



**Consumers
Power
Company**

J A Mooney
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Midland Project Office

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50-329
50-330

July 15, 1983

PRINCIPAL STAFF			
SA		SM	
D/SA		DS	
A/SA		PRO	
DEFP		SLO	
DRMA		HC	
DWSP			
DE			
ML			
OL		FILE	

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Mr J J Harrison
U S Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND ENERGY CENTER GWO 7020
REMEDIAL SOILS CONCRETE MIX
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6791
12*32

Per our previous discussions concerning concrete mix designs for the remedial soils work, we are submitting the attached summaries of three mix designs for your information (E-5-C, E-5C-H, C-6C-H). Please note that E-5C-H and C-6C-H include the use of high range water reducing admixture (Superplasticizer). The concrete used utilizing the superplasticizer will be consolidated by vibration per existing project Specification C-195.

We will not be using these mix designs until we receive your concurrence. We would like to discuss any comments you may have as soon as you have reviewed the mix design information.

JAMooney

JAM/RHW/klm

Attachments

8309070201 830715
PDR ADOCK 05000329
A PDR

JUL 19 1983

1081
111

Attached are summaries for review of mix design as follows:

Page #1 - Summary sheet giving the details of the mixes added.

Page #2 - Plot of test data on which the mixes are based.

Attachment A - Test results for the graph for E-5C mix (i.e. 6000 psi @ 60 days without HRWR).

Attachment B - Test results for the graph for:

E-5C-H mix (i.e. 6000 psi @ 60 days with HRWR).

C-6C-H mix (i.e. 4000 psi @ 28 days with HRWR).

UNDERPINNING CONSTRUCTION SUMMARY SHEET

	E-5C	E-5C-H	C-6C-H
1. Comp. Strength (f'c)	6,000 psi	6,000 psi	4,000 psi
2. Working Limit Slump	3"	8" (Note 1)	8" (Note 1)
3. Inadvertency Margin	Note 2	Note 2	Note 2
4. Rejection Limit Slump	-	-	-
5. MIX PROPORTIONS:			
(a) Cement	828 lb	705 lb	658 lb
(b) Sand	1,090 lb	1,314 lb	1,350 lb
(c) 3/4" stone	1,870 lb	1,849 lb	1,849 lb
(d) Water	307 lb	268 lb	270 lb
(e) WRA	- PER MANUFACTURER'S INSTRUCTIONS -		
(f) HRWR	-	Note 1	Note 1
(g) AIR-ENTRAINING AGENT	- NONE		

NOTE 1: MIXES DESIGNATED WITH H ARE TO BE USED WITH HRWR. CONCRETE WITH ^{LIMITING} BASE SLUMP OF 2" ± 1" WILL HAVE A RESULTING SLUMP NOT EXCEEDING 8" AFTER ADDING HRWR. THE QUANTITY OF HRWR TO BE ADDED IS AS FOLLOWS:

BASE SLUMP OF
CONCRETE

1"

2"

3"

QUANTITY OF
HRWR TO BE ADDED (MAX)

75 OZ

65 OZ

55 OZ

NOTE 2: INADVERTENCY MARGIN IS A TOLERANCE IN SLUMP OF UP TO 1" ABOVE WORKING LIMIT FOR INDIVIDUAL BATCHES, PROVIDED THE AVERAGE FOR ALL BATCHES OR THE MOST RECENT 10 BATCHES TESTED, WHICHEVER IS LESS, DOES NOT EXCEED THE WORKING LIMIT.

Plot for E-5C mix
(6000 psi @ 60 days)

Plot for E-5CH mix

Plot for (6000 psi @ 60 days)

Plot for C-60-H
(4000 psi @ 60 days)

- H stands for
HRWR.

w/o HRWR

x - chosen w/c
ratio

Compressive strength - P.S.I.

- 60 day (6000 psi mix)
- 60 day with HRWR (4000 psi)
- 60 day with HRWR (6000 psi)

7000

6000

5000

4000

3000

0.34

0.35

0.36

0.37

0.38

0.39

0.40

0.41

Attachment - A

Check the trial mixes for slump requirement

" Trial batches shall be designed to produce a slump within 1 inch of the maximum permitted --- "

(ACI 301 Sect 3.8.2.1)

" slump within ± 1 in of max permitted by specification " (ACI 301-72 Sect 3.8.2.1)

For conservative use $\pm 3/4$

Batch ticket	Mix	slump	Strength psi	w/c ratio
62964	1	3"	7307	0.347
62965	2	3"	7310	0.371
62966	3	$3\frac{1}{2}$	7077	0.373
62967	4	$3\frac{1}{2}$	6877	0.379
62968	5	$3\frac{1}{2}$	7017	0.385

The mix will have slump of 3"

$$\begin{aligned} \text{The acceptable range of slump} &= 3 - 0.75 = 2\frac{1}{4}'' \\ &\text{to } 3 + 0.75 = 3\frac{3}{4}'' \end{aligned}$$

All mixes are acceptable.

RECEIVED

E-5C

BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification		LETTER N/A REF. 10621		2. Date Placed 3-4-83					
3. Placement Location ALLIED CONCRETE									
3A. PLANT DATA		Source ALLIED CONCRETE		Cement Brand & Type AETNA TYPE I					
4. Mix #1	5. Class I	6. "Q" List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		7. Required Strength 4000 PSI At 28 Days					
8. Test Data At: BATCH PLANT (CM)		9. Unit Weight ASTM-C-138-74 152.98 Lbs/Ft ³		10. Yield: 26.73					
11. Moisture: Sand ASTM-C-566-67(72) 1.0 %		Stone 1 0.6 %		Stone 2 N/A %					
12. Water/Cement & Pozzolan Ratio 0.35 Max 0.35 Act.									
13. Ticket No. 62964	14. Truck No. 18	15. Time of Testing 0918 Hrs at 2 Yards		16. Time of Molding 0918 Hrs					
17. Slump ASTM-C-143-74 3 Inches	18. Air Content ASTM-C-231-75 1.4 %	19. Temp: Concrete 64 °F		20. Temp: Air 38 °F					
21. Initials (TC) BT WM		22. Initial Curing ASTM-C-31-69; Therm/Due Date °F 40 To 71 °F 3661 3-5-83		23. Stripped ASTM-C-31-69 3-5-83 At 0755 Hrs					
24. Initials RB LH, RB									
COMPRESSION STRENGTH DATA ASTM-C-39-71									
25. Specimen Identification	26. Date Molded	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field	34. Strength PSI
SP1643-931	3-4-83	3-5-83	1	107,000	6.00	28.27	A	1 0	3,780
932				106,000	6.01	28.37	A	1 0	3,740
933		3-5-83	1	109,000	5.99	28.18	A	1 0	3,870
934		3-6-83	2	119,000	6.00	28.27	A	1 1	4,210
935				123,000	5.98	28.09	A	1 1	4,380
936		3-6-83	2	127,500	6.00	28.27	A	1 1	4,510
937		3-7-83	3	137,000	5.98	28.09	A	1 2	4,880
SP1643-938	3-4-83	3-7-83	3	134,000	6.00	28.27	A	1 2	4,740
35. Standard Cylinder <input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other				36. Remarks * INITIAL CURING OUT OF SPECIFICATION; JOHN					
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.						
1	RTB LH	RAH	NA						
2	RTB LH	RAH							
3	WM TS	RAH							
41. Laboratory Supervisor Signature				42. Date					

Type of Breaks: A=Concrete Mortar Failure B=Concrete Aggregate Failure C=Shear Mortar Failure D=Shear Aggregate Failure E=Other

G/H, J213

UST-M-74@7 UST-M-130@14 UST-M-62@60



BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification				2. Date Placed			
NA REF. LETTER 106621				3-4-83			
3. Placement Location							
ALLIED CONCRETE							
3A. PLANT DATA		Source		Cement Brand & Type			
		ALLIED CONCRETE		AETNA TYPE I			
4. Mix #1		5. Class I		6. "Q" List 24as <input type="checkbox"/> No		7. Required Strength ^{ET} 4000 PSI At 28 Days	
8. Test Data At: BATCH PLANT (CM)		9. Unit Weight ASTM-C-138-74 152.98 Lbs/Ft ³		10. Yield: 26.73			
11. Moisture: Sand ASTM-C-566-87(12) 1.0 %		Stone 1 0.6 %		Stone 2 NA %		12. Water/Cement & Pozzolan Ratio 0.35 Max 0.35 Act.	
13. Ticket No. 62964		14. Truck No. 18		15. Time of Testing 0918 Hrs at 2 Yards		16. Time of Molding 0918 Hrs	
17. Slump ASTM-C-143-74 3 inches		18. Air Content ASTM-C-231-75 1.4 %		19. Temp: Concrete 64 °F		20. Temp: Air 38 °F	
21. Initial Curing ASTM-C-31-69; Therm/Due Date °F 50 To 71 °F; X 366 15-29-83		23. Stripped ASTM-C-31-69 3-5-83 At 0755 Hrs		24. Initials TC, GT, WM			

COMPRESSIVE STRENGTH DATA ASTM-C-39-71

25. Specimen Identification	26. Date Molded	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field	34. Strength PSI
SP1643- 939	3-4-83	3-7-83	3	132,500	6.00	28.27	A	1 2	4,690
940		3-11-83	7	157,250	5.99	28.18	A	1 6	5580
941				159,500	6.00	28.27	A	1 6	5640
942		3-11-83	7	152,500	5.99	28.18	A	1 6	5410
943		3-18-83	14	173,500	6.00	28.27	A	1 13	6,140
944				168,500	6.00	28.27	B	1 13	5,960
945		3-18-83	14	158,500	6.00	28.27	A	1 13	5,610
SP1643- 946	3-4-83	4-1-83	28	198,500	6.00	28.27	D	1 27	7020

35. Standard Cylinder <input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other				40. Remarks			
				* INITIAL CURING OUT OF SPECIFICATION;			
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.				
3	TC WM	NA	2005-11-83	NOTIFIED.			
7	ET WM	GW					
14	ET TC	RB					
41. Laboratory Supervisor Signature				42. Date			

Type of Breaks: A=Conc. Mortar Failure B=Conc. Aggregate Failure C=Shear, Mortar Failure D=Shear, Aggregate Failure E=Other



BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification <i>NA REF. LETTER 10/6/21</i>						2. Date Placed <i>3-4-83</i>													
3. Placement Location <i>ALLIED CONCRETE</i>																			
3A. PLANT DATA <i>ALLIED CONCRETE</i>				Cement Brand & Type <i>ACTNA TYPE I</i>															
4. Mix <i>#1</i>		5. Class <i>I</i>		6. Q ² List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		7. Required Strength <i>4000</i> PSI <i>ET 3-5-83</i> At <i>28</i> Days													
8. Test Data At: <i>BATCH PLANT (CM)</i>				9. Unit Weight ASTM-C-138-74 <i>152.98</i> Lbs/Ft ³				10. Yield: <i>26.73</i>											
11. Moisture: Sand ASTM-C-566-67(72) <i>1.0</i> %				Stone 1 <i>0.6</i> %		Stone 2 <i>NA</i> %		12. Water/Cement & Pozzolan Ratio <i>0.35</i> Max <i>0.35</i> Act.											
13. Ticket No. <i>62 964</i>			14. Truck No. <i>18</i>			15. Time of Testing <i>0918</i> Hrs at <i>2</i> Yards			16. Time of Molding <i>0918</i> Hrs										
17. Slump ASTM-C-143-74 <i>3</i> Inches			18. Air Content ASTM-C-231-75 <i>1.4</i> %			19. Temp: Concrete <i>64</i> °F			20. Temp: Air <i>38</i> °F										
22. Initial Curing ASTM-C-31-69; Therm/Due Date <i>°F 50 To 71 °F; X 366 15-29-83</i>						23. Stripped ASTM-C-31-69 <i>3-5-83</i> At <i>0755</i> Hrs			21. Initials <i>(76) BT, WM</i>										
24. Initials <i>RG, LH, RB</i>																			
COMPRESSION STRENGTH DATA ASTM-C-39-71																			
25. Specimen Identification		26. Date Molded		27. Date Tested		28. Age		29. Total Load in Pounds		30. Actual Cyl Diam		31. Actual Cyl Area		32. Type of Break		33. Cure Field Lab		34. Strength PSI	
<i>SP1643-947</i>		<i>3-4-83</i>		<i>4-1-83</i>		<i>28</i>		<i>188,750</i>		<i>6.00</i>		<i>28.27</i>		<i>B</i>		<i>1</i>		<i>27 6680</i>	
<i>948</i>				<i>4-1-83</i>		<i>28</i>		<i>189,500</i>		<i>5.99</i>		<i>28.18</i>		<i>A</i>		<i>1</i>		<i>27 6720</i>	
<i>949</i>				<i>5-3-83</i>		<i>60</i>		<i>211,000</i>		<i>6.00</i>		<i>28.27</i>		<i>A</i>		<i>1</i>		<i>54 7,460</i>	
<i>950</i>				<i>5-3-83</i>		<i>60</i>		<i>202,500</i>		<i>6.00</i>		<i>28.27</i>		<i>A</i>		<i>1</i>		<i>54 7,160</i>	
<i>951</i>				<i>5-3-83</i>		<i>60</i>		<i>205,750</i>		<i>5.99</i>		<i>28.18</i>		<i>A</i>		<i>1</i>		<i>54 7,300</i>	
<i>952</i>				<i>6-2-83</i>		<i>90</i>													
<i>953</i>				<i>6-2-83</i>		<i>90</i>													
<i>SP1643-954</i>		<i>3-4-83</i>		<i>6-2-83</i>		<i>90</i>													
35. Standard Cylinder <input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other								40. Remarks <i>* INITIAL CURING OUT OF SPECIFICATION;</i>											
36. Age (Days)		37. Tested By		38. Checked By		39. Reviewed by Q.C.		41. Laboratory Supervisor Signature				42. Date							
<i>28</i>		<i>WM/KK</i>		<i>RH</i>		<i>NA</i>		<i>2/25/83</i>				<i>NOTIFIED.</i>							
<i>60</i>		<i>(RG) KK</i>		<i>RB</i>		<i>✓</i>													

Type of Breaks: A=Concrete, Mortar Failure B=Concrete, Aggregate Failure C=Shear, Mortar Failure D=Shear, Aggregate Failure E=Other

7220-QCF-39 Rev. 5

UST-M-7407

UST-M-130014

UST-M-62060



BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDER

1. Placement Identification <i>N/A REF. LETTER 106621</i>		2. Date Placed <i>3-4-83</i>							
3. Placement Location <i>ALLIED CONCRETE</i>									
3A. PLANT DATA <i>ALLIED CONCRETE</i>		Cement Brand & Type <i>AETNA TYPE I</i>							
4. Mix <i>#2</i>	5. Class <i>I</i>	6. "O" List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Required Strength <i>4000</i> PSI <i>ET 3-5-83</i> At <i>28</i> Days						
8. Test Data At: <i>BATCH PLANT (CM)</i>		9. Unit Weight ASTM-C-138-74 <i>153.89</i> Lbs/Ft ³	10. Yield: <i>26.74</i>						
11. Moisture: Sand ASTM-C-566-67(72) <i>1.0</i> %		Stone 1 <i>0.6</i> %	Stone 2 <i>N/A</i> %						
12. Water/Cement & Pozzolan Ratio <i>0.37</i> Max <i>0.37</i> Act.									
13. Ticket No. <i>62965</i>	14. Truck No. <i>18</i>	15. Time of Testing <i>0949</i> Hrs at <i>2</i> Yards							
16. Time of Molding <i>0950</i> Hrs									
17. Slump ASTM-C-143-74 <i>3</i> inches	18. Air Content ASTM-C-231-75 <i>1.4</i> %	19. Temp: Concrete <i>64</i> °F	20. Temp: Air <i>37</i> °F						
21. Initials <i>(TC) WM BT</i>									
22. Initial Curing ASTM-C-31-69; Therm/Due Date <i>60°F To 60°F; 6-7 18-24-83</i>		23. Stripped ASTM-C-31-69 <i>3-5-83</i> At <i>0930</i> Hrs							
24. Initials <i>TC</i>									
COMPRESSIVE STRENGTH DATA ASTM-C-39-71									
25. Specimen Identification	26. Date Molded	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field	34. Strength PSI
<i>SP 1644-</i>									
<i>955</i>	<i>3-4-83</i>	<i>3-5-83</i>	<i>1</i>	<i>106,000</i>	<i>5.98</i>	<i>28.09</i>	<i>A</i>	<i>1 0</i>	<i>3,770</i>
<i>956</i>				<i>110,000</i>	<i>6.00</i>	<i>28.27</i>	<i>A</i>	<i>1 0</i>	<i>3,890</i>
<i>957</i>		<i>3-5-83</i>	<i>1</i>	<i>110,000</i>	<i>6.00</i>	<i>28.27</i>	<i>A</i>	<i>1 0</i>	<i>3,890</i>
<i>958</i>		<i>3-6-83</i>	<i>2</i>	<i>120,250</i>	<i>6.01</i>	<i>28.37</i>	<i>A</i>	<i>1 1</i>	<i>4,240</i>
<i>959</i>				<i>115,000</i>	<i>6.00</i>	<i>28.27</i>	<i>A</i>	<i>1 1</i>	<i>4,070</i>
<i>960</i>		<i>3-6-83</i>	<i>2</i>	<i>119,500</i>	<i>6.01</i>	<i>28.37</i>	<i>A</i>	<i>1 1</i>	<i>4,210</i>
<i>961</i>		<i>3-7-83</i>	<i>3</i>	<i>131,000</i>	<i>6.00</i>	<i>28.27</i>	<i>A</i>	<i>1 2</i>	<i>4,630</i>
<i>SP 1644-962</i>	<i>3-4-83</i>	<i>3-7-83</i>	<i>3</i>	<i>136,000</i>	<i>6.00</i>	<i>28.27</i>	<i>A</i>	<i>1 2</i>	<i>4,810</i>
35. Standard Cylinder <input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other				40. Remarks					
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.						
<i>1</i>	<i>RTB LH</i>	<i>BH</i>	<i>N/A</i>	<i>QCS 5/1/83</i>					
<i>2</i>	<i>RH LH</i>	<i>RH</i>							
<i>3</i>	<i>WM SF</i>	<i>RH</i>							
41. Laboratory Supervisor Signature				42. Date					

Type of Breaks: A= Cone, Mortar Failure B= Cone, Aggregate Failure C= Shear, Mortar Failure D= Shear, Aggregate Failure E= Other

7220-QCF-39 Rev. 5

UST-M-7407 UST-M-130014 UST-M-63060



BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification				2. Date Placed			
N/A REF. LETTER 106621				3-4-83			
3. Placement Location							
ALLIED CONCRETE							
3A. PLANT DATA		Source		Cement Brand & Type			
		ALLIED CONCRETE		AETNA TYPE I			
4. Mix		5. Class		6. "Q" List		7. Required Strength	
# 2		I		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		4000 PSI At 28 Day	
8. Test Data At:				9. Unit Weight ASTM-C-138-74		10. Yield:	
PATCH PLANT (CM)				153.89 Lbs/Ft ³		26.74	
11. Moisture: Sand ASTM-C-566-67(72)				Stone 1		Stone 2	
1.0 %				0.6 %		N/A %	
12. Water/Cement & Pozzolan Ratio				13. Ticket No.			
0.37 Max 0.37 Act.				G2965			
14. Truck No.				15. Time of Testing			
18				0949 Hrs at 2 Yards			
16. Time of Molding				17. Slump ASTM-C-143-74			
0950 Hrs				3 Inches			
18. Air Content ASTM-C-231-75				19. Temp: Concrete			
1.4 %				64 °F			
20. Temp: Air				21. Initials			
37 °F				(TC) WM BT			
22. Initial Curing ASTM-C-31-69; Therm/Due Date				23. Stripped ASTM-C-31-69			
60 °F To 80 °F; 6/7 18-24-83				3-5-83 At 0930 Hrs			
24. Initials				RB LH TC			

COMPRESSIVE STRENGTH DATA ASTM-C-39-71

25. Specimen Identification	26. Date Molded	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field	33. Cure Lab	34. Strength PSI
SP1644-963	3-4-83	3-7-83	3	133,500	6.00	28.27	A	1	2	4,720
964		3-11-83	7	150,500	6.01	28.37	A	1	6	5300
965			7	155,500	6.00	28.27	C	1	6	5500
966		3-11-83	7	161,500	6.00	28.27	A	1	6	5710
967		3-18-83	14	166,500	5.99	28.18	A	1	13	5,910
968				174,000	6.00	28.27	A	1	13	6,150
969		3-18-83	14	168,250	6.00	28.27	B	1	13	5,950
SP1644-970	3-4-83	4-1-83	28	185,000	6.00	28.27	B	1	27	6540

35. Standard Cylinder				40. Remarks			
<input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other							
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.				
3	WM, SF	RB	N/A				
7	ET, WM	Gu					
14	RZ ET	RB					
41. Laboratory Supervisor Signature				42. Date			

Type of Breaks: A=Concrete Mortar Failure B=Concrete Aggregate Failure C=Shear Mortar Failure D=Shear Aggregate Failure E=Other

7220-QCF-39 Rev. 5

UST-M-74@7 UST-M-130C14

UST-M-62@60

BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification						2. Date Placed													
N/A REF. LETTER 106621						3-4-83													
3. Placement Location																			
ALLIED CONCRETE																			
3A. PLANT DATA		Source				Cement Brand & Type													
		ALLIED CONCRETE				AETNA TYPE I													
4. Mix		5. Class		8. "Q" List		7. Required Strength													
#2		I		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		4000 PSI At 28 Days													
8. Test Data At:				9. Unit Weight ASTM-C-138-74				10. Yield:											
BATCH PLANT (CM)				153.89 Lbs/Ft ³				26.74											
11. Moisture: Sand ASTM-C-566-67(72)				Stone 1		Stone 2		12. Water/Cement & Pozzolan Ratio											
1.0 %				6.6 %		N/A %		0.37 Max 0.37 Act.											
13. Ticket No.			14. Truck No.			15. Time of Testing			16. Time of Molding										
62965			18			0949 Hrs at 2 Yards			0950 Hrs										
17. Slump ASTM-C-143-74			18. Air Content ASTM-C-231-75			19. Temp: Concrete			20. Temp: Air										
3 Inches			1.4 %			64 °F			37 °F										
21. Initials						22. Initial Curing ASTM-C-31-69; Therm/Due Date													
(TC) WM BT						60 °F To 80 °F; 617 18-24-83													
23. Stripped ASTM-C-31-69						24. Initials													
3-5-83 At 0930 Hrs						RB LH TC													
COMPRESSIVE STRENGTH DATA ASTM-C-39-71																			
25. Specimen Identification		26. Date Molder		27. Date Tested		28. Age		29. Total Load in Pounds		30. Actual Cyl Diam		31. Actual Cyl Area		32. Type of Break		33. Cure Field Lab		34. Strength PSI	
SP1694-971		3-4-83		4-1-83		28		193,500		6.00		28.27		A		1		27 6470	
972				4-1-83		28		175,250		6.00		28.27		E		1		27 6200	
973				5-3-83		60		203,750		6.00		28.27		A		1		59 7,210	
974				S		S		202,000		6.00		28.27		A		1		59 7,150	
975				5-3-83		60		214,000		6.00		28.27		A		1		59 7,570	
976				6-2-83		90													
977				S		S													
SP1694-978		3-4-83		6-2-83		90													
35. Standard Cylinder								40. Remarks											
<input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other																			
36. Age (Days)		37. Tested By		38. Checked By		39. Reviewed by Q.C.													
28		WM, KK, RH		N/A		20W 5-11-83													
60		(RG)/KK RB																	
41. Laboratory Supervisor Signature								42. Date											

