

**STATEMENT OF BASIS****Page 1 of 5**

BAQ Engineering Services Division

2600 Bull Street, Columbia, SC 29201

Phone: 803-898-4123 Fax: 803-898-4079

**Company Name:** MCCARTHY IMPROVEMENT COMPANY**Permit Number:** 9900-0564-CA**Permit Writer:**

Christopher Hardee

**Date:**

DRAFT (10/8/09)

**DATE APPLICATION RECEIVED:** October 7, 2009  
**DATE OF LAST INSPECTION:** N/A – New Facility

**FACILITY DESCRIPTION**

This facility will operate two central mix concrete batch plants.

**PROJECT DESCRIPTION**

This company is requesting a construction permit for the construction of two central mix concrete batch plants for a road project in Laurens, SC.

Plant #1 will consist of a 300 yd<sup>3</sup>/hr Rexcon Logo 12 Central Mix Concrete Batch Plant, a split silo (cement and flyash compartments), five bulk storage bins for additional cement and flyash storage, a 545kW (1.86x10<sup>6</sup> BTU/hr) No. 2 fuel oil (diesel) fired generator, two 5,000-gallon No. 2 fuel oil storage tanks, and four 3,000-gallon concrete admixture tanks. Particulate matter emissions from the silos, weigh batcher, and central mixer will be controlled by a C&W RA-200 Bag-type Central Dust Collector with a 99.9% efficiency.

Plant #2 will consist of a 250 yd<sup>3</sup>/hr Rexcon Logo 10 Central Mix Concrete Batch Plant, a split silo (cement and flyash compartments), five bulk storage bins for additional cement and flyash storage, a 320kW (1.09x10<sup>6</sup> BTU/hr) No. 2 fuel oil (diesel) fired generator, a 5,000-gallon No. 2 fuel oil storage tank, and four 3,000-gallon concrete admixture tanks. Particulate matter emissions from the silos, weigh batcher, and central mixer will be controlled by a McNeilus RA-1500 Central Dust Collector with a 99.9% efficiency.

If commercial electrical power is available the generators will be used for back-up otherwise they will be used to power the plants. For the purposes of this permit they will be permitted as non-backup for maximum flexibility.

**EMISSIONS****Concrete Plants**

The application based uncontrolled rates are based on 315,500 yd<sup>3</sup>/yr instead of the maximum hourly rate for 8,760 hr/yr. The uncontrolled rates for this review are based on the maximum hourly rate at 8,760 hr/yr. The project calls for production of 250,000 yd<sup>3</sup>. The proposal is for Plant #1 to produce 150,000 yd<sup>3</sup> and Plant #2 to produce 100,000 yd<sup>3</sup>. For flexibility, the facility has requested limits 25% higher than the project requires: 312,500 yd<sup>3</sup> total (Plant #1: 187,500 yd<sup>3</sup> + Plant #2: 125,000 yd<sup>3</sup>). However, the facilities are capable of staying below major source thresholds after controls at 8,760 hr/yr so production limits are not required.

- Emissions are calculated using manufacturer's maximum rated capacity and AP-42, 5<sup>th</sup> Ed., Section 11.12 (Rev. 6/06). Specifically Tables 11.12-5 and 11.12-8.
- To account for concrete mix variations, the average mixture per AP-42 is used for calculations: 1,685 lbs Coarse Aggregate, 1,428 lbs Sand, 491 lbs Cement, 73 lbs Flyash, 167 lbs water.
- A cement silo is always assumed to be present.
- If a flyash silo is present, it is assumed to be used. If not, it will be assumed cement is used in place of flyash for the average AP-42 mixture. The difference is minimal.
- Controlled factors from AP-42 are used for where available. Otherwise manufacturer's rated efficiency is used.
- Uncontrolled factors for cement and flyash are not used as these sources are always controlled and permit conditions require proper operation of the control devices.
- Lead is a criteria pollutant and thus does not have a de minimis value.
- De minimis rate used for Total Chrome is Chrome6 rate and Manganese is Manganese compounds.
- De minimis assumes 24 hours per day, rounded to 3 decimal places for comparison.
- If uncontrolled rates are unavailable, controlled rates are used in the uncontrolled total and vice versa.
- An exception to the above summary rule is phosphorus for cement silo filling, post-control was below detectable limits.



