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ENGINEERING DATA TRANSMITTAL

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WRAP Process Area Development Control Work Plan

KJ Leist

Rust Federal Services of Hanford, Inc., Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

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Abstract: This work plan defines the manner in which the Waste Receiving and Processign Facility, Module 1 Process Area will be maintained under development control status. This status permits resolution of identified design discrepancies, control system changes, as-building of equipment, and perform modifications to increase process operability and maintainability as parallel efforts. This work plan maintains configuration control as these efforts are undertaken. This task will end with system testing and reissue of field verified design drawings.

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WASTE RECEIVING AND PROCESSING PROCESS AREA DEVELOPMENT CONTROL WORK PLAN

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1.0 INTRODUCTION

The Waste Receiving and Processing facility Module 1 (WRAP-1) is currently nearing completion of construction in the Hanford site's 200W area. Due to the size and complexity of the project, the construction has been broken down into 2 phases. Phase I of the project, consisting of essentially all of the facility with the exception of the process equipment within Room 107, the Process Area, is considered complete. Phase II, consisting of the LLW and TRU glovebox process lines, are in various levels of construction completion.

While project construction is complete, a number of follow on accrual design and construction activities are necessary to properly address issues identified during functional and acceptance testing. This work plan is written to describe how Phase II construction activities will be performed and controlled.

Conditions requiring this follow on work are primarily due to the following conditions:

- The general contractor did not provide a detailed set of as-built drawings for the process equipment. This created a condition where the field condition sometimes did not match the design media.
- The Architectural Engineer (A/E) did not in all cases update the arrangement drawings of equipment when components were modified by Engineering Change Request (ECN) or Request for Information (RFI).
- Most, but not all wire and hose assembly routing was directed by specification, not by drawing. Conflicts led to instances where inconsistencies developed between the drawings and field condition.
- Some equipment, such as the Delidder/Relidder Assy, the BNFL One Trip Port, Waste Manipulators, and the Drum Transfer Cars require optimization. Modification and successful demonstration of this equipment will be required before the process line can be released for operation.
- The A-E is no longer present on the project to support work construction. Design changes required to supplement currently issued media will be provided by Facility Engineering. The drawings are released and the design is now controlled by Facility Engineering.
- A number of process improvements were identified during construction and testing. Improvements upon peer and management review and approval were added to the task list to be completed prior to facility completion.

For the above reasons, all drawings are being placed into Development Status, as permitted by WHC-CM-5-36 Chapter 6.1, Section 2.4. In

this manner, the balance of design and construction activities, field verification, and equipment repair/modification activities can be supported as parallel efforts.

2.0 SCOPE

The scope of this activity is limited to the Process Area of the WRAP-1 facility. The scope is further limited to the drawings listed in Attachment 1. While only a portion of these drawings may be modified, changes to drawings often cascade into other related drawings. For the sake of expediency and to standardize the configuration control process, all glovebox and immediately related drawings will be placed into Development Control status.

The modifications required for the facility are based on test exceptions discovered as a result of functional and performance testing. These exceptions have been documented improvements in a Master Test Exception data base. This data base is updated through this effort by M. L. Lee and a listing of it will be issued as a supporting document at completion. Other process design shortcomings have also been identified and added to the data base. A copy of this data base is listed in Attachment 2.

The work plan scope is also to hold system control media in a development control status to resolve test exceptions and to support control system changes required by hardware modifications. An addendum to address control system aspects of this plan is found in Attachment 4.

2.1 Objectives

The objective of this effort is three fold.

2.1.1 Equipment Repair/Modification

This objective is to repair or modify equipment in order to resolve Master Test Exceptions and identified design deficiencies. Resolution of these modifications will be closed by successful testing of the modified system.

2.1.2 Drawing Field Verification and As-Building

Field Verification efforts will be limited to Level B and C, as defined in WHC-CM-5-34 Section 2.2.

Due to the nature of the project engineering and construction activities, component level drawings were modified consistently are considered through a Project ECN process. For this reason, components should be manufactured in accordance with design drawings and no Field Verification should be necessary.

During construction, arrangement and assembly drawings were often not updated as a result of component, specification or schematic changes. For this reason assembly and arrangement drawings will be field verified to a level C.

Pneumatic and Hydraulic Schematics, Mechanical Flow Diagrams, and electrical wiring will be field verified to a level B. This is to ensure that all pertinent schematics correctly depict the field condition.

2.1.3 Improve Equipment Operability, Maintainability

In the course of performing test exception resolution and needed equipment changes, modification will be made in areas where the physical configuration hampers efficient operation and maintenance efforts. These changes will be documented on the development control drawings in the same manner as changes discussed above.

2.2 Deliverables

This development effort will be identified by the successful performance of Operational Testing. At the end of this development control task, changes to all affected drawings will be permanently incorporated and drawings issued as the next revision.

3.0 DESCRIPTION

3.1 Physical Description

This effort is to be limited to the WRAP-1 Process Area. Areas under development control which include: All gloveboxes, all equipment in and on the gloveboxes, all pneumatic and hydraulic schematics, all glovebox and assembly drawings, all component drawings, and drawings immediately related to gloveboxes. Only equipment assembled with H-2 drawings or identified on H-2 drawings will be under development control. Specific drawings under Configuration Control are as listed in Attachment 1.

3.2 Engineering Tasks

3.2.1 Drawing Configuration Control

All drawings listed in Attachment 1 are placed into development control as per WHC-CM-5-36 Chapter 6.1 Section 2.4. The task of maintaining configuration control, while customized for this effort, due to the unusual nature of the present equipment/design condition generally follow Section 2.2. Specific steps for incorporating the field condition findings and design modifications are provided in Section 3.2.2

All drawings under development control are held in the 2740W building by the lead designer. The drawings are identified "Development Control", in red ink. This set of drawings will remain in the 2740 building.

A second, non-control, set of full size drawings is also present to support field activities. Sheets of this set may be taken to the field and marked up to show field configurations. This set is not considered a control set however.

3.2.2 Design Changes

Due to the extent of needed changes required by this effort, delegated engineers have been assigned to direct some of the design and change activities. These engineers, as identified in Section 4, have signature authority to document and direct design change activities. The limits of this authority are as identified in this plan.

Changes to the design media are permitted in three methods:

3.2.2.1 A/E ECN Red Line

This manner of configuration control is necessary to support project completion activities until Process Area drawings could be released and placed into Development Control Status.

Design drawings provided by the A/E incorporated many ECN's which had not been completed in the field. To avoid confusion as to contract turnover responsibilities, all changes to permit ECN completion are tracked on a master ECN. This ECN is controlled by the Construction Manager.

Steps are as follows:

1. The Construction Manager notifies the Cognizant engineer or delegate engineer of an error in the A/E ECN.
2. The cognizant engineer or delegate engineer reviews the field condition, the ECN, and the drawings provided by the A/E at turnover.
3. The cognizant engineer or delegate engineer determines the change required to resolve the conflict.
4. The Construction Manager provides the master ECN to the cognizant engineer or delegate engineer.
5. The cognizant engineer or delegate engineer incorporates the changes to the ECN in one of two ways:
 - a. The modifications are directly incorporated onto the master ECN, using red ink. Each change is signed and dated by the cognizant engineer or delegate engineer.
 - b. A sketch is made, showing the ECN changes. The sketch includes the ECN number, the revision, and the affected drawing number. The sketch is signed and dated by the cognizant engineer or delegate engineer. This sketch is then attached to the affected master ECN sheet.
6. Once drawings are released and placed into configuration control, the red lined ECN's are compared against the drawings and all changes transferred to the development control drawings. These changes are signed and dated by the cognizant engineer or delegate engineer.

7. After redline incorporation, "Changes Incorporated" is written on the ECN. The cognizant engineer signs and dates the note.
8. The master ECN is placed in the drawing field verification file.

3.2.2.2 Equipment Repairs / Modifications

Where new changes are required to modify equipment, the following steps are taken

1. The cognizant engineer approves a Design Service Request (DSR) for tracking design efforts. This DSR will be accompanied by descriptive instructions as to the design changes required.
2. The designer, using non-control design drawings, will review the field condition of the affected equipment. The Field verification level will be as per Attachment 1.
3. The cognizant engineer or delegate engineer reviews the field verification findings and verbally approves change incorporation.
4. The designer incorporates the field findings onto the control drawings by either direct incorporation or by physical addition of a sketch to the control drawing. Direct incorporation will not be used if the field conditions will be changed as a result of equipment redesign.
 - a. Direct incorporation changes will be written in red ink.
 - b. Sketches must be identified as a "Development Control" sketch in red ink. The sketch will list the drawing number, the sheet, and revision number. The sketch will also be signed and dated.
5. The cognizant engineer or delegate engineer will review the package and approve by signing and dating the change or sketch.
6. The designer will complete design changes on a separate sheet or electronic file from the control sets. The designer will also provide separate guidance summarizing the scope of work, purchased parts, and other information deemed pertinent for construction forces.
7. The cognizant engineer will approve the design changes by signing and dating a hard copy of the design changes. The original copy is attached to the development control drawing.
8. The cognizant engineer or delegate engineer will draft a description of the work to be performed. This will be attached to a copy of the design change and transmitted to Fluor Daniel Northwest (FDNW) for change implementation.

9. If, in the course of implementation, it is noted that further changes are required, two methods may be used to identify changes:
 - a. Incorporate design changes onto the original copy using red ink. All changes are signed and dated by the cognizant engineer or delegate engineer.
 - b. Replace the initial change media with a revised design using the same process as steps 4, 5, 6, 7, and 8 above.
10. Upon successful work completion and field verification, one of the following methods are used to document work completion:
 - a. The cognizant engineer writes, in red ink, "Work Complete - Field Verified" and signs and dates the status on the original copy. The sketch remains attached to the development control drawing until completion of the construction effort. Incorporation of the modifications are not placed on the Development control drawing. This method is used if the changes are extensive enough that transcribing the modifications would adversely obscure the drawing.
 - b. Design changes as described in the original change media, may be transcribed onto the Development Control drawing. If this is done, the original copy is then removed from Development control drawing. The cognizant engineer writes "Work Complete - Field Verified" onto the original copy of the change, signs and dates the original copy, and places the document into the field verification file.

3.2.2.3 Discovery Design Deviations

When field conditions are noted to deviate from the design drawings, the field conditions may be incorporated into the design drawings as follows:

1. A copy of the Development control drawings or the design drawings are taken to the field to compare the field and design conditions. The deviations are noted on the drawings
2. The cognizant engineer or delegate engineer reviews the conditions and determines the course of resolution.
3. If the deviations are accepted, the changes are incorporated onto the Development control drawings. The cognizant engineer, using red ink, signs, dates the change, and writes "FV" (Field Verified) adjacent to the item.

If a deviation is not acceptable, the Project Manager is notified so the item can be placed on the punchlist.

3.2.3 Equipment Modification

Three methods of work implementation are identified for this effort:

3.2.3.1 FDNW Guided Changes

Once design changes have been made, the cognizant engineer will draft correspondence describing the work to be performed. This letter will also include applicable specification sections, the functional test requirements, and will reference the initial Letter of Instruction directing FDNW to manage the work. This will be attached to a copy of the design change and transmitted to the FDNW Project Manager for change implementation.

Once all changes have been made, the system undergoes informal functional testing. Providing the system operates as desired, the modifications are declared complete. Final testing is performed as part of Section 3.6.

3.2.3.2 Development Changes

In this type of change, the modifications are incorporated simultaneously with design changes. All modifications are tracked as mentioned in 3.2.2.2 above.

Once all modifications have been made, the system undergoes informal functional testing. Providing the system operates as desired, the modifications are declared complete. Final testing is performed as part of Section 3.6.

3.2.3.3 Non-design Modifications

In instance such as running tubing, electrical wiring, adding electrical connections, etc., the original installation was directed through specification direction.

As no arrangement drawings show such schematic level detail, modifications will be permitted with only a schematic change in the design.

In the event that the item functionality is not affected by the change, field modifications will be permitted without design media. This is especially appropriate where in-glovebox operability/maintainability is an issue. This flexibility in fabrication will permit, with engineer oversight, field run addition of electrical connectors, pneumatic quick disconnects, re-routing tubing and wiring, etc.

This effort would end in as-building of the changes. As Building would be completed as described in section 3.3.

3.3 As-Building/Field Verification

Once changes are complete, the design forces would begin performing as-building of the design drawings. As-building efforts would be performed in accordance with WHC-CM-5-34 Section 2.2.

The level of as-building would be at the levels described in Attachment 1. This task would not necessarily be completed before the completion of Acceptance Testing or Operational Testing, but

would be complete and all drawings issued prior to declaration of Operational Readiness.

Once all changes have been work completed, a copy of the development control drawing is field verified. The findings are reviewed by the cognizant engineer and incorporated onto the original drawing. The field verification drawings are then placed into the field verification file.

The drawings are then released as a Direct Revision, Field Verified drawing as described in Section 2.2 of WHC-CM-5-34.

3.4 Procurement Tasks

Procurement of all materials will be in accordance with established procurement guidelines.

3.5 Installation Tasks

Change activities and equipment installation will be primarily performed using FDNW project dept. as a single contact.

Plant forces may be used on an as needed basis to field install equipment as described in section 3.2.3.3.

3.6 Pre-Operational and Operational Tests

Testing to prove out equipment and demonstrate system operability will be performed in accordance with process glovebox Acceptance Tests and Operational Tests currently identified on the WRAP-1 Startup (Balance of Plant Schedule.

4.0 ORGANIZATION

Engineering:

Engineering Manager	RJ Bottenus
Process Mechanical Cog. Engr	KJ Leist
Delegate Mech Engr	RL Wormenhoven
Delegate Mech Engr	SP Anderson
Delegate Mech Engr	RD Dunlap
Process Control System Cog. Engr	MP Lane

Design:

Design Manager	JM Isdell
Designers:	CB Sacco
	RK Fisher
	RW Gillette
	RE Mitchell
	JH Hollinger
	BJ Williams
	NP Fox

Construction:

Project Manager:	JB Payne
Construction Manager:	DE Parrish
Construction Manager:	RP Dupuis

5.0 SCHEDULE

The schedule for incorporating the modifications listed in this document are listed on the WRAP-1 Startup (Balance of Plant) Schedule.

6.0 COST ESTIMATE

Design and implementation activities will be funded through time and materials.

7.0 QUALITY ASSURANCE

7.1 Design

All design activities will be performed in accordance with this work plan and the references listed herein.

7.2 Construction

All construction activities will be performed to the existing project specifications. The applicable specifications for each change will be mentioned in the change correspondence to the Project Manager.

General observance of construction practices will also be maintained by the Project and Construction Managers to assure compliance with specification requirements.

