TUELECTRIC

Log # TXX-6272
File # 10130

William G. Counsil
Executive Vice President

February 10, 1987

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NOS. 50-445 AND 50-446
REQUEST FOR INFORMATION REGARDING INSPECTION REPORTS:
50-445/85-07, 50-446/85-05; 50-445/85-14, 50-446/85-11;
50-445/85-16, 50-446/85-13; 50-445/86-06, 50-446/86-04

Gentlemen:

We have reviewed your letter dated February 5, 1987, requesting additional information on the subject inspection reports. We hereby respond to the request for additional information in the attachment to this letter.

Very truly yours,

W. G. Counsil

W. G. Counsil

By: G. S. Keeley

G. S. Keeley
Manager, Nuclear Licensing

RSB:lw
Attachment
Enclosures

c - Mr. E. H. Johnson, Region IV
Mr. D. L. Kelley, RI - Region IV
Mr. H. S. Phillips, RI - Region IV

IE01
1/1

400 North Olive Street L.B. 81 Dallas, Texas 75201

SUPPLEMENTAL REQUEST FOR INFORMATION REGARDING
INSPECTION REPORTS
50-445/85-07, 50-446/85-05; 50-445/85-14, 50-446/85-11;
50-445/85-16, 50-446/85-13; 50-445/86-06, 50-446/86-04

1. Provide TU Electric's evaluations and, as appropriate, proposed or corrective actions (including procedures generated) to unresolved items or open items addressed in inspection reports 50-445/85-07, 50-446/85-05; 50-445/85-14, 50-446/85-11; 50-445/85-16, 50-446/85-13; 50-445/86-06, 50-446/86-04.

RESPONSE TO ITEM 1

Based on discussions with the NRC staff on February 9, 1987, TU Electric will respond to this question by Thursday, February 12, 1987.

2. With reference to inspection report 50-445/85-07, 50-446/85-05, unresolved item 446/8505-06, when Westinghouse accepted the deviation in tolerance for centering and leveling of the Unit 2 reactor vessel from their recommended design criteria, did Westinghouse perform an engineering evaluation (e.g., to confirm the stress report is still valid)? Did TU Electric review the Westinghouse engineering evaluation? Please provide the engineering evaluation.

RESPONSE TO ITEM 2

At the time of the inspection finding (1985), no evaluation by Westinghouse was available which substantiated acceptance of the tolerance deviation on the 1979 construction operational traveler. However, as a result of the inspection item, Westinghouse, the NSSS design organization, documented acceptance of the tolerance by letter WPT-8148, dated January 10, 1986. Westinghouse has recently indicated an evaluation exists for accepting the tolerances; however, the evaluation has not been received at the jobsite. Westinghouse has also indicated that the final as-built stress reports (which will incorporate deviations encountered during the construction phase) will be issued after completion of construction. Currently, only design stress reports have been issued by Westinghouse.

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INSPECTION REPORTS
50-445/85-07, 50-446/85-05; 50-445/85-14, 50-446/85-11;
50-445/85-16, 50-446/85-13; 50-445/86-06, 50-446/86-04 - CONT'D

3. With reference to inspection report 50-445/85-07, 50-446/85-05, unresolved item 446/8505-07, does TU Electric audit plan require an audit be performed of surveillances of the Unit 2 reactor pressure vessel specifications, procedures, and installations?

RESPONSE TO ITEM 3

TU Electric's audit plan did not and does not require an audit of surveillances of the Unit 2 reactor pressure vessel specifications, procedures, and installations. The objective of the TU Electric audit plan is to determine that a quality assurance program has been developed and documented in accordance with specified requirements. TU Electric accomplishes that objective by performing audits on selected activities, not on all activities.

4. With reference to inspection report 50-445/85-07, 500-446/85-05, and NOV 445/8507-04, 446/8505-02, although no records exist that concrete mixing blades had been inspected quarterly since trucks were placed in service in 1977, it is our understanding that there are consistent concrete strength and uniformity tests.

   a. Does TU Electric have a concrete strength statistical distribution for this period?

   b. Provide three (3) results reports spaced over this period (i.e., 1977, 1980 and 1984).

RESPONSE TO ITEM 4.a

Enclosure 1 is a statistical evaluation of a series of concrete tests run during 1978. This is one of several statistical evaluations run during the 1978 to 1979 time frame.

RESPONSE TO ITEM 4.b

Enclosures 2, 3 and 4 are sample strength tests run during this period. Enclosure 5 is a sample uniformity test. Uniformity tests were run and documented during the 1977 to 1979 time frame, and strength tests were run and documented during the entire 1977 to 1984 time frame.

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50-445/85-07, 50-446/85-05; 50-445/85-14, 50-446/85-11;
50-445/85-16, 50-446/85-13; 50-445/86-06, 50-446/86-04 - CONT'D

5. What are the marking and traceability requirements for pipe spools and weld rods? With regard to weld rods, what are the consequences of using an unidentified weld rod to perform welding?

RESPONSE TO ITEM 5

MARKING AND TRACEABILITY REQUIREMENTS FOR PIPE SPOOLS:

The site marking and traceability requirements of pipe spools in the ASME Code Section III, Division I, Subsection NA, Paragraph NA-4442.1 and NA-3776.6(a) are identified within CP-CPM-6.9, General Piping Procedure, as specified by Specification MS-100, Piping Specification for Nuclear Piping.

CP-CPM-6.9, General Piping Procedure, states, "This procedure and the appendices have been prepared to delineate requirements for the fabrication, installation, BOP inspection, and the documentation for piping..."

CP-CPM-6.9, Appendix C, Material Identification, contains the requirements for the control and identification of components and material using unique markings, color coding, etc. It outlines the material identification procedure, QC receipt inspection of materials and color coding and tagging of material by warehouse personnel. It also requires that the color code be maintained until the pipe and/or fitting is fabricated into, or becomes a pipe spool. This appendix also requires that material requisition documentation should contain: a) Piping Materials - quantity, description, heat no., pipe category, specification, color code or stock no., code class, or for field use, the applicable drawing(s) for which the material is to be used, b) Piping Subassemblies - subassembly number ... and, d) Valves - quantity, size, generic no., serial no. and drawing(s) on which valve(s) are shown ... f) In addition to the above information, the applicable heat/log/serial number and code class shall be marked on the Material Requisition form adjacent to the appropriate item for all "Q" material ..."

CP-CPM-6.9, Appendix D, Welding and Related Processes, requires that QCI verify items or material to be installed or used in fabrication be accepted for construction activities or other wise released. This appendix also identifies controls for material traceability control, marking transfers and prefabrication checks for proper markings.

CP-CPM-6.9, Appendix E, Pipe Fabrication and Installation, delineates the requirements for piping fabrication and installation at CPSES. It

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50-445/85-16, 50-446/85-13; 50-445/86-06, 50-446/86-04 - CONT'D

specifies such elements as marking technique and requirements, QC verification and marking location. Specifically, the procedure requires, "Each spool shall be identified where practical by a name tag attached by banding and in addition, in all cases, by marking the spool number into the spool approximately 4 inches from the upstream field weld end." The procedure also provides marking requirements for piping prior to cutting for fabrication as follows: "Q" Pipe Heat number, piece number, spool number, ASME grade number and schedule. The procedure also states, "Care should be used when marking short pieces of pipe to ensure the markings are not inadvertently removed during the cleaning/fabrication process prior to being recorded on the weld documentation."

CP-CPM-6.9, Appendix G, Documentation for ASME Welding, Fabrication, and Installation Activities, provides the documentation requirements of ASME Section III for welding, fabrication, and installation activities. It describes the requirements for using Weld Data Cards, Multiple Weld Data Cards and Manufacturing Records Sheets. These records ensure traceability of material through onsite fabrication to final installation and documentation transmittal for review approval, certification and records vault for retention.

MARKING AND TRACEABILITY REQUIREMENTS FOR WELD RODS:

The site marking and traceability requirements for weld rods specified in the ASME Code Section III, Division I, Subsection NA, Paragraphs NA-4442.1 and NA-3766.6(b), are identified within CP-CPM-6.9, General Piping Procedure.

CP-CPM-6.9, Appendix B, Weld Filler Material, delineates requirements for the procurement and control of all welding filler material. It includes controls for procurement, identification, material distribution and storage, prevention of contamination during handling, and issuance control. The procedure is specific in requirements for identification of weld filler material that is removed from its original container:

"...2) Each 18-inch length of straight bare wire shall be flag tagged on one end. Each 36-inch length of straight bare wire shall be flag tagged on both ends. Marking shall include the material classification, heat/lot, and size.

3) Low hydrogen electrodes shall be segregated to maintain traceability by the classification, size, and heat/lot number when placed in a heated stationary or portable oven..."

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50-445/85-16, 50-446/85-13; 50-445/86-06, 50-446/86-04 - CONT'D

The procedure gives requirements for the completion of the Weld Filler Material Log (WFML) as to Weld Procedure Specification (WPS), material size and class, welder's symbol, date and weld numbers, entry of the heat number and quantity of material issued and current revision/ICN number to the WPS. The return of weld filler material to the Material Distribution Station (MDS) shall be dispositioned as follows:

"...2) Straight-length bare wire -
a) Material not used may be reissued
b) Used material shall be considered NCWFM [Nonconforming WFM]
c) Flag tag identification must be affixed to all reissued bare wire.

Flag tagging shall not be done if material traceability is unclear. Material returned without the original flag tag shall be handled as NCWFM...

4) Low-hydrogen electrodes -

a) Material issued in portable oven that was energized (no notation on WFML). Return to stationary oven, reissue as required.

b) Material issued in portable oven discovered not energized and has exceeded exposure limits (notation on WFML) disposition as NCWFM, store for transit to WQTC [Welder Qualification Training Center].

5) Other covered electrodes -

Identify and protect, reissue as required...."

CONSEQUENCES OF USING UNIDENTIFIED WELD RODS:

Unidentified weld rod is required to be treated as nonconforming and documented on Nonconformance Reports using CP-CPM-6.9, Appendix B.

If the weld rod could not positively be identified, the subject weld joint would be removed and replaced.

If the identification of the weld rod could be established using supplemental documentation, the subject weld could be accepted "as-is" contingent on approval of Engineering and QA/QC. This approval use would include appropriate technical justification for acceptance.

CONCRETE TESTING DATA MANAGEMENT

CP244 - 8700

REVISION A

RUN DATE: 03-15-79

PROJECT: COMANCHE PEAK

JOB NUMBER: 35-1195

CONCRETE MIX: A-132

7 DAY TESTS TO: 12-29-78

28 DAY TESTS TO: 12-29-78

BROWN & ROOT, INC.