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**Plant #1**

**Criteria Pollutants (except lead)**

Activity	Uncontrolled				Controlled			
	PM		PM10		PM		PM10	
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
Aggregate delivery to ground storage	1.9200	8.41	0.9300	4.07	-	-	-	-
Sand delivery to ground storage	0.4500	1.97	0.2100	0.92	-	-	-	-
Aggregate delivery to conveyor	1.9200	8.41	0.9300	4.07	-	-	-	-
Sand delivery to conveyor	0.4500	1.97	0.2100	0.92	-	-	-	-
Aggregate delivery to elevated storage	1.9200	8.41	0.9300	4.07	-	-	-	-
Sand delivery to elevated storage	0.4500	1.97	0.2100	0.92	-	-	-	-
Cement delivery to silo	-	-	-	-	0.0600	0.26	0.0300	0.13
Flyash delivery to silo	-	-	-	-	0.0900	0.39	0.0600	0.26
Weigh hopper loading	2.3700	10.38	1.1400	4.99	0.0024	0.01	0.0011	0.00
Truck or Mixer Loading	46.0200	201.57	11.3400	49.67	1.4700	6.44	0.4200	1.84
<b>Totals</b>	<b>55.6500</b>	<b>243.14</b>	<b>15.9900</b>	<b>69.67</b>	<b>8.732370</b>	<b>38.25</b>	<b>3.9311</b>	<b>17.22</b>

**Metals**

Activity	Uncontrolled (lb/hr)								
	Arsenic	Beryllium	Cadmium	Total Chrome	Lead	Manganese	Nickel	Total Phosphorus	Selenium
Cement Silo Filling	1.2373E-04	1.3183E-06	1.7234E-05	1.8560E-05	5.4206E-05	1.4877E-02	1.2962E-03	8.6907E-04	-
Flyash Silo Filling	-	-	-	-	-	-	-	-	-
Truck or Mixer Loading	1.9627E-05	-	9.9828E-07	1.2013E-04	3.2317E-05	5.1775E-03	2.7749E-04	1.7089E-03	-
<b>Totals</b>	<b>1.5431E-04</b>	<b>2.3082E-06</b>	<b>1.8235E-05</b>	<b>1.5205E-04</b>	<b>9.2218E-05</b>	<b>2.0058E-02</b>	<b>1.5987E-03</b>	<b>2.6168E-03</b>	<b>7.9278E-07</b>

Activity	Controlled (lb/hr)								
	Arsenic	Beryllium	Cadmium	Total Chrome	Lead	Manganese	Nickel	Total Phosphorus	Selenium
Cement Silo Filling	3.1228E-07	3.5794E-08	3.5794E-08	2.1359E-06	8.0279E-07	8.6171E-06	3.0786E-06	-	-
Flyash Silo Filling	1.0950E-05	9.8988E-07	2.1681E-09	1.3359E-05	5.6940E-06	2.8032E-06	2.4966E-05	3.8763E-05	7.9278E-07
Truck or Mixer Loading	1.5820E-06	-	6.0066E-08	1.0744E-05	3.0964E-06	3.1979E-04	2.0981E-05	1.0152E-04	-
<b>Totals</b>	<b>1.2844E-05</b>	<b>1.0257E-06</b>	<b>9.8028E-08</b>	<b>2.6239E-05</b>	<b>9.5931E-06</b>	<b>3.3121E-04</b>	<b>4.9025E-05</b>	<b>1.4028E-04</b>	<b>7.9278E-07</b>

**De Minimis Analysis**

Activity	Arsenic	Beryllium	Cadmium	Total Chrome	Lead	Manganese	Nickel	Total Phosphorus	Selenium
Pound per day emissions	0.000	0.000	0.000	0.001	0.000	0.008	0.001	0.003	0.000
De minimis Threshold	0.012	0.000	0.003	0.030	-	0.300	0.006	0.006	0.012