ATTACHMENT 1
DRAWING FIELD VERIFICATION/AS-BUILDING REQUIREMENTS
11/26/96

Drawing #	Functional As-Build Level (Minimum)	Comment
H-2-131738	Reference Only	Drawing Index
H-2-131801	Built to Print	Packet X-Ray Stands
H-2-131802	B	I&C Legend, Abbreviations
H-2-131834	C	Electrical Schematics <u>Update drawing to reference the Systems Interface Inc. (SII) One Line Drawing which documents the wiring for each piece of equipment</u>
H-2-131838	Reference Only (Delete after incorp.)	<u>Move electrical one line information to H-2-131839 and mechanical to H-2-132090</u>
H-2-131839	C	Electrical One Lines <u>Update drawing to reference the SII One Line Drawing which documents the wiring for each piece of equipment</u>
H-2-131840	Reference Only (Delete after incorp.)	<u>Move electrical one line information to H-2-131843 and mechanical to H-2-132087</u>
H-2-131841	Reference Only	<u>Move electrical one line information to H-2-131842 and mechanical to H-2-132087</u>
H-2-131842	B	Electrical One Lines <u>Update drawing to reference the SII One Line Drawing which documents the wiring for each piece of equipment</u>
H-2-131843	B	Electrical One Lines <u>Update drawing to reference the SII One Line Drawing which documents the wiring for each piece of equipment</u>
H-2-131845	Reference Only	Mechanical Equipment Legends, Symbols
H-2-131846	B	Mechanical Flow Diagram - Shipping & Receiving

Drawing #	Functional As-Build Level (Minimum)	Comment
H-2-131853	B	Mechanical Flow Diagram - Internal Transport
H-2-131917	Reference Only	Drawing Tree
H-2-131918	Reference Only	Drawing Tree
H-2-131919	Reference Only	Process General Notes, Legends, Abbreviations
H-2-131922	B	Mechanical Flow diagram - TRU Process Line
H-2-131924	B	Mechanical Flow Diagram - LLW Process Line
H-2-131926	B	Mechanical Flow Diagram - TRU, LLW RWM Gloveboxes
H-2-131930	Reference Only	Process Area Gen. Arrangement
H-2-131931	C	TRU Glovebox Assembly
H-2-131932	C	LLW Glovebox Assembly
H-2-131933	C	TRU/LLW RWM Glovebox Assembly
H-2-131935	C	HPU Piping Plan
H-2-131936	C	TRU Entry Glovebox General Arrangement
H-2-131937	Built to Print	TRU Entry Glovebox Support Frame Assembly
H-2-131938	Built to Print	TRU Entry Glovebox Shell
H-2-131945	Reference Only	Compactor System General Arrangement
H-2-131953	C	Packet Mon. Equipment Assembly
H-2-131954	Built to Print	Packet Mon. Equipment Details
H-2-131955	C	Drum Tipper Assembly
H-2-131956	Built to Print	Drum Tipper Details
H-2-131957	C	LLW Entry Glovebox
H-2-131959	Built to Print	LLW Entry Glovebox Shell

Drawing #	Functional As-Build Level (Minimum)	Comment
H-2-131960	C	LLW Sorting Glovebox General Arrangement
H-2-131961	Built to Print	LLW Sorting Glovebox Support Weldment
H-2-131962	Built to Print	LLW Sorting Glovebox Shell
H-2-131964	Reference Only	LLW Supercompactor Glovebox. <u>Need to add spec submittal references.</u>
H-2-131967	C	LLW Exit Glovebox Gen Arrangement
H-2-131968	Built to Print	LLW Exit Glovebox Shell
H-2-131974	C	TRU RWM Glovebox General Arrangement
H-2-131975	Built to Print	TRU RWM Glovebox Stand Frame
H-2-131976	Built to Print	TRU RWM Glovebox Shell
H-2-131977	C	LLW RWM Glovebox General Arrangement
H-2-131978	Built to Print	LLW RWM Stand Frame
H-2-131979	Built to Print	LLW RWM Glovebox Shell
H-2-131983	Reference Only	Standard Glovebox Details Tolerances
H-2-131984	Built to Print	Standard Glovebox Details Gloveport Installations
H-2-131985	Built to Print	Standard Glovebox Details Pass Thru Ports
H-2-131986	Built to Print	Standard Glovebox Details Bolted Window Assemblies
H-2-131987	Built to Print	Standard Glovebox Details Shield Window
H-2-131989	Built to Print	Standard Glovebox Details Bolted Access Panel Assemblies
H-2-131990	Built to Print	Standard Glovebox Details Service Penetration Panels <u>Electrical pene. update</u>
H-2-131991	Built to Print	Standard Glovebox Details Lighting Fixtures
H-2-131992	Built to Print	Standard Glovebox Details Shielding

Drawing #	Functional As-Build Level (Minimum)	Comment
H-2-131993	Built to Print	Standard Glovebox Details Baseplates
H-2-131994	Built to Print	Standard Glovebox Details Welding
H-2-131995	Built to Print	Standard Glovebox Details Attachments and Sensors
H-2-131997	Built to Print	Standard Glovebox Details Filter Assemblies <u>Add seal attachment details</u>
H-2-131998	Built to Print	Standard Glovebox Details Filter Details
H-2-131999	Built to Print	Standard Glovebox Details Filter Fire Screen Assembly.
H-2-132001	Built to Print	Standard Glovebox Details Pneum. Valve Man. <u>Update to current config.</u>
H-2-132002	Built to Print	Standard Glovebox Details Cutout & Stud Locations, Hoist Rails, Access Panels
H-2-132004	Built to Print	Standard Glovebox Details Gloveport Covers, Equipment Festoonery, Ancillary & Misc. Equipment
H-2-132005	C	DO-102 Assembly & Details
H-2-132006	C	DO-102 Assembly & Details
H-2-132009	Reference Only	Fabrication Notes
H-2-132010	C	Entry/Exit Port Assembly. <u>esp. Connection Schedule Verification</u>
H-2-132011	Built to Print	Entry/Exit Port Details
H-2-132012	C	DH-302 Drum Transfer Device Assembly.
H-2-132013	Built to Print	DH-302 Details
H-2-132022	C	LLW Sorting Table Assembly
H-2-132023	Built to Print	LLW Sorting Table Assembly Details
H-2-132024	C	TC-101 Drum Transfer Device Assembly

Drawing #	Functional As-Build Level (Minimum)	Comment
H-2-132025	Built to Print	TC-101 Details
H-2-132026	C	Delidder/Relidder Assembly.
H-2-132027	Built to Print	Delidder/Relidder Details
H-2-132029	Delete	Old Aerosol Can Puncture Device
H-2-132031	Built to Print	Cakestand Assembly
H-2-132034	Built to Print	Consumable Entry Port seals should be modified to 1/16" thick
H-2-132035	Built to Print	One Trip Port
H-2-132036	C	One Trip Port Assembly <u>Esp. Connection Schedule</u>
H-2-132037	Built to Print	One Trip Port Details
H-2-132038	Built to Print	One Trip Port Details
H-2-132039	C	D0-302 Sphincter Door Assembly
H-2-132040	C	D0-302 Sphincter Door Assembly
H-2-132041	Built to Print	Sphincter Cartridge Assembly
H-2-132042	Delete	Purged Port System Assembly
H-2-132043	Delete	Purged Port System Sub Assembly and Transfer Container Assembly.
H-2-132044	Delete	Purged Port System, Transfer Assembly Details
H-2-132045	Built to Print	Consumable Entry Port Seals should be modified to 1/16" thick
H-2-132046	Built to Print	Push-Thru Seal Assembly
H-2-132048	Reference Only	Drum Configurations <u>Add ref. to One Trip Drum Drawing</u>
H-2-132049	Built to Print	DH-101, 301 Drum Lifter Assembly
H-2-132050	Built to Print	DH-101, 301 Drum Lifter Details
H-2-132055	B	Pneumatic Schematic - TRU Process Line

Drawing #	Functional As-Build Level (Minimum)	Comment
H-2-132056	B	Pneumatic Schematic - LLW Process Line
H-2-132057	B	Hydraulic Schematic - TRU/LLW Gloveboxes
H-2-132058	Reference Only	<u>Move electrical one line information to H-2-132059 and mechanical to H-2-131936.</u>
H-2-132059	C	TRU Entry G/B One Line Diagram. <u>Update drawing to reference the SII One Line Drawing which documents the wiring for each piece of equipment</u>
H-2-132060	C	<u>Move electrical one line information to H-2-132061 and mechanical to H-2-132082.</u>
H-2-132061	C	TRU Sorting G/B One Line Diagram. <u>Update drawing to reference the SII One Line Drawing which documents the wiring for each piece of equipment.</u>
H-2-132063	Reference Only	Glovebox Interface Block Diagram
H-2-132065	Reference Only (Delete once incorp.)	LLW Entry External Elec. Arr. <u>Move electrical one line information to H-2-132066 and mech to H-2-131957.</u>
H-2-132066	C	LLW Entry One Lines <u>Update drawing to reference the SII One Line Drawing which documents the wiring for each piece of equipment</u>
H-2-132067	Reference Only (Delete once incorp.)	LLW Sort. Ext. Elec. Arr. <u>Move electrical one line information to H-2-132068 and mechanical to H-2-131960.</u>
H-2-132068	C	LLW Sort One Lines <u>Update drawing to reference the SII One Line Drawing which documents the wiring for each piece of equipment</u>
H-2-132069	Reference Only (Delete once incorp.)	LLW Exit Ext. Elec. Arr. <u>Move electrical one line information to H-2-132070 and mechanical to H-2-131967.</u>

Drawing #	Functional As-Build Level (Minimum)	Comment
H-2-132070	C	LLW Exit One Lines. <u>Update drawing to reference the SII One Line Drawing which documents the wiring for each piece of equipment</u>
H-2-132071	Reference Only (Delete once incorp.)	TRU RWM Ext. Elect Arr. <u>Move electrical one line information to H-2-132110 and mech to H-2-131974</u>
H-2-132082	C	TRU Sorting Glovebox General Arrangement
H-2-132083	Built to Print	TRU Sorting Glovebox Support Frame Assembly.
H-2-132084	Built to Print	TRU Sorting Glovebox Shell
H-2-132085	Built to Print	TRU Sorting Table System Assembly.
H-2-132086	Built to Print	TRU Sorting Table Assembly
H-2-132087	C	TRU Waste L/O GB-308, 309 General Arrangement
H-2-132088	Built to Print	TRU Waste L/O GB 308, 309 Shell
H-2-132089	Built to Print	TRU Waste Load Out Chute Assembly.
H-2-132090	C	TRU Compacted Empty Drum Load-Out GB-306 General Arrangement
H-2-132091	Built to Print	TRU Compacted Empty Drum Load-Out GB-306 Shell
H-2-132092	Reference Only	TRU Drum Transfer Device Arrangement <u>Reference the Contract Drawing on this drawing. The Contract Drawing must be field verified to a level C.</u>
H-2-132093	Reference Only	TRU Empty Drum Compactor Assembly. <u>Reference the Contract Drawing on this drawing. The Contract Drawing must be field verified to a level C.</u>
H-2-132094	C	TRU, LLW RWM Glovebox Shielding Attachments <u>The application of this shielding must be verified once the installation is completed.</u>
H-2-132096	C	HVAC Control Assembly for Entry/Exit System <u>Move Pneumatic Schematics to H-2-132055 and H-2-132056, as appropriate.</u>

Drawing #	Functional As-Build Level (Minimum)	Comment
H-2-132097	Built to Print	HVAC Control System Details
H-2-132099	Reference Only	TRU/LLW Process Lines, Local Control Panel Arrangement
H-2-132100	Reference Only	TRU/LLW RWM, Local Control Panel Arrangement
H-2-132110	C	TRU RWM Glovebox One Lines. <u>Update drawing to reference the SII One Line Drawing which documents the wiring for each piece of equipment</u>
H-2-132111	Reference Only (Delete once incorp.)	LLW RWM Ext. Elec. Arr. <u>Move electrical one line information to H-2-132112 and mechanical to H-2-131977.</u>
H-2-132112	C	LLW RWM Glovebox One Lines. <u>Update drawing to reference the SII One Line Drawing which documents the wiring for each piece of equipment</u>
H-2-132113	Reference Only	Glovebox Hazardous Classification Areas

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112	6	LLW	13031F-01 Setup	5	107-DO-07-101	Drum Lid in Position position switch does not activate when drum lid is pressed against the port. Apparently rubber seal prevents inductive switch operation. Switch removed from mounting and operation outside mounting is verified.	Same problem noted on LLW RWM Entry/Exit Ports. FDNW, RUST, Raytheon, ect... to determine proper equipment adjustment(s) to provide proper switch activation.	1-3-96 Bill Gray of RE&C will study sensor problem, and will work with WHC personnel at DMP shop to identify corrective actions. 2-6-96 - Implement via ECN 1184. 5-2-96 - RUST/Raytheon action to evaluate alternatives such as moving sensor or use lift table positioning. Because drum/lid in position switch installation has been removed from PCL construction scope by ICF-KEH (LETTER #???), this exception is transferred to WHC/RE&C. ATP steps to be reperfomed after switch is installed. Please see ECN 1208.	FDNW	RE&C	Watson	ECN1208	220		
144	1	LLW	13031F-10 Setup	13	107-RT-07-101	Feed time for feeding C-Clips not yet established.	Establish and record c-clip magazine solenoid feed time after both feed motors are operating.	ECN 1290, 1291	RUST	DMP	Dunlap	R115	220		
146	14	LLW	13031F-10.02	1	107-RT-07-101	C-clip magazine is too long to allow Delidder to fully rotate inside glovebox.	Shorten magazine by 1 inch.	12/13/95: Magazine is shortened by 1 inch, but Sorting Table Extended position switch remains in the path of the magazine (by 1/16 of inch). Providing a more compact switch would eliminate this interference. ECN 1173 to cover this modification. 5-21-96- RE&C to provide information to Ken Leist so that "go/no-go" gauge can be constructed. Additional work required, ECN 1173 didn't fix problem.	RUST		Dunlap	R115	220		
147	16	LLW	13031F-10.03	1	107-RT-07-101	When the Delidder is rotated parked and placed at the Delid position over the Drum Tipper, the Delidder cannot be fully lowered.	FDNW, RUST, Raytheon to review assembly, and make assembly and operational sequence modifications as appropriate.	1-3-96 Operational sequence in 13462, page 8-55, steps 10/20 through 11/2. During the delid sequence, the Delidder is lowered at the Delid position, while rotated parked. 1-10-96 RE&C indicates that ECN will be pursued by RE&C to modify Lidder/Delidder rotation plate. 2-6-96 - RE&C to issue ECN 1185. 5-21-96 ECN ? issued, exception transferred to KEH. 11-7-96 - ECN 1185 R1	RUST		Dunlap	R115	220		

