

CONSUMERS PUBLIC POWER DISTRICT
Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

9-18-70
 7-18-70

Lab No: 1940

Report Date: 6-27-70

Class: 4SA Contract No.: 68-55 Ticket No.: 10462

Date Sampled: 6-20-70 Sampled By: ED DH Time: 1:35 PM

Source: Reactor Bldg CONTAINMENT WALL Bent 6-8
875-884

MIX DATA

CEMENT: 428 LBS
 SAND: 1390 LBS MO: 2.4 %*
 3/4" ROCK: 1964 LBS MO: 1.2 %*
 1 1/2" ROCK: _____ LBS MO: _____ %*
 ADMIXTURE: 0.50 OZ DARBYAIR
 ADMIXTURE: 55 OZ DARBYARD
 WATER: 26.6 GALS/YD

BATCH WATER: 145
 ADD JOB WATER: 13
 AGG. WATER: 55
 TOTAL WATER: 213

BATCH: 8 YDS

CONCRETE PROPERTIES

SLUMP: 2 3/4 INCH
 WET WEIGHT/CUBIC FOOT: 147.3 PCF
 AIR CONTENT: 4.9 %
 NOMINAL CEMENT FACTOR: 4.55 SKS/YD
 ACTUAL CEMENT FACTOR: 4.50 SKS/YD
 WATER/CEMENT RATIO: 5.85 GAL/YD
 REMARKS: 74°

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	
<u>110000</u>	<u>3920</u>	<u>149250</u>	<u>5310</u>	<u>189000</u>	<u>6730</u>	<u>3000</u>
<u>125250</u>	<u>4100</u>	<u>151000</u>	<u>5380</u>	<u>187000</u>	<u>6660</u>	
<u>113500</u>	<u>4040</u>	<u>160500</u>	<u>5720</u>	<u>187500</u>	<u>6680</u>	
<u>Ave</u>	<u>4020</u>		<u>5470</u>		<u>6690</u>	

*Aggregate weights saturated surface dry.
 Moisture excess over saturated surface dry.

Project Laboratory

By: Charles E. [Signature]
 Lab. Manager

05719 0149

CONSUMERS PUBLIC POWER DISTRICT

Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

9-21-70
7-21-70

Lab No: 1945

Report Date: 6-30-70

Class: 35A Contract No.: 68-55 Ticket No.: 10504

Date Sampled: 6-23-70 Sampled By: CK ED Time: 9:00 pm

Source: Reactor Bldg NW Slab @ 881'-9"

MIX DATA

CONCRETE PROPERTIES

CEMENT: 364 LBS
 SAND: 1429 LBS MO: 1.5 ± %*
 3/4" ROCK: 1974 LBS MO: 0.5 %*
 1 1/2" ROCK: _____ LBS MO: _____ %*
 ADMIXTURE: 1.25 OZ DARATARD
 ADMIXTURE: 35 OZ DARATARD
 WATER: 26.0 GALS/YD

SLUMP: 3 INCH
 WET WEIGHT/CUBIC FOOT: 149.1 PCF
 AIR CONTENT: 4.6 %
 NOMINAL CEMENT FACTOR: 3.87 SKS/YD
 ACTUAL CEMENT FACTOR: 3.84 SKS/YD
 WATER/CEMENT RATIO: 6.72 GAL/YD
 REMARKS: 800

BATCH: _____
6 YDS BATCH WATER: 120
 ADD JOB WATER: 14
 AGG. WATER: 22
 TOTAL WATER: 156

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)	
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)		
87000	3100	122000	4340	146000	5200		3000
80000	2850	123000	4380	152000	5410		
86000	3060	123000	4380	149000	5310		
Avg	3000		4370		5310		

*Aggregate weights saturated surface dry.
Moisture excess over saturated surface dry.

Project Laboratory

By: Claude C. Plummer
Lab. Manager

05719 0154

CONSUMERS PUBLIC POWER DISTRICT

Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

9-29-70
7-29-70

Lab No: 1963

Report Date: 7-8-70

Class: 45A Contract No.: 68-55 Ticket No.: 10717

Date Sampled: 7-1-70 Sampled By: CK NB Time: 7:20 pm

Source: CONTAINMENT WALL Bent 2-4 884-888 REACTOR BLDG.

