

Exhibit A WORK STATEMENT

TECHNICAL TASK LIST

Task #	CPR	Task Name
1		Administration
2	X	Finalize Industrial Machine Design
3		Benchmark Current Practices at Demonstration Site
4		Procure CO ₂ Machine Components
5	X	Complete Machine Fabrication
6		Test Plan Preparation
7		Installation of Facility On-Site CO ₂ Storage Tank
8		Installation & Commissioning of Machine at Demonstration Site
9		Operator Training
10		Control Testing
11	X	Operation and Maintenance of CO ₂ Textile Cleaning Machine
12		Measurement and Verification (M&V)
13		Production Readiness Plan

KEY NAME LIST

Task #	Key Personnel	Key Subcontractor(s)	Key Partner(s)
1	Richard Kinsman	--	--
2	None		--
3			Aramark Cleanroom Services LLC
4-11	None		--
12			Aramark Cleanroom Services LLC, Southern California Gas Company, LADWP
13	Richard Kinsman		

GLOSSARY

Specific terms and acronyms used throughout this scope of work are defined as follows:

Term/ Acronym	Definition
CO ₂	Carbon Dioxide
CPR	Critical Project Review
Energy Commission	California Energy Commission
GHG	Green House Gas
LADWP	Los Angeles Department of Water and Power
M&V	Measurement and Verification
OPL	On-Premise Laundry
PAC	Project Advisory Committee
PIER	Public Interest Energy Research
RD&D	Research, Development and Demonstration

Exhibit A WORK STATEMENT

Problem Statement:

Conventional industrial / commercial laundry is a water and energy intensive industry. In the state of California where water scarcity and high energy demand are commonplace during many months of the year (summer months), it is not sustainable to continue using industrial processes heavily demanding water and energy. Contemporary textile cleaning is done through water based washers extractors and dryers.

A replacement liquid/supercritical carbon dioxide (CO₂)-based technology exists in commercial prototype state which would remove some percentage of the use of water from the laundry process and significantly reduce energy usage through the elimination of the associated dryers.

CO₂-based cleaning has been introduced in the retail dry cleaning arena; however the configuration and process for that application is not suitable for more demanding commercial and industrial cleaning applications. An adapted machine and cleaning process is needed.

Goals of the Agreement

The goal is to, validate and document the technical and commercial feasibility of a dense phase CO₂ textile cleaning and disinfection machine and process for laundering cleanroom fabrics. The textiles are items such as; gowns, scrubs, lab coats and other miscellaneous textiles that are currently utilized in biotech, medical, pharmaceutical, semiconductor and other industries. Such textiles are typically cleaned in water and disinfected with chemicals. Water-based methods use significant amounts of water and energy and produce a costly secondary waste stream. This project further strives to develop a feasible deployment plan for this technology should it prove commercially feasible, not just within industrial laundry applications but across other commercial/industrial textile cleaning applications.

Objectives of the Agreement

The objectives are to:

- Design and build a commercial scale dense phase CO₂ textile cleaning / sterilization machine.
- Implement and optimize this machine for cleaning in an industrial clean room laundry facility.
- Measure and validate the technical cleaning (including sterilization) and economical performance of this machine. These include cleaning performance; cycle time; workflow efficiency; energy and water consumption; and overall machine operation and reliability.
- Determine the real world operation and cost comparisons between water based and CO₂ based textile cleaning in an industrial setting.
- Increase consumer awareness of CO₂ textile cleaning.

Exhibit A WORK STATEMENT

- Reduce green house gas (GHG) emissions, reduce effluent water from commercial and industrial laundry, as well as provide a cost saving technology to the public.
- Eventual successful roll out of this technology in large scale.

Product Guidelines:

For complete product guidelines, refer to Section 5 in the Terms and Conditions.

TASK 1 ADMINISTRATION

Task 1.1 Attend Kick-off Meeting

The goal of this task is to establish the lines of communication and procedures for implementing this Agreement.