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148	17	LLW	13031F-10 03	1	107-RT-07-101	When saw contacts band clamp it immediately stops.	Inspect saw connections and modify saw as appropriate. 12/4/95 - Saw regulator (extend and retract) is adjusted and an attempt is made to saw band clamp on drum. Saw action is considerably weaker than expected. Saw does not saw through entire clamp band. Saw appears underpowered.	1-3-96 Bill Gray of RE&C suggests that saw exhaust could be obstructed, or pneumatic leaks could be present, resulting in reduced power. Bill will work with WHC personnel at DMP shop to examine saw in TRU Sorting Glovebox and determine corrective actions. 1-10-96 Power not yet available to test saw. 2-6-96 - ECN 1185 to change aire to 100 psi and modify inert gas cover. 5-21-96 - ECN complete, transfer exception to KEH. 11-7-96 - Ken Leist indicates that ECN is still needed to move saw pivot point. ECN 1294 may fix, implement ECN & test.	RUST		Dunlap	R115	220		
151	2	LLW	13031F-12 Setup	4	107-ST-07-101	Sorting Table raise and lower cylinder motion is erratic, retaining pin falls out, cylinder rod contacts liquid retention plate orifice when it is raised and lowered, and cylinders move unevenly.	Sorting Table assembly to be reviewed. Raytheon, FDNW, RUST to determine appropriate modifications, if any. To Sorting Table. 12/13/95- DMP personnel indicate that retaining bracket was not sufficiently tightened, thus causing cylinder to fall out of bracket. Cylinders are synchronized, but Sorting Table raise and lower action remains jerky, erratic. If pneumatic cylinders will be used to raise and lower lift table, a retaining plate must be added to keep cylinders from moving off the edge of the sorting table, otherwise cylinder may break free from sorting table, causing the sorting table to fall, resulting in possible equipment damage and/or personal injury.	12/13/95 - Lifting sorting table using the maintenance hoist is one possible option. 1-3-96 Bill Gray of RE&C indicates that hoist option was discarded long ago. RE&C will take action to research and develop equipment and/or operation modifications as appropriate. 2-6-96 - RE&C to issue ECN 1185 to resolve this issue. 5-21-96- ECN 1202 to handle, not yet issued.	FDNW		Watson/Leist	R114 ECN1202	220		
165	3	LLW	13031F-17	4	107-DO-07-103	The LLW Packet X-Ray door hangs out at an angle (1 1/8 inches out at bottom of door) due to the moment arm formed by the door mounting bracket.	FDNW, RUST, Raytheon, ect. to determine equipment adjustment(s) to provide proper door alignment.	1-3-96 ECN 1173 has been issued to correct this problem. ECN 1173 to be implemented and then X-ray door operation will be re-examined. 2-6-96 - Implement via ECN 1173.	FDNW		Watson	ECN1173	220		

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166	4	LLW	13031F-17	4	107-DO-07-103	The sensor bracket on the LLW Packet X-Ray door is not aligned with the X-ray Door "open" and "closed" position switch apertures in the glovebox ceiling. The sensor bracket is per Drawing H-2-131954, Sheet 2, Rev. 2	FDNW, RUST, Raytheon, ect. to determine equipment adjustment(s) to provide proper bracket alignment.	1-3-96 RE&C indicates that the bracket should be moved to the opposite side of the door. This will be implemented via ECN 1173, and door operation will be verified. 2-6-96 - implement via ECN 1173.	FDNW		Watson	ECN1173	220		
183	5	LLW	13031F-12 Setup	6	107-S1-07-101	Prior to load testing Sorting Table was raised and lowered. When the Sorting Table was raised, the rear lifting cylinder nearly moved out, completely off of the flat plate against which it contacts, to lift the Sorting Table.	FDNW, Raytheon, RUST to determine Sorting Table modifications required to provide proper operation. Functionally test, including load test, Sorting Table prior to acceptance testing.	1-3-96 RE&C to take the action to determine the proper equipment and/or operation sequence modifications required. Ken Leist indicates that the preferred alternative would be a "socket" cup to both retain the lifting cylinders and allow free rotation. Ken also indicates that the gloveports blocked by the lifting cylinder are a related problem that should be considered. 2-6-96 - RE&C to issue ECN 1186 to resolve this issue. 5-21-96 - ECN 1202 to handle this, not yet issued. 12-2-96- ECN 1202 issued	FDNW		Watson/Leist	R114 ECN1202	220		
185	6	LLW	13031F-12 Setup	6	107-S1-07-101	When the Sorting Table is raised, it is apparent that the backside rear sorting table wheel will impact the Packet X-ray Door (107-DO-07-103) translation cylinder. Both wheel and cylinder appear to be positioned as per drawing requirements.	FDNW, Raytheon, RUST to determine Sorting Table modifications required to provide proper operation without impact between the sorting table and the translation cylinder. Functionally test Sorting Table to verify clearance prior to acceptance testing.	1-3-96 RE&C will take action to develop equipment and/or operation modifications as appropriate. 2-6-96 RE&C to issue ECN 1186 to resolve this issue. 5-21-96 ECN 1186 issued. Exception transferred to KEH.	FDNW		Watson	ECN1186	220		
304	11	ALL	13027P-78.02	1	GB-07-201	1- OIU password is initially "9965". When we attempt to change this password, despite repeated attempts, the "9" cannot be activated. 2- The number blocks are too small to activate on the 5 inch OIUs. Also, OIU height on LLW RWM an TRU RWM OIUs are considerably higher than other glovebox OIUs, making it somewhat difficult for operators to view and use OIUs.	1- FDNW to pursue fixing password. 2- Raytheon/RUST to evaluate placement of OIUs, as well as replacement of 5 inch OIUs with 9 inch screens that function correctly.	OIU doesn't work.	FDNW	RUST	Lane		220		

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311	3	LLW	13031F-16	Setup 23	DO-07-106	85 gallon 100 pound weighted lid is not available. Inner port drum lid vacuum seal has not been installed. "Drum Lid in Position" switch does not activate. Weighted lid testing is bypassed and all steps fail.	Complete installation of correct drum lid vacuum seals. Test weighted lid lifting capability prior to initiation of LLW Exit Glovebox acceptance test.	4-16-96 - Port DO-07-106 functionally tested. "Drum Lid in Position" Switch does not activate when drum lid is present. Vacuum seals installed and port successfully lifts 100 lb weighted lid. New seal not yet installed. 7-30-96 - Drum lid in position switch not working through seal and seal replacement are only outstanding issues still open with regard to this exception. 10-25-96 testing to be completed. 11-7-96 - ECN 1208	FDNW	DMP	Watson	ECN1208	220		
319	5	LLW	13031F-01.02	ALL	DO-07-101.301	Drum rolling ring is not 4.5 inches from top of drum. As noted during shop testing, when drum rolling ring is below 4.5 inches from top of drum, ring interferes with drum centering devices. When centering devices are extended at drum centering height, ring presses against device rollers and prevents lift table from raising drum into port. Non-standard drums are expected during operation of plant.	Raytheon to confirm that Entry/Exit ports with centering devices are designed to work ONLY with drums that strictly match drawing 132048 criteria. (e.g., Do we have any alternatives available, such as pulling devices back while drum is raising, to allow us to work with drums that don't meet strict 132048 requirements?)	5-21-96- RE&C indicates that only those drums which meet design criteria will work with ports. Exception transferred to WHC for determination of operational workaround for non-standard drums. RUST issue ECN to leave shims installed after testing. Leist to as-built existing shims or install permanent shims	RUST		Leist	R100	220		
364	5	ALL	13031F-03.01	Setup 3	CR-07-101A	THIS EXCEPTION APPLIES TO ALL HOIST PENDANTS: Hoist pendant interferes with light curtain operation.	PCL to work with Raytheon as appropriate to resolve this issue.	7-30-96 - This appears to be a design issue. This exception is therefore transferred to RE&C. Not resolved, RFI from us 9/30 to Dorsey. Replace light curtain w/contact switches on port covers. 12-2-96- Ken Leist recommends addition of internal port covers for operating gloveports. Transfer from Orgill to Leist.	RUST		Warmenhoven	R119	220		

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#	ETR #	ATP	Seller Test #	Step	Equipment Tag Number	Exception Description	Exception Disposition	Exception Status	Resp. Co.	Resp. Sub.	Cog. Engineer	RUST Change Doc	Priority	Due Date Constr	Due Date Des.
366	3	ALL	13031F-25.01	7	DO-07-308	THIS EXCEPTION APPLIES TO ALL BAGLESS TRANSFER PORTS. During initial testing, the 85 gallon drum was mated to port 308, and the port was opened. During the port opening sequence, the lid did not fully release and was caught between the drum and the port. Another lid was substituted and testing continued without incident. A difference was noted between the two lids. The first lid used had full length extending tips, while it appears that the tips on the second, successful lid, were ground down at the factory.	This exception applies to all Bagless Transfer Ports: 201, 401, 105, 305, and 308. PCL to work with BTP vendor as appropriate to resolve failure of lid to detach from drum.	Fingers need to be correct length - insure new drums are correct. Leist verify QC on order!	RUST		Leist/Warmenhov	R101	221		
368	5	TRU	13021F-25.10	4	DO-07-308	The gas tight seal between the drum lid and the drum was tested. Even at only 2 inches H2O pressure, leaks are noted around entire circumference of lid / drum interface.	PCL to work with vendor as appropriate to resolve lack of gas tight seal.	Issue Design 1-27-97: Payne to resolve with Babcock.	RUST	FDNW	Leist/Payne	R102	320		
382	4	LLWR WM	13027F-53		CR-07-201	Hoist muffler is not installed. Instead a dust rag is used to cover air exhaust. Hydraulic oil is sprayed inside glovebox when hoist is operated.	Arrangement drawings indicate that hoist exhaust is to be piped outside glovebox to limit HVAC pressure swings. PCL to clean oil out of glovebox.	6-19-96 - REH has issued letter to PCL to proceed with testing using temporary hoist festoonery. RE&C to provide completed design for festoonery before retesting can be completed. Given to Lewis - ECN 1225	FDNW		Watson	ECN1225, 1166	220		
384	6	LLWR WM, TRUR WM	13027F-53		CR-07-201	THIS EXCEPTION APPLIES TO ALL AIR HOISTS (201, 401). When air hoist 201 is operated, the plant instrument air supplied to port 201 dips from 80 psi to around 50 psi. Such pressure loss impacts port operation because "LOSS OF PRESSURE" alarms are generated by the port when pressure falls below 6 bar (~80 psi).	PCL to review pneumatic supply lines for correct installation. If correct, installation is verified. RE&C to review design and issue ECN as necessary to provide sufficient air pressure to glovebox items.	6-21-96: PCL indicates that installation has been reviewed. RE&C to review design and provide modifications as necessary to prevent excessive pressure drop during operation of glovebox items. Unresolved - need larger supply line. ECN 1225 to resolve.	FDNW		Watson	ECN1225	220		

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393	2	LLWR WM	13027A-87.08	124A, 126A, 116	DO-07-202	PCL 13027A-87-004 Vacuum cannot be generated between port door and drum lid. Lids with holes are used to support testing to prevent damage to ports. Test steps 13027A-87.08 100-126A need to be reviewed and modified as necessary. Test steps from ATP must be reformed after vacuum seal issue has been resolved.	6-20-96- PCL performs additional testing. Gasket ring added to top of drum to verify that aluminum ring on underside of port is too long. Lid with extra gasket holds vacuum, indicating that ring is too long. Also, vacuum not readily released - lid stays attached to port even when detach cylinder extended.	6-20-96- PCL to issue RFI's and obtain FDNW direction. RFI issued not resolved. 10/25/96 - These appear to be design issues that FDNW will address. Test Exception transferred to FDNW. Trivial ECN required. ECN 1234. 1-2-97 Leist/Wormenhoven to resolve.	RUST		Leist/Warmen hov	ECN1234	220		
395	4	LLWR WM	13027A-87.08	120A	DO-07-202	PCL 13027A-87-005 Lid in position switch is not installed to support testing. Switch is therefore not activated when drum is pressed against the port door. Lift table servo motor has been reprogrammed to lift drum to pre-programmed position to approximate "Drum in Position" height to facilitate testing.	Because drum/lid in position switch installation has been removed from PCL construction scope by FDNW (LETTER #???), this exception is transferred to FDNW/RE&C. ATP steps to be reformed after switch is installed. Please see ECN 1208.		FDNW	RE&C	Watson	ECN1208	220		
410	2	ALL	13027F-63	ALL	CR-07-401	THIS EXCEPTION APPLIES TO ALL GLOVEBOX MONORAIL HOISTS. Visibility is poor for hoist operation. Marker or indicator is needed to help operator line up hoist with position switches.		Resolve w/Operations Training Issue	RUST		Orgill/Warmen ho		220		
414	4	ALL	13027F-63.08	ALL	CR-07-401	THIS EXCEPTION APPLIES TO ALL RWM GLOVEBOX MONORAIL HOISTS (201,401). Excessive swinging noted when hoist is load tested.	Replace festoonery, valve down hoist and retest.	Resolve w/Operations	RUST		Orgill/Warmen ho		220		
416	6	LLWR WM TRUR WM	13027F-63	ALL	CR-07-401	THIS EXCEPTION APPLIES TO ALL GLOVEBOX AIR HOISTS. Hoist repeatedly binds when run. Hoist trolley and hoist chain action very noisy, do not appear to run correctly. Repeatedly, hoist stops and will not run correctly.	Install final festoonery and retest.	10-16-96- Lewis work. ECN 1225	FDNW		Watson	ECN1225	220		

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417	7	LLWR WM, TRUR WM	13027F-63	ALL	CR-07-401	THIS EXCEPTION APPLIES TO ALL BAGLESS TRANSFER PORTS. BTP Port 401 run simultaneously with hoist 401. Port control panel does not respond to keyboard input. Hoist air valves cycled, and port control panel operates correctly.	The Babcock ports have an integral pressure switch which prohibits port operation when less than 6 bar pressure is available. When both hoist and port were operated, insufficient air pressure was available, causing the pressure switch to prohibit port operation. It is probable that switch did not reset initially, and that causing air pressure drop a second time, by cycling hoist air valves, allowed pressure switch to reset, allowing port operations. PCL/RE&C to resolve as appropriate air supply to glovebox 401.	Will resolve w/384. ECN 1225.	FDNW		Watson	ECN1225	220		
421	4	TRU TRUR WM	13027A-88.05	19	DO-07-402A	As per 13462, 11-24, step 6/2, "DRUM HEAD SWAGED" message is keyed off of extension of swaging heads. yet swaging head retraction is not ensured. This exception also applies to 13027A-88.06, step 19, for port DO-07-402B.	Change messaging so that "DRUM HEAD SWAGED" message is keyed off of full extension of all four swaging heads, followed by full retraction of all four swaging heads, as verified by PCS.	9-30-96 - RFI written to RE&C by MP Lane, awaiting reply. 10/25/96 - RFI response indicates that this will be implemented via ECN 1299. 1-27-97: Test in ATP Rev. 0	FDNW		Watson	ECN1299	320		
422	5	TRU TRUR WM	13027A-88.05	19	DO-07-402A	As per 13462, 11-24, step 6/end, there is no message indicating that vacuum has been released from One Trip Lid. Because vacuum release is last step in sequence, message is needed. This exception also applies to 13027A-88.06, step 19, for port DO-07-402B.	Add message to indicate that vacuum has been released from lid as verified by PCS / vacuum switch not activated for both ports 402A and 402B.	Trivial ECN required.	RUST		Lane	R103	320		
433	5	ALL	Manipulators	3.3,3.4, 3.5	107-EM-07-101,201, 301,401	The tool designs are such that they cannot be used well. The tool rack is also difficult to use.	Tools and racks OK in current form. The tools and tool rack designs will be optimized during facility operation as manipulator operation techniques are further developed.	Phase II Operations	RUST		Orgill/Leist	R111	220		
440	1		AGV-10-Day Performan		104-GV-09-101	AGV P&D point for NDE-A & P&B-A needs to be adjusted.	Adjust P&D and Retest	9-25-96 - This ETR is closed to facilitate documentation submittal. This item has been transferred to the ICF-KEH punchlist as 14510 item 23. J.R. Weidert to be contacted to verify closure of punchlist items. 10-8-96 -Reopened.	PCL	NDC	Linklater		20		