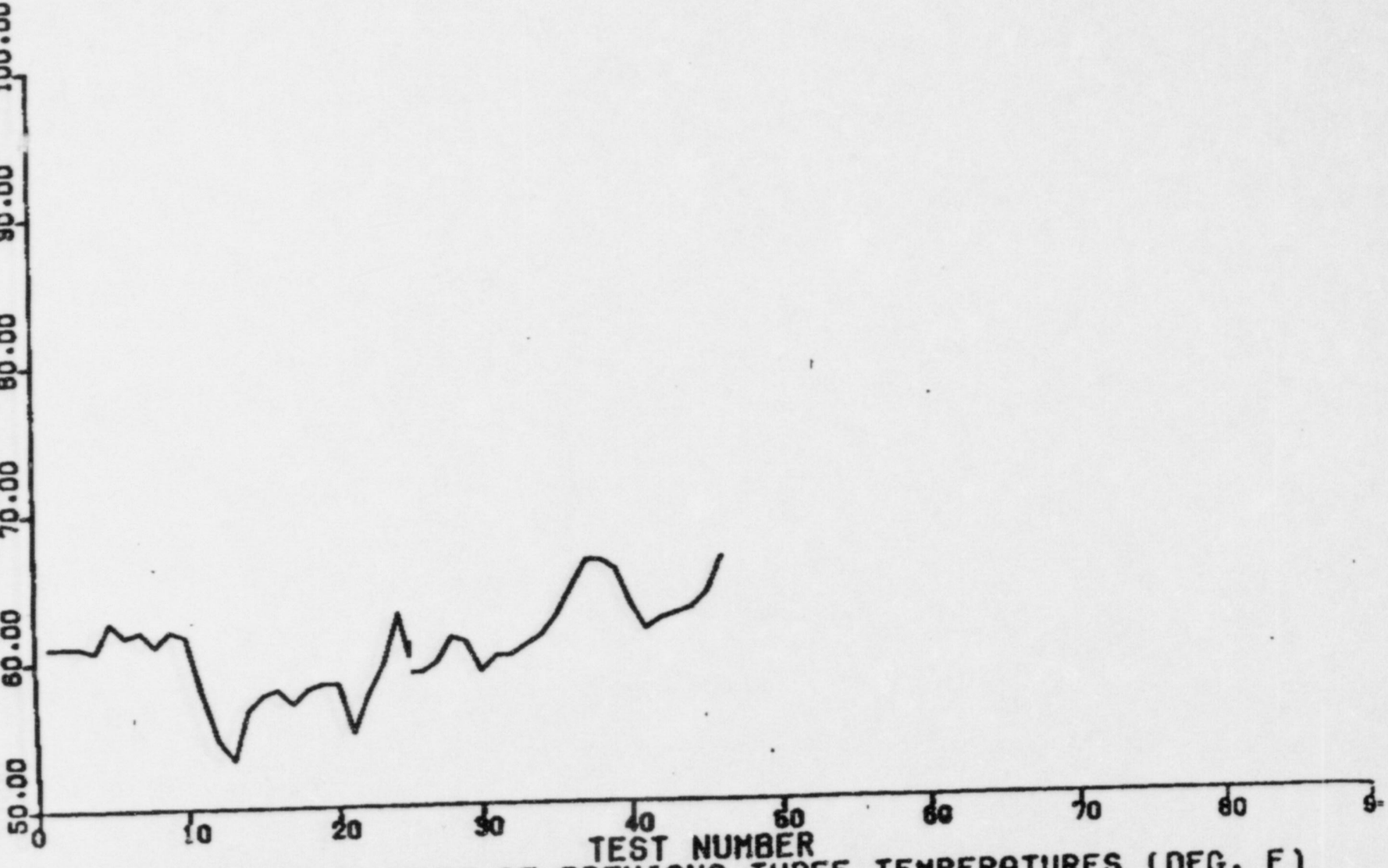
POWER ENGINEERING DIVISION

HOUSTON, TEXAS

FOR INFORMATION ONLY

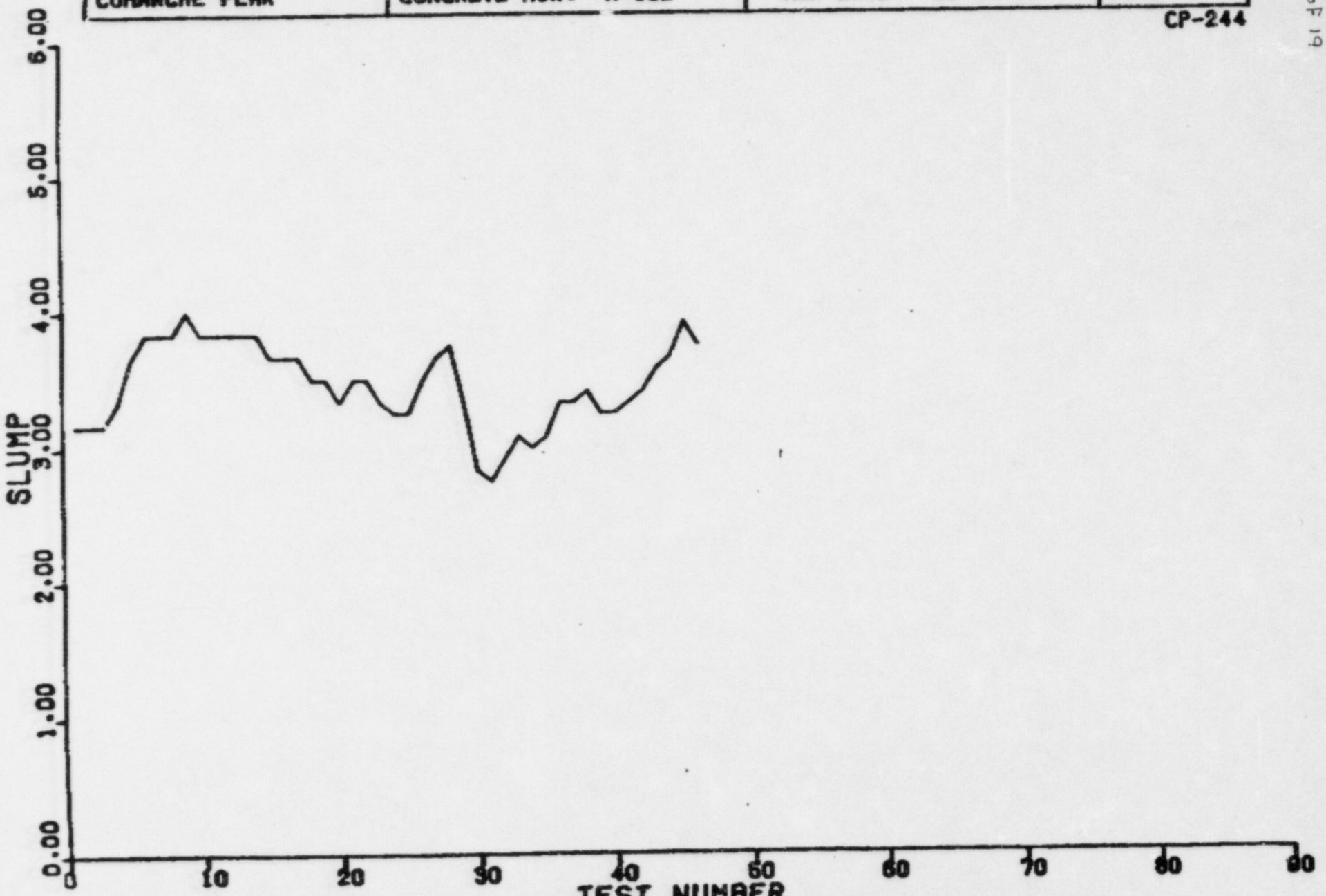
COMANCHE PEAK	CONCRETE MIX: A-132	RUN DATE: 03-15-79	PLOT 1

CP-244



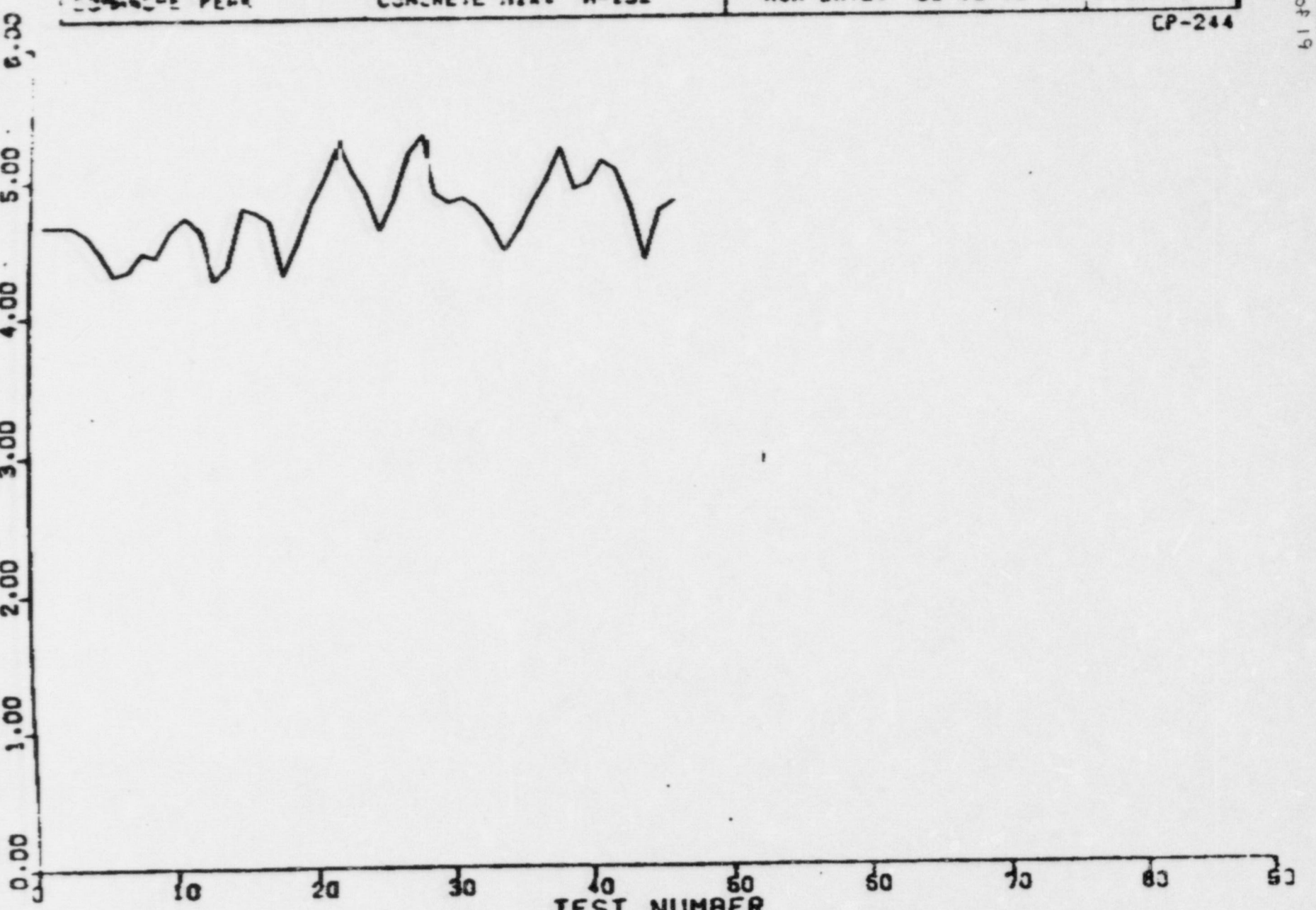
COMANCHE PEAK	CONCRETE MIX: A-132	RLN DATE: 03-15-78	PLOT 2

CP-244



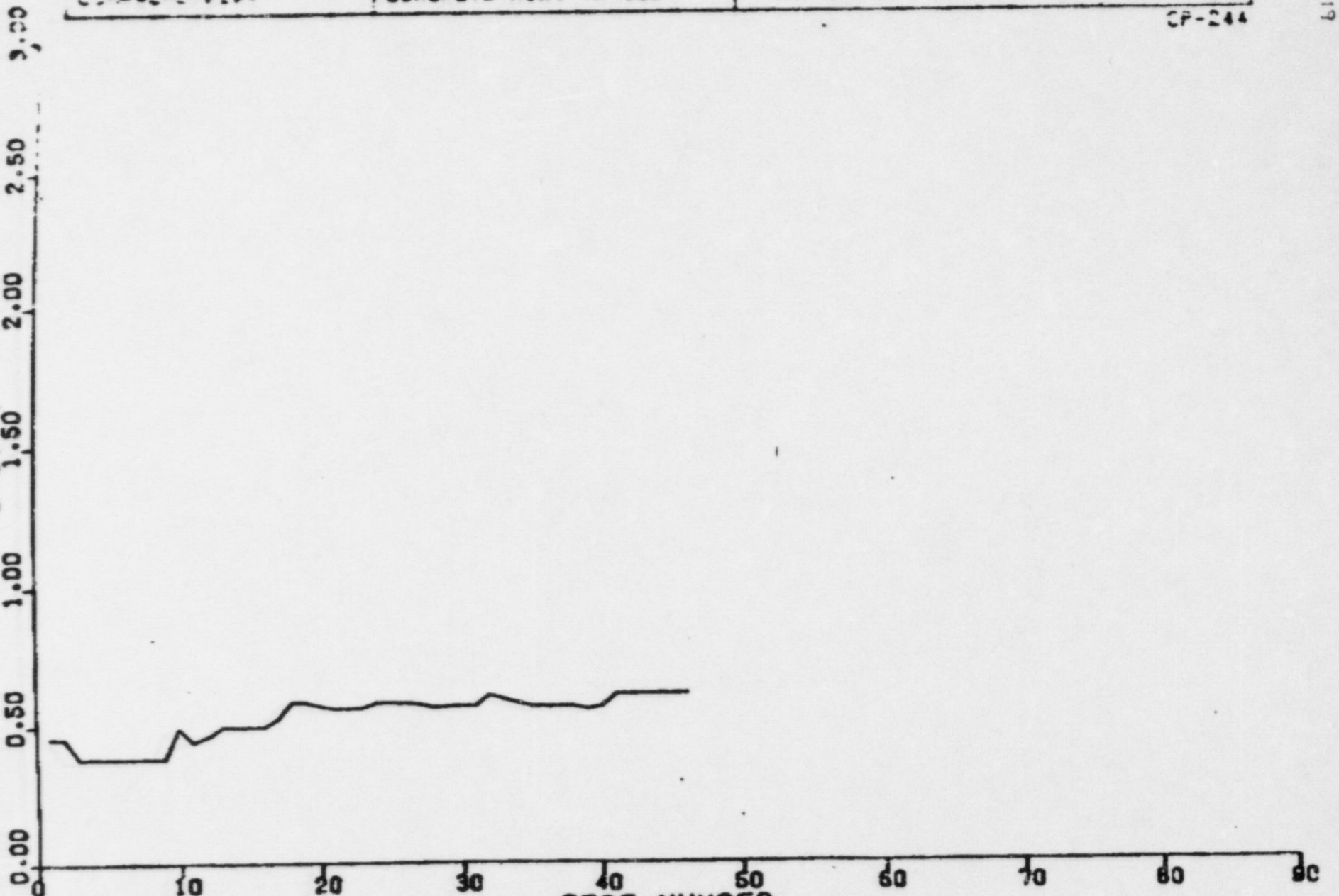
[illegible] PEAK	CONCRETE MIX: A-132	RUN DATE: 03-15-[illegible]	PLOT 3

CP-244



CONCRETE PEER	CONCRETE MIX: A-132	RUN DATE: 03-15-79	PLOT 5

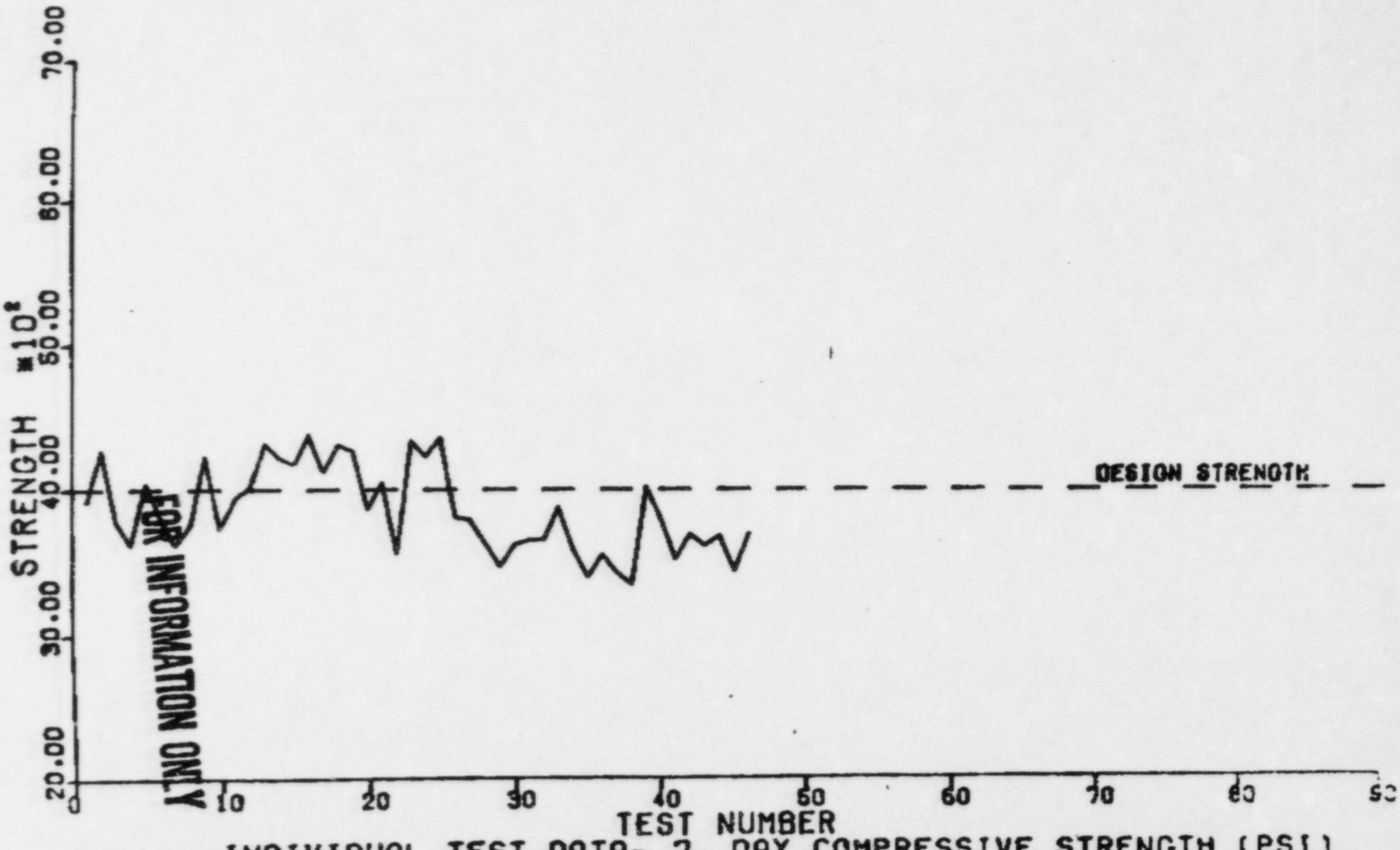
CP-244



COEFFICIENT OF VARIATION OF UNIT WEIGHT (%)

