

# **HyCoRA – Hydrogen Contaminant Risk Assessment Grant agreement no: 621223**

## **Deliverable 6.1 Kick-off meeting report**

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Confidentiality: Public

<b>Report's title</b> Deliverable 6.1 Kick-off meeting report	
<b>Customer, contact person, address</b> Carlos Navas	<b>Order reference</b> Grant agreement no: 621223
<b>Project name</b> Hydrogen Contaminant Risk Assessment	<b>Project number/Short name</b> HyCoRA
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<b>Summary</b> <p>Kick-off meeting was held at VTT Finland, 8-9<sup>th</sup> of April 2014.          In the 8<sup>th</sup> of April, work for the WP1, WP2 and WP3 was planned in detail.</p>	
<b>Confidentiality</b>	Public

## Contents

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Contents.....	2
1. Meeting participants.....	3
2. WP1, WP2 and WP3 Technical meetings .....	4
3. Welcome and partner introduction .....	4
4. Introduction to SharePoint (project Intranet).....	4
5. Overall project plan and overall project objectives.....	4
6. Management Aspects .....	4
6.1 Appointment of the Project Management Committee (PMC).....	4
6.2 Financial information.....	5
6.3 The pre-financing payment schedule .....	5
6.4 The Project fee contribution (4% of the FCH-JU contribution).....	5
6.5 Other financial issues (e.g. eligibility of costs).....	5
6.6 Consortium Agreement (CA).....	5
6.7 Reporting Periods.....	5
7. International co-operation .....	6
8. Project structure (WP organisation) Work package (WP) objectives and Technical targets and Milestones.....	6
9. Work package overview and planning.....	6
9.1 WP1 (CEA, Pierre-André Jacques).....	6
9.1.1 Planned work in M1-M2 .....	6
9.1.2 Planned work in M3-M4 .....	7
9.1.3 Planned work in M5-M6 .....	7
9.2 WP2 (SINTEF, Thor Anders Aarhaug).....	7
9.2.1 Planned work in M1-M2 .....	7
9.2.2 Planned work in M3-M4 .....	8
9.2.3 Planned work in M5-M6 .....	8
9.3 WP3 (SINTEF, Thor Anders Aarhaug).....	8
9.3.1 Planned work in M1-M2 .....	8
9.3.2 Planned work in M3-M4 .....	9
9.3.3 Planned work in M5-M6 .....	9
9.4 WP4 (VTT, Risto Tuominen).....	10
9.4.1 Planned work in M1-M2 .....	10
9.4.2 Planned work in M3-M4 .....	10
9.4.3 Planned work in M5-M6 .....	10
9.5 WP5 (JRC, Georgios Tsotridis).....	10
9.5.1 Planned work in M1-M2 .....	10
9.5.2 Planned work in M3-M4 .....	10
9.5.3 Planned work in M5-M6 .....	11
10. Summary of actions months 1-6.....	11
11. Places and times for progress meetings, web meetings and 1 <sup>st</sup> OEM workshop .....	11
ANNEX 1: HyCoRA Kick-off Meeting Agenda.....	12

## 1. Meeting participants

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{The background of the problem, the status of the company/process/product. Introduction to the research theme.}

Name	Organisation	Partner n°	e-mail
Jari Ihonen	VTT	1	<a href="mailto:jari.ihonen@vtt.fi">jari.ihonen@vtt.fi</a>
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Victoria Brewster	Protea	4	<a href="mailto:victoria.brewster@protea.ltd.uk">victoria.brewster@protea.ltd.uk</a>
Thor Anders Aarhaug	SINTEF	5	<a href="mailto:Thor.A.Aarhaug@sintef.no">Thor.A.Aarhaug@sintef.no</a>
Anders Ødegård	SINTEF	5	<a href="mailto:Anders.Odegard@sintef.no">Anders.Odegard@sintef.no</a>
Carlos Navas	JTI	NA	<a href="mailto:Carlos.Navas@fch.europa.eu">Carlos.Navas@fch.europa.eu</a>

Apologies for absence: Thomas Tingelöf (Powercell Sweden). Powercell participated briefly WP1 technical meeting 8.4.2014 by phone.

## **2. WP1, WP2 and WP3 Technical meetings**

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Work for the first 6 months was planned in detailed for WP1, WP2 and WP3 technical meetings for the reporting in the kick-off meeting.

The partners planned their work for the first 6 months divided in 2 month intervals. Every partner is preparing own plan (PPT form). VTT showed its facilities for the work in WP1 and WP2.