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445	3		AGV-10-Day Performan		104-GV-09-101	Front & rear infrared "down" sensors during performance testing. Sensors need to be operational upon completion of testing.	Activate "slow down" sensor if a sensor is down, verify proper vehicle response & operation on guideway. Set "stop" sensors to a few inches. Set "slow down" sensor (15). Verify sensors work & don't impact P&D transfers via reflector interference.	Phase I - 20	RUST	NDC	Linklater		220		
488	22	ALL	13027A-88.12	9.11	DO-07-404	No wrench is available to mate sample transfer container to port.	Obtain wrench for use with sample transfer containers. Define and procure tool.	7-15-95 - This exception applies to all sample transfer tests for all gloveboxes.	RUST		Warmenhoven		220		
492	26	ALL	13027A-88.14	28	OIU-12-108B	"Vacuum Held" message is not shown. Messages are cascading and any operational sequence that includes a message to 13462 description will not necessarily provide proper messaging. This exception also applies to port 402B. 13027A-88.15 step 20.	Pressing "GENERATE VACUUM" out of strict order as shown in 13462 Description. RUST to investigate messaging alternatives so that messages do not cascade, and do not require manual intervention after sequences are completed. Must investigate possibility of generation as part of automatic sequence.	7-15-95 - This exception applies to OIU messaging for all gloveboxes. This is generic problem that requires a ladder diagram and consensus/decision as to course of action. Need major redo to reset critical control and initialize entire system. ECN required. Error recovery. ECN to be drafted when time is available.	RUST	SII	Lane	R132	220		
493	27	TRU TRUR WM	13027A-88.14	31.32	DO-07-402A, GE508, 309.401	"DRUM HEAD SWAGED" message is keyed off of all 4 swaging head switches becoming activated "PORT" message is received and SWAGE FAILED alarm is keyed off of any of 4 swaging head switches remaining activated after swaging sequence. This exception also applies to 13027A-88.15 steps 31.32 for port 402B.	ADD "DRUM HEAD SWAGE FAILED" alarm to 13462 alarm list for One Trip Ports. Currently, this alarm is hidden in body of text. Message to key off of successful extension of all 4 swaging heads followed by successful detection of all 4 swaging heads. Message is shown only if condition is met, and alarm is generated if, for any reason the	10-29-98 - Change covered by ECN 1299. 1-21-97 - SII to implement.	FDNW		Walson	ECN1299	220		
496	30	TRUR WM	13027A-88.17	10	DO-07-401	Port does not close "No pressure" fault causes sequence. After every fault, port must be returned to initial condition using operation from port 401. Applies to all Bagless Transfer Ports. DO-07-105, -201, -305, -308, and -401.	1- REEC to issue ECN to replace host air supply to eliminate 20-30 psi pressure drops. 2- RUST to replace BTP pressure drop. 3- RUST to replace Bradley control module to allow PLC to control port operation and port alarms. Limit 2 required if light curtain not detected.	Management decision to replace controller with LCU control, otherwise this is RE&C action. Will become RE&C action. Will become problem if resolve 384 with larger supply. ECN 1225 will revise line. 1-21-97 - Test change via ATP.	FDNW	RUST	Warmenhoven	ECN1225	220		

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509	1	LLW	13031F-11.04	10	DH-07-103	<p>During the performance of step 10, which is closing the drum grabs, it was noted that the grabs close around a drum chime thus it was necessary to raise the drum by one inch with spacers to properly grab the drum. The remainder of the test was completed successfully.</p> <p>The drum specified in Drawing H-2-132048 performs properly without spacers. However, the balance of drums being used will require spacers (or other action) to ensure proper drum grab.</p>		Lower drum grab. 1- Wormenhoven to issue change documentation to initiate change. 2- Replace flexible line with SS tubing.	RUST	FDNW	Wormenhoven	R104	220		
518	7	ALL	13031F-06.04	3	CR-07-101D	<p>THIS EXCEPTION APPLIES TO ALL GLOVEBOX MONORAIL HOISTS:</p> <p>No end of travel limit/trolley shut-off switches have been installed at the end of the hoist beams. The stopping position to center the hoist over the drum allows the hoist body to come within close proximity of the raised port door.</p>	PCL to move hard stop so that port door can not be hit by hoist	8-15-96 Hard stop has been moved back, but hoist with drum can still impact port door. The hoist / port door. Action: Add cautions to Op procedure.	RUST	PARSONS	Schaeffer		220		
521	3	LLW	13031F-08.02	1-7	DO-07-102	When port is closed and seal is inflated, a gap, approximately 11" long is noted between seal and front, backside quarter panel of door.		Rework in field required. ECN 1185.	FDNW		Watson	ECN1185	220		
532	3	LLW, TRU	13031F-11		TC-07-101	While performing Functional testing of Drum Tipper, the following problem was identified: Hydraulically operated rigid arm clamps do not move at the same rate/ratio. The arms have separate hydraulic cylinders and no provision was provided in the design to include a flow divider in the circuit between the cylinders hydraulic supply lines. This condition results in movement of the 55 gallon drum when the arms retract around the drum. At this time either the drum transfer car will move, or if the transfer car is maintained in a fixed position then the drum will be pushed across the drum transfer car rollers.	RE&C to work with PCL as appropriate to resolve issue.	ECN 1283 to resolve. 1-27-29. Leist to resolve, Lewis sub and issue design media as reqd.	FDNW		Watson/Leist	R136 ECN1275	220		

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543	7		SATP 3.10	28.14	12-NE-304	Reference 8-21-96 10:40 test log entry. SPDP message is not sent, due to double scan "Barcode Error". "Double Scan" barcode error appears to be implemented as per 13462 requirements, but also appears unacceptable for operational use.	Evaluate alternatives for double read "barcode error". Multiple scans of single barcode will frequently occur. Suggest removing error, and allowing multiple scans of single barcode label to occur, but to treat as only a single scan.	Phase II. 10-16-96 - Double scan error will remain. Will install mirror to allow operator to obtain indication of good read from indicator on back side of fixed reader. Suggested long-term fix is to use portable barcode readers for RWM barcode operations.	RUST		Warmenhoven	R134	221		
548	12		SATP 3.10	30.6	12-NE-305	Reference test log 8-21-96 2:59 entry, "bar_dms1 log" dms log file. DMS log incorrectly shows 2 packet pins plus drum pin, yet NETCOM PCS log shows correct drum pin + packet pin.	RUST to review DMS status with regard to this message.	Phase II. Resolve during OTPs.	RUST		Lane		220		
558	22		SATP 3.10	14:31	ALL	Reference test log 8-22-96 11:32 am entry. No message is displayed on portable barcode reader to prompt the operator to scan the "YEND" barcode to complete the barcode sequence.	Review exception and determine requirement/responsibility for implementing prompt message if needed.	10-16-96- Need to add steps to operating procedure/operator aid. To be tracked via WRTS.	RUST		Orgill		220		
562	26		SATP 3.10	15.13	12-NE-315	Reference test log 8-22-96 1:15 pm entry. The only sampling process referenced in 13462 is sampling packets and sampling drums. Gary indicates that current logic does not support sampling collection containers, treatment containers, or any other item other than non-compliant packets and drums.	RUST to review sampling operation and determine need for changes.	Phase II 10-16-96 - Evaluate as future enhancement.	RUST		Lewis		221		
568	31		SATP 3.10	4.23	12-NE-311	For SPP "Sample and Purge Port" message, location of "LLW_SORT" sent, not "LLW_PP". This is minor variation from test procedure, but should be verified as correct location for DMS.		Phase II. Resolve in OTP.	RUST		Lane		220		
574	37		SATP 3.10	ALL	ALL	Reference Retest Log 9-12-96, 3:45 entry: For TRU RWM Entry location only - NETCOM log shows correct CL message, but DMSCOM log shows extraneous characters appended to end of message.		9-12-96- This appears to be DMS problem because NETCOM message sent appears to be correctly formatted. Phase III. Resolve in OTP.	RUST		Robertson	CR	320		
579	1		ATP Cold Run 8/29/96		202-CPU-12-110	RTAP screen showing alignment of wrong rollerdeck to vault conveyors on NDE/DA screen.	Fix and retest.	Phase I - 21	RUST	SII	Stephenson/T KO		321		

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599	0	LLW	13031F-09 LLW DRUM	TC9.01-22	TC-07-101	When it was attempted to move the transfer car to lag compactor transfer position, the car stopped and rolled backward with 607H the empty car and the 140 lb drum. The 1000 lb drum had enough momentum to engage properly. The had to be manually pushed into position.		Phase II. Significant ECN required. 1177/96 - ECN 1275 does not appear to cover this. Bypass decelerate solenoid in field and issue ECN as required.	RUST		Dunlap/Leist/ Wa	R106	220		
600	0	LLW	13031F-09 LLW DRUM	TC9.01-7+13	TC-07-101	Transfer car should stop at delid position. In each of three cases the car went past delid position as follows: empty, no drum - 6"; 140 lb drum - 8"; 1000 lb drum - 13"; same occurs at relid position.		Phase II. Significant ECN required. 1177/96 - ECN 1275 does not appear to cover this. ECN should provide hard stops.	RUST		Dunlap/Leist/ Wa	R106	220		
601	0	LLW	13031F-10 LLW DRUM	TC10.04-30	RT-07-101	Inert gas flow switch 07-FSL-378 did not activate when gasflow was stopped. Examination of the flow switch indicated that it is stuck mechanically.		Phase II. 11-7-96 - ECN 1298?	FDNW		Linklater	ECN1298	220		
602	0	LLW	13031F-10 LLW DRUM	TC10.04-1	RT-07-101	Saw fixture would not fully rotate due to interference with tubing. Field Memo has been written.		Phase II. rework tubing.	RUST		Dunlap	R115	220		
604	0	LLW	13031F-10 LLW DRUM	17.24, TC10.02	RT-07-101	Drum lid/delid fixture could not be rotated as per direction to PCL.	Please also refer to exception 181 for additional descriptive information.	Phase II. EcN 1185 issued.	RUST		Dunlap	R115	220		
607	0	LLW	13031F-16 LLW EXIT	6 YC16.03	07-00-106	When vacuum generation was stopped with vacuum isolation valve closed, vacuum switch 07-PS-704 should remain activated, indicating vacuum present. Vacuum did not hold.		Phase II	RUST		Warmenhoven	ECN1234	220		
618	4		Cold Run 09/25/96		None	Assembly of pick lists for the ASRS are not clearly assigned to a party, nor do the steps appear in any operating procedure. Pick lists were assembled during the test with the aid of WRAP 1 computer personnel.	Scott Anderson and Chris Lewis to discuss with management to determine a responsible party for the task. Documentation requirements for the steps will be made following management discussion.	Phase I - 20	RUST		Orgill		220		
625	5		Cold Run 09/25/96		202-CPU-12-109	When DMS radiologic inventory levels are changed via 1101 screen DMS needs to notify PCS of change in level. Without this function there is no way to change level on PCS and no way for PCS to receive drums.	Modify 1101 screen to send updated levels. Retest by changing all 3 levels in 1101 screen and observing level changes on RTAP screen on PCS.	DMS to be revised to provide function.	RUST	BCS	Weidert		321		

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626	6		Cold Run 09/25/96		202-CPU-12-109	When PCS notifies DMS of a container location with use code VL, VH, or BD and the location is not N, NCRSL for VH & VL or AGVBDC_A or AGVBDC_B for BD the DMS sends a message to SIE with field 7 missing from header file. DMS should signal an inconsistent error or other message, but under no circumstances should it send a 'garbage' message to SIE.	Fix DMSCOM to not send bad message under these circumstances and retest by using simulator to repeat problem and observe that it no longer occurs.	Phase 1 - 21.	RUST	LM	Weidert		20		
627	8		BCS HVAC ATP/OTP	5.2.2.2	203-AH-11-...	Reference 15970.2.03 H. 2.03 G, 13461 2.03B, 2.03C. - HVAC DCS shall be capable of scanning all points in the system four (4) times per second or better. Scanning and response times are much greater than four (4) times per second for 203-AH-11-101, -501A/B, -401, -301, and 203-AH-11-201A/B. For example, 203-AH-11-101 takes 240 seconds for RTAP to update at console in room 201.	Recommend installing faster microprocessor in HVAC DCS and/or revise algorithms to utilize less CPU time in accordance with Specification section 15970 2.03.	Phase I - 20 FDNW letter to PCL 10/30/96.	RUST	BCS	Jordal		21		
628	9		BCS HVAC ATP/OTP	5.2.2.2	203-AH-11-...	Reference 15970.2.03 H. 2.03 G, 2.03 I, 13461 2.03B, 2.03C. - HVAC DCS data storage, trend reporting, sample data gathering, data logging, and data hardware storage do not meet the requirements delineated in specification section 15970, paragraph 2.03 G and/or 2.03 I. A workstation, software for graphics interfacing and proper configuration for data storage, trend reporting, and sample data gathering are not furnished presently.	Recommend installing workstation with software for tracking, trending, and storing HVAC parameters in accordance with specification section 15970 2.03.	Phase I - 20. FDNW letter to PCL 10/30/96.	RUST	BCS	Jordal		21		
638	1		Cold Run 10/7/96		202-CPU-12-110	RTAP is not alarming on DMS messages using leftmost bits in status value, i.e. 04000000.	SII to fix RTAP and retest by simulating messages from DMS and observing correct response for event, alarm, and warning level messages.		RUST	SII	Stephenson/T KO		220		