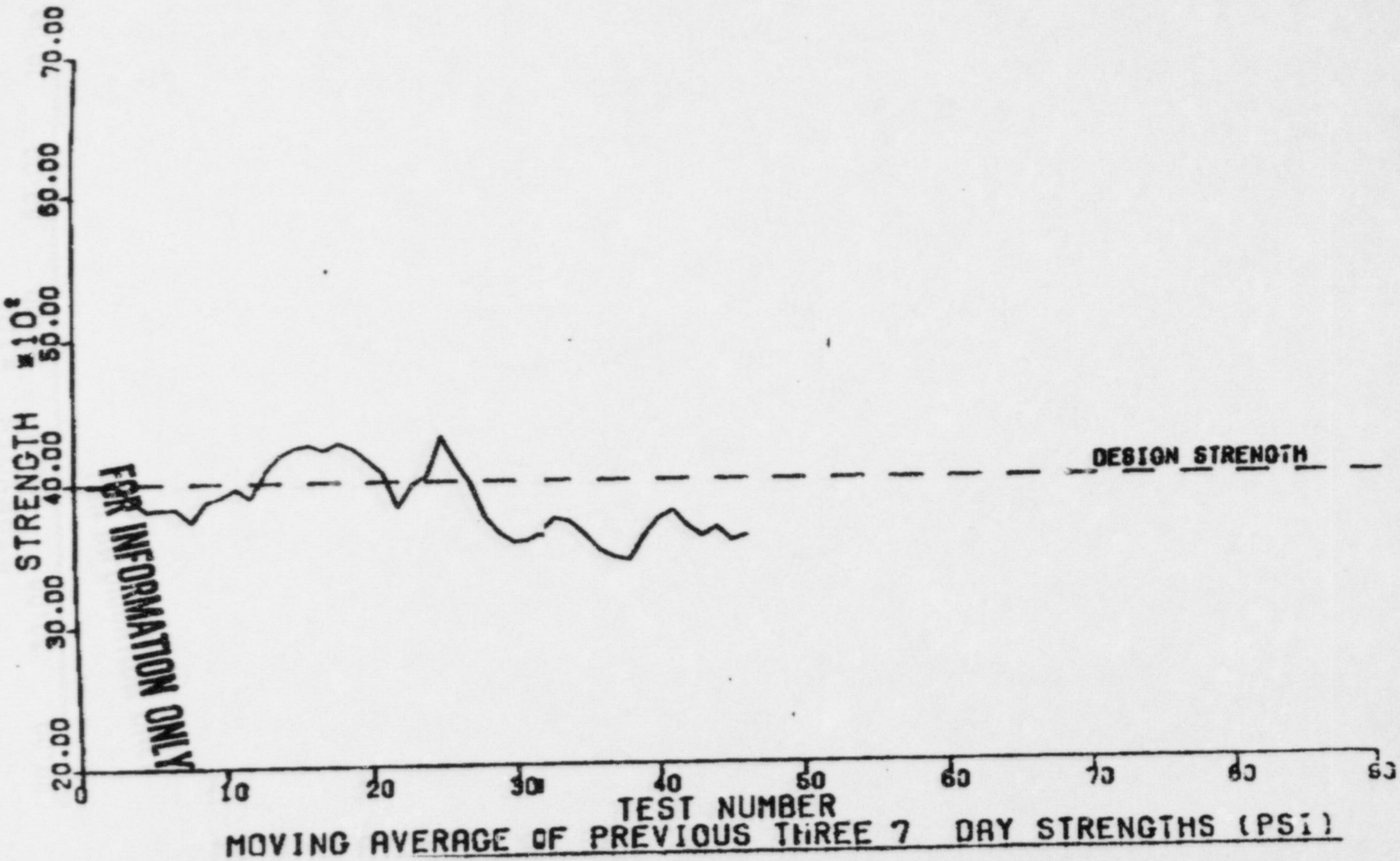
FOR INFORMATION ONLY

COMANCHE PEAK | CONCRETE MIX: A-132 | PLACE DATE: 03-15-[illegible]



INDIVIDUAL TEST DATA- 7 DAY COMPRESSIVE STRENGTH (PSI)

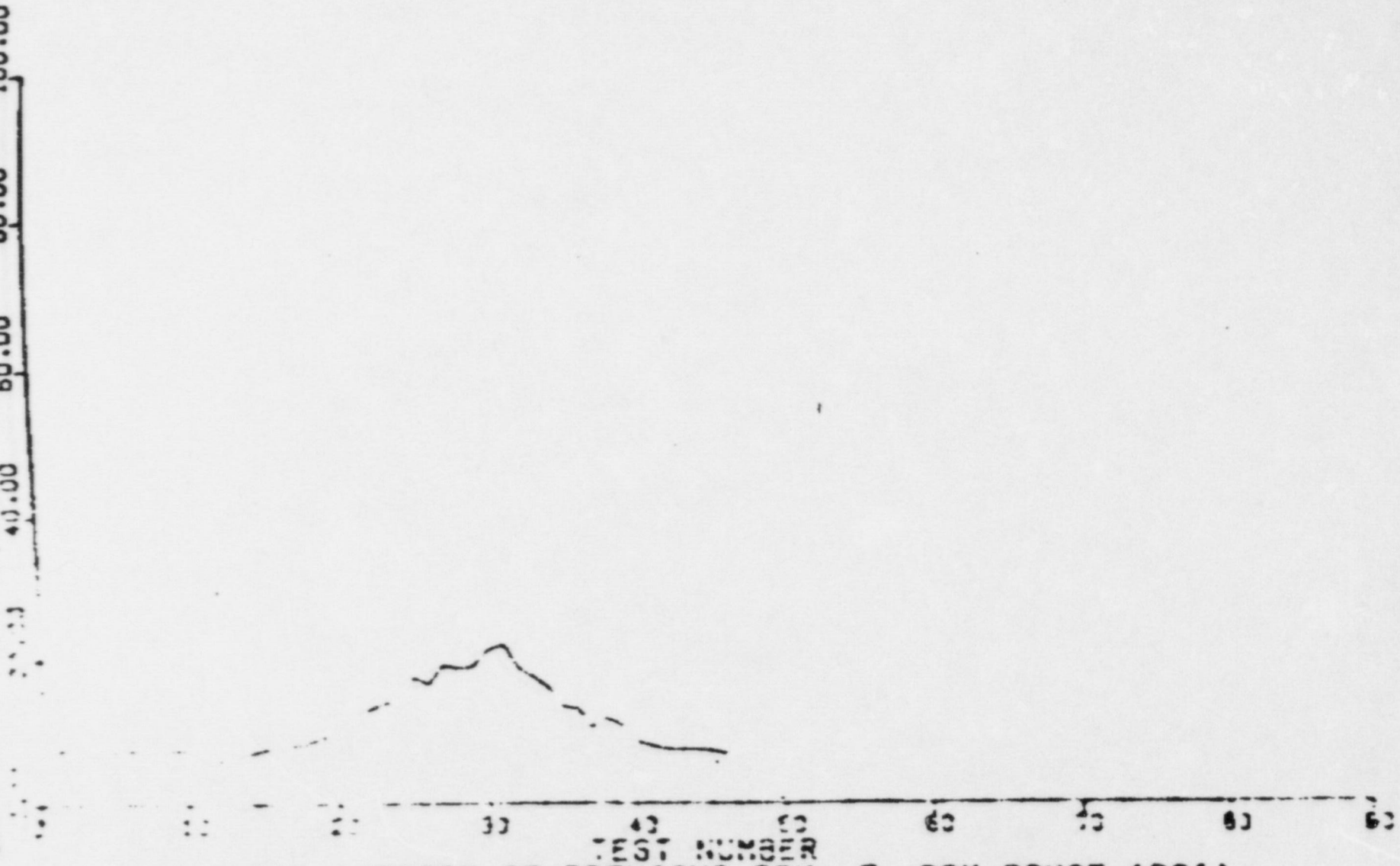
CONCRETE MIX A-132



MOVING AVERAGE OF PREVIOUS THREE 7 DAY STRENGTHS (PSI)

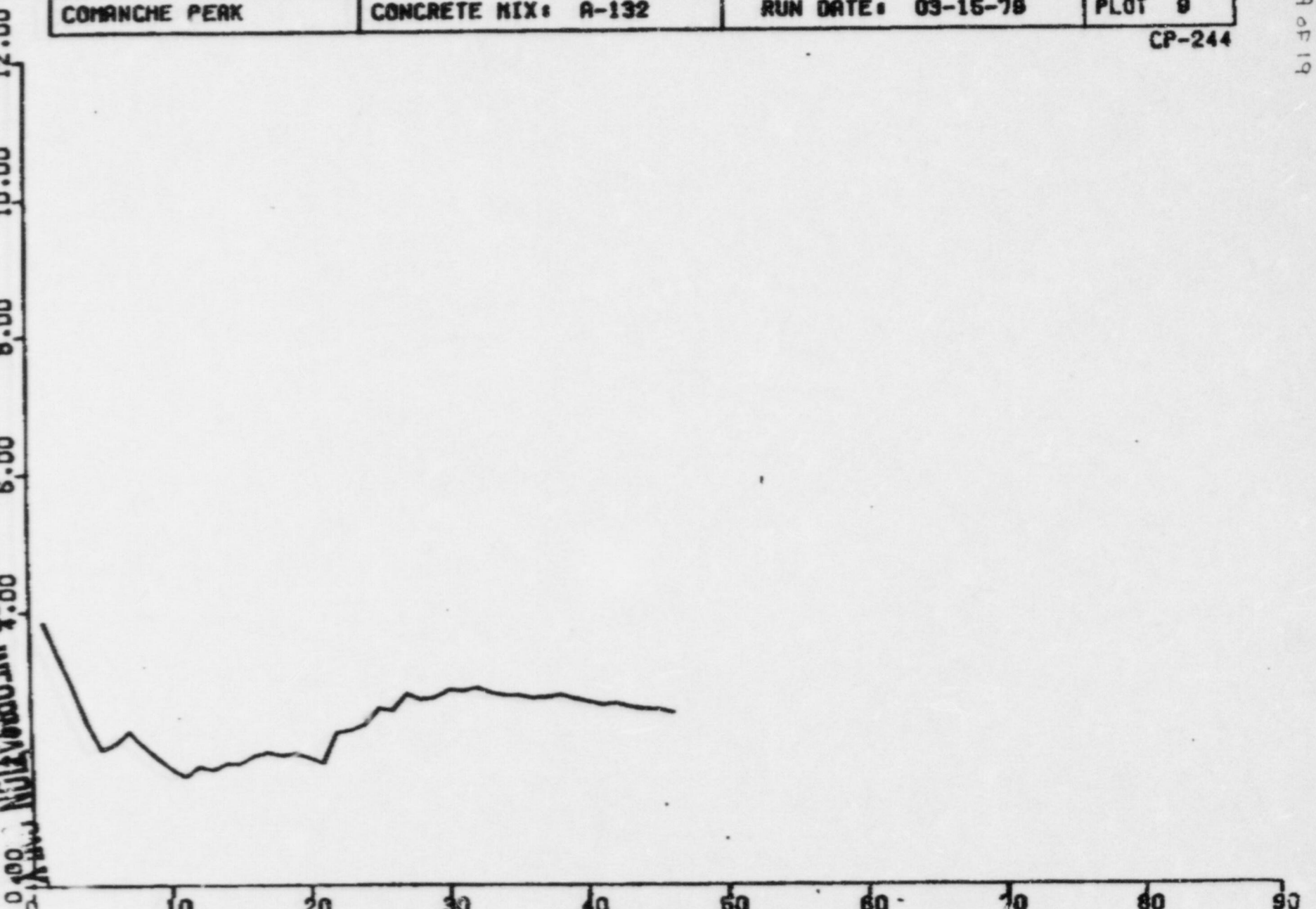
COMANCHE PEAK	CONCRETE MIX: A-132	RUN DATE: 03-15-79	PLOT 8

