1 ENCL 1      SIZE: 2  
 TITLE: ACRS Letters.

NOTES:

	RECIPIENT		COPIES			RECIPIENT		COPIES	
	ID	CODE/NAME	LTR	ENCL		ID	CODE/NAME	LTR	ENCL
	PD5	PD	1	1		ROOD, H	1	1	
INTERNAL:	ACRS		1	1		AEOD/DSP/TPAB	1	1	
	AEOD	TPAB	1	1		DEDRO	1	1	
	NRR	DIR 12-G-18	1	1		NRR/ADP 12-G-18	1	1	
	NRR	DLPQ/LPEB10	1	1		NRR/DREP/PEPB9D	1	1	
	NRR	DREP/PRAB10	1	1		NRR/DRSP 3/4/5	1	1	
	NRR	DRSP/ADR114	1	1		NRR/DRSP/ADR214	1	1	
	NRR	DST 8E2	1	1		NUDOCS-ABSTRACT	1	1	
	REG	FILE	1	1		RES DE	1	1	
	RES	DIR	1	1		RES FILE	1	1	
	RES	DE	1	1		RES/DRA	1	1	
	RES	DSIR	1	1		RES/DSIR/EIB	1	1	
	RES	PMPDAS	1	1					
EXTERNAL:	LPDR		1	1		NRC PDR	1	1	
	NSIC		1	1					

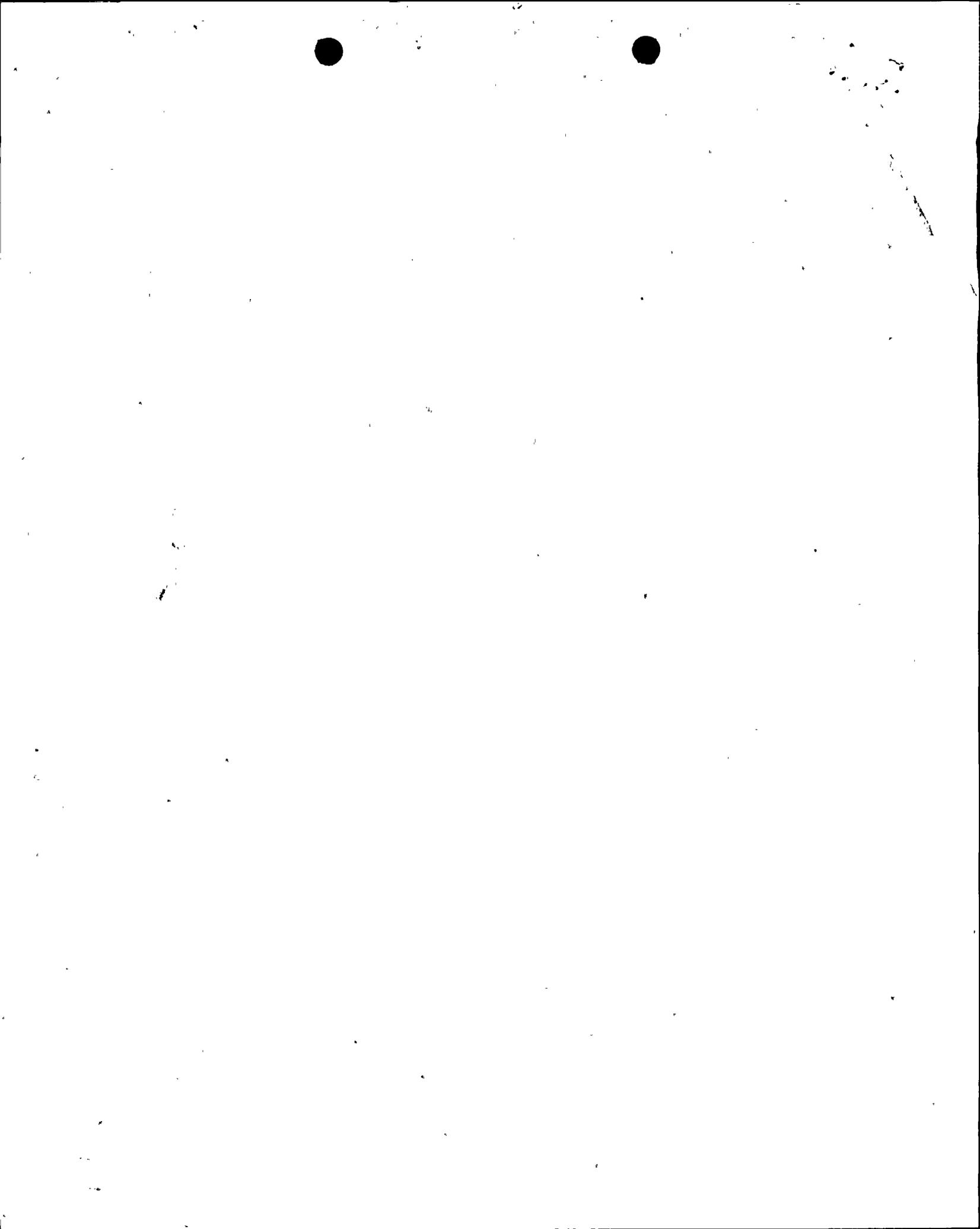
NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM P1-37 (EXT. 20079) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

