Weaver General Construction Co.
3679 South Huron Street, Suite 404
Englewood, CO 80110-3498
303-789-4111 Facsimile 303-789-4310
www.weavergc.com

June 14, 2011

S U B M I T T A L T R A N S M I T A L

WGC Submittal No.: 03300 – 09G

PROJECT: **Harold Thompson Regional WRF**
Birdsall Rd
Fountain, CO 80817

ENGINEER: **GMS, Inc**
611 No Weber St #300
Colorado Springs, CO 80903
719-475-2935 Roger Sams

OWNER: **Lower Fountain Metropolitan Sewage Disposal District**
901 S. Santa Fe Ave.
Fountain, CO 80817
719-382-5303 James Heckman

SUBCONTRACTOR: **Baker Concrete Construction**
1904 Jasper Street
Aurora, CO 80011
303-356-5351 Dan

SUBJECT: Resubmittal for Concrete Mixture Design for Walls, Slabs, Beams & Columns

- Aeration Basin and Digester Structure Walls, Slabs, Beams & Columns
- Headworks Structure Walls and Slabs
- Slump at point of placement shall be 5-inch.

SPECIFICATION SECTION: 03300 Submittals

PREVIOUS SUBMISSION DATES: 1/11/11.

DEVIATIONS FROM SPECIFICATION: _X_ YES ____ NO

CONTRACTOR'S STAMP: This Submittal has been reviewed by Weaver General Construction Co. and approved with respect to the means, methods, techniques, and safety precautions and programs incidental thereto. Weaver General Construction Co. also warrants that this Submittal complies with the Contract Documents and comprises on deviations thereto:

Contractor's Stamp:	Engineer's Stamp:
Reviewed By: John Jacob Date: 06-14-11 (**X**) Reviewed Without Comments ( ) Reviewed With Comments	

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June 14, 2011

ENGINEER'S COMMENTS:

Rocky Mountain Premix, Inc.
2895 Capital Drive
Colorado Springs, Colorado 80935
Office: (719) 591-8080
Fax: (719) 550-8000
Dispatch: (719) 638-8000

CONCRETE MIXTURE DESIGN REPORT

RMPM Mixture ID#: A70F
Date Mix Reported : **1/12/2011**
Class / Use: Walls, Footings, and General Use; 4500 psi

Material	Amount / Cubic Yard	Source / Type	ASTM Std.
Cement	559 lbs	GCC, Pueblo Plant, Type I-II LA	C 150
Fly Ash	99 lbs	Boral, FACT Craig, Class F	C 618
Coarse Aggregate*	1590 lbs	RMMA, Clevenger Pit, #57/67	C 33
Fine Aggregate*	1300 lbs	RMMA, Clevenger Pit, WCS	C 33
Water (31.6 gal.)	263 lbs	Muncipal	C 94
Air Entraining Agent (1.22 oz./cwt)**	8.00 oz	BASF, MB AE 90	C 260
Water Reducer (6.84 oz./cwt)**	45.0 oz	BASF, Polyheed 997	C 494

*Aggregate masses determined in SSD condition.
**Admixture dosages may be adjusted based on varying environmental and/or jobsite conditions.

Physical Properties (as tested)

Unit Weight:	**141.1** pcf
Air Content:	**5.6** %
Slump:	**5.00** in.
(w/cm) Ratio:	**0.40**
Relative Yield:	1.00 cy
Percent Fly Ash:	15 %
Cementitious Content:	658 lbs.
Percent Coarse Aggregate:	55 %

Design Physical Properties

Compressive Strength:	**4500** psi (Min.)
Air Content:	**5-7** % (Range)
*Slump:	**4-6** in. (Range)
w/cm Ratio:	**0.42** (Max)
Relative Yield:	0.99-1.02 (Range)
Percent Fly Ash:	15 % (Min)

*Slump at point of placement to be 5 in. maximum per engineer of record.

Compressive Strength Data

Age	PSI		
7 Day	3790		
7 Day	3780	**Ave:**	**3790**
28 Day	5370		
28 Day	5320		
28 Day	5450	**Ave:**	**5380**

Prepared by Rocky Mountain Premix, Inc.