CP-244



COMANCHE PEAK	CONCRETE MIX: A-132	RUN DATE: 03-15-78	PLOT 9

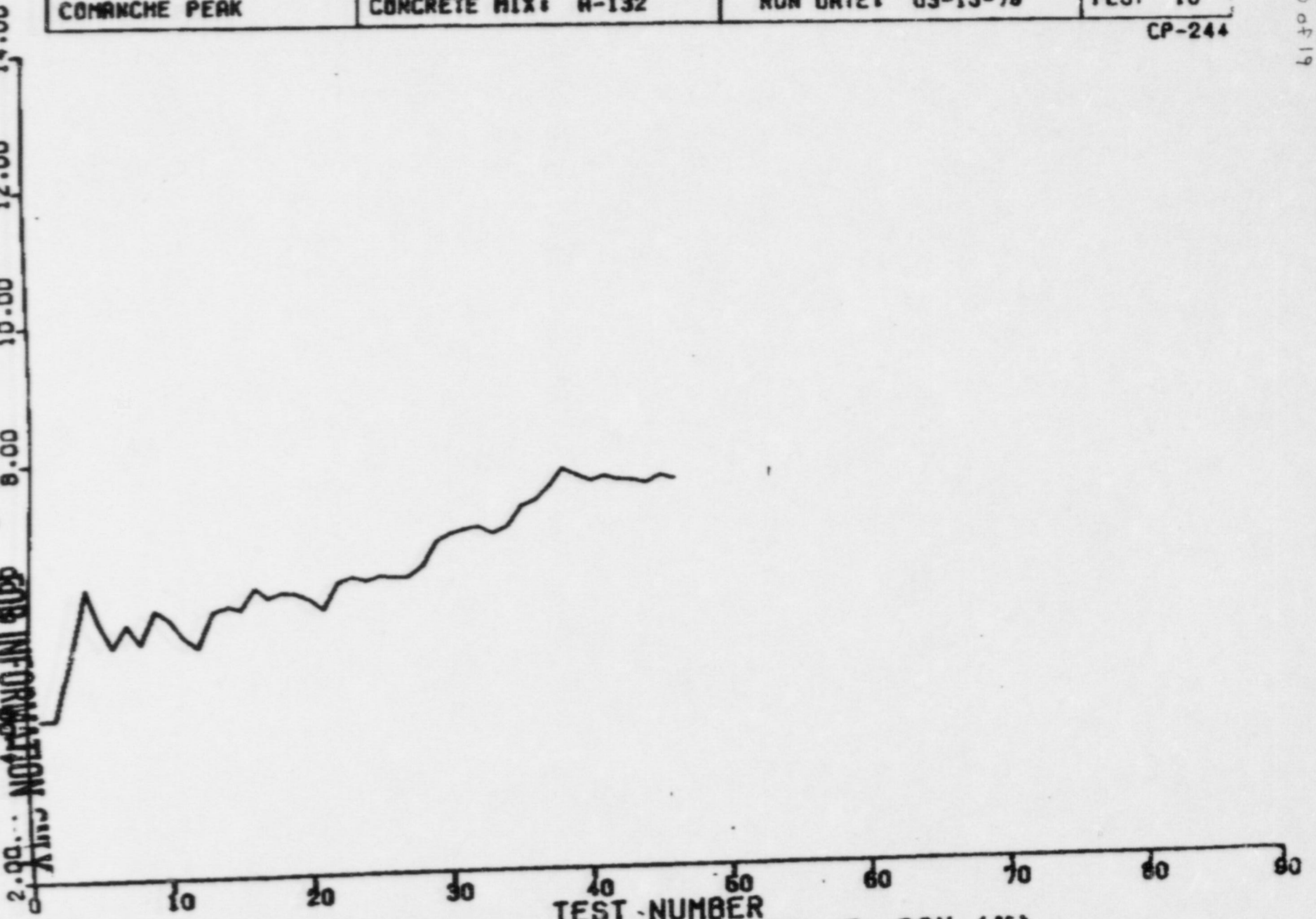
CP-244



WITHIN TEST COEFFICIENT OF VARIATION, 7 DAY (%)

COMANCHE PEAK	CONCRETE MIX: A-132	RUN DATE: 03-15-78	PLOT 10

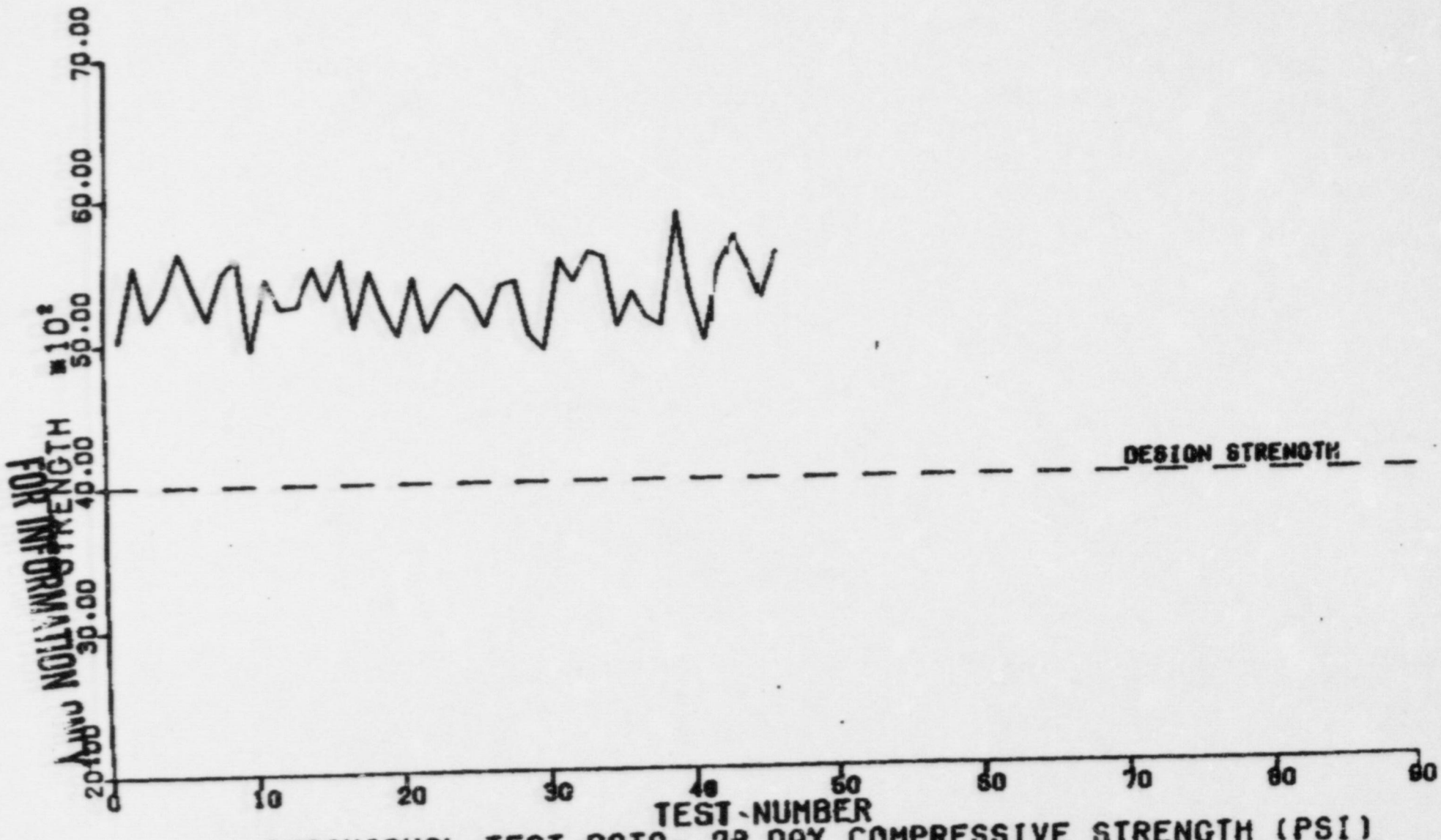
CP-244



OVERALL COEFFICIENT OF VARIATION, 7 DAY (%)

COMANCHE PEAK	CONCRETE MIX: A-132	RUN DATE: 03-15-79	PLOT 11

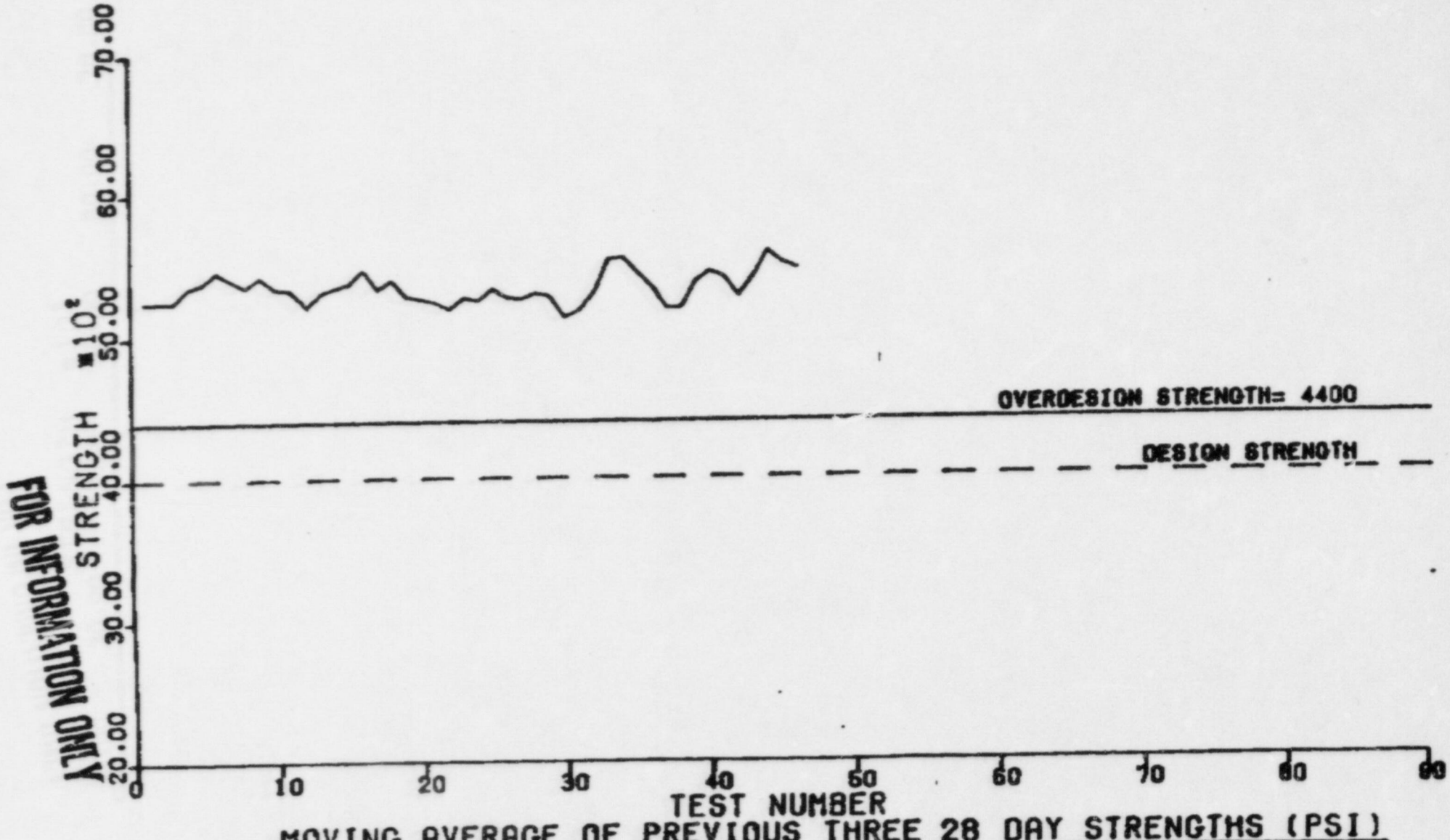
CP-244



INDIVIDUAL TEST DATA- 28 DAY COMPRESSIVE STRENGTH (PSI)

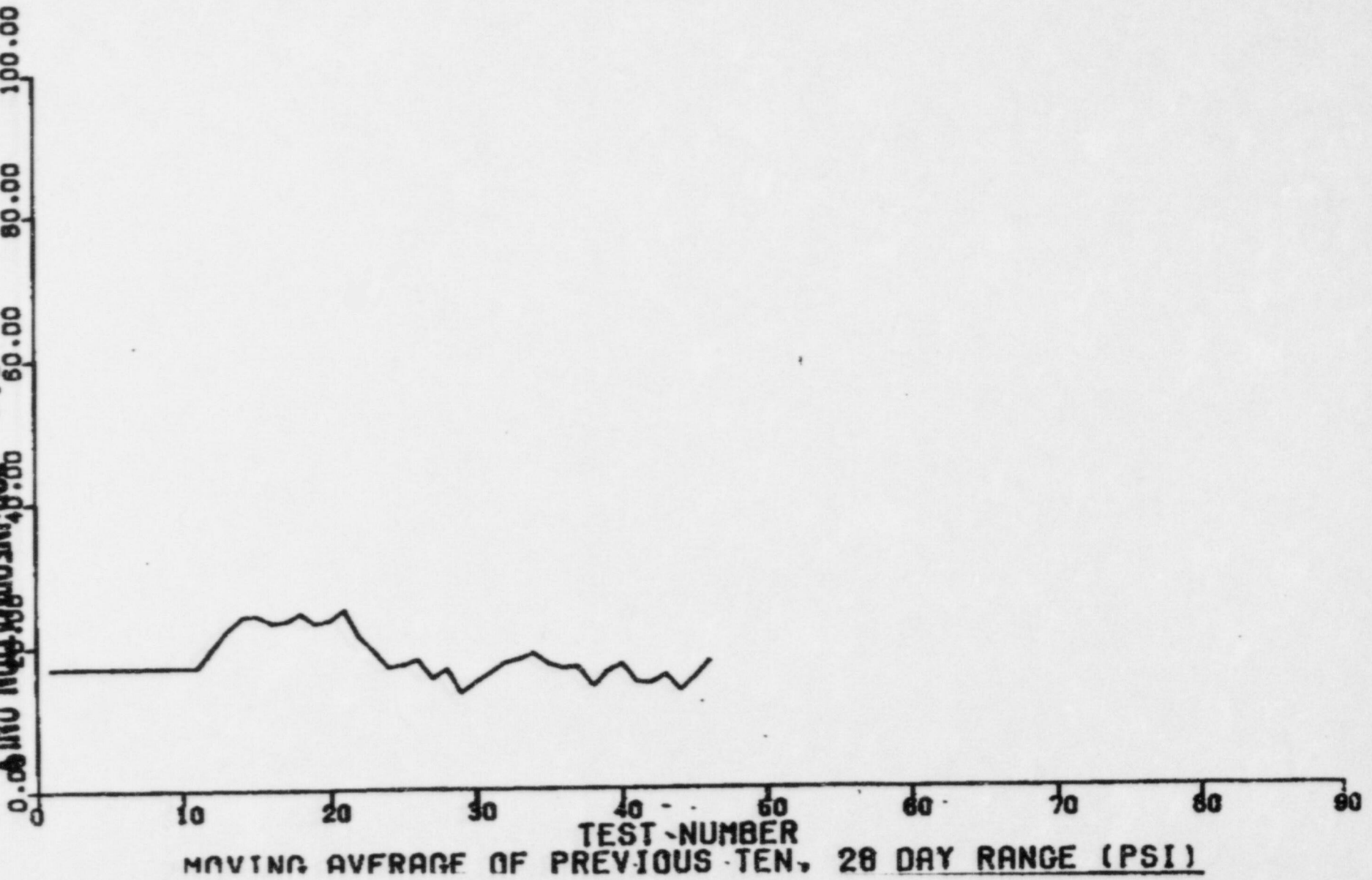
COMANCHE PEAK	CONCRETE MIX: A-132	RUN DATE: 03-15-79	PLOT 12

