WEAVER GENERAL CONSTRUCTION COMPANY
3679 S. Huron St., Suite 404
Englewood, CO 80110
Phone: (303) 789-4111 FAX: (303) 789-4310

SUBMITTAL TRANSMITAL

June 7, 2011
WGC Submittal No: 03300-014

PROJECT: **Harold Thompson Regional WRF**
Birdsall Rd.
Fountain, CO 80817
Job No. 2908

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

CONTRACTOR: **Baker Concrete Construction**
1904 Jasper Street
Aurora, CO 80011
937-536-9000 Nick Dewald

SUBJECT: Mix Design for the Headworks Building Structure

SPEC SECTION: 03300 – Cast-In-Place Concrete

PREVIOUS SUBMISSION DATES: 5/18

DEVIATIONS FROM SPEC: ___ YES _X_ NO

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

Contractor's Stamp:	Engineer's Stamp:
Date: Reviewed by: H.C. Myers (X) Reviewed Without Comments ( ) Reviewed With Comments ENGINEER'S COMMENTS:_____	

BAKER™
CONCRETE CONSTRUCTION
expect more

Letter of Transmittal/Submittal

FROM:	Baker Concrete Construction
	1904 Jasper Street
	Aurora, CO 80011
	303.367.8111
	Nick Dewald 937.536.9000

DATE	*05/18/11*	JOB NUMBER	*9921*
ATTENTION	*John Jacob/Leslie Brown*		
RE:	*Harold Thompson Regional WRF*		
	TR# *03300-019*		
	SM# *03300-009F*		

TO: *John Jacob/Leslie Brown*
Weaver General Construction Co.
3679 South Huron St., Suite 404
Englewood, CO 80110
john@weavergc.com / leslie@weavergc.com

We are sending you: *ATTACHED* via *EMAIL* the following: *SPECIFICATION*

COPIES	DATE	PAGES	Description
1	*5/18/2011*	*20*	*Mix Design A65FDP & A70F for the Headworks Building*

THESE ARE TRANSMITTED as noted below:

FOR APPROVAL

REMARKS *Attached mix designs are the same ones being used for the Aeration Basin and Digester and are being submitted for approval on the Headworks Building.*

COPY TO *File*

SIGNED: Nick Dewald
Baker Concrete Construction, Inc.

If enclosures are not as noted, kindly notify us at once

ROCKY MOUNTAIN PREMIX, INC.

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#: A65FDP
Date Mix Reported : **4/12/2011**
Class / Use: Drilled Piers, 3750 psi

Material	Amount / Cubic Yard	Source / Type	ASTM Std.
Cement	489 lbs	GCC, Pueblo Plant, Type I-II LA	C 150
Fly Ash	122 lbs	Boral, FACT Craig, Class F	C 618
Coarse Aggregate*	1690 lbs	RMMA, Clevenger Pit, #57/67	C 33
Fine Aggregate*	1340 lbs	RMMA, Clevenger Pit, WCS	C 33
Water (25.9 gal.)	216 lbs	Muncipal	C 94
Air Entraining Agent (1.05 oz./cwt)**	6.4 oz	BASF, MB AE 90	C 260
Water Reducer (1.47 oz./cwt)**	9.0 oz	BASF, Pozzolith 200 N	C 494
Water Reducer (3.99 oz./cwt)**	24.4 oz	BASF, Polyheed 1720	C 494

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

Design Physical Properties

Unit Weight:	**141.5** pcf
Air Content:	**6.6** %
Slump:	**5.25** in.
(w/cm) Ratio:	**0.35**
Relative Yield:	1.01 cy
Percent Fly Ash:	20 %
Cementitious Content:	611 lbs.
Percent Coarse Aggregate:	56 %

Prepared by Rocky Mountain Premix, Inc.

Zachoriah J. Ballard, EI
Quality Control Manager

ROCKY MOUNTAIN PREMIX, INC.