Type of Breaks: A = Cone, Mortar Failure B = Cone, Aggregate Failure C = Shear, Mortar Failure D = Shear, Aggregate Failure
E = Other

7220-QCF-39 Rev. 5

45T-M-7427

45T-11-130 @ 14

UST-M-62@60



BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification <i>N/A REF. LETTER 106621</i>		2. Date Placed <i>3-4-83</i>	
3. Placement Location <i>ALLIED CONCRETE</i>			
3A. PLANT DATA Source <i>ALLIED CONCRETE</i>		Cement Brand & Type <i>AETNA TYPE I</i>	
4. Mix <i>#3</i>	5. Class <i>I</i>	6. Q ² List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Required Strength <i>4000</i> PSI At <i>28</i> Days
8. Test Data At: <i>BATCH PLANT (CM)</i>		9. Unit Weight ASTM-C-138-74 <i>152.70</i> Lbs/Ft ³	10. Yield: <i>26.94</i>
11. Moisture: Sand ASTM-C-566-67(72) <i>1.0</i> %		Stone 1 <i>0.6</i> %	Stone 2 <i>N/A</i> %
12. Water/Cement & Pozzolan Ratio <i>0.368</i> Max <i>0.37</i> Act.			
13. Ticket No. <i>62966</i>	14. Truck No. <i>18</i>	15. Time of Testing <i>1017</i> Hrs at <i>2</i> Yards	16. Time of Molding <i>1018</i> Hrs
17. Sump ASTM-C-143-74 <i>3 1/2</i> Inches	18. Air Content ASTM-C-231-75 <i>1.6</i> %	19. Temp: Concrete <i>70</i> °F	20. Temp: Air <i>39</i> °F
21. Initials <i>(TC) AT WM</i>		22. Initial Curing ASTM-C-31-69; Therm/Due Date <i>60</i> °F To <i>70</i> °F; <i>17</i> <i>18-24-83</i>	
23. Shipped ASTM-C-31-69 <i>3-5-83</i> At <i>0910</i> Hrs		24. Initials <i>JW RTB</i>	

COMPRESSIVE STRENGTH DATA ASTM-C-39-71

25. Specimen Identification	26. Date Molded	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field	33. Cure Lab	34. Strength PSI
SP1645-979	3-4-83	3-5-83	1	103,500	5.98	28.09	A	1	0	3680
980				102,000	5.99	28.18	A	1	0	3620
981		3-5-83	1	99,000	5.99	28.18	A	1	0	3510
982		3-6-83	2	116,000	5.99	28.18	A	1	1	4,120
983				117,750	6.00	28.27	A	1	1	4,170
984		3-6-83	2	115,500	6.00	28.27	A	1	1	4,090
985		3-7-83	3	126,000	6.00	28.27	A	1	2	4,460
SP1645-986	3-4-83	3-7-83	3	127,000	6.00	28.27	A	1	2	4,490

35. Standard Cylinder <input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other				40. Remarks	
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.		
1	LH RTB	RTB	NA	RTB 5-11-83	
2	LH RH	RTB			
3	WM TC	RTB			
41. Laboratory Supervisor Signature				42. Date	

Type of Breaks: A=Concrete, Mortar Failure B=Concrete, Aggregate Failure C=Shear, Mortar Failure D=Shear, Aggregate Failure E=Other



BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification <i>N/A REF LETTER 106621</i>		2. Date Placed <i>3-4-83</i>							
3. Placement Location <i>ALLIED CONCRETE</i>									
3A. PLANT DATA Source <i>ALLIED CONCRETE</i>		Cement Brand & Type <i>ASTMA TYPE I</i>							
4. Mix # <i>3</i>	5. Class <i>I</i>	6. "Q" List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Required Strength <i>4000</i> PSI At <i>28</i> Days						
8. Test Data At: <i>BATCH PLANT (C.M.)</i>		9. Unit Weight ASTM-C-138-74 <i>152.70</i> Lbs/Ft ³	10. Yield: <i>26.94</i>						
11. Moisture: Sand ASTM-C-566-87(72) <i>1.0</i> %		Stone 1 <i>0.6</i> %	Stone 2 <i>N/A</i> %						
12. Water/Cement & Pozzolan Ratio <i>0.368</i> Max <i>0.37</i> Act.									
13. Ticket No. <i>62966</i>	14. Truck No. <i>18</i>	15. Time of Testing <i>1017</i> Hrs at <i>2</i> Yards	16. Time of Molding <i>1018</i> Hrs						
17. Slump ASTM-C-143-74 <i>3 1/2</i> inches	18. Air Content ASTM-C-231-75 <i>1.6</i> %	19. Temp: Concrete <i>70</i> °F	20. Temp: Air <i>39</i> °F						
21. Initial Cure <i>(T) BT WMI</i>		22. Initial Curing ASTM-C-31-69; Therm/Due Date <i>40</i> °F To <i>40</i> °F; <i>4/7/83-4/24/83</i>							
23. Stripped ASTM-C-31-69 <i>3-5-83</i> At <i>0910</i> Hrs		24. Initials <i>RB</i>							
COMPRESSIVE STRENGTH DATA ASTM-C-39-71									
25. Specimen Identification	26. Date Molded	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field	34. Strength PSI
<i>SP1645- 987</i>	<i>3-4-83</i>	<i>3-7-83</i>	<i>3</i>	<i>130,500</i>	<i>5.99</i>	<i>28.18</i>	<i>A</i>	<i>1</i>	<i>2</i>
<i>988</i>		<i>3-11-83</i>	<i>7</i>	<i>153,000</i>	<i>5.99</i>	<i>28.18</i>	<i>A</i>	<i>1</i>	<i>6</i>
<i>989</i>				<i>146,500</i>	<i>5.99</i>	<i>28.18</i>	<i>A</i>	<i>1</i>	<i>6</i>
<i>990</i>		<i>3-11-83</i>	<i>7</i>	<i>146,750</i>	<i>5.99</i>	<i>28.18</i>	<i>A</i>	<i>1</i>	<i>6</i>
<i>991</i>		<i>3-18-83</i>	<i>14</i>	<i>168,500</i>	<i>5.98</i>	<i>28.09</i>	<i>A</i>	<i>1</i>	<i>13</i>
<i>992</i>				<i>165,500</i>	<i>5.98</i>	<i>28.09</i>	<i>A</i>	<i>1</i>	<i>13</i>
<i>993</i>		<i>3-18-83</i>	<i>14</i>	<i>173,000</i>	<i>5.99</i>	<i>28.18</i>	<i>A</i>	<i>1</i>	<i>13</i>
<i>SP1645- 994</i>	<i>3-4-83</i>	<i>4-1-83</i>	<i>28</i>	<i>177,500</i>	<i>6.00</i>	<i>28.27</i>	<i>A</i>	<i>1</i>	<i>27</i>
35. Standard Cylinder <input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other				40. Remarks					
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.						
<i>3</i>	<i>WM TC</i>	<i>RB</i>	<i>NA - per 5/1/83</i>						
<i>7</i>	<i>BW ET WNGW</i>	<i>CT</i>							
<i>14</i>	<i>ET RZ</i>	<i>RB</i>							
41. Laboratory Supervisor Signature				42. Date					

Type of Breaks: A = Cone, Mortar Failure B = Cone, Aggregate Failure C = Shear, Mortar Failure D = Shear, Aggregate Failure E = Other



BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification				2. Date Placed			
N/A REF. LETTER 106621				3-4-83			
3. Placement Location							
ALLIED CONCRETE							
3A. PLANT DATA				Cement Brand & Type			
Source: ALLIED CONCRETE				ASTM TYPE I			
4. Mix # 3		5. Class I		6. "Q" List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		7. Required Strength	
						4000 PSI At 28 Days	
8. Test Data At:				9. Unit Weight ASTM-C-138-74		10. Yield:	
BRICK PLANT (CAM)				152.20 Lbs/Ft ³		26.94	
11. Moisture: Sand ASTM-C-565-67(72)				Stone 1		Stone 2	
1.0 %				0.6 %		N/A %	
12. Water/Cement & Pozzolan Ratio				0.368 Max 0.37 Act.			
13. Ticket No.		14. Truck No.		15. Time of Testing		16. Time of Molding	
62966		18		1017 Hrs at 2 Yards		1018 Hrs	
17. Skump ASTM-C-143-74		18. Air Content ASTM-C-231-75		19. Temp: Concrete		20. Temp: Air	
3 1/2 inches		1.6 %		70 °F		37 °F	
21. Initials				22. Initial Curing ASTM-C-31-69; Therm/Due Date			
(TC) RT WM				60°F To 90°F; 617 19-24 83			
23. Stripped ASTM-C-31-69				24. Initials			
3-5-83 At 0911 Hrs				RB, JEW			
COMPRESSIVE STRENGTH DATA ASTM-C-39-71							
25. Specimen Identification		26. Date Molded		27. Date Tested		28. Age	
SP1695-		995 3-4-83		4-1-83		28	
996		4-1-83		28		182,250	
997		5-3-83		60		6.00 28.27	
998		5-3-83		60		6.00 27.27	
999		5-3-83		60		204,000 6.00 28.27	
1000		6-2-83		90		5.99 28.18	
1001		6-2-83		90		A 1 59 7,220	
SP1695- 1002		3-4-83		6-2-83		A 1 59 7,410	
35. Standard Cylinder		36. Age (Days)		37. Tested By		38. Checked By	
<input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other		28		Wm K. R. H.		N.A.	
40. Remarks		39. Reviewed by Q.C.		41. Laboratory Supervisor Signature		42. Date	
		224 5-11-83		✓			
		60 (RG) K. R. H. ✓					

Type of Breaks: A= Cone, Mortar Failure B= Cone, Aggregate Failure C= Shear, Mortar Failure D= Shear, Aggregate Failure E= Other

