

# RCT-PXP-023

Revision 0

## Project Execution Plan for the SuperHENC Shipment from Hanford and Refurbishment Project

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TABLE OF CONTENTS

1.0	PROJECT OVERVIEW .....	5
1.1	Work Scope .....	5
1.2	Applicable Reference Documents.....	6
2.0	CONTRACT OVERVIEW .....	7
2.1	Technical Tasks .....	7
2.2	Deliverables .....	9
3.0	PROJECT ORGANIZATION.....	14
4.0	PROJECT ADMINISTRATION .....	15
5.0	PROJECT BUDGET AND SCHEDULE.....	16
5.1	Budget .....	16
5.2	Deliverables .....	16
6.0	PROJECT RESOURCES .....	17
7.0	UNIQUE PROJECT CONSIDERATIONS.....	17
8.0	ENGINEERING AND DESIGN .....	17
9.0	PROCUREMENT AND MATERIALS MANAGEMENT .....	17
10.0	PROJECT CONTROLS.....	17
11.0	PROJECT QUALITY PLAN .....	18
12.0	CONSTRUCTION.....	18
13.0	COMMISSIONING AND START-UP .....	19
14.0	ENVIRONMENT, SAFETY, AND HEALTH.....	19
14.1	Integrated Safety Management System.....	19
14.2	Environmental Compliance .....	19
15.0	RISK MANAGEMENT PLAN .....	20
16.0	PROJECT CLOSEOUT .....	20
17.0	PROJECT PROCEDURES.....	21

LIST OF TABLES

Table 1. Register of Task and Deliverables..... 12  
Table 2. Budget..... 16

LIST OF FIGURES

Figure 1. Primary Project Participants ..... 14

## 1.0 PROJECT OVERVIEW

A SuperHENC is a self contained Non Destructive Assay (NDA) unit within a prefabricated structure that is connected to a flatbed trailer and can be transported over the highways. This unit is currently located at the U.S. Department of Energy (DOE) Hanford Site and is intended for use at Los Alamos National Laboratory (LANL).

The purpose of this Project Execution Plan (PXP) is to complete the SuperHENC transfer and upgrade project and deliver the instrument to Central Characterization Project (CCP)/LANL. The modification will be completed approximately six months after the unit is shipped to Albuquerque. This project will be performed and completed in accordance with all applicable Department of Energy (DOE), Washington TRU Solutions (WTS), and CCP Quality Assurance (QA), Procurement, and Configuration Management (CM) requirements.

### 1.1 Work Scope

WTS will manage the project through a subcontract to a supplier on the qualified supplier list (QSL). The scope of this project will include the following:

- Prepare instrument and trailer for shipment from Hanford site to Albuquerque, New Mexico
  - Proper blockage of equipment in trailer
  - Proper packaging of detectors and other instrument components
- Ship trailer to Albuquerque, New Mexico, for modifications and upgrades,
- Provide detailed mark-ups for planned changes
- Inspect, repair (if required), and test mechanical components of instrument and infrastructure, including:
  - Doors, interlocks, and moving parts
  - Guards on all pinch points
  - E-stops in control room and where needed
  - Other inspections and repairs

- Electronic and Software install and upgrades in accordance with CCP-QP-022, *CCP Software Quality Assurance Plan*
  - Upgrade existing software package to Canberra NDA2000/Genie-2000 system
- Factory Acceptance Test
  - To be performed at a WTS identified facility in Albuquerque, NM
  - Plan will be reviewed using the Approval Request/Variation Request (AR/VR) process
  - Appropriate QA witness points will be established through the AR/VR process
- Ship trailer to LANL for set up on site
- Compile a complete set of mechanical and electrical drawings including as-builts
- Identify critical spare parts list
- Provide a Preventative Maintenance Schedule
- Work with LANL to prepare unit ready for use
- Off-site testing

#### 1.2 Applicable Reference Documents

- Statement of Work (SOW) associated with PO410385
- WP 09-CN3005, *Graded Approach to Application of QA Controls*

## 2.0 CONTRACT OVERVIEW

The contract will be in accordance with the SOW for PO410385.