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639	4		Cold Run 10/7/96		UNKNOWN	AGV is not waiting for "Release AGV" message from PCS before proceeding to next P/D point. It is leaving as soon as PCS drops IRCOM.	Tensar to evaluate and resolve. Retest by re-running cold run and observing that AGV does not leave till release AGV is done. May also need to be retested in area 2 depending on if two systems are handled differently in software.	Roller deck sensor will stop vehicle movement. Drum data lost if drum is not all the way in the vault.	RUST	NDC	Jackson		321		
640	12	ALL	13027A-87	ALL	XS-07-305A/B	THIS EXCEPTION APPLIES TO ALL GLOVEBOXES: Light curtains have not been inspected or tested for operation. There is no apparent specification requirement to test light curtain operation.	FDNW to inspect and confirm light curtain operation prior to glovebox turnover. RUST to test light curtain operation after Emergency Stop ECN (1146) has been implemented.		FDNW		Watson		220		
641	13	ALL	13027A-87	ALL	DO-07-202	THIS EXCEPTION APPLIES TO ALL GLOVEBOXES: Port 202 vacuum seals on underside of port are noted to be "peeling" off. These seals should be more securely attached to the port door.	AI inspectors to verify satisfactory installation of vacuum seals for each Entry/Exit port prior to glovebox turnover.	ECN required to fix. 1-27-97: Verify during GB ATP.	FDNW		Watson		220		
642	14	ALL	13027A-87	ALL	GB-07-201	THIS EXCEPTION APPLIES TO ALL GLOVEBOXES: As per current 13462 design, interlocks are not annunciated.	WRAP operations to review operation and produce change request as needed	Operational issue, need go to maintenance mode to know what interlock actuated to fix and clear.	RUST	RE&C	Lane/Orgill		221		
644	16	ALL	13027A-87	ALL	GB-07-201	THIS EXCEPTION APPLIES TO ALL GLOVEBOXES: OIU button, OIU messages, and OIU alarms are inconsistent from one item to the next and between different gloveboxes.	Replace with uniform, consistent text for all OIUs.	Design spec. issue. Message same, but different words take care of later. Problematic if changes instituted after operating procedures have been DARFED. 10/25/96 - RUST Change Request #15 written to address this issue.	RUST	SII	Lane	R133	220		
646	17	ALL	13027A-87	ALL	EM-07-201	THIS EXCEPTION APPLIES TO ALL MANIPULATORS: An operator has no indication whether manipulator and/or manipulator arms are parked or not. Serious damage to manipulators can result if proper parked position is not obtained. Several operational sequences cannot be performed unless manipulator is parked.	FDNW/RE&C to write change request to remedy this deficiency (e.g. Add visible indicator to initialization menu for manipulator and manipulator arms parked position).	Trivial ECN required. 1-27-97: FDNW to pursue adding OIU indication to ECN 1146.	RUST	SII	Lane	R103	220		

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647	18	ALL	13027A-87	ALL	GB-07-201	THIS EXCEPTION APPLIES TO ALL GLOVEBOXES: As currently configured, all outputs are forced off whenever maintenance menus are accessed. Maintenance menus are accessed after port faults during operation. After such a fault, if the maintenance menu is accessed, vacuum will be turned off for all ports	FDNW personnel to write ECN to allow vacuum to be retained while in maintenance mode. This is a serious safety issue that must be immediately addressed and absolutely prevents operation of all gloveboxes. Drum lids cannot be retained against the port doors if vacuum is removed. This does not appear to be a PCL issue because no specification requirements indicate that this is unacceptable.	Not spec. violation. Need to change to ladder logic to hold lid. 1-21-97: RUST (Lane) to modify code to resolve this issue.	FDNW	RUST	Weidert	R103	220		
648	19	ALL	13027A-87	ALL	LT-09-201A-F	THIS EXCEPTION APPLIES TO ALL GLOVEBOXES: Currently, operators have no way to easily rehome lift tables after power failure or emergency stop conditions. A method for rehoming lift tables is required to support operation.	RUST Engineering staff to write Change Request to add rehome capability to OIU maintenance menus to allow all lift tables to be rehomed after upset conditions.	Currently requires laptop to be brought out (which we don't have software or cables for.) Can change ladder logic to fix. 10/25/96- RUST Change Request #17 written to address this issue. 1-21-97: Test during ATP.	RUST		Lane	R103	221		
649	20	ALL	13027A-87	ALL	LT-09-201A-F	THIS EXCEPTION APPLIES TO ALL LIFT TABLES: The lift table servo motors must be configured from manufacturer in a serial communications daisy-chain. If one lift table servo motor goes out, all motors downstream in the chain will not respond to commands.	RUST Engineering staff to write Change Request to add shunt capability to each lift table to allow all lift tables to be independently maintained so that glovebox operations can continue even if a single lift table is not operable.	Meets spec., needs to be fixed by rewire or jumper cord. 1-21-97: Address air manifolds at same time Dunlap to issue a work package. Develop Action Plan.	RUST		Dunlap	R107	221		
650	21	LLW, TRU, TRUR, WM	13027A-87	ALL	DO-07-202.203	THIS EXCEPTION APPLIES TO ALL ENTRY/EXIT PORTS: Locking cylinder reflectors are now just glued in. On a number of occasions, reflectors have become disengaged from reflector brackets, causing operational sequences to fail.	FDNW personnel to write ECN to improve the attachment method for the reflector cylinder. It does not appear that the fastening mechanism supplied in DRAWING H-2-132011, Sheet 6 will adequately secure the reflector to the bracket over long periods of use. Failure of this item is problematic because it is difficult to detect, and can cause port opening sequences to fail.	Ops to place sheet metal backing w/industrial adhesive on back face of 'L' bracket (behind reflector)	RUST		Warmenhoven		220		
654	2		Cold Run 10/09/96		202-CPU-12-110	PCS is sending a CL message to DMS for location AGVGEEA with the BIN field indicating BIN 10. The BIN field does not apply and should be blank.	SII to evaluate and fix. Retest by running cold run once and observing that GEA A location is sent correctly.		RUST	SII	Stephenson/T KO		220		

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656	22	ALL	13027A-87	ALL	DO-07-201	THIS EXCEPTION APPLIES TO ALL BAGLESS TRANSFER PORTS: The exhaust from the Bagless Transfer Port 201 is currently not piped back into the glovebox, but exhausts to open air. All pneumatic exhausts should be routed back into the glovebox or HVAC system.	Route BTP exhaust back into glovebox.	10/25/96- RE&C indicates that this will be addressed via ECN 1299.	FDNW		Walson	ECN1299	220		
657	24	ALL	13027A-87	ALL	DO-07-202, 203	THIS EXCEPTION APPLIES TO ALL ENTRY/EXIT AND ONE-TRIP PORTS: For all Entry/Exit Ports and One Trip ports, the vacuum generators are not filtered. The dirt and debris normally found inside the glovebox are pulled into and readily clog the small vacuum generator orifice.	Write change request to add inlet filters for vacuum generators	ECN 1260, Rev 1. See #659 Maint proc. Determine if required.	RUST		Leist		220		
659	24	ALL	13027A-87	ALL	GB-07-201	THIS EXCEPTION APPLIES TO GLOVEBOXES: Currently, no filter is provided for the LLW RWM or the TRU RWM glovebox pneumatic manifolds, nor for the air hoists. Mr. Stoney, the local Festo representative, recommends at least a 40 micron filter upstream from the manifolds.	Provide filter as provided for all other glovebox pneumatic supplies.	Trivial ECN required. 11-7-96 - ECN 1267 1-21-97: Leist to write ECN to add filter.	FDNW	RUST	Leist	R120	220		
660	40		SATP 3.10		GB-07-201.401	THIS EXCEPTION APPLIES TO ALL RWM GLOVEBOXES: Currently, the items removed from and replaced on the transfer stands are tracked via a temporary table. Items taken off the stand are tracked via the "REMOVE ITEMS" OIU menu choice followed by barcode scans, and are tracked in a temporary table. If "END REMOVE" is pressed, the temporary table is fixed. If "REMOVE ITEMS" is again selected, all prior entries in the temporary table can be overwritten, disallowing operations with these items.	If possible, modify tracking system so that system accurately tracks any items taken out of or placed onto a transfer stand. If this is not possible, administratively control.	1-21-97: Modify operating procedure to provide cautions. Lane to provide verbage.	RUST	PARSONS	Schaeffer		220		

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661	1		cold run		202-CPU-12-109	When SIE faults or otherwise stops responding to DMS it shuts down DMSCOM. DMS should be written such that its status response to PCS is not dependant on status of other systems.	Authorize SII to make DMSCOM work like NETCOM so that it is not dependant on status of other systems.	CR to be issued.	RUST	SII	Weidert		220		
675	3		Cold Run R1, Div 5	Section 5.2	unknown	The two (2) AS/RS marquee reader boards do not display the correct waste drum input/output status information messages to facility personnel.	Repair or take out of service - the two (2) AS/RS marquee reader boards.		RUST		Johnston		21		
682	4		Cold Run R1, Div 5	Par 5.3, B.1	unknown	Paragraph B.3 - "PLACE the drum on the infeed conveyor." In order to place a test drum on the conveyor the operator has the option to use the (infeed) Jib Crane or the mobile single drum handling "cart". The single drum handling "cart" has a permanent battery recharging system that has not been installed to support COLD RUN Phase I OTPs. A temporary mobile recharger has been provided to support the "cart" and continual COLD RUN Phase I OTP.	The COLD RUN OTP Phase I Rev 1 "cart" permanent recharger was substituted for a mobile recharger.		RUST		Johnston		21		
705	1	LLW	13031A-85	167-178	107-DO-07-102	Steps could not be performed due to erratic operation of saw including interference problems which are documented by RDI ____		ECN 1294	RUST		Dunlap	R115	220		
706	1	LLW	13031A-85	See Description	107-CM-07-102	During performance of the following steps, the super compactor communications with the PCS were not established to support testing: TC12-74, TC29-7&12, TC30-83-94, TC34-8, 9&17.	Establish communications with the super compactor and retest affected steps.	12-11-96 - PCL to write request for substitution. 1-27-97: Retest during ATP. Coordinate with INET and SII	RUST		Warmenhoven		220		
708	1	LLW TRU	13031A-85	TC19, Step 4	1-7-DH-07-103	While testing the grab closed interlock, the drum was partially crushed by the grab clamps. When the drum was picked up, the drum slipped to the area between the upper and middle rings, which allow the drum to hang lower and in the way of the sort table traverse.	PCL to write RFI.		FDNW		Leist	R136 ECN1275	220		

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709	1	LLW	13031A-85	TC21	107-DO-07-103	To perform this test case, it was necessary to force the status of shield door position sensors Z3 334A&B to verify the logic.	An ECN has been generated to modify the sensor position mounting hardware. After completion of mod the door position can be verified.	ECN 1186	FDNW		Payne	ECN1186	220		
711	1		13031A-85	TC31 - Step 90	107-PC-07-004	Storage Position 3 on the pendant control illuminated during the lamp test. This position no longer exists.	Remove the lamp and description from the pendant control.	1-21-97: Verify light switch disabled	RUST		Warmenhoven		220		
713	1	LLW, TRU, LLWR, WM	13031A-85	See Description	Entry/Exit Ports	TC3 - Steps 78-80 TC4 - Steps 25 & 26 TC32 - Steps 108 & 109 The lid in position sensor is not working for any of the entry/exit ports and is being simulated in s/w for testing.	ECN 1208 has been generated to change the location of the lid in Position sensor for the entry/exit ports.	ECN 1234	FDNW		Payne	ECN1208	220		
714	1	LLW	13031A-85	TC33 - 26-28	107-DO-07-106	The vacuum system does not operate properly due to modifications to the lid which are not yet completed.	An ECN has been generated to modify the lids. In addition, an RFI has been written to identify the proper type of vacuum isolation valve for the application.	ECN 1185	FDNW		Warmenhoven	ECN1298	220		
718	1		13031A-85	TC 5 - Step 60	107-NI-310	There was no frisker available.		1/27/97: Leist and Warmenhoven to resolve P10 gas location.	RUST		Leist	ECN1274	320		
720	1	LLW	13031A-85	TC7-45, 46, 48	107-TC-07-101	Cannot use auto mode to reposition the transfer car from the delid or relid position to the entry position.		DD, KL, RW to develop action plan and issue design.	RUST		Warmenhoven	R106	220		
721	1	LLW	13031A-85	See Description	107-DO-07-102	TC 7 - Step 52 TC 2 - Step 15 When attempting to lower a drum through the transfer port to the transfer car, in several cases the drum would not center on the car and catch the side of the car.		1-21-97: Leist to issue an ECN to resolve.	RUST		Leist	R131	220		
725	1		13031A-85	TC 42	107-PC-07-001	It was noticed that it is possible to position the hoist trolley such that the "entry" position indication is on when the trolley is position at the "xfer" position.			RUST		Orgill		221		
730	4		13031A-85	11:85	DO-07-105	After port is opened, the lift table weight falls below the lift table weight setpoint.	Need to further examine this issue. Confirm that lift table is not lowering after drum is pressed against port.	PCL to run field tests. 12-19-96 - Bruce Young of FDNW reviews dial indicator test. Lift table does not move, but pressure is lost over time. This indicates that pressure may be lost via seal compression. Review software fixes to retain pressure over time.	RUST		Leist		221		

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734	9		13031A-85	23-25	DO-07-105	Transfer stand is smoothly, easily removed from drum. When placing stand back in drum, stand gently hits back side of port. There is very little clearance between stand and port.	Operational issue. Hoist appears to be directly centered above port. WRAP operations to review.		RUST		Orgill		220		
735	10	LLW TRU	13031A-85	23-12	DO-07-105	Current glovebox design does not provide a place for operator to stand while manually attaching hoist hook to transfer stand.	Provide design modification that allows operator to safely attach hoist hook to transfer stand.	1-21-97: Leist to issue design media to address.	RUST		Leist	R109	220		
737	1	TRU	13021F-38	General	ST-07-302	The sorting table servo control positioning system will not stop the table for approximately 6 feet of travel after the stop button has been pushed.	The servo control is linked with the lift tables on the sercom communications link. The system response time is too slow in order to stop the table in a timely manner.	1-21-97: ECN 1146 to resolve. 1-27-97: Lane to determine if ECN is required.	FDNW		Lane		320		
738	1	TRU	13021F-24	24-02-7	DO-07-301	The drum lid in position switch is not operable and is identified for modification by ECN.		1-27-97: Test in ATP Rev. 0	FDNW		Payne	ECN1208	320		
739	1	TRU	13021F-24	24-03-3-6,27,30	DO-07-301	The entry port vacuum system requires modification identified by ECN.		ECN 1185 1-27-97: Test in ATP Rev. 0	FDNW		Payne	ECN1234, 1298	320		
744	1	TRU	13021A-86	Setup 20	DH-07-302	REFERENCE PAGE S-4: Drum Transfer Device is not operational and cannot be tested. Test Case 3 steps 62-93 could not be performed. Drum Transfer Device switches forced as required to support testing.	Drum transfer device to be placed in operating condition and tested.		RUST		Leist	ECN1283 R105	320		
746	3	TRU	13021A-86	TC 1-49	DO-07-302	REFERENCE PAGE 1-7: Port inflatable seal is not visible. Need indicator on OIU menu for seal inflated/deflated condition. This item also applies to DO-07-102.	Add seal inflated/deflated indicator.	1-21-97: Revise code to add OIU button.	RUST	SII	Lane	R103	320		
748	5	TRU	13021A-86	TC 1-68	FEV-07-305	REFERENCE PAGE 1-9: The function of this solenoid valve is not clear from 13462 references.	Obtain clarification and test valve operation. Purpose of valve and does config information exist.	1-27-97: Warmenhoven to determine if design/ECN required. 1-28-97: ECN required. Control requirements not implemented in 13462 Table 10. Needs to be added and tested.	RUST		Warmenhoven	R112	320		