7220-QCF-39 Rev. 5

UST-M-74@7 UST-M-130@14

UST-M-62@60

RECEIVED

BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification <div style="text-align: center;">N/A REF. LETTER 106621</div>						2. Date Placed <div style="text-align: center;">3-4-83</div>			
3. Placement Location <div style="text-align: center;">ALLIED CONCRETE</div>									
3A. PLANT DATA		Source ALLIED CONCRETE		Cement Brand & Type AETNA TYPE I					
4. Mix # 4		5. Class I		6. "Q" List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		7. Required Strength 4000 PSI At 28 Days			
8. Test Data At: BATCH PLANT (CM)		9. Unit Weight ASTM-C-138-74 152.96 Lbs/Ft ³		10. Yield: 26.92					
11. Moisture: Sand ASTM-C-556-67(72) 1.0 %		Stone 1 0.6 %		Stone 2 N/A %		12. Water/Cement & Pozzolan Ratio 0.393 Max 0.38 Act.			
13. Ticket No. 62967		14. Truck No. 18		15. Time of Testing 1043 Hrs at 2 Yards		16. Time of Molding 1044 Hrs			
17. Slump ASTM-C-143-74 3 1/2 Inches		18. Air Content ASTM-C-231-75 1.7 %		19. Temp: Concrete 68 °F		20. Temp: Air 38 °F			
22. Initial Curing ASTM-C-31-69; Therm/Due Date 60°F To 90°F; 617 18-24-83				23. Stripped ASTM-C-31-69 At 1023 Hrs 3-5-83					
24. Initials RB, TC									
COMPRESSIVE STRENGTH DATA ASTM-C-39-71									
25. Specimen Identification	26. Date Molded	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field Lab	34. Strength PSI
SP1646-1003	3-4-83	3-5-83	1	90,500	6.00	28.27	A	1 0	3,200
1004				93,500	6.00	28.27	A	1 0	3,310
1005		3-5-83	1	100,000	6.00	28.27	C	1 0	3,540
1006		3-6-83	2	113,500	5.98	28.09	A	1 1	4,040
1007				109,500	5.98	28.09	A	1 1	3,900
1008		3-6-83	2	118,000	6.00	28.27	A	1 1	4,170
1009		3-7-83	3	118,000	6.00	28.27	A	1 2	4,170
SP1646-1010	3-4-83	3-7-83	3	127,000	6.01	28.37	A	1 2	4,480
35. Standard Cylinder <input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other				40. Remarks					
36. Age (Days)	37. Tested By	38. Checked By	Reviewed by Q.C.						
1	RTB LH	RTB	N/A ROW 51103						
2	LH RH	RTB							
3	WM SCRB	RTB							
41. Laboratory Supervisor Signature						42. Date			

Type of Breaks: A = Cone, Mortar Failure B = Cone, Aggregate Failure C = Shear, Mortar Failure D = Shear, Aggregate Failure E = Other

BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification <div style="text-align: center;">N/A REF. LETTER 106621</div>						2. Date Placed 3-4-83			
3. Placement Location ALLIED CONCRETE									
3A. PLANT DATA Source: ALLIED CONCRETE				Cement Brand & Type AETNA TYPE I					
4. Mix #4		5. Class I		6. "C" List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		7. Required Strength 4000 PSI At 28 Days			
8. Test Data At: BATCH PLANT (CM)				9. Unit Weight ASTM-C-138-74 152.96 Lbs/Ft ³		10. Yield: 26.92			
11. Moisture: Sand ASTM-C-566-67(72) 1.0 %		Stone 1 0.6 %		Stone 2 N/A %		12. Water/Cement & Pozzolan Ratio 0.393 Max 0.38 Act.			
13. Ticket No. 62967		14. Truck No. 18		15. Time of Testing 1043 Hrs at 2 Yards		16. Time of Molding 1044 Hrs			
17. Slump ASTM-C-143-74 3 1/2 inches		18. Air Content ASTM-C-231-75 1.7 %		19. Temp: Concrete 68 °F		20. Temp: Air 38 °F			
22. Initial Curing ASTM-C-31-69; Therm/Due Date 60 °F To 80 °F; 6/7 18-24-83				23. Stripped ASTM-C-31-69 3-5-83 At 1023 Hrs		21. Initials (TC) BT WM 24. Initials RB TC			
COMPRESSIVE STRENGTH DATA ASTM-C-39-71									
25. Specimen Identification	26. Date Maked	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field Lab	34. Strength PSI
SP1696-1011	3-4-83	3-7-83	3	116,500	6.01	28.37	A	1 2	4,110
1012		3-11-83	7	143,000	6.00	28.21	A	1 6	5060
1013				150,000	6.00	28.21	A	1 6	5310
1014		3-11-83	7	145,150	6.00	28.21	A	1 6	5160
1015		3-18-83	14	162,250	5.99	28.18	A	1 13	5,760
1016				168,000	6.00	28.27	B	1 13	5,940
1017		3-18-83	14	166,250	6.00	28.27	A	1 13	5,880
SP1696-1018	3-4-83	4-1-83	28	176,750	5.99	28.18	B	1 27	6270
35. Standard Cylinder <input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other				40. Remarks					
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.						
3	WM SF PB Rbg	GA	N/A 2/25/83						
7	ET WM GW	CT							
14	ET RZ PB TC	PB	V						
41. Laboratory Supervisor Signature								42. Date	

Type of Breaks: A=Concrete Mortar Failure B=Concrete Aggregate Failure C=Shear, Mortar Failure D=Shear, Aggregate Failure E=Other

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USF-M-74@7 USF-M-130@14 USF-M-62@60



BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification <i>N/A REF. LETTER 106621</i>						2. Date Placed <i>3-4-83</i>			
3. Placement Location <i>ALLIED CONCRETE</i>									
3A. PLANT DATA		Source <i>ALLIED CONCRETE</i>		Cement Brand & Type <i>AETNA TYPE I</i>					
4. Mix <i>#4</i>		5. Class <i>I</i>		6. "Q" List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		7. Required Strength <i>4000</i> PSI At <i>28</i> Days			
8. Test Data At: <i>BATCH PLANT (CM)</i>				9. Unit Weight ASTM-C-138-74 <i>152.96</i> Lbs/Ft ³		10. Yield: <i>26.92</i>			
11. Moisture: Sand ASTM-C-566-67(72) <i>1.0</i> %				Stone 1 <i>0.6</i> %		Stone 2 <i>N/A</i> %			
12. Water/Cement & Pozzolan Ratio <i>0.393</i> Max <i>0.38</i> Act.									
13. Ticket No. <i>62967</i>		14. Truck No. <i>18</i>		15. Time of Testing <i>1043</i> Hrs at <i>2</i> Yards		16. Time of Molding <i>1044</i> Hrs			
17. Skump ASTM-C-143-74 <i>3 1/2</i> Inches		18. Air Content ASTM-C-231-75 <i>1.7</i> %		19. Temp: Concrete <i>68</i> °F		20. Temp: Air <i>38</i> °F			
21. Initials <i>(TC) BT WM</i>									
22. Initial Curing ASTM-C-31-69; Therm/Due Date <i>60</i> °F To <i>80</i> °F; <i>617 18-24-83</i>				23. Stripped ASTM-C-31-69 <i>3-5-83</i> At <i>1023</i> Hrs					
24. Initials <i>RB TC</i>									
COMPRESSIVE STRENGTH DATA ASTM-C-39-71									
25. Specimen Identification	26. Date Mailed	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field	34. Strength PSI
<i>SP1646-1019</i>	<i>3-4-83</i>	<i>4-1-83</i>	<i>28</i>	<i>173,500</i>	<i>6.01</i>	<i>28.37</i>	<i>A</i>	<i>1</i>	<i>27</i>
<i>1020</i>		<i>4-1-83</i>	<i>28</i>	<i>175,500</i>	<i>6.00</i>	<i>28.27</i>	<i>A</i>	<i>1</i>	<i>27</i>
<i>1021</i>		<i>5-3-83</i>	<i>60</i>	<i>193,500</i>	<i>6.00</i>	<i>28.27</i>	<i>A</i>	<i>1</i>	<i>59</i>
<i>1022</i>				<i>193,500</i>	<i>6.00</i>	<i>28.27</i>	<i>A</i>	<i>1</i>	<i>59</i>
<i>1023</i>		<i>5-3-83</i>	<i>60</i>	<i>196,500</i>	<i>6.00</i>	<i>28.27</i>	<i>A</i>	<i>1</i>	<i>59</i>
<i>1024</i>		<i>6-2-83</i>	<i>90</i>						
<i>1025</i>									
<i>SP1646-1026</i>	<i>3-4-83</i>	<i>6-2-83</i>	<i>90</i>						
35. Standard Cylinder <input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other				40. Remarks					
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.						
<i>28</i>	<i>WMKK</i>	<i>RH</i>	<i>N/A</i>						
<i>60</i>	<i>RG</i>	<i>RB</i>	<i>W</i>						
41. Laboratory Supervisor Signature <i>N</i>				42. Date					

Type of Breaks: A = Cone, Mortar Failure B = Cone, Aggregate Failure C = Shear, Mortar Failure D = Shear, Aggregate Failure E = Other

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UST-M-7407 UST-M-130014 UST-M-62060



BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification		2. Date Placed	
N/A REF. LETTER 106621		3-4-83	
3. Placement Location			
ALLIED CONCRETE			
3A. PLANT DATA		Cement Brand & Type	
Source ALLIED CONCRETE		AETNA TYPE I	
4. Mix	5. Class	6. "Q" List	7. Required Strength
#5	I	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9000 PSI At 28 Days
8. Test Data At:		9. Unit Weight ASTM-C-138-74	10. Yield:
BATCH PLANT (CM)		152.84 Lbs/Ft ³	26.62
11. Moisture: Sand ASTM-C-566-87(72)		Stone 1	Stone 2
1.0 %		0.6 %	N/A %
12. Water/Cement & Pozzolan Ratio		13. Time of Molding	
0.412 Max 0.38 Act.		1107 Hrs	
13. Ticket No.	14. Truck No.	15. Time of Testing	16. Time of Molding
62968	18	1106 Hrs at 2 Yards	1107 Hrs
17. Slump ASTM-C-143-74	18. Air Content ASTM-C-231-75	19. Temp: Concrete	20. Temp: Air
3 1/2 Inches	1.9 %	71 °F	42 °F
21. Initials		22. Initials	
(TC) BT WM		RA, TE, RL, LH	
23. Stripped ASTM-C-31-69		24. Initials	
60 °F To 80 °F; 6-17-82-24-83		3-5-83 At 1000 Hrs	

COMPRESSIVE STRENGTH DATA ASTM-C-39-71

25. Specimen Identification	26. Date Molded	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field	34. Strength PSI
SP1647-1027	3-4-83	3-5-83	1	91,000	6.01	28.37	A	1 0	3,210
1028				89,750	6.00	28.27	A	1 0	3,170
1029		3-5-83	1	86,500	6.00	28.27	B	1 0	3,060
1030		3-6-83	2	105,000	6.00	28.27	A	1 1	3,710
1031				107,500	5.99	28.18	A	1 1	3,810
1032		3-6-83	2	104,500	6.00	28.27	A	1 1	3,700
1033		3-7-83	3	120,500	6.00	28.27	A	1 2	4,260
SP1647-1034	3-4-83	3-7-83	3	116,000	6.01	28.37	A	1 2	4,090

35. Standard Cylinder		40. Remarks	
<input checked="" type="checkbox"/> 6" x 12"	<input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other		
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.
1	RTB, LH	RAH	N.A. 3-11-83
2	RTB, LH	RAH	
3	W.D. SF, TC	RAH	
41. Laboratory Supervisor Signature			42. Date

Type of Breaks: A=Conc. Mortar Failure B=Conc. Aggregate Failure C=Shear, Mortar Failure D=Shear, Aggregate Failure E=Other



BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification		2. Date Placed	
N/A REF. LETTER 106621		3-4-83	
3. Placement Location			
ALLIED CONCRETE			
3A. PLANT DATA		Cement Brand & Type	
Source: ALLIED CONCRETE		AETNA TYPE I	
4. Mix	5. Class	6. "Q" List	7. Required Strength
# 5	I	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4000 PSI At 28 Days
8. Test Data At:		9. Unit Weight ASTM-C-138-74	10. Yield:
BATCH PLANT (CM)		152.84 Lbs/Ft ³	26.62
11. Moisture: Sand ASTM-C-568-67(72)		Stone 1	Stone 2
1.0 %		0.6 %	N/A %
12. Water/Cement & Pozzolan Ratio		13. Ticket No.	
0.412 Max 0.38 Act.		62968	
14. Truck No.		15. Time of Testing	
18		1106 Hrs at 2 Yards	
16. Time of Molding		17. Slump ASTM-C-143-74	
1107 Hrs		3 1/2 Inches	
18. Air Content ASTM-C-231-75		19. Temp: Concrete	
1.9 %		71 °F	
20. Temp: Air		21. Initials	
42 °F		(TC) AT WM	
22. Initial Curing ASTM-C-31-69; Therm/Due Date		23. Stripped ASTM-C-31-69	
10 °F To 80 °F; 617 18-24-83		3-5-83 At 1000 Hrs	
24. Initials		RB TC PG LH	