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

Concrete Mixture Design # A70F
(Walls, Footings, and General Use)

MIX DESIGN MATERIALS

Material	Amount / Cubic Yard			Specific Gravity
Sand	1300	lbs.		2.60
Aggregate Size 57/67	1590	lbs.		2.64
Cement (Type I/II)	559	lbs.		3.15
Fly Ash (Class F)	99	lbs.		2.34
Water	263	lbs.	(31.6 gal.)	1.00
POLYHEED 997 (water reducer)	45.0	oz.	(6.84 oz./cwt)	n/a
MB AE 90 (air entrainment)	8.0	oz.	(1.22 oz./cwt)	n/a

DESIGN PHYSICAL PROPERTIES (As Tested)

Unit Weight	141.1	lbs./cu. Ft.
W/(C+P) Ratio	0.40	
Air Content	5.6	%
Slump	5	in.
Percent Fly Ash	15	%
Cementitious Content	658	lbs.
Percent Coarse Agg.	55	%
Yield	1.00	cy

SPECIFIED PHYSICAL PROPERTIES

Compressive Strength F'c	4500	psi (Min)
W/(C+P) Ratio	0.42	(Max.)
Air Content	5-7	%
Slump	1-3 (5-8)	in. (Range)
Percent Fly Ash (Class F)	15-20	% Range
Cementitious Content	N/A	lb/cy (Min.)
Percent Coarse Agg.	N/A	%
Yield	0.99-1.02	cy (Range)

The above weights are based upon aggregates in a saturated surface dry condition. Batch plant corrections must be made for moisture in aggregates.

COMPRESSIVE STRENGTH RESULTS (From Laboratory Trial)

Cylinder Break Time	#1	#2	#3	#4	#5	#6	#7	#8	#9	Average Strength (psi)
1-Day	1990	2090								2040
7-Day			3790	3780						3790
28-Day					5370	5320	5450			5380
56-Day								5640	5670	5660

Compressive strength results rounded to nearest 10 psi per ASTM C 39

MATERIAL SUPPLIERS AND SOURCES

Material	Company	Source
Fine Aggregate	RMMA	Clevenger Pit
Coarse Aggregate	RMMA	Clevenger Pit
Cement (Type I/II)	GCC	Pueblo
Fly Ash (Class F)	Boral	Denver
Mid Range Water Reducer	BASF	POLYHEED 997
Air Entrainment Agent	BASF	MB AE 90

BASF

The Chemical Company

April 12, 2011

Project: Various
Project location: Various

Certificate of Conformance
Polyheed® 1720
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 1720 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 1720; and

That PolyHeed 1720, based on the chlorides originating from all the ingredients used in its manufacture, contributes less than 0.00014 percent (1.4 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, depending on the dosage used, PolyHeed 1720 meets the requirements for a Type A, Water-Reducing, 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
Sr. Technical Marketing Specialist, BASF Corporation

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

Master Builders
Admixture Solutions

BASF

The Chemical Company

April 12, 2011

Project: Various
Project location: Various

Certificate of Conformance
Pozzolith® 200 N
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.)

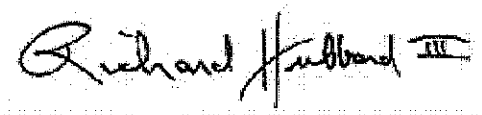
I, Richard Hubbard, Sr. Technical Marketing Specialist for BASF Corporation, Cleveland, Ohio,certify:

That Pozzolith 200 N is a BASF Corporation Water-Reducing Admixture for concrete; and

That no calcium chloride or chloride based ingredient is used in the manufacture of Pozzolith 200 N; and

That Pozzolith 200 N, based on the chlorides originating from all the ingredients used in its manufacture, contributes less than 0.00013 percent (1.3 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, depending on the dosage used, Pozzolith 200 N meets the requirements for a Type A, Water-Reducing, Type B, Retarding, and Type D, Water Reducing and Retarding Admixture as specified in ASTM C 494, Corps of Engineers' CRD-C 87 and AASHTO M194, the Standard Specifications for Chemical Admixtures for Concrete.