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750	7	ALL	13021A-86	TC 2.20	OIU-12-104A	OIU displays "System Initialized" after system is no longer initialized. This is due to the fact that system initialization is a required prerequisite for glovebox operation. This further complicates restoration of service after an equipment fault.	Suggest make initialization both real-time and administratively control.	1-21-97: Lane to resolve.	RUST	SII	Lane	R132	320		
758	15	TRU	13021A-86	TC 75.88-100	SY-07-301	REFERENCE Page 75-22: No test steps provided for interlock between waste chutes and sorting table at home or at trwm port position. These two interlocks do not exist.	Add interlocks and retest.	1-21-97: Verify interlocks during ATP.	RUST	SII	Lane	R103	320		
760	17	TRU	13021A-86	TC 75.115	DO-07-309, 310	REFERENCE Page 75-24, also 83-24, step 115: Interlock is not met; sequence does not actually start, but message is displayed indicating that sequence has started.	Provide message when sequence has started. Do not provide message if sequence has not started.	12-3-96 - Appears to be as per SII interpretation of specification. Exception transferred to RUST. Need to ensure that all sequences start in repeatable, consistent manner. 1-27-97: Resolve via OIU ECN.	RUST	SII	Lane	R103	320		
761	18	TRU	13021A-86	TC 75.121	DO-07-309, 310	REFERENCE Page 75-25, also 83-25, step 121: Drawing H-2-132037 sheet 1 Section D shows door open sensor at end of travel when port door is translated open. The two other sensors noted on this drawing are for locking cylinders. Specification section 13462, page 10-128, steps 4/3 through 4/5 indicates that there is a door raised sensor and that translation open completion is indicated by timer sequence only.	Provide consistent design media, implement needed changes, and retest.	1-21-97: Leist to issue ECN.	RUST		Leist	R108	320		
763	20	TRU	13021A-86	TC 75.142	DO-07-309, -310	REFERENCE Page 75-29: "VACUUM RELEASED" message is NOT displayed after "RELEASE VACUUM" button is pressed.	Add message and retest.	1-21-97: Lane to resolve.	RUST		Lane	R103	320		
764	21	TRU	13021A-86	TC 75.174	DO-07-309, -310	REFERENCE Page 75-37, page 83-37, steps 152B-D: No feedback is provided to operator that "SWAGE DRUM HEAD" button has been pressed. Also "SWAGE FAILED" alarm is based only on failure to retract, should be either failure to extend or retract.	Add "Drum Swaging" message after operator presses "SWAGE DRUM HEAD" button. Add time delay to allow swage heads to retract before displaying "DRUM HEAD SWAGED" message. Base "SWAGE FAILED" alarm on both failure to extend and failure to retract.	1-21-97: Lane to resolve.	RUST		Lane	R103	320		

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765	22	TRU	13021A-86	TC GI.11	DO-07-309, -310	REFERENCE Page GI-2: There is no interlock between waste chutes and the manipulator arms.	Add interlock and retest.	1-21-97: Lane to resolve.	RUST		Lane	R103	320		
766	23	TRU	13021A-86	TC GI.11	DO-07-309, -310	REFERENCE Page GI-2: The One Trip inner drum ring interferes with the Waste Chute and prevents complete rotation.		1-21-97: Leist to resolve.	RUST		Warmenhoven	R108	320		
767	24	TRU	13021A-86	TC GI.11	DO-07-309, -310	REFERENCE Page GI-2: Generating vacuum, opening port, and rotating waste chute currently are separate operations.	Make vacuum generation, port open, and waste chute rotate happen with single button press.		RUST		Watson/Orgill/L		321		
768	25	TRU	13021A-86	TC GI.16	DO-07-309, -310	REFERENCE Page GI-3: 1- Simulated packets consist of small sandbags and pieces of metal. Even when the drum is SLOWY rotated, parts bounce, scatter, and fall off sorting table. 2- Also, at position #2, Sorting Table is not centered between port 309 and 310 waste chutes - approximately 6 inches more coverage of port 310 chute.		1-21-97: 1- Orgill to address concern. 2- Watson to redefine sorting position.	FDNW	RUST	Watson/Orgill		320		
769	26	TRU	13021A-86	TC GI.24	DO-07-309, -310	REFERENCE Page GI-3: "CLOSE PORT" button accidentally pressed before "ROTATE CHUTE" button is pressed. Port does not close. Chute closes, and then port closes without pressing any buttons.	Modify ladder logic so that if interlocks are not met, sequence will not start upon meeting interlocks. This is a safety issue.	11-23-96: Spec issue. This exception is transferred from PCL to RUST for resolution. 1-27-97: Lane to resolve w/51t.	RUST	SII	Lane	R103	320		
771	28	TRU TRUR WM	13021A-86	TC GI.26	DO-07-310	THIS EXCEPTION APPLIES TO ALL ONE-TRIP PORTS: REFERENCE Page GI-4, also exceptions 419 and 774. Cannot generate vacuum for port 310 after single successful sequence. Cannot complete any further drum sequences with this port.	Fix and retest.	12-11-96 - PCL has written letter to FDNW regarding this problem. This same as 774 and 419. 12-19-96 - Paul McElroy indicates that this exception should be transferred to FDNW. Exception transferred 1-21-97: R. Fisher/Leist to provide direction to FDNW. 1-27-97: Lane to address software via ECN.	RUST	FDNW	Leist	R108	320		
772	29	ALL	13021A-86	TC 86 Setup 1	LT-09-202E	REFERENCE Page S-1: Previous lift table sequence was not completed. Lift table activates without warning to lower, activate rollers, and raise to AGV height, to complete auto sequence.	Lift tables and all other glovebox equipment items should not move without operator input. Examine alternatives that prevent item movement after auto sequence failure.	1-21-97: Lane to address via design change. Checking during ATP performance.	RUST		Lane		320		

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775	32	TRU	13021A-86	TC 83-112, 113	DO-07-310	REFERENCE page 83-24. Spec. 13462 table 10-11, pg 10-124 references ZS874A, B, but PLC logic shows ZS-341A/B. Also, 13462 sequence description references ZS-341A,B.	As-build spec 13462 to reference ZS-341A,B.		RUST		Lane	R103	321		
776	33	TRU	13021A-86	TC 83-122	DO-07-309, -310	REFERENCE page 83-25. Currently, Port 309 and 310 open and close sequences are timed. Add sensors, comparable to ports 402A and 402B, so that all port actions are sensor monitored. This is a safety issue.	Replace the optical fiber switches located on the TRU g/b 308 and 309 One Trip Ports (DO-309 &310) with sensors as designated for ports in g/b 401. The ECN should be to replace sensors as they fail.	1-21-97: Leist to issue ECN to perform work. 1-27-97: Lane to address software issues via ECN.	RUST	FDNW	Leist/Lane	R108 R137	320		
780	37	ALL	13021A-86	ALL	OIU-12-104A,B,C,D	THIS EXCEPTION APPLIES TO ALL TRU OIU MENUS. Text on OIU buttons, messages, and alarms, does not always match test procedure.	Review OIU operations and provide consistent buttons, messages, alarms, message and alarm sequencing	1-21-97: Lane is pursuing w/operations	RUST		Lane	R133	320		
788	45	TRU	13021A-86	TC 68-40,41	DO-07-305	REFERENCE page 68-11: Test case does not test "PORT FAILED TO OPEN" and "PORT FAILED TO CLOSE" alarms	Test port alarms.	1-21-97: Test in ATP	RUST		Lane		320		
789	46	TRU	13021A-86	TC 70-19	DO-07-305	REFERENCE page 70-4: No PCS messaging was verified during acceptance testing.	Verify all glovebox PCS messages and submit completed test documentation that verifies that ALL PCS messages (5, 3.x) associated with the TRU glovebox line have been tested.	12-3-98: MP Lane to test using SII instructions 1-21-97: Test in OTP	PCL	SII	Lane		320		
790	47		13021A-86	TC 71-6	DH-07-305	REFERENCE page 71-2: When drum lifter is at "PORT POSITION", closing the port causes the port door to hit the lifter.	Fix this problem and retest to verify that interference is eliminated.	1-21-97: POP to be revised to redefine park position.	RUST	PARSONS	Lane/Schaeffer		320		
793	50	LLW, TRU	13021A-86	GI - 22	DH-07-301	During the sequence where the lifter is lowered onto the drum in the overpack, it is difficult to see how well the lifter is attached until the drum is partially lifted. The present logic does not allow an operator to lower the drum back into the overpack to adjust the lifter after the raise sequence has begun.	The logic should be modified to allow an operator to adjust the lifter hold on a drum. The spec does not address this.	1-21-97: Lane to pursue design change.	RUST		Lane	R103	320		

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796	53	LLW, TRU	13021A-86	GI - 26	CR-07-301A	The "Closed" indicator on the hoist pendant did not illuminate when the lifter was closed. During the previous cycle it was difficult to remove the lifter from the overpack.	It was noticed that the center connector bolt on the lifter was slightly bent which would explain why the lifter tended to hang to one side and caused difficulty placing the lifter on the drum. The bolt needs to be replaced and the closed position switch adjusted.	12-11-96 - Bolt was straightened and switch actuator modified. Re-tested satisfactory. Remaining open until Leist concurrence gained to move to RUST. 12-11-96 - Ken Leist verbally indicates ok to transfer to RUST so that we have a reminder to redline vellum drawings. Exception therefore transferred to RUST 1-27-97: Leist to pursue swapping out valve.	RUST		Leist	R110	320		
799	56	TRU	13021A-86	TC 30 - (21-31)	ND-07-301	The sensor position switch for the x-ray tray retract is not working.		12-11-96 PCL indicates work is complete, PCL to test today. 1-27-97: Test in ATP	FDNW		McElroy		320		
800	57	TRU	13021A-86	TC 30 - (21-46)	DO-07-303	The X-Ray/Assay door position sensors require that the bracket be moved.	This work is already included with an ECN mod.	1-27-97: Test in ATP Rev. 0	FDNW		Payne	ECN1173	320		
801	58		13021A-86		ND-07-302	The Packet Assay system is not in service and there is no way to verify the "Enable/Disable" function.		12-11-96 - PCL to write RFI because PCL doesn't believe that it is within their scope to provide interlock between PAM and door. 1-21-97: Wormenhoven to resolve status of PAM Testing.	RUST		Wills		320		
803	60	TRU	13021A-86	TC 30 - 112&114	OIU-12-104B	The "Fixture to Relid" button on the OIU has no programmed function. The present design returns the fixture to the relid position automatically.		12-11-96 - PCL letter sent to FDNW, no letter date available. 12-19-96 - Rust to take care of when other OIU changes are undertaken.	RUST		Lane	R103	320		
804	61		13021A-86	TRU SORT GI: 4	TC-07-301	REFERENCE: page GI-1: When moving drum #6 at 18:15 on 11-22-96 to delid position, the 140 pound drum liner catches on mold - drum stays, transfer car continues.	Operations needs to be informed that empty drum compactor must be raised when transporting drums with the transfer car.	12-11-96 - PCL letter in bag with horse tail clears mold. 1-27-97: Research this item - provide disposition.	RUST		Orgill/Warmen ho		320		
805	62		13021A-86	TRU SORT GI: 9	DH-07-303	REFERENCE: page GI-2: A very loud screeching noise is noted from tipper. This appears to be either due to a lack of adequate lubrication for the slide mechanism, or some alignment problems exist.	Determine cause of screeching sound	12-11-96 - PCL letter sent to FDNW, no letter date available. 12-19-96 - Paul McElroy indicates transfer to FDNW, review lubrication. Verify design is adequate.	RUST		Leist/Anderson	R136	320		

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807	64	TRU	13021A-86	TRU SORT GI: 11	TC-07-301	REFERENCE: page GI-3: The transfer car does not remain in position. It consistently travels past the point at which it should stop. Several times, the car moved so that it no longer activated the transfer car position switch, interrupting operational sequences.	Provide design modification(s) that force transfer car to stop at the correct, defined stopping positions and eliminate transfer car spurious movement.	DD, KL, RW to develop action plan and issue design.	RUST		Warmerhoven	R106	320		
810	67	TRU	13021A-86	TRU SORT GI: 69	ST-07-301	REFERENCE: page GI-14: Operator forced to move sorting table forward to allow drum to be dumped onto table. In the LLW line, this exact same sequence is automatic.	Make table position change part of automatic sequence.		RUST		Lane	R103	320		
813	70	TRU	13021A-86	See Description	ND-07-301	REFERENCE: steps TRU SORT GI 85-111 and others. Due to malfunctioning sensors, no assay or packet x-ray sequences are performed. Also, only a single manipulator sequence, moving items from sorting table to loadout drum is attempted, and is only attempted once.	Obtain trained manipulator operator and attempt to perform remainder of manipulator sequences to satisfy manipulator functional/performance/ATP requirements. Fix assay and x-ray sensors and retest these items.	12-11-96 - PCL to test by Friday, December 13, 1996 1-21-97: Wormenhoven to review status 1-27-97: Test in ATP Rev 0.	RUST		Warmerhoven		320		
814	71		13021A-86	TRU SORT GI 119	CR-07-301C	REFERENCE Page GI-24: Transfer Stand hits chain guard when fully raised. Also, this ATP does not test interlock between CR-07-301C hoist and manipulator arms. Hoist with transfer stand can collide with manipulators and vice versa.	1- Adjust chain guard so that it is out of the way. 2- Review ladder logic to ensure that hoist / manipulator interlock exists.	1- Closed 2- 1-27-97: Review ladder logic, and determine if design required.	RUST		Lane		320		
818	8		HVAC System ATP		PDIT 601-607	PDIT's 601, 602, 603, 606 and 607 are not indicating correctly at the PCS RTAP screen.	SII to trouble shoot the problem. Points will then be retested.	1-21-97: Test one PDIT.	PCL	SII	Jordal		220		
825	78		13021A-86	TC 32 - 123	CR-07-301C	It is not possible to simply disconnect the hook from the stand. Oscillating the hook up and down will eventually unhook the stand.	An additional tool or grab modification is required to make the disconnect operation obtainable. In addition, the operator cannot see the hook/stand area inside the BTP drum.		RUST		Leist	R109	320		
827	80	TRU	13021A-86	TC36 - 43	RT-07-301	Two messages were missing during the transition of the fixture from the Lid to Delid position. "Fixture Moving to Delid Position" "Fixture At Delid Position"	The specification did not include these messages (oversight) but should be consistent with the rest of the messages during glovebox operation.		RUST		Lane	R103	320		
828	81	TRU	13021A-86	TC36 - 46	RT-07-301	The button on the LID/DELID menu ("Move Fixture to Lid Position") has no programmed function.	Either program the button or remove.		RUST		Lane	R103	320		