TOTAL NUMBER OF COPIES REQUIRED: LTR 28 ENCL 28

ACRS-1  
 WHP

R  
I  
D  
S  
/  
A  
D  
D  
S



DEPARTMENT OF GEOPHYSICS  
School of Earth Sciences

September 6, 1989

Dr. Chester P. Siess  
3110 Civil Engineering Bldg.  
University of Illinois  
Urbana, IL 61801

Dear Chet:

Ben Page and I represented the ACRS at the meeting on seismic source characterization for the Diablo Canyon nuclear plant held in Rockville, Maryland, on August 8, 9, and 10. The object of the meeting was to discuss earthquake magnitudes, the resulting ground motion, and the risk analysis from both deterministic and probabilistic viewpoints. Discussions were thorough and constructive on all sides (PG&E, NRC, USGS consultants, etc.). Agreement seemed to converge on most major issues but there was incomplete agreement on the potential for earthquakes on two small faults.

Clearly the Hosgri fault dominates the hazard, and the moment-magnitude  $M_w$  (nearly equivalent to  $M_s$  in this range) chosen for the Hosgri is 7.2. The previous Hosgri magnitude, an unspecified  $M$  of 7.5 was based on an  $M_s$  of 7.3 for the 1927 earthquake, now downgraded to 7.0 and not on the Hosgri. A thorough discussion of the  $M$  assigned was based upon slip rate, probable maximum rupture length (70km), and maximum offset per event. Evidence continues to accumulate that the Hosgri is primarily a near-vertical strike-slip fault but that thrust splays and folds are (not surprisingly) associated with it. Careful examination of reflection seismic data that led Crouch to the "major thrust" hypothesis clarified reasons for this opinion, based partly on distortions due to variable rock velocities.

Three smaller faults mapped on land are judged to be capable; they trend northwestward toward possible submarine intersections with the Hosgri. Of the three, the Los Ocos fault is assigned a potential  $M_w$  of 6.8-7.2. With a  $60^\circ$  dip the fault plane is 8 km from the plant site. The magnitude would have to be 7.5 to rival the Hosgri. The San Luis Bay and Olson faults constitute part of the southwest boundary of the block on which the plant rests. They offset marine terraces (The San Luis Bay fault at a rate of .02 mm/year) but have no detectable Holocene (last 10,000 years) slip. A worst-case scenario would have one of these faults conceivably extending toward the Hosgri and passing within 3 km of the plant. Such a projection can't be ruled out because of the difficulty of obtaining seismic reflection data in the surf zone.

This situation generated considerable discussion about near-field effects, etc. I conclude by pointing out that the Olson and San Luis Bay are small faults that have already been studied fairly exhaustively. In my opinion they pose little hazard compared to the Hosgri.

I regret not being able to stay for the wrap-up caucus of the

DESIGNATED ORIGINAL

9002280246 890906  
PDR ACRS  
CT-1951 PDC

Certified By CTB

R501  
1/0



100-100000

NRC staff and consultants, but I believe Ben will report on that.

Cordially,

*George*  
George A. Thompson

cc El Igne