CP-244



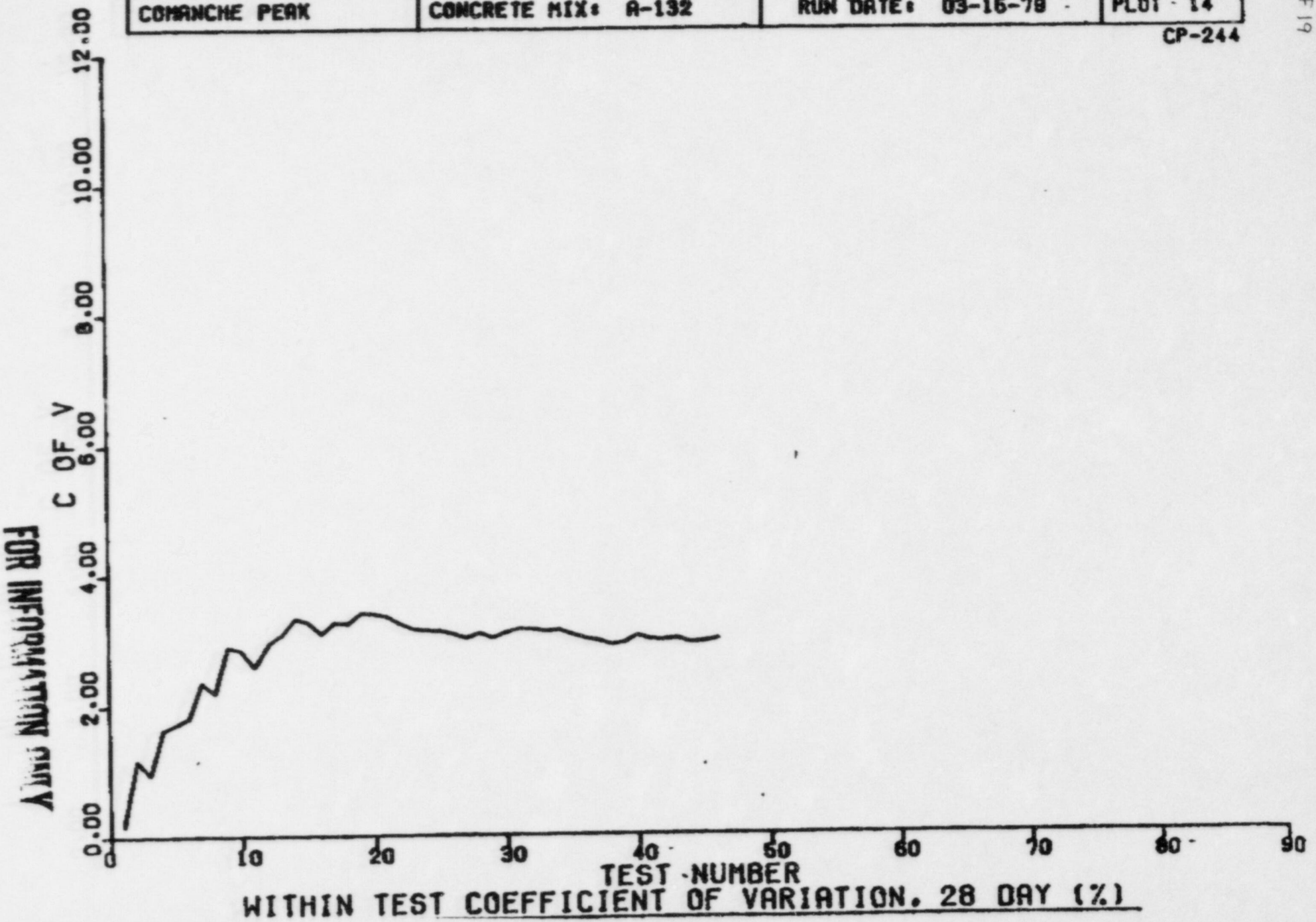
COMANCHE PEAK	CONCRETE MIX: A-132	RUN DATE: 03-16-79	PLOT 13

CP-244



COMANCHE PEAK	CONCRETE MIX: A-132	RUN DATE: 03-16-78	PLOT - 14

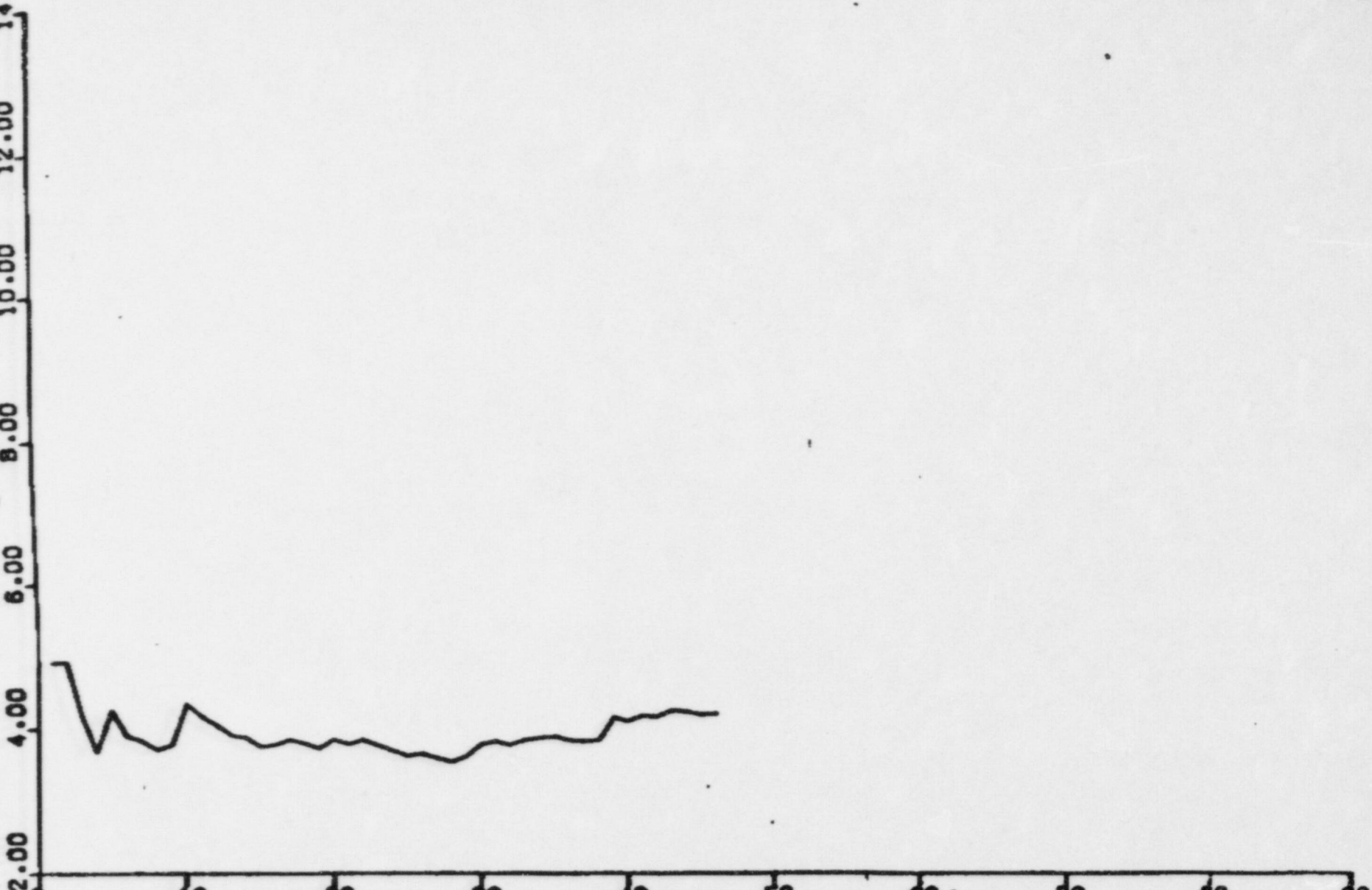
CP-244



WITHIN TEST COEFFICIENT OF VARIATION. 28 DAY (%)

COMANCHE PEAK	CONCRETE MIX: A-132	RUN DATE: 09-15-78	PLOT 15

CP-244



OVERALL COEFFICIENT OF VARIATION. 28 DAY (%)

CLIENT NAME -TEXAS UTILITIES SERVICES INC.

LOCATION -GLEN ROSE, TEXAS

PLANT NAME -COMANCHE PEAK NUCLEAR PROJECT

UNIT NUMBER -1 & 2

BROWN AND ROOT JOB NUMBER - 35-1195

CALCULATIONS BY - DUKE POINTER

CONCRETE TEST. DATA MGT.
CP-244 REVISION A
IBM 370-155/168
3/15/79
TIME=13:48:31

RUN NUMBER _____

CALCULATION NUMBER _____

REVISION NUMBER _____

END OF FIRST ANALYSIS FOR MIX A-120
SECOND ANALYSIS FOR MIX A-120
END OF FIRST ANALYSIS FOR MIX A-132
SECOND ANALYSIS FOR MIX A-132
SECOND ANALYSIS FOR MIX A-133
UNIT WEIGHT PLOTS NOT EXECUTED AS A RESULT OF ONLY ONE TAKEN PER DAY

FOR INFORMATION ONLY

CHECKED BY _____ DATE _____

APPROVED BY _____ DATE _____

APPROVED BY _____ DATE _____

CONCRETE CLASS A-132 DATE 03-15-79 NO. OF SAMPLES TO DATE 46

TEST NUMBER / DATE CAST / LAB NUMBER	TEMP / AVERAGE TEMP / MOVING AVG OF 3	SLUMP / AVERAGE SLUMP / MOVING AVG OF 3	AIR CONTENT / AVG AIR CONTENT / MOVING AVG OF 3	UNIT WEIGHT / AVG UNIT WEIGHT / MOVING AVG OF 3	C OF V OF UNIT WEIGHT	7 DAY RESULTS CYL 1 / CYL 2 / CYL 3	AVERAGE STRENGTH AVG AVG STRENGTHS / MOV AVG OF 3 AVG STR	RANGE AVERAGE RANGE / MOV AVG OF 10	C OF V WITHIN ST DEV OVERALL / C OF V OVERALL	28 DAY RESULTS CYL 1 / CYL 2 / CYL 3	AVERAGE STRENGTH AVG AVG STRENGTHS / MOV AVG OF 3 AVG STR	RANGE AVERAGE RANGE / MOV AVG OF 10	C OF V WITHIN ST DEV OVERALL / C OF V OVERALL
1	61.	3.50	4.7	143.6	0.0	4000.	3920.	170.	3.85	5020.	5030.	10.	0.18
110178	61.	3.56	4.7	143.6		3830.	3920.	170.	0.0	5030.	5030.	10.	0.0
0						0.			0.0	0.			0.0
2	58.	3.06	4.4	144.0	0.46	4200.	4270.	140.	3.36	5480.	5550.	130.	1.17
110778	60.	3.25	4.5	144.3		4340.	4090.	155.	177.50	5610.	5290.	70.	260.00
0						0.			4.34	0.			4.92
3	64.	3.00	4.9	144.6	0.38	3740.	3780.	80.	2.89	5150.	5170.	30.	0.96
111378	61.	3.17	4.7	144.4		3820.	3990.	130.	206.65	5180.	5250.	57.	219.70
0	61.	3.17	4.7	144.4		0.	3990.		5.18	0.	5250.		4.19
4	66.	4.00	4.5	0.0	0.38	3600.	3620.	30.	2.39	5220.	5330.	220.	1.64
111378	61.	3.38	4.6	144.4		3630.	3900.	105.	241.17	5440.	5270.	98.	193.79
0	61.	3.33	4.6	144.8		0.	3690.		6.19	0.	5350.		3.68
5	64.	4.00	4.4	0.0	0.38	4030.	4040.	20.	1.99	5700.	5640.	130.	1.73
111378	61.	3.50	4.5	144.4		4050.	3920.	88.	223.37	5570.	5340.	104.	227.60
0	63.	3.67	4.5	144.6		0.	3810.		5.69	0.	5380.		4.26
6	61.	3.50	4.4	0.0	0.38	3750.	3810.	110.	2.08	5470.	5400.	140.	1.82
111378	61.	3.50	4.5	144.4		3860.	3900.	92.	208.67	5330.	5350.	110.	208.97
0	62.	3.83	4.3	0.0		0.	3820.		5.34	0.	5460.		3.91
7	61.	4.00	4.6	0.0	0.38	3680.	3610.	140.	2.26	5330.	5170.	330.	2.36
111378	61.	3.57	4.5	144.4		3540.	3860.	99.	218.91	5000.	5320.	141.	204.01
0	62.	3.43	4.3	0.0		0.	3820.		5.67	0.	5400.		3.83
8	61.	4.00	4.4	0.0	0.38	3750.	3760.	20.	2.04	5450.	5490.	70.	2.20
378	61.	3.63	4.5	144.4		3770.	3850.	89.	207.54	5520.	5340.	133.	196.16
0	61.	3.83	4.5	0.0		0.	3730.		5.39	0.	5350.		3.71
9	64.	4.00	4.3	0.0	0.38	4210.	4230.	30.	1.87	5340.	5600.	520.	2.90
478	62.	3.67	4.5	144.4		4240.	3890.	82.	228.52	5860.	5370.	176.	203.44
0	62.	4.00	4.4	0.0		0.	3870.		5.87	0.	5420.		3.79
10	60.	3.50	5.2	143.2	0.49	3730.	3730.	10.	1.72	5010.	4950.	130.	2.84
478	61.	3.65	4.5	144.1		3720.	3870.	75.	222.45	4880.	5330.	171.	231.68
0	62.	3.83	4.6	143.2		0.	3900.	75.	5.74	0.	5340.	171.	4.35
11	58.	4.00	4.7	144.2	0.44	3950.	3940.	20.	1.68	5450.	5450.	10.	2.60
1578	60.	3.68	4.6	144.1		3930.	3880.	70.	212.93	5440.	5340.	156.	223.38
0	58.	3.83	4.7	143.7		0.	3960.	68.	5.49	0.	5330.	171.	4.18
12	54.	4.00	4.0	145.0	0.46	4090.	4020.	150.	1.75	5030.	5240.	410.	2.95
111678	60.	3.71	4.5	144.2		3940.	3890.	77.	207.23	5440.	5330.	178.	215.83
0	55.	3.83	4.6	144.1		0.	3890.	61.	5.32	0.	5210.	199.	4.05
13	56.	3.50	4.1	145.3	0.50	4290.	4320.	60.	1.70	5400.	5260.	280.	3.09
112178	60.	3.69	4.5	144.4		4350.	3920.	75.	229.49	5120.	5330.	185.	208.23