The Recipient shall:

- Attend a “Kick-Off” meeting with the Commission Project Manager, the Grants Officer, and a representative of the Accounting Office. The Recipient shall bring its Project Manager, Agreement Administrator, Accounting Officer, and others designated by the Commission Project Manager to this meeting. The administrative and technical aspects of this Agreement will be discussed at the meeting. Prior to the kick-off meeting, the Commission Project Manager will provide an agenda to all potential meeting participants.

The administrative portion of the meeting shall include, but not be limited to, the following:

- Discussion of the terms and conditions of the Agreement
- Discussion of Critical Project Review (Task 1.2)
- Match fund documentation (Task 1.6)
- Permit documentation (Task 1.7)

The technical portion of the meeting shall include, but not be limited to, the following:

- The Commission Project Manager’s expectations for accomplishing tasks described in the Scope of Work
- An updated Schedule of Products
- Discussion of Progress Reports (Task 1.4)
- Discussion of Technical Products (Product Guidelines located in Section 5 of the Terms and Conditions)
- Discussion of the Final Report (Task 1.5)

The Commission Project Manager shall:

- Designate the date and location of this meeting.

Recipient Products:

Exhibit A WORK STATEMENT

- Updated Schedule of Products (no draft)
- Updated List of Match Funds (no draft)
- Updated List of Permits (no draft)

Commission Project Manager Product:

- Kick-Off Meeting Agenda (no draft)

Task 1.2 Critical Project Review (CPR) Meetings

The goal of this task is to determine if the project should continue to receive California Energy Commission (Energy Commission) funding to complete this Agreement and to identify any needed modifications to the tasks, products, schedule or budget.

CPRs provide the opportunity for frank discussions between the Energy Commission and the Recipient. CPRs generally take place at key, predetermined points in the Agreement, as determined by the Commission Project Manager and as shown in the Technical Task List above. However, the Commission Project Manager may schedule additional CPRs as necessary, and any additional costs will be borne by the Recipient.

Participants include the Commission Project Manager and the Recipient and may include the Commission Grants Officer, the Public Interest Energy Research (PIER) Program Team Lead, other Energy Commission staff and Management as well as other individuals selected by the Commission Project Manager to provide support to the Energy Commission.

The Commission Project Manager shall:

- Determine the location, date, and time of each CPR meeting with the Recipient. These meetings generally take place at the Energy Commission, but they may take place at another location.
- Send the Recipient the agenda and a list of expected participants in advance of each CPR. If applicable, the agenda shall include a discussion on both match funding and permits.
- Conduct and make a record of each CPR meeting. One of the outcomes of this meeting will be a schedule for providing the written determination described below.
- Determine whether to continue the project, and if continuing, whether or not modifications are needed to the tasks, schedule, products, and/or budget for the remainder of the Agreement. Modifications to the Agreement may require a formal amendment (please see the Terms and Conditions). If the Commission Project Manager concludes that satisfactory progress is not being made, this conclusion will be referred to the Energy Commission's Research, Development and Demonstration (RD&D) Policy Committee for its concurrence.
- Provide the Recipient with a written determination in accordance with the schedule. The written response may include a requirement for the Recipient to revise one or more product(s) that were included in the CPR.

Exhibit A WORK STATEMENT

The Recipient shall:

- Prepare a CPR Report for each CPR that discusses the progress of the Agreement toward achieving its goals and objectives. This report shall include recommendations and conclusions regarding continued work of the projects. This report shall be submitted along with any other products identified in this scope of work. The Recipient shall submit these documents to the Commission Project Manager and any other designated reviewers at least 15 working days in advance of each CPR meeting.
- Present the required information at each CPR meeting and participate in a discussion about the Agreement.

Commission Project Manager Products:

- Agenda and a list of expected participants (no draft)
- Schedule for written determination (no draft)
- Written determination (no draft)

Recipient Product:

- CPR Report(s) (no draft)

Task 1.3 Final Meeting

The goal of this task is to closeout this Agreement.

The Recipient shall:

- Meet with Energy Commission staff to present the findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement.

This meeting will be attended by, at a minimum, the Recipient, the Commission Grants Office Officer, and the Commission Project Manager. The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be two separate meetings at the discretion of the Commission Project Manager.