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829	82	TRU	13021A-86	TC30-32&33	ND-07-301	The X-Ray system is not in service and there is no way to verify the Enable/Disable functions.		1-21-97: 1- Enable/Disable to be tested. 2- Issue design change to hardware interlock.	FDNW	RUST	McElroy/Humphre	R116	320		
831	1	LLW	13031A-85	TC43 - 31 & 179	TC-07-101	The transfer car continually travels past the deild and lid positions. The amount of overtravel is dependent upon the weight of the drum.	An ECN is being prepared to add hard stops and some reprogramming to stop the transfer car at the desired locations.		RUST		Warmenhoven	R106	220		
833	1	LLW	13031A-85	TC43 - 40-43	EM-07-101	It was demonstrated that it was not possible to remove a drum liner with the manipulator at the deild position.			RUST		Leist	R106	220		
835	1	LLW	13031A-85	TC43 - 114	CR-07-101C	Based on step 110, it was not possible to reach the non compliant stand with the manipulator.		Is this a design issue?	RUST		Leist		220		
838	1	LLW	13031A-85	TC43-148	ST-07-101	The Sorting Table locking pins did not lock at the Tip position.	It was noticed that the locking pins would occasionally have one pin or both pins not lock. The action to position the table to lock was a pulsing signal to the air piston during the last segment of travel. If the software were adjusted (time intervals for the pulse) so the table would lock when unloaded, then the table would not reach the lock position when loaded. When adjusted for a loaded condition (1000 lb test weight on table), then the table would overshoot the lock.		RUST		Dunlap	R114	220		
840	83	ALL	13031A-86		OIU-12-103A,B,C,D	REFERENCE EXCEPTION 753: THIS EXCEPTION APPLIES TO ALL GLOVEBOX OIUs OIU problem noted - verified at OIU-12-104A - When in maintenance mode, if operator returns to auto mode without first returning to maintenance main menu, the OIU will lock up the first time that the operator accesses the alarms screen.	Fix and retest all glovebox OIUs.	12-19-96 - TRU Entry OIU still locks up. Paul McElroy indicates that Ken Leist has closed out.	PCL	RUST	Warmenhoven		220		

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841	84	ALL	13031A-86	ALL	OIU-12-103A,B,C,D	REFERENCE EXCEPTION 753: THIS EXCEPTION APPLIES TO ALL GLOVEBOX OIUs. OIU problem noted - On every OIU main menu, the flashing alarms button is displayed, but the "SEQUENCE FAILED" flashing message is not displayed. All other OIU menus display both of these items.	Fix and retest all glovebox OIUs.	12-19-96 - Paul McElroy indicates that Leist has closed. 1-21-97: Verify work is s	PCL	RUST	Warmenhoven		220		
846		ALL			EM-101,201,301,401	Current design does not provide for utilities to support tool operation. At least one air supply will be required to support tool operation. Two will be needed if tool change out capability is not provided.	Install Air Line for pneumatic saw. Connect to available manipulator controller buttons.		RUST		Leist	R117	220		
847		LLW, TRU			RT-101,301	The pneumatic drive does not locate the transfer cart accurately.	Modify transfer cart/drum/delidder system to align a drum consistently.		RUST		Dunlap/Leist/Wa	R106,115	220		
848		LLW			ND-101,XX-101A	The current position of the x-ray impedes with Bagless Transfer System access. One of the gloveports supporting the Bagless Transfer System is blocked both by the x-ray machine, as well as the bulge.	Move the Packet X-ray bulge to the empty "Assay" position	Determine if required.	RUST		Leist		220		
849		TRU, TRUR, WM			DO-309,310,402A, 402B	The current design of the One Trip Port door is such that the door will not seal if any dirt is present between it and the port.	Machine the bottom of the peort door and add dimples to add an air gap between the door and port.	Issue Design	RUST	FDNW	Leist	R108	320		
850		ALL			EM-101,201,301,401	The current manipulator assembly will sag as soon as the local hydraulic valve is closed. Then the hydraulics are re-established, the arms instantly move to their original position. Such sudden movement may cause damage if equipment is in the arm's previous position.	Install Lock Valves to each manipulator arm.	Issue design. Issue purchase request to Schilling.	RUST		Leist	R118	220		

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#	ETR #	ATP	Seller Test #	Step	Equipment Tag Number	Exception Description	Exception Disposition	Exception Status	Resp. Co.	Resp. Sub.	Cog. Engineer	RUST Change Doc	Priority	Due Date Constr	Due Date Des.
851		ALL			General	The light curtains are easily blocked by clothing, equipment, tied off gloves or partially opened gloveport covers. Such light curtain blockage will halt bagless Transfer system operation (forcing it to be re-closed in manual mode). The internal gloveport covers will also prevent gloves from accidentally sucking into the glovebox and risking being cut by equipment within the glovebox.	Remove light curtains in any areas where operations will be hampered by their continued activation. Equivalent safety will be provided by internal gloveport covers as designed in H-4-109260.	RUST			Warmenhoven	R119	220		
852		LLW TRU			RIA-533,534	The connection as provided by the contractor does not maintain glovebox confinement and due to their small size, cannot be manipulated with gloves.	Revise Frisker penetration design to permit quick-disconnection of the frisker unit located within the glovebox. The penetration must be gas tight.	RUST			Leist	ECN1274	220		
855		ALL			H-2-131800	The work platform structure in many places conflicts with gloveports and windows. The structure must be modified to provide access to the glovebox workstations.	Redesign the process area Work platforms to permit access to glovebox workstations.	RUST			Anderson	R121	221		
856		TRU			RT-301	The Empty Drum Compactor can achieve higher compaction ratios if 3 C-Clips are not attached to the drum. This will also reduce the complexity of the crimping operation. The C-Clips do not affect the lifting capability of the Compacted Empty Drum Grab.	Change the Relidding Crimp Sequence to attach only 3 C-Clips to the drum. Two C-Clips must be 180 degrees apart.	RUST			Dunlap	R115	220		
857		LLW TRU			H-2-131998	The current clip is manufactured of very thin metal, which bends during filter changeout. The Spacer Assembly must have an additional surface added to assure it does not cock in the housing on insertion.	Redesign Push Through Filter Clip and Spacer Assembly.	RUST			Leist	R122	220		
858		LLW			Super Compactor Glovebox	The filter for this assembly is only available in Europe and the filter housing was intended to be used only for horizontal applications (if necessary). The filter application is vertical and no such restrictions apply. This standardizes all filters in	Change the 8" dia. inlet push through filter assembly to 12" dia.	Issue ASAP			Leist	R123	220		

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#	ETR #	ATP	Seller Test #	Step	Equipment Tag Number	Exception Description	Exception Disposition	Exception Status	Resp. Co.	Resp. Sub.	Cog. Engineer	RUST Change Doc	Priority	Due Date Constr	Due Date Des.
859		LLW, TRU			XX-101, 301A, 301B (H-2-131953)	The current mechanisms are bolted into the bulge. However removal would require manned entry. By replacing the bolts with dowels, the assembly could be removed with the manipulators and placed on the sorting table for maintenance.	Replace current fasteners at the front edge of the tray assemblies with dowel pins.		RUST		Leist	R124	220		
860		ALL			General	HDPE tubing does not have the long term reliability of steel tubing. This is particularly true at connectors, where the tubing becomes scored and tends to leak air. The glovebox pneumatic control depends on good sealing to assure smooth cylinder opera	Replace HDPE tubing within the process gloveboxes with stainless steel tubing.		RUST		Warmenhoven	R120	220		
861		ALL			General	Electrical Feed Through Penetrations often support multiple sensors. In the event that a sensor fails, the entire harness /sensor assembly would have to be replaced. This change would permit sensors to be replaced singularly.	Add LEMO type connectors to sensor wiring harness to simplify maintenance time and cost.		RUST		Warmenhoven	R125	220		
862		ALL			General	Equipment was not necessarily assembled as shown in the Contract Record Drawings. The Assembly, Arrangement, Mechanical Flow Diagrams, Electrical, Pneumatic, and Hydraulic Schematics may have deviations from the record. Build to Print drawings, due to	Field Verify Drawings to or above the levels indicated of the Drawing Verification Table		RUST		Leist		220		
863							Remove Duct CAM's from the Process Glovebox Exhaust Ventilation		RUST		Orgill	R126	220		
864		ALL			GB-201 (H-2-131977), GB-401 (H-2-	The O/D's and flexible tubing have no purpose and become a maintenance issue.	Remove Quick Disconnects shown in View H. Replace with stainless steel tubing.		RUST		Warmenhoven	R120	220		
865		ALL			General	HDPE tubing if found in places where access is not provided to allow replacement. Also, the HDPE tubing has a large natural bend radius which can hamper tubing management. The reliability is such that tubing connections will tend to leak	Replace HDPE tubing with stainless tubing in areas of the glovebox where access is limited or where tubing characteristics present an operations/maintenance problem.		RUST		Warmenhoven	R120	220		

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#	ETR #	ATP	Seller Test #	Step	Equipment Tag Number	Exception Description	Exception Disposition	Exception Status	Resp. Co.	Resp. Sub.	Cog. Engineer	RUST Change Doc	Priority	Due Date Constr	Due Date Des.
866		TRU TRUR WM			DO-309, 310, 402A, 402B	The circuit is stagnant and has a limited stroke capacity. Due to these characteristics, the system is very sensitive to air bubbles. This change permits flushing bubbles by injecting oil at the swaging assemblies and up into the glovebox at the air/coil	Add bleed ports to the bottom of the One Trip Port Swaging Assembly to aid in removing bubbles trapped in the hydraulic circuit.		RUST	FDNW	Leist	R108	320		
867		TRU TRUR WM			DO-309, 310, 402A, 402B	The current connector was designed by Raytheon and is manufactured from a pipe plug. The method of manufacture indicates a poor reliability (shorting out due to removal of insulation. In the event the connector fails or a sensor fails, the entire harness	Revise the connector in the port door to a style which permits replacement.		RUST	FDNW	Leist	R108	320		
868		ALL			EM-101, EM-201, EM-301, EM-401	Modify arm mounts, hydraulic connections, and control connections to enhance removal capability.	Due to negotiation of specification reqts, only some of the reliability, availability, and maintainability improvements were instituted by the vendor.	Issue Design. Issue purchase request to Schilling.	RUST		Leist	R118	220		
869					EM-101, EM-201, EM-301, EM-401	Convert Autocad files of Schilling Manipulators into H-2-format	Due to nature of the manipulator assemblies, H-2 drawing release will simplify modifications to the system.		RUST		Fisher		221		
870					SP-101, 103, 104, 106, 201, 301.	Revise manifold piping to simplify hose management and improve in-glovebox maintainability.	Revise the tubing arrangement, using stainless steel tubing as appropriate and relocate valves to improve maintainability.		RUST		Warmenhoven	R120	220		
871					General	The glovebox manufacturer threw away the packaging literature for the equipment and components making up the glovebox and process. Without this information, the vendor is unable to make maintenance manuals for the process glovebox.	Compile information from equipment vendors to support drafting of maintenance manuals for the process gloveboxes		RUST				221		
872					General	The current units are very difficult to use. The locking tab on the side of the fitting and the spring load on the release sleeve are the primary difficulties with the fittings.	Replace current pneumatic quick disconnects with styles which can be connected/disconnected with less force and with one hand.		RUST		Warmenhoven	R120	220		
873					XX-202, XX-402	The current unit does not meet class I Div. I criteria. The unit is also very large and inhibits workstation operation	Replace the RWM jar mill with a unit which meets NEC Class I Div. I and is smaller in footprint		RUST		Leist	R127	221		

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#	ETR #	ATP	Seller Test #	Step	Equipment Tag Number	Exception Description	Exception Disposition	Exception Status	Resp. Co.	Resp. Sub.	Cog. Engineer	RUST Change Doc	Priority	Due Date Constr	Due Date Des.
875					General	Currently, the hold point's use is limited to swiping and lid attachment/removal for One Trip Ports DO-308, 309 and 310 and the swiping of drums for ports 105, 305, and 308. However, due to the consequences of spreading contamination, all waste drums need	Remove AGV Hold Point as part of glovebox operations. Also, modify PCS to have the Lift Table be positioned at the full down elevation as part of the drum receipt sequence and Drum Exit sequence.		RUST		Leist	R128	221		
876					DO-205,405 (H-2-132045) DO-107,20	The current seals are 1/8" thick. The thickness makes push-through very difficult. Seal deformation caused by the seal thickness may compromise sealing effectiveness.	Replace sphincter seals on the Consumable Entry Ports with 1/16" thick seals.		RUST		Leist	R129	221		
877					TM-331	RWM and LLW process operations are inadequately supported by the DMS. This is due to four simultaneous operations taking place which support glovebox operations: LLW RWM Waste sampling and stabilization, TRU RWM Waste sampling and stabilization and LLW Sor	Add at least one Data Management System workstation to support operations at the Restricted Waste Management System gloveboxes		RUST		Lane	R130	221		
878					ST-101	MTEL 151 The Sorting Table tends to move laterally during tipping. This is primarily due to the 1/2" lock bolts which pass through a 1-1/4" hole.	Modify the sorting table, particularly the Lock bolt bushings to correct Sorting Table swaying during tipping	Work with ECN1202	RUST		Leist	ECN1202	220		
879					TC-101	MTEL 721 The Drum Tipper Assembly and the Delidder/Relidder will not operate correctly if the drum is off center with respect to the transfer car centerline.	Add tapered guides to the Transfer Car.		RUST		Leist	R131	220		
880					DO-105, 201, 305, 308, 401	The covers inhibit gloveport access and port maintenance.	Remove covers for both the door and the rotary actuator.		RUST		Leist	R135	220		
881					TC-101, TC-303	Due to limitations of manipulator range of motion, overbag removal cannot be performed at the Tipping position. The chosen location will permit overbag removal without glovebox window or gloveport modification	Add a Transfer Car stop position, under the exhaust filters, to perform overbag removal. Modify programming to accommodate.		RUST		Warmenhoven	R106	220		
888						OIU Password Display. Currently OIU Maintenance Menu password is displayed as it is entered.	Change text color to match background color so that passwords are not displayed as they are entered.					R103	221		