The services to be provided are detailed in Section 2.1. These services include the transfer of the unit from Hanford to Albuquerque and the upgrades and equipment testing in Albuquerque. The deployment of the unit to CCP/LANL will be under a separate contract, SOW for Mobile Characterization Service (MCS) Master Task Order (MTO) 403916. Section 2.2 details the Deliverables for this project, and Table 1, Register of Task and Deliverables, provides a succinct catalogue of associated tasks and deliverables.

### 2.1 Technical Tasks

The technical tasks for this subcontract include the following:

- 2.1.1 The supplier shall provide support to the DOE Hanford Site for packaging of the equipment before transportation to Albuquerque, NM.
- 2.1.2 The supplier shall provide for inspection of the trailer (tires, running lights, etc.), licensing for over-road shipment, insurance during shipment, and any transportation permits that may be needed.
- 2.1.3 The supplier shall ship the unit to Albuquerque, NM, for modifications and upgrades.
- 2.1.4 Provide detailed mark-up for planned changes.
- 2.1.5 The supplier shall modify the unit and perform the needed upgrades in accordance with WTS contract requirements and the Host site's requirements.

[A] Equipment needed:

[A.1] JSR-14 (1)

[A.2] BEGe Detectors (2)

[A.3] DSA1000 MCA (2)

[A.4] NDA2000 software, most current version w/scripts

- [A.5] Genie-2000 most current version with the following add-ons:
  - (a) QA
  - (b) Interactive Peak Fit
  - (c) Gamma Analysis
  - (d) MGA
  - (e) FRAM
- [A.6] Computer with Windows XP (2)
- [A.7] Operations and Maintenance Manuals
- [A.8] Software licenses
- [A.9] SuperHENC/forklift lift fixture adapter (separate procurement)
- [B] Inspect all load-bearing bushings and bearings for wear, and order replacements for those that are worn to include conveyors and rollers.
- [C] Program the programmable logic controller (PLC) to be compatible with NDA2000.
- [D] Ensure the correct cabling is in place and purchased for both Neutron and Gamma portions.
- [E] Build apparatus for 180 degree separation of Gamma Detectors.
- [F] Standard Waste Box (SWB) matrix boxes and materials for verification of Calibration. These items will be provided by CCP.

#### 2.1.6 Mechanical testing and repairs

- [A] Doors, interlocks, shielding, moving parts pinch points controlled, emergency stops (E-stops) in control room and where needed, etc.

2.1.7 Electronic and Software install and upgrades,

[A] Upgrade to NDA2000/Genie2000 in accordance with CCP-QP-022.

2.1.8 Evaluate the need for updated fire protection system. If work is to be performed in fire protection system, a Change Notice must be placed against the original Purchase Order.

2.1.9 Factory Acceptance Test in Albuquerque.

2.1.10 Ship trailer to WTS requested destination. Transport, setup, and qualification will be handled under the MCS MTO.

2.1.11 Compile a complete set of mechanical and electrical drawings including as-builts.

2.1.12 Identify critical spare parts list.

2.1.13 Provide a Preventive Maintenance Schedule.

2.1.14 Work with LANL to prepare the unit ready for use.

2.1.15 Help develop CM baseline equipment description.

## 2.2 Deliverables

2.2.1 There is no deliverable for preparing the unit for shipment from the Hanford Site to Albuquerque.

2.2.2 There is no deliverable for shipping the unit to Albuquerque.

Prior to the start of modification activities, the following shall be submitted to WTS:

2.2.3 A tentative schedule of the modification and upgrade activities including a detailed mark-up of planned changes.

2.2.4 Inspection personnel qualifications:

[A] Electrical system inspector qualifications.

Prior to the performance of the Factory Acceptance Test, the following shall be submitted to WTS:

2.2.5 Factory Acceptance Test Plan.

2.2.6 Certificates of Analysis for the source(s) used during Factory Acceptance Test.

Prior to acceptance by WTS, the supplier shall submit to WTS a data package that includes:

2.2.7 Certificate of Compliance for the SuperHENC unit.

2.2.8 Material Safety Data Sheet (MSDS) for the material(s) used for the collimation and any filters, if used.

2.2.9 Electrical System Inspection Report.

2.2.10 Factory Acceptance Test Report which includes results for the grounding electrode test, functional test of motor controller, functional test of electrical system; efficiency calibration test.