## **3. Welcome and partner introduction**

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Jari Ihonen (JI), VTT, coordinator of the project, welcomed the representatives of all partner organisations to the Kick-off meeting. The meeting agenda was confirmed. Participating partners introduced themselves.

## **4. Introduction to SharePoint (project Intranet)**

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Ji introduced partners to the project intranet (SharePoint).

## **5. Overall project plan and overall project objectives**

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Ji presented the overall Work Plan of HyCoRA. In the presentation the following items were addressed:

- Project consortium and budget
- The need for the project - the cost of automotive grade hydrogen is too high
- Project objectives and outcomes
- Project Pert diagram and HyCoRA strategy – Risk Assessment.

## **6. Management Aspects**

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Management aspects were as follows.

### **6.1 Appointment of the Project Management Committee (PMC)**

The following persons will represent their organisations on the PMC.

VTT	Pauli Koski
CEA	Pierre-Andre Jacques
JRC	Georgios Tsotridis
Protea	Richard Camm
SINTEF	Anders Ødegård

Representative of Powercell Sweden (Thomas Tingelöf) was nominated after the meeting as Powercell Sweden was not attending the kick-off meeting.

## 6.2 Financial information

Kirsi Rantala, VTT, informed partners about the financial situation of the project.

- VTT and the FCH JU have signed the Grant Agreement on 20th March 2014
- Project start date is 1st April 2014 and end date 31st March 2017
- Partners have acceded to the Grant Agreement with Form A (Accession form).

## 6.3 The pre-financing payment schedule

Kirsi Rantala, VTT, informed partners about pre-financing.

The pre-financing will be transferred to partners. An interim payments will be made after the acceptance or project reports. According to the provisions of FCH-JU, 20% of the total funding will be retained at FCH-JU and will be transferred to partners at the end of the project, after acceptance of all financial and technical reports and deliverables.

## 6.4 The Project fee contribution (4% of the FCH-JU contribution).

The Project contribution (4% of the FCH-JU contribution) will be directly deducted from the pre-financing before transfer to partners.

## 6.5 Other financial issues (e.g. eligibility of costs)

Kirsi Rantala, VTT, informed partners informed about

- eligibility of costs,
- non-eligible costs,
  - The project contribution is not an eligible direct project cost. The contribution should not be included in the direct costs in financial reporting (Form C).
- funding rates,
- project budget,
- overall payment schedule
- Reporting periods to the FCH JU
- Content of Periodic Reports
- Certificate on the Financial Statement, CFS (Financial audit)

## 6.6 Consortium Agreement (CA)

Jl informed partners about the progress of the consortium Agreement (CA). The next version of the CA shall be sent to the partners during April 2014.

## 6.7 Reporting Periods

Jl informed again the Reporting periods to the FCH JU and importance of following the deadlines as payments are made only after acceptance of periodic reports.

## 7. International co-operation

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Jl informed partners about the international co-operation, which have been initiated by visit of Jl to Los Alamos National Laboratory (16.12.2013).

In discussions between Jl and LANL topics of co-operation have been agreed and these were presented to the partners. These topics will be placed later in the order of importance. Practical co-operation has been started so that VTT has advised LANL for designing single cell recirculation system and selection of components (sensors, pump).

The next step would be to form a formal co-operation agreement between EU (HyCoRA), US (LANL) and Japan (JARI)

Agreement should be a type of memorandum of understanding (MoU) and should not contain confidential issues. Collaboration areas should be chosen accordingly.

## 8. Project structure (WP organisation) Work package (WP) objectives and Technical targets and Milestones

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Jl informed partners about WP level work, budget, objectives and milestones. The deliverables and milestones due to first 6 months were emphasised.

## 9. Work package overview and planning

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Each WP Leader described the overall plan for his/her work package over the next 6 months. Each partner had delivered to the WP leader the work plan for the first 6 months for each activity the partner is involved in. Summary of the planned work is reported here.

### 9.1 WP1 (CEA, Pierre-André Jacques)

#### 9.1.1 Planned work in M1-M2

In Task 1.1 (literature review), relevant publications are collected and drawing of the report is initiated.

In Task 1.2 Description of the test station, gas purity, humidification step (H<sub>2</sub>O quality) is performed by all partners.

- CEA installs Fuelcon + recirculation loop,
- VTT installs G60 integrating recirculation (couple with GC) and completes first miniature automotive system test station (2-10 kW)
- JRC provides test bench description, functionality of Hardware and MS analyser
- Measurement scripts for stack characterization are coded for Greenlight G100 test station by PC

### 9.1.2 Planned work in M3-M4

In Task 1.1 literature review is completed and deliverable is submitted.