COMPRESSIVE STRENGTH DATA ASTM-C-39-71

25. Specimen Identification	26. Date Maked	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field	34. Strength PSI
SP1647 - 1043	3-4-83	4-1-83	28	162,500	6.01	28.27	A	1 27	5940
1044		4-1-83	28	177,500	6.00	28.27	A	1 27	6280
1045		5-3-83	60	200,000	6.00	28.27	A	1 59	7070
1046				199,000	6.00	28.27	B	1 59	7040
1047		5-3-83	60	200,500	6.00	28.27	A	1 59	7090
1048		6-2-83	90						
1049									
SP1647-1050	3-4-83	6-2-83	90						

35. Standard Cylinder				40. Remarks	
<input checked="" type="checkbox"/> 6" x 12"	<input type="checkbox"/> Cube	<input type="checkbox"/> Core	<input type="checkbox"/> Other		
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.		
28	am, KK	RH	NA 51123		
60	(RE) KK/KD	BB			
				41. Laboratory Supervisor Signature	42. Date

Type of Breaks: A = Cone, Mortar Failure B = Cone, Aggregate Failure C = Shear, Mortar Failure D = Shear, Aggregate Failure E = Other



BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification <u>N/A REF. LETTER 106621</u>		2. Date Placed <u>3-4-83</u>							
3. Placement Location <u>ALLIED CONCRETE</u>									
3A. Source PLANT DATA <u>ALLIED CONCRETE</u>		Cement Brand & Type <u>AETNA TYPE I</u>							
4. Mix <u># 5</u>	5. Class <u>I</u>	6. "Q" List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Required Strength <u>4000</u> PSI At <u>28</u> Days						
8. Test Data At: <u>BATCH PLANT (CM)</u>		9. Unit Weight ASTM-C-138-74 <u>152.84</u> Lbs/Ft ³	10. Yield: <u>26.62</u>						
11. Moisture: Sand ASTM-C-568-67(72) <u>1.0</u> %		Stone 1 <u>0.6</u> %	Stone 2 <u>NA</u> %						
12. Water/Cement & Pozzolan Ratio <u>0.42</u> Max <u>0.38</u> Act.									
13. Ticket No. <u>62918</u>	14. Truck No. <u>18</u>	15. Time of Testing <u>1106</u> Hrs at <u>2</u> Yards	16. Time of Molding <u>1107</u> Hrs						
17. Slump ASTM-C-143-74 <u>3 1/2</u> Inches	18. Air Content ASTM-C-231-75 <u>1.9</u> %	19. Temp: Concrete <u>71</u> °F	20. Temp: Air <u>42</u> °F						
21. Initials <u>ET, BT, WM</u>		22. Initial Curing ASTM-C-31-69; Therm/Due Date <u>60°F To 80°F; 617 18-2483</u>							
23. Stripped ASTM-C-31-69 <u>3-5-83</u> At <u>1000</u> Hrs		24. Initials <u>ET, BT, WM</u>							
COMPRESSIVE STRENGTH DATA ASTM-C-39-71									
25. Specimen Identification	26. Date Molded	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field Lab	34. Strength PSI
SP1647-1035	3-4-83	3-7-83	3	119,500	6.00	28.27	A	1 2	4,230
1036		3-11-83	7	147,500	5.99	28.18	A	1 6	5,230
1037				146,000	6.00	28.27	A	1 6	5,160
1038		3-11-83	7	150,000	6.00	28.27	A	1 6	5,310
1039		3-18-83	14	164,500	5.99	28.18	A	1 13	5,840
1040				161,000	5.99	28.18	A	1 13	5,710
1041		3-18-83	14	164,250	5.99	28.18	A	1 13	5,830
SP1647-1092	3-4-83	4-1-83	28	180,500	6.00	28.27	A	1 27	6,380
35. Standard Cylinder <input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other				40. Remarks					
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.						
3	WM, SE, TC	RZ	N.A. 20W 51188						
7	ET, WM	GO							
14	RZ, ET	RZ							
41. Laboratory Supervisor Signature				42. Date					

Type of Breaks: A=Conc. Mortar Failure B=Conc. Aggregate Failure C=Shear, Mortar Failure D=Shear, Aggregate Failure E=Other

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Attachment - B

Mix Proportions E 5 C-H 6000 psi @ 60 days
C 60-H With HRWR.

Check Mixes for slump requirement.

Batch ticket	Mix	W/C ratio	Slump initial inches	Slump with HRWR inches	Strength	
					28 days	60 days
62979	1B		$3\frac{1}{4}$	$9\frac{1}{4}$		
62980	2B	0.362	$3\frac{1}{2}$	$8\frac{1}{2}$	6650	7293
62981	3B	0.365	$2\frac{3}{4}$	8	6520	7333
62983	4B		$2\frac{1}{2}$	7		
62984	5B	0.411	3	$7\frac{1}{2}$	5920	6723

Max slump to be 8" with HRWR
range = $7\frac{1}{4}$ to $8\frac{3}{4}$

Only 2B, 3B, and 5B are acceptable

Results of W/C ratio against strength are plotted

E-SC-H
C-6C-H
RECEIVED

BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification <i>Trial Mix</i>				2. Date Placed <i>3-5-83</i>	
3. Placement Location <i>U.S. Testing</i>					
3A. PLANT DATA Source <i>Allied Concrete Prod</i>			Cement Brand & Type <i>Actra Type I</i>		
4. Mix <i>2B</i>	5. Class <i>I</i>	6. "Q" List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		7. Required Strength <i>6000</i> PSI At <i>28</i> Days	
8. Test Data At: <i>Lab</i>		9. Unit Weight ASTM-C-138-74 <i>153.03</i> Lbs/Ft ³			
11. Moisture: Sand ASTM-C-566-67(72) <i>1.9</i> %		Stone 1 <i>0.5</i> %		Stone 2 <i>NA</i> %	
12. Water/Cement & Pozzolan Ratio <i>.37</i> Max <i>.36</i> Act.					
13. Ticket No. <i>62980</i>		14. Truck No. <i>18</i>		15. Time of Testing <i>0940</i> Hrs at <i>2</i> Yards	
17. Slump ASTM-C-143-74 <i>8 1/2</i> Inches		18. Air Content ASTM-C-231-75 <i>1.3</i> %		19. Temp: Concrete <i>64</i> °F	
20. Temp: Air <i>40</i> °F		21. Initials <i>BT, LH, OS</i>		22. Initial Curing ASTM-C-31-69; Therm/Due Date <i>68°F To 74°F; C20 18-24-83</i>	
23. Stripped ASTM-C-31-69 <i>3-6-83</i> At <i>0300</i> Hrs		24. Initials <i>Jew, ST, RG</i>			

COMPRESSIVE STRENGTH DATA ASTM-C-39-71

25. Specimen Identification	26. Date Molded	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field	33. Cure Lab	34. Strength PSI
SP 1654 1195	3-5-83	3-6-83	1	100,500	5.99	28.18	A	1	0	3,570
1196			1	100,000	6.00	28.27	A	1	0	3,540
1197		3-6-83	1	102,500	5.99	28.18	A	1	0	3,640
1198		3-7-83	2	124,000	6.00	28.27	A	1	1	4,390
1199			2	122,500	5.99	28.18	A	1	1	4,350
1200		3-7-83	2	119,750	6.00	28.27	A	1	1	4,240
1201		3-8-83	3	132,500	5.99	28.18	A	1	2	4,700
SP 1654 1202	3-5-83	3-8-83	3	128,250	6.00	28.27	A	1	2	4,540
35. Standard Cylinder <input checked="" type="checkbox"/> 28" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other				40. Remarks <i>INNER 25(10) CURING TEMP OUT OF SPEC</i>						
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.	TEMPERATURE TOO LOW, B.O., Q.C.						
1	LH EW	NA	NA	NOTIFIED, 4-15-83 @ 1452						
2	WM TC			TEMP 74° @ 1532 4-15-83						
3	WM LH			41. Laboratory Supervisor Signature						
				42. Date						

Type of Breaks: A=Conc. Mortar Failure B=Conc. Aggregate Failure C=Shear, Mortar Failure D=Shear, Aggregate Failure E=Other

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UST-M-74@7 UST-M-131@14 UST-MQ-58@2810



BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification <i>Test Mix</i>		2. Date Placed <i>3-5-83</i>							
3. Placement Location <i>U.S. Testing</i>									
3A. PLANT DATA Source: <i>Allied Concrete Prod.</i>		Cement Brand & Type <i>Aetra Type I</i>							
4. Mix <i>2B</i>	5. Class <i>I</i>	6. "Q" List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Required Strength <i>4000</i> PSI At <i>28</i> Days						
8. Test Data At: <i>Lab</i>		9. Unit Weight ASTM-C-138-74 <i>153.03</i> Lbs/Ft ³	10. Yield: <i>26.91</i>						
11. Moisture: Sand ASTM-C-566-87(72) <i>1.9</i> %		Stone 1 <i>0.5</i> %	Stone 2 <i>NA</i> %						
12. Water/Cement & Pozzolan Ratio <i>.37</i> Max <i>.36</i> Act.									
13. Ticket No. <i>62980</i>	14. Truck No. <i>18</i>	15. Time of Testing <i>0940</i> Hrs at <i>2</i> Yards	16. Time of Molding <i>0940</i> Hrs						
17. Slump ASTM-C-143-74 <i>8 1/2</i> Inches	18. Air Content ASTM-C-231-75 <i>1.3</i> %	19. Temp: Concrete <i>64</i> °F	20. Temp: Air <i>40</i> °F						
21. Initials <i>BT/LH/DS</i>									
22. Initial Curing ASTM-C-31-69; Thera/Due Date <i>68°F To 74°F; 620 12-24-83</i>		23. Stripped ASTM-C-31-69 <i>3-6-83</i> At <i>0300</i> Hrs							
24. Initials <i>See 57, 80</i>									
COMPRESSIVE STRENGTH DATA ASTM-C-39-71									
25. Specimen Identification	26. Date Molder	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field Lab	34. Strength PSI
<i>SP 1203</i> <i>1654</i>	<i>3-5-83</i>	<i>3-8-83</i>	<i>3</i>	<i>128,500</i>	<i>6.00</i>	<i>28.27</i>	<i>A</i>	<i>1 2</i>	<i>4,550</i>
<i>1204</i>		<i>3-12-83</i>	<i>7</i>	<i>152,500</i>	<i>6.01</i>	<i>28.37</i>	<i>A</i>	<i>1 6</i>	<i>5380</i>
<i>1205</i>		<i>1</i>	<i>7</i>	<i>152,250</i>	<i>6.01</i>	<i>28.37</i>	<i>A</i>	<i>1 6</i>	<i>5370</i>
<i>1206</i>		<i>3-12-83</i>	<i>7</i>	<i>152,000</i>	<i>6.01</i>	<i>28.37</i>	<i>A</i>	<i>1 6</i>	<i>5360</i>
<i>1207</i>		<i>3-19-83</i>	<i>14</i>	<i>165,500</i>	<i>6.01</i>	<i>28.37</i>	<i>A</i>	<i>1 13</i>	<i>5,830</i>
<i>1208</i>		<i>1</i>	<i>14</i>	<i>170,000</i>	<i>5.98</i>	<i>28.09</i>	<i>B</i>	<i>1 13</i>	<i>6,050</i>
<i>1209</i>		<i>3-19-83</i>	<i>14</i>	<i>167,000</i>	<i>5.98</i>	<i>28.09</i>	<i>B</i>	<i>1 13</i>	<i>5,950</i>
<i>SP 1210</i> <i>1654</i>	<i>3-5-83</i>	<i>4-2-83</i>	<i>28</i>	<i>190,250</i>	<i>5.99</i>	<i>28.18</i>	<i>A</i>	<i>1 27</i>	<i>6750</i>
35. Standard Cylinder <input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other				40. Remarks					
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.						
<i>3</i>	<i>WNLH</i>	<i>RA</i>	<i>N.A. 1205 1183</i>						
<i>7</i>	<i>TL JL</i>	<i>GL</i>							
<i>14</i>	<i>RTB PBAT</i>	<i>DO</i>							
41. Laboratory Supervisor Signature				42. Date					