MIX DATA

CEMENT: 428 LBS
 SAND: 1390 LBS MO: 1.0 %*
 3/4" ROCK: 1964 LBS MO: 0.1 %*
 1 1/2" ROCK: _____ LBS MO: _____ %*
 ADMIXTURE: 0.25 OZ DARBYAIR
 ADMIXTURE: 55 OZ DARBYTARD
 WATER: 25.0 GALS/YD

CONCRETE PROPERTIES

SLUMP: 3 INCH
 WET WEIGHT/CUBIC FOOT: 148.4 PCF
 AIR CONTENT: 4.9 %
 NOMINAL CEMENT FACTOR: 4.55 SKS/YD
 ACTUAL CEMENT FACTOR: 4.53 SKS/YD
 WATER/CEMENT RATIO: 5.49 GAL/YD
 REMARKS: 80°

BATCH: 8 YDS
 BATCH WATER: 185
 ADD JOB WATER: 0
 AGG. WATER: 15
 TOTAL WATER: 200

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)	
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)		
117000	4170	172000	6130	208000	7410		3000
125500	4470	178000	6340	205000	7300		
126500	4500	182000	6480	207000	7370		
Ave	4380		6320		7360		

* Aggregate weights saturated surface dry.
Moisture excess over saturated surface dry.

Project Laboratory
By: Charles C. Plummer
Lab. Manager

05719 0172

CONSUMERS PUBLIC POWER DISTRICT
Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

10-12-70
8-10-70

Lab No: 1982

Report Date: 7-20-70

Class: 45A Contract No.: 68-55 Ticket No.: 10930

Date Sampled: 7-13-70 Sampled By: ED DH Time: 10⁵⁵ AM

Source: Reactor Bldg Slab SW CORNER 881'-9"

MIX DATA

CONCRETE PROPERTIES

CEMENT: 428 LBS
 SAND: 1390 LBS MO: 1.0 %*
 3/4" ROCK: 1964 LBS MO: 0.1 %*
 1 1/2" ROCK: _____ LBS MO: _____ %*
 ADMIXTURE: 0.25 OZ DARAVAR
 ADMIXTURE: 55 OZ DARAVAR
 WATER: 25.8 GALS/YD

SLUMP: 2 3/4 INCH
 WET WEIGHT/CUBIC FOOT: 149.8 PCF
 AIR CONTENT: 4.1 %

NOMINAL CEMENT FACTOR: 4.55 SKS/YD
 ACTUAL CEMENT FACTOR: 4.55 SKS/YD
 WATER/CEMENT RATIO: 5.67 GAL/YD
 REMARKS: 78°

BATCH: 4 YDS
 BATCH WATER: 75+18
 ADD JOB WATER: 2
 AGG. WATER: 8
 TOTAL WATER: 103

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	
128000	4560	191000	6800	201500	7180	3000
133000	4740	190000	6770	209000	7440	
130000	4630	186000	6620	215000	7660	
Ave	4640		6730		7430	

*Aggregate weights saturated surface dry.
 Moisture excess over saturated surface dry.

Project Laboratory
 By: Claude C. Fleming
 Lab. Manager

05719

CONSUMERS PUBLIC POWER DISTRICT
 Cooper Nuclear Station
 Project Laboratory

COMPRESSION TEST OF CONCRETE

1-6-71
 11-5-70

Lab No: 2116

Report Date: 10-15-70

Class: 35AP Contract No.: 68-55 Ticket No.: 12426

Date Sampled: 10-8-70 Sampled By: CK LM Time: 12³⁰ pm

Source: Reactor Bldg Slab R-15-2h

MIX DATA

CONCRETE PROPERTIES

CEMENT: 446 LBS
 SAND: 1495 LBS MO: 3.6 %*
 3/4" ROCK: 1280 LBS MO: 1.5 %*
 1/2" ROCK: 475 LBS MO: 3.4 %*
 ADMIXTURE: 0.75 OZ DARBYAIR
 ADMIXTURE: 43 OZ DARBYTARD
 WATER: 29.4 GALS/YD

BATCH WATER: 145
 ADD JOB WATER: 9
 AGG. WATER: 85
 TOTAL WATER: 239

BATCH: 8 YDS

SLUMP: 3 1/4 INCH
 WET WEIGHT/CUBIC FOOT: 145.7 PCF
 AIR CONTENT: 4.6 %
 NOMINAL CEMENT FACTOR: 4.75 SKS/YD
 ACTUAL CEMENT FACTOR: 4.23 SKS/YD
 WATER/CEMENT RATIO: 6.29 GAL/YD
 REMARKS: 71°

JOB CORE

COMPRESSION TEST

7 DAY		28 DAY		___ DAY		Specified 28 Day Strength (psi)
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	
54500	1940	104000	3700	126500	4500	3000
55000	1960	100500	3580	135500	4820	
61500	2190	101500	3610	128500	4570	
Air	2030		3630		4630	

* Aggregate weights saturated surface dry.
 Moisture excess over saturated surface dry.