FOR INFORMATION ONLY

ENCLOSURE 1
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29	62.	2.50	4.4	145.4	0.5	3400.	3470.	130.	2.73	5060.	5040.	40.	3.01
121278	59.	3.57	4.7	144.5		3530.	3980.	123.	273.39	5020.	5310.	180.	192.17
0	61.	3.33	4.9	144.4		0.	3630.	189.	6.86	0.	5280.	134.	3.62
30	56.	2.25	5.0	145.4	0.5	3750.	3620.	270.	2.85	4770.	4930.	320.	3.10
121278	57.	3.52	4.7	144.5		3480.	3970.	128.	276.87	5090.	5300.	185.	200.80
0	58.	2.63	4.8	144.9		0.	3570.	212.	6.97	0.	5130.	149.	3.79
31	62.	3.50	5.2	0.0	0.5	3690.	3650.	40.	2.83	5710.	5570.	290.	3.15
121378	59.	3.52	4.7	144.5		3600.	3960.	126.	278.45	5420.	5300.	188.	203.17
0	59.	2.73	4.9	145.4		0.	3580.	220.	7.03	0.	5180.	162.	3.83
32	62.	3.00	4.2	146.2	0.6	3740.	3650.	180.	2.87	5500.	5410.	180.	3.14
121378	59.	3.51	4.7	144.6		3560.	3950.	128.	279.39	5320.	5310.	188.	200.80
0	60.	2.92	4.8	145.8		0.	3640.	187.	7.07	0.	5300.	176.	3.78
33	58.	2.75	4.6	144.7	0.61	3490.	3880.	20.	2.80	5680.	5620.	130.	3.11
121478	59.	3.48	4.7	144.6		3870.	3950.	125.	275.40	5550.	5320.	186.	204.61
0	61.	3.08	4.7	145.5		0.	3730.	175.	6.97	0.	5530.	181.	3.85
34	64.	3.25	4.6	144.6	0.54	3610.	3590.	50.	2.76	5700.	5580.	240.	3.13
121878	59.	3.48	4.7	144.6		3560.	3940.	123.	278.24	5460.	5330.	188.	206.41
0	61.	3.08	4.5	145.2		0.	3710.	161.	7.06	0.	5540.	189.	3.88
35	65.	3.25	4.7	144.5	0.57	3450.	3400.	110.	2.76	5070.	5090.	30.	3.06
121978	59.	3.47	4.7	144.6		3340.	3920.	122.	288.84	5100.	5320.	183.	207.33
0	63.	3.68	4.6	144.8		0.	3620.	134.	7.36	0.	5430.	174.	3.90
36	64.	3.50	5.2	0.0	0.57	3570.	3550.	50.	2.72	5350.	5330.	50.	3.00
121978	60.	3.47	4.7	144.6		3520.	3910.	120.	291.52	5300.	5320.	180.	204.44
0	65.	3.33	4.8	144.8		0.	3510.	131.	7.45	0.	5330.	186.	3.84
37	69.	3.25	5.1	0.0	0.57	3370.	3430.	120.	2.73	5090.	5150.	110.	2.97
121978	60.	3.47	4.7	144.6		3490.	3900.	120.	298.04	5200.	5310.	178.	203.61
0	66.	3.33	5.0	144.8		0.	3460.	104.	7.64	0.	5190.	170.	3.83
38	66.	3.50	5.4	0.0	0.57	3270.	3350.	160.	2.77	5070.	5090.	30.	2.91
121978	60.	3.47	4.7	144.6		3430.	3890.	121.	306.99	5100.	5310.	174.	204.22
0	66.	3.42	5.2	0.0		0.	3440.	118.	7.98	0.	5190.	142.	3.85
39	62.	3.00	4.3	145.0	0.56	4030.	4020.	30.	2.71	5760.	5890.	260.	2.93
122078	60.	3.46	4.7	144.7		4000.	3690.	119.	303.72	6020.	5320.	176.	221.60
0	66.	3.25	4.9	145.0		0.	3600.	108.	7.81	0.	5370.	164.	4.16
40	62.	3.25	5.2	143.5	0.57	3820.	3800.	40.	2.67	5540.	5330.	420.	3.04
2078	60.	3.45	4.7	144.6		3780.	3896.	117.	300.22	5120.	5320.	182.	216.81
0	63.	3.25	5.0	144.3		0.	3720.	85.	7.72	0.	5440.	174.	4.11
41	61.	3.75	5.9	142.7	0.62	3530.	3520.	30.	2.63	4990.	4980.	30.	2.98
2178	60.	3.46	4.8	144.5		3500.	3880.	115.	302.03	4960.	5310.	179.	222.69
0	62.	3.33	5.1	143.6		0.	3780.	79.	7.79	0.	5400.	146.	4.19
42	64.	3.25	4.1	0.0	0.62	3760.	3690.	140.	2.64	5420.	5510.	170.	2.97
2978	60.	3.45	4.8	144.5		3620.	3870.	115.	299.78	5590.	5320.	178.	221.94
0	62.	3.42	5.1	143.1		0.	3670.	75.	7.74	0.	5270.	147.	4.17
43	63.	3.75	4.4	0.0	0.62	3600.	3610.	10.	2.59	5840.	5720.	250.	2.99
122378	60.	3.46	4.7	144.5		3610.	3870.	113.	299.02	5590.	5330.	180.	227.32
0	64.	3.5[illegible]	4.8	142.7		0.	3600.	14.	7.73	0.	5400.	159.	4.27

FOR INFORMATION ONLY

44	6[illegible]	4.00	4.7	0.0	0.62	3650.	36[illegible]	50.	2.56	5520.	5520.	16.	.93
122978	60.	3.47	4.7	144.5		3700.	3660.	112.	296.98	5510.	5330.	176.	226.44
0	63.	3.67	4.4	0.0		0.	3660.	74.	7.69	0.	5580.	136.	4.25
45	67.	4.03	5.2	0.0	0.62	3480.	3440.	90.	2.56	5370.	5260.	220.	2.95
122978	61.	3.48	4.9	144.5		3390.	3850.	111.	300.35	5150.	5330.	177.	224.16
0	64.	3.92	4.8	0.0		0.	3570.	72.	7.80	0.	5500.	155.	4.21
46	70.	3.25	4.6	0.0	0.62	3680.	3690.	10.	2.51	5730.	5600.	270.	2.98
122978	51.	3.46	4.8	144.5		3630.	3650.	109.	298.08	5460.	5340.	179.	225.04
0	66.	3.75	4.6	0.0		0.	3600.	68.	7.74	0.	5460.	177.	4.22

DESIGN STRENGTH= 4000. REQUIRED OVERDESIGN STRENGTH= 4400.

ENCLOSURE 1
Page 19 of 19

FOR INFORMATION ONLY

ROBERT W. HUNT COMPANY
810 SOUTH CLINTON STREET · CHICAGO, ILLINOIS 60607

ENCLOSURE 2
Page 1 of 7
Report
Page

File 3777-6
Order 13-C-9927

Date: 7-29-77

Brown & Root, Inc.
P.O. Box 1001
Glen Rose, Texas 76043

Subject: Texas Utilities Services, Inc.
Comanche Peak Steam Electric Station
1980-1982 Units 1 & 2
Job No. 35-1195
B & R Subcontract No. 35-1195-0225
Hunt Project No. 513

Re: B & R/TUSI retention time for the attached documents Lifetime years after plant begins operation.

Gentlemen:

Please acknowledge receipt of the following item by signing and returning a copy of this letter.

HCP# 28351 To 28353 Compression Test on Concrete Cylinders
Concrete Mix# 126
Concrete Pour# 002-5B10-001

BROWN & ROOT, INC
RECEIVED
JUL 29 1977
FILES NOTED
QUALITY ASSURANCE

ROBERT W. HUNT COMPANY

Jerry Lovatin
Level II

Rec. by Brown & Root, Inc.
by
Title Insp.
Date 7-29-77

QA RECORD ROUTING

RTN	QA REVIEW
L	
FILE NO.	
CCT-21	
SUBFILE NO.	
002-5B10-001	

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Form HCP-9

FOR INFORMATION ONLY

ENCLOSURE 2
Page 2 of 7
REMARK MCP 28351
PAGE

FILE NO. 3777-6
ORDER 13-C-9927

Date: 7-29-77

Brown & Root, Inc.
P. O. Box 1001
Glen Rose, Texas 76043

RE: Texas Utilities Services, Inc.
Comanche Peak Steam Electric Station
1980-1982 Units 1 & 2
Job No. 35-1195
B & R Subcontract No. 35-1195-0225
Hunt Project No. 513

Gentlemen:

We report results of Concrete Compression Tests, ASTM C-39 (Hunt E1001)

Pour No. 002-5810-001 Slump Inches 3¼"

Ticket No. 32887 Temperature °F 62°

Date Made 7-22-77 Air Content % 4.3%

Date Tested 7-29-77 Concrete Mix 126

Age Days 7 Unit Weight 145.28

	STANDARD CURED		FIELD CURED (JOB)	
Cylinder No.	C4375	C4376	N/A	N/A
Strength lbs. PSI.	3450	3651	N/A	N/A
Max. Load - lbs.	97500	103500	N/A	N/A
Type of Fracture	Reg	Reg	N/A	N/A
Date Received	7-23-77	7-23-77	N/A	N/A
Area	28.26	28.35	N/A	N/A

Tested by: SD

Checked by: [redacted]

Respectfully submitted,

ROBERT W. HUNT COMPANY

Jerry Saunders
LEVEL II

FOR INFORMATION ONLY

Form MCP-E1001 (Rev. 11/76)

ROBERT W. HUNT COMPANY.

ENCLOSURE 2
Page 3 of 7

FILE NO. 3777-6
ORDER 13-C-9927 Date: 7-24-77 PAGE 28352

Brown & Root, Inc.
P. O. Box 1001
Glen Rose, Texas 76043

RE: Texas Utilities Services, Inc.
Comanche Peak Steam Electric Station
1980-1982 Units 1 & 2
Job No. 35-1195
B & R Subcontract No. 35-1195-0225
Hunt Project No. 513

Gentlemen:

We report results of Concrete Compression Tests, ASTM C-39 (Hunt E1001)

Pour No. 002-5810-001 Slump Inches 3½"

Ticket No. 32919 Temperature °F 64°

Date Made 7-22-77 Air Content % 4.8%

Date Tested 7-29-77 Concrete Mix 126

Age Days 7 Unit Weight 145.58

	STANDARD CURED		FIELD CURED (JOB)	
Cylinder No.	C4344	C4345	N/A	N/A
Strength lbs. PSI.	3633	3767	N/A	N/A
Max. Load - lbs.	103000	106500	N/A	N/A
Type of Fracture	Reg	Reg	N/A	N/A
Date Received	7-23-77	7-23-77	N/A	N/A
Area	28.35	28.27	N/A	N/A

Tested by: [illegible]

Checked by: [illegible]

Respectfully submitted,

ROBERT W. HUNT COMPANY

[signature]
Lewis II

FOR INFORMATION ONLY

Form HCP-E1001 (Rev. 11/76)

ENCLOSURE 2
Page 4 of 7

FILE NO. 3777-6
ORDER 13-C-9927

Date: 7-29-77

Brown & Root, Inc.
P. O. Box 1001
Glen Rose, Texas 76043

RE: Texas Utilities Services, Inc.
Comanche Peak Steam Electric Station
1980-1982 Units 1 & 2
Job No. 35-1195
B & R Subcontract No. 35-1195-0225
Hunt Project No. 513

Gentlemen:

We report results of Concrete Compression Tests, ASTM C-39 (Hunt E1001)

Pour No. 002-5B10-001 Slump Inches 4½"

Ticket No. 32959 Temperature °F 70°

Date Made 7-22-77 Air Content % 4.4%

Date Tested 7-29-77 Concrete Mix 126

Age Days 7 Unit Weight 144.0B

	STANDARD CURED		FIELD CURED (JOB)	
Cylinder No.	C4399	C4400	N/A	N/A
Strength lbs. PSI.	3323	3296	N/A	N/A
Max. Load - lbs.	94000	94000	N/A	N/A
Type of Fracture	R-9	R-9	N/A	N/A
Date Received	7-23-77	7-23-77	N/A	N/A
Area	28.29	28.52	N/A	N/A

Tested by: SD

Checked by: [illegible]

Respectfully submitted,

ROBERT W. HUNT COMPANY

[signature]
Level II

Form HCP-E1001 (Rev. 11/76)

FOR INFORMATION ONLY

ROBERT W. HUNT COMPANY.