Richard Hubbard
Sr. Technical Marketing Specialist, BASF Corporation

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

Master Builders
Admixture Solutions

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.	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%)		

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	

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

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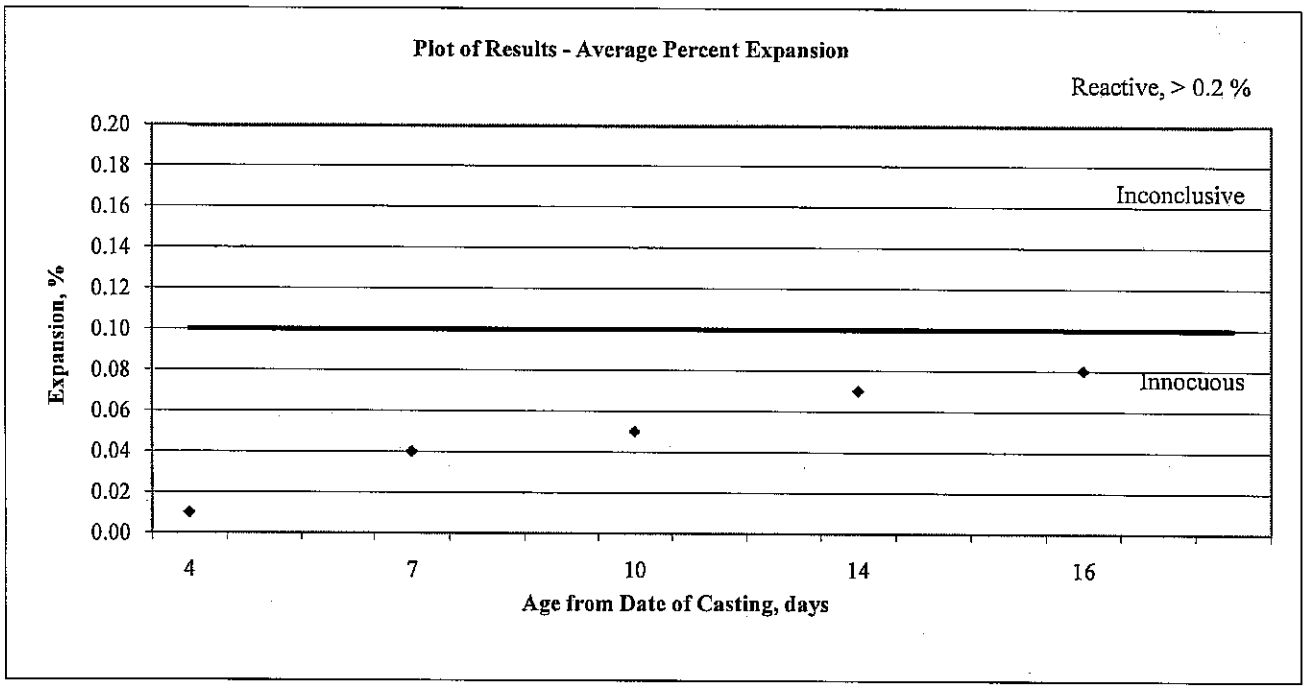
Type & Source of Cement:	GCC LA Type I/II (85%)		
Type & Source of Fly Ash:	Boral Fact Craig Class F (15%)		



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

GCC of America

Plant: Pueblo
3600 Lime Road
Pueblo, CO 81004
Contact: Frank Scott
Phone: (719) 647-6800

Cement Type: I/II,I/II(MH), Low Alkali
Date: 10-May-11
Production Period: Apr-11
Silo: 1, 2, 4

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

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
QC Specialist

Approved By: Brien Shaw
Materials Testing Manager

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

BASF Corporation
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.)

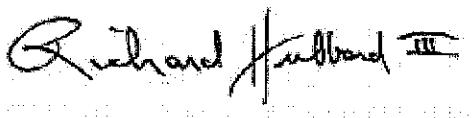
I, Richard Hubbard, Sr. Technical Marketing Specialist for BASF Corporation, Cleveland, Ohio,certify:

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
Sr. Technical Marketing Specialist, BASF Corporation

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

Master Builders
Admixture Solutions

CTL | THOMPSON

June 14, 2010

Rocky Mountain Premix Inc.
2895 Capital Drive
Colorado Springs, Colorado 80939

Attention: Mr. Randy Morris

Subject: Physical Properties Testing
No. 57/67, Clevenger Pit
Project No. CT15042.000-400

Dear Mr. Morris:

This report presents results of physical properties testing performed on material delivered to our laboratory in May, 2010. Representative samples delivered were identified as No. 57/67 rock from the Clevenger Pit. Testing was performed to determine the materials compliance with Colorado Department of Transportation (CDOT) specifications. The following testing was performed in general conformance with the applicable standards.