Zachoriah J. Ballard, EI
Quality Control Manager

Rocky Mountain Premix, Inc.
2895 Capital Drive
Colorado Springs, CO 80915
Office: (719) 591-8080
Fax: (719) 550-8000
Dispatch: (719) 638-8000

June 6, 2011

Mr. Dan Eynon
Baker Concrete Construction, Inc.
1904 Jasper Street
Aurora, CO 80011

Subject: Additional Information Regarding Concrete Mixture A70F
Harold D. Thompson Water Treatment Plant
Lower Fountain Metropolitan Sewage Disposal District

Mr. Eynon:

This letter presents the additional information as requested by GMS Consulting Engineers. Specifically, it has been requested the requirements of Section 03300, Paragraph 1.2.B. and Paragraph 1.3.B. remain to be completely satisfied.

Paragraph 1.2.B. relates to Source Quality Control. Items 1 through 5 are included on the attached concrete mixture design report, which includes our most recent qualification testing. Item 6 refers to an initial set test of the concrete mixture according to ASTM C 403. We are unable to run this particular test, and the laboratory where we have our qualification testing performed is not able to perform this test either. If the quality assurance testing company on this project can perform this test, we will assist them in any way we can to complete that test.

Paragraph 1.3.B. refers to the test reports in the submittal package. All of these items are covered in the concrete mixture design report except for the time of initial set test. As stated earlier, we do not have the ability to perform this test.

Any field testing performed on this job by Rocky Mountain Premix, has solely been for our use and any additional information regarding field test results should come from HP Geotech.

We trust this meets your current needs. If there are any questions or if we can be of further service regarding this concrete mixture, please do not hesitate to contact us.

Respectfully,

Zachoriah J. Ballard, EI
Quality Control Manager

ZJB/zjb

Attachments: Concrete mixture submittals and supporting documentation

GCC of America
130 Rampart Way, Ste. 205 Denver, CO 80230
Sales (303) 739-5900 Customer Service (800) CALL GCC

Plant:	Pueblo	Cement Type:	I/II,I/II(MH), Low Alkali
	3600 Lime Road	Date:	10-May-11
	Pueblo, CO 81004	Production Period:	Apr-11
Contact:	Frank Scott	Silo:	1, 2, 4
Phone:	(719) 647-6800		

STANDARD REQUIREMENTS ASTM C 150 -09/AASHTO M 85

CHEMICAL		
Item	Spec. Limit	Test Result
SiO_2(%)	A	20.4
Al_2O_3(%)	6.0 max	4.4
Fe_2O_3(%)	6.0 max	3.4
CaO (%)	A	64.0
MgO (%)	6.0 max.	1.2
SO_3(%)	3.0 max.	3.0
Ignition Loss (%)	3.0 max.	2.4
Na_2O (%)	A	0.19
K_2O (%)	A	0.55
Equivalent Alkalies (%)	B	0.55
Insoluble Residue (%)	0.75 max.	0.75
CO_2 (%)	A	1.18
Limestone (%)	5.0 max.	3.0
$CaCO_3$ in Limestone (%)	70 min	87
Potential Compounds (%)		
C_3S	A	56
C_2S	A	17
C_3A	8 max	6
C_4AF	A	10
$C_3S + 4.75\ C_3A$	100 max	84

PHYSICAL			
Item	Spec. Limit	Test Result	
Air content of mortar (volume %)	12 max	9	
Blaine fineness (m^2/kg)	260 min.	400	
	430 max.		
C-1038	0.02 max.	In Progress	
Autoclave expansion (%)	0.80 max.	-0.03	
False set (%)	50 min.	69	
Compressive strength (MPa)		MPa	psi
1 day, Minimum MPa (psi)	A	19	2810
3 day, Minimum MPa (psi)	12 (1740)	32	4580
7 day, Minimum MPa (psi)	19 (2760)	37	5340
28 day, Minimum MPa (psi)	A	45	6480
Time of setting, Vicat (minutes)			
Initial Not less than	45	98	
Initial Not more than	375		

ADDITION (If Applicable)			
Pozzolan Type:	N/A	Potential Compounds (%)	
SiO_2(%)	N/A	C_3S	N/A
Al_2O_3(%)	N/A	C_2S	N/A
Fe_2O_3(%)	N/A	C_3A	N/A
CaO (%)	N/A	C_4AF	N/A
SO_3(%)	N/A		

A Not applicable.
B Limit not specified by purchaser. Test result for information only.