**De minimis?**    Yes    Yes    Yes    Yes    Yes    Yes    Yes    Yes    Yes

**Plant #2**

**Criteria Pollutants (except lead)**

Activity	Uncontrolled				Controlled			
	PM		PM10		PM		PM10	
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
Aggregate delivery to ground storage	1.6000	7.01	0.7750	3.39	-	-	-	-
Sand delivery to ground storage	0.3750	1.64	0.1750	0.77	-	-	-	-
Aggregate delivery to conveyor	1.6000	7.01	0.7750	3.39	-	-	-	-
Sand delivery to conveyor	0.3750	1.64	0.1750	0.77	-	-	-	-
Aggregate delivery to elevated storage	1.6000	7.01	0.7750	3.39	-	-	-	-
Sand delivery to elevated storage	0.3750	1.64	0.1750	0.77	-	-	-	-
Cement delivery to silo	-	-	-	-	0.0500	0.22	0.0250	0.11
Flyash delivery to silo	-	-	-	-	0.0750	0.33	0.0500	0.22
Weigh hopper loading	1.9750	8.65	0.9500	4.16	0.0020	0.01	0.0009	0.00
Truck or Mixer Loading	38.3500	167.97	9.4500	41.39	1.2250	5.37	0.3500	1.53
<b>Totals</b>	<b>46.3750</b>	<b>202.61</b>	<b>13.3250</b>	<b>58.05</b>	<b>7.276975</b>	<b>31.87</b>	<b>3.2760</b>	<b>14.35</b>



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**Metals**

Uncontrolled		(lb/hr)							
Activity	Arsenic	Beryllium	Cadmium	Total Chrome	Lead	Manganese	Nickel	Total Phosphorus	Selenium
Cement Silo Filling	1.0311E-04	1.0986E-06	1.4362E-05	1.5467E-05	4.5172E-05	1.2398E-02	1.0802E-03	7.2423E-04	-
Flyash Silo Filling	-	-	-	-	-	-	-	-	-
Truck or Mixer Loading	1.6356E-05	-	8.3190E-07	1.0011E-04	2.6931E-05	4.3146E-03	2.3124E-04	1.4241E-03	-
<b>Totals</b>	<b>1.2859E-04</b>	<b>1.9235E-06</b>	<b>1.5195E-05</b>	<b>1.2671E-04</b>	<b>7.6848E-05</b>	<b>1.6715E-02</b>	<b>1.3322E-03</b>	<b>2.1806E-03</b>	<b>6.6065E-07</b>

Controlled		(lb/hr)							
Activity	Arsenic	Beryllium	Cadmium	Total Chrome	Lead	Manganese	Nickel	Total Phosphorus	Selenium
Cement Silo Filling	2.6023E-07	2.9828E-08	2.9828E-08	1.7799E-06	6.6899E-07	7.1809E-06	2.5655E-06	-	-
Flyash Silo Filling	9.1250E-06	8.2490E-07	1.8068E-09	1.1133E-05	4.7450E-06	2.3360E-06	2.0805E-05	3.2303E-05	6.6065E-07
Truck or Mixer Loading	1.3184E-06	-	5.0055E-08	8.9535E-06	2.5803E-06	2.6649E-04	1.7484E-05	8.4600E-05	-
<b>Totals</b>	<b>1.0704E-05</b>	<b>8.5473E-07</b>	<b>8.1690E-08</b>	<b>2.1866E-05</b>	<b>7.9943E-06</b>	<b>2.7601E-04</b>	<b>4.0854E-05</b>	<b>1.1690E-04</b>	<b>6.6065E-07</b>

**De Minimis Analysis**

	Arsenic	Beryllium	Cadmium	Total Chrome	Lead	Manganese	Nickel	Total Phosphorus	Selenium
Pound per day emissions	0.000	0.000	0.000	0.001	0.000	0.007	0.001	0.003	0.000
De minimis Threshold	0.012	0.000	0.003	0.030	-	0.300	0.006	0.006	0.012
De minimis?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**545kW (1.86x10<sup>6</sup> BTU/hr) Generator**

- Emission factors are from AP-42 Table 3.3-1 (10/96 Version)
- Tons per year based on 8,760 hours per year.