The technical portion of the meeting shall present an assessment of the degree to which project and task goals and objectives were achieved, findings, conclusions, recommended next steps (if any) for the Agreement, and recommendations for improvements. The Commission Project Manager will determine the appropriate meeting participants.

The administrative portion of the meeting shall be a discussion with the Commission Project Manager and the Grants Officer about the following Agreement closeout items:

- What to do with any equipment purchased with Energy Commission funds (Options)

Exhibit A WORK STATEMENT

- Energy Commission's request for specific "generated" data (not already provided in Agreement products)
- Need to document Recipient's disclosure of "subject inventions" developed under the Agreement
- "Surviving" Agreement provisions, such as repayment provisions and confidential Products
- Final invoicing and release of retention
- Prepare a schedule for completing the closeout activities for this Agreement

Products:

- Written documentation of meeting agreements (no draft)
- Schedule for completing closeout activities (no draft)

Task 1.4 Monthly Progress Reports

The goal of this task is to periodically verify that satisfactory and continued progress is made towards achieving the research objectives of this Agreement on time and within budget.

The objectives of this task are to summarize activities performed during the reporting period, to identify activities planned for the next reporting period, to identify issues that may affect performance and expenditures, and to form the basis for determining whether invoices are consistent with work performed.

The Recipient shall:

- Prepare a Monthly Progress Report which summarizes all Agreement activities conducted by the Recipient for the reporting period, including an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. Each progress report is due to the Commission Project Manager within 10 days of the end of the reporting period. The recommended specifications for each progress report are contained in Exhibit A, Attachment A-2.

Product:

- Monthly Progress Reports (no draft)

Task 1.5 Final Report

The goal of the Final Report is to assess the project's success in achieving its goals and objectives, advancing science and technology, and providing energy-related and other benefits to California.

The objectives of the Final Report are to clearly and completely describe the project's purpose, approach, activities performed, results, and advancements in science and technology; to present a public assessment of the success of the project as measured

Exhibit A WORK STATEMENT

by the degree to which goals and objectives were achieved; to make insightful observations based on results obtained; to draw conclusions; and to make recommendations for further RD&D projects and improvements to the PIER project management processes.

The Final Report shall be a public document. If the Recipient has obtained confidential status from the Energy Commission and will be preparing a confidential version of the Final Report as well, the Recipient shall perform the following activities for both the public and confidential versions of the Final Report.

The Recipient shall:

- Prepare an Outline of the Final Report.
- Prepare a Final Report following the approved outline and the latest version of the PIER Final Report guidelines published on the Energy Commission's website at <http://www.energy.ca.gov/contracts/pier/contractors/index.html> at the time the Recipient begins performing this task, unless otherwise instructed in writing by the Commission Project Manager. Instead of the timeframe listed in the Product Guidelines located in Section 5 of the Terms and Conditions, the Commission Project Manager shall provide written comments on the Draft Final Report within fifteen (15) working days of receipt. The Final Report must be completed on or before the end of the Agreement Term.
- Submit one bound copy of the Final Report with the final invoice.

Products:

- Draft Outline of the Final Report
- Final Outline of the Final Report
- Draft Final Report
- Final Report

Task 1.6 Identify and Obtain Matching Funds

The goal of this task is to ensure that the match funds planned for this Agreement are obtained for and applied to this Agreement during the term of this Agreement.

The costs to obtain and document match fund commitments are not reimbursable through this Agreement. Although the PIER budget for this task will be zero dollars, the Recipient may utilize match funds for this task. Match funds shall be spent concurrently or in advance of PIER funds for each task during the term of this Agreement. Match funds must be identified in writing and the associated commitments obtained before the Recipient can incur any costs for which the Recipient will request reimbursement.

