



## Department of Energy

Idaho Operations Office  
West Valley Project Office  
P.O. Box 191  
West Valley, NY 14171

June 10, 1992

G. C. Comfort  
U.S. Nuclear Regulatory Commission  
Headquarters  
Washington, DC 20555

SUBJECT: Supplemental Information for the West Valley Waste Form  
Qualification Program for Cement Solidification of Sludge Wash  
Waste Liquid

Dear Sir:

Enclosed for your information and use are five copies of additional information supporting the West Valley cement waste form qualification and sludge wash processing programs.

Test Plan, WVNS-TPL-70-12, Revision 2, "Cement Waste Form Qualification of Sludge Wash Liquids"; Test Request, WVNS-TRQ-051, Revision 0, "Sludge Wash Cement-Waste Windows of Composition"; Test Procedure, WVNS-TP-031, Revision 0, "Sludge Wash Cement-Waste Cores: Windows of Composition"; and updated index to Volume II of the Cement Qualification Notebook, should be added to your copies of the "Qualification Notebook."

To assist you with planning future reviews and interactions on the cement qualification effort, I have enclosed two copies of an "elapsed time only" schedule. Because of delays caused by EPA Land Disposal Restrictions (LDR), continued sludge wash processing is on hold. Thus, the actual dates are not valid, but the logic, magnitude of the effort, and sequences are. Once the LDR restrictions are lifted, we will notify you of an "official" start date, and plans can be made to meet, as appropriate, on the cement qualification issues. Please note, this schedule covers only Type I cement development. As you know, we are also working on a Type V recipe, however, that will be addressed later this summer.

In the interest of DOE's overall objective, i.e., to process the high-level waste into glass, and based on the schedule logic mentioned above, I would like to request that NRC provide to West Valley one or more suggested meeting times whereupon we may discuss test results, analytical conclusions, etc. This would help us to focus on issues of concern to NRC and would allow us to answer them more directly. Hopefully, it would also help you to respond to our final report and qualification results.

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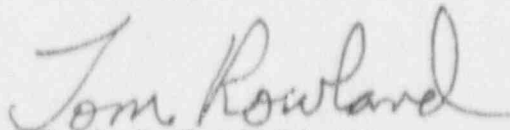
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Per your earlier request, enclosed are five copies of Test Plan, WVNS-TPL-70-7, Revision 1, "Long-Term Testing of Cement Waste Form," that describes the long-term "surveillance program" under way since 1988 on the cement waste form used in the Supernatant Treatment campaigns. A summary of archive core visual examinations is provided in Table 1. Compressive strength data obtained by crushing cores from cement waste drums is presented in Table 2, and plotted as a function of the curing time in Figure 1. This data supports the technical paper I provided to you last month. The program will continue for the foreseeable future.

If you have any questions, please call me at (716) 942-4314.

Sincerely,



T. J. Rowland, Director  
West Valley Project Office

Enclosures: Supplemental Information (5 copies)

cc: J. A. Yeazel, WVPO (w/o enc)  
G. C. Meess, WVNS (w/o enc)

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WSK/sas

CEMENT RECIPE QUALIFICATION SCHEDULE



▨ PROGRESS	▨ CURRENT SCHEDULE	▨ DECISION POINT	▨ 14-DAY WRITE SCHEDULE	PREPARED BY: T.R. GREEN	STATUS DATE: 29 MAY 97
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CEMENT RECIPE QUALIFICATION SCHEDULE