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#	ETR #	ATP	Seller Test #	Step	Equipment Tag Number	Exception Description	Exception Disposition	Exception Status	Resp. Co.	Resp. Sub.	Cog. Engineer	RUST Change Doc	Priority	Due Date Constr	Due Date Des.
889						Install and test glovebox equipment items. Potential difficulties remain with weight scale (too large), bar code dispenser (not easily used), organic vapor analyzer (installation and use), and other equipment items.			RUST		Lewis		220		
890						Must continually press button to force Drum Tipper to raise or lower.	Make sequence auto with stop capability		RUST		Lane	R103	220		
891						E-Stops with RWN Hook into Light Curtain circuit.			RUST		Leist	R119	220		
892						E-Stop on maintenance side of glovebox.			RUST		Leist	R119	220		
893						Integrate aux. hydraulic power unit (HPU). E-Stop impacts to PCS.			RUST		Leist	R139	220		
894						Manipulator - Air Hoist Interferences						R118	220		
895						Add Alarm light at glovebox OIUs.						R113	221		

END OF **DRAFT** WRAP MASTER TEST EXCEPTION LIST
REPORT

ATTACHMENT 3 MODIFICATION TASK LIST (R-LIST)

RUST Change Document #	Description	Est/Act Start Date	Est/Act Completion Date	Weekly Cost
R104	Lower drum tipper grab arms and install SS tubing in place of flexible hose - GB102/302			
R105	GB301 Drum Transfer device hydraulic control, alignment, physical restriction on open alignment."			
R106	Redesign of GB102/302 transfer car control.			N/A
R108	Redesign One Trip Ports: Sensors, sensor brackets, port sealing, port ring clearance with One Trip lid. GB401/308/309			
R109	Attachment of hoist hook to cakestand - affects GB201/401/102/302			
R110	GB101/301 Drum Lifter modifications			N/A
R111	Manipulator Tool Rack and Tools.			
R114	Redesign: 1 - Sorting Table Tip Position, Lock pins and translate function. 2 - Sorting Table raise and lower function. GB102			N/A
R115	Redesign Lidder/Delidder - GB102/302			
R116	Add hardwired interlock to x-ray door - GB102/302			N/A
R117	Add air line for pneumatic saw and control functions for same. GB102/302			N/A
R118	Manipulator Design Issues - GB102/201/302/401			
R119	Replace Light Curtains with Emergency Stop Switch and Glove Port covers.			
R120	Resolve GB Pneumatic Issues - Filters, tubing, quick disconnects, etc. All GB's.			
R122	Redesign Push Through Filter Clip and Spacer Assembly. All GB's.			N/A
R123	Change 8" filter to 12" diameter assembly. GB104			
R124	Change x-ray and PAM Tray Installation - Remove bolts Add Dowels - GB102/302			N/A
R125	Resolve GB Electrical/Instrument connections and wiring deficiencies. All GB's.			
R126	Remove Duct CAM's from process area GB exhaust ventilation.			
R131	Add Funnel to Transfer Car. GB102			N/A
R135	Remove BTP protective covers.			N/A

R136	Resolve Drum Tipper alignment and deformation of drum - hydraulic control. GB102/302			
R139	Integrate Aux. Hydraulic Power Unit (HPU) into PCS.			N/A
R140	Move Trolley Position Flag and resolve Festoon issues.			

ATTACHMENT 4

ADDENDUM - WRAP I PROCESS AREA CONTROL SYSTEM DEVELOPMENT PLAN

1 INTRODUCTION

The control system for the WRAP Module I Process Area will be placed under Development Status, as permitted by WHC-CM-5-36, Chapter 6.1, Section 2.4. This change is required for the following reasons:

Glovebox construction is not yet complete. Additional control system changes will be required to support all physical changes that will be implemented during completion of construction. The entire process area is under development control, therefore the control system will be placed under development control to streamline operations and facilitate the work in progress.

In many cases, the control system specification sections did not fully describe the control system configuration requirements. The Architectural Engineer (A/E) did not update the specification sections dealing with control system activities (i.e., 13461 and 13462) when items not described in the specification sections were implemented to provide functioning equipment.

In several instances, the specification sections were not consistent. In other cases, the control system sequences specified were incorrect. Control system messages should be both correct and consistent to allow safe and orderly operation of process area mechanical equipment. The A/E is no longer present on the project to support ongoing modification activities.

This addendum specifies the activities that will be undertaken to complete the WRAP I Process Area control systems while under development control.

2 SCOPE

The scope of this addendum is limited to software and software documentation changes that support the Process Area of the WRAP-1 facility. This scope is further limited to the software, specification sections, and associated documentation listed in Table 1 that are used to support WRAP-1 Process Area Operations.

TABLE 1. -- WRAP-1 PROCESS AREA CONTROL SYSTEM COMPONENTS				
#	Hardware Component	Tag Number	Associated Software	Associated Documentation
1	LCU 102	104-CNR-12-102	1. PLC ladder logic 2. SERCOM 3. NETCOM	1. NETCOMM 2. 13462 3. LCU 102 SDD 4. 13461
2	LCU 103	104-CNR-12-103	1. PLC ladder logic 2. SERCOM 3. NETCOM	1. NETCOMM 2. 13462 3. LCU 103 SDD 4. 13461

TABLE 1. -- WRAP-1 PROCESS AREA CONTROL SYSTEM COMPONENTS				
#	Hardware Component	Tag Number	Associated Software	Associated Documentation
3	TRU Entry OIU	107-OIU-12-104A	1. TCP QuickPanel 2. OUI 104A code 3. PLC 103 code	1. 13462, Section 10 2. LCU 103 SDD 3. 13461
4	TRU Empty Drum Loadout OIU	107-OIU-12-104C	1. TCP QuickPanel 2. OUI 104C code 3. PLC 103 code	1. 13462, Section 10 2. LCU 103 SDD 3. 13461
5	TRU Sorting GB OIU	107-OIU-12-104B	1. TCP QuickPanel 2. OUI 104B code 3. PLC 103 code	1. 13462, Section 10 2. LCU 103 SDD 3. 13461
6	TRU Waste Loadout OIU	107-OIU-12-104D	1. TCP QuickPanel 2. OUI 104D code 3. PLC 103 code	1. 13462, Section 10 2. LCU 103 SDD 3. 13461
7	PAM Computer	107-ND-07-302	1. C++	1. NETCOMM 2. 13462, Section 10 3. PAM SDD (Submittal 705 - System Software Spec) 4. 13461
8	TRU GB DMS Terminal	107-TE-12-104	1. DMS software	1. NETCOMM 2. DMS SDD WHC-SD-W026-SDD-001 3. 13461
9	LLW Entry OIU	107-OIU-12-103A	1. TCP QuickPanel 2. OUI 103A code 3. PLC 102 code	1. 13462, Section 8 2. LCU 102 SDD 3. 13461
10	LLW Sorting OIU	107-OIU-12-103B	1. TCP QuickPanel 2. OUI 103B code 3. PLC 102 code	1. 13462, Section 8 2. LCU 102 SDD 3. 13461
11	LLW Exit OIU	107-OIU-12-103C	1. TCP QuickPanel 2. OUI 103C code 3. PLC 102 code	1. 13462, Section 8 2. LCU 102 SDD 3. 13461
12	LLW GB DMS Terminal	107-TE-12-103	1. DMS software	1. NETCOMM 2. DMS SDD WHC-SD-W026-SDD-001 3. 13461
13	TRURWM DMS Monitor	107-OIU-12-106A	1. DMS Software	1. 13462, Section 11 2. 13461

TABLE 1. -- WRAP-1 PROCESS AREA CONTROL SYSTEM COMPONENTS

#	Hardware Component	Tag Number	Associated Software	Associated Documentation
14	TRURWM OIU	107-OIU-12-106B	1. TCP QuickPanel 2. OUI 106A code 3. PLC 103 code	1. 13462, Section 11 2. LCU 103 SDD 3. 13461
15	LLWRWM DMS Monitor	107-OIU-12-105B	1. DMS Software	1. 13462, Section 9 2. 13461
16	LLWRWM OIU	107-OIU-12-105A	1. TCP QuickPanel 2. OUI 105A code 3. PLC 102 code	1. 13462, Section 9 2. LCU 102 SDD 3. 13461
17	Empty Drum Compactor	107-CM-07-303	1. PLC ladder logic	1. NETCOMM 2. 13462, Section 10 3. 13461
18	Supercompactor	107-CM-07-102	1. PLC ladder logic	1. NETCOMM 2. 13462, Section 8 3. 13461
19	Drum Storage Carousel	107-CV-09-202	1. PLC ladder logic	1. NETCOMM 2. 13462, Section 7 3. 13461
20	LLWRWM BTP Controller	107-DO-07-201	1. Siemens ET200 Protocol/ Lite 2.	1. NETCOMM 2. 13462, Section 9 3. 13461
21	TRURWM BTP Controller	107-DO-07-401	1. Siemens ET200 Protocol/ Lite 2.	1. NETCOMM 2. 13462, Section 11 3. 13461
22	LLW BTP Controller	107-DO-07-105	1. Siemens ET200 Protocol/ Lite 2.	1. NETCOMM 2. 13462, Section 8 3. 13461
23	TRU XFR BTP Controller	107-DO-07-305	1. Siemens ET200 Protocol/ Lite 2.	1. NETCOMM 2. 13462, Section 10 3. 13461
24	TRU COMPACT BTP Controller	107-DO-07-308	1. Siemens ET200 Protocol/ Lite 2.	1. NETCOMM 2. 13462, Section 10 3. 13461
25	LLW Entry Hoist	107-CR-07-101A	1. Micrologix Software	1. 13462, Section 8 2. 13461
26	LLW Sort Hoist	107-CR-07-101C	1. Micrologix Software	1. 13462, Section 8 2. 13461

TABLE 1. -- WRAP-1 PROCESS AREA CONTROL SYSTEM COMPONENTS				
#	Hardware Component	Tag Number	Associated Software	Associated Documentation
27	LLW Sort Hoist	107-CR-07-101B	1. Micrologix Software	1. 13462, Section 8 2. 13461
28	LLW Exit Hoist	107-CR-07-101D	1. Micrologix Software	1. 13462, Section 8 2. 13461
29	TRU Entry Hoist	107-CR-07-301A	1. Micrologix Software	1. 13462, Section 10 2. 13461
30	TRU Sort Hoist	107-CR-07-301C	1. Micrologix Software	1. 13462, Section 10 2. 13461
31	TRU Sort Hoist	107-CR-07-301B	1. Micrologix Software	1. 13462, Section 10 2. 13461
32	TRU Loadout Hoist	107-CR-07-301D	1. Micrologix Software	1. 13462, Section 10 2. 13461
33	TRU Loadout Hoist	107-CR-07-301E	1. Micrologix Software	1. 13462, Section 10 2. 13461
34	Sample Mgmt DMS Terminal	109-TE-12-107	1. DMS Software	1. 13462, Section 12 2. 13461
END				

2.1 Objectives

2.1.1 Equipment Modification and Repair

This objective is to support the repair and modification of equipment. Control system changes will be implemented to support modified equipment.

2.1.2 Field Verify and As-Build Specification Sections

This objective is to support inclusion and correction of specification sections 13461 and 13462 and associated control system documentation to reflect the actual as-built status of process area equipment and control system components.

2.1.3 Improve Equipment Operability and Maintainability

During testing, control system operation will be standardized and modified as needed to support operation of the processing equipment and to provide enhanced operability and maintainability.

Resolution of the changes made to support these objectives will be verified via informal testing, formal pre-operational and operational testing, and via walk-down.

2.2 Deliverables

At the completion of this development task, as-built copies of 13461, 13462, and other associated control system documentation will be supplied with changes incorporated.

3 DESCRIPTION

3.1 Physical Description

This effort will be limited to the WRAP-1 Process area and the control system equipment that directly supports this area. Any changes that affect equipment or systems not directly related to the process area will be handled via existing WRAP I Engineering Change Notice or Change Request systems.

3.2 Engineering Tasks

3.2.1 Specification Section Configuration Control

An electronic copy of the most recent version of specification sections 13461 and 13462 will be placed under configuration control as baseline documents. These copies will be placed on an access-controlled shared network disk drive, and will also be copied to physical media and stored in the 2740W software cabinet.

As control system changes are made, redline changes will be made to these documents electronically. At the completion of the development phase, the redlined versions will be compared against the baseline documents. ECNs will then be prepared to incorporate the necessary changes to the specification sections.

3.2.2 Control System Configuration Control

The Control System software, listed in table I, will be placed under configuration control. Two baseline copies will be made for each software item subject to modification. A running log will be maintained of software changes initiated. Each software modification or related set of modifications will be assigned an "R" work number for tracking purposes. At the completion of development, software compare utilities and hardcopy program documentation will be used to record the changes made.

3.2.3 Design Changes

3.2.3.1 Software Errata Correction, Design Modification, and Design Verification

During development, software changes may be effected to provide correct system operation. For example, interlocks or alarms may be missing or not completely functional. Additionally, software design changes may be required to reflect mechanical equipment design changes implemented during development.

Software changes will be implemented and informally tested to determine the final software changes that will be implemented. After temporary changes have been verified as correct, final software changes will be implemented and the relevant documentation will be updated to reflect the actual condition of the software. This allows work to proceed in a safe, yet timely manner. Steps are as follows:

- 3.2.3.2 The person requesting the change notifies the Glovebox Computer Interface Cognizant Engineer of an error in software operation. A running log will be used to document each request.
- 3.2.3.3 The Glovebox Computer Interface Cognizant Engineer determines the software change or changes to resolve the conflict.
- 3.2.3.4 The Glovebox Computer Interface Cognizant Engineer or designate modifies the software and informally verifies that the software changes made are correct.
- 3.2.3.5 Final verification of changes will be made via pre-operational and operational testing.
- 3.2.3.6 Using hard copy software documentation, electronic compare utilities, and other methods, as appropriate, each software change is documented.
- 3.2.3.7 At the completion of development, relevant system documentation and specification sections will be updated to match actual system performance.

3.2.4 Procurement Tasks

Procurement of all materials will be in accordance with established procurement guidelines.

3.2.5 Installation Tasks

Software modifications will be prepared by the cognizant engineer or designate.

3.3 Pre-Operational and Operational Tasks

Final verification of all software changes implemented will be via formal pre-operational and operational testing and via system walk-down.

4 ORGANIZATION

(Listed in alphabetical order)

Engineering Manager	RJ Bottenus	
Glovebox Computer Interface Cognizant Engineer	KJ	MP Lane
Process Mechanical Cog. Engineer	KJ Leist	
Startup Manager	JG Riddelle	
Computer System Cognizant Engineer	JR Weidert	

In addition, any other person officially assigned to the WRAP I facility may participate in the control system change process outlined above.

5 SCHEDULE

Changes will be made in accordance with existing plant startup control schedules (Balance of Plant Schedule).

6 COST ESTIMATE

Any cost estimates for work performed by outside agencies will be approved by the Engineering Manager, Computer System Cognizant Engineer, or their designates.

7 QUALITY ASSURANCE

7.1 Design

All control system changes will be performed in accordance with this document.