Final

Volume 2: JN-1, Hot Cell Facility

Battelle Columbus Laboratories Decommissioning Project

Baseline, Revision 3

June 28, 2002

Volume 2—JN-1, Hot Cell Facility

A. Outline of Volume
B. Approach
C. Cost by Year (separate volume)
D. Schedule
E. Logic Networks
F. Pricing Sheets (separate volume)
   & Data Templates

BCLDP Baseline: Activity ID / Work Package Matrix

Open Plan ID	Work Package Number	Description
Building JN-1		
C052	7C2-B01	Survey & Monitor Pool/Transfer Canal
C052P	7C2-B01	PLAN: Survey & Monitor Pool/Transfer Canal
C073	7C2-B02	Survey & Monitor JN-1A/JN-1B Underground
C073P	7C2-B02	PLAN: Survey & Monitor JN-1A/JN-1B Underground
C177	7C2-B03	Survey & Monitor JN-1 Building Exterior (Office & Machine Shop Area)
C177P	7C2-B03	PLAN: Survey & Monitor JN-1 Building Exterior (Office & Machine Shop Area)
C141	7C2-B04	Survey and Monitor JN-1 Office & Machine Shop Area Underground after demo
C141P	7C2-B04	PLAN: Survey and Monitor JN-1 Office & Machine Shop Area Underground after demo
C096	7C41-B04	Remove High Level Cell/Low Level Cell Walls and Mezzanine using Diamond Wire
C096P	7C41-B04	PLAN: Remove High Level Cell/Low Level Cell Walls and Mezzanine using Diamond Wire
C150	7C41-B04	Remove Roof Section for HLC/LLC Wall removal
C150P	7C41-B04	PLAN: Remove Roof Section for HLC/LLC Wall removal
C079A	7C41-B05	Finish Removing Material from Hydraulic Room
C082	7C41-B06	Decon/Stabilize Hydraulic Room Surfaces
C082P	7C41-B06	PLAN: Decon/Stabilize Hydraulic Room Surfaces
C089	7C42-B01	Remove Material from Charpy Room
C089P	7C42-B01	PLAN: Remove Material from Charpy Room
C090	7C42-B02	Remove Charpy Room Utilities
C090P	7C42-B02	PLAN: Remove Charpy Room Utilities
C091	7C42-B02	Decon/Stabilize Charpy Room Surfaces
C091P	7C42-B02	PLAN: Decon/Stabilize Charpy Room Surfaces
C106	7C43-B01	Remove Alpha/Gamma Area Equipment and Utilities
C106P	7C43-B01	PLAN: Remove Alpha/Gamma Area Equipment and Utilities
C152	7C43-B01	Remove Top Layer of Floor and Drains/Sump in Alpha/Gamma Area
C152P	7C43-B01	PLAN: Remove Top Layer of Floor and Drains/Sump in Alpha/Gamma Area
C153	7C43-B01	Remove HEPA/Ductwork from Alpha/Gamma Area
C153P	7C43-B01	PLAN: Remove HEPA/Ductwork from Alpha/Gamma Area
C154	7C43-B01	Decon/Stabilize Alpha/Gamma Area
C154P	7C43-B01	PLAN: Decon/Stabilize Alpha/Gamma Area
C013	7C44-B02	Finish Removing Utilities from High Energy Cell and Cask Washdown Room
C014	7C44-B02	Decon/Stabilize High Energy Cell and Cask Washdown Room Surfaces
C014P	7C44-B02	PLAN: Decon/Stabilize High Energy Cell and Cask Washdown Room Surfaces
C155	7C44-B02	Remove Shielding Windows from the HEC
C155P	7C44-B02	PLAN: Remove Shielding Windows from the HEC
C156	7C44-B02	Remove Cranes from HEC
C156P	7C44-B02	PLAN: Remove Cranes from HEC
C157	7C44-B02	Remove HEC Door
C157P	7C44-B02	PLAN: Remove HEC Door
C185	7C44-B02	Stabilize/Modify HEC Ventilation System
C185P	7C44-B02	PLAN: Stabilize/Modify HEC Ventilation System
C188	7C44-B02	Isolate HEC Floor.Pool.Transfer Canal
C188P	7C44-B02	PLAN: Isolate HEC Floor.Pool.Transfer Canal
C108	7C44-B03	Remove High Energy Cell and Cask Washdown Room Walls using Diamond Wire
C108P	7C44-B03	PLAN Finish: Remove High Energy Cell & Cask Washdown Room Walls using Diamond Wire
C133	7C44-B04	TRU Packaging Location Removal
C133P	7C44-B04	PLAN: TRU Packaging Location Removal
C092	7C45-B02	Remove Material from CAA
C092P	7C45-B02	PLAN: Remove Material from CAA
C176	7C45-B02	Remove Material from Old Back Dock
C176P	7C45-B02	PLAN: Remove Material from Old Back Dock
C094	7C45-B03	Remove CAA Utilities
C094P	7C45-B03	PLAN: Remove CAA Utilities
C095	7C45-B03	Decon/Stabilize CAA Surfaces

BCLDP Baseline: Activity ID / Work Package Matrix

Open Plan ID	Work Package Number	Description
C095P	7C45-B03	PLAN: Decon/Stabilize CAA Surfaces
C135	7C45-B04	Remove Evaporator Room Utilities
C135P	7C45-B04	PLAN: Remove Evaporator Room Utilities
C136	7C45-B04	Decon/Stabilize Evaporator Room Surfaces
C136P	7C45-B04	PLAN: Decon/Stabilize Evaporator Room Surfaces
C134	7C45-B05	Remove Material from Evaporator Room
C134P	7C45-B05	PLAN: Remove Material from Evaporator Room
C158	7C45-B06	Install new Water Processing System in High Bay Pump Room
C158P	7C45-B06	PLAN: Install new Water Processing System in High Bay Pump Room
C183	7C45-B06	Design new Water Processing System
C109	7C46-B01	Remove Staged Area and Miscellaneous Material from High Bay Area
C109P	7C46-B01	PLAN: Remove Staged Area and Miscellaneous Material from High Bay Area
C186	7C46-B01	Remove Manipulator Support Material from High Bay
C186P	7C46-B01	PLAN: Remove Manipulator Support Material from High Bay
C187	7C46-B01	Remove TRU Support Material from High Bay
C187P	7C46-B01	PLAN: Remove TRU Support Material from High Bay
C111	7C46-B02	Remove Utilities from High Bay Area
C111P	7C46-B02	PLAN: Remove Utilities from High Bay Area
C112	7C46-B02	Decon/Stabilize High Bay Area Surfaces
C112P	7C46-B02	PLAN: Decon/Stabilize High Bay Area Surfaces
C159	7C46-B02	Remove Lighting from High Bay Area
C159P	7C46-B02	PLAN: Remove Lighting from JN-1B High Bay Area
C048	7C46-B04	Remove Material and Stainless Steel Liner from Pool
C048P	7C46-B04	PLAN: Remove Material and Stainless Steel Liner from Pool
C160	7C46-B04	Remove Stainless Steel Liner from Transfer Canal
C160P	7C46-B04	PLAN: Remove Stainless Steel Liner from Transfer Canal
C162	7C46-B04	Decontaminate Pool Surfaces
C162P	7C46-B04	PLAN: Decontaminate Pool Surfaces
C163	7C46-B04	Decon/Stabilize Transfer Canal Surfaces
C163P	7C46-B04	PLAN: Decon/Stabilize Transfer Canal Surfaces
C190	7C46-B04	Stabilize Pool and Transfer Canal
C190P	7C46-B04	PLAN: Stabilize Pool and Transfer Canal
C054	7C46-B05	Perform Pool/Transfer Canal Decon Completion Survey
C036	7C46-B06	Remove Utilities from Pump Room
C036P	7C46-B06	PLAN: Remove Utilities from Pump Room
C037	7C46-B06	Decon/Stabilize Pump Room Surfaces
C037P	7C46-B06	PLAN: Decon/Stabilize Pump Room Surfaces
C165	7C46-B06	Remove Tanks from Pump Room
C166	7C46-B06	Remove new Water Processing System from Pump Room
C166P	7C46-B06	PLAN: Remove new Water Processing System from Pump Room
C191	7C46-B06	Remove Asbestos from Pump Room
C191P	7C46-B06	PLAN: Remove Asbestos from Pump Room
C145	7C46-B08	Remove Compaction Equipment from Pump Room
C145P	7C46-B08	PLAN: Remove Compaction Equipment from Pump Room
C029	7C47-B01	Remove Asbestos from Loading Dock and Alpha/Gamma Areas
C029P	7C47-B01	PLAN: Remove Asbestos from Loading Dock and Alpha/Gamma Areas
C030	7C47-B01	Remove Utilities, Piping, HVAC, Electrical and Crane Rails from Loading Dock Area
C030P	7C47-B01	PLAN: Remove Utilities, Piping, HVAC, Electrical and Crane Rails from Loading Dock
C033	7C47-B01	Remove Ventilation System from Loading Dock Area
C033P	7C47-B01	PLAN: Remove Ventilation System from Loading Dock Area
C098	7C47-B02	Remove Material from Old Operations Area
C098P	7C47-B02	PLAN: Remove Material from Old Operations Area
C099	7C47-B03	Remove Asbestos from Old Operations Area
C099P	7C47-B03	PLAN: Remove Asbestos from Old Operations Area

BCLDP Baseline: Activity ID / Work Package Matrix

Open Plan ID	Work Package Number	Description
C100	7C47-B03	Remove Utilities from Old Operations Area
C100P	7C47-B03	PLAN: Remove Utilities from Old Operations Area
C101	7C47-B03	Remove Ventilation from Old Operations Area
C101P	7C47-B03	PLAN: Remove Ventilation from Old Operations Area
C169	7C47-B03	Remove Main Power Distribution Panel from Old Operations Area (COLD DARK BUILDING)
C169P	7C47-B03	PLAN: Remove Main Power Distribution Panel from Old Operations Area (COLD DARK BUILDING)
C103	7C47-B04	Remove Underground Drains from JN-1A Area
C103P	7C47-B04	PLAN: Remove Underground Drains from JN-1A Area
C115	7C47-B05	Remove Asbestos from JN-1B Area
C115P	7C47-B05	PLAN: Remove Asbestos from JN-1B Area
C116	7C47-B05	Remove Utilities and Stabilize Fan Room
C116P	7C47-B05	PLAN: Remove Utilities and Stabilize Fan Room
C040	7C47-B06	Remove Material from HEC Operations Area
C040P	7C47-B06	PLAN: Remove Material from HEC Operations Area
C042	7C47-B07	Remove Utilities from HEC Operations Area
C042P	7C47-B07	PLAN: Remove Utilities from HEC Operations Area
C118	7C47-B08	Remove Underground Drains from JN-1B Area
C118P	7C47-B08	PLAN: Remove Underground Drains from JN-1B Area
C170	7C47-B10	Remove Material from Mechanical Room
C170P	7C47-B10	PLAN: Remove Material from Mechanical Room
C171	7C47-B11	Remove Asbestos from Mechanical Room
C171P	7C47-B11	PLAN: Remove Asbestos from Mechanical Room
C174	7C47-B11	Finish Removing Underground Drains & Sump from Offices & Machine Shop Area
C056	7C47-B13	Remove Utilities from Waste Storage Shed
C056P	7C47-B13	PLAN: Remove Utilities from Waste Storage Shed
C175	7C47-B13	Remove Vault Door and Shield Walls from Waste Storage Shed
C175P	7C47-B13	PLAN: Remove Vault Door and Shield Walls from Waste Storage Shed
C070	7C47-B15	Remove NESHAPS Material from JN-1 Office and Machine Shop Area External Building
C070P	7C47-B15	PLAN: Remove NESHAPS Material from JN-1 Office and Machine Shop Area External Building
C071A	7C47-B16	Dismantle JN-1A/JN-1B Building and the Waste Storage Shed above grade and slab
C071AP	7C47-B16	PLAN: Dismantle JN-1A/JN-1B Building and the Waste Storage Shed above grade and slab
C071C	7C47-B16	Dismantle JN-1 Office & Machine Shop Area above grade and slab
C071CP	7C47-B16	PLAN: Dismantle JN-1 Office & Machine Shop Area above grade and slab
C180	7C47-B16	Dismantle JN-1 Office & Machine Shop Area below grade
C180P	7C47-B16	PLAN: Dismantle JN-1 Office & Machine Shop Area below grade
C181	7C47-B16	Stabilize JN-1 Office & Machine Shop Area after dismantle
C181P	7C47-B16	PLAN: Stabilize JN-1 Office & Machine Shop Area after dismantle
C182	7C47-B16	Dismantle JN-1A/JN-1B Building and Waste Sorage Shed below grade
C182P	7C47-B16	PLAN: Dismantle JN-1A/JN-1B Building and Waste Sorage Shed below grade
C075A	7C47-B17	Excavate JN-1A/JN-1B Underground
C075AP	7C47-B17	PLAN: Excavate JN-1A/JN-1B Underground
C075C	7C47-B17	Excavate JN-1 Office Area Underground
C075CP	7C47-B17	PLAN: Excavate JN-1 Office Area Underground
C076	7C47-B18	Perform JN-1A/JN-1B Underground Material Decon Completion Survey
C130	7C47-B19	JN-1 Office & Machine Shop Area Final Status Surveys before Dismantle
C178	7C47-B20	Decontaminate JN-1 Building Exterior (Office & Machine Shop Area)
C178P	7C47-B20	PLAN: Decontaminate JN-1 Building Exterior (Office & Machine Shop Area)
C179	7C47-B21	Perform JN-1 Building Exterior Completion Survey (Office & Machine Shop Area)
C142	7C47-B22	Perform JN-1 Office & Machine Shop Area Underground Remediation Completion Survey
CS007	7C5-B01	Prepare JN-1 Areas Characterization and Final Status Report
CS008	7C5-B01	Conduct JN-1 Areas IVC
CS008P	7C5-B01	PLAN: Conduct JN-1 Areas IVC
C131	7C5-B02	Conduct JN-1 Office & Machine Shop Area IVC before Dismantle
C131P	7C5-B02	PLAN: Conduct JN-1 Office & Machine Shop Area IVC before Dismantle

BCLDP Baseline: Activity ID / Work Package Matrix

Open Plan ID	Work Package Number	Description
C140	7C5-B03	Prepare JN-1 Office & Machine Shop Area Characterization & Final Status Report

BCLDP Baseline, Revision 3

Approach

History – Building JN-1, Hot Cell Facility

The original building, constructed in 1955, was enlarged in two phases during the 1960s and 1970s. The facility was involved with destructive and non-destructive examination of irradiated reactor fuel, cladding materials, and associated reactor components. Experimental programs included research in support of fuel development for the AEC, its successor agencies, and the commercial nuclear power industry. High levels of high-specific-activity radioactive materials, including spent nuclear fuel with associated fission and activation products, and significant amounts of cobalt-60 were utilized in research operations. These materials left a significant legacy of contamination within the building contributing to the need for a thorough review of contiguous ground areas and underground drainage systems.

Planned Approach for D&D of Building JN-1

Although D&D activities have begun in Building JN-1, the major emphasis has been on the packaging of TRU waste for transportation to an interim storage location. Contamination of JN-1 is extensive and deeply ingrained in the various hot cells, associated service areas, and possibly in significant portions of the underlying soils. Consequently it is considered to be more practical to reduce contamination to manageable levels, fix it in place, and surgically deconstruct the building for disposal as contaminated waste rather than attempt the time consuming process of decontamination to less than regulatory limits for conventional demolition.

The building has been divided into discrete areas that can be prepared separately for deconstruction of the building with minimum risk of contamination release. These areas include, in the original section of the building, the basement cell area, the mechanical test cell (MTC), the high and low level cells (HLC &LLC) with underlying subcells, the controlled access service area (CAA) behind the cells, including the Charpy cell, hot equipment storage room, and evaporator room, a service mezzanine above the cells, the loading dock area, the waste storage shed, and the hot cell front operating area including change room, lavatory, and air lock into the CAA. The office area addition to the building includes a machine stop, former laboratory area, and mechanical rooms, which provide heating, water, compressed air, etc. for the entire building. The high bay addition includes the high-energy cell with roof access port and under-floor storage wells, the fuel storage pool and pump/filtration room, a cask washdown room, and a front operating area with a mezzanine level service area containing HEPA ventilation and HVAC equipment.

Hot cells were first subjected to gross (remote) decontamination processes designed to minimize radiation levels and loose or potentially airborne contamination. Areas were

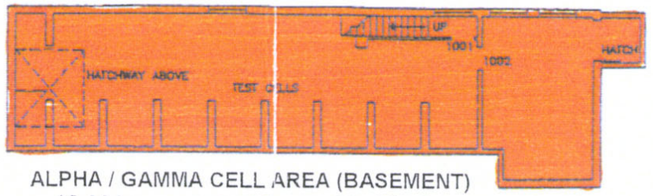
cleared of utilities and services, decontaminated to reasonable levels, and stabilized for removal. Non-load bearing structural components will be removed to the extent possible without violating the building integrity until the overall shell is ready for deconstruction. Contaminated underground drain lines within the building will be excavated and removed along with any surrounding contaminated soil, again without compromising structural integrity of the building. Vital building services such as HEPA ventilation and heating will be maintained as long as possible to provide a safe working environment and to assure minimum risk of contamination release to the public.

Material removal and partial cleanup in the CAA have already occurred although the area will continue to be used for the processing of waste and dismantling of the cask sabotage apparatus located there. Material was removed from the HLC and LLC and was followed by gross decontamination of the cell interiors; removal of the doors and their hydraulic operating mechanisms; removal of cell windows and manipulators; and decontamination, removal of liners, and stabilization of the cell interiors, the hydraulic pit, and remainder of the areas associated with the CAA. Activities in the remaining areas of the original building will include removal of asbestos-containing materials from piping and floors, utility removal, and surface decontamination and stabilization followed by removal of the hot cell walls and roof and excavation of underground drains.

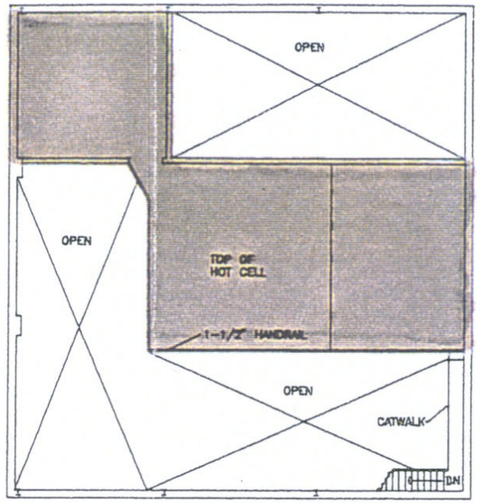
Remedial activities in the high bay portion of JN-1 will follow a similar progression to that above but cannot proceed beyond gross decontamination of the HEC interior until the TRU waste has been removed from storage in the pool. For structural reasons, the front wall of the HEC must remain intact until deconstruction of the building. Removal of the fuel storage pool is anticipated to include complete removal of its stainless steel liner followed by removal of the concrete walls to a depth of 14 ft below grade.

The majority of the interior walls in the office area of the building have been removed. Completion of this area included relocation of the HP Control Point, material removal, asbestos removal, utility removal, decontamination/stabilization of building surfaces, and underground drain removal was started. It is anticipated that this area of the building may be clean enough that conventional demotion may be an economical alternative for the part of the surface structure erected as a building addition.

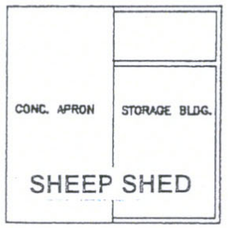
When all areas of the building have been suitably decontaminated, stabilized, and surveyed, an engineering firm with appropriate nuclear experience will be engaged to take it down in discrete transportable pieces for transportation to a suitable disposal site. The BCLDP will maintain radiological and environmental oversight of this activity to ensure that a safe working environment is maintained and proper control of contamination such that there is no release of airborne activity to the public.



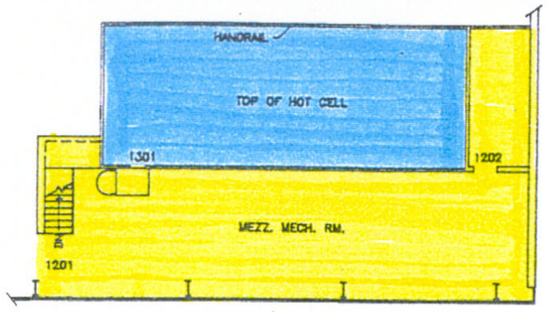
ALPHA / GAMMA CELL AREA (BASEMENT)



SECOND FLOOR LEVEL



GROUND (FIRST) FLOOR LEVEL



Building JN-1

JN-1 Area Designations

JN-1A

- Alpha / Gamma Area
- Cask Sabotage Unit
- Cell Doors
- Charpy Room
- Controlled Access Area / Evaporator Room
- High Level Cell
- Hydraulic Room
- Loading Dock
- Low Level Cell
- Mechanical Test Cell
- Old Operations Area
- Subcells

JN-1B

- Fan Room
- HEC Operations Area
- High Bay Area
- High Energy Cell
- Pool
- Pump Room

JN-1 Additions

- Offices / Machine Shop Area
- Waste Storage Shed

OPEN PLAN - PDM
Report: ZBAR
Project: BASELINE
Timenow: 01OCT02
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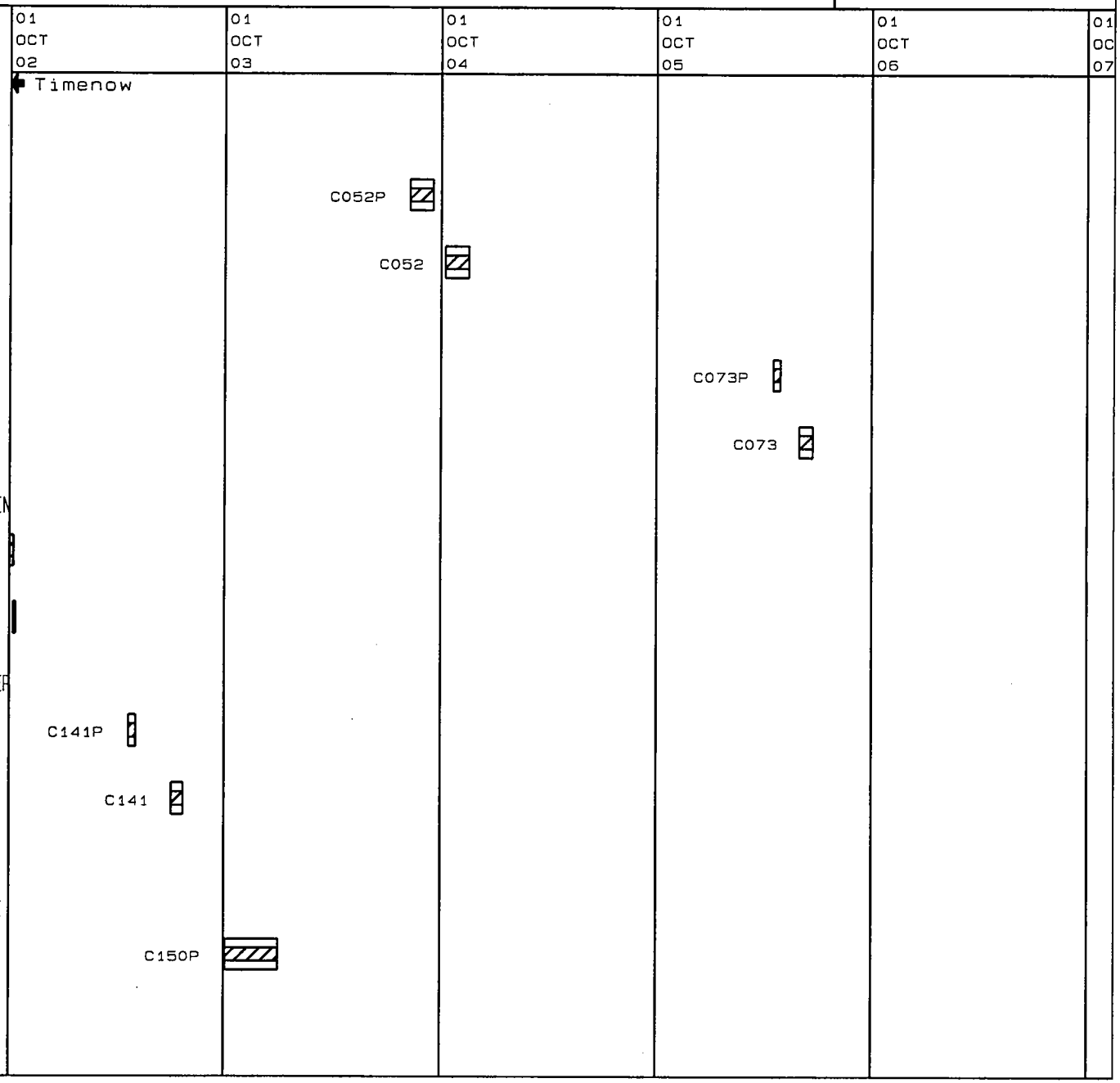
Battelle
BCLDP BASELINE: JN-1