Project Laboratory

By: Charles E. [Signature]
 Lab. Manager

6119

CONSUMERS PUBLIC POWER DISTRICT
Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

Lab No: 2165

1-27-71
11-26-70
Report Date: 11-5-70

Class: 3 SAP Contract No.: 68-55 Ticket No.: 12973

Date Sampled: 10-29-70 Sampled By: NB-LM Time: 2⁴⁵ pm

Source: Reactor Bldg, WALL

MIX DATA

CONCRETE PROPERTIES

CEMENT: 446 LBS
SAND: 1495 LBS MO: 2.6 %*
3/4" ROCK: 1225 LBS MO: 1.7 %*
1/2" ROCK: 530 LBS MO: 1.3 %*
ADMIXTURE: 0.93 OZ DARVAIR
ADMIXTURE: 43 OZ DARATAAD
WATER: 30.5 GALS/YD

SLUMP: 3 1/4 INCH
WET WEIGHT/CUBIC FOOT: 146.0 PCF
AIR CONTENT: 5.2 %
NOMINAL CEMENT FACTOR: 4.75 SKS/YD
ACTUAL CEMENT FACTOR: 4.68 SKS/YD
WATER/CEMENT RATIO: 6.42 GAL/YD

BATCH: 8 YDS
BATCH WATER: 180
ADD JOB WATER: 9
AGG. WATER: 64
TOTAL WATER: 244

REMARKS: 60°
Job Cure

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)	
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)		
81000	2880	113000	4020	140000	4980		3000
90000	3200	113500	4040	138000	4910		
82000	2920	116000	4130	139000	4950		
Ave	3000		4060		4950		

* Aggregate weights saturated surface dry.
Moisture excess over saturated surface dry.

Project Laboratory

By: Nick Brangan
Lab. Manager

CONSUMERS PUBLIC POWER DISTRICT

Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

2-1-71
11-30-70

Lab No: 2179

Report Date: 11-9-70

Class: 3SAP Contract No.: 68-55 Ticket No.: 13120

Date Sampled: 11-2-70 Sampled By: ED-DH Time: 12²⁵ pm.

Source: Reactor Bldg, Walls - P-1W-14A + 14B, R-1W-8, 9, + 10A.

MIX DATA

CONCRETE PROPERTIES

CEMENT: 446 LBS
 SAND: 1495 LBS MO: 2.1 %
 3/4" ROCK: 1225 LBS MO: 1.3 %
 3/8" ROCK: 530 LBS MO: 1.3 %
 ADMIXTURE: 0.37 OZ DARAYAIR
 ADMIXTURE: 43 OZ DARATARD
 WATER: 30.2 GALS/YD

SLUMP: 3 INCH
 WET WEIGHT/CUBIC FOOT: 147.0 PCF
 AIR CONTENT: 4.6 %
 NOMINAL CEMENT FACTOR: 4.75 SKS/YD
 ACTUAL CEMENT FACTOR: 4.72 SKS/YD
 WATER/CEMENT RATIO: 6.36 GAL/YD

REMARKS: 55°
Job Cure

BATCH WATER: 186
 ADD JOB WATER: 4
 AGG WATER: 52
 TOTAL WATER: 242

BATCH: 8 YDS

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	
<u>89000</u>	<u>3170</u>	<u>101000</u>	<u>3600</u>	<u>131000</u>	<u>4660</u>	<u>3000</u>
<u>93000</u>	<u>3310</u>	<u>97500</u>	<u>3470</u>	<u>131500</u>	<u>4680</u>	
<u>93500</u>	<u>3330</u>	<u>98000</u>	<u>3490</u>	<u>130000</u>	<u>4630</u>	
<u>Ave.</u>	<u>3270</u>		<u>3520</u>		<u>4660</u>	

* Aggregate weights saturated surface dry.
Moisture excess over saturated surface dry.