In Task 1.2

- CEA integrates recirculation loop in EpiCEA test station
- VTT completes the second miniature automotive system test station (1-2 kW) and starts tests with PC S2 stack
- JRC Hardware functionality verification and procurement of fuel recirculation loop test bench
- PC assembles and characterizes first S2 stack for HyCoRA project

In Task 1.3

- CEA, VTT, JRC start first series of test equal between partners to quantify deviations
- PC delivers first S2 stack to VTT for CO contamination studies

### 9.1.3 Planned work in M5-M6

In Task 1.2 all partners complete and report the work with test stations and D1.2 is submitted

In Task 1.3 CEA, VTT, JRC start second series to study, impact of recirculation, H2 utilisation, Start/stop procedure and idle time duration. PC delivers on S2 stack for CEA, VTT, JRC each.

## 9.2 WP2 (SINTEF, Thor Anders Aarhaug)

### 9.2.1 Planned work in M1-M2

Task 2.1

- List of relevant analytical capabilities and relevant analytical experience within the project
- Evaluation of proposed test methods not traceable to ISO/SAE
  - Priority (link to Task 1.1)
  - Some constituents assumed important and already distributed
- Evaluation of pre-concentration strategy

Task 2.2

- Technology review (including partners)
- Measurement requirements
- Problem areas
- Limitations



## 9.2.2 Planned work in M3-M4

### Task 2.1

- Distribute constituents between partners for evaluation of analytical performance
  - Optimize overlap
- Initiate establishment of traceable standards missing (halogenates)
- Selection of pre-concentration strategy
- Initiate evaluation of total halogenate analysis
- Map gas mixture requirements

### Task 2.2

- Specify and purchase FTIR platform
- System testing and basic calibration

## 9.2.3 Planned work in M5-M6

### Task 2.1

- Euramet 1220 Hydrogen Purity Protocol
  - CEA: IMR-MS, OFCEAS
  - SINTEF: GC-PDHID, LPFTIR. MS
  - VTT
  - (ask NPL to join)
- Analysis of samples from WP3 when available

### Task 2.2

- Instrument validation (FTIR)
- MS initial trials and chemometrics
- Analytical comparison with results from Task 2.1

## 9.3 WP3 (SINTEF, Thor Anders Aarhaug)

### 9.3.1 Planned work in M1-M2

#### Task 2.1

- Hydrogen fuel sampling unit test and verification (MS31 M4)

- Test sampling at SINTEF HRS (electrolytic)
- Planning of first HRS QC campaign
  - Obtain required permissions for conducting QC on HRS
  - Sample volumes required for various analytical techniques
  - Enquire availability of HRS for sampling

### 9.3.2 Planned work in M3-M4

- Planning of sample distribution to partners
- Sample volumes required for various analytical techniques
- Find "feasible route" of HRS for sampling with respect to
  - HRS feedstock
  - FCHEV range and availability (FCHEV is sink when sampling)
  - Current HRS availability for sampling
- Analytical strategy
  - Which analytical techniques to apply by which partner
  - Subcontracting (try to cover all feedstocks)
  - Prepare instrumentation for H2 QC application

### 9.3.3 Planned work in M5-M6

- Split off for external analysis
  - Smart chemistry
- Analysis of samples
  - SINTEF
  - VTT
  - (CEA)
- Provide samples for WP2
- Evaluation of results
- Feedback to WP4

## 9.4 WP4 (VTT, Risto Tuominen)

### 9.4.1 Planned work in M1-M2

- Participation on project kickoff
- No specific activities planned for this time period

### 9.4.2 Planned work in M3-M4

- No specific activities planned for this time period
- Monitoring the state-of-art review work in WP1

### 9.4.3 Planned work in M5-M6

- Review D.1.1 inputs on impurity impacts on PEMFCs and analytic methods for QA and incorporate them into the tentative risk model v0.0
- Produce risk model v1.0 for OEM 1 Workshop

## 9.5 WP5 (JRC, Georgios Tsotridis)

### 9.5.1 Planned work in M1-M2

Task 5.1 Interaction with OEM advisory board (M01-M36)

- Establish Contacts ; Invitation to participate at the advisory board

Task 5.2: Organization of OEM workshops (M01-M36)

- Prepare Agenda and Possible list of participants for OEM workshop - test requirements & test matrix
- M03 foreseen but unlikely to have participating OEMs – October/November

### 9.5.2 Planned work in M3-M4

Task 5.1 Interaction with OEM advisory board (M01-M36)