BAR LEGEND
Actuals
Forecast
Baseline

WORKPKG	BCOST	PCT	DU	ADU	BSTART	BFINISH	ESDATE	EFDATE
1.7.C.2. JN-1 CHARACTERIZATION								
7C2-B01 : POOL BACKGROUND/SURVEY/MONITOR								
C052P PLAN: Survey & Monitor Pool/Transfer Canal								1
7C2-B01	$ 16537		28	28	09AUG04	16SEP04	09AUG04	16SEP04
C052 Survey & Monitor Pool/Transfer Canal								1
7C2-B01	$ 82595		28	28	08OCT04	16NOV04	08OCT04	16NOV04
7C2-B02 : JN-1A/B UNDERGROUND BACKGROUND/SURVEY/MONITOR								
C073P PLAN: Survey & Monitor JN-1A/JN-1B Underground								1
7C2-B02	$ 16933		10	10	17APR06	28APR06	17APR06	28APR06
C073 Survey & Monitor JN-1A/JN-1B Underground								1
7C2-B02	$ 58637		17	17	31MAY06	22JUN06	31MAY06	22JUN06
7C2-B03 : SURVEY/MONITOR JN-1 BUILDING EXTERIOR (OFFICE/MACHIN								
C177P PLAN: Survey & Monitor JN-1 Building Exterior (Office & Machine Sh								1
7C2-B03	$ 8208		5	5	01OCT02	07OCT02	01OCT02	07OCT02
C177 Survey & Monitor JN-1 Building Exterior (Office & Machine Shop Are								1
7C2-B03	$ 8939		3	3	08OCT02	10OCT02	08OCT02	10OCT02
7C2-B04 : SURVEY/MONITOR JN-1 OFFICE & MACHINE SHOP AREA UNDER								
C141P PLAN: Survey and Monitor JN-1 Office & Machine Shop Area Undergrou								1
7C2-B04	$ 16933		10	10	21APR03	02MAY03	21APR03	02MAY03
C141 Survey and Monitor JN-1 Office & Machine Shop Area Underground aft								1
7C2-B04	$ 21303		13	13	03JUL03	22JUL03	03JUL03	22JUL03
1.7.C.4.1. JN-1 HLC/LLC DECONTAMINATION OPERATIONS								
7C41-B04: PREPARE AND REMOVE HLC/LLC WALLS USING DIAMOND WIRE								
C150P PLAN: Remove Roof Section for HLC/LLC Wall removal								1
7C41-B04	$ 35175		60	60	03OCT03	31DEC03	03OCT03	31DEC03



OPEN PLAN - PDM
Report: ZBAR
Project: BASELINE
Timenow: 01OCT02
Date: 27JUN02
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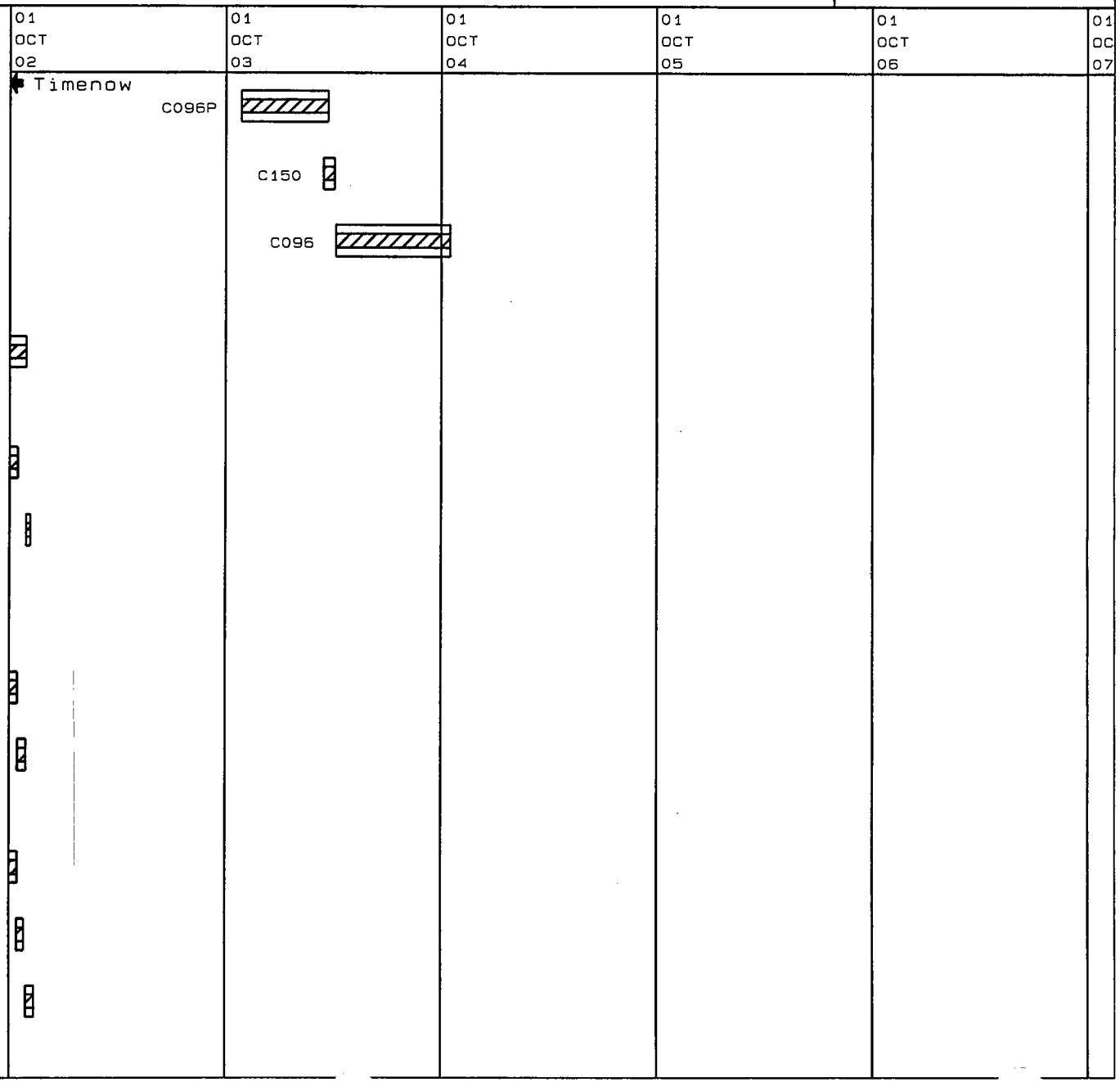
Battelle
BCLDP BASELINE: JN-1

BAR LEGEND
Actuals
Forecast
Baseline

WORKPKG	BCOST	PCT	DU	RDU	BSTART	BFINISH	ESDATE	EFDATE
C096P PLAN: Remove High Level Cell/Low Level Cell Walls and Mezzanine us								1
7C41-B04	$ 22580		100	100	27OCT03	22MAR04	27OCT03	22MAR04
C150 Remove Roof Section for HLC/LLC Wall removal								1
7C41-B04	$ 111459		15	15	15MAR04	02APR04	15MAR04	02APR04
C096 Remove High Level Cell/Low Level Cell Walls and Mezzanine using Di								1
7C41-B04	$ 1181186		137	137	05APR04	15OCT04	05APR04	15OCT04
7C41-B05: FINISH HYDRAULIC ROOM MATERIAL REMOVAL								
C079A Finish Removing Material from Hydraulic Room								1
7C41-B05	$ 123426		20	20	01OCT02	28OCT02	01OCT02	28OCT02
7C41-B06: HYDRAULIC ROOM DECON/STABILIZATION								
C082P PLAN: Decon/Stabilize Hydraulic Room Surfaces								1
7C41-B06	$ 10192		10	10	01OCT02	14OCT02	01OCT02	14OCT02
C082 Decon/Stabilize Hydraulic Room Surfaces								1
7C41-B06	$ 16307		5	5	29OCT02	04NOV02	29OCT02	04NOV02
1.7.C.4.2. JN-1 MTC DECONTAMINATION OPERATIONS								
7C42-B01: CHARPY ROOM MATERIAL REMOVAL								
C089P PLAN: Remove Material from Charpy Room								1
7C42-B01	$ 9611		10	10	01OCT02	14OCT02	01OCT02	14OCT02
C089 Remove Material from Charpy Room								1
7C42-B01	$ 40127		10	10	15OCT02	28OCT02	15OCT02	28OCT02
7C42-B02: CHARPY ROOM UTILITY REMOVAL/DECON/STABILIZATION								
C090P PLAN: Remove Charpy Room Utilities								1
7C42-B02	$ 8759		10	10	01OCT02	14OCT02	01OCT02	14OCT02
C091P PLAN: Decon/Stabilize Charpy Room Surfaces								1
7C42-B02	$ 9051		10	10	14OCT02	25OCT02	14OCT02	25OCT02
C090 Remove Charpy Room Utilities								1
7C42-B02	$ 45503		10	10	29OCT02	11NOV02	29OCT02	11NOV02

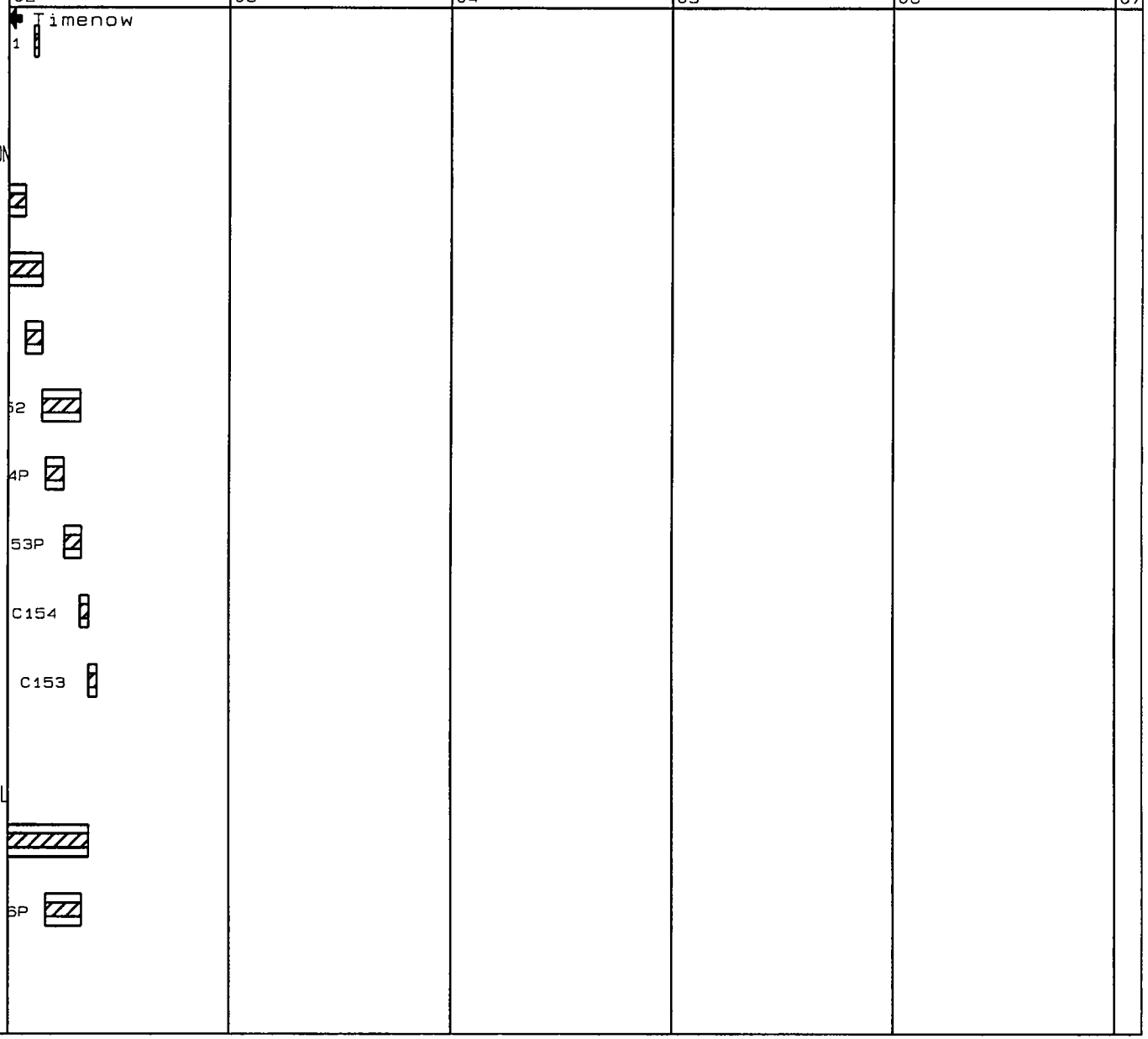


OPEN PLAN - PDM
Report: ZBAR
Project: BASELINE
Timenow: 01OCT02
Date: 27JUN02
Page: 3

Battelle
BCLDP BASELINE: JN-1

BAR LEGEND
Actuals
Forecast
Baseline

WORKPKG	BCOST	PCT	DU	RDU	BSTART	BFINISH	ESDATE	EFDATE
C091 Decon/Stabilize Charpy Room Surfaces								1
7C42-B02	$ 23032		5	5	12NOV02	18NOV02	12NOV02	18NOV02
1.7.C.4.3. JN-1 BC DECONTAMINATION OPERATIONS								
7C43-B01: ALPHA/GAMMA AREA UTILITY REMOVAL/DECON/STABILIZATION								
C106P PLAN: Remove Alpha/Gamma Area Equipment and Utilities								1
7C43-B01	$ 9697		20	20	01OCT02	28OCT02	01OCT02	28OCT02
C152P PLAN: Remove Top Layer of Floor and Drains/Sump in Alpha/Gamma Are								1
7C43-B01	$ 9051		40	40	01OCT02	25NOV02	01OCT02	25NOV02
C106 Remove Alpha/Gamma Area Equipment and Utilities								1
7C43-B01	$ 76230		20	20	29OCT02	25NOV02	29OCT02	25NOV02
C152 Remove Top Layer of Floor and Drains/Sump in Alpha/Gamma Area								1
7C43-B01	$ 130712		40	40	26NOV02	27JAN03	26NOV02	27JAN03
C154P PLAN: Decon/Stabilize Alpha/Gamma Area								1
7C43-B01	$ 9697		20	20	02DEC02	31DEC02	02DEC02	31DEC02
C153P PLAN: Remove HEPA/Ductwork from Alpha/Gamma Area								1
7C43-B01	$ 9168		20	20	02JAN03	29JAN03	02JAN03	29JAN03
C154 Decon/Stabilize Alpha/Gamma Area								1
7C43-B01	$ 28335		10	10	28JAN03	10FEB03	28JAN03	10FEB03
C153 Remove HEPA/Ductwork from Alpha/Gamma Area								1
7C43-B01	$ 35632		10	10	11FEB03	24FEB03	11FEB03	24FEB03
1.7.C.4.4. JN-1 HEC DECONTAMINATION OPERATIONS								
7C44-B02: HEC/CASK WASHDOWN ROOM UTILITIY REMOVAL/DECON/STABIL								
C013 Finish Removing Utilities from High Energy Cell and Cask Washdown								1
7C44-B02	$ 616814		90	90	01OCT02	10FEB03	01OCT02	10FEB03
C156P PLAN: Remove Cranes from HEC								1
7C44-B02	$ 60309		40	40	02DEC02	29JAN03	02DEC02	29JAN03



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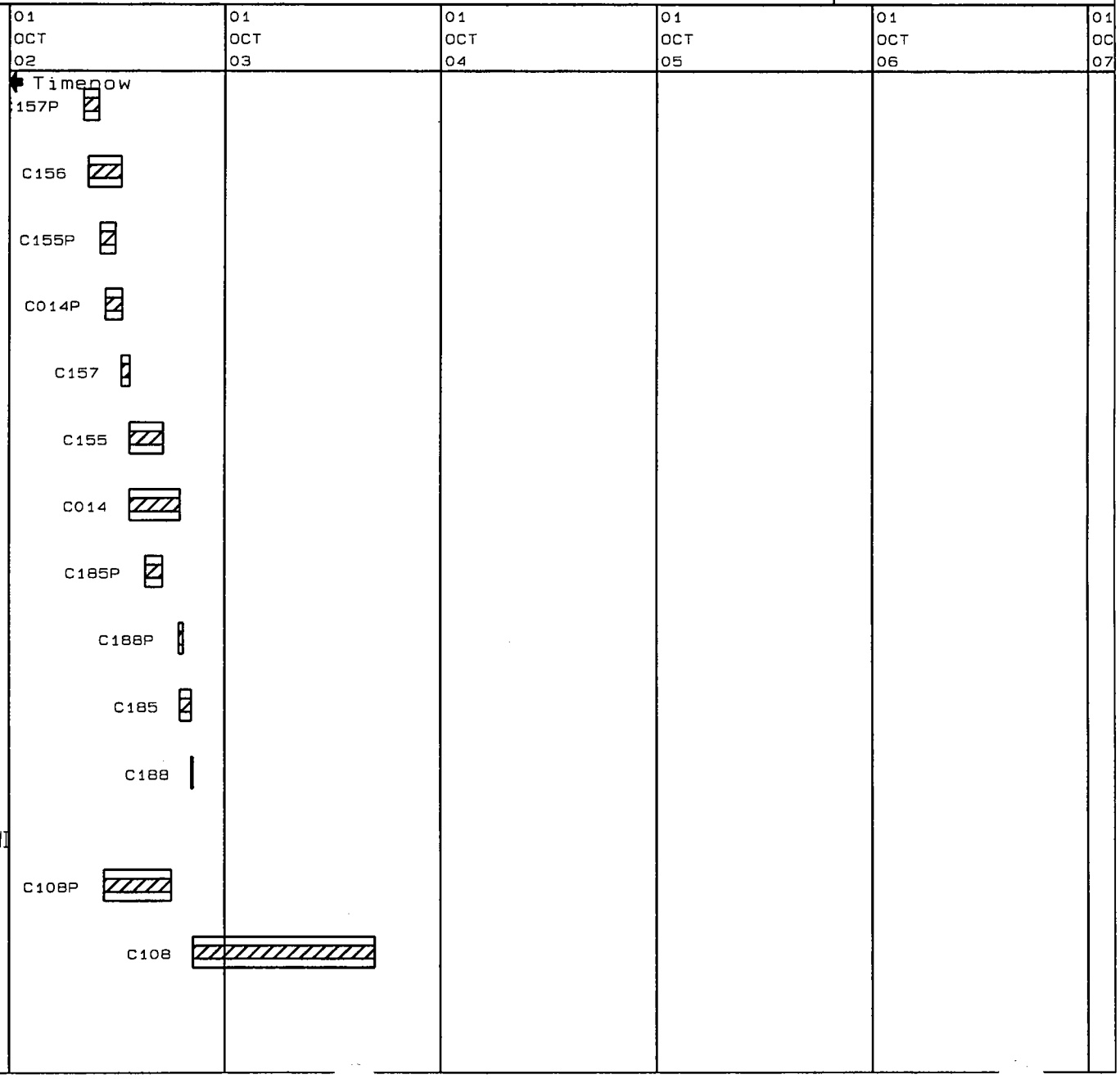
C157P PLAN: Remove HEC Door								1
7C44-B02	$ 8759		20	20	03FEB03	28FEB03	03FEB03	28FEB03
C156 Remove Cranes from HEC								1
7C44-B02	$ 282489		40	40	11FEB03	07APR03	11FEB03	07APR03
C155P PLAN: Remove Shielding Windows from the HEC								1
7C44-B02	$ 33140		20	20	03MAR03	28MAR03	03MAR03	28MAR03
C014P PLAN: Decon/Stabilize High Energy Cell and Cask Washdown Room Surf								1
7C44-B02	$ 27164		20	20	12MAR03	08APR03	12MAR03	08APR03
C157 Remove HEC Door								1
7C44-B02	$ 44445		10	10	08APR03	21APR03	08APR03	21APR03
C155 Remove Shielding Windows from the HEC								1
7C44-B02	$ 261169		40	40	22APR03	17JUN03	22APR03	17JUN03
C014 Decon/Stabilize High Energy Cell and Cask Washdown Room Surfaces								1
7C44-B02	$ 314294		60	60	22APR03	16JUL03	22APR03	16JUL03
C185P PLAN: Stabilize/Modify HEC Ventilation System								1
7C44-B02	$ 19583		20	20	19MAY03	16JUN03	19MAY03	16JUN03
C188P PLAN: Isolate HEC Floor.Pool.Transfer Canal								1
7C44-B02	$ 8122		5	5	15JUL03	21JUL03	15JUL03	21JUL03
C185 Stabilize/Modify HEC Ventilation System								1
7C44-B02	$ 70261		13	13	17JUL03	04AUG03	17JUL03	04AUG03
C188 Isolate HEC Floor.Pool.Transfer Canal								1
7C44-B02	$ 9490		3	3	05AUG03	07AUG03	05AUG03	07AUG03
7C44-B03: HEC/CASK WASHDOWN ROOM WALL REMOVAL USING DIAMOND WI								
C108P PLAN Finish: Remove High Energy Cell & Cask Washdown Room Walls us								1
7C44-B03	$ 32729		81	81	10MAR03	01JUL03	10MAR03	01JUL03
C108 Remove High Energy Cell and Cask Washdown Room Walls using Diamond								1
7C44-B03	$ 2704837		213	213	08AUG03	11JUN04	08AUG03	11JUN04
7C44-B04: SONATOL TRU PACKAGING LOCATION REMOVAL								



