



Project BioCrete

Task ID: 2
Date: 2006-11-23
Participant: UNICON
Name: FLAR

Preface

“BioCrete” is the acronym for a LIFE supported project “Utilisation of ash from incineration of wastewater sludge (bio ash) in concrete production”. The project activities have been defined in 10 tasks, and the present report is the final report for one task, summarising purpose, task progress, results and experiences. The report is written by the task coordinator, as identified by initials for participant and name. The project period is June 2005 to December 2007, and the project includes 4 participants: Avedoere Wastewater Services (AWS) as beneficiary, Lynettefaellesskabet (LYNIS) and Unicon Ltd. (UNICON) as partners and Danish Technological Institute (DTI) as consultants.

Final report for Task 2

“Design and construction of facilities for handling of ashes at the concrete production plant.”

Introduction

Powder materials such as cement, fly ash, silica fume and bio ash must be handled in closed systems to prevent environmental problems. A screw conveyor brings the powder materials from the silos into the batch equipment from where it is delivered into the mixer by gravitation.

The concrete production is controlled by a computer system integrated with the dispatch and laboratory systems. Any change or any new material will therefore demand investments in the plant to secure that the processes are still in control and recorded.

The purpose of the task was to make it possible to handle bio ash in one ready-mixed concrete production plant in the Copenhagen area.

As it came out, it was possible to use some facilities with less investments for the new material on three plants. It was therefore possible within the financial limits of the task to establish facilities for bio ash on three plants in the Copenhagen area instead of one.

One important reason for that was the acquisition of a major competitor with three plants in the Copenhagen area. That situation could not be foreseen on the time of the application of the LIFE project.

Task progress

The facilities were established from January 2006 till the end of June 2006 with the Avedore (Stamholmen) plant being the first. The Hedehusene plant had already been using bio ash from an extra silo for a longer period. Finally, the Ejby plant was upgraded and was able to receive bio ash from end of July 2006.

The equipment costs were mainly due to the computer system from Skako, a screw conveyor and some complementary parts for the plant.



UNICON Ejby 060421. A ready-mixed concrete production plant. One of the high silos has been assigned for the reception of bio ash.

The general tests of the facilities took place in July and August 2006, and some final adjustments were made in October 2006.

The functions of the facilities are satisfying now. Task 2 must therefore be considered fulfilled.



UNICON Ejby, October 2006.

Results

The present result of the task is that UNICON from 3 plants in the Copenhagen area (Avedøre, Hedehusene and Ejby) as a routine can deliver bio ash concrete.

Thus, in 2006 approx. 12.000 m³ of bio ash concrete has been produced using approx. 850 t of bio ash from AWS.

Experiences

Bio ash can be handled with the same type of equipment as other powder materials.

Batching and mixing in a concrete plant does not require other types of equipment than what is already present on most plants.

It is necessary to have a silo only to be used for bio ash in order to avoid problems with unattended mixing with other materials.

Cost of equipment

The total investment is approx. 64.700 €

Contact

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