05719

CONSUMERS PUBLIC POWER DISTRICT
Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

Lab No: 2209

Report Date: 11-26-70
 12-17-70
 2-17-70

Class: 3SAP Contract No.: 28-55 Ticket No.: 13394
 Date Sampled: 11-19-70 Sampled By: EDJM Time: 3:05 PM
 Source: Reactor Bldg Wall
R-1W-2

MIX DATA

CONCRETE PROPERTIES

CEMENT: 446 LBS
 SAND: 1495 LBS MO: 1.7 %
 3/4" ROCK: 1225 LBS MO: 1.3 %
 *1/2" ROCK: 530 LBS MO: 2.6 %
 ADMIXTURE: 0.28 OZ Deaerair
 ADMIXTURE: 43 OZ Deaerair
 WATER: 22.7 GALS/YD

SLUMP: 3 INCH
 WET WEIGHT/CUBIC FOOT: 147.0 PCF
 AIR CONTENT: 4.0 %
 NOMINAL CEMENT FACTOR: 4.75 SKS/YD
 ACTUAL CEMENT FACTOR: 4.82 SKS/YD
 WATER/CEMENT RATIO: 5.83 GAL/YD

REMARKS: 540
Job Cure

BATCH WATER: 165
 ADD JOB WATER: 4
 AGG. WATER: 53
 TOTAL WATER: 222

BATCH: 8 YDS

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)	
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)		
72500	2580	95500	3400	118500	4220		3000
75500	2690	104000	3700	117500	4180		
72000	2560	99000	3520	121500	4330		
	2610		3540		4240		

* Aggregate weights saturated surface dry.
 Moisture excess over saturated surface dry.

05719 0424

CONSUMERS PUBLIC POWER DISTRICT

Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

Lab No: 2252

Report Date: 12-22-70
3-15-71
1-12-71

Class: 3SAP Contract No.: E-68-55 Ticket No.: 13717

Date Sampled: 12-15-70 Sampled By: LM-CM Time: 1:45 PM

Source: Reactor Bldg, TUNNEL WALL North Side

MIX DATA

CONCRETE PROPERTIES

CEMENT: 446 LBS
SAND: 1495 LBS MO: 2.0 %
3/4" ROCK: 1225 LBS MO: -0.3 %
1/2" ROCK: 530 LBS MO: 1.0 %
ADMIXTURE: 0.47 OZ DARAVAIR
ADMIXTURE: 43 OZ DARATARD
WATER: 28.6 GALS/YD

SLUMP: 3 1/2 INCH
WET WEIGHT/CUBIC FOOT: 146.0 PCF
AIR CONTENT: 5.7 %
NOMINAL CEMENT FACTOR: 4.75 SKS/YD
ACTUAL CEMENT FACTOR: 4.69 SKS/YD
WATER/CEMENT RATIO: 6.02 GAL/YD

BATCH: 8 YDS
BATCH WATER: 195
ADD JOB WATER: 0
AGG. WATER: 34
TOTAL WATER: 229

REMARKS: 62°
Job Cure

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	
93000	3310	116000	4130	133500 133000	4820	3000
81000	2880	126000	4490	133000	4740	
76500	2720	117000	4170	134000	4770	
Ave.	2970		4260		4780	

*Aggregate weights saturated surface dry.
Moisture excess over saturated surface dry.

05719 461

CONSUMERS PUBLIC POWER DISTRICT
Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

4-22-71
2-19-71
1-29-71

Lab No: 2285

Report Date: 1-29-71

Class: 3SAP Contract No.: E-69-28 Ticket No.: 13929
Date Sampled: 1-22-71 Sampled By: LM-JM Time: 12:47 PM
Source: Reactor Bldg. R-1W-5D EL 916'-6"

MIX DATA

CONCRETE PROPERTIES

CEMENT: 446 LBS
SAND: 1495 LBS MO: 1.9 %
3/4" ROCK: 1225 LBS MO: 1.1 %
3/8" ROCK: 530 LBS MO: 0.1 %
ADMIXTURE: 0.19 OZ DARAVAIR
ADMIXTURE: 43 OZ DARATARD
WATER: 29.2 GALS/YD

SLUMP: 3 3/4 INCH
WET WEIGHT/CUBIC FOOT: 147.7 PCF
AIR CONTENT: 5.0 %
NOMINAL CEMENT FACTOR: 4.75 SKS/YD
ACTUAL CEMENT FACTOR: 4.71 SKS/YD
WATER/CEMENT RATIO: 6.15 GAL/YD
REMARKS: 58°

BATCH: 8 YDS
BATCH WATER: 190
ADD JOB WATER: 5
AGG. WATER: 39
TOTAL WATER: 234

Job Cure

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	
63500	2260	95000	3380	132000	4700	3000
72500	2580	96500	3440	139500	4970	
68000	2420	98000	3490	136000	4840	
Ave.	2420		3440		4840	

*Aggregate weights saturated surface dry.
Moisture excess over saturated surface dry.