Type of Breaks: A=Concrete Mortar Failure B=Concrete Aggregate Failure C=Shear Mortar Failure D=Shear Aggregate Failure
E=Other

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UST-M-76@7 UST-M-131@14 UST-M-58@2860

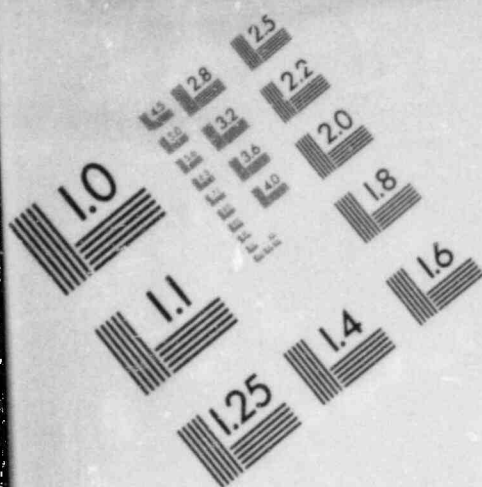
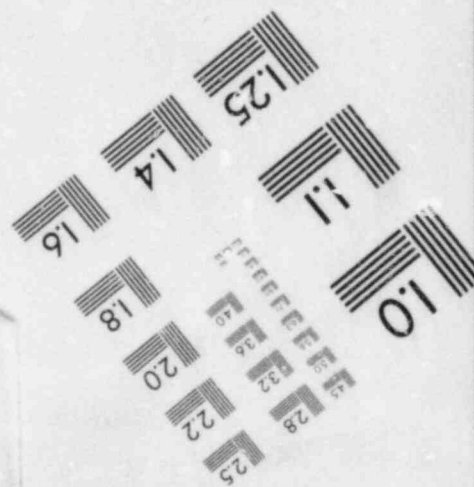
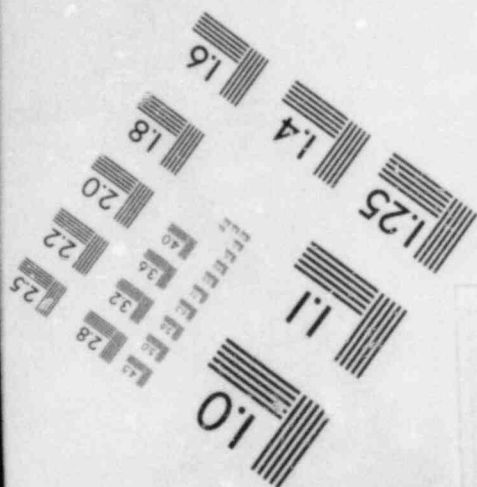
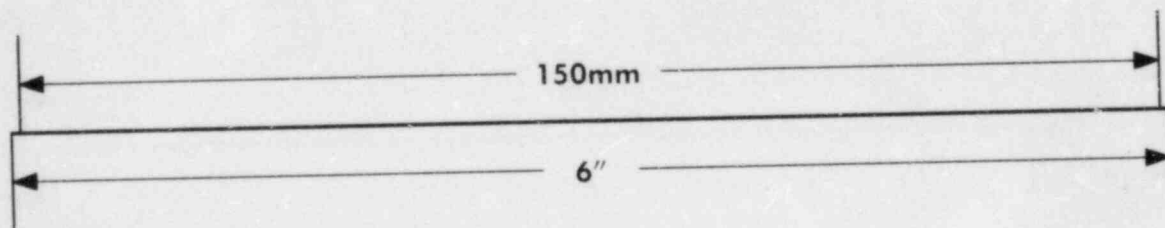
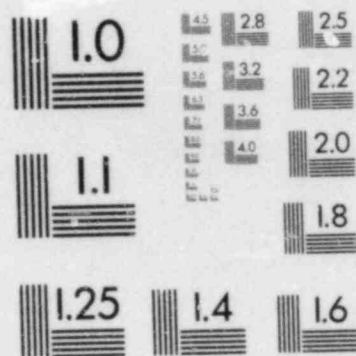
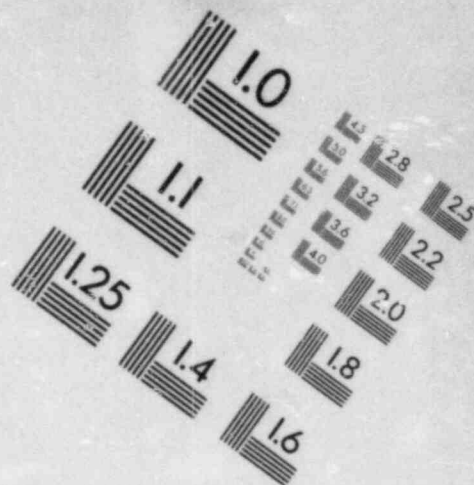


IMAGE EVALUATION
TEST TARGET (MT-3)



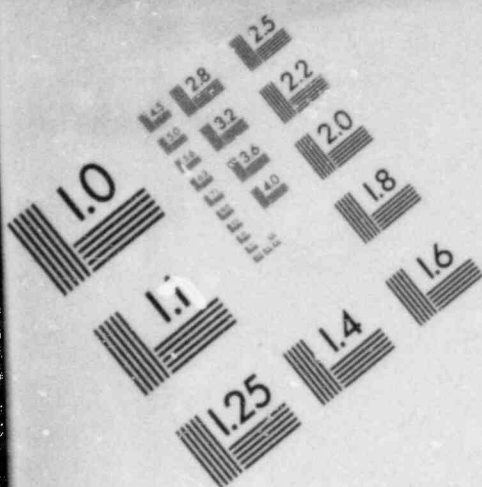
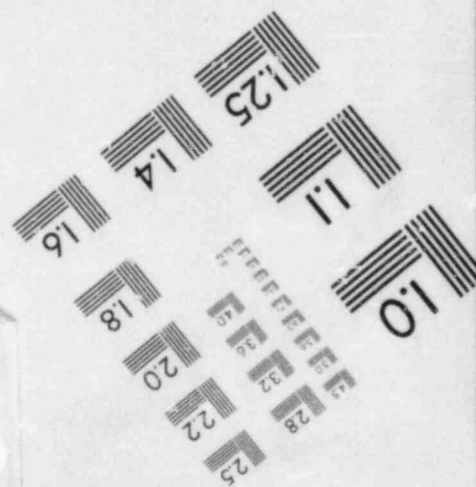
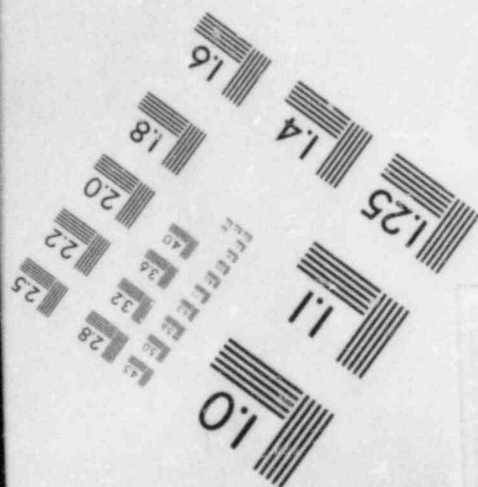
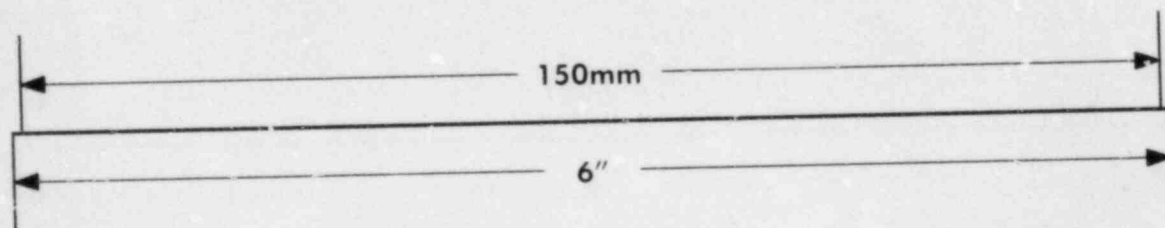
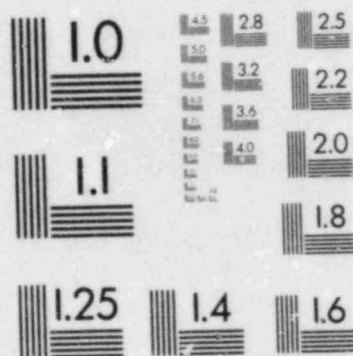
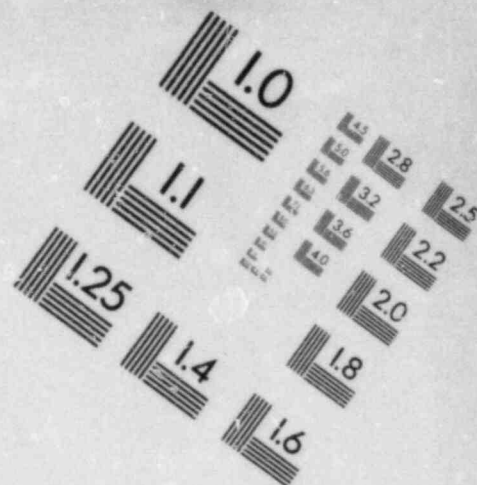


IMAGE EVALUATION
TEST TARGET (MT-3)





BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification <i>Trial Mix</i>		2. Date Placed <i>3-5-83</i>							
3. Placement Location <i>U.S. Testing</i>									
3A. PLANT DATA Source <i>Allied Concrete Prod</i>		Cement Brand & Type <i>Active Type I</i>							
4. Mix <i>2B</i>	5. Class <i>I</i>	6. "Q" List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Required Strength <i>6,000 PSI</i> At <i>28</i> Days						
8. Test Data At: <i>Lab</i>		9. Unit Weight ASTM-C-138-74 <i>153.03</i> Lbs/Ft ³	10. Yield: <i>26.91</i>						
11. Moisture: Sand ASTM-C-566-67(72) <i>1.9</i> %		Stone 1 <i>0.5</i> %	Stone 2 <i>NA</i> %						
12. Water/Cement & Pozzolan Ratio <i>.37</i> Max <i>.36</i> Act.									
13. Ticket No. <i>62980</i>	14. Truck No. <i>18</i>	15. Time of Testing <i>0940</i> Hrs at <i>2</i> Yards	16. Time of Molding <i>0940</i> Hrs						
17. Slump ASTM-C-143-74 <i>8 1/2</i> Inches	18. Air Content ASTM-C-231-75 <i>1.3</i> %	19. Temp. Concrete <i>64</i> °F	20. Temp. Air <i>40</i> °F						
21. Initials <i>BT, LH, DS</i>									
22. Initial Curing ASTM-C-31-69; Therm/Due Date <i>62°F</i> To <i>74°F</i> ; <i>620</i> <i>12-24-83</i>		23. Stripped ASTM-C-31-69 <i>3-6-83</i> At <i>0300</i> Hrs							
24. Initials <i>Jew, R, SJ</i>									
COMPRESSIVE STRENGTH DATA ASTM-C-39-71									
25. Specimen Identification	26. Date Molded	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field	34. Strength PSI
<i>SP 1211</i>	<i>3-5-83</i>	<i>4-2-83</i>	<i>28</i>	<i>188,500</i>	<i>5.99</i>	<i>28.12</i>	<i>A</i>	<i>27</i>	<i>6690</i>
<i>1654</i>		<i>4-2-83</i>	<i>28</i>	<i>183,500</i>	<i>5.99</i>	<i>28.18</i>	<i>A</i>	<i>27</i>	<i>6510</i>
<i>1212</i>		<i>5-4-83</i>	<i>60</i>	<i>209,000</i>	<i>6.00</i>	<i>28.27</i>	<i>B</i>	<i>59</i>	<i>7,390</i>
<i>1213</i>			<i>60</i>	<i>206,000</i>	<i>5.99</i>	<i>28.18</i>	<i>B</i>	<i>59</i>	<i>7,310</i>
<i>1214</i>		<i>5-4-83</i>	<i>60</i>	<i>203,000</i>	<i>6.00</i>	<i>28.27</i>	<i>D</i>	<i>59</i>	<i>7,180</i>
<i>1215</i>			<i>90</i>						
<i>1216</i>			<i>90</i>						
<i>1217</i>			<i>90</i>						
<i>SP 1218</i>	<i>3-5-83</i>	<i>6-3-83</i>	<i>90</i>						
35. Standard Cylinder <input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other				40. Remarks:					
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.						
<i>28</i>	<i>TT</i>	<i>GW</i>							
<i>60</i>	<i>BTET</i>	<i>RB</i>							
41. Laboratory Supervisor Signature				42. Date					

Type of Breaks: A=Conc. Mortar Failure B=Conc. Aggregate Failure C=Shear, Mortar Failure D=Shear, Aggregate Failure E=Other

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UST-M-76@7

UST-M-131@14

UST-M-58@16



BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification <i>Trial Mix</i>		2. Date Placed <i>3-5-83</i>	
3. Placement Location <i>U.S. Testing</i>			
3A. Source PLANT DATA <i>Whit Concrete Prod</i>		Cement Brand & Type <i>Petra Type I</i>	
4. Mix <i>3B</i>	5. Class <i>I</i>	6. "Q" List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Required Strength <i>4,000</i> PSI At <i>28</i>
8. Test Data At: <i>Lab</i>		9. Unit Weight ASTM-C-138-74 <i>153.40</i> Lbs/Ft ³	10. Yield: <i>26.92</i>
11. Moisture Sand ASTM-C-566-67(72) - Stone 1 <i>1.9</i> %		Stone 2 <i>0.5</i> %	12. Water/Cement & Pozzolan Ratio <i>.37</i> Max <i>.37</i> Air
13. Ticket No. <i>62981</i>	14. Truck No. <i>18</i>	15. Time of Testing <i>1023</i> Hrs at <i>2</i> Yards	16. Time of Molding <i>1023</i> Hrs
17. Slump ASTM-C-143-74 <i>8</i> Inches	18. Air Content ASTM-C-231-75 <i>1.2</i> %	19. Temp: Concrete <i>64</i> °F	20. Temp: Air <i>42</i> °F
21. Initials <i>BT, LH, DS</i>		22. Initial Curing ASTM-C-31-69; Therm/Due Date <i>67</i> °F To <i>74</i> °F; <i>120</i> / <i>12-24-83</i>	
23. Stripped ASTM-C-31-69 <i>3-6-83</i> At <i>0450</i> Hrs		24. Initials <i>See ST RA</i>	

COMPRESSIVE STRENGTH DATA ASTM-C-39-71

25. Specimen Identification	26. Date Molded	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field	33. Cure Lab	34. Strength PSI
SP 1219 1655	3-5-83	3-6-83	1	101,000	5.99	28.18	A	1	0	3,580
1220			1	97,750	5.98	28.09	A	1	0	3,480
1221		3-6-83	1	102,500	5.98	28.09	A	1	0	3,650
1222		3-7-83	2	116,500	5.99	28.18	A	1	1	4,130
1223			2	114,250	5.99	28.18	A	1	1	4,050
1224		3-7-83	2	119,000	5.99	28.18	A	1	1	4,220
1225		3-8-83	3	120,500	6.00	28.27	A	1	2	4,260
SP 1226 1655	3-5-83	3-8-83	3	126,500	5.99	28.18	A	1	2	4,490

35. Standard Cylinder <input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other				40. Remarks <i>IMMERSION CURING TEMP OUT OF SPEC.</i>	
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.		
<i>1</i>	<i>LH RH</i>	<i>RA</i>	<i>N.A.</i>	<i>TEMP 74° @ 1522 4-15-83</i>	
<i>2</i>	<i>WM, SF</i>	<i>RA</i>	<i>↓</i>	<i>NOTIFIED, 4-15-83 @ 1432</i>	
<i>3</i>	<i>WM, LH</i>	<i>RA</i>	<i>↓</i>	<i>TEMP 74° @ 1522 4-15-83</i>	
41. Laboratory Supervisor Signature				42. Date	

Type of Breaks: A = Conc. Mortar Failure B = Conc. Aggregate Failure C = Shear, Mortar Failure D = Shear, Aggregate Failure E = Other

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U.S.T.-17-76 @ 7 U.S.T.-M-131 @ 14 U.S.T.-M-2-58 @ 28

G/M-0213



BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification <i>Trial Mix</i>		2. Date Placed <i>3-5-83</i>	
3. Placement Location <i>U.S. Testing</i>			
3A. PLANT DATA Source <i>Allied Concrete Prod.</i>		Cement Brand & Type <i>Astra Type I</i>	
4. Mix <i>3B</i>	5. Class <i>I</i>	6. "Q" List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Required Strength <i>4,100</i> PSI At <i>28</i> Days
8. Test Data At: <i>Lab</i>		9. Unit Weight ASTM-C-138-74 <i>153.40</i> Lbs/Ft ³	10. Yield: <i>26.92</i>
11. Moisture: Sand ASTM-C-566-67(72) <i>1.9</i> %		Stone 1 <i>0.5</i> %	Stone 2 <i>LA</i> %
12. Water/Cement & Pozzolan Ratio <i>.37</i> Max <i>.37</i> Act.			
13. Ticket No. <i>162981</i>	14. Truck No. <i>18</i>	15. Time of Testing <i>1023</i> Hrs at <i>2</i> Yards	16. Time of Molding <i>1023</i> Hrs
17. Slump ASTM-C-143-74 <i>8</i> Inches	18. Air Content ASTM-C-231-75 <i>1.2</i> %	19. Temp: Concrete <i>64</i> °F	20. Temp: Air <i>42</i> °F
21. Initials <i>RT, LH, OS</i>		22. Initial Curing ASTM-C-31-69; Therm/Time Date <i>63</i> °F To <i>74</i> °F; <i>620 1 1-24-83</i>	
23. Stripped ASTM-C-31-69 <i>6-3-83 3-6-83</i> At <i>0450</i> Hrs		24. Initials <i>See SJ, 124</i>	
COMPRESSION STRENGTH DATA ASTM-C-39-71 <i>3-6-83</i>			
25. Specimen Identification	26. Date Molded	27. Date Tested	28. Age
29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break
33. Cure Field	34. Lab	34. Strength PSI	
<i>SP 1655 1227 3-5-83 3-8-83 3 126,000 6.00 28.27 A 1 2 4460</i>			
<i>1228 3-12-83 7 154500 6.00 28.27 A 1 6 5470</i>			
<i>1229 7 149750 6.00 28.27 A 1 6 5300</i>			
<i>1230 3-12-83 7 144250 6.01 28.37 A 1 6 5080</i>			
<i>1231 3-17-83 14 157,000 5.98 28.09 A 1 13 5,590</i>			
<i>1232 14 172,000 5.99 28.18 B 1 13 6,100</i>			
<i>1233 3-19-83 14 173,000 5.99 28.18 B 1 13 6,140</i>			
<i>SP 1655 1234 3-5-83 4-2-83 28 185,500 6.00 28.27 A 1 27 6560</i>			
35. Standard Cylinder <input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other			
40. Remarks			
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.
<i>3</i>	<i>UM LH RB</i>	<i>N.A.</i>	<i>20W 51183</i>
<i>7</i>	<i>TL JL GW</i>		
<i>14</i>	<i>PB RB</i>		
41. Laboratory Supervisor Signature			42. Date

Type of Breaks: A= Cone, Mortar Failure B= Cone, Aggregate Failure C= Shear, Mortar Failure D= Shear, Aggregate Failure
E= Other

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USE-M-76 @ 1 USE-M-131 @ 14 USE-M-76-58 @ 28



BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification <i>Trial Mix</i>		2. Date Placed <i>3-5-83</i>	
3. Placement Location <i>U.S. Testing</i>			
3A. PLANT DATA Source <i>Unifed Concrete Prod.</i>		Cement Brand & Type <i>Astra Type I</i>	
4. Mix <i>3B</i>	5. Class <i>I</i>	6. "Q" List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Required Strength <i>4,000</i> PSI At <i>28</i> Days
8. Test Data At: <i>Lab</i>		9. Unit Weight ASTM-C-138-74 <i>153.40</i> Lbs/Ft ³	10. Yield: <i>26.92-</i>
11. Moisture: Sand ASTM-C-566-67(72) <i>1.9</i> %		Stone 1 <i>0.5</i> %	Stone 2 <i>NA</i> %
12. Water/Cement & Pozzolan Ratio <i>.37</i> Max <i>.37</i> Act.			
13. Ticket No. <i>62981</i>	14. Truck No. <i>18</i>	15. Time of Testing <i>1023</i> Hrs at <i>2</i> Yards	16. Time of Molding <i>1023</i> Hrs
17. Slump ASTM-C-143-74 <i>8</i> Inches	18. Air Content ASTM-C-231-75 <i>1.2</i> %	19. Temp: Concrete <i>64</i> °F	20. Temp: Air <i>42</i> °F
21. Initials <i>BT, LH, OS</i>			
22. Initial Curing ASTM-C-31-69; Therm/Due Date <i>60</i> °F To <i>74</i> °F; <i>6:20 1 8-24-83</i>		23. Stripped ASTM-C-31-69 <i>3-6-83</i> At <i>0450</i> Hrs	
24. Initials <i>BT, LH, OS</i>			

COMPRESSIVE STRENGTH DATA ASTM-C-39-71

25. Specimen Identification	26. Date Molded	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field	34. Strength PSI
SP 1635 1235	3-5-83	4-2-83	28	181,750	6.00	28.27	A	1 27	6430
1236		4-2-83	28	175,750	6.00	28.27	A	1 27	6570
1237		5-4-83	60	207,000	5.99	28.18	B	1 59	7,350
1238			60	203,000	5.99	28.18	B	1 59	7,200
1239		5-4-83	60	210,000	5.99	28.18	B	1 59	7,450
1240		6-3-83	90						
1241			90						
SP 1655 1242	3-5-83	6-3-83	90						

35. Standard Cylinder <input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other				40. Remarks	
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.		
28	TT	GW	NA		
60	ET, BT	RB			
				41. Laboratory Supervisor Signature	
				42. Date	

Type of Breaks: A=Concrete Mortar Failure B=Concrete Aggregate Failure C=Shear, Mortar Failure D=Shear, Aggregate Failure E=Other