GCC of America Portland Cement is warranted to conform at the time of shipment with ASTM C-150/AASHTO 85. No other warranty is made or implied. Having no control over the use of its cements, GCC of America does not guarantee finished work. GCC is not responsible for any additives not stated in the Certificate of Compliance. GCC of America certifies that the data described above under "Process Addition" represents the materials in the cement manufactured during the production period indicated.

We certify that the above described cement, at the time of shipment, meets the chemical and physical requriements of ASTM C 150-09 and AASHTO M 85-09.

Signature: _____ Title: Plant Manager

BORAL

ASTM C 618 TEST REPORT

Sample Number: S-101210012
Sample Date: November 2010

Report Date: 1/28/2011
Sample Source: Denver
Tested By: jx

TESTS	RESULTS	ASTM C 618 CLASS F/C	AASHTO M 295 CLASS F/C
CHEMICAL TESTS			
Silicon Dioxide (SiO2), %	54.82		
Aluminum Oxide (Al2O3), %	23.70		
Iron Oxide (Fe2O3), %	5.30		
Sum of SiO2, Al2O3, Fe2O3, %	83.82	70.0/50.0 min.	70.0/50.0 min.
Calcium Oxide (CaO), %	8.57		
Magnesium Oxide (MgO), %	2.31		
Sulfur Trioxide (SO3), %	0.45	5.0 max.	5.0 max.
Sodium Oxide (Na2O), %	0.37		
Potassium (K2O), %	1.21		
Total Alkalies (as Na2O), %	1.17		
Available Alkalies (as Na2O), %	0.59		
PHYSICAL TESTS			
Moisture Content, %	0.04	3.0 max.	3.0 max.
Loss on Ignition, %	0.59	6.0 max.	5.0 max.
Amount Retained on No. 325 Sieve, %	18.31	34 max.	34 max.
Specific Gravity	2.34		
Autoclave Soundness, %	0.03	0.8 max.	0.8 max.
SAI, with Portland Cement at 7 Days, % of Control	77.7	75 min.*	75 min.*
SAI, with Portland Cement at 28 Days, % of Control	92.4	75 min.*	75 min.*
Water Required, % of Control	95.9	105 max.	105 max.
Loose, Dry Bulk Density, lb/cu. ft.	71.90		

Meets ASTM C 618 and AASTO M 295, FDOT Section 929, TxDOT DMS 4610, SCDHPT and MDOT specifications for Class F Fly Ash

* Meeting the 7 day or 28 day Strength Activity Index will indicate specification compliance.

Approved By: Diana Benfield
Diana Benfield
QC Specialist

Approved By: Brian Shaw
Brian Shaw
Materials Testing Manager

J.A. CESARE AND ASSOCIATES, INC.
Geotechnical Engineering Consultants

CTS "The Lab"
Construction Materials Testing & Inspection

7108 S. Alton Way, Building B
Centennial, Colorado 80112
Phone: (303) 220-0300
Fax: (303) 220-0442

May 26, 2011

Mr. Zachoriah Ballard
Rocky Mountain Premix
2895 Capital Drive
Colorado Springs, Colorado 80915

Subject: **Clevenger Pit – Colorado Springs, ASTM Size #57 / #67 – Coarse Aggregate Aggregate Qualification Testing**
Project No. D11.013

Dear Mr. Ballard:

This report presents the results of laboratory tests performed on representative samples of the subject aggregate obtained from the Clevenger Pit, Colorado Springs, Colorado. Samples were obtained and transported to our facilities by a Rocky Mountain Premix QC representative in May, 2011. Per your request the following tests were performed in general accordance with ASTM standard test methods and results are presented in association with the relevant ASTM C 33 – 08, AASHTO M 80 – 08 and CDOT Standard Specifications 2011 (Green Book) criteria where applicable:

1) Gradation (ASTM C 136) with Minus #200 Wash (ASTM C 117)
2) Specific Gravity & Absorption (ASTM C 127)
3) Lightweight Particles (ASTM C 123)
4) Clay Lumps & Friable Particles (ASTM C 142)
5) Magnesium Sulfate Soundness (ASTM C 88)
6) Unit Weight (Density) & Voids (ASTM C 29)
7) Los Angeles Abrasion & Impact (ASTM C 131)

The results of testing indicate the material generally complies with the criteria presented; therefore indicating the material is suitable for use as a concrete constituent. The summary of laboratory test results follows. We trust this meets your current needs. Please do not hesitate to contact us with any questions.

Respectfully submitted,
J.A. Cesare & Associates, Inc. / Construction Technical Services

Kyle Clark
Project Manager

COLORADO REGISTERED DARIN R. DURAN 23919 5/27/2011 PROFESSIONAL ENGINEER

Darin R. Duran, P.E.
Principal / Geotechnical Engineering Manager

Summary of Laboratory Test Results
Rocky Mountain Premix – Clevenger Pit, ASTM Size #57 / #67 – Coarse Aggregate

Sample ID: 115065

Gradation (ASTM C 136)

Sieve Size	% Passing	ASTM C 33 Table 2, %	AASHTO M 43 – 05 (2009), %	CDOT Table 703-2, %
1.5" (37.5 mm)	100	100	100	100
1" (25 mm)	100	100	100	100
¾" (19 mm)	92	90 – 100	90 – 100	90 – 100
½" (12.5 mm)	53	25 – 60	25 – 60	25 – 60
3/8" (9.5 mm)	29	20 – 55	20 – 55	20 – 55
#4 (4.75 mm)	5	0 – 10	0 – 10	0 – 10
#8 (2.36 mm)	3	0 – 5	0 – 5	0 – 5

Minus #200 Wash (ASTM C 117)

Sieve Size	Passing, %	ASTM C 33 Table 3, Class 4S, Note[C(1)], %	AASHTO M 80 Table 2, Class A, Note[d], %	CDOT Sec. 703.02, %
#200 (75 µm)	1.1	≤ 1.5	≤ 1.5	AASHTO M 80

[C](1) and [d] = Material essentially free of clay and shale

Specific Gravity & Absorption (ASTM C 127)

Bulk Specific Gravity (Oven Dry):	2.62
Bulk Specific Gravity (SSD):	2.65
Apparent Specific Gravity:	2.71
Absorption, %:	1.1

Lightweight Particles (ASTM C 123)

% Lightweight Pieces @ 2.4 Sp. G.	% Lightweight Pieces @ 2.0 Sp. G.	ASTM C 33 Table 3, Class 4S, @ 2.4 Sp. G., %	AASHTO M 80 Table 2, Class A, @ 2.4 Sp. G., %	ASTM C 33 Table 3, Class 4S, Coal & Lignite, %	AASHTO M 80 Table 2, Class A, Coal & Lignite, %
0.6	< 0.1	≤ 5.0	≤ 3.0	≤ 0.5	≤ 0.5

Clay Lumps & Friable Particles (ASTM C 142)

Sieve Size	Grading of Original Sample, %	Mass of Test Fraction Before Test, g	Mass of Test Fraction After Test, g	% Passing After Test	Clay Lumps & Friable Particles, %
1.5" (38 mm) to ¾" (19 mm)	0	-	-	-	0.0
¾" (19 mm) to 3/8" (9.5 mm)	8	2003.3	1997.7	0.3	0.5
3/8" (9.5 mm) to #4 (4.75 mm)	63	1003.3	995.8	0.7	0.3
				Total Weighted Loss:	0.5
				ASTM C 33 Table 3, Class 4S:	≤ 3.0
				AASHTO M 80 Table 2, Class A:	≤ 2.0

Summary of Laboratory Test Results
Rocky Mountain Premix – Clevenger Pit, ASTM Size #57 / #67 – Coarse Aggregate