1) Sieve Analysis (Gradation)
2) Material Finer Than No. 200 Sieve by Washing
3) Specific Gravity & Absorption
4) Clay Lumps & Friable Particles
5) Lightweight Particles 2.0 & 2.4
6) Sodium Sulfate Soundness
7) Rodded Unit Weight & Voids
8) Los Angeles Abrasion

A summary of the aggregate test results is attached, followed by the complete test results. Based on the test results, the material tested meets the CDOT specifications for coarse aggregate. If you have any questions regarding this report, please call.

Respectfully submitted,

CTL | THOMPSON MATERIALS ENGINEERS, INC.

Daniel L. Barrett

Daniel L. Barrett
Materials Lab Manager

Reviewed by:

COLORADO REGISTERED 30990 PROFESSIONAL ENGINEER

Damon B. Thomas, P.E.
Division Manager

DLB:DBT/dlb
Enclosures

1 copy emailed: lab@rockymountainpremix.com

Aggregate Qualification Summary - CDOT Specifications (AASHTO M 80)

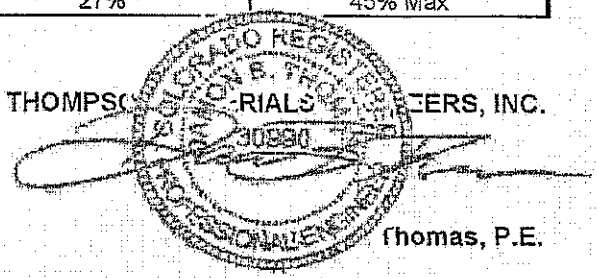
Rocky Mountain Premix - Clevenger Pit, No. 57/67

Project No. CT15042-400 Report Date: June 14, 2010

Sieve Analysis (AASHTO T 27 & T 11)		
Sieve Size	Passing (%)	Specification (%)
1-1/2 inch (37.5 mm)	100	100
1 inch (25 mm)	100	100
3/4 inch (19 mm)	90	90-100
1/2 inch (12.5 mm)	47	25-60
3/8 inch (9.5 mm)	24	20-55
No. 4 (4.75 mm)	5	0-10
No. 8 (2.36 mm)	3	0-5
No. 200 (75 µm)	0.7	1.0 Max
Fineness Modulus	-	-

Test		Results	Specification
Specific Gravity (AASHTO T 85)		2.64	-
Absorption (AASHTO T 85)		1.2%	-
Clay Lumps and Friable Particles (AASHTO T 112)		0.7% Weighted Particles	2.0% Max
Lightweight Particles, 2.0 sp.g. (AASHTO T 113)		< 0.1%	0.5% Max
Lightweight Particles, 2.4 sp.g. (AASHTO T 113)		2.1%	3.0% Max
Sodium Sulfate Soundness (AASHTO T 104)		0% Weighted Loss	12% Max
Magnesium Sulfate Soundness (AASHTO T 104)		-	18% Max
Rodded Unit Weight & Voids (AASHTO T 19)	Unit Weight	104 pcf	-
	Percent Voids	36%	-
	Tons per cubic yard	1.4 tons/cu. yd.	-
Loose Unit Weight & Voids (AASHTO T 19)	Unit Weight	-	-
	Percent Voids	-	-
	Tons per cubic yard	-	-
Los Angeles Abrasion (AASHTO T 96)		27%	45% Max

CTL | THOMPSON, INC. MATERIALS ENGINEERS, INC.



Thomas, P.E.