The Recipient shall:

- Prepare a letter documenting the match funding committed to this Agreement and submit it to the Commission Project Manager at least 2

Exhibit A WORK STATEMENT

working days prior to the kick-off meeting. If no match funds were part of the proposal that led to the Energy Commission awarding this Agreement and none have been identified at the time this Agreement starts, then state such in the letter. If match funds were a part of the proposal that led to the Energy Commission awarding this Agreement, then provide in the letter a list of the match funds that identifies the:

- Amount of each cash match fund, its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied
- Amount of each in-kind contribution, a description, documented market or book value, and its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied. If the in-kind contribution is equipment or other tangible or real property, the Recipient shall identify its owner and provide a contact name, address and telephone number, and the address where the property is located
- Provide a copy of the letter of commitment from an authorized representative of each source of cash match funding or in-kind contributions that these funds or contributions have been secured.
- Discuss match funds and the implications to the Agreement if they are reduced or not obtained as committed, at the kick-off meeting. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide the appropriate information to the Commission Project Manager if during the course of the Agreement additional match funds are received.
- Notify the Commission Project Manager within 10 days if during the course of the Agreement existing match funds are reduced. Reduction in match funds must be approved through a formal amendment to the Agreement and may trigger an additional CPR.

Products:

- A letter regarding match funds or stating that no match funds are provided (no draft)
- Copy(ies) of each match fund commitment letter(s) (if applicable) (no draft)
- Letter(s) for new match funds (if applicable) (no draft)
- Letter that match funds were reduced (if applicable) (no draft)

Task 1.7 Identify and Obtain Required Permits

The goal of this task is to obtain all permits required for work completed under this Agreement in advance of the date they are needed to keep the Agreement schedule on track.

Exhibit A WORK STATEMENT

Permit costs and the expenses associated with obtaining permits are not reimbursable under this Agreement. Although the PIER budget for this task will be zero dollars, the Recipient shall budget match funds for any expected expenditures associated with obtaining permits. Permits must be identified in writing and obtained before the Recipient can make any expenditures for which a permit is required.

The Recipient shall:

- Prepare a letter documenting the permits required to conduct this Agreement and submit it to the Commission Project Manager at least 2 working days prior to the kick-off meeting. If there are no permits required at the start of this Agreement, then state such in the letter. If it is known at the beginning of the Agreement that permits will be required during the course of the Agreement, provide in the letter:
 - A list of the permits that identifies the:
 - Type of permit
 - Name, address and telephone number of the permitting jurisdictions or lead agencies
- The schedule the Recipient will follow in applying for and obtaining these permits.
- Discuss the list of permits and the schedule for obtaining them at the kick-off meeting and develop a timetable for submitting the updated list, schedule and the copies of the permits. The implications to the Agreement if the permits are not obtained in a timely fashion or are denied will also be discussed. If applicable, permits will be included as a line item in the Progress Reports and will be a topic at CPR meetings.
- If during the course of the Agreement additional permits become necessary, provide the appropriate information on each permit and an updated schedule to the Commission Project Manager.
- As permits are obtained, send a copy of each approved permit to the Commission Project Manager.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the Commission Project Manager within 10 days. Either of these events may trigger an additional CPR.

Products:

- Letter documenting the permits or stating that no permits are required (no draft)
- A copy of each approved permit (if applicable) (no draft)
- Updated list of permits as they change during the term of the Agreement (if applicable) (no draft)
- Updated schedule for acquiring permits as changes occur during the term of the Agreement (if applicable) (no draft)

Professional Advisory Committee (PAC)

Exhibit A WORK STATEMENT

Task 1.8 Establish the PAC

The goal of this task is to create an advisory committee for this Agreement.

The PAC shall be composed of diverse professionals. The number can vary depending on potential interest and time availability. The Recipient's Project Manager and the Commission Project Manager shall act as co-chairs of the PAC. The exact composition of the PAC may change as the need warrants. PAC members serve at the discretion of the Commission Project Manager.

The PAC may be composed of, but is not limited to, qualified professionals spanning the following types of disciplines:

- Researchers knowledgeable about the project subject matter.
- Members of the trades who will apply the results of the project (for example, designers, engineers, architects, contractors, and trade representatives).
- Public Interest Market Transformation Implementers.
- Product Developers relevant to project subject matter.
- U.S. Department of Energy Research Manager.
- Public Interest Environmental Groups.
- Environmental and health standards personnel
- Utility Representatives.
- Members of the relevant technical society committees.