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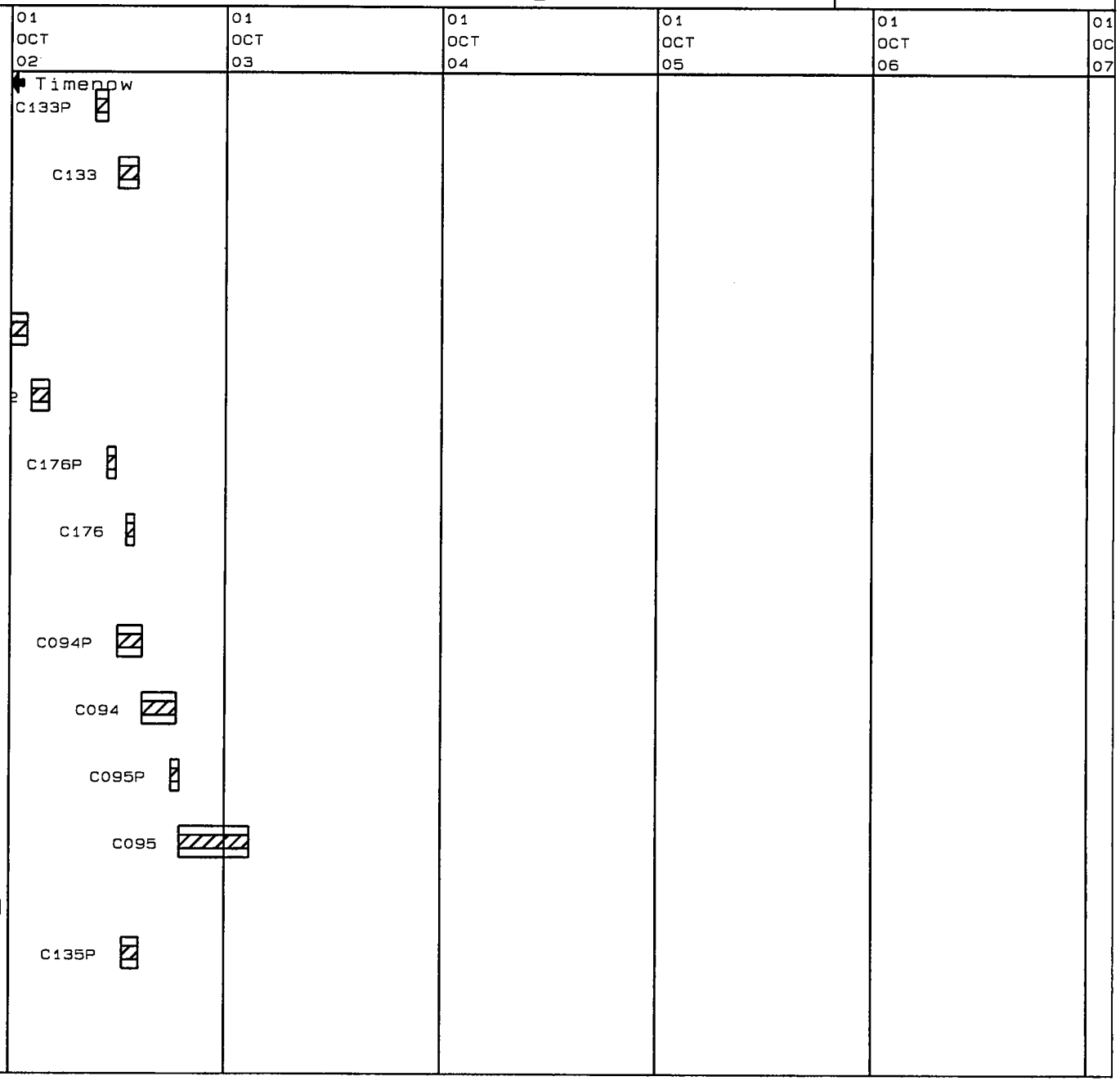
C133P PLAN: TRU Packaging Location Removal									1
7C44-B04	$ 14150		15	15	20FEB03	12MAR03	20FEB03	12MAR03	
C133 TRU Packaging Location Removal									1
7C44-B04	$ 80941		25	25	31MAR03	02MAY03	31MAR03	02MAY03	
1.7.C.4.5. JN-1 CA AREA DECONTAMINATION OPERATIONS									
7C45-B02: CAA/OLD BACK DOCK MATERIAL REMOVAL									
C092P PLAN: Remove Material from CAA									1
7C45-B02	$ 22080		20	20	01OCT02	28OCT02	01OCT02	28OCT02	
C092 Remove Material from CAA									1
7C45-B02	$ 109044		20	20	05NOV02	04DEC02	05NOV02	04DEC02	
C176P PLAN: Remove Material from Old Back Dock									1
7C45-B02	$ 8543		10	10	14MAR03	27MAR03	14MAR03	27MAR03	
C176 Remove Material from Old Back Dock									1
7C45-B02	$ 37698		10	10	15APR03	28APR03	15APR03	28APR03	
7C45-B03: CAA UTILITY REMOVAL/DECON/STABILIZATION									
C094P PLAN: Remove CAA Utilities									1
7C45-B03	$ 24794		30	30	01APR03	12MAY03	01APR03	12MAY03	
C094 Remove CAA Utilities									1
7C45-B03	$ 203046		40	40	13MAY03	09JUL03	13MAY03	09JUL03	
C095P PLAN: Decon/Stabilize CAA Surfaces									1
7C45-B03	$ 8974		10	10	01JUL03	15JUL03	01JUL03	15JUL03	
C095 Decon/Stabilize CAA Surfaces									1
7C45-B03	$ 362877		84	84	16JUL03	11NOV03	16JUL03	11NOV03	
7C45-B04: EVAPORATOR ROOM UTILITY REMOVAL/DECON/STABILIZATION									
C135P PLAN: Remove Evaporator Room Utilities									1
7C45-B04	$ 9906		20	20	10APR03	07MAY03	10APR03	07MAY03	



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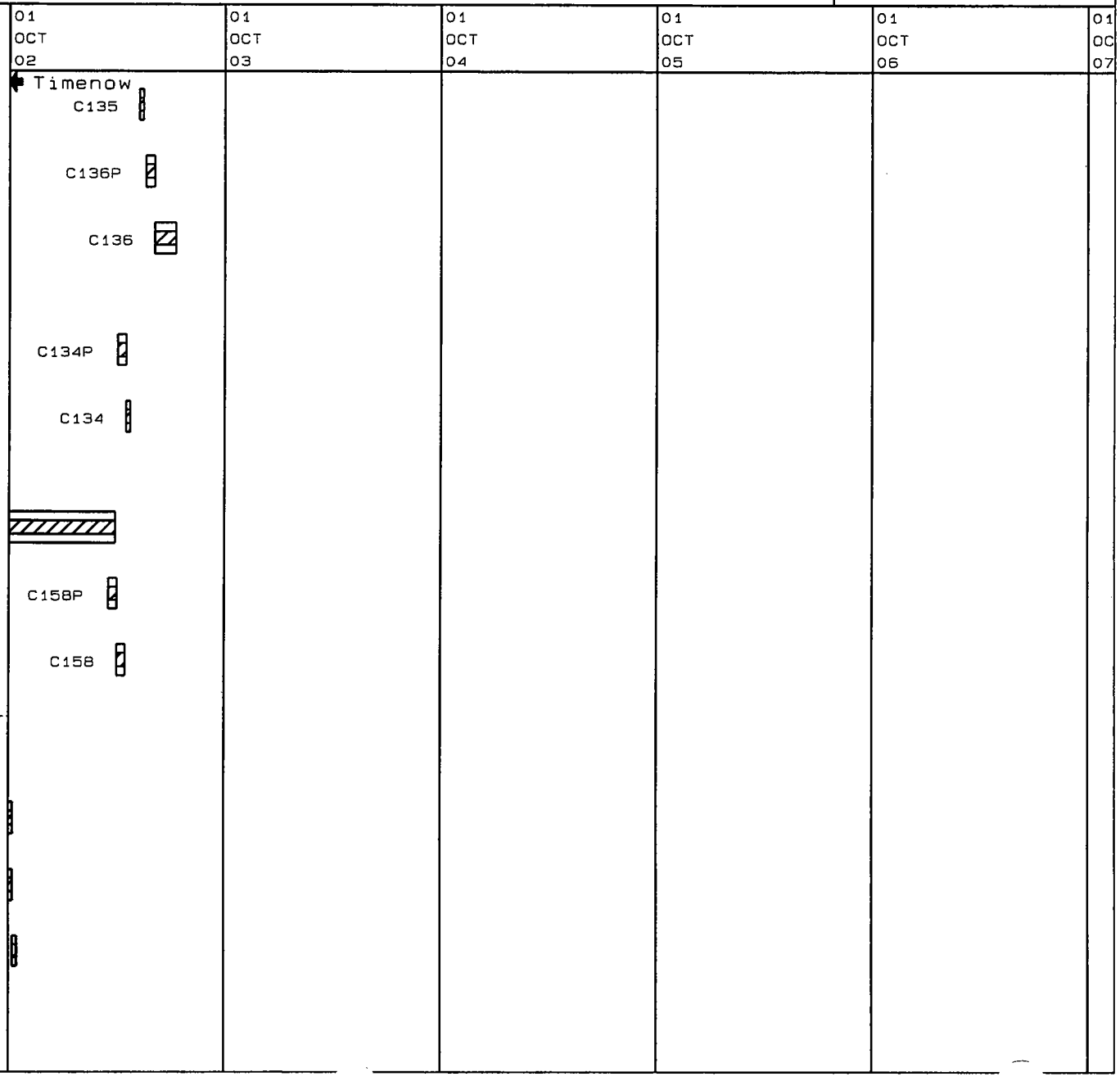
C135 Remove Evaporator Room Utilities									1
7C45-B04	$ 24433	5	5		08MAY03	14MAY03	08MAY03	14MAY03	
C136P PLAN: Decon/Stabilize Evaporator Room Surfaces									1
7C45-B04	$ 8716	10	10		19MAY03	02JUN03	19MAY03	02JUN03	
C136 Decon/Stabilize Evaporator Room Surfaces									1
7C45-B04	$ 40084	25	25		03JUN03	08JUL03	03JUN03	08JUL03	
7C45-B05: EVAPORATOR ROOM MATERIAL REMOVAL									
C134P PLAN: Remove Material from Evaporator Room									1
7C45-B05	$ 12554	10	10		02APR03	15APR03	02APR03	15APR03	
C134 Remove Material from Evaporator Room									1
7C45-B05	$ 21523	5	5		16APR03	22APR03	16APR03	22APR03	
7C45-B06: DESIGN AND INSTALL NEW WATER PROCESSING SYSTEM									
C183 Design new Water Processing System									1
7C45-B06	$ 244046	124	124		01OCT02	28MAR03	01OCT02	28MAR03	
C158P PLAN: Install new Water Processing System in High Bay Pump Room									1
7C45-B06	$ 8249	10	10		18MAR03	31MAR03	18MAR03	31MAR03	
C158 Install new Water Processing System in High Bay Pump Room									1
7C45-B06	$ 32806	10	10		01APR03	14APR03	01APR03	14APR03	
1.7.C.4.6. JN-1 POOL/PUMP ROOM DECONTAMINATION OPERAT									
7C46-B01: HIGH BAY AREA MATERIAL REMOVAL									
C186P PLAN: Remove Manipulator Support Material from High Bay									1
7C46-B01	$ 4420	5	5		01OCT02	07OCT02	01OCT02	07OCT02	
C187P PLAN: Remove TRU Support Material from High Bay									1
7C46-B01	$ 3904	5	5		01OCT02	07OCT02	01OCT02	07OCT02	
C186 Remove Manipulator Support Material from High Bay									1
7C46-B01	$ 15038	5	5		08OCT02	14OCT02	08OCT02	14OCT02	



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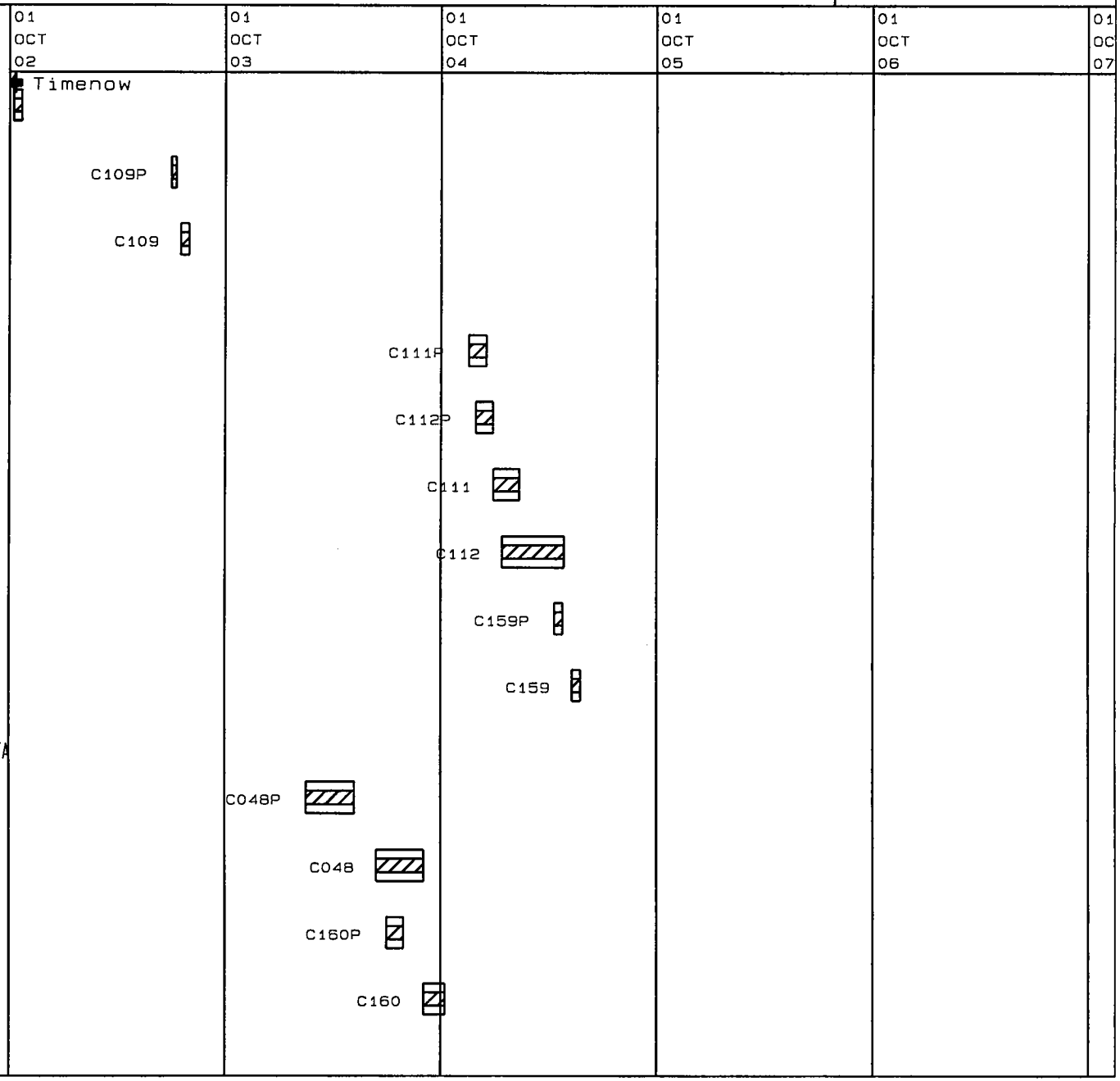
C187 Remove TRU Support Material from High Bay								1
7C46-B01	$ 31940	10	10		08OCT02	21OCT02	08OCT02	21OCT02
C109P PLAN: Remove Staged Area and Miscellaneous Material from High Bay								1
7C46-B01	$ 5680	5	5		01JUL03	08JUL03	01JUL03	08JUL03
C109 Remove Staged Area and Miscellaneous Material from High Bay Area								1
7C46-B01	$ 40157	10	10		17JUL03	30JUL03	17JUL03	30JUL03
7C46-B02: HIGH BAY AREA UTILITY REMOVAL/DECON/STABILIZATION								
C111P PLAN: Remove Utilities from High Bay Area								1
7C46-B02	$ 13667	20	20		17NOV04	16DEC04	17NOV04	16DEC04
C112P PLAN: Decon/Stabilize High Bay Area Surfaces								1
7C46-B02	$ 15541	20	20		29NOV04	27DEC04	29NOV04	27DEC04
C111 Remove Utilities from High Bay Area								1
7C46-B02	$ 145653	30	30		29DEC04	10FEB05	29DEC04	10FEB05
C112 Decon/Stabilize High Bay Area Surfaces								1
7C46-B02	$ 353375	75	75		13JAN05	27APR05	13JAN05	27APR05
C159P PLAN: Remove Lighting from JN-1B High Bay Area								1
7C46-B02	$ 8759	10	10		12APR05	25APR05	12APR05	25APR05
C159 Remove Lighting from High Bay Area								1
7C46-B02	$ 42327	10	10		12MAY05	25MAY05	12MAY05	25MAY05
7C46-B04: POOL/TRANSFER CANAL MATERIAL/LINER REMOVAL/DECON/STA								
C048P PLAN: Remove Material and Stainless Steel Liner from Pool								1
7C46-B04	$ 43537	60	60		16FEB04	07MAY04	16FEB04	07MAY04
C048 Remove Material and Stainless Steel Liner from Pool								1
7C46-B04	$ 255368	57	57		14JUN04	01SEP04	14JUN04	01SEP04
C160P PLAN: Remove Stainless Steel Liner from Transfer Canal								1
7C46-B04	$ 13027	20	20		01JUL04	29JUL04	01JUL04	29JUL04
C160 Remove Stainless Steel Liner from Transfer Canal								1
7C46-B04	$ 108690	25	25		02SEP04	07OCT04	02SEP04	07OCT04



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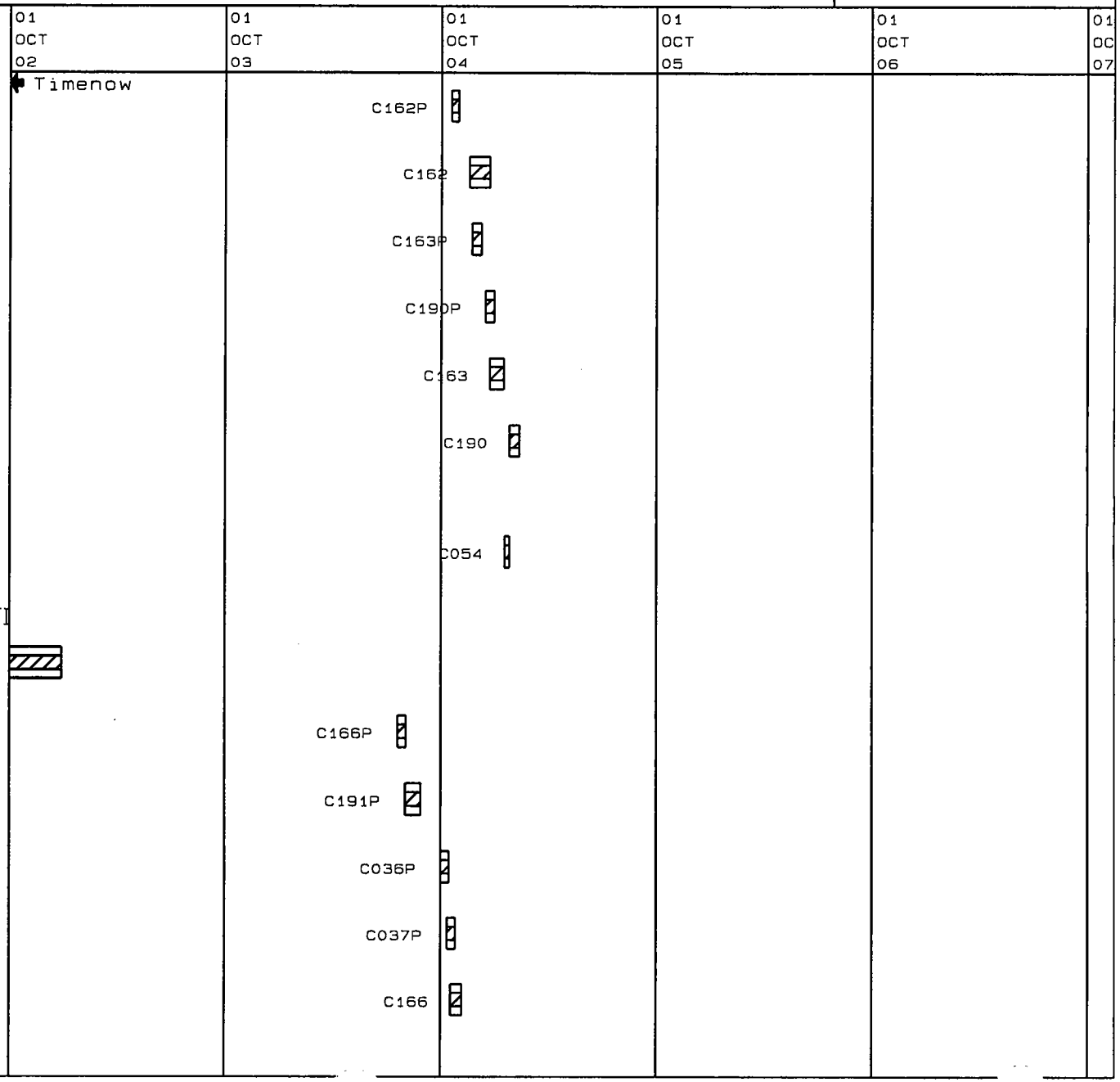
C162P PLAN: Decontaminate Pool Surfaces								1
7C46-B04	$ 10192		10	10	18OCT04	29OCT04	18OCT04	29OCT04
C162 Decontaminate Pool Surfaces								1
7C46-B04	$ 79973		23	23	17NOV04	21DEC04	17NOV04	21DEC04
C163P PLAN: Decon/Stabilize Transfer Canal Surfaces								1
7C46-B04	$ 10192		10	10	22NOV04	07DEC04	22NOV04	07DEC04
C190P PLAN: Stabilize Pool and Transfer Canal								1
7C46-B04	$ 8759		10	10	15DEC04	29DEC04	15DEC04	29DEC04
C163 Decon/Stabilize Transfer Canal Surfaces								1
7C46-B04	$ 53086		15	15	22DEC04	14JAN05	22DEC04	14JAN05
C190 Stabilize Pool and Transfer Canal								1
7C46-B04	$ 38472		13	13	25JAN05	10FEB05	25JAN05	10FEB05
7C46-B05: POOL/TRANSFER CANAL DECON COMPLETION SURVEY								
C054 Perform Pool/Transfer Canal Decon Completion Survey								1
7C46-B05	$ 18589		6	6	17JAN05	24JAN05	17JAN05	24JAN05
7C46-B06: PUMP ROOM MATERIAL/UTILITY REMOVAL/DECON/STABILIZATI								
C165 Remove Tanks from Pump Room								1
7C46-B06	$ 254269		60	60	01OCT02	27DEC02	01OCT02	27DEC02
C166P PLAN: Remove new Water Processing System from Pump Room								1
7C46-B06	$ 9103		10	10	20JUL04	02AUG04	20JUL04	02AUG04
C191P PLAN: Remove Asbestos from Pump Room								1
7C46-B06	$ 4635		20	20	02AUG04	27AUG04	02AUG04	27AUG04
C036P PLAN: Remove Utilities from Pump Room								1
7C46-B06	$ 9640		10	10	01OCT04	14OCT04	01OCT04	14OCT04
C037P PLAN: Decon/Stabilize Pump Room Surfaces								1
7C46-B06	$ 8980		10	10	12OCT04	25OCT04	12OCT04	25OCT04
C166 Remove new Water Processing System from Pump Room								1
7C46-B06	$ 60393		15	15	18OCT04	05NOV04	18OCT04	05NOV04



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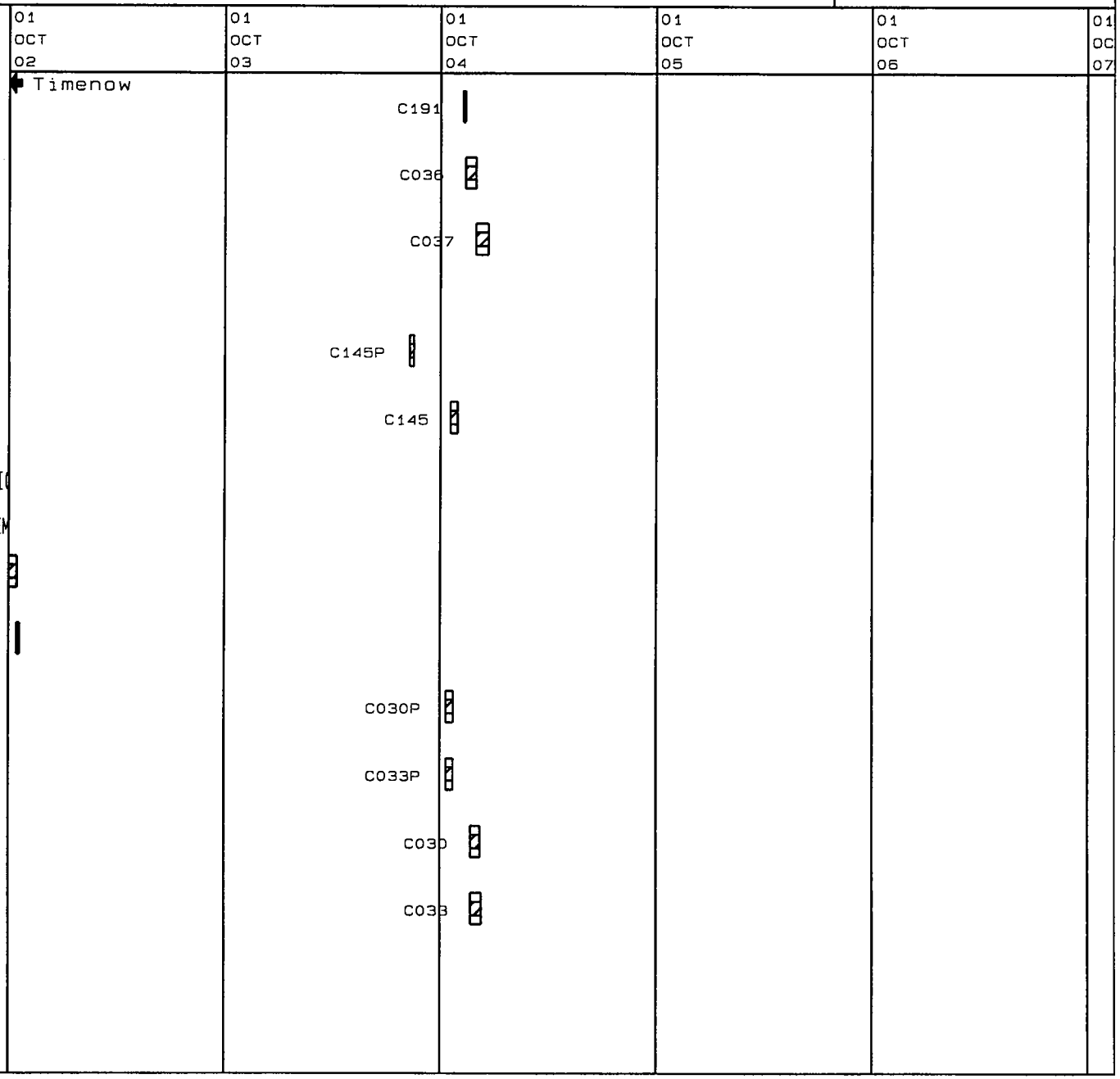
C191 Remove Asbestos from Pump Room								1
7C46-B06	$ 7214		4	4	08NOV04	11NOV04	08NOV04	11NOV04
C036 Remove Utilities from Pump Room								1
7C46-B06	$ 42898		10	10	12NOV04	29NOV04	12NOV04	29NOV04
C037 Decon/Stabilize Pump Room Surfaces								1
7C46-B06	$ 49425		15	15	30NOV04	20DEC04	30NOV04	20DEC04
7C46-B08: REMOVE COMPACTION EQUIPMENT FROM PUMP ROOM								
C145P PLAN: Remove Compaction Equipment from Pump Room								1
7C46-B08	$ 8572		5	5	10AUG04	16AUG04	10AUG04	16AUG04
C145 Remove Compaction Equipment from Pump Room								1
7C46-B08	$ 37722		10	10	18OCT04	29OCT04	18OCT04	29OCT04
1.7.C.4.7. JN-1 SUPPORT AREAS DECONTAMINATION OPERATI								
7C47-B01: LOADING DOCK AREA UTILITIES/ELECTRIC/VENTILATION REM								
C029P PLAN: Remove Asbestos from Loading Dock and Alpha/Gamma Areas								1
7C47-B01	$ 9051		10	10	01OCT02	14OCT02	01OCT02	14OCT02
C029 Remove Asbestos from Loading Dock and Alpha/Gamma Areas								1
7C47-B01	$ 10435		4	4	15OCT02	18OCT02	15OCT02	18OCT02
C030P PLAN: Remove Utilities, Piping, HVAC, Electrical and Crane Rails f								1
7C47-B01	$ 10211		10	10	11OCT04	22OCT04	11OCT04	22OCT04
C033P PLAN: Remove Ventilation System from Loading Dock Area								1
7C47-B01	$ 10192		10	10	11OCT04	22OCT04	11OCT04	22OCT04
C030 Remove Utilities, Piping, HVAC, Electrical and Crane Rails from Lo								1
7C47-B01	$ 36397		10	10	22NOV04	07DEC04	22NOV04	07DEC04
C033 Remove Ventilation System from Loading Dock Area								1
7C47-B01	$ 42370		12	12	22NOV04	09DEC04	22NOV04	09DEC04
7C47-B02: OLD OPERATIONS AREA MATERIAL REMOVAL								