Magnesium Sulfate Soundness (ASTM C 88)

Sieve Size	Grading of Original Sample, %	Mass of Test Fraction Before Test, g	Mass of Test Fraction After Test, g	% Passing After Test	Weighted Loss, %
1.5" (38 mm) to ¾" (19 mm)	8	506.8	503.9	0.6	0.0
¾" (19 mm) to 3/8" (9.5 mm)	63	997.4	947.1	5.0	3.2
3/8" (9.5 mm) to #4 (4.75 mm)	24	300.2	277.8	7.5	1.8
- #4 (4.75 mm)	8	-	-	7.5	0.6
				Total Weighted Loss:	6
				ASTM C 33 Table 3, Class 4S:	≤ 18
				AASHTO M 80 Table 2, footnote [c]:	≤ 18

Unit Weight (Density) & Voids (ASTM C 29)

Unit Weight, pcf:	102.0
Unit Weight, pcy:	2754
Voids, %:	37.5

L.A. Abrasion & Impact (ASTM C 131)

Material Grading	Abrasion & Impact Loss, %	ASTM C 33 Table 3, Class 4S and AASHTO M 80 Table 2, Class A, %	CDOT Sec. 703.02 and Aurora, %
B	28	≤ 50	≤ 45

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(303) 220-0442 (fax)

May 27, 2011

Mr. Zachoriah Ballard
Rocky Mountain Premix
2895 Capital Drive
Colorado Springs, Colorado 80915

Subject: **Clevenger Pit – Colorado Springs, Washed Concrete Sand – Fine Aggregate Aggregate Qualification Testing**
Project No. D11.013

Dear Mr. Ballard:

This report presents the results of laboratory tests performed on representative samples of the subject aggregate obtained from the Clevenger Pit, Colorado Springs, Colorado. Samples were obtained and transported to our facilities by a Rocky Mountain Premix QC representative in May, 2011. Per your request the following tests were performed in general accordance with ASTM standard test methods and results are presented in association with the relevant ASTM C 33 – 08, AASHTO M 80 – 08 and CDOT Standard Specifications 2011 (Green Book) criteria where applicable:

1) Gradation & Fineness Modulus (ASTM C 136)
2) Minus #200 Wash (ASTM C 117)
3) Specific Gravity & Absorption (ASTM C 128)
4) Lightweight Particles (ASTM C 123)
5) Clay Lumps & Friable Particles (ASTM C 142)
6) Magnesium Sulfate Soundness (ASTM C 88)
7) Organic Impurities (ASTM C 40)
8) Sand Equivalency (ASTM D 2419)

The results of testing indicate the material generally complies with the criteria presented; therefore indicating the material is suitable for use as a concrete constituent. The laboratory test results are attached. We trust this meets your current needs. Please do not hesitate to contact us with any questions.

Respectfully submitted,
Construction Technical Services

Kyle Clark
Project Manager

COLORADO REGISTERED DARIN R. DURAN 33919 5/27/2011 PROFESSIONAL ENGINEER

Darin R. Duran, P.E.
Principal, Geotechnical Engineering Manager

Summary of Laboratory Test Results
Rocky Mountain Premix - Clevenger Pit Washed Concrete Sand – Fine Aggregate

Sample ID: 115066

Gradation & Fineness Modulus (ASTM C 136)

Sieve Size	% Passing	ASTM C 33 Sec. 6.1, %	AASHTO M 6 Table 1, %	CDOT Table 703-2, %
3/8" (9.5 mm)	100	100	100	100
#4 (4.75 mm)	96	95 – 100	95 – 100	95 – 100
#8 (2.36 mm)	81	80 – 100	80 – 100	80 – 100
#16 (1.18 mm)	67	50 – 85	50 – 85	45 – 80
#30 (600 µm)	50	25 – 60	25 – 60	25 – 60
#50 (300 µm)	22	5 – 30	10 – 30	10 – 30
#100 (150 µm)	7	0 – 10	2 – 10	2 – 10
		ASTM C 33 Sec. 6.2	AASHTO M 6 Sec. 5.3	CDOT Sec. 703.01
Fineness Modulus:	2.77	2.3 – 3.1	2.3 – 3.1	2.5 – 3.5