ACTIVITY	DESCRIPTION	START	FINISH	1997											
				MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
20X TBS, TYPE 1 CEMENT DUAL															
19	CEM18060 OBTAIN 6 CORES FROM DRUM 1	15 JUL 97	15 JUL 97												
20	CEM18250 OBTAIN 9 CORES FROM DRUM 2	16 JUL 97	16 JUL 97												
21	CEM18200 OBTAIN 3 ADDITIONAL CORES FROM DRUM 3	17 JUL 97	17 JUL 97												
22	CEM18080 PERFORM DODIUM/CLIDE LEACHABILITY TESTS ON 6 CUBES FROM DRUM 2	17 JUL 97	17 JUL 97												
23	CEM18080 PERFORM THERMAL CYCLING TESTS ON 3 CUBES FROM DRUM 2	18 JUL 97	18 JUL 97												
24	CEM18200 OBTAIN 6 ADDITIONAL CORES FROM DRUM 3	18 JUL 97	18 JUL 97												
25	CEM18220 OBTAIN 3 CORES FROM DRUM 3	21 JUL 97	21 JUL 97												
PREPARED FOR CONSTRUCTION															
26	CEM18210 CRUSH 3 PRE-EMERSON CORES FROM DRUM 3 AFTER 28 DAYS MIN CURE	7 JUL 97	7 JUL 97												
27	CEM18220 CRUSH 3 PRE-EMERSON CORES FROM DRUM 3 AFTER 28 DAYS MIN CURE	18 JUL 97	18 JUL 97												
28	CEM18230 CRUSH 3 PRE-EMERSON CORES FROM DRUM 3 AFTER 28 DAYS MIN CURE	17 JUL 97	17 JUL 97												
29	CEM18240 CRUSH 3 PRE-EMERSON CORES FROM DRUM 3 AFTER 28 DAYS MIN CURE	14 JUL 97	14 JUL 97												
30	CEM18250 CRUSH 3 PRE-EMERSON CORES FROM DRUM 3 AFTER 28 DAYS MIN CURE	15 JUL 97	15 JUL 97												

PROGRESS    
  TESTING    
  FINISH

PROJECT: \_\_\_\_\_    
 CONTRACT NO.: \_\_\_\_\_    
 C.A. DATE: \_\_\_\_\_    
 STATUS DATE: 27 JUL 97

PAGE 1 OF 1

CEMENT RECIPES QUALIFICATION SCHEDULE

ACTIVITY	DESCRIPTION	START	FINISH	1997														
				MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC							
31	PREPARE TEST TECH FOR CORE SAMPLING FROM BEAM & PREPARE TEST COUGH	16 JUL 97	17 JUL 97															
32	CRUSH & PREPARE TEST COUGH FROM BEAM & AFTER 28 DAYS MIN CUR	16 JUL 97	16 JUL 97															
33	CRUSH & PREPARE TEST COUGH FROM BEAM & AFTER 28 DAYS CURE	21 JUL 97	21 JUL 97															
34	CRUSH & PREPARE TEST COUGH FROM BEAM & AFTER 28 DAYS CURE	28 JUL 97	29 JUL 97															
35	PREPARE TEST TECH FOR CORE SAMPLING FROM BEAM & PREPARE TEST COUGH	30 JUL 97	30 JUL 97															
36	CRUSH & PREPARE TEST COUGH FROM BEAM & AFTER 28 DAYS CURE	31 JUL 97	31 JUL 97															
30 DAY PREPARE TEST TECH FOR CORE																		
37	PREPARE TEST TECH FOR CORE SAMPLING FROM BEAM & PREPARE TEST COUGH	1 AUG 97	1 AUG 97															
38	CRUSH & PREPARE TEST COUGH FROM BEAM & AFTER 28 DAYS CURE	1 AUG 97	1 AUG 97															
39	CRUSH & PREPARE TEST COUGH FROM BEAM & AFTER 28 DAYS CURE	1 AUG 97	1 AUG 97															
40	PREPARE TEST TECH FOR CORE SAMPLING FROM BEAM & PREPARE TEST COUGH	1 AUG 97	1 AUG 97															
41	CRUSH & PREPARE TEST COUGH FROM BEAM & AFTER 28 DAYS CURE	1 AUG 97	1 AUG 97															
42	CRUSH & PREPARE TEST COUGH FROM BEAM & AFTER 28 DAYS CURE	1 AUG 97	1 AUG 97															