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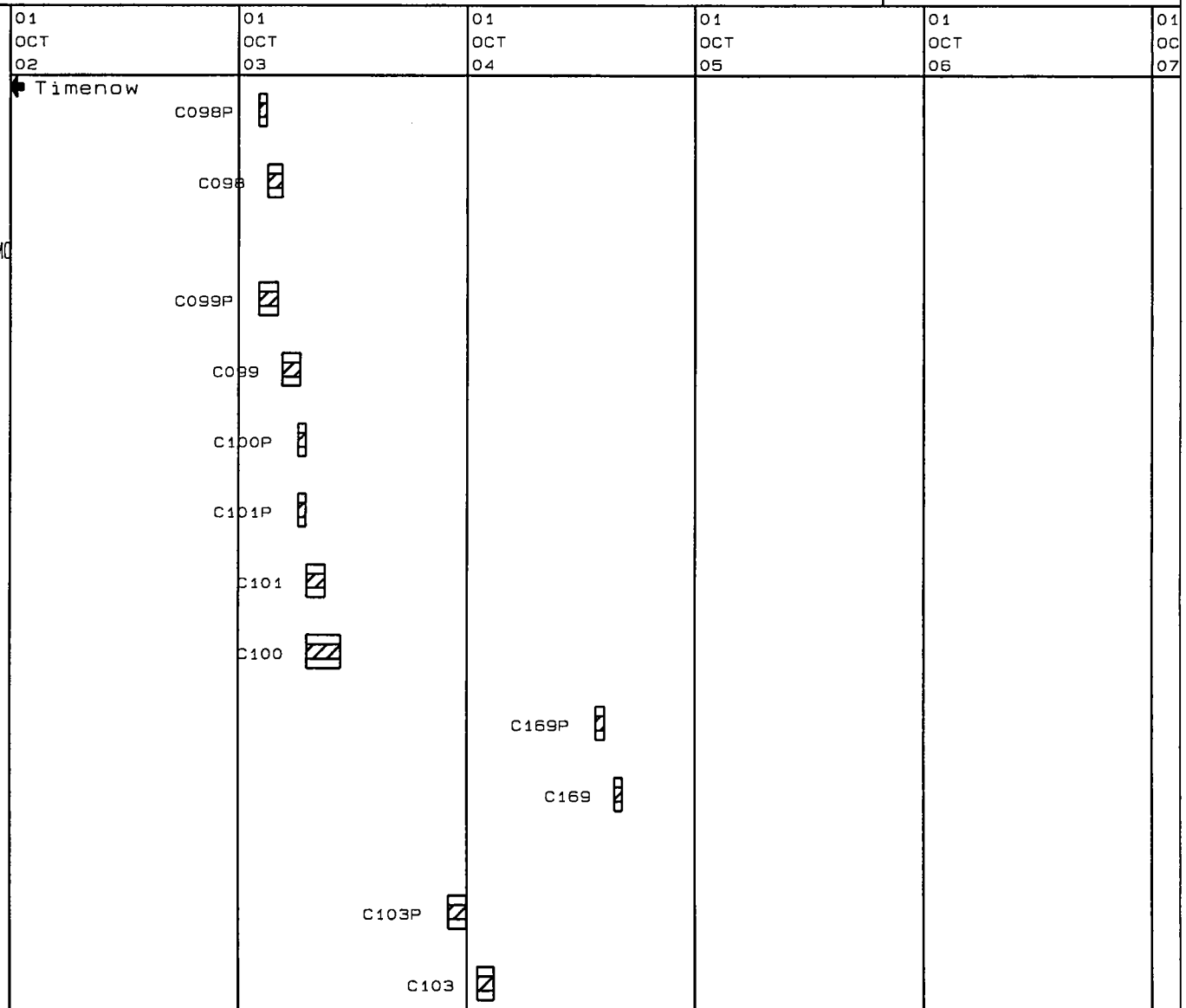
C098P PLAN: Remove Material from Old Operations Area								1
7C47-B02	$ 10192	10	10		03NOV03	14NOV03	03NOV03	14NOV03
C098 Remove Material from Old Operations Area								1
7C47-B02	$ 61387	15	15		17NOV03	09DEC03	17NOV03	09DEC03
7C47-B03: OLD OPERATIONS AREA UTILITY/ASBESTOS/MAIN POWER REMO								
C099P PLAN: Remove Asbestos from Old Operations Area								1
7C47-B03	$ 9051	20	20		03NOV03	02DEC03	03NOV03	02DEC03
C099 Remove Asbestos from Old Operations Area								1
7C47-B03	$ 59596	17	17		10DEC03	07JAN04	10DEC03	07JAN04
C100P PLAN: Remove Utilities from Old Operations Area								1
7C47-B03	$ 10192	10	10		05JAN04	16JAN04	05JAN04	16JAN04
C101P PLAN: Remove Ventilation from Old Operations Area								1
7C47-B03	$ 10281	10	10		05JAN04	16JAN04	05JAN04	16JAN04
C101 Remove Ventilation from Old Operations Area								1
7C47-B03	$ 76830	21	21		19JAN04	16FEB04	19JAN04	16FEB04
C100 Remove Utilities from Old Operations Area								1
7C47-B03	$ 156469	40	40		19JAN04	12MAR04	19JAN04	12MAR04
C169P PLAN: Remove Main Power Distribution Panel from Old Operations Are								1
7C47-B03	$ 9051	10	10		26APR05	09MAY05	26APR05	09MAY05
C169 Remove Main Power Distribution Panel from Old Operations Area (COL								1
7C47-B03	$ 24848	7	7		26MAY05	06JUN05	26MAY05	06JUN05
7C47-B04: JN-1A AREA UNDERGROUND DRAIN REMOVAL								
C103P PLAN: Remove Underground Drains from JN-1A Area								1
7C47-B04	$ 10192	20	20		01SEP04	29SEP04	01SEP04	29SEP04
C103 Remove Underground Drains from JN-1A Area								1
7C47-B04	$ 104479	20	20		18OCT04	12NOV04	18OCT04	12NOV04
7C47-B05: FAN ROOM UTILITY/ASBESTOS REMOVAL/STABILAZATION								



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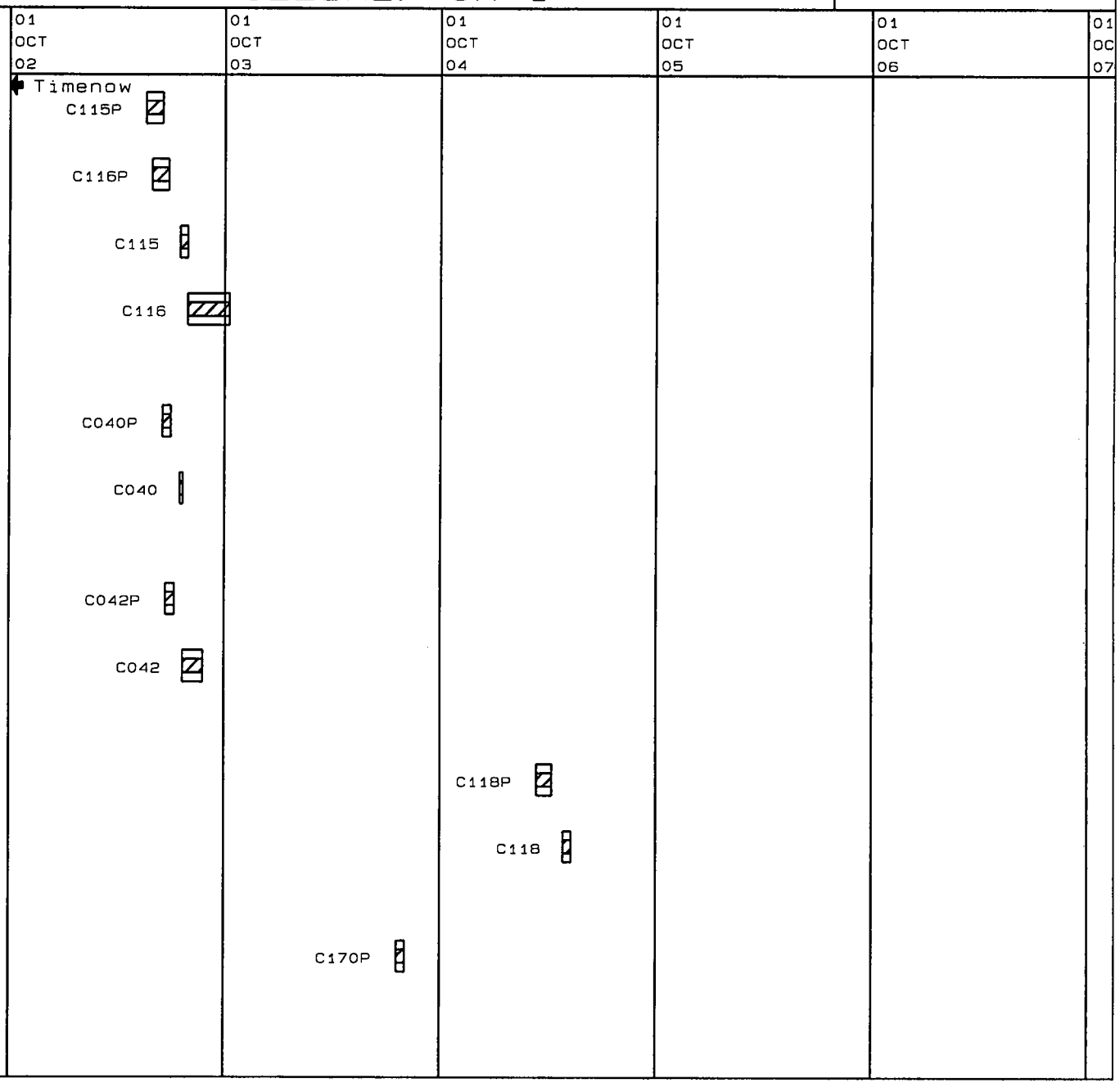
C115P PLAN: Remove Asbestos from JN-1B Area								1
7C47-B05	$ 9051		20	20	19MAY03	16JUN03	19MAY03	16JUN03
C116P PLAN: Remove Utilities and Stabilize Fan Room								1
7C47-B05	$ 10192		20	20	30MAY03	26JUN03	30MAY03	26JUN03
C115 Remove Asbestos from JN-1B Area								1
7C47-B05	$ 29093		9	9	17JUL03	29JUL03	17JUL03	29JUL03
C116 Remove Utilities and Stabilize Fan Room								1
7C47-B05	$ 196853		50	50	30JUL03	08OCT03	30JUL03	08OCT03
7C47-B06: HEC OPERATIONS AREA MATERIAL REMOVAL								
C040P PLAN: Remove Material from HEC Operations Area								1
7C47-B06	$ 9051		10	10	17JUN03	30JUN03	17JUN03	30JUN03
C040 Remove Material from HEC Operations Area								1
7C47-B06	$ 6280		3	3	17JUL03	21JUL03	17JUL03	21JUL03
7C47-B07: HEC OPERATIONS AREA UTILITY REMOVAL								
C042P PLAN: Remove Utilities from HEC Operations Area								1
7C47-B07	$ 10192		10	10	23JUN03	07JUL03	23JUN03	07JUL03
C042 Remove Utilities from HEC Operations Area								1
7C47-B07	$ 89925		25	25	22JUL03	25AUG03	22JUL03	25AUG03
7C47-B08: JN-1B AREA UNDERGROUND DRAIN REMOVAL								
C118P PLAN: Remove Underground Drains from JN-1B Area								1
7C47-B08	$ 9051		20	20	14MAR05	08APR05	14MAR05	08APR05
C118 Remove Underground Drains from JN-1B Area								1
7C47-B08	$ 76774		10	10	28APR05	11MAY05	28APR05	11MAY05
7C47-B10: MECHANICAL ROOM MATERIAL REMOVAL								
C170P PLAN: Remove Material from Mechanical Room								1
7C47-B10	$ 9051		10	10	20JUL04	02AUG04	20JUL04	02AUG04



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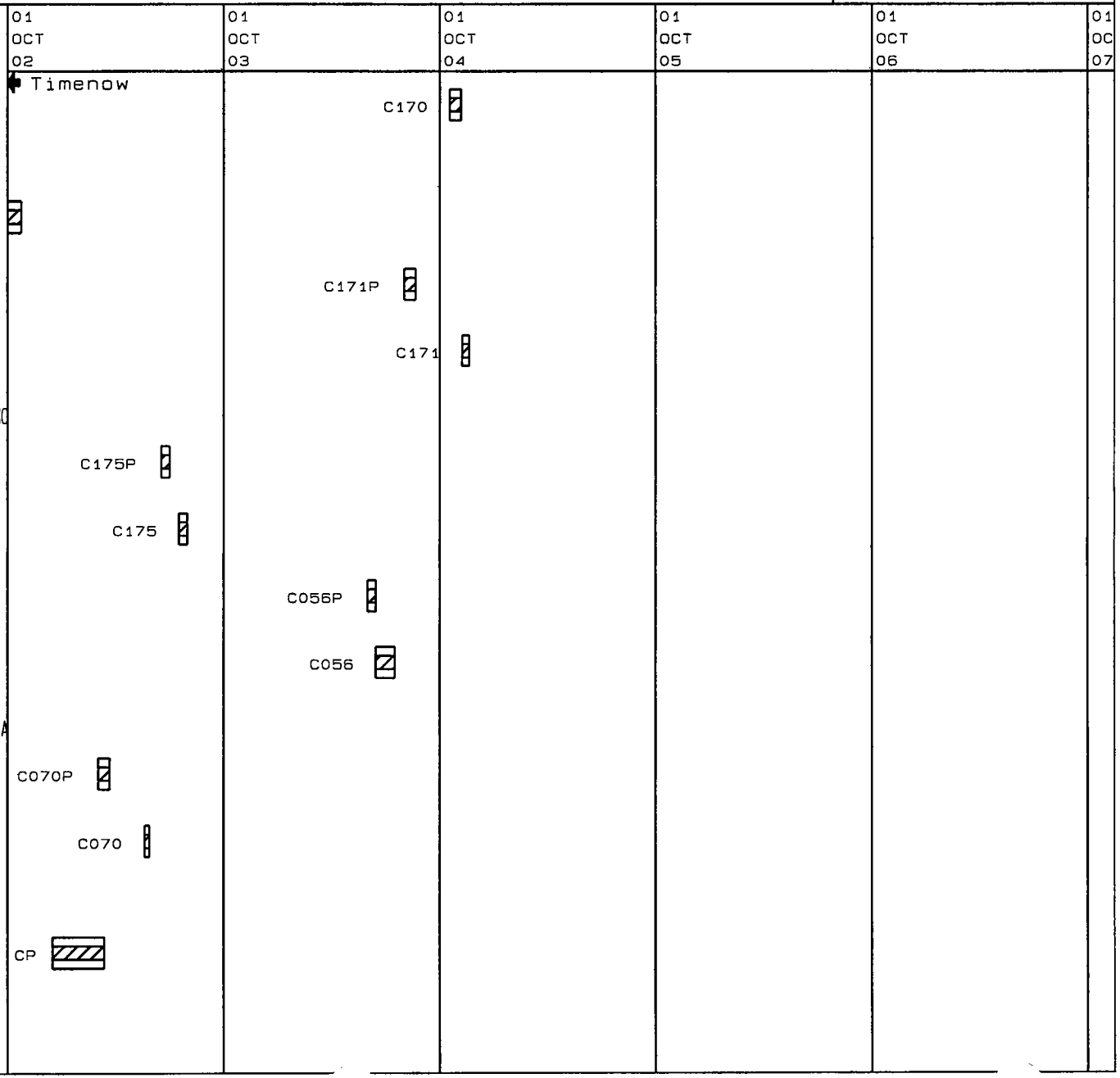
WORKPKG	BCOST	PCT	DU	RDU	BSTART	BFINISH	ESDATE	EFDATE
C170 Remove Material from Mechanical Room								1
7C47-B10	$ 46882		15	15	18OCT04	05NOV04	18OCT04	05NOV04
7C47-B11: MECHANICAL ROOM ASBESTOS/UNDERGROUND DRAIN REMOVAL								
C174 Finish Removing Underground Drains & Sump from Offices & Machine S								1
7C47-B11	$ 79099		17	17	01OCT02	23OCT02	01OCT02	23OCT02
C171P PLAN: Remove Asbestos from Mechanical Room								1
7C47-B11	$ 8808		15	15	02AUG04	20AUG04	02AUG04	20AUG04
C171 Remove Asbestos from Mechanical Room								1
7C47-B11	$ 34289		10	10	08NOV04	19NOV04	08NOV04	19NOV04
7C47-B13: WASTE STORAGE SHED UTILITY/VAULT DOOR/SHIELDING REMO								
C175P PLAN: Remove Vault Door and Shield Walls from Waste Storage Shed								1
7C47-B13	$ 4420		10	10	17JUN03	30JUN03	17JUN03	30JUN03
C175 Remove Vault Door and Shield Walls from Waste Storage Shed								1
7C47-B13	$ 35107		10	10	17JUL03	30JUL03	17JUL03	30JUL03
C056P PLAN: Remove Utilities from Waste Storage Shed								1
7C47-B13	$ 13229		10	10	01JUN04	14JUN04	01JUN04	14JUN04
C056 Remove Utilities from Waste Storage Shed								1
7C47-B13	$ 80086		23	23	15JUN04	16JUL04	15JUN04	16JUL04
7C47-B15: JN-1 EXTERNAL BUILDING (OFFICE AREA) NESHAPS MATERIA								
C070P PLAN: Remove NESHAPS Material from JN-1 Office and Machine Shop Ar								1
7C47-B15	$ 5171		15	15	03MAR03	21MAR03	03MAR03	21MAR03
C070 Remove NESHAPS Material from JN-1 Office and Machine Shop Area Ext								1
7C47-B15	$ 10037		5	5	20MAY03	27MAY03	20MAY03	27MAY03
7C47-B16: DISMANTLE JN-1A/B BUILDING AND BELOW GRADE								
C071CP PLAN: Dismantle JN-1 Office & Machine Shop Area above grade and sl								1
7C47-B16	$ 14769		60	60	16DEC02	12MAR03	16DEC02	12MAR03



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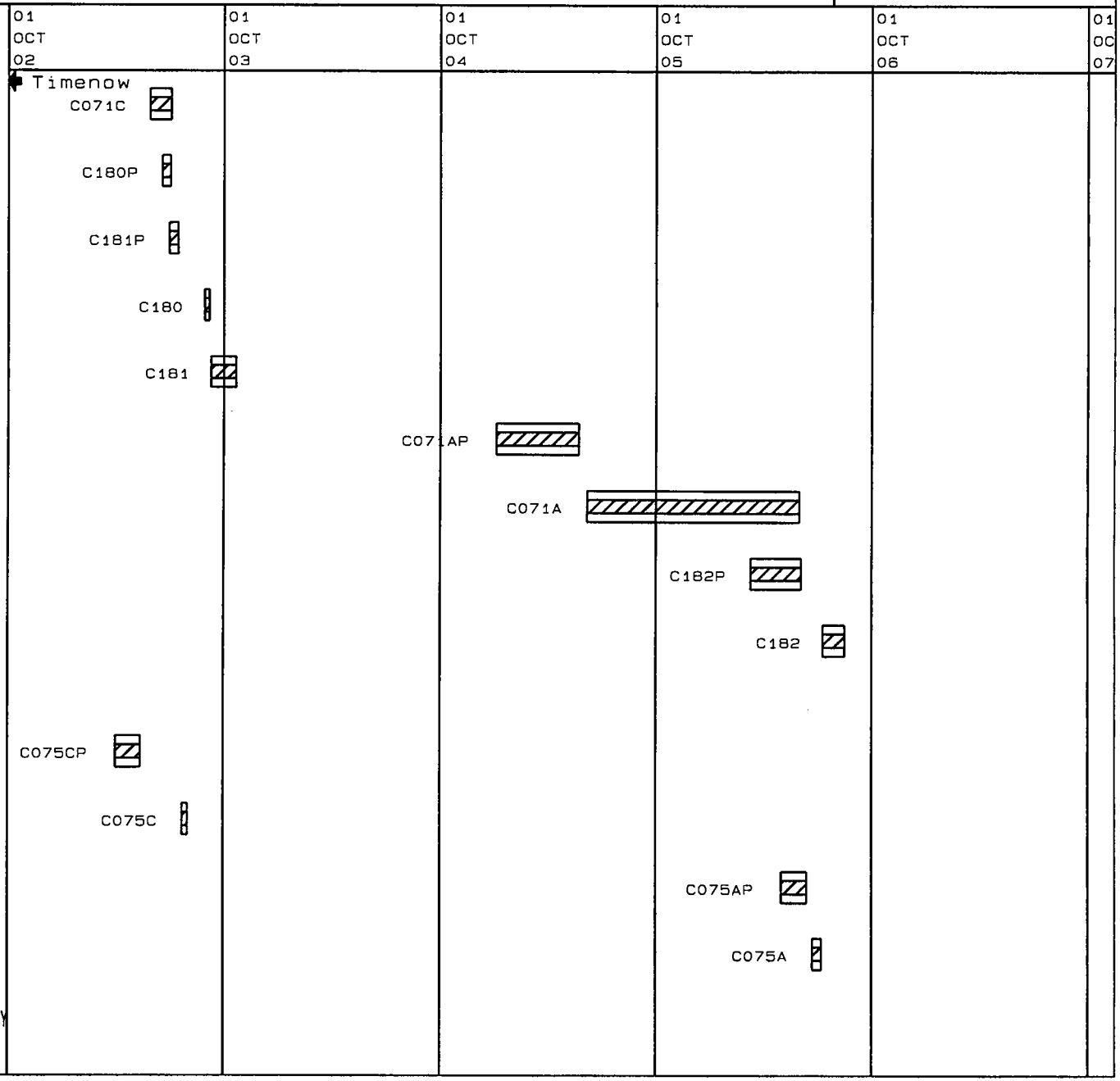
WORKPKG	BCOST	PCT	OU	RDU	BSTART	BFINISH	ESDATE	EFDATE	
C071C Dismantle JN-1 Office & Machine Shop Area above grade and slab									1
7C47-B16	$ 194345		26	26	28MAY03	02JUL03	28MAY03	02JUL03	
C180P PLAN: Dismantle JN-1 Office & Machine Shop Area below grade									1
7C47-B16	$ 8442		10	10	18JUN03	01JUL03	18JUN03	01JUL03	
C181P PLAN: Stabilize JN-1 Office & Machine Shop Area after dismantle									1
7C47-B16	$ 7148		10	10	30JUN03	14JUL03	30JUN03	14JUL03	
C180 Dismantle JN-1 Office & Machine Shop Area below grade									1
7C47-B16	$ 55284		5	5	29AUG03	05SEP03	29AUG03	05SEP03	
C181 Stabilize JN-1 Office & Machine Shop Area after dismantle									1
7C47-B16	$ 30561		31	31	09SEP03	21OCT03	09SEP03	21OCT03	
C071AP PLAN: Dismantle JN-1A/JN-1B Building and the Waste Storage Shed ab									1
7C47-B16	$ 59449		100	100	04JAN05	23MAY05	04JAN05	23MAY05	
C071A Dismantle JN-1A/JN-1B Building and the Waste Storage Shed above gr									1
7C47-B16	$ 8632121		247	247	07JUN05	30MAY06	07JUN05	30MAY06	
C182P PLAN: Dismantle JN-1A/JN-1B Building and Waste Sorage Shed below g									1
7C47-B16	$ 33876		60	60	10MAR06	02JUN06	10MAR06	02JUN06	
C182 Dismantle JN-1A/JN-1B Building and Waste Sorage Shed below grade									1
7C47-B16	$ 1462476		27	27	10JUL06	15AUG06	10JUL06	15AUG06	
7C47-B17: EXCAVATE JN-1A/B UNDERGROUND AREA									
C075CP PLAN: Excavate JN-1 Office Area Underground									1
7C47-B17	$ 8021		30	30	01APR03	12MAY03	01APR03	12MAY03	
C075C Excavate JN-1 Office Area Underground									1
7C47-B17	$ 29620		7	7	23JUL03	31JUL03	23JUL03	31JUL03	
C075AP PLAN: Excavate JN-1A/JN-1B Underground									1
7C47-B17	$ 8021		30	30	01MAY06	12JUN06	01MAY06	12JUN06	
C075A Excavate JN-1A/JN-1B Underground									1
7C47-B17	$ 69894		9	9	23JUN06	07JUL06	23JUN06	07JUL06	
7C47-B18: JN-1A/B UNDERGROUND MATERIAL DECON COMPLETION SURVEY									