Minus #200 Wash (ASTM C 117)

Sieve Size	Passing, %	ASTM C 33 Table 1, %	AASHTO M 6 Table 2, Class A, %	CDOT Sec. 703.01, %
#200 (75 µm)	2.0	≤ 3.0	≤ 2.0	≤ 3.0

Specific Gravity & Absorption (ASTM C 128)

Bulk Specific Gravity (Oven Dry):	2.60
Bulk Specific Gravity (SSD):	2.64
Apparent Specific Gravity:	2.69
Absorption, %:	1.3

Lightweight Particles (ASTM C 123)

% Lightweight Pieces @ 2.0 Sp. G.	ASTM C 33 Table 1, Coal & Lignite, Concrete Surface Appearance Important, %	AASHTO M 6 Table 2, Class A, %	ASTM C 33 Table 1, All Other Concrete, %	AASHTO M 6 Table 2, Class B, %
< 0.1	≤ 0.5	≤ 0.25	≤ 1.0	≤ 1.0

Clay Lumps & Friable Particles (ASTM C 142)

Sieve Size	Grading of Original Sample, %	Mass of Test Fraction Before Test, g	Mass of Test Fraction After Test, g	% Passing After Test	Clay Lumps & Friable Particles, %
#4 (4.75 mm) to #16 (1.18 mm)	29	26.1	26.0	1.1	0.3
				ASTM C 33 Table 1:	≤ 3.0
				AASHTO M 6 Table 2, Class A:	≤ 3.0

Summary of Laboratory Test Results
Rocky Mountain Premix - Clevenger Pit Washed Concrete Sand – Fine Aggregate

Magnesium Sulfate Soundness (ASTM C 88)

Sieve Size	Grading of Original Sample, %	Mass of Test Fraction Before Test, g	Mass of Test Fraction After Test, g	% Passing After Test	Weighted Loss, %
3/8" (9.5 mm) to #4 (4.75 mm)	4	-	-	20.7	0.8
#4 (4.75 mm) to #8 (2.36 mm)	15	100.7	79.9	20.7	3.1
#8 (2.36 mm) to #16 (1.18 mm)	14	102.0	88.6	13.4	1.8
#16 (1.18 mm) to #30 (600 µm)	17	102.5	91.5	10.7	1.8
#30 (600 µm) to #50 (300 µm)	28	102	94.1	7.7	2.2
-#50 (300 µm)	22	-	-	-	0.0
				Total Weighted Loss:	10
				ASTM C 33 Sec. 8.1:	≤ 15
				AASHTO M 6 Sec. 8.1:	≤ 15

Organic Impurities (ASTM C 40)

Color Plate	ASTM C 33 Sec. 7.2.1	AASHTO M 6 Sec. 7.2.1
< 1	≤ Plate 3 (Standard)	≤ Plate 3 (Standard)

Sand Equivalency (ASTM D 2419)

Sand Equivalent Result:	81
CDOT Sec. 703.01	≥ 80

J.A. Cesare & Associates, Inc. / Construction Technical Services
7108 South Alton Way, Building B
Centennial, Colorado 80112
Phone: (303) 220-0300; Fax: (303) 220-0442

Potential Alkali Reactivity (Mortar Bar Method) ASTM C 1567

(250 mm Mold)

Modified for Proportioning of Aggregates & Blends of Cementitious Materials

Project No.: 11.013.B, Rocky Mountain Premix, Inc.
Project Name: General Lab Testing
Lab ID Number: 115013
Technician: raz
Date: 21-Feb-11
Reviewer: WSC
Type & Source of Aggregate (1): Clevenger Pit # 57/ # 67 (55%)
Type & Source of Aggregate (2): Clevenger Washed Concrete Sand (45%)
Type & Source of Cement: GCC LA Type I/II (85%)
Type & Source of Fly Ash: Boral Fact Craig Class F (15%)