11-2113

BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification <i>Trial Mix</i>				2. Date Placed <i>3-5-83</i>	
3. Placement Location <i>U.S. Testing</i>					
3A. Source PLANT DATA <i>Applied Concrete Prod.</i>			Cement Brand & Type <i>Atlas Type I</i>		
4. Mix <i>56</i>	5. Class <i>I</i>	6. "C" List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Required Strength <i>4000</i> PSI At <i>28</i> Days		
8. Test Data At: <i>Lab</i>		9. Unit Weight ASTM-C-138-74 <i>153.69</i> Lbs/Ft ³	10. Yield: <i>26.95</i>		
11. Moisture: Sand ASTM-C-566-67(72) <i>1.9</i> %		Stone 1 <i>0.5</i> %	Stone 2 <i>NA</i> %	12. Water/Cement & Pozzolan Ratio <i>.41</i> Max <i>.41</i> Act.	
13. Ticket No. <i>62984</i>	14. Truck No. <i>18</i>	15. Time of Testing <i>1156</i> Hrs at <i>2</i> Yards		16. Time of Molding <i>1156</i> Hrs	
17. Slump ASTM-C-143-74 <i>7 1/2</i> Inches	18. Air Content ASTM-C-231-75 <i>1.6</i> %	19. Temp: Concrete <i>62</i> °F		20. Temp: Air <i>44</i> °F	21. Initials <i>DS, LH, BT</i>
22. Initial Curing ASTM-C-31-69; Therm/Due Date <i>68°F To 74°F; 620 12-24-83</i>		23. Stripped ASTM-C-31-69 <i>3-6-83</i> At <i>0715</i> Hrs		24. Initials <i>RLB JH</i>	

COMPRESSIVE STRENGTH DATA ASTM-C-39-71

25. Specimen Identification	26. Date Molded	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure		34. Strength PSI
								Field	Lab	
SP 1657 1267	3-5-83	3-6-83	1	86,050	6.00	28.27	A	1	0	3040
1268			1	85,000	5.98	28.09	A	1	0	3030
1269		3-6-83	1	81,750	5.98	28.09	A	1	0	2,910
1270		3-7-83	2	106,500	5.98	28.09	A	1	1	3,790
1271			2	108,500	6.00	28.27	A	1	1	3,840
1272		3-7-83	2	109,500	5.98	28.09	A	1	1	3,900
1273		3-8-83	3	118,000	5.98	28.09	A	1	2	4,200
SP 1657 1274	3-5-83	3-8-83	3	110,500	5.98	28.09	C	1	2	3,930
35. Standard Cylinder <input checked="" type="checkbox"/> 8" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other				40. Remarks						
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.							
1	LH RH	RLB	N.A. 250 511 83							
2	PB, TC, WM	RLB								
3	WM LH	RLB								
41. Laboratory Supervisor Signature									42. Date	

Type of Breaks: A = Cone, Mortar Failure B = Cone, Aggregate Failure C = Shear, Mortar Failure D = Shear, Aggregate Failure E = Other



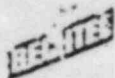
BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification <i>Trial Mix</i>						2. Date Placed <i>3-5-83</i>			
3. Placement Location <i>U.S. Testing</i>									
3A. PLANT DATA <i>Applied Concrete Prod</i>		Source <i>Applied Concrete Prod</i>		Cement Brand & Type <i>Extra Type I</i>					
4. Mix <i>5E</i>		5. Class <i>I</i>		6. "Q" List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		7. Required Strength <i>4,000</i> PSI At <i>28</i> Days			
8. Test Data At: <i>Lab</i>		9. Unit Weight ASTM-C-138-74 <i>153.67</i> Lbs/Ft ³			10. Yield: <i>26.95</i>				
11. Moisture: Sand ASTM-C-566-67(72) <i>1.9</i> %		Stone 1 <i>0.5</i> %		Stone 2 <i>NA</i> %		12. Water/Cement & Pozzolan Ratio <i>0.41</i> Max <i>0.41</i> Act.			
13. Ticket No. <i>62984</i>		14. Truck No. <i>18</i>		15. Time of Testing <i>1156</i> Hrs at <i>2</i> Yards		16. Time of Molding <i>1156</i> Hrs			
17. Slump ASTM-C-143-74 <i>7 1/2</i> Inches		18. Air Content ASTM-C-231-75 <i>1.6</i> %		19. Temp: Concrete <i>68</i> °F		20. Temp: Air <i>44</i> °F			
21. Initials <i>DS, LH, BT</i>				22. Initial Curing ASTM-C-31-69; Therm/Due Date <i>68</i> °F To <i>74</i> °F; <i>670</i> / <i>4-24-83</i>		23. Stripped ASTM-C-31-69 <i>3-6-83</i> At <i>0715</i> Hrs			
24. Initials <i>RB, RH, SJ</i>									
COMPRESSIVE STRENGTH DATA ASTM-C-39-71									
25. Specimen Identification	26. Date Molded	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field	34. Strength PSI
<i>SP 1657</i>	<i>1275</i>	<i>3-5-83</i>	<i>3</i>	<i>111,500</i>	<i>5.99</i>	<i>28.18</i>	<i>A</i>	<i>1 2</i>	<i>3,960</i>
<i>1276</i>		<i>3-12-83</i>	<i>7</i>	<i>137,000</i>	<i>6.00</i>	<i>28.27</i>	<i>A</i>	<i>1 6</i>	<i>4,350</i>
<i>1277</i>		<i>3-12-83</i>	<i>7</i>	<i>138,500</i>	<i>5.99</i>	<i>28.18</i>	<i>A</i>	<i>1 6</i>	<i>4,910</i>
<i>1278</i>		<i>3-12-83</i>	<i>7</i>	<i>137,500</i>	<i>6.00</i>	<i>28.27</i>	<i>A</i>	<i>1 6</i>	<i>4,860</i>
<i>1279</i>		<i>3-19-83</i>	<i>14</i>	<i>147,500</i>	<i>6.00</i>	<i>28.27</i>	<i>C</i>	<i>1 13</i>	<i>5,220</i>
<i>1280</i>		<i>3-19-83</i>	<i>14</i>	<i>157,500</i>	<i>5.98</i>	<i>28.09</i>	<i>A</i>	<i>1 13</i>	<i>5,610</i>
<i>1281</i>		<i>3-19-83</i>	<i>14</i>	<i>155,000</i>	<i>5.99</i>	<i>28.18</i>	<i>B</i>	<i>1 13</i>	<i>5,480</i>
<i>SP 1657</i>	<i>1282</i>	<i>3-5-83</i>	<i>28</i>	<i>166,000</i>	<i>5.99</i>	<i>28.18</i>	<i>A</i>	<i>1 27</i>	<i>5,890</i>
35. Standard Cylinder <input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other				40. Remarks					
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.						
<i>3</i>	<i>WM LH</i>	<i>RB</i>	<i>NA</i>						
<i>7</i>	<i>TL SL</i>	<i>GW</i>	<i>NA</i>						
<i>14</i>	<i>PB BT</i>	<i>RWB</i>	<i>NA</i>						
41. Laboratory Supervisor Signature				42. Date					

Type of Breaks: A = Cone, Mortar Failure B = Cone, Aggregate Failure C = Shear, Mortar Failure D = Shear, Aggregate Failure E = Other

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UST-M-76@7 UST-M-131@14 UST-M-7-57@80



BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF CONCRETE CYLINDERS

1. Placement Identification <i>Trial Mix</i>		2. Date Placed <i>3-5-83</i>							
3. Placement Location <i>U.S. Testing</i>									
3A. PLANT DATA Source <i>Willard Concrete Prod.</i>		Cement Brand & Type <i>Port. Type I</i>							
4. Mix <i>5B</i>	5. Class <i>I</i>	6. "Q" List <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Required Strength <i>4000</i> PSI At <i>28</i> Days						
8. Test Data At: <i>Lab</i>		9. Unit Weight ASTM-C-138-74 <i>153.69</i> Lbs/Ft ³	10. Yield: <i>26.95</i>						
11. Moisture: Sand ASTM-C-568-67(72) <i>1.9</i> %		Stone 1 <i>0.5</i> %	Stone 2 <i>NA</i> %						
12. Water/Cement & Pozzolan Ratio <i>.41</i> Max <i>.41</i> Act.									
13. Ticket No. <i>62984</i>	14. Truck No. <i>18</i>	15. Time of Testing <i>1156</i> Hrs at <i>2</i> Yards	16. Time of Molding <i>1156</i> Hrs						
17. Slump ASTM-C-143-74 <i>7 1/2</i> Inches	18. Air Content ASTM-C-231-75 <i>1.6</i> %	19. Temp: Concrete <i>62</i> °F	20. Temp: Air <i>44</i> °F						
21. Initials <i>LH, MS, BT</i>									
22. Initial Curing ASTM-C-31-69; Therm/Due Date <i>68</i> °F To <i>74</i> °F; <i>620 / 8-24-83</i>		23. Stripped ASTM-C-31-69 <i>3-6-83</i> At <i>0715</i> Hrs							
24. Initials <i>RB RH ST</i>									
COMPRESSIVE STRENGTH DATA ASTM-C-39-71									
25. Specimen Identification	26. Date Molded	27. Date Tested	28. Age	29. Total Load in Pounds	30. Actual Cyl Diam	31. Actual Cyl Area	32. Type of Break	33. Cure Field Lab	34. Strength PSI
<i>SP 1657 1283</i>	<i>3-5-83</i>	<i>4-2-83</i>	<i>28</i>	<i>167,000</i>	<i>6.00</i>	<i>28.27</i>	<i>A</i>	<i>1 27</i>	<i>5910</i>
<i>1284</i>		<i>4-2-83</i>	<i>28</i>	<i>168,000</i>	<i>5.97</i>	<i>28.19</i>	<i>A</i>	<i>27</i>	<i>5060</i>
<i>1285</i>		<i>5-4-83</i>	<i>60</i>	<i>186,000</i>	<i>6.00</i>	<i>28.27</i>	<i>B</i>	<i>1 59</i>	<i>6,580</i>
<i>1286</i>			<i>60</i>	<i>192,000</i>	<i>6.00</i>	<i>28.27</i>	<i>B</i>	<i>1 59</i>	<i>6,790</i>
<i>1287</i>		<i>5-4-83</i>	<i>60</i>	<i>191,000</i>	<i>5.98</i>	<i>28.09</i>	<i>B</i>	<i>1 59</i>	<i>6,800</i>
<i>1288</i>		<i>6-3-83</i>	<i>90</i>						
<i>1289</i>			<i>90</i>						
<i>SP 1657 1290</i>	<i>3-5-83</i>	<i>6-3-83</i>	<i>90</i>						
35. Standard Cylinder <input checked="" type="checkbox"/> 6" x 12" <input type="checkbox"/> Cube <input type="checkbox"/> Core <input type="checkbox"/> Other				40. Remarks <i>IMMERSION CURING TEMP OUT OF SPEC. TEMP TOO LOW. P.D. QC</i>					
36. Age (Days)	37. Tested By	38. Checked By	39. Reviewed by Q.C.	41. Laboratory Supervisor Signature					
<i>28</i>	<i>TT</i>	<i>GW</i>	<i>NA</i>	<i>NOTIFIED 4-15-83 @ 1452</i>					
<i>60</i>	<i>BT</i>	<i>RB</i>	<i>P</i>	<i>TEMP 74° @ 1522 4-15-83</i>					
				42. Date					

Type of Breaks: A = Cone, Mortar Failure B = Cone, Aggregate Failure C = Shear, Mortar Failure D = Shear, Aggregate Failure E = Other

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1157-M-76 @ 7 457-131 @ 14 457-N-9-39 @ 560