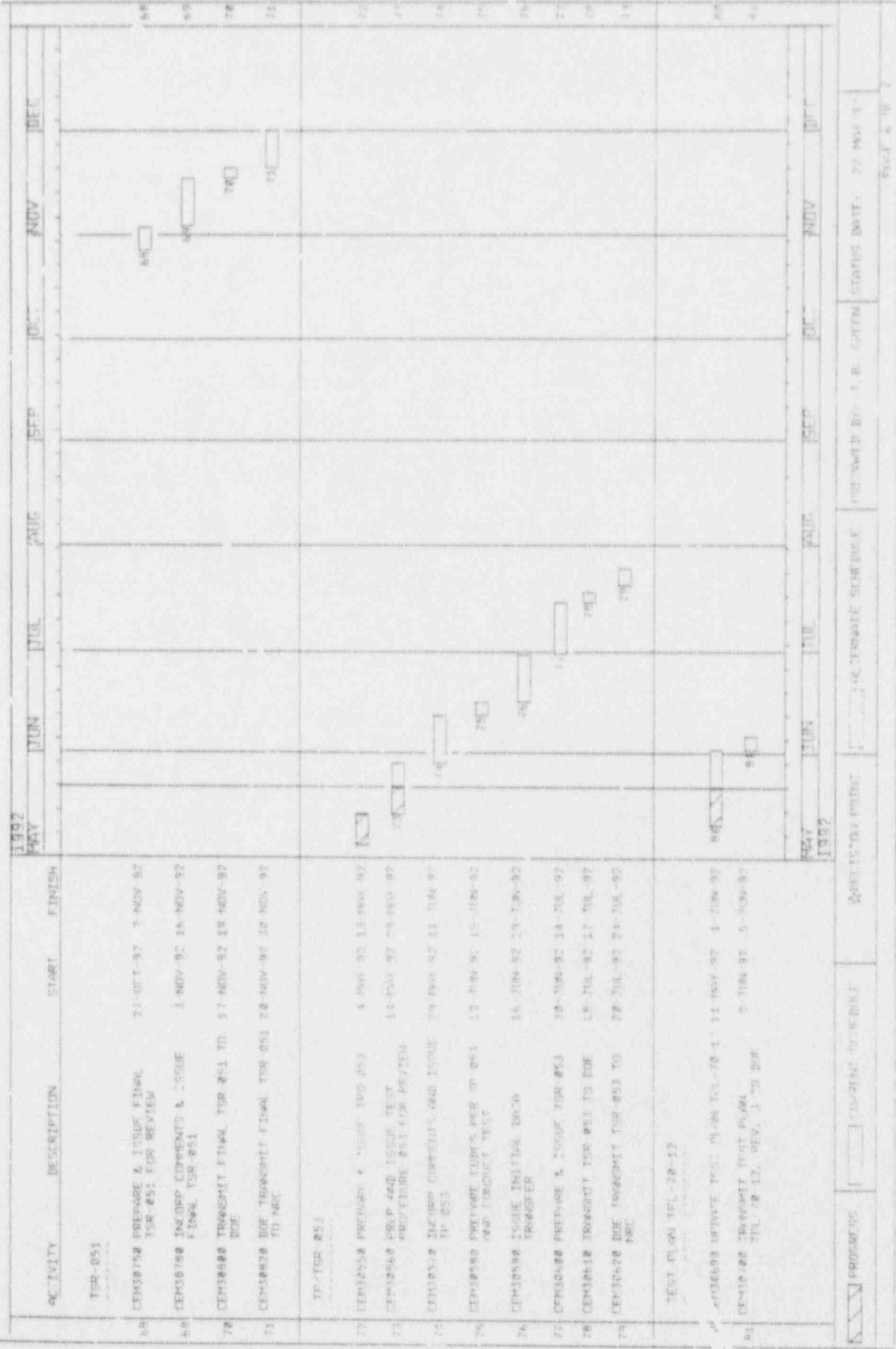
CEMENT RECIPES QUALIFICATION SCHEDULE

ACTIVITY	DESCRIPTION	START	FINISH	1997																		
				MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR							
90	90 Day Immersion Core (PUGH)																					
43	CEM10380 Immerse 3 cores from BQM 1. 1. DEC-92 13 OCT-92 5. FISH 99 20 5	1. DEC-92	13 OCT-92																			
44	CEM10390 Crush 3 cores from BQM 3 after 90 Day Immersion	5 OCT-92	5 OCT-92																			
45	CEM10400 Crush 3 cores from BQM 3 after 90 Day Immersion	9 OCT-92	9 OCT-92																			
46	CEM10410 Crush 3 cores from BQM C after 90 Day Immersion	9 OCT-92	9 OCT-92																			
47	CEM10420 Crush 3 cores from BQM E after 90 Day Immersion	1. OCT-92	19 OCT-92																			
48	CEM10430 Crush 3 cores from BQM F after 90 Day Immersion	13 OCT-92	13 OCT-92																			
49	CEM10440 Crush 3 cores from BQM G after 90 Day Immersion	13 OCT-92	13 OCT-92																			
50	CEM10450 Crush 3 cores from BQM D after 90 Day Immersion	15 OCT-92	15 OCT-92																			
51	CEM10460 Complete all 90 Day Immersion Core Testing	18 OCT-92	15 OCT-92																			
52	CEM10470 Perform Mercury TMAP of all Immersion Cores (PUGH)	16 OCT-92	19 OCT-92																			
WASTE CLASSIFICATION																						