ROBERT W. HUNT COMPANY
810 SOUTH CLINTON STREET · CHICAGO, ILLINOIS 60607

ENCLOSURE 2
Page 5 of 7
Report
Page

File 3777-6
Order 13-C-9927

Date: 8-19-77

Brown & Root, Inc.
P.O. Box 1001
Glen Rose, Texas 76043

Subject: Texas Utilities Services, Inc.
Comanche Peak Steam Electric Station
1980-1982 Units 1 & 2
Job No. 35-1195
B & R Subcontract No. 35-1195-0225
Hunt Project No. 513

Re: B & R/TUSI retention time for the attached documents LIFetime years after plant begins operation.

Gentlemen:

Please acknowledge receipt of the following item by signing and returning a copy of this letter.

HCP# 28939 To 28940 COMPRESSION TEST ON CONCRETE CYLINDERS
CONCRETE MIX# 126
CONCRETE POUR# 002-5810-012

BROWN & ROOT, INC
RECEIVED
AUG 22 1977
FILES NOTED
QUALITY ASSURANCE

Rec. by Brown & Root, Inc.
by [signature]

Title Q.C. CIVIL

Date 8-22-77

ROBERT W. HUNT COMPANY
[signature]
LEVEL II

QA RECORD ROUTING

RTN.	QA REVIEW
L	[illegible]
FILE NO.	
CCT 2	
SUBFILE NO.	
002-5810-012	

1. ______
2. ______
3. ______
4. ______
5. ______

Form HCP-9

FOR INFORMATION ONLY

ENCLOSURE 2
Page 6 of 7
REPORT HCP 28939
PAGE

JOB NO. 3777-6
ORDER 13-C-9027 Date: 8-19-77

Brown & Root, Inc.
P. O. Box 1001
Glen Rose, Texas 76043

RE: Texas Utilities Services, Inc.
Comanche Peak Steam Electric Station
1980-1982 Units 1 & 2
Job No. 35-1195
B & R Subcontract No. 35-1195-0225
Hunt Project No. 513

Gentlemen:

We report results of Concrete Compression Tests, ASTM C-39 (Hunt E1001)

Pour No. 002-5810-012 Slump Inches 2¾"

Ticket No. 32873 Temperature °F 65°

Date Made 7-22-77 Air Content % 4.3%

Date Tested 8-19-77 Concrete Mix 126

Age Days 28 Unit Weight 145.70

	STANDARD CURED		FIELD CURED (JOB)	
Cylinder No.	C-4329	C-4330	C-4333	C-4334
Strength lbs. PSI.	5200	5309	5437	5483
Max. Load - lbs.	147000	151000	153500	154500
Type of Fracture	R-g	R-g	R-g	R-g
Date Received	7-23-77	7-23-77	8-11-77	8-11-77
Area	28.27	28.44	28.23	28.18

Tested by: L.T.

Checked by: SD

Respectfully submitted,

ROBERT W. HUNT COMPANY

Jerry Lowell II

Form HCP-E1001 (Rev. 11/76)

FOR INFORMATION ONLY

ENCLOSURE 2
Page 7 of 7
REPORT HCP 28940
PAGE

JOB NO. 3777-6
ORDER 13-C-9927 Date: 8-19-77

Brown & Root, Inc.
P. O. Box 1001
Glen Rose, Texas 76043

RE: Texas Utilities Services, Inc.
Comanche Peak Steam Electric Station
1980-1982 Units 1 & 2
Job No. 35-1195
B & R Subcontract No. 35-1195-0225
Hunt Project No. 513

Gentlemen:

We report results of Concrete Compression Tests, ASTM C-39 (Hunt E1001)

Pour No. 002-5810-012 Slump Inches 3¾"

Ticket No. 32886 Temperature °F 66°

Date Made 7-22-77 Air Content % 4.5%

Date Tested 8-19-77 Concrete Mix 126

Age Days 28 Unit Weight 145.88

	STANDARD CURED		FIELD CURED (JOB)	
Cylinder No.	C-4339	C-4340	C-4343	n/a
Strength lbs. PSI.	5370	5389	5143	n/a
Max. Load - lbs.	153000	152500	146000	n/a
Type of Fracture	Reg	Reg	Reg	n/a
Date Received	7-23-77	7-23-77	8-11-77	n/a
Area	28.49	28.30	28.39	n/a

Tested by: LT

Checked by: Ed

Respectfully submitted,

ROBERT W. HUNT COMPANY

Jerry Lewis
Lewis II

Form HCP-E1001 (Rev. 11/76)

FOR INFORMATION ONLY

ROBERT W. HUNT COMPANY.

COMANCHE PEAK STEAM ELECTRIC STATION

REPORT ON COMPRESSIVE TESTS OF CONCRETE

PROCEDURE QI-QP-11.1-41

ENCLOSURE 5 Page 1 of 2

DATE 2-5-80

JOB NO 205.7852-004

CYL SET NO 1577

1 of 1

C820

MIX	COMPLETE DATA AS APPLICABLE FROM BATCH TICKET	(a) MOIST AGGR	F.A. 17,400 LBS	H_2O F.A. 749 LBS	C.A. 11,340 LBS	H_2O C.A. 232 LBS	TOTAL WATER/BATCH 1920 LBS	TYPE OF CURING M+W
		CEMENT / CU. YD. 6509 LBS	H_2O ADDED 13 GAL.	H_2O/CEMENT RATIO .434	AIR CU. YD. 6 1/2 OZ.	TOTAL AIR 6 1/2 OZ.	SPECIFIED DESIGN STRENGTH 4000 PSI	28 DAYS
MATERIALS	BRAND OF CEMENT GH	TYPE OF CEMENT II	BRAND OF AIR ENTRAINING ADMIXTURE MBVR		BRAND OF WATER REDUCING ADMIXTURE NA		MAX SIZE C.A. 3/4	
	SOURCE C.A. Tex. Clebourne	SP. GR. C.A. 2.60	SOURCE F.A. Tex-Clebourne	SP. GR. F.A. 2.62	FINENESS MODULES F.A. 2.74			
SAMPLING	TYPE OF MIXING PLANT 2	BATCH LOAD 10 C.Y.	TICKET NO. 57989	SAMPLE TAKEN AT: ☐ CENTRAL MIXER ☐ FORMS ☑ POINT OF DISCHARGE				
	METHOD OF PLACING ☑ PUMP ☐ BUCKET ☐ BUGGIES ☐ BELT ☐ CHUTE	DATE SAMPLED 2-5-80	HOUR 0950 AM PM	WEATHER FAIR	AIR TEMP. 48 °F	CONC. TEMP. 63 °F	SLUMP 3 3/4 IN.	
	TIME OF MIXING AT CENTRAL PLANT 1 1/2 MIN.	UNIT WT. CU. FT. 140.28 LBS.	MIX I.D. 128	SPECIMEN TAKEN BY Jerry Reynolds	SPECIMEN CAST BY HW BD ASDO	AIR 6.0 %		

TESTS

	CYLINDER I.D.	AGE	MEASURED DIA IN.	AVG. DIA IN.	DATE CAPPED	CAPPED BY	TIME TESTED	DATE TESTED	MAX. LOAD LB.	COMPRESSIVE STRENGTH	CAP CHECKED BY	CYLINDER TESTED BY	TYPE OF BREAK
LAB CURED	1577A	7	6.016 / 6.014	6.015	2-7-80	T	0735	2-12-80	91500	3220	Q	Q	Cone
	1577B	7	6.006 / 6.012	6.011	2-7-80	T	0658	2-12-80	92000	3240	BD	BD	Cone
	1577C	28	6.021 / 6.016	6.014	2-25-80	Q	0708	3-4-80	162500	5720	Q	Q	Cone
	1577D	28	6.012 / 6.011	6.012	2-25-80	Q	0730	3-4-80	160500	5650	Q	Q	Cone
FIELD CURED	1577E	28	6.034 / 6.035	6.035	2-25-80	Q	0820	3-4-80	147500	5160	Q	Q	Cone
	1577F	28	6.014 / 6.014	6.014	2-25-80	Q	0635	3-4-80	141000	4960	Q	Q	Cone
	NA												
	NA												

DATE & TIME STRIPPED 2-6-80 0630 (TW) PB

REMARKS

PERM. PLT. RECORD

CURING CONTROL TEST RESULTS FOR 28 DAY BREAK

RTN L | FILE LOC. 12.94.1

SUSPILE LOC. 205-7852-004

BROWN & R

LABARATORY CURED CYLINDER(S)

STRENGTH (P.S.I.) 5720 (c)

5650 (d)

1. (c)+(d) ÷ (a)+(b) = @3-4-80 .89 *

FIELD CURED CYLINDERS

STRENGTH (P.S.I.) 5160 (a)

4960 (b)

2. (a)+(b) ÷ 2 = 5060 *

MAR 10 19[illegible]

FILE

QUALITY AS

*NOTE: (1) ABOVE MUST BE EQUAL TO OR GREATER THAN 0.85; OR (2) ABOVE NEED NOT EXCEED THE DESIGN STRENGTH BY MORE THAN 500 PSI EVEN THE 0.85 CRITERION IS NOT MET

FOR INFORMATION ONLY

MICROMETER OR CALIPERS NO. TMC 1372

COMPRESSION MACHINE NO. TMT 3031

CAPPING MOLD NO L101 L102

7 DAY PREPARED BY _____ CHECKED BY BD

28 DAY PREPARED BY _____ CHECKED BY BD

DESIGN ENGINEERS COMMENTS (IF APPLICABLE)

TUGCO LAB SUPERVISOR

FORM 11.1-41

COMANCHE PEAK STEAM ELECTRIC STATION

REPORT ON COMPRESSIVE TESTS OF CONCRETE
PROCEDURE QI-QP-11.1-41

ENCLOSURE 3
Page 2 of 2

DATE 2-5-80
POUR NO 205-2252-004
CYL. SET NO 1578
C620

MIX

COMPLETE DATA AS APPLICABLE FROM BATCH TICKET	(a) MOIST AGGR.	F.A.	H_2O F.A.	C.A.	H_2O C.A.	TOTAL WATER/BATCH	TYPE OF CURING
		17,310 LBS	666 LBS	11,310 LBS	222 LBS	1977 LBS	M×W

CEMENT / CU. YD.	H_2O ADDED	H_2O/CEMENT RATIO	AIR CU. YD.	TOTAL AIR	SPECIFIED DESIGN STRENGTH
6888 LBS.	10 GAL.	.428	9.4 OZ	9.4 OZ	4000 PSI 28 DAYS

MATERIALS

BRAND OF CEMENT	TYPE OF CEMENT	BRAND OF AIR ENTRAINING ADMIXTURE	BRAND OF WATER REDUCING ADMIXTURE	MAX SIZE C.A.
GH	II	MBVR	NA	3/8

SOURCE C.A.	SP. GR. C.A.	SOURCE F.A.	SP. GR. F.A.	FINENESS MODULES F.A.
TXI-Cleburne	2.60	TXI-Cleburne	2.62	2.74

SAMPLING

TYPE OF MIXING	BATCH LOAD	TICKET NO.	SAMPLE TAKEN AT:
PLANT 2	110 C.Y.	58001	☐ CENTRAL MIXER ☐ FORMS ☑ POINT OF DISCHARGE

METHOD OF PLACING	DATE SAMPLED	HOUR	WEATHER	AIR TEMP.	CONC. TEMP.	SLUMP
☑ PUMP ☐ BUCKET ☐ BUGGIES ☐ BELT ☐ CHUTE	2-5-80	1205 AM PM	FAIR	54 °F	64 °F	4 1/2 IN.

TIME OF MIXING AT CENTRAL PLANT	UNIT WT. CU. FT.	MIX I.D.	SPECIMEN TAKEN BY	SPECIMEN CAST BY	AIR
1 1/2 MIN.	NA LBS	128	Jerry Reynolds	BD, RB, HW, AS	5.7 %

TESTS

	CYLINDER I.D.	AGE	MEASURED DIA. IN	AVG. DIA IN.	DATE CAPPED	CAPPED BY	TIME TESTED	DATE TESTED	MAX. LOAD LB.	COMPRESSIVE STRENGTH	CAP CHECKED BY	CYLINDER TESTED BY	TYPE OF BREAK
LAB CURED	1578A	7	6.022 / 6.021	6.022	2-7-80	F	0700	2-12-80	87000	3050	BD	BD	Reg
	1578B	7	6.019 / 6.019	6.019	2-7-80	F	0702	2-12-80	87500	3080	BD	BD	Reg
	1578C	28	6.029 / 6.020	6.020	2-25-80	Q	0645	3-4-80	157500	5530	Q	Q	Reg
	1578D	28	6.017 / 6.019	6.018	2-25-80	Q	0649	3-4-80	158000	5560	Q	Q	Reg
FIELD CURED	1578E	28	6.019 / 6.023	6.021	2-25-80	Q	0813	3-4-80	138000	4850	Q	Q	Reg
	1578F	28	6.005 / 6.022	6.015	2-25-80	Q	0750	3-4-80	136000	4790	Q	Q	Reg
	NA												
	NA												

DATE & TIME STRIPPED 2-6-80 0635 AM PM

REMARKS

CURING CONTROL TEST RESULTS
FOR 28 DAY BREAK

LABARATORY CURED CYLINDER(S)

STRENGTH (P.S.I.) 5530 (c)
5560 (d)

1. (c)+(d) ÷ (c)+(d) = .87 *

FIELD CURED CYLINDERS

STRENGTH (P.S.I.) 4850 (a)
4790 (b)

2. (a)+(b) ÷ 2 = 4830 *

FOR INFORMATION ONLY

*NOTE: (1) ABOVE MUST BE EQUAL TO OR GREATER THAN 0.85 (2) [illegible] NOT EXCEED THE DESIGN STRENGTH BY MORE THAN [illegible] PSI EVEN THOUGH THE 0.85 CRITERION IS NOT MET.