Pollutants	Uncontrolled		Controlled	
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
PM	0.186	0.81	N/A	N/A
PM <sub>10</sub>	0.0822	0.67	N/A	N/A
PM <sub>2.5</sub>	0.1034	0.45	N/A	N/A
SO <sub>2</sub>	1.8786	8.23	N/A	N/A
NO <sub>x</sub>	5.952	26.07	N/A	N/A
CO	1.581	6.92	N/A	N/A
VOC	0.1523	0.67	N/A	N/A

**320kW (1.09x10<sup>6</sup> BTU/hr) Generator**

- Emission factors are from AP-42 Table 3.3-1 (10/96 Version)
- Tons per year based on 8,760 hours per year.

Pollutants	Uncontrolled		Controlled	
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
PM	0.3379	1.48	N/A	N/A
PM <sub>10</sub>	0.3379	1.48	N/A	N/A
PM <sub>2.5</sub>	0.3379	1.48	N/A	N/A
SO <sub>2</sub>	0.3161	1.38	N/A	N/A
NO <sub>x</sub>	4.8069	21.05	N/A	N/A
CO	1.0355	4.54	N/A	N/A
VOC	0.3924	1.72	N/A	N/A

**Facility Wide Totals**

Pollutants	Uncontrolled		Controlled	
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
PM	102.5489	448.03	16.5332	72.41
PM <sub>10</sub>	29.7351	129.87	7.6272	33.72
PM <sub>2.5</sub>	0.4413	1.93	N/A	N/A



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Pollutants	Uncontrolled		Controlled	
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
SO <sub>2</sub>	2.1947	9.61	N/A	N/A
NO <sub>x</sub>	10.7589	47.12	N/A	N/A
CO	2.6165	11.46	N/A	N/A
VOC	0.5447	2.39	N/A	N/A
Lead	1.6907E-04	7.4051E-04	1.7587E-05	6.0722E-04
Arsenic	2.8290E-04	1.2391E-03	2.3548E-05	6.6897E-06
Beryllium	4.2317E-06	1.8535E-05	1.8804E-06	5.3421E-07
Cadmium	3.3430E-05	1.4642E-04	1.7972E-07	5.1056E-08
Total Chrome	2.7876E-04	1.2210E-03	4.8105E-05	1.3666E-05
Manganese	3.6772E-02	1.6106E-01	6.0722E-04	1.7250E-04
Nickel	2.9309E-03	1.2838E-02	8.9880E-05	2.5534E-05
Total Phosphorus	4.7974E-03	2.1013E-02	2.5719E-04	7.3064E-05
Selenium	1.4534E-06	6.3660E-06	1.4534E-06	4.1291E-07