The purpose of the PAC is to:

- Provide guidance in research direction. The guidance may include scope of research; research methodologies; timing; coordination with other research. The guidance may be based on:
 - Technical area expertise
 - Knowledge of market applications
 - Links between the agreement work and other past, present or future research (both public and private sectors) they are aware of in a particular area
- Review products. Provide specific suggestions and recommendations for needed adjustments, refinements, or enhancement of the products.
- Evaluate tangible benefits to California of this research and provide recommendations, as needed, to enhance tangible benefits.
- Provide recommendations regarding information dissemination, market pathways or commercialization strategies relevant to the research products.

The Recipient shall:

- Prepare a draft list of potential PAC members that includes name, company, physical and electronic address, and phone number and submit it to the Commission Project Manager at least 2 working days prior to the kick-off meeting. This list will be discussed at the kick-off meeting and a

Exhibit A WORK STATEMENT

schedule for recruiting members and holding the first PAC meeting will be developed.

- Recruit PAC members and ensure that each individual understands the member obligations described above, as well as the meeting schedule outlined in Task 1.9.
- Prepare the final list of PAC members.
- Submit letters of acceptance or other comparable documentation of commitment for each PAC member.

Products:

- Draft List of PAC Members
- Final List of PAC Members
- Letters of acceptance, or other comparable documentation of commitment for each PAC Member (no draft)

Task 1.9 Conduct PAC Meetings

The goal of this task is for the PAC to provide strategic guidance to this project by participating in regular meetings or teleconferences.

The Recipient shall:

- Discuss the PAC meeting schedule at the kick-off meeting. The number of face-to-face meetings and teleconferences and the location of PAC meetings shall be determined in consultation with the Commission Project Manager. This draft schedule shall be presented to the PAC members during recruiting and finalized at the first PAC meeting.
- Organize and lead PAC meetings in accordance with the schedule. Changes to the schedule must be pre-approved in writing by the Commission Project Manager.
- Prepare PAC meeting agenda(s) with back-up materials for agenda items.
- Prepare PAC meeting summaries, including recommended resolution of major PAC issues.

Products:

- Draft PAC Meeting Schedule
- Final PAC Meeting Schedule
- PAC Meeting Agenda(s) with Back-up Materials for Agenda Items (no draft)
- Written PAC meeting summaries, including recommended resolution of major PAC issues (no draft)

TECHNICAL TASKS

TASK 2 FINALIZE INDUSTRIAL MACHINE DESIGN

The goal of this task is to establish a finalized detailed design of the industrial dense

Exhibit A WORK STATEMENT

phase CO₂ textile cleaning machine. The design is currently in a draft stage and this task will see the design completed, detailed and ready for construction.

CO₂ Nexus and the Energy Commission agree that the Energy Commission does not have any access to, or any rights in, including Intellectual Property rights, [finalized engineering drawings, finalized assembly drawing(s), draft and final machine process flow schematics] under this Agreement. The drawings and process flow schematics are not part of any Product, they do not fall under the definition of Data, and are not subject to any of the Commission's Intellectual Property rights."

The Recipient shall:

- Finalize the detailed design of the CO₂ textile cleaning machine, to include but not be limited to:
 - Finalized Engineering drawings for machine components
 - Finalized assembly drawing(s)
- Review the draft machine process flow schematic
- Prepare a final machine process flow schematic
- Provide a letter of completion for finalized industrial machine design
- Participate in a CPR as per Task 1.2

Products:

- Letter of completion (no draft)

TASK 3 BENCHMARK CURRENT PRACTICES AT DEMONSTRATION SITE

The goal of this task is to determine the current conditions, including cleaning procedures, processes, performance, and workflow; and utility consumption at the demonstration site's laundry facilities. This will enable Recipient to accurately document the technical process and economic comparison between real time water and CO₂ cleaning.