ATTACHMENT A

LABORATORY TEST RESULTS

PHYSICAL PROPERTIES OF AGGREGATES

Company Name: Rocky Mountain Premix
Material Source: Clevenger Pit
Material Type: No. 57/67

Project No. CT15042-400
Report Date: June 14, 2010

Sieve Analysis of Coarse Aggregate

(AASHTO T 27)

Sieve Size	Percent Passing No. 57/67	Percent Passing (AASHTO M 80)
1-1/2 inch (37.5 mm)	100	100
1 inch (25 mm)	100	100
3/4 inch (19 mm)	90	90-100
1/2 inch (12.5 mm)	47	25-60
3/8 inch (9.5 mm)	24	20-55
No. 4 (4.75 mm)	5	0-10
No. 8 (2.36 mm)	3	0-5
No. 200 (75 µm)	0.7	1.0 Max

Material Finer Than No. 200 Sieve by Washing

(AASHTO T 11)

Initial Dry Weight (g)	Final Dry Weight (g)	Material Finer Than No. 200 Sieve (%)
5340.3	5300.3	0.7

Specific Gravity and Absorption of Coarse Aggregate

(AASHTO T 85)

Oven Dry Weight (g)	SSD in Air Weight (g)	Submerged Weight (g)	Bulk Volume	Bulk (SSD) Specific Gravity	Absorption (%)
6765.8	6845.8	4254.0	2591.8	2.64	1.2

Clay Lumps and Friable Particles in Aggregate

(AASHTO T 112)

Sieve Size		Percent Grading of Sample	Weight Before (g)	Weight After (g)	Percent Loss	Weighted Percent Loss
Passing	Retained					
	1-1/2 inch	0				
1-1/2 inch	3/4 inch	10	3002.5	2991.1	0.4	0.0
3/4 inch	3/8 inch	66	2001.8	1988.3	0.7	0.5
3/8 inch	No. 4	19	1000	992.4	0.8	0.2
Less Than No. 4		5	-	-	-	-
Total Percent Grading		100		Total Weighted Loss		0.7%

Fig. A-1

PHYSICAL PROPERTIES OF AGGREGATES

Company Name: Rocky Mountain Premix
Material Source: Clevenger Pit
Material Type: No. 57/67

Project No. CT15042-400
Report Date: June 14, 2010

Lightweight Particles in Aggregate

(AASHTO T 113)

Sample Weight (g)	Specific Gravity of Liquid	Percentage by Mass of Lightweight Particles
8156.4	2.0	< 0.1
8156.4	2.4	2.1

Soundness of Coarse Aggregates by Use of Sodium Sulfate

(AASHTO T 104)

Sieve Size		Percent Grading of Sample	Weight Before(g)	Weight After (g)	Percent Loss	Weighted % Loss
Passing	Retained					
1-1/2 inch	1 inch	0				
1 inch	3/4 inch	10	670.4	670.1	0.0	0.0
3/4 inch	1/2 inch	43	1000.0	999.6	0.0	0.0
1/2 inch	3/8 inch	23	330.1	329.3	0.2	0.1
3/8 inch	No. 4	19	300.0	298.8	0.4	0.1
Less Than No. 4		5	-	-	-	-

Total Percent Grading: 100

Total Weighted Loss: 0

Bulk Density (Unit Weight) and Voids in Aggregates (Rodded Method)

(AASHTO T 19)

Sample Weight (lbs)	Bucket Volume (ft^3)	Unit Weight (pcf)
34.70	0.333	104.2
34.36	0.333	103.2
34.46	0.333	103.5

Average Unit Weight: 104 pcf

Bulk Specific Gravity (OD) = 2.61

Voids in Aggregate Compacted by Rodding = 36%

Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

(AASHTO T 96)

Grading	Initial Weight	Final Weight	Percent Loss
B	5000	3638.9	27.2

Fig. A-2

CTL | THOMPSON

June 14, 2010

Rocky Mountain Premix Inc.
2895 Capital Drive
Colorado Springs, Colorado 80939

Attention: Mr. Randy Morris

Subject: Physical Properties Testing
Sand, Clevenger Pit
Project No. CT15042.000-400

Dear Mr. Morris:

This report presents results of physical properties testing performed on material delivered to our laboratory in May, 2010. Representative samples delivered were identified as Sand from the Clevenger Pit. Testing was performed to determine the materials compliance with Colorado Department of Transportation (CDOT) specifications. The following testing was performed in general conformance with the applicable standards.