2.2.11 Critical Spare Parts List

2.2.12 Preventative Maintenance Schedule, Complete set of up-to-date design drawings and as-builts, in both electronic computed-aided design (CAD) and Adobe Acrobat format, including the system footprint, electrical requirements, and electrical and mechanical diagrams and load bearing/structural welds. Software documentation per CCP-QP-022, *CCP Software Quality Assurance Plan*.

2.2.13 Set of Logic Diagrams for PLC AAS positioning

2.2.14 All manuals, user documentation, and licenses for the equipment and upgrades.

2.2.15 Draft equipment description that is the central coordinating link among the engineering design, the documented safety basis, and the implementing documents.

2.2.16 List of Measuring and Test Equipment (M&TE) used, if applicable.

Upon delivery, the supplier shall submit the following documents:

2.2.17 Bill of Lading.

2.2.18 Fit for Highway Transport Inspection Report.

Table 1. Register of Task and Deliverables

Progression	Task Section	Technical Task Item	Deliverable Section	Deliverable Item
Prior to Shipment from Hanford	2.1.1	Provide support to DOE Hanford Site for packaging of the equipment	2.2.1	No Deliverable Item for Task 2.1.1
	2.1.2	Inspection of the trailer, licensing for over-road shipment, insurance during shipment, and any transportation permits	2.2.1	No Deliverable Item for Task 2.1.2
Shipment from Hanford to Albuquerque	2.1.3	Ship the unit to Albuquerque, NM	2.2.2	No Deliverable Item for Task 2.1.3
Prior to beginning modification activities in Albuquerque	2.1.4	Provide a detailed mark up of planned changes	2.2.3	Tentative schedule of modification and upgrade activities including detailed mark-up of planned changes.
	N/A	No Technical Task for Deliverable 2.2.4	2.2.4	Inspection of personnel qualifications, including electrical system inspector qualifications
Modification Activities by Canberra, Inc. Location: Albuquerque, NM	2.1.5	Modify the unit to fit WTS and Host site's requirements and perform the needed upgrades detailed in Sections 2.1.4[A] – 2.1.4[F]	2.2.1	No Deliverable Item for Task 2.1.1
	2.1.6	Mechanical Testing and Repairs	N/A	No Deliverable Item for Task 2.1.6
	2.1.7	Software upgrades and repairs	2.2.12	Software submittals per CCP-QP-022
	2.1.8	Evaluate the need for updating the fire protection system according to LANL requirements	N/A	No Deliverable Item for Task 2.1.8

Table 1. Register of Task and Deliverables (Continued)

Progression	Task Section	Technical Task Item	Deliverable Section	Deliverable Item
Prior to Factory Acceptance Test	N/A	No Technical Task for Deliverable 2.2.5	2.2.5	Factory Acceptance Test Plan
	N/A	No Technical Task for Deliverable 2.2.6	2.2.6	Certificates of Analysis for any sources used in Factory Acceptance Test
Prior to Shipment of the SuperHENC Unit to LANL	2.1.8	Factory Acceptance Test	2.2.7	Certificate of Compliance for the SuperHENC unit
			2.2.8	MSDS for materials used for collimation and any filters
			2.2.9	Documentation of electrical system inspection, including inspector qualifications
			2.2.10	Factory Acceptance Test Report
			2.2.13	Set of Logic Diagrams for PLC Add-A-Source (AAS) positioning
			2.2.16	List of M&TE used
	2.1.11	Compile a complete set of mechanical and electrical drawings	2.2.12	Complete set of up-to-date design drawings and as-builts, in both electronic CAD and Adobe Acrobat formats
	2.1.12	Identify a critical spare parts list	2.2.11	Critical Spare Parts list
	2.1.13	Provide Preventative Maintenance Schedule	2.2.12	Preventative Maintenance Schedule
	2.1.14	Work with LANL to prepare unit ready for use	2.2.14	All manuals, user documentation, and licenses for equipment and upgrades
2.1.15	Help develop CM baseline equipment description	2.2.15	Draft equipment description that is the central coordinating link among the engineering design, the documented safety basis, and the implementing documents	
Upon Delivery of the SuperHENC Unit at LANL and Prior to WTS Acceptance	2.1.10	Ship trailer to LANL for set up on site	2.2.17	Bill of Lading
			2.2.18	Fit for Highway Transportation Inspection Report



#### 4.0 PROJECT ADMINISTRATION

In order to drive the project to successful completion, the Project Manager, working with the CCP support personnel, Procurement, and QA will coordinate the technical and administrative oversight of the project, using subject matter experts (SMEs) from the WIPP site and elsewhere when required.