53	CEM10620 ESTABLISH CONTRACT/LOG TO ANALYZE 40.3 BTON SLUDGE WASH	15 MAY-97	5 JUN-97																			
54	CEM10640 PREPARE SHIPPING REQUISITIVES	6 JUN-97	19 JUN-97																			
55	CEM10650 SHIP BROWN SLUDGE WASH TO LAB FOR CLASSIFICATION WORK	27 JUN-97	23 JUL-97																			

CEMENT RECIFE QUALIFICATION SCHEDULE

ACTIVITY	DESCRIPTION	START	FINISH	MAY 1997	JUN	JUL	AUG	SEP	OCT	NOV	DEC
56	WASTE CLASSIFICATION STH208A2 OUTSIDE LAB ANALYZE FOR CLASSIFICATION RADIONUCLIDES	26 JUN 92	5 AUG 92								
57	CEM20870 WASTE RECEIPT LAB ANALYSIS	6 AUG 92	7 AUG 92								
58	CEM20808 ENGINEERING ASSESSMENT OF ANALYSIS & CLASSIFICATION IMPACT	18 AUG 92	21 AUG 92								
59	TSR-014										
59	CEM20800 PREPARE & ISSUE INITIAL DATA SUBMITTED TO 044	13 MAY 92	17 JUN 92								
60	CEM20850 PREPARE & ISSUE TSR 044 FOR REVIEW	7 JUN 92	13 JUN 92								
61	CEM20870 INCORP COMMENTS & ISSUE TO 044	16 JUN 92	20 JUN 92								
62	CEM20850 TRANSMIT TO 044 TO DOE	18 JUN 92	2 JUL 92								
63	CEM20850 DOE TRANSMIT TO 044 TO DOE	6 JUL 92	18 JUL 92								
64	TSR-051										
64	CEM20870 PREPARE & ISSUE INITIAL TSR 051 FOR REVIEW	22 SEP 92	5 OCT 92								
65	CEM20870 SECURE COMMENTS & ISSUE INITIAL FOR 051	6 OCT 92	10 OCT 92								
66	CEM20870 TRANSMIT INITIAL TSR 051 TO DOE	28 OCT 92	27 OCT 92								
67	CEM20870 DOE TRANSMIT INITIAL TSR 051 TO DOE	23 OCT 92	29 OCT 92								