- Contacts with automotive OEMs cont: established

Task 5.2: Organization of OEM workshops (M01-M36)

- Organization items of the workshop cont.- October/November

Task 5.3: Liaison with standards drafting organizations (M06-M36)

### 9.5.3 Planned work in M5-M6

Task 5.2: Organization of OEM workshops (M01-M36)

- Organization items of the workshop cont.- October/November

Task 5.3: Liaison with standards drafting organizations (M06-M36)

- Describe project to IEC TC 105 & IPHE
- Establish contacts with ISO TC 197,
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## 10. Summary of actions months 1-6

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Jl summarised the required deliverables and milestones. All partners agreed to hold establishing good contacts for the OEM advisory board.

## 11. Places and times for progress meetings, web meetings and 1<sup>st</sup> OEM workshop

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Places for the next 6M were discussed. The next meeting was decided to be in Brussels in combination with OEM workshop, organised by JRC.

Preliminary schedule for the project meetings is as follows

	Event	Time	Location	Notes
1	Kick-off	2 days during 8.-9.4.2010 (weeks 14-15)	VTT, Finland	WP1 WP2 and also WP3 technical meeting included
2	Semi-annual project meeting and 1st OEM workshop	2 days during 29.9-2.10 or 13-17.10.2014 (w 40/42)	Brussels (organised by JRC)	WP4 introduction and workshop included, other WP meetings (?)
3	1st Annual meeting	1 day during 13.-17.4.2015 (week 16)	CEA	WP technical meetings could be combined
4	Semi-annual project meeting and 2nd OEM workshop	2 days late September 2015	Brussels (organised by JRC) or Oslo	WP technical meetings could be combined
5	Project mid-term review	November 2015	FCH JU Brussels, Belgium	
6	2nd Annual meeting	1 day during early April 2016	Gothenburg / PC	
7	Semi-annual project meeting	1-2 days late September 2016	TBD	Could be combined with 3rd OEM workshop if enough results available
8	3rd OEM workshop	1 day december 2016 or January 2017	Brussels (organised by JRC)	
9	Final project meeting	1 day in March 2017	VTT, Finland	

## **ANNEX 1: HyCoRA Kick-off Meeting Agenda**

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Time: Tuesday-Wednesday 8th-9th of April 2014

Place: Kabinetti and Kampiakseli (meeting rooms)

Biologinkuja 5, Espoo, Finland

Tuesday 8<sup>th</sup>

### **12:00-17:30 WP1, WP2 and WP3 Technical meetings**

Work for the first 6 months is planned in detail and reported in the meeting day after. Every partner is preparing own plan (PPT presentation) for the first 6 months for WP1/WP2/WP3

Work plan for the rest of the project is studied and comments for the kick-off meeting. A common plan for the work is discussed.

VTT is demonstrating work with single cell or/and stack with anode gas recirculation and gas sampling (for WP1 and possibly WP2).

19:00 **Dinner at restaurant Manala Museokatu 10, Helsinki.**

Wednesday 9<sup>th</sup>

8:00 **Welcome (Ihonen)**

8:15 **Partner introductions (All)**

8:30 **Introduction to SharePoint (Ihonen)**

8:45-> **General Affairs (Ihonen & Vepsäläinen)**

Overall project plan and overall project objectives

Management Aspects: Appointment of the Project Management

Committee (PMC). Persons representing their organisations on the PMC will be selected.

Financial information

The pre-financing payment schedule

The Project fee contribution (4% of the FCH-JU contribution).

Other financial issues (e.g. eligibility of costs)

Consortium Agreement (CA)

Reporting Periods

Project structure (WP organisation)

Work package (WP) objectives

Technical targets and Milestones

Deliverables: reminder on the importance to be on time for release of deliverable report

11:00 **Work package overview and planning (All)**

Each WP Leader describe the overall plan for his/her workpackage over the next 6 months.

Each partner has delivered to the WP leader the work plan for the first 6 months for each activity the partner is involved in.

WP1 (CEA, Pierre-André Jacques)

WP2 (SINTEF, Thor Anders Aarhaug)

WP3 (SINTEF, Thor Anders Aarhaug)

WP4 (VTT, Risto Tuominen)

WP5 (JRC, Georgios Tsotridis)

12:00 **Lunch (at meeting location)**

13:00 **Work package overview and planning continues**

13:30 **Summary of actions months 1-6 (Ihonen)**

14:00 **Places and times for progress meetings, web meetings and 1st OEM workshop (All)**

Partners responsible for the meetings in the first year announce the proposed dates

14:15 End of meeting