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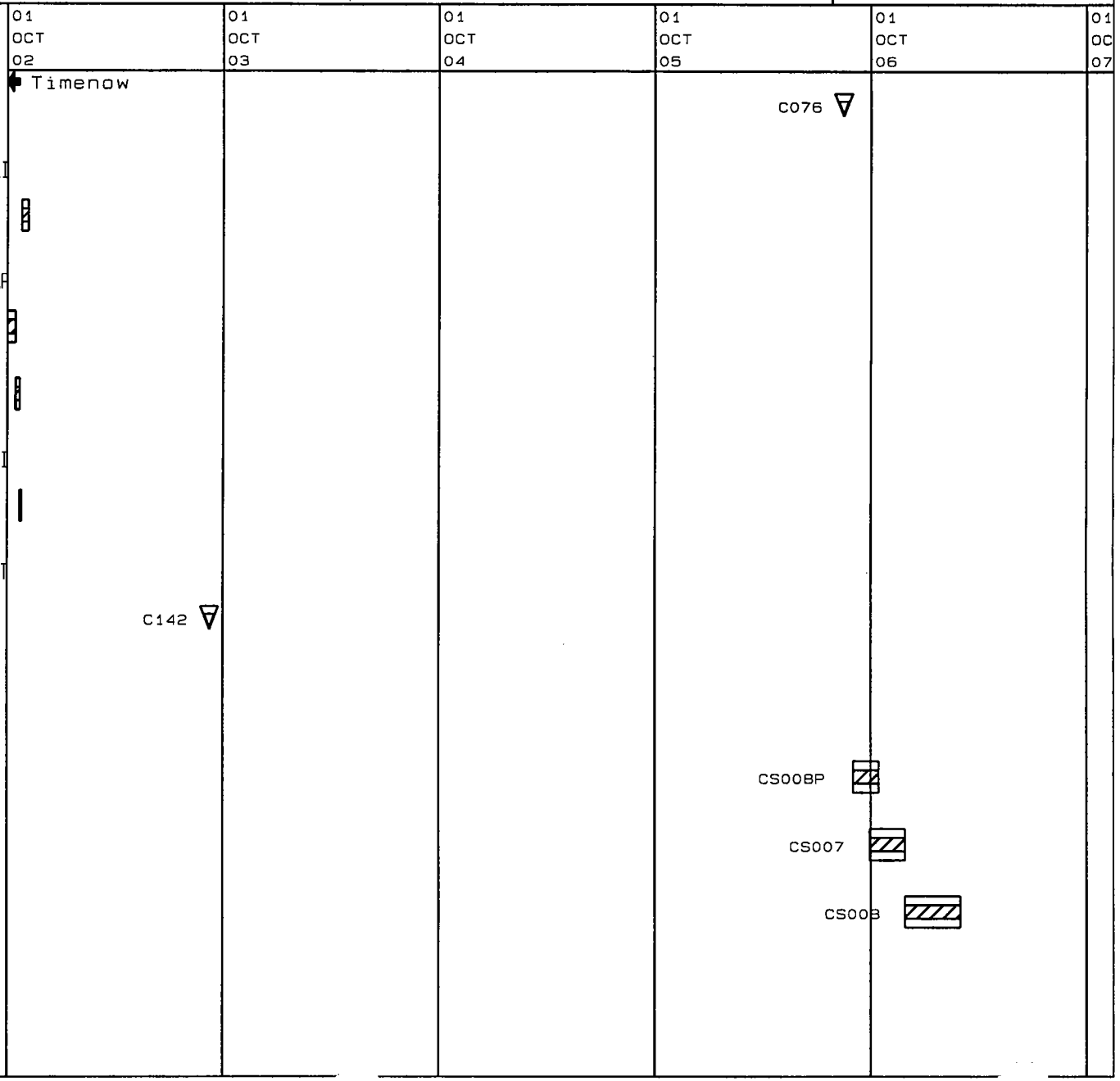
WORKPKG	BCOST	PCT	DU	RDU	BSTART	BFINISH	ESDATE	EFDATE
C076 Perform JN-1A/JN-1B Underground Material Decon Completion Survey								1
7C47-B18	$ 2933		1	1	16AUG06	16AUG06	16AUG06	16AUG06
7C47-B19: JN-1 OFFICE AREAS FINAL STATUS SURVEYS BEFORE DEMOLI								
C130 JN-1 Office & Machine Shop Area Final Status Surveys before Disman								1
7C47-B19	$ 26727		7	7	25OCT02	04NOV02	25OCT02	04NOV02
7C47-B20: DECON JN-1 BUILDING EXTERIOR (OFFICE/MACHINE SHOP AR								
C178P PLAN: Decontaminate JN-1 Building Exterior (Office & Machine Shop								1
7C47-B20	$ 4635		10	10	01OCT02	14OCT02	01OCT02	14OCT02
C178 Decontaminate JN-1 Building Exterior (Office & Machine Shop Area)								1
7C47-B20	$ 18626		5	5	15OCT02	21OCT02	15OCT02	21OCT02
7C47-B21: PERFORM JN-1 EXTERIOR (OFFICE/MACHINE AREA) COMPLETI								
C179 Perform JN-1 Building Exterior Completion Survey (Office & Machine								1
7C47-B21	$ 8929		3	3	22OCT02	24OCT02	22OCT02	24OCT02
7C47-B22: PERFORM OFFICE/MACHINE SHOP AREA UNDERGROUND COMPLET								
C142 Perform JN-1 Office & Machine Shop Area Underground Remediation Co								1
7C47-B22	$ 2933		1	1	08SEP03	08SEP03	08SEP03	08SEP03
1.7.C.5. JN-1 CERTIFICATION AND RELEASE								
7C5-B01 : PREPARE JN-1 AREAS FINAL STATUS REPORT AND IVC								
CS008P PLAN: Conduct JN-1 Areas IVC								1
7C5-B01	$ 3243		30	30	01SEP06	13OCT06	01SEP06	13OCT06
CS007 Prepare JN-1 Areas Characterization and Final Status Report								1
7C5-B01	$ 54002		40	40	29SEP06	27NOV06	29SEP06	27NOV06
CS008 Conduct JN-1 Areas IVC								1
7C5-B01	$ 45801		64	64	28NOV06	28FEB07	28NOV06	28FEB07
7C5-B02 : JN-1 OFFICE AREAS IVC BEFORE DEMOLITION								



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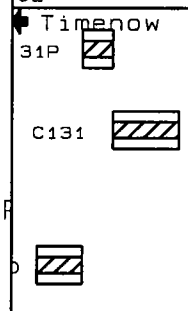
C131P PLAN: Conduct JN-1 Office & Machine Shop Area IVC before Dismantle								1
7C5-B02	$ 3243		30	30	07JAN03	17FEB03	07JAN03	17FEB03
C131 Conduct JN-1 Office & Machine Shop Area IVC before Dismantle								1
7C5-B02	$ 56123		65	65	18FEB03	19MAY03	18FEB03	19MAY03
7C5-B03 : PREPARE JN-1 OFFICE/MACHINE SHOP CHAR/FINAL STATUS F								
C140 Prepare JN-1 Office & Machine Shop Area Characterization & Final S								1
7C5-B03	$ 21206		40	40	05NOV02	06JAN03	05NOV02	06JAN03

01 OCT 02	01 OCT 03	01 OCT 04	01 OCT 05	01 OCT 06	01 OC 07



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BCLDP BASELINE LOGIC: Building JN-1

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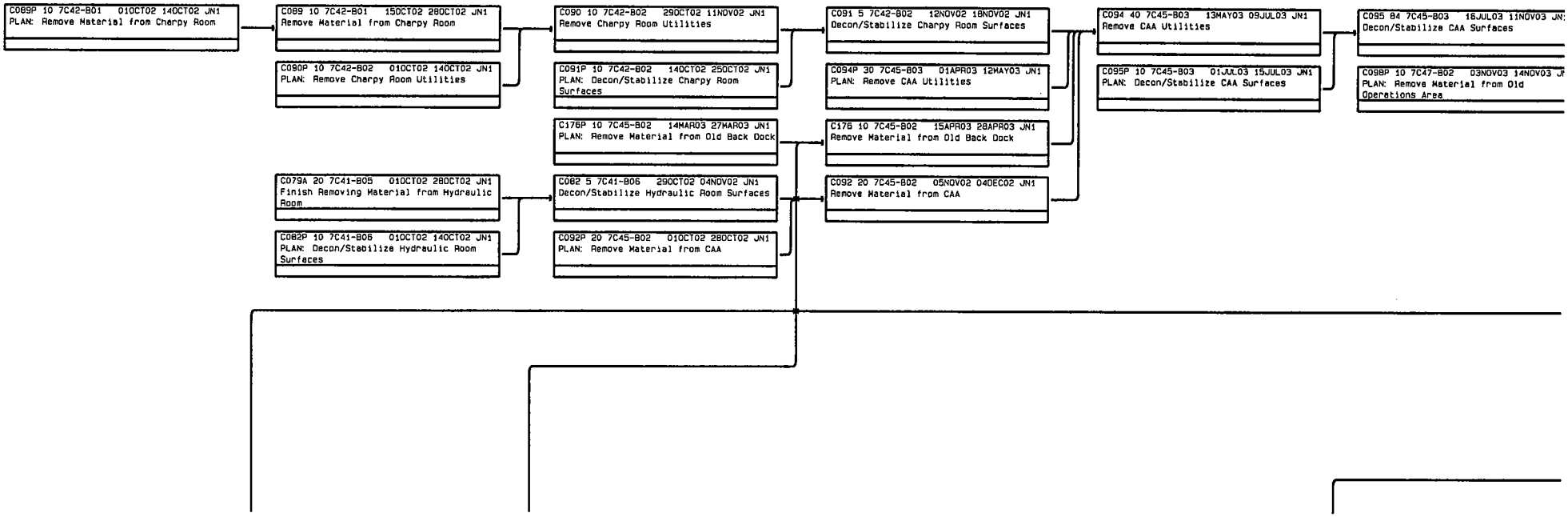

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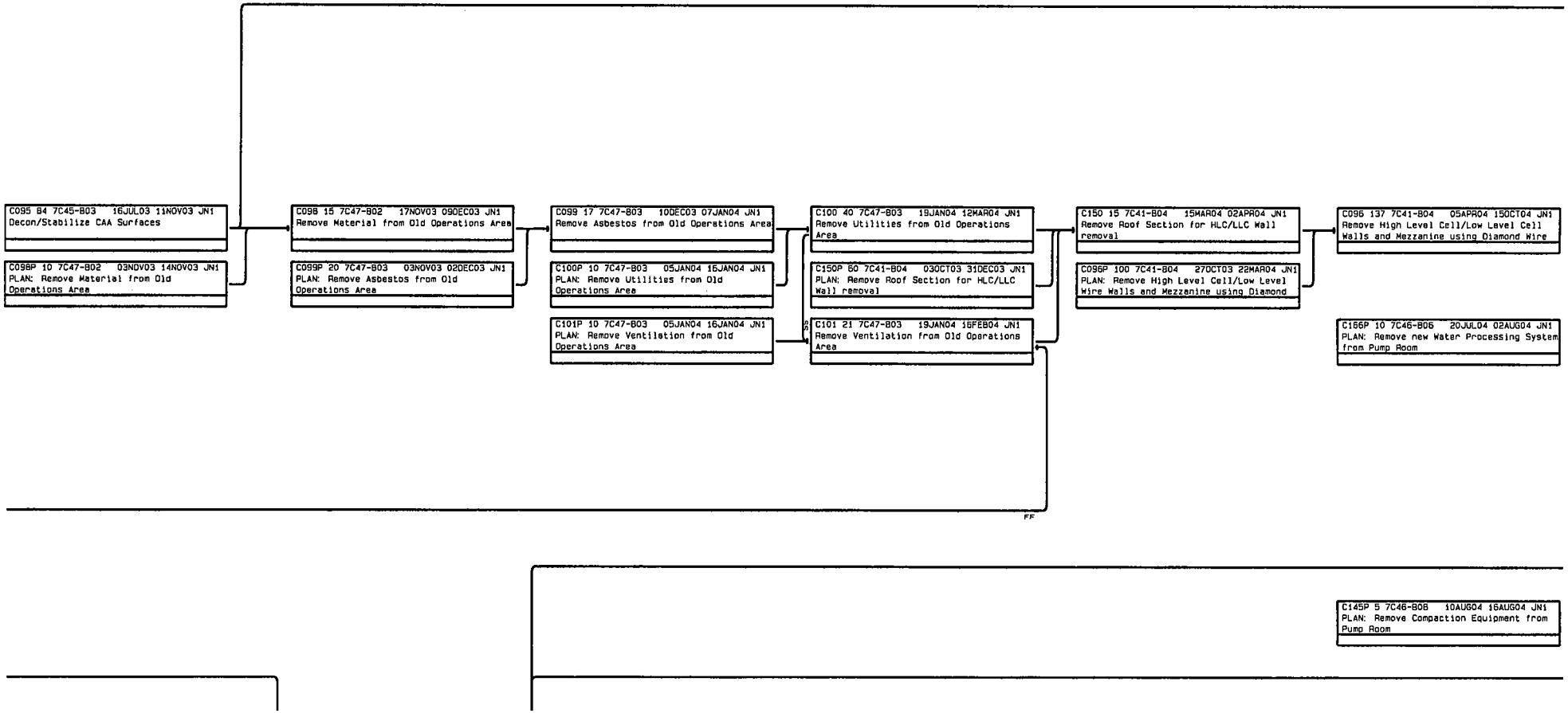
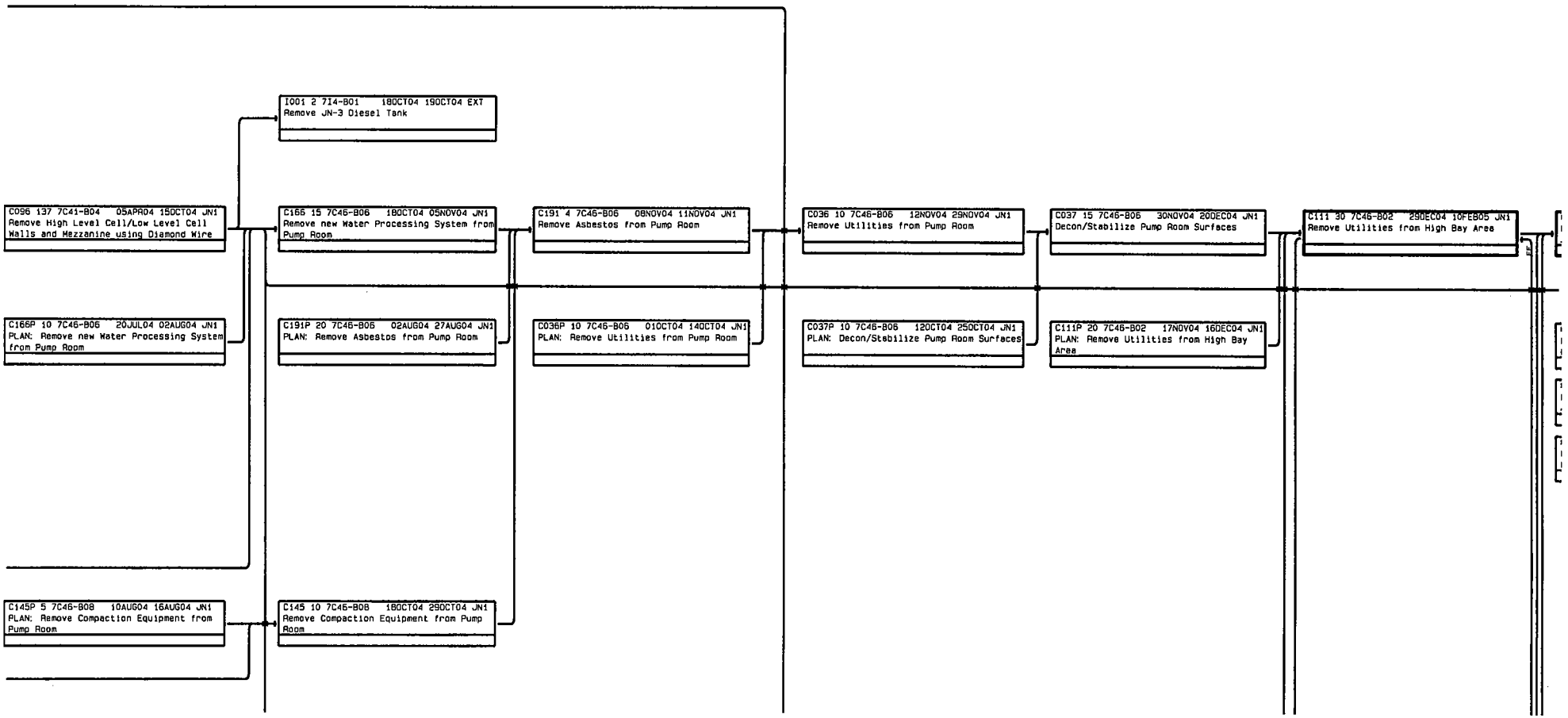

C095 84 7C45-B03 16JUL03 11NOV03 JN1
Decon/Stabilize CAA Surfaces
C098P 10 7C47-B02 03NOV03 14NOV03 JN1
PLAN: Remove Material from Old Operations Area
C098 15 7C47-B02 17NOV03 09DEC03 JN1
Remove Material from Old Operations Area
C099P 20 7C47-B03 03NOV03 02DEC03 JN1
PLAN: Remove Asbestos from Old Operations Area
C099 17 7C47-B03 10DEC03 07JAN04 JN1
Remove Asbestos from Old Operations Area
C100P 10 7C47-B03 05JAN04 15JAN04 JN1
PLAN: Remove Utilities from Old Operations Area
C101P 10 7C47-B03 05JAN04 16JAN04 JN1
PLAN: Remove Ventilation from Old Operations Area
C100 40 7C47-B03 19JAN04 12MAR04 JN1
Remove Utilities from Old Operations Area
C150P 60 7C41-B04 03OCT03 31DEC03 JN1
PLAN: Remove Roof Section for HLC/LLC Wall removal
C101 21 7C47-B03 19JAN04 16FEB04 JN1
Remove Ventilation from Old Operations Area
SS
FF
C150 15 7C41-B04 15MAR04 02APR04 JN1
Remove Roof Section for HLC/LLC Wall removal
C096P 100 7C41-B04 27OCT03 22MAR04 JN1
PLAN: Remove High Level Cell/Low Level Wire Walls and Mezzanine using Diamond
C096 137 7C41-B04 05APR04 150CT04 JN1
Remove High Level Cell/Low Level Cell Walls and Mezzanine using Diamond Wire
C166P 10 7C46-B06 20JUL04 02AUG04 JN1
PLAN: Remove new Water Processing System from Pump Room
C145P 5 7C46-B08 10AUG04 16AUG04 JN1
PLAN: Remove Compaction Equipment from Pump Room

A3


I001 2 7I4-B01 18OCT04 19OCT04 EXT
Remove JN-3 Diesel Tank
C096 137 7C41-B04 05APR04 15OCT04 JN1
Remove High Level Cell/Low Level Cell Walls and Mezzanine using Diamond Wire
C166 15 7C46-B06 18OCT04 05NOV04 JN1
Remove new Water Processing System from Pump Room
C191 4 7C46-B06 08NOV04 11NOV04 JN1
Remove Asbestos from Pump Room
C036 10 7C46-B06 12NOV04 29NOV04 JN1
Remove Utilities from Pump Room
C037 15 7C46-B06 30NOV04 20DEC04 JN1
Decon/Stabilize Pump Room Surfaces
C111 30 7C46-B02 29DEC04 10FEB05 JN1
Remove Utilities from High Bay Area
C166P 10 7C46-B06 20JUL04 02AUG04 JN1
PLAN: Remove new Water Processing System from Pump Room
C191P 20 7C46-B06 02AUG04 27AUG04 JN1
PLAN: Remove Asbestos from Pump Room
C036P 10 7C46-B06 01OCT04 14OCT04 JN1
PLAN: Remove Utilities from Pump Room
C037P 10 7C46-B06 12OCT04 25OCT04 JN1
PLAN: Decon/Stabilize Pump Room Surfaces
C111P 20 7C46-B02 17NOV04 16DEC04 JN1
PLAN: Remove Utilities from High Bay Area
C145P 5 7C46-B08 10AUG04 16AUG04 JN1
PLAN: Remove Compaction Equipment from Pump Room
C145 10 7C46-B08 18OCT04 29OCT04 JN1
Remove Compaction Equipment from Pump Room