1) Sieve Analysis (Gradation)
2) Material Finer Than No. 200 Sieve by Washing
3) Specific Gravity & Absorption
4) Clay Lumps & Friable Particles
5) Lightweight Particles 2.0
6) Sodium Sulfate Soundness
7) Rodded Unit Weight & Voids
8) Sand Equivalency
9) Organic Impurities

A summary of the aggregate test results is attached, followed by the complete test results. Based on the test results, the material tested meets the CDOT specifications for fine aggregate. If you have any questions regarding this report, please call.

Respectfully submitted,

CTL | THOMPSON MATERIALS ENGINEERS, INC.

Daniel L. Barrett
Materials Lab Manager

Reviewed by:

COLORADO REGISTERED DAMON B. THOMAS P.E. 30690 PROFESSIONAL ENGINEER

Damon B. Thomas, P.E.
Division Manager

DLB:DBT/dlb
Enclosures

1 copy emailed: lab@rockymountainpremix.com

Aggregate Qualification Summary - CDOT Specifications (AASHTO M 6)

Rocky Mountain Premix - Clevenger Pit, Sand

Project No. CT15042-400

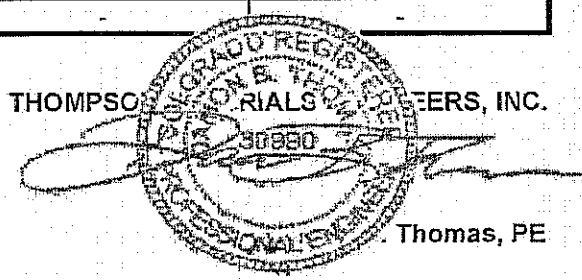
Report Date: June 08, 2010

Sieve Analysis (AASHTO T 27 & T 11)		
Sieve Size	Passing (%)	Specification (%)
2 inch (50 mm)	100	-
1-1/2 inch (37.5 mm)	100	-
1 inch (25 mm)	100	-
3/4 inch (19 mm)	100	-
1/2 inch (12.5 mm)	100	-
3/8 inch (9.5 mm)	100	100
No. 4 (4.75 mm)	97	95-100
No. 8 (2.36 mm)	80	80-100
No. 16 (1.18 mm)	62	50-85
No. 30 (600 µm)	43	25-60
No. 50 (300 µm)	18	10-30
No. 100 (150 µm)	5	2-10
No. 200 (75 µm)	1.7	3.0 Max
Fineness Modulus	2.95	2.50 - 3.50

Test		Results	Specification
Specific Gravity (AASHTO T 84)		2.60	-
Absorption (AASHTO T 84)		1.1%	-
Clay Lumps and Friable Particles (AASHTO T 112)		2.4% Weighted Particles	3.0% Max
Lightweight Particles, 2.0 sp.g. (AASHTO T 113)		0.1%	0.5% Max
Lightweight Particles, 2.4 sp.g. (AASHTO T 113)		-	3.0% Max
Sodium Sulfate Soundness (AASHTO T 104)		1% Weighted Loss	10% Max
Magnesium Sulfate Soundness (AASHTO T 104)		-	15% Max
Rodded Unit Weight & Voids (AASHTO T 19)	Unit Weight	111 pcf	-
	Percent Voids	31%	-
	Tons per cubic yard	1.5 tons/cu. yd.	-
Loose Unit Weight & Voids (AASHTO T 19)	Unit Weight	-	-
	Percent Voids	-	-
	Tons per cubic yard	-	-
Los Angeles Abrasion (AASHTO T 96)		-	-
Percentage of Fractured Particles (ASTM D 5821)		-	-
Sand Equivalency (AASHTO T 176)		88 (Average)	80 Minimum
Sum of Deleterious Materials		-	-
Organic Impurities (AASHTO T 21)		Plate 1	< Plate 3

Potential Alkali Reactivity (ASTM C 1260 & CP-L 4201)			
Days in Soak	Average Expansion (%)	Classification	Potential for Deleterious ASR
-	-	-	-

CTL | THOMPSON, INC. MATERIALS & ENGINEERS, INC.