Project Laboratory

By: D. McClain
Lab Manager

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CONSUMERS PUBLIC POWER DISTRICT

Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

4-29-71
2-27-71
2-6-71

Lab No: 2296

Report Date: 2-6-71

Class: Grout Contract No.: E-68-55 Ticket No.: 13987

Date Sampled: 1-30-71 Sampled By: ED-PH-LM Time: 8³⁰ AM

Source: Reactor Bldg 913" to 917" LIFT #14

MIX DATA

CONCRETE PROPERTIES

CEMENT: 1128 LBS
SAND: 2185 LBS MO: 1.9 %*
3/4" ROCK: _____ LBS MO: _____ %*
1 1/2" ROCK: _____ LBS MO: _____ %*
ADMIXTURE: _____ OZ
ADMIXTURE: 108 OZ DURATARD
WATER: 42.6 GALS/YD

SLUMP: _____ INCH
WET WEIGHT/CUBIC FOOT _____ PCF
AIR CONTENT: _____ %

NOMINAL CEMENT FACTOR 12 SKS/YD
ACTUAL CEMENT FACTOR: _____ SKS/YD
WATER/CEMENT RATIO 3.55 GAL/YD

REMARKS: 2x4 Cylinders
76"

BATCH: 5 YDS
BATCH WATER: 175
ADD JOB WATER: 14
AGG WATER: 24
TOTAL WATER: 213

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)	
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)		
8480	2570	12000	3640	29000	8790		3000
12820	3880	24000	7270	26400	8000		
6890	2090	13000	3940	29400	8910		
Ave.	2850		4950		8570		

*Aggregate weights saturated surface dry.
Moisture excess over saturated surface dry.

Project Laboratory

By: D. McClair
Lab. Manager

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CONSUMERS PUBLIC POWER DISTRICT

Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

5-5-71

3-4-71

Lab No: 2308

Report Date: 2-11-71

Class: 3SAP Contract No.: E-69-28 Ticket No.: 14076

Date Sampled: 2-4-71 Sampled By: LM-ED Time: 5:45 PM

Source: Reactor Bldg. Slab RW-15-4

MIX DATA

CONCRETE PROPERTIES

CEMENT: 446 LBS
 SAND: 1495 LBS MO: 2.2 %*
 3/4" ROCK: 1225 LBS MO: 0.5 %*
 3/8" ROCK: 530 LBS MO: 0.9 %*
 ADMIXTURE: 0.19 OZ Duravix
 ADMIXTURE: 43 OZ Durastard
 WATER: 28.9 GALS/YD

SLUMP: 3 INCH
 WET WEIGHT/CUBIC FOOT: 148.4 PCF
 AIR CONTENT: 4.0 %
 NOMINAL CEMENT FACTOR: 4.75 SKS/YD
 ACTUAL CEMENT FACTOR: 4.76 SKS/YD
 WATER/CEMENT RATIO: 6.08 GAL/YD

BATCH WATER: 201
 ADD JOB WATER: 0
 BATCH: 8 YDS
 AGG. WATER: 30
 TOTAL WATER: 231

REMARKS: 57°
180' Horizontal Pipe discharge

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)	
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)		
81750	2910	139000	4950	158000	5630		3000
85000	3030	140000	4980	167500	5960		
84000	2990	138500	4930	167500	5960		
Ave.	2980		4950		5850		

*Aggregate weights saturated surface dry.
Moisture excess over saturated surface dry.

Project Laboratory

By: D. McLean
Lab. Manager

523
05719

CONSUMERS PUBLIC POWER DISTRICT

Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

5-18-71
3-17-71
2-24-71

Lab No: 2325

Report Date: 2-24-71

Class: 3SAP Contract No.: 48-55 Ticket No.: 14228

Date Sampled: 2-17-71 Sampled By: LM-JM Time: 12:15 PM

Source: Reactor Cont. Wall & Slab R-25-7

MIX DATA

CONCRETE PROPERTIES

CEMENT: 446 LBS
SAND: 1495 LBS MO: 2.1 %*
3/4" ROCK: 1225 LBS MO: 0.5 %*
#8 BAR ROCK: 530 LBS MO: -0.1 %*
ADMIXTURE: 0.19 OZ DARVAIR
ADMIXTURE: 43 OZ DARVAIR
WATER: 292 GALS/YD