The Recipient shall:

- Calculate, together with assistance from the demonstration site, past average utility (electricity, natural gas and water) consumption and costs, regular throughput, chemical usage, labor, and costs for cleaning and sterilization at the demonstration site; which are attributable to the extractor/dryer to be replaced.
- Benchmark the water based machine's operating performance. This will include but is not limited to:
 - Sterilization levels
 - Textile wear
 - Cleaning performance
 - Processing time
 - Energy use
 - Water use

Exhibit A WORK STATEMENT

- Chemical use
- Prepare a report, at the conclusion of the benchmarking period, identify benchmarks and summarizing findings.

Products:

- Report on benchmarking (no draft)

TASK 4 PROCURE CO₂ MACHINE COMPONENTS

The goal of this task is to obtain the necessary machine components needed for machine fabrication.

The Recipient shall:

- Prepare a Bill of Materials for the machine components. These documents are to include but not be limited to:
 - A description of each item
 - Cost estimates or bids for each item
- Purchase appropriate components from Bill of Materials list
- Coordinate delivery and storage at fabrication site.

Products:

- Bill of Materials (no draft)

TASK 5 MACHINE FABRICATION

The goal of this task is to construct the CO₂ textile cleaning machine.

The Recipient shall:

- Assemble components and complete necessary machine fabrication.
- Assemble a working industrial/commercial CO₂ textile cleaning and sterilization machine.
- Discuss the assembly process and document photographs to be included in a Letter of Assembly Completion.
- Participate in a CPR as per Task 1.2

Products:

- Letter of Assembly Completion (no draft)

TASK 6 TEST PLAN PREPARATIONS

The goal of this task is to determine what process optimization testing should be completed after machine installation.

The Recipient shall:

- Prepare a process optimization test plan. The test plan is to include, but not be limited to:

Exhibit A WORK STATEMENT

- A description of the processes to be tested
- Specifications for machine performance
- Test objectives and technical approach
- A description of the facilities, equipment and instrumentation
- A description of testing procedures to include but not be limited to:
 - Parameters to be controlled/varied
 - How they will be controlled/varied
 - Parameters to be measured (to include but not be limited to those stated in Task 3)
 - How they will be measured (to include but not be limited to those stated in Task 3)
- A description of the data analysis procedures
- Provide draft process optimization test plan for review by the utilities involved in the measurement and verification (M&V) (Task 12)
- Revise process optimization test plan to include feedback from utility, Energy Commission and others.
- Conduct a PAC meeting as per Task 1.9.

Products:

- Draft process optimization test plan
- Final process optimization test plan

TASK 7 INSTALLATION OF FACILITY ON-SITE CO₂ STORAGE TANK

The goal of this task is to successfully install an on-site CO₂ storage tank to supply the textile cleaning machine.

The Recipient shall:

- Contract with a local CO₂ supplier to install the necessary tank and piping at the demonstration site facility.
- Obtain any necessary permits for installation
- Have an on-site CO₂ storage tank and associated piping to be used for this project.
- Provide installation estimate for on-site storage tank and piping.
- Prepare CO₂ tank installation summary report.
- Identify any safety issues with the CO₂ tank, and provide any needed training to address the safety issue

Products:

- Estimate for CO₂ tank installation (no draft)
- CO₂ tank installation summary report (no draft)

TASK 8 INSTALLATION & COMMISSIONING OF MACHINE AT DEMONSTRATION SITE

Exhibit A WORK STATEMENT

The goal of this task is to successfully install and commission the fabricated machine at the demonstration site.

The Recipient shall:

- Coordinate the preparation of the demonstration site for machine installation which shall include but is not limited to:
 - Cleared appropriate floor space
 - Cooperation and participation by onsite facility manager for any retrofit needs to install the system
- Coordinate the delivery and installation of the machine
- Oversee initial testing of machine functionality
- Ensure that the machine is installed properly and operates properly.
- Prepare report on the initial performance of the machine to include but not be limited to the test plan requirements of Task 6.

Products:

- Initial machine performance report (no draft)

TASK 9 OPERATOR TRAINING

The goal of this task is to successfully train facility personnel to operate and maintain the machine.