CEMENT RECEIPE QUALIFICATION SCHEDULE





CEMENT RECEIPTS QUALIFICATION SCHEDULE

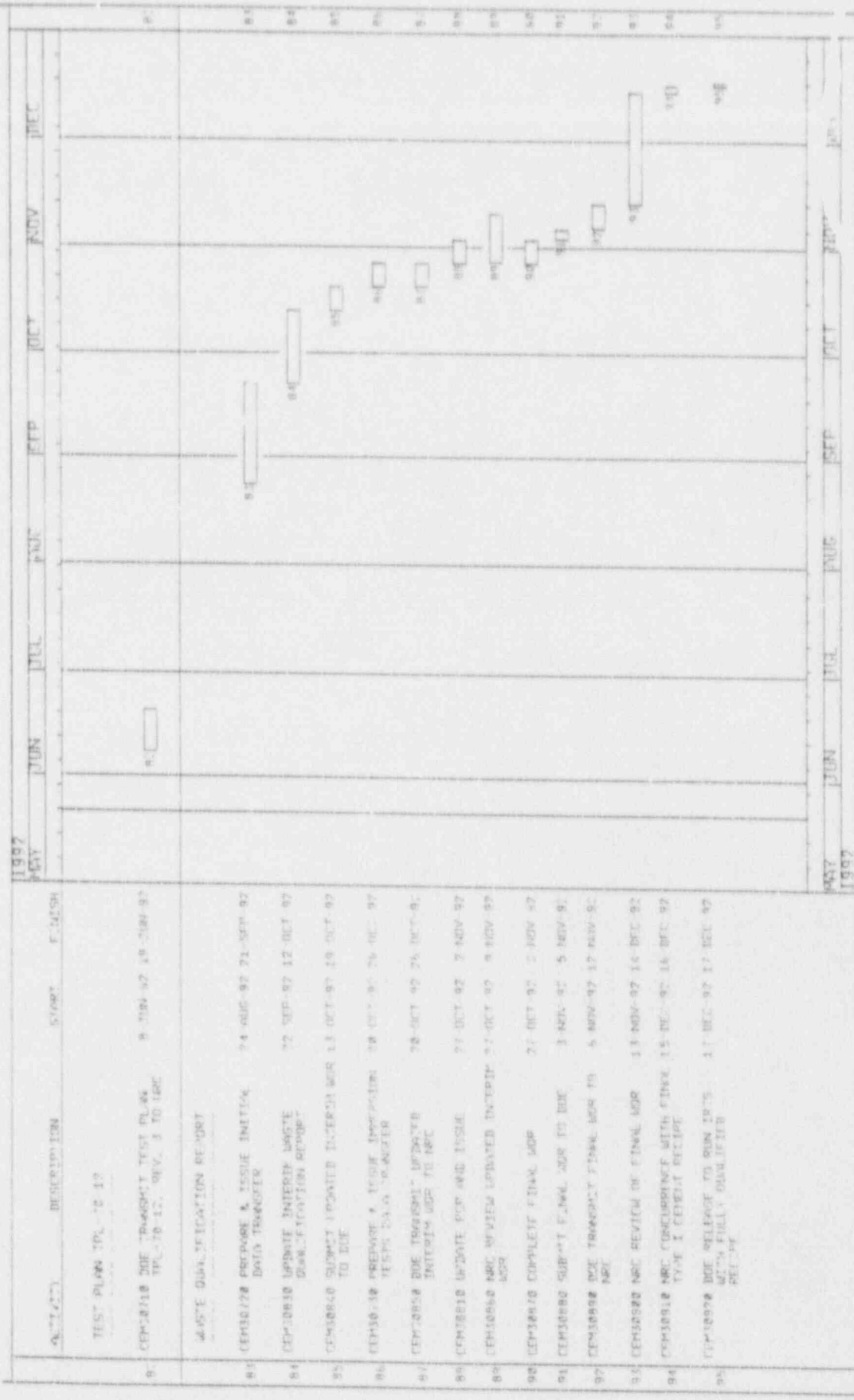


TABLE 1

SUMMARY OF ARCHIVE CORE EXAMINATIONS

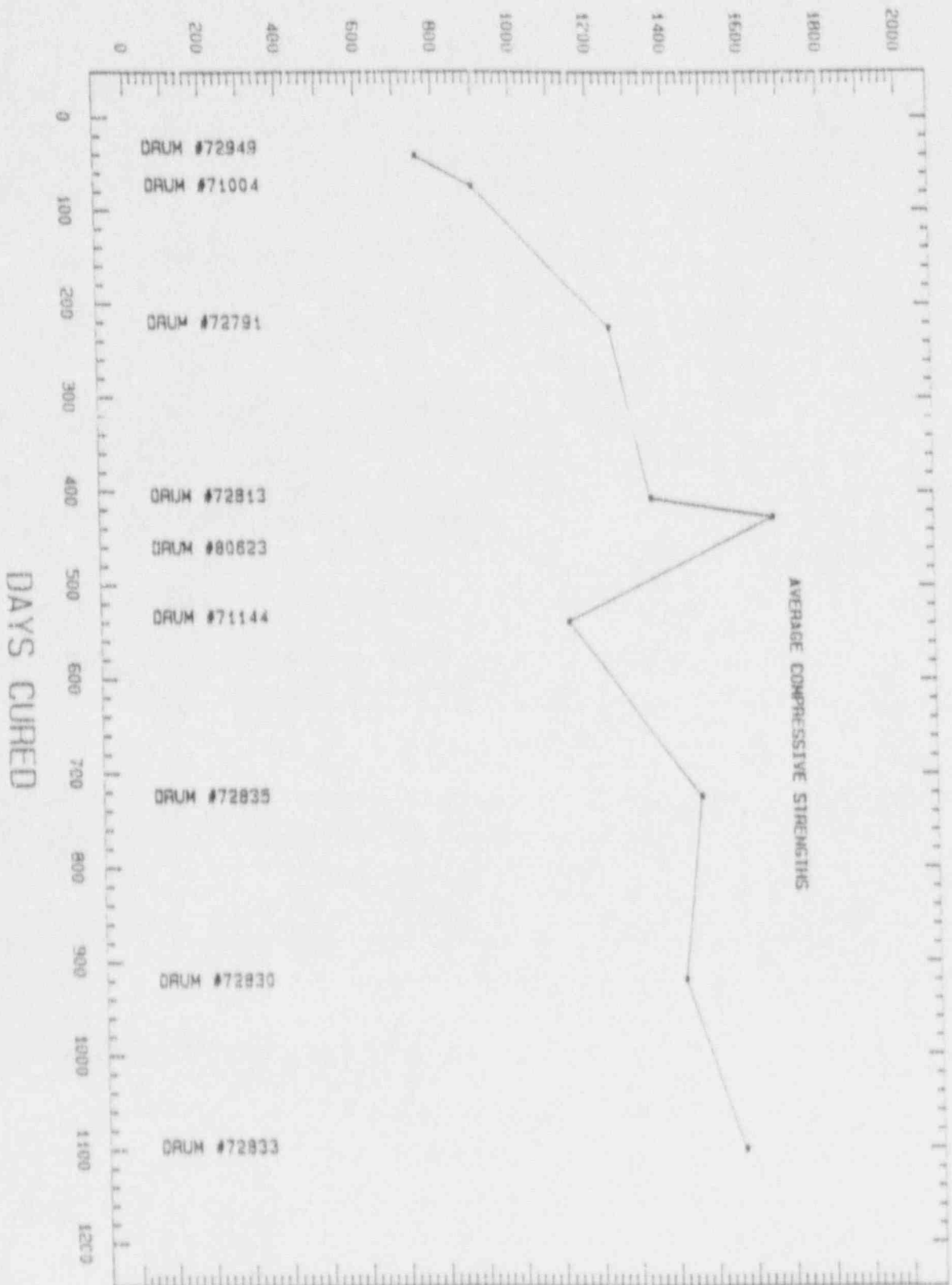
<u>DRUM NUMBER</u>	<u>DAYS CURED BEFORE CORING</u>	<u>CORE(S) CONDITION</u>	<u>REMARKS</u>
72791	225 days	Good	None
72813	406 days	Good	None
71144	539 days	Excellent	None
72835	720 days	Good	None
72830	924 days	Good	None
72833	1,086 days	Good	Some limited spalling noted on one core

TABLE 2

SUMMARY OF COMPRESSIVE STRENGTH RESULTS

<u>DRUM NO.</u>	<u>DATE PROCESSED</u>	<u>CURE TIME</u>	<u>CORE DESIGNATION</u>	<u>COMPRESSIVE STRENGTH</u>
72949	8/2/88	40 days	3 - top 3 - mid 5 - mid	880 psi 800 psi <u>710 psi</u> 797 psi Average
71004	7/08/88	74 days	5 - top 5 - bott 5 - mid 3 - bott 3 - top 1 - bott	1040 psi 810 psi 750 psi 1010 psi 940 psi <u>1070 psi</u> 937 psi Average
72791	7/20/88	225 days	B D F	1181 psi 1245 psi <u>1322 psi</u> 1250 psi Average
72813	7/20/88	406 days	A C E	1709 psi 1146 psi <u>1201 psi</u> 1350 psi Average
71144	7/20/88	539 days	B D F	924 psi 922 psi <u>1543 psi</u> 1130 psi Average
72835	7/20/88	720 days	B D F	1836 psi 1519 psi <u>1056 psi</u> 1470 psi Average
72830	7/20/88	924 days	A C E	1549 psi 1220 psi <u>1490 psi</u> 1420 psi Average
72833	7/20/88	1086 days	B D E	1708 psi 1549 psi <u>1456 psi</u> 1571 psi Average

FIGURE 1: COMPRESSIVE STRENGTH VS. DAYS CURED FOR CSS PROCESS DRUMS



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