SLUMP: 3 1/2 INCH
WET WEIGHT/CUBIC FOOT: 147.3 PCF
AIR CONTENT: 4.3 %

NOMINAL CEMENT FACTOR: 4.75 SKS/YD
ACTUAL CEMENT FACTOR: 4.75 SKS/YD
WATER/CEMENT RATIO: 6.15 GAL/YD

REMARKS: 67°

BATCH WATER: 190
ADD JOB WATER: 9
AGG. WATER: 3.5
TOTAL WATER: 234
BATCH: 8 YDS

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)	
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)		
105000	3740	149500	5320	180000	6410		3000
99500	3540	150500	5360	175500	6250		
103000	3670	155500	5540	179500	6390		
Ave.	3650		5410		6350		

* Aggregate weights saturated surface dry.
Moisture excess over saturated surface dry.

Project Laboratory

By: D. McClain
Lab. Manager

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05719

CONSUMERS PUBLIC POWER DISTRICT

Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

Lab No: 2328

Report Date: 5-18-71
3-17-71
2-24-71

Class: 2SAP Contract No.: 68-55 Ticket No.: 14252

Date Sampled: 2-17-71 Sampled By: LM-JM Time: 7³⁵ PM

Source: Reactor Bldg Slab R-256-1 El. 931'-6"

MIX DATA

CONCRETE PROPERTIES

CEMENT: 446 LBS
SAND: 1495 LBS MO: 2.1 %*
3/4" ROCK: 1225 LBS MO: -0.4 %*
3/8" ROCK: 530 LBS MO: -0.2 %*
ADMIXTURE: 0.0 OZ
ADMIXTURE: 43 OZ RETARD
WATER: 28.4 GALS/YD

SLUMP: 3 1/4 INCH
WET WEIGHT/CUBIC FOOT: 148.8 PCF
AIR CONTENT: 3.6 %

NOMINAL CEMENT FACTOR: 4.75 SKS/YD
ACTUAL CEMENT FACTOR: 4.80 SKS/YD
WATER/CEMENT RATIO: 5.98 GAL/YD

REMARKS: 166°

BATCH: 8 YDS
BATCH WATER: 200
ADD JOB WATER: 3
AGG. WATER: 24
TOTAL WATER: 227

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	
99000	3520	151000	5380	177500	6320	3000
98500	3510	154000	5480	175000	6230	
98000	3490	157500	5610	175500	6250	
Ave.	3510		5490		6270	

* Aggregate weights saturated surface dry.
Moisture excess over saturated surface dry.

Project Laboratory

By: D. McClain
Lab. Manager

05719
543

CONSUMERS PUBLIC POWER DISTRICT

Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

Lab No: 2338

Report Date: 3-3-71
3-24-71
5-25-71

Class: 3SAP Contract No.: 68-55 Ticket No.: 14349

Date Sampled: 2-24-71 Sampled By: DM-RT Time: 1:50 PM

Source: Reactor Bldg. Slab R-2SL-2

MIX DATA

CONCRETE PROPERTIES

CEMENT: 446 LBS
SAND: 1495 LBS MO: 2.5 %*
3/4" ROCK: 1225 LBS MO: 0.9 %*
1/4" ROCK: 530 LBS MO: 0.9 %*
ADMIXTURE: 0.0 OZ
ADMIXTURE: 43 OZ DERBY TARD
WATER: 30.9 GALS/YD

SLUMP: 4 1/2 INCH
WET WEIGHT/CUBIC FOOT: 147.4 PCF
AIR CONTENT: 3.7 %
NOMINAL CEMENT FACTOR: 4.75 SKS/YD
ACTUAL CEMENT FACTOR: 4.73 SKS/YD
WATER/CEMENT RATIO: 6.50 GAL/YD

BATCH: 8 YDS
BATCH WATER: 185
ADD JOB WATER: 11
AGG. WATER: 51
TOTAL WATER: 247

REMARKS: 70°

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	
<u>102000</u>	<u>3630</u>	<u>155000</u>	<u>5520</u>	<u>181000</u>	<u>6440</u> <u>6440</u>	<u>3000</u>
<u>102000</u>	<u>3630</u>	<u>152500</u>	<u>5430</u>	<u>180500</u>	<u>6430</u>	
<u>99000</u>	<u>3520</u>	<u>141500</u>	<u>5040</u>	<u>178000</u>	<u>6340</u>	
<u>Ave.</u>	<u>3590</u>		<u>5330</u>		<u>6400</u>	

*Aggregate weights saturated surface dry.
Moisture excess over saturated surface dry.