Grading: Retaining Sieve	WCS Mass, g @ (45%)	Rock Mass, g @ (55%)
#8	44.5	54.5
#16	111.4	136.1
#30	111.4	136.1
#50	111.4	136.1
#100	66.8	81.7
45.0%	445.5	544.5 55.0%
Total	990.0	

Cement Mass, g (85%)	Fly Ash Mass, g (15%)
374.0	66.0
Mass of Cement, g:	440.0
Mass of Water, g:	206.8
W/C Ratio:	**0.47**

Comparator Readings

(24 hrs) Initial Readings:	A:	0.408	**(48 hrs) Zero Readings:**	A:	0.542
	B:	-0.182		B:	-0.038
Date: 2/22/2011	C:	-0.050	2/23/2011	C:	0.090

Date	Age, days		Reading, mm	Difference	% Change	Average % Expansion
2/25/2011	4	A	0.580	0.038	0.015	0.01
		B	-0.006	0.032	0.013	
		C	0.120	0.030	0.012	
2/28/2011	7	A	0.646	0.104	0.042	0.04
		B	0.060	0.098	0.039	
		C	0.190	0.100	0.040	
3/3/2011	10	A	0.670	0.128	0.051	0.05
		B	0.076	0.114	0.046	
		C	0.212	0.122	0.049	
3/7/2011	14	A	0.738	0.196	0.078	0.07
		B	0.136	0.174	0.070	
		C	0.266	0.176	0.070	
3/9/2011	16	A	0.756	0.214	0.086	0.08
		B	0.154	0.192	0.077	
		C	0.284	0.194	0.078	

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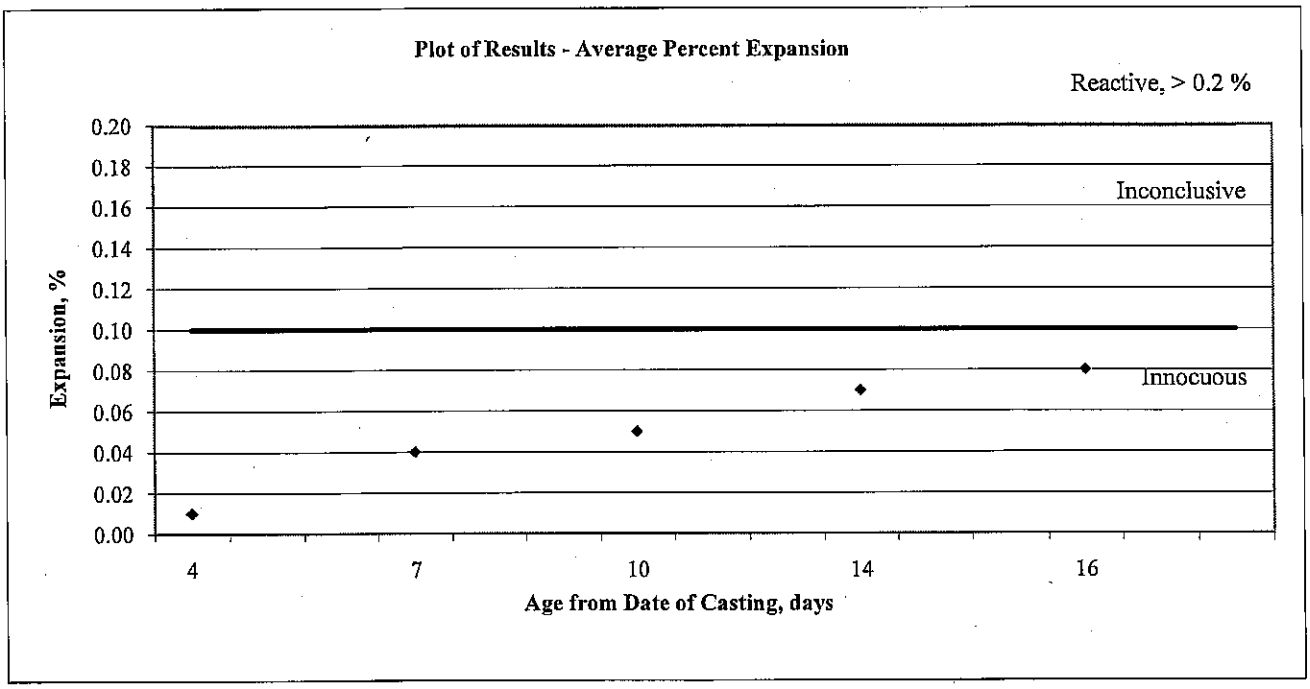
7108 South Alton Way, Building B
Centennial, Colorado 80112
Phone: (303) 220-0300; Fax: (303) 220-0442