The Project Manager will:

- Serve as lead interface between the supplier and Procurement, QA, and other reviewing and approving entities.
- Ensure project resources and planning.
- Lead AR/VR reviews and work closely with Procurement to maintain subcontract documentation and records.
- Formally maintain control of project scope, schedule, and costs.
- Coordinate and resolve issues for the project.
- Ensure configuration management requirements are met.

5.0 PROJECT BUDGET AND SCHEDULE

5.1 Budget

The budget is detailed in Table 2, Budget, below.

Table 2. Budget

Description of Service	Amount (\$)	Comments
Support to DOE Hanford Site for Packaging equipment	████████	-
Shipment of SuperHENC from Hanford to Albuquerque	████████	-
Modification Upgrades in Albuquerque (including equipment)	████████	-
Mechanical Testing and Repairs	████████	-
Electronic and Software Installation and Upgrades (including software and license)	████████	-
Factory Acceptance Test	████████	-
Shipment of SuperHENC from Albuquerque to LANL	████████	-
Complete set of Mechanical and Electrical drawings	-	Get Drawings from PSC
Critical Spare Parts List	-	Part of CCP-TP-140, <i>CCP Equipment Maintenance</i> , routine work
Preventative Maintenance Schedule	-	Part of CCP-TP-140 routine work
Support in development of equipment description (CCP-CM-0XX)	-	In support of CCP Configuration Management Group
Forklift Lift Fixture Adapter	████████	Separate from service contract
Forklift Lift Fixture Adapter Stand	████████	Separate from service contract
<b>Total Budget</b>	████████	-

5.2 Deliverables

The Deliverables for this project are listed in Section 2.2.

## 6.0 PROJECT RESOURCES

Project resources consist of the personnel detailed in Section 3.0.

## 7.0 UNIQUE PROJECT CONSIDERATIONS

This project will begin when the DOE Hanford Site has packaged the SuperHENC and performed a Radiological Free Release. WTS and the supplier will need to coordinate with Hanford to get the unit off site and ready for shipment.

The work performed to modify the equipment will consist mainly of updating the components to work with new updated software. The current assay unit is inside a container bolted to a flatbed trailer. To account for LANL's four foot rule, the container will be taken off of the flatbed trailer and set on a foundation prepared by LANL. The delivery of the unit after the upgrades will require coordinating with LANL to have the foundation and electrical requirements ready.

If the modifications and upgrades become more complex through the requirements of LANL or WTS, a purchase requisition change notice (PRCN) will be placed to control the new work scope. No verbal direction will be given to a supplier without the proper procurements in place.

## 8.0 ENGINEERING AND DESIGN

The engineering and design will be performed by a qualified supplier. WTS CCP and WIPP site resources will be utilized for all engineering and QA reviews.

## 9.0 PROCUREMENT AND MATERIALS MANAGEMENT

Procurement and management of materials will be within the scope of the supplier as noted on the WTS QSL.

## 10.0 PROJECT CONTROLS

The project control system seeks to be responsive to internal management requirements and provide WIPP participants with an increased cost and schedule performance visibility of the accomplishment of project objectives. In addition to providing a formal integrated schedule and resource plan, the management control system provides analysis of planned versus actual performance and early detection or prediction of problems that require management attention. In summary, the WIPP Project Control System provides for:

- Organization: Contractual efforts are established and responsibilities assigned for the work.

- Planning and Budgeting: Work is formally planned, scheduled, budgeted, and authorized.
- Accounting: Costs of work and material are accumulated.
- Analysis: Planned and actual performance is compared and variances analyzed.
- Revisions and Access to Data: Estimates of final costs are developed along with methods to incorporate baseline changes in these estimates.
- Risk Management: Describes the WIPP risk identification, assessment, mitigation, and monitoring process.

This PXP addresses the detailed project scope and schedule for the transfer and upgrade of the SuperHENC Project. Formal processes are established and documented in this PXP for communications, configuration control, and issues management. The PXP will be controlled by the designated Project Manager to ensure that revisions are processed and approved by appropriate parties, that distribution is maintained, and that associated changes are maintained for record purposes.