Project Laboratory

By: _____
Lab. Manager

05719

CONSUMERS PUBLIC POWER DISTRICT

Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

5-31-71

3-29-71

Lab No: 2351

Report Date: 3-8-71

Class: 3SAP Contract No.: 68-55 Ticket No.: 14471

Date Sampled: 3-1-71 Sampled By: LM-JM Time: 3:45 PM

Source: Reactor Bldg. Slab R-25L-3

MIX DATA

CONCRETE PROPERTIES

CEMENT: 446 LBS
 SAND: 1495 LBS MO: 2.0 %*
 3/4" ROCK: 1225 LBS MO: 1.0 %*
 #4" ROCK: 530 LBS MO: 0.6 %*
 ADMIXTURE: 0.19 OZ DARVAIR
 ADMIXTURE: 43 OZ DARVAIR
 WATER: 29.8 GALS/YD

SLUMP: 4 1/4 INCH
 WET WEIGHT/CUBIC FOOT: 146.8 PCF
 AIR CONTENT: 4.5 %

NOMINAL CEMENT FACTOR: 4.75 SKS/YD
 ACTUAL CEMENT FACTOR: 4.71 SKS/YD
 WATER/CEMENT RATIO: 6.27 GAL/YD

REMARKS: 1.8"

BATCH WATER: 193
 ADD JOB WATER: 3
 AGG. WATER: 43
 TOTAL WATER: 239

BATCH: 8 YDS

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)	
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)		
85000	3030	131000	4660	154000	5480		3000
80000	2850	124500	4430	150000	5340		
83000	2950	133500	4750	151000	5380		
Ave.	2940		4610		5400		

*Aggregate weights saturated surface dry.
Moisture excess over saturated surface dry.

Project Laboratory

By: Ameller
Lab. Manager

05719
066

CONSUMERS PUBLIC POWER DISTRICT
Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

6-16-71
4-14-71
3-24-71

Lab No: 2379

Report Date: 3-24-71

Class: 3SAP Contract No.: 28-55 Ticket No.: 14749

Date Sampled: 3-17-71 Sampled By: DH-CM Time: 4:25 PM

Source: Reactor Bldg Containment Wall Lift #21

MIX DATA

CONCRETE PROPERTIES

CEMENT: 446 LBS
SAND: 1495 LBS MO: 1.8 %*
3/4" ROCK: 1225 LBS MO: 1.4 %*
1/2" ROCK: 530 LBS MO: 1.0 %*
ADMIXTURE: 0.19 OZ Ducan's
ADMIXTURE: 43 OZ Ductard
WATER: 30.7 GALS/YD

SLUMP: 5 INCH
WET WEIGHT/CUBIC FOOT: 146.5 PCF
AIR CONTENT: 4.2 %

NOMINAL CEMENT FACTOR: 4.75 SKS/YD
ACTUAL CEMENT FACTOR: 4.71 SKS/YD
WATER/CEMENT RATIO: 1.46 GAL/YD

REMARKS: 58°

BATCH WATER: 191
ADD JOB WATER: 8
AGG. WATER: 47
TOTAL WATER: 246

BATCH: 8 YDS

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	
86500	3080	147000	5230	155000	5520	3000
92500	3290	142500	5070	152000	5410	
92500	3290	141000	5020	156000	5550	
Ave.	3220		5110		5490	

*Aggregate weights saturated surface dry.
Moisture excess over saturated surface dry.

Project Laboratory

By: D McClain
Lab. Manager

05719
38
39
4

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

6-17-71
 4-16-71
 3-26-71

Lab No: 2381

Report Date: _____

Class: 3SAP Contract No.: 28-55 Ticket No.: 14778

Date Sampled: 3-19-71 Sampled By: LM-JM Time: 3⁰⁰ PM

Source: Reactor Bldg. R-2W-1

MIX DATA

CONCRETE PROPERTIES

CEMENT: 446 LBS
 SAND: 1495 LBS MO: 1.9 %*
 3/4" ROCK: 1225 LBS MO: 1.6 %*
 3/8" ROCK: 530 LBS MO: 1.6 %*
 ADMIXTURE: 0.19 OZ DARAKR
 ADMIXTURE: 43 OZ DARAKR
 WATER: 31.5 GALS/YD