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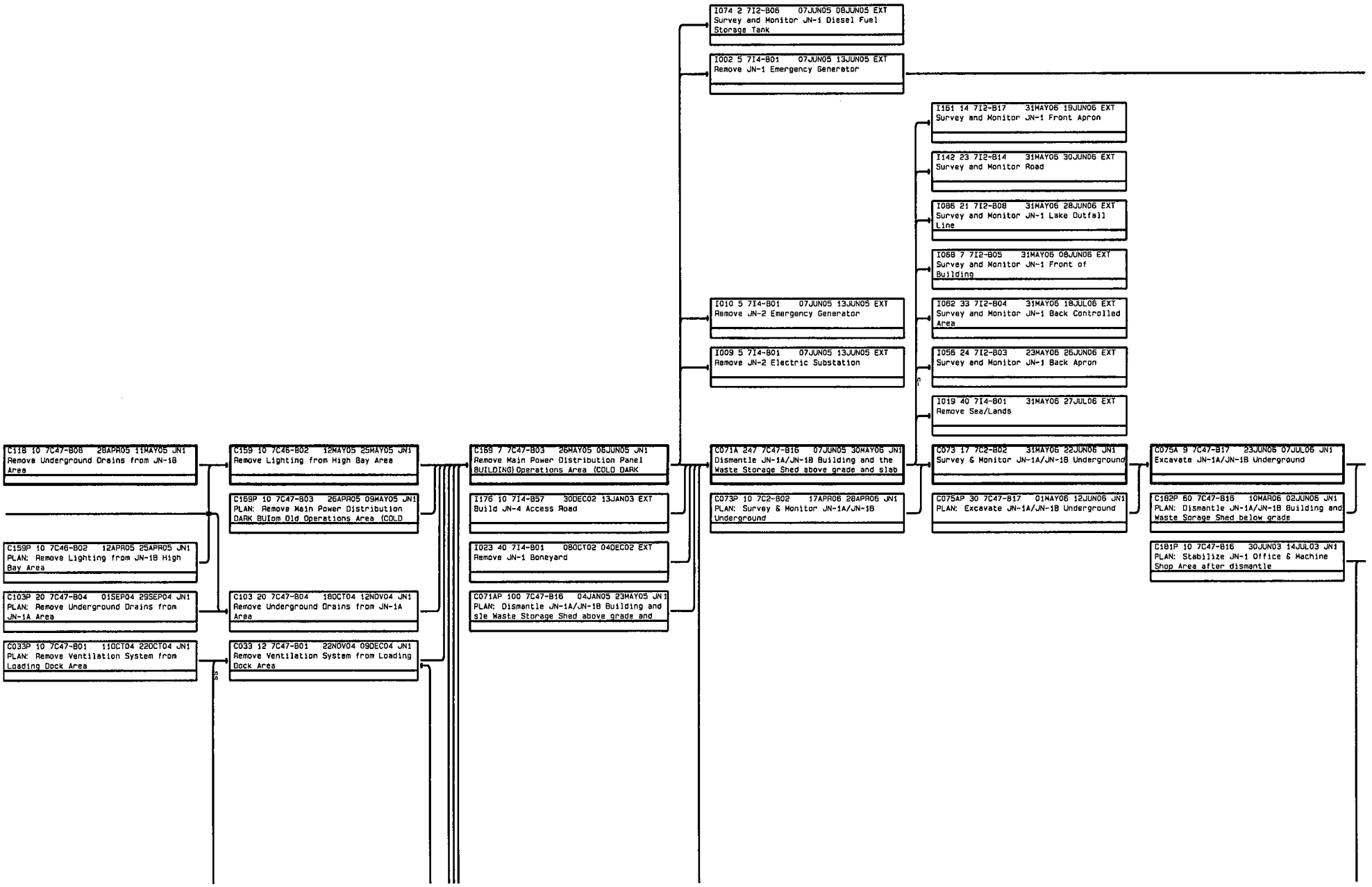
I074 2 7I2-B06 07JUN05 08JUN05 EXT
Survey and Monitor JN-1 Diesel Fuel Storage Tank
I002 5 7I4-B01 07JUN05 13JUN05 EXT
Remove JN-1 Emergency Generator
I161 14 7I2-B17 31MAY06 19JUN06 EXT
Survey and Monitor JN-1 Front Apron
I142 23 7I2-B14 31MAY06 30JUN06 EXT
Survey and Monitor Road
I086 21 7I2-B08 31MAY06 28JUN06 EXT
Survey and Monitor JN-1 Lake Outfall Line
I068 7 7I2-B05 31MAY06 08JUN06 EXT
Survey and Monitor JN-1 Front of Building
I010 5 7I4-B01 07JUN05 13JUN05 EXT
Remove JN-2 Emergency Generator
I062 33 7I2-B04 31MAY06 18JUL06 EXT
Survey and Monitor JN-1 Back Controlled Area
I009 5 7I4-B01 07JUN05 13JUN05 EXT
Remove JN-2 Electric Substation
I056 24 7I2-B03 23MAY06 26JUN06 EXT
Survey and Monitor JN-1 Back Apron
I019 40 7I4-B01 31MAY06 27JUL06 EXT
Remove Sea/Lands
C118 10 7C47-B08 28APR05 11MAY05 JN1
Remove Underground Drains from JN-1B Area
C159 10 7C46-B02 12MAY05 25MAY05 JN1
Remove Lighting from High Bay Area
C169 7 7C47-B03 26MAY05 06JUN05 JN1
Remove Main Power Distribution Panel BUILDING) Operations Area (COLD DARK
C071A 247 7C47-B16 07JUN05 30MAY06 JN1
Dismantle JN-1A/JN-1B Building and the Waste Storage Shed above grade and slab
C073 17 7C2-B02 31MAY06 22JUN06 JN1
Survey & Monitor JN-1A/JN-1B Underground
C075A 9 7C47-B17 23JUN05 07JUL06 JN1
Excavate JN-1A/JN-1B Underground
C169P 10 7C47-B03 26APR05 09MAY05 JN1
PLAN: Remove Main Power Distribution DARK BUIom Old Operations Area (COLD
I176 10 7I4-B57 30DEC02 13JAN03 EXT
Build JN-4 Access Road
C073P 10 7C2-B02 17APR06 28APR06 JN1
PLAN: Survey & Monitor JN-1A/JN-1B Underground
C075AP 30 7C47-B17 01MAY06 12JUN06 JN1
PLAN: Excavate JN-1A/JN-1B Underground
C182P 60 7C47-B16 10MAR06 02JUN06 JN1
PLAN: Dismantle JN-1A/JN-1B Building and Waste Sorage Shed below grade
C159P 10 7C46-B02 12APR05 25APR05 JN1
PLAN: Remove Lighting from JN-1B High Bay Area
I023 40 7I4-B01 08OCT02 04DEC02 EXT
Remove JN-1 Boneyard
C181P 10 7C47-B16 30JUN03 14JUL03 JN1
PLAN: Stabilize JN-1 Office & Machine Shop Area after dismantle
C103P 20 7C47-B04 01SEP04 29SEP04 JN1
PLAN: Remove Underground Drains from JN-1A Area
C103 20 7C47-B04 18OCT04 12NOV04 JN1
Remove Underground Drains from JN-1A Area
C071AP 100 7C47-B16 04JAN05 23MAY05 JN1
PLAN: Dismantle JN-1A/JN-1B Building and sle Waste Storage Shed above grade and
C033P 10 7C47-B01 11OCT04 22OCT04 JN1
PLAN: Remove Ventilation System from Loading Dock Area
C033 12 7C47-B01 22NOV04 09DEC04 JN1
Remove Ventilation System from Loading Dock Area

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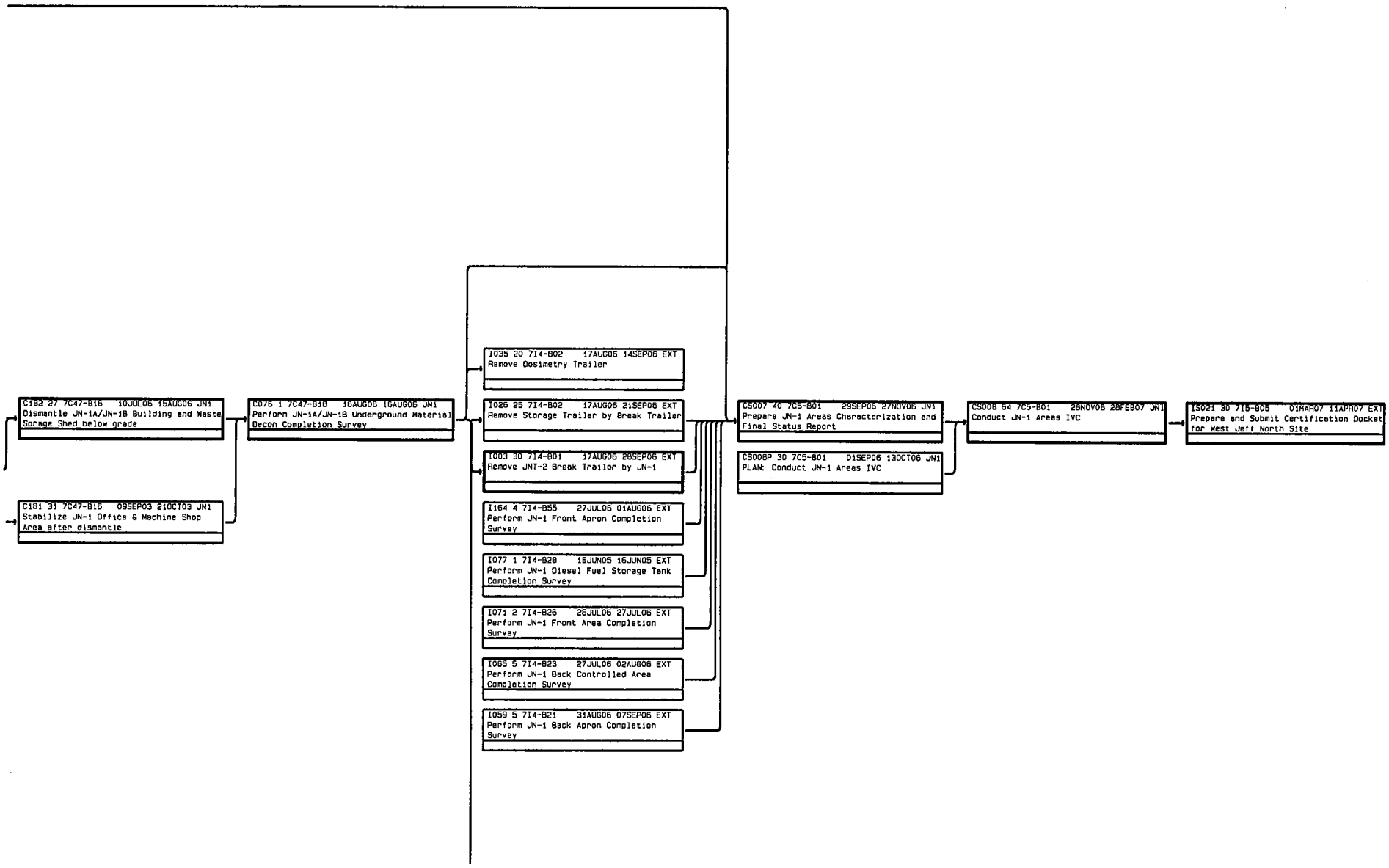
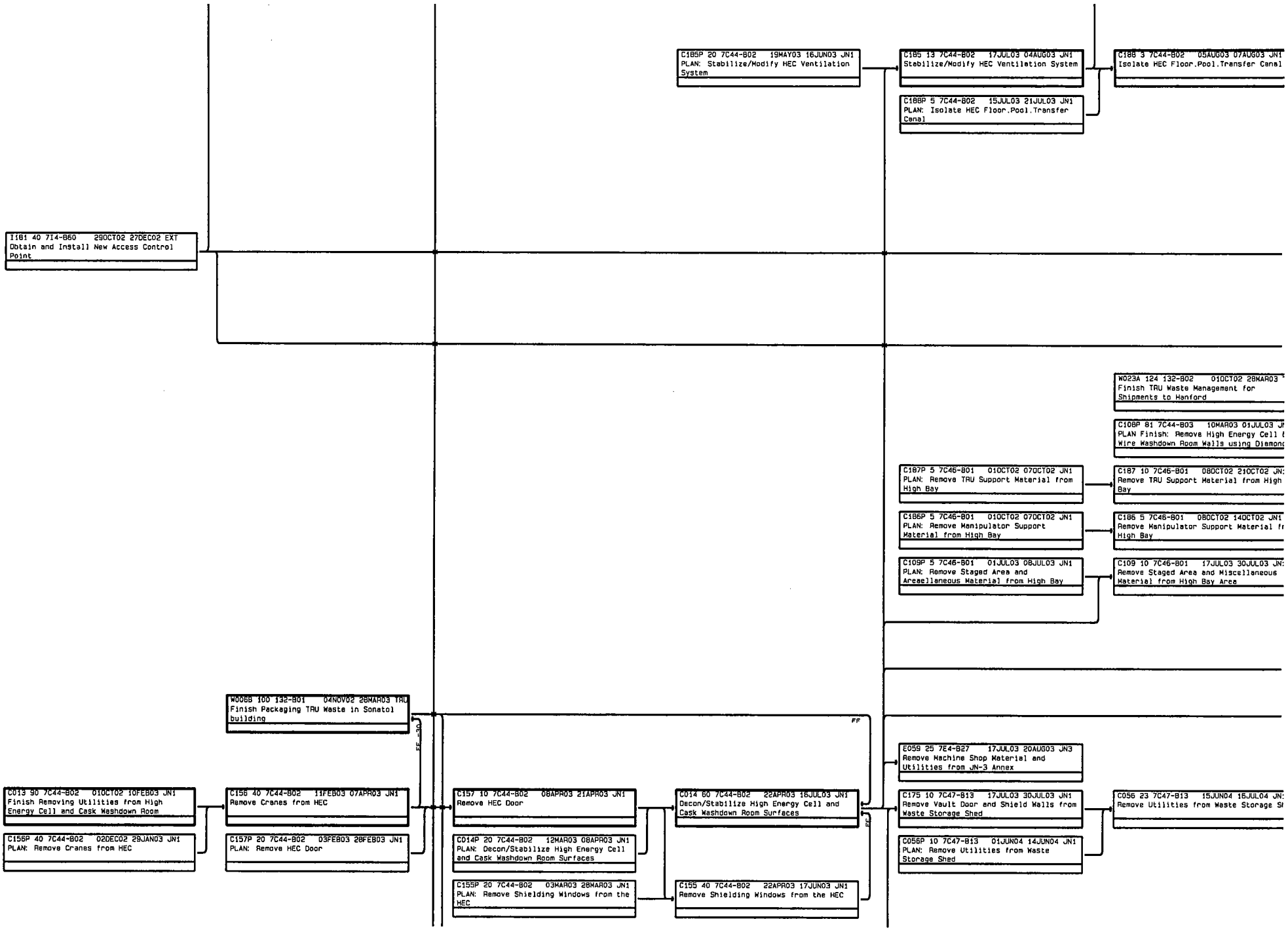
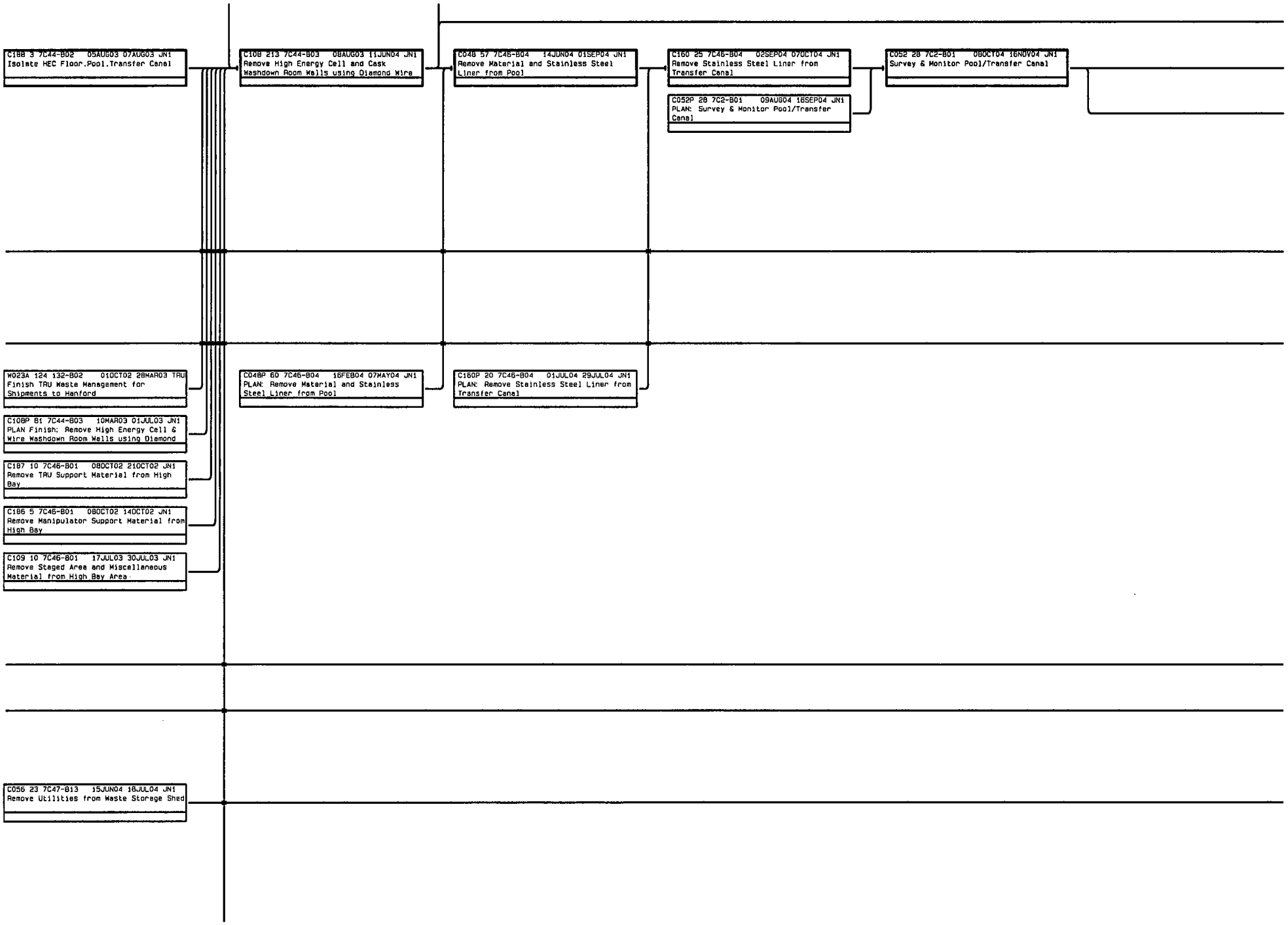
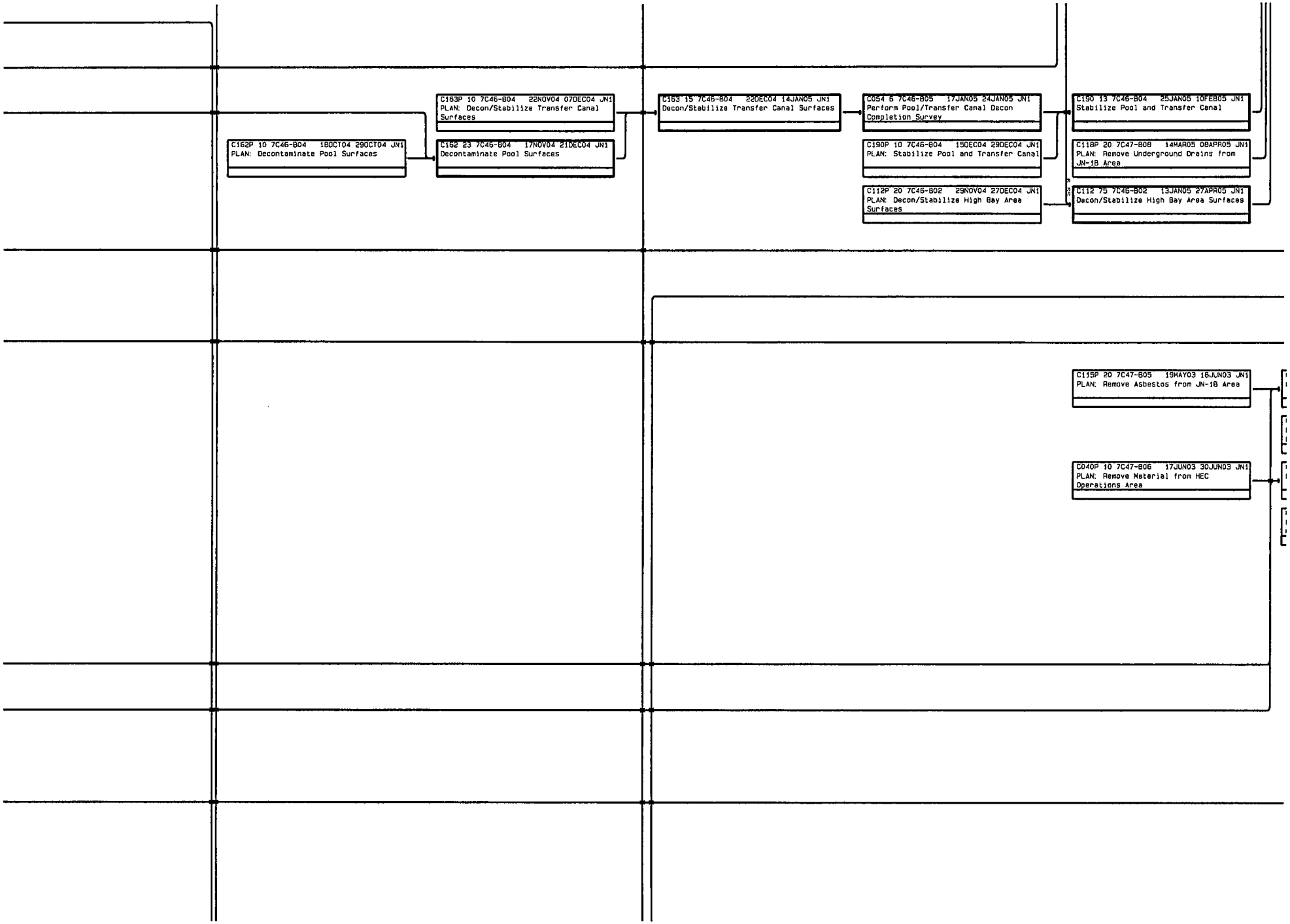

C1B2 27 7C47-B1B 10JUL06 15AUG06 JN1
Dismantle JN-1A/JN-1B Building and Waste Sorage Shed below grade
C181 31 7C47-B1B 09SEP03 21OCT03 JN1
Stabilize JN-1 Office & Machine Shop Area after dismantle
C076 1 7C47-B1B 16AUG06 16AUG06 JN1
Perform JN-1A/JN-1B Underground Material Decon Completion Survey
I035 20 7I4-B02 17AUG06 14SEP06 EXT
Remove Dosimetry Trailer
I026 25 7I4-B02 17AUG06 21SEP06 EXT
Remove Storage Trailer by Break Trailer
I003 30 7I4-B01 17AUG06 28SEP06 EXT
Remove JNT-2 Break Trailor by JN-1
I164 4 7I4-B55 27JUL06 01AUG06 EXT
Perform JN-1 Front Apron Completion Survey
I077 1 7I4-B28 15JUN05 16JUN05 EXT
Perform JN-1 Diesel Fuel Storage Tank Completion Survey
I071 2 7I4-B26 26JUL06 27JUL06 EXT
Perform JN-1 Front Area Completion Survey
I065 5 7I4-B23 27JUL06 02AUG06 EXT
Perform JN-1 Back Controlled Area Completion Survey
I059 5 7I4-B21 31AUG06 07SEP06 EXT
Perform JN-1 Back Apron Completion Survey
CS007 40 7C5-B01 29SEP06 27NOV06 JN1
Prepare JN-1 Areas Characterization and Final Status Report
CS00BP 30 7C5-B01 01SEP06 13OCT06 JN1
PLAN: Conduct JN-1 Areas IVC
CS00B 64 7C5-B01 28NOV06 28FEB07 JN1
Conduct JN-1 Areas IVC
IS021 30 7I5-B05 01MAR07 11APR07 EXT
Prepare and Submit Certification Docket for West Jeff North Site