PROJECT REGULATORY APPLICABILITY REVIEW			
Regulation	Applicable		Comments
	Yes	No	
<b>South Carolina Regulation 61-62.1 through 62.99: Air Pollution Regulations (PROJECT ONLY)</b>			
<b>Section II(E): Synthetic Minor</b>	X		This facility is potentially a major source for PSD (PM > 250 TPY) and Title V (PM <sub>10</sub> > 100 TPY). The facility will receive limits of less than 250 TPY PM and 100 TPY PM <sub>10</sub> to become a synthetic minor. The use of the control devices will assure compliance.
<b>Section II(G): Conditional Major</b>		X	This construction permit will rolled into a conditional major operating permit upon start-up.
<b>Standard 1: Fuel Burning Operations</b>		X	This facility doesn't have fuel burning operations. The generators don't meet the definition.
<b>Standard 2: Ambient Air Quality Standards</b>	X		Air dispersion modeling was requested for this facility due to the size of the plants. This facility has demonstrated compliance through air dispersion modeling; see summary dated October 15, 2009.
<b>Standard 3: Waste Combustion/Reduction (state only)</b>		X	This facility has no waste combustion or reduction operations.
<b>Standard 3.1: HMI Waste Incinerators</b>		X	This facility has no HMI waste incineration operations.
<b>Standard 4: Emissions from Process Industries</b>	X		Both plants will be subject to a 20% opacity limit on each piece of equipment. All equipment associated with Plant #1 will have a total PM limit of 71.2 lb/hr based on the process rate of 603.6 ton/hr. All equipment associated with Plant #1 will have a total PM limit of 69.0 lb/hr based on the process rate of 503 ton/hr. Based on AP-42; one average cubic yard equals 4,024 lbs.
<b>Standard 5: Volatile Organic Compounds</b>		X	This facility does not have any subject processes.
<b>Standard 5.1: BACT/LAER For VOC (state only)</b>		X	This facility's VOC emissions are too low (4.65 TPY).
<b>Standard 5.2: Control of Oxides of Nitrogen</b>		X	The generators are exempt as they rated at less than 10x10 <sup>6</sup> BTU/hr.
<b>Standard 7: Prevention of Significant Deterioration</b>		X	This facility is potentially a major source for PSD (PM > 250 TPY). The facility will receive limits of less than 250 TPY PM to become a synthetic minor. The use of the control devices will assure compliance.
<b>Standard 7(c): Ambient Air Increments</b>		X	Laurens county doesn't have MSBDs.



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**PROJECT REGULATORY APPLICABILITY REVIEW**

Regulation	Applicable		Comments
	Yes	No	
<b>Standard 7.1:</b> Standards for Non Attainment Areas		X	This facility is not located in a nonattainment area.
<b>Standard 8:</b> Toxic Air Pollutants (state only)	X		Air dispersion modeling was demonstrated for phosphorus; see summary dated October 15, 2009. TAPs from the generators are exempt as they are burning virgin fuel.
<b>Regulation 61-62.6:</b> Control of Fugitive Particulate Matter	X		This facility will be required to control fugitive PM emissions under this regulation.
<b>Regulation 61-62.60:</b> SC Designated Facility Plan and NSPS		X	The generators are compression internal combustion engines but are not subject to Subpart IIII as they are pre-model year 2007.
<b>Regulation 61-62.61:</b> NESHAP		X	This facility does not have any subject processes.
<b>Regulation 61-62.63:</b> NESHAP For Source Categories		X	The generators are subject to Subpart ZZZZ – RICE area source. At this time only a placeholder is being added to the permit.
<b>Regulation 61-62.68:</b> Chemical Accident Prevention		X	This facility does not store or use chemicals subject to 112(r) above threshold quantities.
<b>Regulation 61-62.70:</b> Title V		X	This facility is potentially a major source for Title V (PM <sub>10</sub> > 100 TPY). The facility will receive limits of less than 100 TPY PM <sub>10</sub> to become a synthetic minor.
<b>Regulation 61-62.72:</b> Acid Rain		X	This is not a subject source.
<b>Regulation 61-62.96:</b> Nitrogen Oxides (NO <sub>x</sub> ) and Sulfur Dioxide (SO <sub>2</sub> ) Budget Trading Program		X	This is not a subject source.
<b>Regulation 61-62.99:</b> Nitrogen Oxides (NO <sub>x</sub> ) Budget Program Requirements for Stationary Sources Not In the Trading Program		X	This is not a subject source.
<b>Federal Regulations (PROJECT ONLY)</b>			
NSPS (Part 60)		X	This facility has no subject processes.
NESHAP (Part 61)		X	This facility does not have any subject processes.
MACT (Part 63)		X	This facility is not major for HAP emissions.
Area Source Standards (Part 63)		X	This facility is not subject to any current or proposed area source rules.
Compliance Assurance Monitoring (CAM) (Part 64)		X	This is not a Title V facility.

**SUMMARY AND CONCLUSIONS**

It has been determined that this source, if operated in accordance with the submitted application, will meet all applicable requirements and emission standards.