The Recipient shall:

- Conduct comprehensive training of laundry facility personnel to ensure proper operation, safety, and maintenance of the machine.
- Prepare and provide draft Operation, safety, and maintenance guideline document for review by Energy Commission and demonstration site plant manager.
- Prepare final Operation, safety, and maintenance guideline document.
- Ensure facility personnel are operationally proficient with the new equipment(s), and provide list of staff trained.

Products:

- Draft Operation, safety, and maintenance guideline document
- Final Operation, safety, and maintenance guideline document
- List of staff trained

TASK 10 CONTROL TESTING

The goal of this task is to conduct a control test of relevant textiles prior to processing every day normal laundry of the facility.

The Recipient shall:

Exhibit A WORK STATEMENT

- Identify and implement a series of control tests for particular fabrics under specific conditions for both water based and CO₂ based cleaning.
- Identify the respective control parameters including fabric type(s); soil type(s); and microbe/infectious agent levels.
- Develop test protocols and parameters.
- Provide results from the test protocols and parameters.
- Provide a report on the results from the control test.

Products:

- Test protocols and parameters results (no draft)
- Control test report (no draft)

TASK 11 OPERATION AND MAINTENANCE OF THE CO₂ TEXTILE CLEANING MACHINE

The goal of this task is to determine operating functionality (utility consumption, throughput amounts, workflow, sterilization ability, etc) and obtain measured technical and economic performance.

The Recipient shall:

- Test various process parameter combinations (temperature, pressure, cycle time and detergents) according to test plan to determine optimal cleaning and disinfection abilities.
- Benchmark the CO₂ machine's operating performance according to the Test Plan of Task 6, and to include but not limited to:
 - Throughput
 - Sterilization levels
 - Cleaning performance
 - Textile wear
 - Processing time
- Have an optimized industrial/commercial CO₂ textile cleaning machine at the demonstration site.
- Prepare report of machine's overall performance which includes final comparison of all relevant performance and cost criteria of industrial CO₂ textile cleaning versus conventional water processing.
Participate in a CPR as per Task 1.2

Products:

- Draft CO₂ vs. water textile cleaning report
- Final CO₂ vs. water textile cleaning report

TASK 12 MEASUREMENT AND VERIFICATION (M&V)

The goal of this task is to determine reliable, real world operational energy and water utility consumption of the CO₂ machine for this particular application

Exhibit A WORK STATEMENT

The Recipient shall:

- Work together with Southern California Gas Company, Los Angeles Department of Water & Power (LADWP), other PAC members and other stakeholders to implement and measure the energy and water consumption of the water extractor and dryer currently being used
- Work together with Southern California Gas Company, LADWP, other PAC members and other stakeholders to implement and measure the energy and water consumption of machine CO₂ machine.
- Prepare a report on the M&V results (includes energy and water use, savings and cost) and discuss the overall economic assessment capital and operational cost compared to conventional method.
- Conduct a PAC meeting as per Task 1.9

Products:

- M&V Results Report draft
- M&V Results Report final

TASK 13 PRODUCTION READINESS PLAN

The goal of the plan is to determine the steps that will lead to the volume manufacturing of the technologies developed in this project or to the commercialization of the project's results.

The Recipient shall:

- Prepare a Production Readiness Plan. The degree of detail in the Production Readiness Plan discussion should be proportional to the complexity of producing or commercializing the proposed product and its state of development. The plan shall include, as appropriate, but not be limited to:
 - Identification of critical production processes, equipment, facilities, personnel resources, and support systems that will be needed to produce a commercially viable product.
 - Internal manufacturing facilities, as well as supplier technologies, capacity constraints imposed by the design under consideration, identification of design critical elements and the use of hazardous or non-recyclable materials. The product manufacturing effort may include "proof of production processes."
 - A projected "should cost" for the product when in production.
 - The expected investment threshold to launch the commercial product.
 - An implementation plan to ramp up to full production.

Products:

- Production Readiness Plan draft
- Production Readiness Plan final