#### 11.0 PROJECT QUALITY PLAN

The quality requirements for this project are listed in Section 5.0 of the SOW for PO410385.

All work will be performed under the supplier's QA Program. In the event that full compliance with any requirement is in question, WTS may opt to implement the requirement through increased involvement through "dedicated quality" under the auspices of the WTS QA Program.

QA requirements, including the QA Program, Engineering Design Program, Inspection Requirements, Personnel Qualification, Quality Clauses, and Documentation Requirements shall be the primary basis for submittals and deliverables.

#### 12.0 CONSTRUCTION

The work consists of repairs and upgrades to existing hardware. Any modifications beyond this scope require communication to the CCP Project Office and a purchase requisition change notice.

### 13.0 COMMISSIONING AND START-UP

A factory acceptance test (FAT) will be performed before the unit is accepted for delivery to LANL. The start up of the unit at LANL will be managed through a subcontract in place with WTS and its suppliers who operate the characterization equipment.

The deployment and start up will require coordinating with LANL for all on-site safety basis related activities.

### 14.0 ENVIRONMENT, SAFETY, AND HEALTH

Achieving successful project completion demands implementation and integration of safe work performance, environmental stewardship, and quality into the management and performance of project work. The primary objective is to deliver the project work scope with no safety incidences or injuries. The successful integration of these compliance elements is vital for successful project completion.

To help ensure project performance and compliance, training of personnel in their specific project requirements and responsibilities is required, in accordance with the following safety principles:

#### 14.1 Integrated Safety Management System

The DOE Integrated Safety Management System (ISMS) is an integrated approach to ensure that work is planned, analyzed, reviewed, approved, and executed in a safe manner and that safety is continuously improved through worker feedback.

Five core functions of ISMS form the basis for working safety: 1) define the scope of work, 2) identify and analyze the hazards, 3) identify and implement controls, 4) do the work, and 5) provide feedback throughout the process.

#### 14.2 Environmental Compliance

The Project will comply with governing regulations, agreements, and orders under the contract applicable to the test facility. At a minimum, project activities will be evaluated for consistency with the Resource Conservation and Recovery Act (RCRA) and compliance with applicable water, air, waste, and natural resources requirements.

## 15.0 RISK MANAGEMENT PLAN

WTS managers involved in project execution participate in the identification and assessment of program risks. They review program documents, evaluate lessons learned, and use brainstorming and their own experience to identify risks. Project risks are identified in the following areas:

- Cost and Schedule
- Technical
- Programmatic (Obtaining and utilizing resources outside the control of the program manager)
- Support
- Safety
- Site Specific (Including alternative site locations)

Once risks are identified, WTS categorizes the identified risks by probability and severity (consequences) of each event. After risks have been identified and categorized, a risk management approach and mitigation actions are developed for each High and Medium risk. For Low risk elements not judged to require documented mitigation actions, WTS managers assure that they are controlled through the normal management functions and work processes. All risks and mitigation actions are identified in the CBFO Risk Management Plan, which is updated annually.

In order to determine the effectiveness of the Risk Management Plan, the areas of Medium and High risks are monitored and statused during monthly program meetings with CBFO. In addition, periodic reassessments of programs are performed to determine if new areas of risk need to be identified and assessed.

## 16.0 PROJECT CLOSEOUT

The modification and upgrade of the SuperHENC project will be closed out when the unit is delivered to LANL.

## 17.0 PROJECT PROCEDURES

The WTS/CCP specific procedures involved with this project are listed below:

- WP 09-CN3005, *Graded Approach to Application of QA Controls*
- CCP-QP-010, *CCP Document Preparation, Approval, and Control*
- CCP-QP-015, *CCP Procurement*
- CCP-QP-022, *CCP Software Quality Assurance Plan*
- CCP-CM-001, *CCP Equipment Change Authorization and Documentation*

Per the SOW, a Factory Acceptance Test Plan is to be provided by the supplier.

The supplier shall also deliver all data packages as required by the SOW. The size of the data packages may range from a few pages consisting of a certification of conformance and nonconformance reports (NCRs) to a large volume of documentation including such things as inspection reports, test reports (including NDE reports), manufacturing and inspection travelers, checklists, performance data, installation procedures, operating procedures, maintenance procedures, as built drawings, and specifications. Such documentation shall be suitable for scanning with electronic media.