Thomas, PE

ATTACHMENT A

LABORATORY TEST RESULTS

PHYSICAL PROPERTIES OF AGGREGATES

Company Name: Rocky Mountain Premix
Material Source: Clevenger Pit
Material Type: Sand

Project No. CT15042-400
Report Date: June 8, 2010

Sieve Analysis of Fine Aggregate

(AASHTO T 27)

Sieve Size	Percent Passing Sand	Percent Passing (AASHTO M 6)
3/8 inch (9.5 mm)	100	100
No. 4 (4.75 mm)	97	95-100
No. 8 (2.36 mm)	80	80-100
No. 16 (1.18 mm)	62	50-85
No. 30 (600 µm)	43	25-60
No. 50 (300 µm)	18	10-30
No. 100 (150 µm)	5	2-10
No. 200 (75 µm)	1.7	3.0 Max

Material Finer Than No. 200 Sieve by Washing

(AASHTO T 11)

Initial Dry Weight (g)	Final Dry Weight (g)	Material Finer Than No. 200 Sieve (%)
757.7	744.6	1.7

Specific Gravity and Absorption of Fine Aggregate

(AASHTO T 84)

Pycnometer Weight With Water (g)	SSD In Air Weight (g)	Pycnometer Weight With Sample (g)	Bulk Volume	Oven Dry Weight (g)	Bulk (SSD) Specific Gravity	Absorption (%)
672.3	500.0	980.3	192.0	494.6	2.60	1.1

Clay Lumps and Friable Particles in Aggregate

(AASHTO T 112)

Sieve Size		Weight Before (g)	Weight After (g)	Percent Particles
Passing	Retained			
No. 4	No. 16	25.2	24.6	2.4

Lightweight Particles in Aggregate

(AASHTO T 113)

Sample Weight (g)	Specific Gravity of Liquid	Percentage by Mass of Lightweight Particles
2297.6	2.0	0.1
	2.4	

Fig. A-1

PHYSICAL PROPERTIES OF AGGREGATES

Company Name: Rocky Mountain Premix
Material Source: Clevenger Pit
Material Type: Sand

Project No. CT15042-400
Report Date: June 8, 2010

Soundness of Fine Aggregates by Use of Sodium Sulfate

(AASHTO T 104)

Sieve Size		Percent Grading of Sample	Weight Before(g)	Weight After (g)	Percent Loss	Weighted % Loss
Passing	Retained					
3/8"	No. 4	3	-	-	0.6	0.0
No. 4	No. 8	17	100.0	99.4	0.6	0.1
No. 8	No. 16	18	100.0	99.3	0.7	0.1
No. 16	No. 30	19	100.0	99.0	1.0	0.2
No. 30	No. 50	25	100.0	98.6	1.4	0.4
Less than No. 50		18	-	-	-	-

Total Percent Grading: 100 Total Weighted Loss: 1

Bulk Density (Unit Weight) and Voids in Aggregates (Rodded Method)

(AASHTO T 19)

Sample Weight (lbs)	Bucket Volume (ft^3)	Unit Weight (pcf)
10.88	0.0985	110.5
10.90	0.0985	110.7
10.94	0.0985	111.1

Average Unit Weight: 111 pcf

Bulk Specific Gravity (OD) = 2.58
Voids in Aggregate Compacted by Rodding = 31%

Sand Equivalent Value of Soils and Fine Aggregate

(AASHTO T 176)

Tube Number	Clay Reading	Sand Reading	Sand Equivalent
No. 1	4.3	3.8	88
No. 2	4.2	3.7	88
No. 3	4.2	3.7	88

Average Sand Equivalency: 88

Organic Impurities in Fine Aggregate

(AASHTO T 21)

Organic Plate Number
Plate Number 1

Fig. A-2