SLUMP: 3 1/4 INCH
 WET WEIGHT/CUBIC FOOT: 147.1 PCF
 AIR CONTENT: 3.9 %
 NOMINAL CEMENT FACTOR: 4.75 SKS/YD
 ACTUAL CEMENT FACTOR: 4.71 SKS/YD
 WATER/CEMENT RATIO: 6.63 GAL/YD

REMARKS: 84°

BATCH: 8 YDS
 BATCH WATER: 195
 ADD JOB WATER: 3
 AGG. WATER: 54
 TOTAL WATER: 252

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	
99500	3540	153000	5450	166,000	5910	3000
97500	3470	149000	5300	167,750	5970	
101500	3610	152000	5410	164,500	5890	
Ave.	3540		5390		5920	

*Aggregate weights saturated surface dry.
 Moisture excess over saturated surface dry.

Project Laboratory
 By: D. McClan
 Lab. Manager

05719

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

Lab No: 2384

Report Date: 6-21-71
4-19-71
3-22-71

Class: PSAP Contract No.: 68-55 Ticket No.: 14796

Date Sampled: 3-22-71 Sampled By: DH-JM Time: 3:20 PM

Source: Reactor Bldg. Columns + Pads

MIX DATA

CONCRETE PROPERTIES

05719

CEMENT: 446 LBS
SAND: 1495 LBS MO: 2.0 %*
3/4" ROCK: 1225 LBS MO: 0.6 %*
3/8" ROCK: 530 LBS MO: 0.2 %*
ADMIXTURE: 0.19 OZ DARAVIN
ADMIXTURE: 43 OZ DARATURD
WATER: 29.2 GALS/YD

SLUMP: 4 INCH
WET WEIGHT/CUBIC FOOT: 147.5 PCF
AIR CONTENT: 4.5 %

NOMINAL CEMENT FACTOR: 4.75 SKS/YD
ACTUAL CEMENT FACTOR: 4.73 SKS/YD
WATER/CEMENT RATIO: 6.15 GAL/YD

REMARKS: 62°

BATCH: 8 YDS
BATCH WATER: 197
ADD JOB WATER: 0
AGG. WATER: 37
TOTAL WATER: 234

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	
91000	3240	140500	5000	1161000	5730	3000
90000	3200	132500	4720	156500	5570	
91500	3260	140500	5000	156000	5550	
Ave.	3230		4910		5620	

*Aggregate weights saturated surface dry.
Moisture excess over saturated surface dry.

Project Laboratory
By: D Miller
Lab. Manager

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station
Project Laboratory

COMPRESSION TEST OF CONCRETE

6-21-70
 4-20-71
 Report Date: 3-30-71

Lab No: 2385

Class: 3-SAP Contract No.: 68-55 Ticket No.: 14807

Date Sampled: 3-23-71 Sampled By: LM+JM Time: 4:00 PM

Source: Reactor Bldg Containment Wall Lift # 22

MIX DATA

CONCRETE PROPERTIES

CEMENT: 446 LBS
 SAND: 1495 LBS MO: 1.8 %*
 3/4" ROCK: 1225 LBS MO: 0.8 %*
 3/8" ROCK: 530 LBS MO: 1.3 %*
 ADMIXTURE: 0.19 OZ SARAVIR
 ADMIXTURE: 43 OZ DARA TARD
 WATER: 30.6 GALS/YD

SLUMP: 5 INCH
 WET WEIGHT/CUBIC FOOT: 146.8 PCF
 AIR CONTENT: 3.8 %
 NOMINAL CEMENT FACTOR: 4.75 SKS/YD
 ACTUAL CEMENT FACTOR: 4.73 SKS/YD
 WATER/CEMENT RATIO: 6.44 GAL/YD

BATCH: 8 YDS
 BATCH WATER: 198
 ADD JOB WATER: 5
 AGG. WATER: 42
 TOTAL WATER: 245

REMARKS: 62°

COMPRESSION TEST

7 DAY		28 DAY		90 DAY		Specified 28 Day Strength (psi)	
Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)	Max. Load lbs.	Comp. Strength (psi)		
91000	3240	146000	5200	155500	5540		3000
94500	3260	141000	5020	160500	5710		
94500	3360	144500	5140	157000	5590		
Ave.	3290		5120		5610		

*Aggregate weights saturated surface dry.
 Moisture excess over saturated surface dry.

Project Laboratory
 By: D. McLean
 Lab. Manager

05719 0600