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Utah Department of Environmental Quality
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1-800-458-0145

Annual Report

For the period of 2015

Granite Construction Company - Cottonwood Facility

Facility Name

1000 North Warm Springs Rd. Salt Lake City, Utah 84116

Facility Street Address

City

Zip

Project Status

On a separate sheet, summarize:

- your Clean Utah project commitments and accomplishments made to date,
- major indicators of environmental improvements (measurable ways that you are determining the environment is improving as the result of steps you are taking),
- public participation activities you have undertaken, and
- your project plans for next year, as they relate to this program.

Certification Statement

(to be signed by the senior facility manager)

I certify that the information outlined in the attached annual report is correct and that this facility continues to meet all program criteria and has an active EMS, as defined by the Clean Utah program. I further certify that this facility has conducted periodic assessments of compliance with legal requirements, has corrected all identified instances of noncompliance, and is currently in compliance with all applicable federal, state, and local environmental rules and regulations.

Signed

January 29, 2016

Date

Mark Greenwood

Print Name

Environmental Manager

Title



Granite Construction Company
2015 Environmental Improvement Project Results

Improvement Project #1: Cottonwood Wash Plant Facility – Operation of Belt Press and Dewatering Screen

Targeted Reduction Goals: Baseline comparison year is 2007

- 25% reduction in wash plant water use

Water Usage Measurement Results - 2015

	Baseline (2007)	Year 8 (2015)	Delta (%)	Goal (%)
Wash Plant Water Usage Total	12,717,632 gal	7,573,765* gal	- 40%	NA
Wash Plant Production	463,057 tons	335,540 tons	- 28%	NA
Gallons Used Per Tons Produced	27.5 gallons/ton	22.6 gallons/ton	- 18%	- 25%

* Assumes a 41% water loss in recirculating the water recovered and reused (5,302,410 total gallons) from belt press and dewatering screen.

Water Usage Performance Discussion

For the 2015 evaluation period we continue to demonstrate significant reductions in utility-provided water use associated with our washed aggregate processing. Accounting for the recycle and reuse of approximately 5.3 million gallons of process wash water, the performance success resulted in a decreased use of 18% of utility-provided water for the period on a per ton basis for washed product. A reduction of 25% of water use per ton of material was not achieved this year due to a variety of factors including the quality of the source material (i.e high quantity of fines) and the extremely dry and hot conditions. Salt Lake City experienced the second warmest year on record in 2015. However, the wash plant recovered over 5.3 million gallons of water in 2015 which is the largest annual recovery of water yet for this project.

Based on the recovery and reuse of the reclaimed water, the economic benefit from water recovery and reuse at the facility for the 2015 period resulted in an approximate cost savings of \$8,000.

Improvement Project #2: Cottonwood Aggregate Plant Electric Utility Conversion – Diesel Fuel and Air Pollutant Reductions

Targeted Reduction Goals: Baseline comparison year is 2012

- Track estimated diesel fuel consumption reduction
- Track estimated air pollutant reduction
- Quantification of economic benefit

Beginning in 2013, the Cottonwood Aggregate facility was improved by connection to the local electrical utility. This infrastructure improvement allowed for the permanent removal of two diesel-powered electrical generators that were historically used to supply power to the aggregate operations at the facility. All of the reported performance indicators were normalized, using 2012 production/consumption information (0.27 gallons of diesel per ton of material produced). In 2015, the Cottonwood facility produced 855,242 tons of recycled asphalt (RAP) and aggregate.

- Total estimated diesel fuel savings (gallons not consumed) = 226,865 gallons
- Total estimated cost savings (assuming \$2.40/gal) = \$544,475
- Total estimated electrical utility cost for 2015 = \$342,097
- **Net economic cost savings for 2015 (estimated) = \$202,378**

The environmental benefits for the improvement project resulted in a significant reduction of air pollutants through the permanent removal of two diesel fired generators. The air pollutant reductions estimated for 2015 are as follows:

- CO reduced by 13.21 tons
- NOX reduced by 20.25 tons
- PM10 reduced by 0.89 tons
- PM2.5 reduced by 0.74 tons
- SOX reduced by 7.85 tons
- VOCs reduced by 1.40 tons

Improvement Project #3(New Project): Compressed Natural Gas (CNG) Vehicles – Air Pollutant Reductions and Energy Cost Savings

Targeted Reduction Goals: Baseline comparison is between identical year gasoline vehicles.

- Track estimated CNG fuel consumption
- Quantification of economic benefit
- Track estimated air pollutant reduction

Granite purchased two Ford F-150 trucks in December 2014 and converted them to dedicated CNG vehicles (i.e. only runs on CNG) in January 2015. A third F-150 was purchased in April 2015 and was converted to a dual fuel vehicle (i.e. CNG and gasoline). The drivers of each vehicle

recorded each refueling event and noted the date, quantity of CNG (volume in units of gasoline gallons equivalent or gge) cost per gge of CNG, and the cost of gasoline on the same day. Each driver submitted monthly tracking information that was compiled into a single database. A summary of the CNG pilot study 2015 outcomes are included below. The conversion annualized costs assumes \$10,000 per conversion with depreciation over 10 years at three percent.

- 2015 Total Miles/Gallons: 38,251 miles or 1821 gallons
- Fuel cost savings: \$1,592.72
- Annualized cost of conversions: \$3,516.92
- Annual savings: - \$1,924.20

The financial benefit of this project was frustrated by the continued decrease in the cost of crude oil. The decrease has dramatically reduced the cost of gasoline, starting at over \$3/gal and dropping below \$1.90/gal this year, has limited the profitability of the converted vehicles. It is assumed however, that over the life span of the vehicles, the cost difference between CNG and gasoline will increase and provide a net financial benefit.

The emissions reductions were estimated using the EPA tool Fleet (2013). The tool is a compilation of national data that determines the emissions from a variety of alternative fuels that incorporates the life cycle of the fuel. This includes emissions generated from processing the fuels (such as refining crude oil to gasoline or diesel) and applies area specific emission factors to the estimates. The total reductions are listed below:

- Total Green House Gases: 4.02 tons/yr
- Total Urban Pollutants (NO_x, SO_x, CO, PM, & VOCs): 0.1 tons
- Reduced Petroleum Barrels consumed: 37.8 bbls

Public Participation Activities

We continue to engage the public and our neighbors at all of our materials facilities to educate them regarding process improvements and new technologies we have implemented to improve our business and environmental performance.

Community outreach continues to be an important part of our business plan and philosophy as a company and community partner. During 2015 we continued our efforts to sponsor and support numerous community events and charitable organizations. One such event was the Ogden Marathon where Granite was a financial contributor. We are committed to continuing our public participation and community involvement efforts for 2016 and beyond.

Clean Utah Project Plans for 2016

The Clean Utah Project Plans for 2016 include:

- 1) (Existing Project) Continue to track and report water conservation for the belt press and dewatering screen at the Cottonwood Aggregate Facility.

- 2) (Existing Project) Cottonwood Aggregate Facility Electric Utility Conversion. This improvement project will track air pollutant emissions reduction, diesel fuel use reductions and economic benefits.
- 3) (Existing Project) Compressed Natural Gas Vehicles. Utah has added three CNG vehicles to the pickup fleet, as of January 2015. This project will continue to track and evaluate cost, fuel conservation, environmental benefits (air pollutant reductions) and energy cost savings to transition our Utah Fleet toward lower emission vehicles.
- 4) (New Project) Electric Vehicle Charging Station. We will evaluate the possibility of installing one or more electric vehicle charging stations in the Warm Springs Employee Parking area.