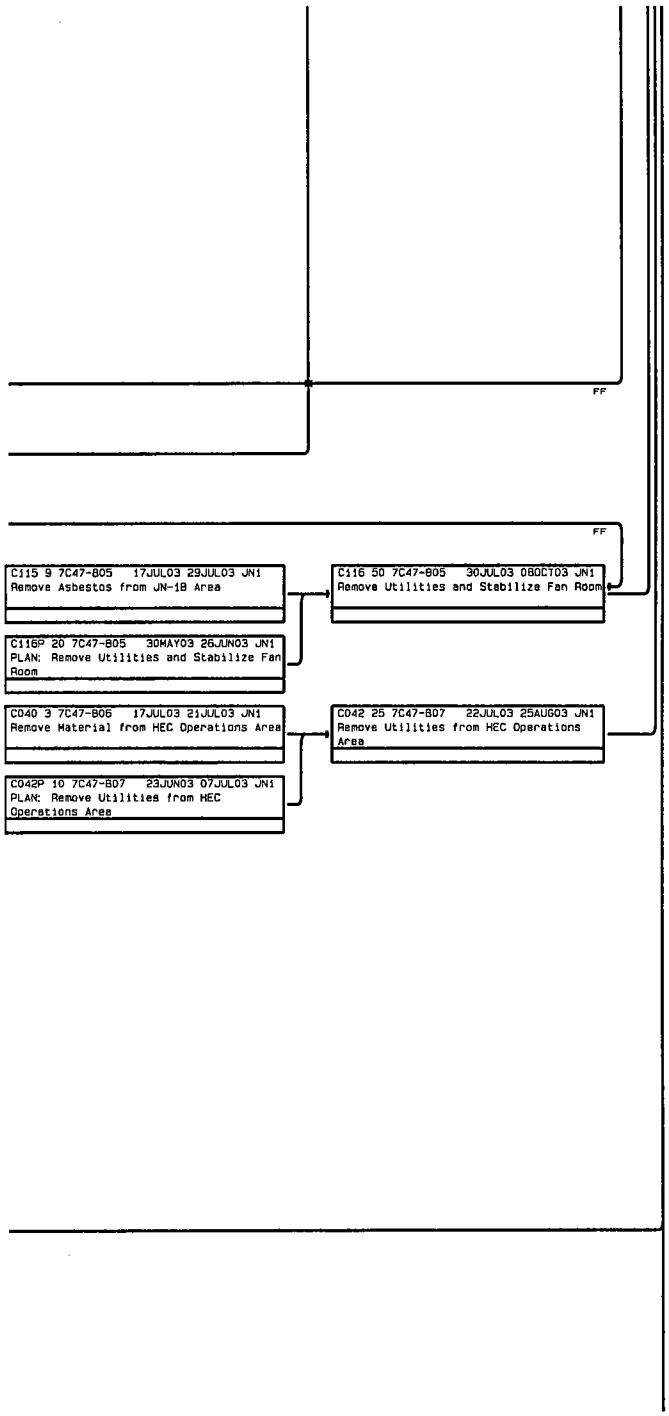

I181 40 7I4-B60 29OCT02 27DEC02 EXT
Obtain and Install New Access Control Point
C185P 20 7C44-B02 19MAY03 16JUN03 JN1
PLAN: Stabilize/Modify HEC Ventilation System
C185 13 7C44-B02 17JUL03 04AUG03 JN1
Stabilize/Modify HEC Ventilation System
C188 3 7C44-B02 05AUG03 07AUG03 JN1
Isolate HEC Floor.Pool.Transfer Canal
C188P 5 7C44-B02 15JUL03 21JUL03 JN1
PLAN: Isolate HEC Floor.Pool.Transfer Canal
W023A 124 132-B02 01OCT02 28MAR03
Finish TRU Waste Management for Shipments to Hanford
C108P 81 7C44-B03 10MAR03 01JUL03 JN
PLAN Finish: Remove High Energy Cell & Wire Washdown Room Walls using Diamond
C187P 5 7C46-B01 01OCT02 07OCT02 JN1
PLAN: Remove TRU Support Material from High Bay
C187 10 7C46-B01 08OCT02 21OCT02 JN1
Remove TRU Support Material from High Bay
C186P 5 7C46-B01 01OCT02 07OCT02 JN1
PLAN: Remove Manipulator Support Material from High Bay
C186 5 7C46-B01 08OCT02 14OCT02 JN1
Remove Manipulator Support Material fr High Bay
C109P 5 7C46-B01 01JUL03 08JUL03 JN1
PLAN: Remove Staged Area and Areaellaneous Material from High Bay
C109 10 7C46-B01 17JUL03 30JUL03 JN1
Remove Staged Area and Miscellaneous Material from High Bay Area
W006B 100 132-B01 04NOV02 28MAR03 TRU
Finish Packaging TRU Waste in Sonatol building
FF -30
FF
C013 90 7C44-B02 01OCT02 10FEB03 JN1
Finish Removing Utilities from High Energy Cell and Cask Washdown Room
C156P 40 7C44-B02 02DEC02 29JAN03 JN1
PLAN: Remove Cranes from HEC
C156 40 7C44-B02 11FEB03 07APR03 JN1
Remove Cranes from HEC
C157P 20 7C44-B02 03FEB03 28FEB03 JN1
PLAN: Remove HEC Door
C157 10 7C44-B02 08APR03 21APR03 JN1
Remove HEC Door
C014P 20 7C44-B02 12MAR03 08APR03 JN1
PLAN: Decon/Stabilize High Energy Cell and Cask Washdown Room Surfaces
C155P 20 7C44-B02 03MAR03 28MAR03 JN1
PLAN: Remove Shielding Windows from the HEC
C014 60 7C44-B02 22APR03 16JUL03 JN1
Decon/Stabilize High Energy Cell and Cask Washdown Room Surfaces
C155 40 7C44-B02 22APR03 17JUN03 JN1
Remove Shielding Windows from the HEC
E059 25 7E4-B27 17JUL03 20AUG03 JN3
Remove Machine Shop Material and Utilities from JN-3 Annex
C175 10 7C47-B13 17JUL03 30JUL03 JN1
Remove Vault Door and Shield Walls from Waste Storage Shed
C056P 10 7C47-B13 01JUN04 14JUN04 JN1
PLAN: Remove Utilities from Waste Storage Shed
C056 23 7C47-B13 15JUN04 16JUL04 JN1
Remove Utilities from Waste Storage Sh

B2


C188 3 7C44-B02 05AUG03 07AUG03 JN1
Isolate HEC Floor.Pool.Transfer Canal
C108 213 7C44-B03 08AUG03 11JUN04 JN1
Remove High Energy Cell and Cask Washdown Room Walls using Diamond Wire
C048 57 7C46-B04 14JUN04 01SEP04 JN1
Remove Material and Stainless Steel Liner from Pool
C150 25 7C46-B04 02SEP04 07OCT04 JN1
Remove Stainless Steel Liner from Transfer Canal
C052 28 7C2-B01 08OCT04 16NOV04 JN1
Survey & Monitor Pool/Transfer Canal
C052P 28 7C2-B01 09AUG04 16SEP04 JN1
PLAN: Survey & Monitor Pool/Transfer Canal
W023A 124 132-B02 01OCT02 28MAR03 TRU
Finish TRU Waste Management for Shipments to Hanford
C108P 81 7C44-B03 10MAR03 01JUL03 JN1
PLAN Finish: Remove High Energy Cell & Wire Washdown Room Walls using Diamond
C187 10 7C46-B01 08OCT02 21OCT02 JN1
Remove TRU Support Material from High Bay
C186 5 7C46-B01 08OCT02 14OCT02 JN1
Remove Manipulator Support Material from High Bay
C109 10 7C46-B01 17JUL03 30JUL03 JN1
Remove Staged Area and Miscellaneous Material from High Bay Area
C048P 60 7C46-B04 16FEB04 07MAY04 JN1
PLAN: Remove Material and Stainless Steel Liner from Pool
C150P 20 7C46-B04 01JUL04 29JUL04 JN1
PLAN: Remove Stainless Steel Liner from Transfer Canal
C055 23 7C47-B13 15JUN04 18JUL04 JN1
Remove Utilities from Waste Storage Shed

B3


C162P 10 7C46-B04 18OCT04 29OCT04 JN1
PLAN: Decontaminate Pool Surfaces
C163P 10 7C46-B04 22NOV04 07DEC04 JN1
PLAN: Decon/Stabilize Transfer Canal Surfaces
C162 23 7C46-B04 17NOV04 21DEC04 JN1
Decontaminate Pool Surfaces
C163 15 7C46-B04 22DEC04 14JAN05 JN1
Decon/Stabilize Transfer Canal Surfaces
C054 6 7C46-B05 17JAN05 24JAN05 JN1
Perform Pool/Transfer Canal Decon Completion Survey
C190P 10 7C46-B04 15DEC04 29DEC04 JN1
PLAN: Stabilize Pool and Transfer Canal
C112P 20 7C46-B02 29NOV04 27DEC04 JN1
PLAN: Decon/Stabilize High Bay Area Surfaces
C190 13 7C46-B04 25JAN05 10FEB05 JN1
Stabilize Pool and Transfer Canal
C118P 20 7C47-B08 14MAR05 08APR05 JN1
PLAN: Remove Underground Drains from JN-1B Area
C112 75 7C46-B02 13JAN05 27APR05 JN1
Decon/Stabilize High Bay Area Surfaces
C115P 20 7C47-B05 19MAY03 16JUN03 JN1
PLAN: Remove Asbestos from JN-1B Area
C040P 10 7C47-B06 17JUN03 30JUN03 JN1
PLAN: Remove Material from HEC Operations Area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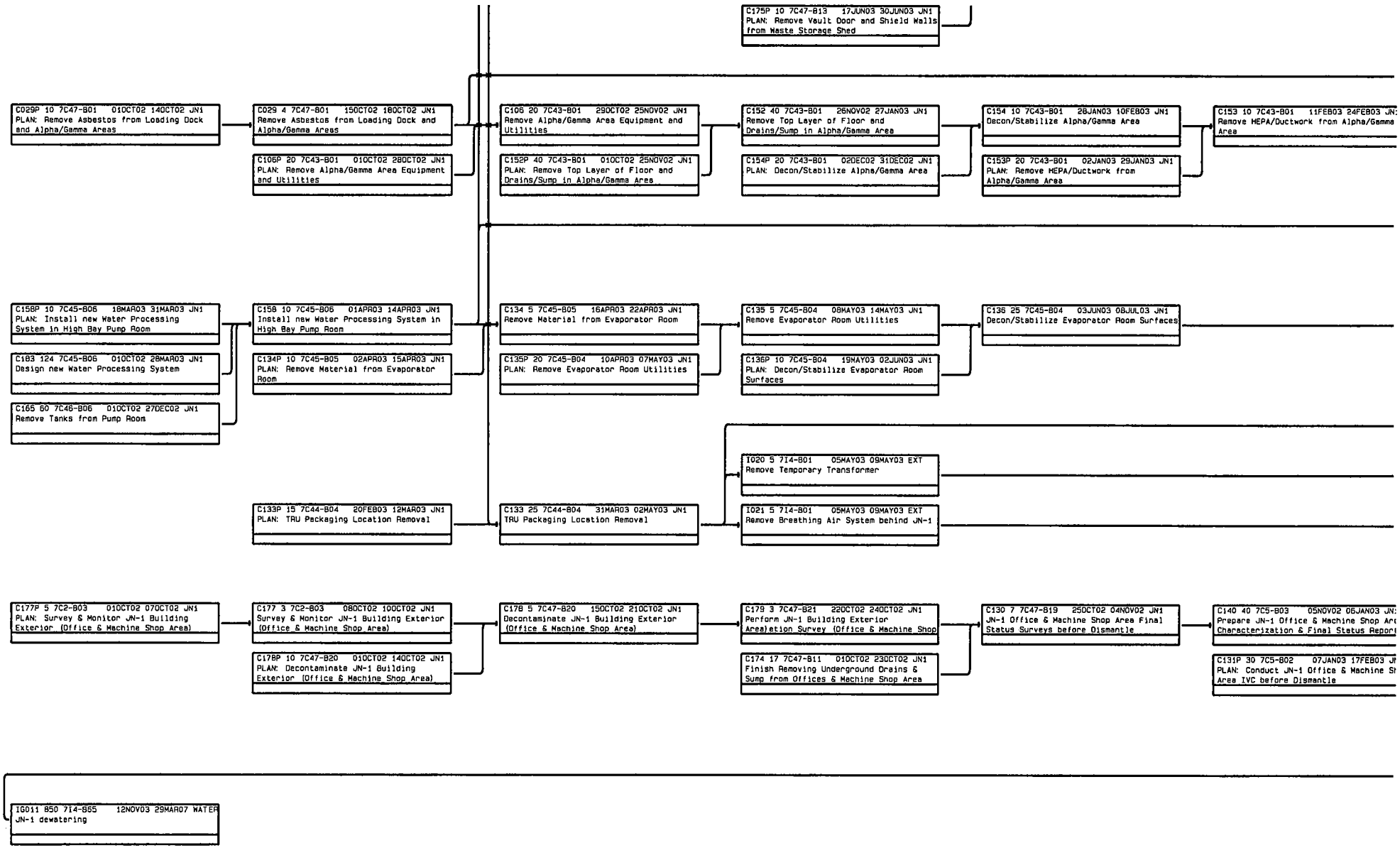
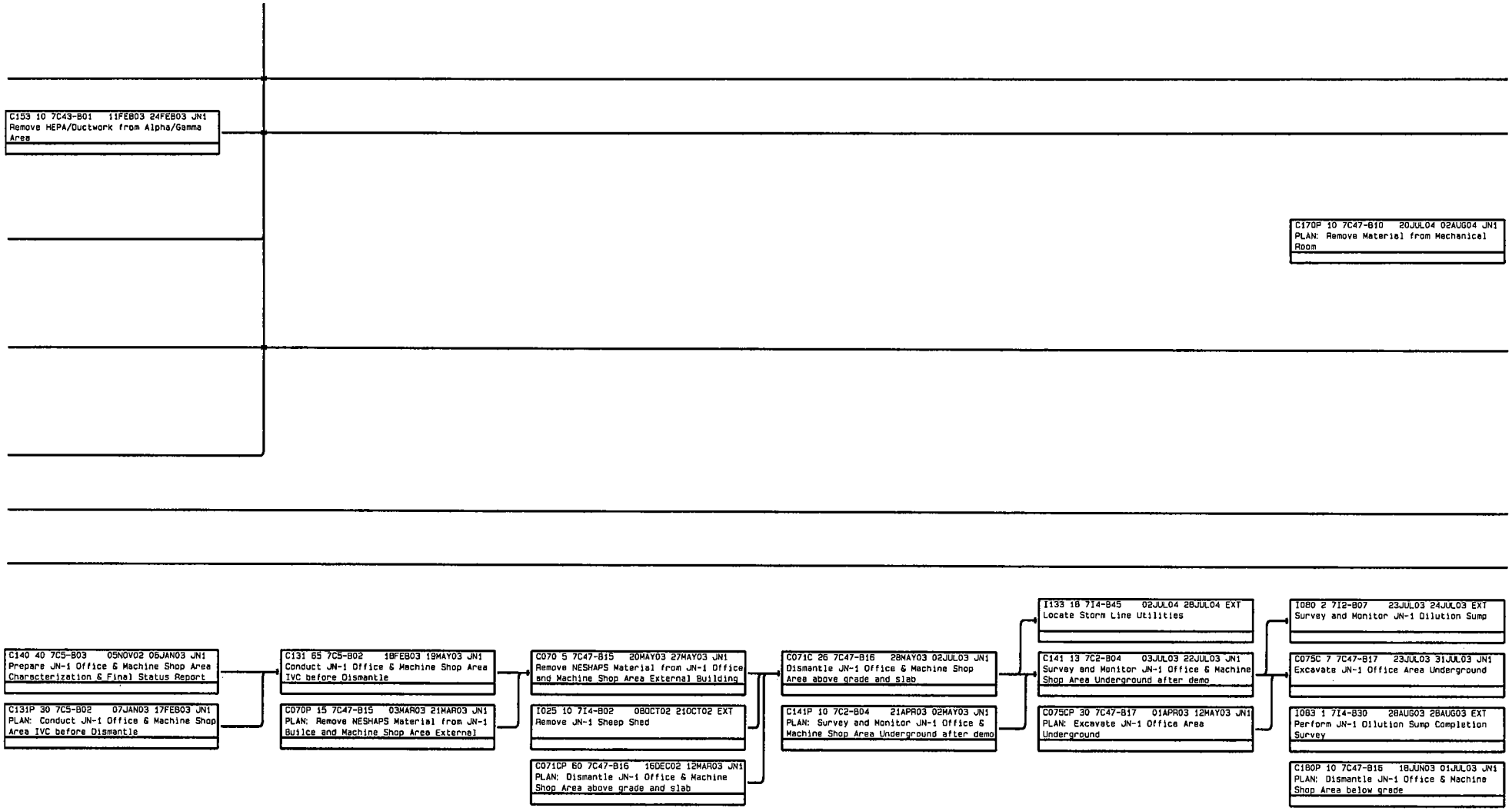
C115 9 7C47-B05 17JUL03 29JUL03 JN1
Remove Asbestos from JN-1B Area
C116 50 7C47-B05 30JUL03 08OCT03 JN1
Remove Utilities and Stabilize Fan Room
C116P 20 7C47-B05 30MAY03 26JUN03 JN1
PLAN: Remove Utilities and Stabilize Fan Room
C040 3 7C47-B06 17JUL03 21JUL03 JN1
Remove Material from HEC Operations Area
C042 25 7C47-B07 22JUL03 25AUG03 JN1
Remove Utilities from HEC Operations Area
C042P 10 7C47-B07 23JUN03 07JUL03 JN1
PLAN: Remove Utilities from HEC Operations Area

