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**CIP Eco-innovation**  
**First application and market replication projects**  
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## **Meeting Report**

### *Deliverable D.9 – WP1*

**Less-Water Bev.Tech**  
**Contract ECO/13/630314**

**Reporting Date**  
**22/03/2017**

**Project coordinator:** **A DUE DI SQUERI DONATO & C. S.p.A.**

**Project website:** [www.lesswaterbevtech.com](http://www.lesswaterbevtech.com)

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## **Description of the Deliverable n. 9 of Work Package 1.**

This deliverable, included in the Annex I of the Grant Agreement for the Project Less-Water Bev. Tech (ECO/13/630314), regards the “Project coordination meeting #8” that was held on March 22<sup>nd</sup> 2017, at A DUE S.p.A. premises in Riccò di Fornovo Taro (Parma, Italy), as planned during the previous meeting.

### **Meeting Participants**

- Eng. Simone Squeri, A DUE S.p.A., CEO;
- Eng. Alberto Dilda, A DUE S.p.A., COO and R&D director;
- Eng. Guido Marossa, A DUE S.p.A., project engineer;
- Mr. Marco Iasoni, A DUE S.p.A., project engineer;
- Eng. David Del Monte, A DUE S.p.A., automation engineering Dept. Director;
- Eng. Gian Paolo Pescini, A DUE S.p.A., mechanical engineering Dept. Director;
- Mr. Paolo Caselli, A DUE S.p.A., project designer automation;
- Mr. Guatelli Claudio, A DUE S.p.A., customer care manager;
- Mr. Paolo Ferrari, A DUE S.p.A., technical sales engineering
- Dr. Micaela Guerzoni, A DUE S.p.A., subcontractor;
- Dr. Federico Cappa, A DUE S.p.A., in-house consultant;
- Mr. Craig Clayton, CVAR Ltd, CEO;
- Eng. Mauro Gamberi UNIBO, associate professor;
- Eng. Marco Bortolini, UNIBO, senior researcher, via teleconference.

### **Meeting Agenda**

The points in the agenda were the following:

1. General overview on project implementation (A DUE);
2. Review of the deliverables to produce by spring 2017 (ALL);
3. State of the art of the tests carried out to the water treatment system at CCdP and next steps to perform (A DUE and UNIBO);
4. Survey on alternative systems for removal of PPAs and other oxidants (UNIBO);
5. Clustering event preliminary organisation (ALL);
6. Schedule of the next meeting (ALL);
7. Any Other Business (ALL).

## **1. General overview on project implementation**

The partners are carrying out the project activities according to the scheduled timetable defined in Annex I, without any noticeable problems in terms of deviations from the original Gantt. All the partners are fully committed in the tasks and give the needed contributions to its implementation, according to the indications of the coordinator.

## **2. Review of the deliverables to produce by spring 2017**

Hereinafter, the next deliverables to be produced are listed by deadline. Even if every partner is involved in the deliverable production, the partner responsible for its finalisation is indicated, as agreed during the meeting.

#	Deliverable Name	Type	Resp. PP	Due to	New deadline
D4.1	Plant start-up and operating parameters tuning	Report	A Due	Mar-17	-
D4.2	Performance & energy analysis, environmental and economic indicator assessment	Report	UniBo	Mar-17	Jun-17
D4.3	Plant Life Cycle Assessment (LCA)	Report	UniBo	Mar-17	Jun-17
D5.5	Patents registration and/or extension ( <i>TBD</i> )	Patent demands	A Due	Mar-17	-
D5.7	Capabilities & Human Resources	Report	A Due	Mar-17	-
D5.8	Economies of Scope & Technology Collaboration	Report	A Due	Mar-17	-
D6.11	Scientific paper redaction (x2)	Scientific report	UniBo	Mar-17	-
D1.9	Project coordination meeting/sub-meetings #8	Meeting minutes	A Due	Apr-17	-
D6.8	Layman's report	Brochure	UniBo	Jul-17	-

As for the D4.1 (Plant start-up and operating parameters tuning), the deliverable will be produced on time, focussing on the explanation of all the start-up parameters, by reporting on the tests on waters and system functionalities carried out in the previous months.

The D4.2 (Performance & energy analysis, environmental and economic indicator assessment) is strictly connected to the next D4.3, since it takes inputs from the Life Cycle Assessment with real and comparable results that could help A Due to propose the water treatment system in the relevant markets. The data measured by the instrumentation installed in the system and the performance values real-time saved by the controller are directly extracted from the SW developed by Cvar. The production of the deliverable is delayed to June 2017, when all the final data are ready and presented during a specific internal training session at A Due premises.

Concerning the D4.3 (Plant Life Cycle Assessment - LCA), as it is linked to the previous deliverable, it will be ready on June 2017, with three months of delay in comparison to the original schedule, without any impacts on the overall implementation of the project. It concerns all the activities defined by the ISO 14040 standard, encompassing the following

steps: 1) Goal and Scope definition; 2) Inventory Analysis; 3) Impact Assessment; 4) Interpretation of Results. Globally the LCA analysis leads to the full environmental assessment of the proposed solution.

In the D5.5 (Patents registration and/or extension), A Due and UniBo explores the possibilities to protect the new system with international patents, through a detailed bibliographical and patent search. If the technology is not protectable, A Due will make use of other protection measures towards clients and competitors, like NDAs, confidentiality agreements, partnership agreements on the new technology, and so forth. The deliverable will be produced on time.