MICROMETER OR CALIPERS NO. MTC-1392
COMPRESSION MACHINE NO. MTC-302
CAPPING MOLD NO. 4101, 4103

7 DAY PREPARED BY BD CHECKED BY Q
28 DAY PREPARED BY [illegible] CHECKED BY BD

DESIGN ENGINEERS COMMENTS (IF APPLICABLE)

TUGCO LAB SUPERVISOR

FORM 11.1-41

COMANCHE PEAK STEAM ELECTRIC STATION 002-9852-093 C 002-9852-031 B 104-9778-051,052

REPORT ON COMPRESSIVE TESTS OF CONCRETE

PROCEDURE QI-QP-11.1-41 R1

DATE 5-18-84

POUR NO SEE NOTE

CYL. SET NO 2499

MIX

COMPLETE DATA AS APPLICABLE FROM BATCH TICKET	(a) MOIST AGGR.	F.A	H_2O F.A	C.A	H_2O C.A	TOTAL WATER/BATCH	TYPE OF CURING
		6150 LBS	152 LBS	8460 LBS	0 LBS	1155 LBS	M+N

CEMENT / CU YD	H_2O ADDED	H_2O/CEMENT RATIO	AIR CU. YD	TOTAL AIR	SPECIFIED DESIGN STRENGTH
3157 LBS	0 GAL	.366	9.4 OZ	4.7 OZ	4000 PSI 28 DAYS

MATERIALS

BRAND OF CEMENT	TYPE OF CEMENT	BRAND OF AIR ENTRAINING ADMIXTURE	BRAND OF WATER REDUCING ADMIXTURE	MAX SIZE C.A.
G-H	II	MBVR	NA	3/4

SOURCE C.A.	SP. GR. C.A.	SOURCE F.A.	SP. GR. F.A.	FINENESS MODULES F.A.
TXI-TIN TOP	2.65	TXI-TIN TOP	2.63	2.52

SAMPLING

TYPE OF MIXING	BATCH LOAD	TICKET NO.	SAMPLE TAKEN AT:
PLANT 1	5 C.Y.	63149	☐ CENTRAL MIXER ☐ FORMS ☑ POINT OF DISCHARGE

METHOD OF PLACING	DATE SAMPLED	HOUR	WEATHER	AIR TEMP.	CONC. TEMP.	SLUMP
☐ PUMP ☐ BUCKET ☐ BUGGIES ☐ BELT ☑ CHUTE	5-18-84	1343 AM/PM	RAIN	74 °F	64 °F	3½ IN.

TIME OF MIXING AT CENTRAL PLANT	UNIT WT. CU. FT.	MIX I.D.	SPECIMEN TAKEN BY	SPECIMEN CAST BY	AIR
70 REV MIN.	144.46 LBS	132	BIRCHFIELD	DO-RG-JAS	5.1 %

TESTS

	CYLINDER I.D.	AGE	MEASURED DIA IN	AVG. DIA IN	DATE CAPPED	CAPPED BY	TIME TESTED	DATE TESTED	MAX. LOAD LB.	COMPRESSIVE STRENGTH	CAP CHECKED BY	CYLINDER TESTED BY	TYPE OF BREAK
LAB CURED	2499A	7	5.998 / 6.010	6.004	5-24-84	(1)	0700	5-25-84	115000	4060	Chr	Chr	Reg
	2499B	7	6.005 / 6.007	6.006	5-24-84	(2)	0703	5-25-84	112500	3970	Chr	Chr	Reg
	2499C	28	6.004 / 6.012	6.008	6-15-84	(2)	10:43	6-15-84	148500	5240	Chr	Chr	Reg
	2499D	28	6.029 / 6.009	6.016	6-15-84	(2)	10:40	6-15-84	150000	5280	Chr	Chr	Reg
FIELD CURED	2499E	28	6.023 / 5.985	6.004	6-15-84	(2)	10:53	6-15-84	135000	4770	Chr	Chr	Reg
	2499F	28	6.010 / 6.008	6.009	6-15-84	(2)	10:59	6-15-84	135000	4760	Chr	Chr	Reg
	NA												
	NA												

DATE & TIME STRIPPED 5-19-84 0700 AM/PM

REMARKS

ENCLOSURE 4
Page 1 of 2

CURING CONTROL TEST RESULTS
FOR 28 DAY BREAK

LABARATORY CURED CYLINDER(S)

STRENGTH (P.S.I.) 5240 (c)

5280 (d)

1 (a)+(b) ÷ (c)+(d) = 0.91 *

FIELD CURED CYLINDERS

STRENGTH (P.S.I.) 4770 (a)

4760 (b)

2 (a)+(b) ÷ 2 = 4765 *

*NOTE: (1)-ABOVE MUST BE EQUAL TO OR GREATER THAN 0.85; OR (2) ABOVE NEED NOT EXCEED THE DESIGN STRENGTH BY MORE THAN 500 PSI EVEN THOUGH THE 0.85 CRITERION IS NOT MET.

MICROMETER OR CALIPERS NO. TMTE-1892

COMPRESSION MACHINE NO. TMTE-3031

CAPPING MOLD NO. 4101 4102

7 DAY PREPARED BY Chr CHECKED BY JAS

28 DAY PREPARED BY Chr CHECKED BY JAS

DESIGN ENGINEERS COMMENTS (IF APPLICABLE)

FOR INFORMATION ONLY

J. A. Scoggin
TUGCO LAB SUPERVISOR

FORM 11.1-41

COMANCHE PEAK STEAM ELECTRIC STATION

002-9852-043C
002-9852-031B
104-9778-051,052

DATE 5-18-84
POUR NO SEE NOTE
CYL. SET NO 2499

REPORT ON COMPRESSIVE TESTS OF CONCRETE
PROCEDURE QI-QP-11.1-41 R1

MIX

COMPLETE DATA AS APPLICABLE FROM BATCH TICKET	(a) MOIST AGGR.	F.A	H_2O F.A	C.A	H_2O C.A	TOTAL WATER/BATCH	TYPE OF CURING
		6150 LBS	150 LBS	8460 LBS	0 LBS	1155 LBS	M+W

CEMENT / CU YD	H_2O ADDED	H_2O/CEMENT RATIO	AIR CU YD	TOTAL AIR	SPECIFIED DESIGN STRENGTH
3157 LBS	0 GAL	.366	9.4 OZ	47 OZ	4000 PSI 28 DAYS

MATERIALS

BRAND OF CEMENT	TYPE OF CEMENT	BRAND OF AIR ENTRAINING ADMIXTURE	BRAND OF WATER REDUCING ADMIXTURE	MAX SIZE C.A.
G-H	II	MBVR	NA	3/4

SOURCE C.A.	SP. GR. C.A.	SOURCE F.A.	SP. GR. F.A.	FINENESS MODULES F.A.
TXI - TIN TOP	2.65	TXI - TIN TOP	2.63	2.52

SAMPLING

TYPE OF MIXING	BATCH LOAD	TICKET NO.	SAMPLE TAKEN AT:
PLANT 1	5 C.Y.	63149	☐ CENTRAL MIXER ☐ FORMS ☑ POINT OF DISCHARGE

METHOD OF PLACING	DATE SAMPLED	HOUR	WEATHER	AIR TEMP.	CONC. TEMP.	SLUMP
☐ PUMP ☐ BUCKET ☐ BUGGIES ☐ BELT ☑ CHUTE	5-18-84	1345	RAIN	74 °F	64 °F	3 1/2 IN.

TIME OF MIXING AT CENTRAL PLANT	UNIT WT. CU. FT.	MIX I.D.	SPECIMEN TAKEN BY	SPECIMEN CAST BY	AIR
70 REV MIN.	144.46 LBS	132	BIRCHFIELD	DO-RG-IAS	5.1 %

TESTS

	CYLINDER I.D.	AGE	MEASURED DIA. IN	AVG. DIA IN	DATE CAPPED	CAPPED BY	TIME TESTED	DATE TESTED	MAX. LOAD LB.	COMPRESSIVE STRENGTH	CAP CHECKED BY	CYLINDER TESTED BY	TYPE OF BREAK
LAB CURED	NA												C
	NA												C
	NA												C
	NA												C
FIELD CURED	2499G	3	5.994 / 6.005	6.001	5-21-84	(a)	1220	5-21-84	84500	2990	(a)	(a)	Reg
	2499H	5	6.006 / 6.002	6.004	5-23-84	(a)	10:30 AM	5-23-84	97500	3440	Chw	Chw	Reg
	2499I	10	6.004 / 6.006	6.005	5-28-84	(a)	1050 AM	5-28-84	125000	4410	(a)	(a)	Reg
	NA		~~5.994~~	@5-28-84									
			~~6.006~~	@5-28-84									

DATE & TIME STRIPPED REMARKS

5-18-84 0700 AM EXTRA CYLINDERS PER REQUEST CONCRETE DEPT.

ENCLOSURE 4
Page 2 of 2

CURING CONTROL TEST RESULTS
FOR 28 DAY BREAK

LABARATORY CURED CYLINDER(S)

STRENGTH (P.S.I.) N/A (c)

(d)

1. (a)+(b) ÷ (c)+(d) = ✓ *

FIELD CURED CYLINDERS

STRENGTH (P.S.I.) N/A (a)

(b)

2. (a)+(b) ÷ 2 = ✓ *

*NOTE: (1) ABOVE MUST BE EQUAL TO OR GREATER THAN 0.85; OR (2) ABOVE NEED NOT EXCEED THE DESIGN STRENGTH BY MORE THAN 500 PSI EVEN THOUGH THE 0.85 CRITERION IS NOT MET

MICROMETER OR CALIPERS NO. MBTE 1392
COMPRESSION MACHINE NO. MBTE 5031
CAPPING MOLD NO 4101 & 4102

3 DAY PREPARED BY (a) CHECKED BY IAS
5 DAY PREPARED BY Chw CHECKED BY IAS
10 Day Prepared by (a) checked By IAS

DESIGN ENGINEERS COMMENTS (IF APPLICABLE)

FOR INFORMATION ONLY

TUGCO LAB SUPERVISOR

FORM 11.1-41

NEW YORK ST. LOUIS PITTSBURGH

ENCLOSURE 5
Page 1 of 3

ROBERT W. HUNT COMPANY, ENGINEERS
CHICAGO 7, ILLINOIS

FILE NO. 3777-6
CASE 13-C-9927

Date: 7-9-76

REPORT
PAGE

Brown & Root, Inc.
P.O. Box 1001
Glen Rose, Texas 76043

Subject: Texas Utilities Services, Inc.
Comanche Peak Steam Electric Station
1980-1982 Units 1 & 2
Job No. 35-1195
B & R Subcontract No. 35-1195-0225
Hunt Project No. 513

Re: B & R/TUSI retention time for the attached documents 1~~4~~ 1 years after plant begins operation.
AS-7-12-76

Gentlemen:

Please acknowledge receipt of the following item by signing and returning a copy of this letter.

HCP 13426 - Uniformity Test - Truck # Ret-01.

BROWN & ROOT, INC
RECEIVED
JUL 12 1976
FILES NOTED
QUALITY ASSURANCE

ROBERT W. HUNT COMPANY

Henry Hewitt
Level II

QA RECORD ROUTING

RTN.	QA REVIEW
LVR	LM
FILE NO.	
CST	
SUBFILE NO.	
26	

1. SM
2. ____
3. ____
4. ____
5. ____

Rec. by Brown & Root, Inc.
by Bill Walker
Title Level II
Date 7-12-76

Form HCP-9

FOR INFORMATION ONLY

ENCLOSURE 5
Page 2 of 3

ROBERT W. HUNT COMPANY, ENGINEERS
CHICAGO 7, ILLINOIS

154

FILE NO. 3777-6
ORDER 13-C-9927

REPORT HCP
PAGE 13426
1 of 2

Brown & Root, Inc.
Post Office Box 1001
Glen Rose, Texas 76043

Attention: Mr. P. L. Bussolini
Project Quality Assurance Manager

Subject:

Reference: Texas Utilities Services, Inc.
Comanche Peak Steam Electric Station
1980-1982 Units 1 & 2
Job Number 1195
B & R Subcontract Number 35-1195-0225
Hunt Project 513

Gentlemen:

We report results of tests in accordance with requirements of ASTM: C94-73a Appendix XI Concrete Uniformity Requirements made on the following equipment -

Ready Mix Truck #RET 01

Weight per cubic foot (air-free basis)

Sample #1 = 153.32 lb/cu. ft.
Sample #2 = 153.91 lb/cu. ft.
Difference in results = 0.59 lb/cu. ft.
Maximum Permissible difference in results = 1.00 lb/cu. ft.

Air Content, Volume % of Concrete

Sample #1 = 4.2%
Sample #2 = 4.5%
Difference in results = 0.3%
Maximum Permissible difference in results = 1.0%

FOR INFORMATION ONLY

FILE NO. 3777-6
ORDER [redacted]

ENCLOSURE 5
Page 3 of 3

REPORT HCP 13426
PAGE 2 of 2

Sample #1 = 4.0 inches
Sample #2 = 5½ inches
Difference in results = 1½ inches
Maximum permissible difference in results = 1.5 inches

Coarse Aggregate content, portion by weight of each sample retained on No. 4 sieve, percent:

Sample #1 = 63.67%
Sample #2 = 65.70%
Difference in results = 2.03%
Maximum permissible difference in results = 6.00%

Average compressive strength at 7 days for each sample, based on average strength of all comparative test specimens, percent.

Sample #1 = 102.49%
Sample #2 = 97.50%
Difference in results = 4.99%
Maximum permissible difference in results = 7.5%

[redacted]

The above results comply with project requirements.

Respectfully submitted,

ROBERT W. HUNT COMPANY

Byron K Kinkade

Byron K. Kinkade
Level III

BKK/pw

[redacted]