Potential Alkali Reactivity (Mortar Bar Method) ASTM C 1567

(250 mm Mold)

Modified for Proportioning of Aggregates & Blends of Cementitious Materials

Project No.:	11.013.B, Rocky Mountain Premix, Inc.	Technician:	raz
Project Name:	General Lab Testing	Date:	21-Feb-11
Lab ID Number:	115013	Reviewer:	WSC
Type & Source of Aggregate (1):	Clevenger Pit # 57/ # 67 (55%)		
Type & Source of Aggregate (2):	Clevenger Washed Concrete Sand (45%)		
Type & Source of Cement:	GCC LA Type I/II (85%)		
Type & Source of Fly Ash:	Boral Fact Craig Class F (15%)		



BASF

The Chemical Company

May 13, 2011

Project: Various
Project location: Various

Certificate of Conformance
MB-AE™ 90
BASF Construction Chemicals, LLC* Air-Entraining Admixture for Concrete

*(successor in interest to BASF Construction Chemicals, LLC , which is successor by merger to BASF Admixtures, Inc., formerly known as Degussa Admixtures, Inc., formerly known as Master Builders, Inc.)

I, Richard Hubbard, Sr. Technical Marketing Specialist for BASF Corporation, Cleveland, Ohio,certify:

That MB-AE 90 is a BASF Corporation Air-Entraining Admixture for concrete; and

That no calcium chloride or chloride based ingredient is used in the manufacture of MB-AE 90; and

That MB-AE 90, based on the chlorides originating from all the ingredients used in its manufacture, contributes less than 0.000068 percent (0.68 ppm) chloride ions by weight of the cement when used at the rate of 65 mL per 100 kg (1 fluid ounce per 100 pounds) of cement; and

That MB-AE 90 meets the requirements of ASTM C 260, Corps of Engineers' CRD-C 13 and AASHTO M154, the Standard Specifications for Air-Entraining Admixtures for Concrete.

Richard Hubbard
Sr. Technical Marketing Specialist, BASF Corporation

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23700 Chagrin Boulvard
Cleveland, OH 44122
216 839-7500 ph
www.masterbuilders.com

Master Builders
Admixture Solutions

BASF

The Chemical Company

May 13, 2011

Project: Various
Project location: Various

Certificate of Conformance
PolyHeed® 997
BASF Corporation* Admixture for Concrete

*(successor in interest to BASF Construction Chemicals, LLC , which is successor by merger to BASF Admixtures, Inc., formerly known as Degussa Admixtures, Inc., formerly known as Master Builders, Inc.)

I, Richard Hubbard, Sr. Technical Marketing Specialist for BASF Corporation, Cleveland, Ohio,certify:

That PolyHeed 997 is a BASF Corporation Mid-Range Water-Reducing Admixture for concrete; and

That no calcium chloride or chloride based ingredient is used in the manufacture of PolyHeed 997; and

That PolyHeed 997, based on the chlorides originating from all the ingredients used in its manufacture, contributes less than 0.00012 percent (1.2 ppm) chloride ions by weight of the cement when used at the rate of 65 mL per 100 kg (1 fluid ounce per 100 pounds) of cement; and

That PolyHeed 997 meets the requirements for a Type A, Water-Reducing Admixture, and Type F, Water-Reducing, High Range Admixture specified in ASTM C 494, Corps of Engineers' CRD-C 87 and AASHTO M194, the Standard Specifications for Chemical Admixtures for Concrete.

Richard Hubbard III

Richard Hubbard
Sr. Technical Marketing Specialist, BASF Corporation

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Admixture Solutions