Concerning the D5.7 (Capabilities & Human Resources), A Due already put in place an internal organisation to develop distinctive and specialised know-how concerning the new technology. The technical and commercial capabilities and competences have been developed to stimulate the development of a Learning Curve Advantage. In addition, the personnel to strengthen the various company branches involved in the construction and realisation of the new water treatment system was already hired. Specific training sessions were organised to teach the new technology to the personnel not directly involved in the technical development of the new water treatment system, but then involved in market replication and in aftersales services. The deliverable will be produced on time.

As for the D5.8 (Economies of Scope & Technology Collaboration), A Due started developing the existing Economies of Scope with its equipment already in its product portfolio in order to optimise production costs, thanks to shared use of its tangible and intangible assets. A Due has already established working relationships which involves technology collaboration with all key players in the sector (sub-suppliers, customers, agents, consultants, research centers and local business associations). The deliverable will be produced on time.

D6.11 (Scientific papers) is being finalised, as scheduled, since the publication of the two scientific articles has been accepted to be published on relevant scientific journals in the field of energy, water management and production process design and optimisation. These activities are particularly important for the dissemination of the new technology among the international academic community. In addition, the articles are being presented and discussed by UniBo team at two international conferences (4th International Conference on Sustainable Design and Manufacturing, April 26-28 2017, Bologna, Italy and Summer School F. Turco, Industrial Systems Engineering, September 13-15 2017, Palermo, Italy).

The D6.8 (Layman's report) is going to be drafted by UniBo within the scheduled deadline.

### **3. State of the art of the tests carried out to the water treatment system at CCdP and next steps to perform**

After the engineering, integration, assembly and start-up of the water treatment pilot plant at the client's premises (the CCdP - Consorzio Casalasco del Pomodoro - Fontanellato, Parma-Italy <http://www.ccdp.it/>), several industrial tests have been carried out and many different kind of wastewaters analysed. Almost all the parameters respected the clients' standards, thus demonstrating that the first test supported the good functionalities of the water treatment pilot system developed under the project.

The first results were already presented during some events in Dubai (UAE), Bologna (Italy) and Barcelona (Spain) at the end of 2016, showing that the main recognised analytical data fell within the limits of the water used for the production of beverages, established by the main producers of beverages industries worldwide.

In the meantime, A Due and UniBo organised some training sessions for the other staff working in A Due and for the CCdP's operators to teach the staff on how using correctly the system, especially on the possible answers to the warnings the same system may generate.

Presently, the water treatment pilot plant is self-operating and running 24/7, directly controlled by the clients, by making use of the rinsing waters coming from PET lines.

Since the client is keen to reintroduce the treated waters in the production processes, it is committed to perform further chemical/physical assessments, some microbiological tests and some analyses on the water potability, in strict cooperation with A Due and UniBo, to check the consistency and repeatability of the results obtained so far.

In particular, UniBo will assist the CCdP on the type and frequencies of the analyses to carry out, in particular when some specific analyses should be performed depending on the origin of treated water and on the treatment to which the same waters have been subjected (e.g. specific tests to verify the presence of PET micro-powders, traces of peracetic acid, etc.).

In addition, the client will test the waste waters coming from the osmosis process, which is richer of salts, and other mixed waters with a flow rate of 45,000 lt / h.

Before doing that, some improvements to the pilot plant are to be considered:

- the turbidimeter and flowmeter must be calibrated as they are not working well. This malfunctioning does not affect the right water treatment process and the backwashing of the ultrafiltration;
- the installation of the self-cleaning filter to protect the UF. The installation of the self-

cleaning filter (Everblue) is needed to operate also with those polluting inputs that gave the highest grade of difficulty, namely tomato juices, pears and orange cells. The functionality of the self-cleaning filter is being every day or every hour measured, by counting the washing cycles with a SW that instantly gives (on-line) their usage percentages. This is also done to understand how much the substances used for the filters cleaning might pollute the waters;

- some small ameliorations on plant layout.

The waters parameters are currently recorded thanks to a module for the automatic on-line upload of all the data (readable via remote systems), developed by Cvar, with the possibility to generate a panel indicating the synthesis of main results achieved by the water treatment system for a deeper analysis by UniBo.

The tests are expected to be completed by the end of June 2017, right before the ‘tomatoes season’.

#### **4. Survey on alternative systems for removal of PPAs and other oxidants**

It is agreed that UniBo surveys the use of alternative systems instead of active carbons to remove PPA and other oxidants such as ozone and hydrogen peroxide, further than the identification of alternative mechanical filtration systems (or other different systems) to solve the problem of the pre-filters clogging in case of pollutants like orange cells, pears and tomato juices. The solutions can refer both to (commercial) articles already present in the market and to possible research areas to develop altogether.

UniBo also investigates the causes of water haziness after the introduction of polluting inputs like sugar syrup, not removed by the ultrafiltration actions.

The survey will be ready by June 2017.

#### **5. Clustering event preliminary organisation**

The partners are planning the project presence during the World’s leading trade fair for the beverage and liquid food industry (Drinktec in Munich on September 11-15<sup>th</sup> 2017 - <http://www.drinktec.com/>), during which a final Clustering Event is organised on the first day together with other 4 or 5 funded projects that have developed similar topic under the CIP Eco-innovation and Life Programme.

All the partners are committed to select the projects’ responsible persons to invite, also on the

base of the list sent by EASME. The invitation will follow with a tentative agenda that also foresees the visit to A Due stand in order to see the technologies in use.

### **6. Schedule of the next meetings**

The next project coordination meeting (D1.10) is scheduled on September 2017, the last project month. Partners may have technical sub-meetings before this meeting in order to review the status of the art of all the project activities.

### **7. Any Other Business**

No other issues were discussed. All the partners have unanimously agreed on the contents of this document, which reports the schedule of the activities to perform in the next months, including the related responsibilities.

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