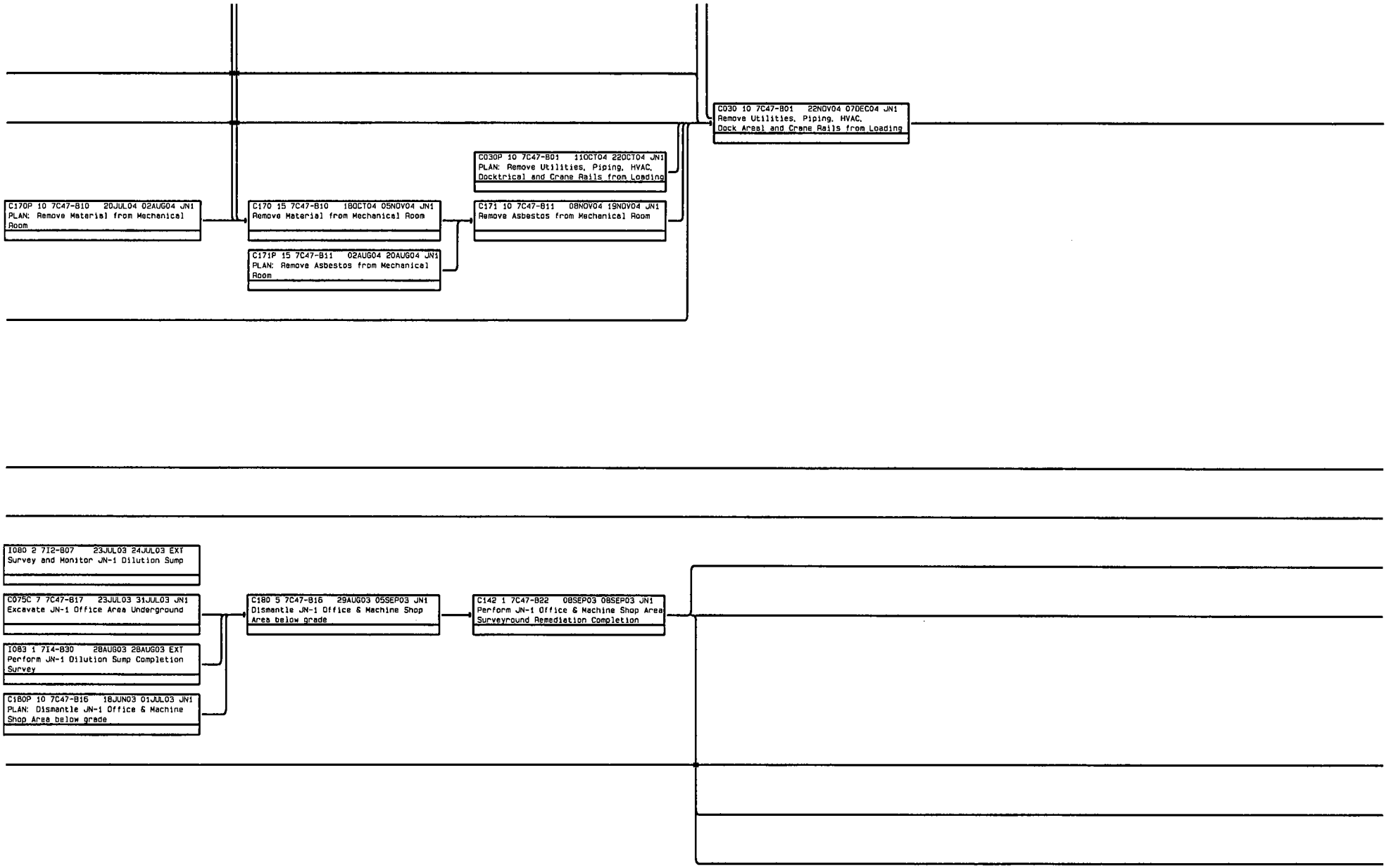
C1

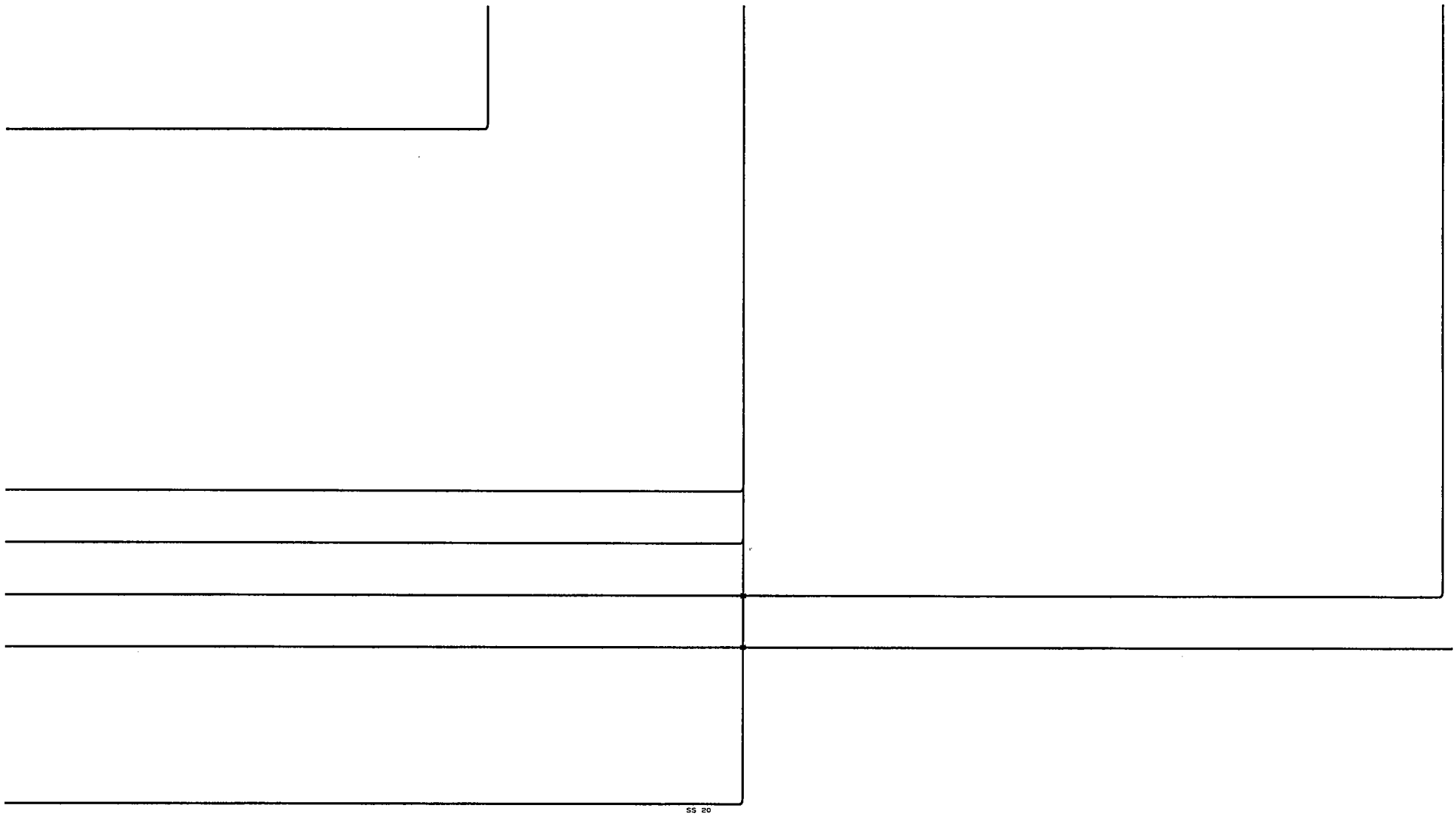

C175P 10 7C47-B13 17JUN03 30JUN03 JN1
PLAN: Remove Vault Door and Shield Walls from Waste Storage Shed
C029P 10 7C47-B01 01OCT02 14OCT02 JN1
PLAN: Remove Asbestos from Loading Dock and Alpha/Gamma Areas
C029 4 7C47-B01 15OCT02 18OCT02 JN1
Remove Asbestos from Loading Dock and Alpha/Gamma Areas
C106P 20 7C43-B01 01OCT02 28OCT02 JN1
PLAN: Remove Alpha/Gamma Area Equipment and Utilities
C106 20 7C43-B01 29OCT02 25NOV02 JN1
Remove Alpha/Gamma Area Equipment and Utilities
C152P 40 7C43-B01 01OCT02 25NOV02 JN1
PLAN: Remove Top Layer of Floor and Drains/Sump in Alpha/Gamma Area
C152 40 7C43-B01 26NOV02 27JAN03 JN1
Remove Top Layer of Floor and Drains/Sump in Alpha/Gamma Area
C154P 20 7C43-B01 02DEC02 31DEC02 JN1
PLAN: Decon/Stabilize Alpha/Gamma Area
C154 10 7C43-B01 28JAN03 10FEB03 JN1
Decon/Stabilize Alpha/Gamma Area
C153P 20 7C43-B01 02JAN03 29JAN03 JN1
PLAN: Remove HEPA/Ductwork from Alpha/Gamma Area
C153 10 7C43-B01 11FEB03 24FEB03 JN1
Remove HEPA/Ductwork from Alpha/Gamma Area
C158P 10 7C45-B06 18MAR03 31MAR03 JN1
PLAN: Install new Water Processing System in High Bay Pump Room
C183 124 7C45-B06 01OCT02 28MAR03 JN1
Design new Water Processing System
C165 60 7C46-B06 01OCT02 27DEC02 JN1
Remove Tanks from Pump Room
C158 10 7C45-B06 01APR03 14APR03 JN1
Install new Water Processing System in High Bay Pump Room
C134P 10 7C45-B05 02APR03 15APR03 JN1
PLAN: Remove Material from Evaporator Room
C134 5 7C45-B05 16APR03 22APR03 JN1
Remove Material from Evaporator Room
C135P 20 7C45-B04 10APR03 07MAY03 JN1
PLAN: Remove Evaporator Room Utilities
C135 5 7C45-B04 08MAY03 14MAY03 JN1
Remove Evaporator Room Utilities
C136P 10 7C45-B04 19MAY03 02JUN03 JN1
PLAN: Decon/Stabilize Evaporator Room Surfaces
C136 25 7C45-B04 03JUN03 08JUL03 JN1
Decon/Stabilize Evaporator Room Surfaces
I020 5 7I4-B01 05MAY03 09MAY03 EXT
Remove Temporary Transformer
I021 5 7I4-B01 05MAY03 09MAY03 EXT
Remove Breathing Air System behind JN-1
C133P 15 7C44-B04 20FEB03 12MAR03 JN1
PLAN: TRU Packaging Location Removal
C133 25 7C44-B04 31MAR03 02MAY03 JN1
TRU Packaging Location Removal
C177P 5 7C2-B03 01OCT02 07OCT02 JN1
PLAN: Survey & Monitor JN-1 Building Exterior (Office & Machine Shop Area)
C177 3 7C2-B03 08OCT02 10OCT02 JN1
Survey & Monitor JN-1 Building Exterior (Office & Machine Shop Area)
C178P 10 7C47-B20 01OCT02 14OCT02 JN1
PLAN: Decontaminate JN-1 Building Exterior (Office & Machine Shop Area)
C178 5 7C47-B20 15OCT02 21OCT02 JN1
Decontaminate JN-1 Building Exterior (Office & Machine Shop Area)
C179 3 7C47-B21 22OCT02 24OCT02 JN1
Perform JN-1 Building Exterior Area)etion Survey (Office & Machine Shop
C174 17 7C47-B11 01OCT02 23OCT02 JN1
Finish Removing Underground Drains & Sump from Offices & Machine Shop Area
C130 7 7C47-B19 25OCT02 04NOV02 JN1
JN-1 Office & Machine Shop Area Final Status Surveys before Dismantle
C140 40 7C5-B03 05NOV02 06JAN03 JN1
Prepare JN-1 Office & Machine Shop Area Characterization & Final Status Report
C131P 30 7C5-B02 07JAN03 17FEB03 JN1
PLAN: Conduct JN-1 Office & Machine Shop Area IVC before Dismantle
IG011 850 7I4-B65 12NOV03 29MAR07 WATER
JN-1 dewatering

C2


C153 10 7C43-B01 11FEB03 24FEB03 JN1
Remove HEPA/Ductwork from Alpha/Gamma Area
C170P 10 7C47-B10 20JUL04 02AUG04 JN1
PLAN: Remove Material from Mechanical Room
C140 40 7C5-B03 05NOV02 06JAN03 JN1
Prepare JN-1 Office & Machine Shop Area Characterization & Final Status Report
C131P 30 7C5-B02 07JAN03 17FEB03 JN1
PLAN: Conduct JN-1 Office & Machine Shop Area IVC before Dismantle
C131 65 7C5-B02 18FEB03 19MAY03 JN1
Conduct JN-1 Office & Machine Shop Area IVC before Dismantle
C070P 15 7C47-B15 03MAR03 21MAR03 JN1
PLAN: Remove NESHAPS Material from JN-1 Builce and Machine Shop Area External
C070 5 7C47-B15 20MAY03 27MAY03 JN1
Remove NESHAPS Material from JN-1 Office and Machine Shop Area External Building
I025 10 7I4-B02 08OCT02 21OCT02 EXT
Remove JN-1 Sheep Shed
C071CP 60 7C47-B16 16DEC02 12MAR03 JN1
PLAN: Dismantle JN-1 Office & Machine Shop Area above grade and slab
C071C 26 7C47-B16 28MAY03 02JUL03 JN1
Dismantle JN-1 Office & Machine Shop Area above grade and slab
C141P 10 7C2-B04 21APR03 02MAY03 JN1
PLAN: Survey and Monitor JN-1 Office & Machine Shop Area Underground after demo
I133 18 7I4-B45 02JUL04 28JUL04 EXT
Locate Storm Line Utilities
C141 13 7C2-B04 03JUL03 22JUL03 JN1
Survey and Monitor JN-1 Office & Machine Shop Area Underground after demo
C075CP 30 7C47-B17 01APR03 12MAY03 JN1
PLAN: Excavate JN-1 Office Area Underground
I080 2 7I2-B07 23JUL03 24JUL03 EXT
Survey and Monitor JN-1 Dilution Sump
C075C 7 7C47-B17 23JUL03 31JUL03 JN1
Excavate JN-1 Office Area Underground
I083 1 7I4-B30 28AUG03 28AUG03 EXT
Perform JN-1 Dilution Sump Completion Survey
C180P 10 7C47-B16 18JUN03 01JUL03 JN1
PLAN: Dismantle JN-1 Office & Machine Shop Area below grade

C3


C030 10 7C47-B01 22NOV04 07DEC04 JN1
Remove Utilities, Piping, HVAC,
Dock Areal and Crane Rails from Loading
C030P 10 7C47-B01 11OCT04 22OCT04 JN1
PLAN: Remove Utilities, Piping, HVAC,
Docktrical and Crane Rails from Loading
C170P 10 7C47-B10 20JUL04 02AUG04 JN1
PLAN: Remove Material from Mechanical
Room
C170 15 7C47-B10 18OCT04 05NOV04 JN1
Remove Material from Mechanical Room
C171 10 7C47-B11 08NOV04 19NOV04 JN1
Remove Asbestos from Mechanical Room
C171P 15 7C47-B11 02AUG04 20AUG04 JN1
PLAN: Remove Asbestos from Mechanical
Room
I080 2 7I2-B07 23JUL03 24JUL03 EXT
Survey and Monitor JN-1 Dilution Sump
C075C 7 7C47-B17 23JUL03 31JUL03 JN1
Excavate JN-1 Office Area Underground
C180 5 7C47-B16 29AUG03 05SEP03 JN1
Dismantle JN-1 Office & Machine Shop
Area below grade
C142 1 7C47-B22 08SEP03 08SEP03 JN1
Perform JN-1 Office & Machine Shop Area
Surveyground Remediation Completion
I083 1 7I4-B30 28AUG03 28AUG03 EXT
Perform JN-1 Dilution Sump Completion
Survey
C180P 10 7C47-B16 18JUN03 01JUL03 JN1
PLAN: Dismantle JN-1 Office & Machine
Shop Area below grade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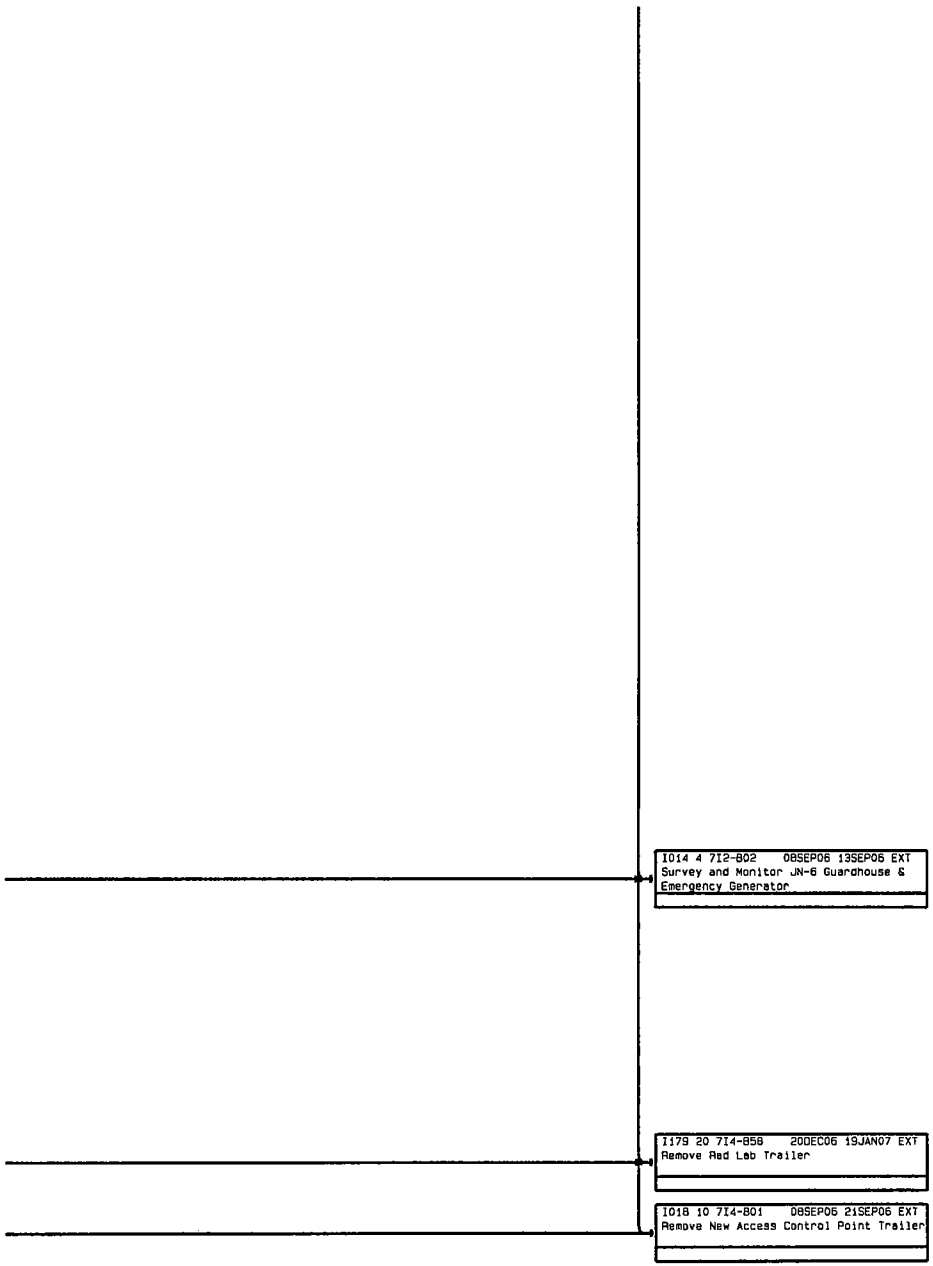
I014 4 7I2-B02 08SEP06 13SEP06 EXT
Survey and Monitor JN-6 Guardhouse &
Emergency Generator
I179 20 7I4-B58 20DEC06 19JAN07 EXT
Remove Rad Lab Trailer
I018 10 7I4-B01 08SEP06 21SEP06 EXT
Remove New Access Control Point Trailer

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C013 **Work Pkg. No.:** 7C44-B02

Function Name: Finish Removing Utilities From High Energy Cell and Cask Wash Down Room

Component Name: HEC

Function Description: Manually remove the electrical, piping, and associated equipment from the HEC. Attempt to further decontaminate the HEC liner so it can be disposed of with the cell structure. Remove the lead plugs, lead items and lead glass windows from the cell structure.

Basis of Estimate

Strategy for Accomplishing Function: Generate a work instruction package to perform cleanup of and utilities removal from the HEC. Initially paint and strip the HEC to lower smearable contamination and overall inventory. Perform manned entries to remove the equipment and service lines from the cell. Apply sealant to the cell to minimize contamination weeping from the surfaces in preparation for cutting.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; DD-OP-029, 075, 076, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 19.0; HP-OP-011, 012, 018, 019, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; TD-AP-2.0; WA-OP-020, 022

Input Descriptions:

1. All high dose items and associated equipment will have been removed
2. The gross decontamination of the HEC will have been accomplished
3. The hazardous constituents in the HEC are completely identified
4. Waste Items include:

ballasts, bulbs	2 cu. ft.	conduit and lights	15 cu ft.
piping	20 cu. ft.	brackets, miscell. 50 cu ft	
lead plugs/shielding	190 cu ft		

Output Descriptions:

1. Approximately 12 Samples (Gamma Spec) to the RAL
2. Approximately 390 cubic feet of packaged LLW waste
3. Approximately 300 cubic feet of radioactive lead waste
4. Approximately 400 cubic feet of secondary (PPE) waste
5. Approximately 100 cubic feet of stripped ALARA paint
6. A HEC structure ready to be deconned and stabilized
7. WI Data Package

Assumptions:

1. The HEC is reading less than 100 mR/hr general area prior to starting this work.
2. Manpower, equipment, resources, and the area are available for this activity when scheduled
3. There are no RCRA considerations except for the lead
4. The work instruction and procedures are in place sufficiently early to perform this activity on schedule

Estimated Time to Plan the Work (Including Review and Approval): See FY-02 CYWP.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	
Project Manager/HP Manager	HBPM	
Task Leader	HBTL	
Secretary/Clerical	HBS	
Support Professional	HBP	
Bartlett Health Physics	HRH	

Estimated Time to Perform the Work: 90 Days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 90 / 90		
Project Manager/HP Manager	HBPM	2 / 90 / 360		
Task Leader	HBTL	1 / 90 / 720	Group 1	100
Battelle Technician	HBT	1 / 90/ 90		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 20 / 10	Group 2 / 3	10 / 10
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	7/ 90 / 5040	Group 2 / 3	360 / 360
Bartlett Maint Specialist	HRDS	2 / 90 / 720	Group 0	100
Bartlett Health Physics	HRH	4 / 90 / 2880	Group 2 3	360 / 180
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: ALARA paint 600 gallons = $63,132
Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites). 7 years as BCLDP Building / Project Manager

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? Yes, elevated activities and very heavy pieces of equipment.

Completed by: C. Voth **Date:** 05/15/00 **Rev. No.**: 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C014 **Work Pkg. No.:** 7C44-B02

Function Name: Decon/Stabilize High Energy Cell and Cask Wash Down Room Surfaces

Component Name: HEC

Function Description: Paint out and seal the surfaces of the HEC structure so there is no smearable contamination and minimal exposure for the HEC structural removal.

Basis of Estimate

Strategy for Accomplishing Function: Generate a work instruction package to perform the decontamination and stabilization of the HEC structure. Paint and strip, if necessary, the HEC structure to lower smearable contamination and overall inventory. Seal the HEC surfaces in preparation for structure removal.

Applicable Requirements/Procedures:

DD-90-02; DD-93-04; DD-OP-075, 076; HS-AP-4.0, 5.0; HS-OP-001; HP-AP-1.0, 2.0, 5.0, 8.0; HP-OP-012; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; SM-OP-001; TD-AP-2.0; WA-OP-020

Input Descriptions:

1. There are no items or associated equipment that could create undue exposure risk to personnel
2. There are no hazardous constituents in the HEC
3. Man lift from C013

Output Descriptions:

1. Approximately 100 cubic feet of secondary (PPE) waste
2. Approximately 100 cubic feet of stripped ALARA paint
3. 100 ft^3 non compactable Cat 3 LLW
4. The HEC structure is ready to be removed

Assumptions:

1. Manpower, equipment, resources, and the area are available for this activity when scheduled
2. There are no RCRA constituents in the structure.
3. Production rates include 10 days to paint and strip, and 10 days to seal prior to cell structure removal
4. The work instruction and procedures are in place sufficiently early to perform this activity on schedule.
5. This work will require a level 2 hazard analysis.

Estimated Time to Plan the Work (Including Review and Approval): 20 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1 / 20 / 10
Technical Advisors	HBTA	2 / 20 / 40
Project Manager/HP Manager	HBPM	2 / 20 / 120
Task Leader	HBTL	1 / 20 /40
Secretary/Clerical	HBS	1 / 20 / 10
Support Professional	HBP	
	HBCO	1/5/4
Bartlett Health Physics	HRH	1 / 20 / 10

Estimated Time to Perform the Work: 60 Days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 60 / 60		
Project Manager/HP Manager	HBPM	2 / 60 / 240		
Task Leader	HBTL	1 / 60 / 480	Group 0	20
Battelle Technician	HBT	1 / 60 / 60		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 20 / 16		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5 / 60 / 2400	Group 3	240
Bartlett Maint Specialist	HRDS	1 / 60 / 240	Group 0	20
Bartlett Health Physics	HRH	4 / 60 / 1920	Group 1 / 3	120 / 120
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: ALARA paint – 100 gallons = $10,522
Poly Urea - 100 gallons = $4,208
Air Compressor Rental 130-200 CFM = $1,425

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites).

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? No, this is a straight forward process.

Completed by: C. Voth (Updated by PJW) **Date:** 05/15/01 (updated 2-21-02) **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C029 **Work Pkg. No.:** 7C47-B01

Function Name: Remove asbestos from loading dock and Alpha-Gamma areas

Component Name: JN-1 Loading Dock & Alpha-Gamma areas

Function Description: Remove asbestos from the back dock area and alpha gamma cell area prior to decon activities. This includes asbestos pipe insulation and any wall through sections containing asbestos material.

Basis of Estimate

Strategy for Accomplishing Function: Procure asbestos abatement subcontractor to perform work.

Applicable Requirements/Procedures:

Approved work instruction; Subcontract with asbestos abatement contractor; ODOH and OEPA asbestos abatement regulations; BCLDP-90-1; DD-93-04, 05, 11; DD-OP-065; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0; HP-OP-012, 023; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; SIH-PP-09; SM-OP-001; TD-AP-2.0, 3.0; WA-OP-022

Input Descriptions:

1. JN-1 loading dock and alpha gamma cell areas less non-structural materials
2. Approximately 65 pipe elbows and associated attached asbestos insulation.

Output Descriptions:

1. Loading dock/alpha gamma cell area ready for decon.
2. App. 180 cu. ft. of low level asbestos waste.
3. Job control waste – 16 cu. ft.

Assumptions:

1. Suspect material assumed to be asbestos containing material.
2. No confirmatory samples for asbestos content have been taken.
3. Price quote assumes work to be performed in FY 2001
4. Price quote based on walkdown with asbestos abatement contractor for the purposes of cost estimating.
5. work to be performed by trained asbestos workers with HP & D&D support.

Estimated Time to Plan the Work (Including Review and Approval): Planning time of 10 days includes notification to ODOH and OEPA of abatement activities.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1/10/10
Project Manager/HP Manager	HBPM	2/10/40
Task Leader	HBTL	1/10/20
Secretary/Clerical	HBS	1/10/10
Support Professional	HBP	
Bartlett Health Physics	HRH	1/5/5

Estimated Time to Perform the Work: Approximately 4 days to include set-up, tear-down and clearance sampling if required.

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA			
Project Manager/HP Manager	HBPM	2/4/8	N/A	
Task Leader	HBTL	1/4/12	N/A	
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1/4/12	N/A	
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	1/4/8	N/A	
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH	1/4/16	N/A	
Bartlett Admin Support	HRA			
Asbestos Abate. Cntr.		70 manhours	Group 2	16

Subcontract/Purchased Service: Purchased Services :Asbestos abatement (AHC, Inc.) estimate from 5/16/00 of $5,319.00 (escalated).

Special Equipment/Material: Ladders, scaffolding, manlift, HEPA air units, HEPA vacuums. All other material and supplies to be supplied by the abatement contractor with the exception of PPE, i.e., clothing and respirators.

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Based on estimate by abatement contractor based on examination of the area.

Completed by: D. A. Seifert **Date:** 04/17/02 **Rev. No.**: 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C030 **Work Pkg. No.:** 7C47-B01

Function Name: Remove Utilities, Piping, HVAC, Electrical and materials from Loading Dock Area.

Component Name: JN-1 Loading Dock

Function Description: : Electrical utilities, piping, cranes, hoists, and HEPA exhaust system will be removed from the loading dock and adjacent passageway in preparation for building demolition.

Basis of Estimate

Strategy for Accomplishing Function: After all decontamination/stabilization activities have been completed in the Alpha-Gamma cell area below and the adjacent CAA/Evaporator Room area, utilities will be removed from the loading dock area. Cranes, hoists, jibs from the Alpha-Gamma area will be removed first followed by piping, electrical and lighting. HEPA ventilation systems will be left operational until no longer needed.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-03, 04, 05; DD-OP-029, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0; HP-OP-011, 012, 018, 019, 106, 201; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; SIH-PP-04; WA-OP-020

Input Descriptions:

1. The loading dock area (1002 sq ft) with asbestos insulation removed and decontamination work completed in adjacent areas such as the Alpha-Gamma cells and CAA.
2. Waste containers for collecting sorted waste streams.
3. Utility items and materials:

Lamp Ballasts	1 cu ft	Fluorescent tubes	3 cu ft
Monorail crane	32 cu ft		
Jib cranes	30 cu ft	Lamp fixtures	40 cu ft
Piping	12 cu ft		

Output Descriptions:

1. Loading dock area with utilities removed, ready for removal of HEPA ventilation at the time of building demolition.
2. Completed work instruction data package.
3. Containerized utility waste:

PCB waste	1 cu ft	Pb/Hg waste	4 cu ft
LLW metal	121 cu ft	Job control waste	20 cu ft

Assumptions:

1. Production rate is approximately 300 sq ft per day with one crew in a nominally clean area.
2. The area will no longer be needed for receiving and removing waste containers from other areas prior to the start of this activity.

Estimated Time to Plan the Work (Including Review and Approval): 10 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1 / 1 / 4*
Technical Advisors	HBTA	1 / 10 / 10 + 1 / 1 / 4*
Project Manager/HP Manager	HBPM	2 / 10 / 40
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 10 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

* Additional review time for Level 2 hazard rating.

Estimated Time to Perform the Work: 10 days including setup & teardown of controls

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 10 / 10		
Project Manager/HP Manager	HBPM	2 / 10 / 40		
Task Leader	HBTL	1 / 10 / 80	Group 0	10
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 2 / 8	Group 0	2
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 10 / 360	Group 0	40
Bartlett Maint Specialist	HRDS	1 / 3 / 12	Group 0	3
Bartlett Health Physics	HRH	1 / 10 / 80	Group 0	10
Bartlett Admin Support	HRA			
Heavy Equipment Movers		3 / 2 / 48	Group 0	6

Subcontract/Purchased Service: Movers/Riggers: Labor @ $63.70/hr = $2,988, Tool Truck = $319, Forklift 6000# = $796.

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? Yes. Production rate expected to be 50% faster than previously experienced because noncritical utilities will be removed during building demolition.

Completed by: D. A. Seifert **Date:** 4/17/02 **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C033 **Work Pkg. No.:**7C47-B01

Function Name: Remove ventilation system from loading dock area.

Component Name: JN-1 Loading Dock Area

Function Description: When ventilation is no longer needed in the Alpha-Gamma and Evaporator areas, HEPA filters and ducting servicing these areas will be removed.

Basis of Estimate

Strategy for Accomplishing Function: At the appropriate times, intake ducting to the two HEPA systems will be bagged and removed. The HEPA units will then be turned off, the filters bagged out, and the clean-side ducting and monitoring systems will be removed to the building roof line. Permanent (durable) containment for the A-G filters (104 sq ft internal surface) will be decontaminated/stabilized for building demolition.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; DD-OP-029, 102; HP-AP-1.0, 2.0, 5.0, 8.0; HP-OP-012, 019; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; SIH-PP-004; SM-OP-001; TD-AP-2.0; WA-OP-020

Input Descriptions:

1. Loading dock area with utilities except for HEPA systems and controls removed.
2. HEPA system components:

Ducting	40 cu ft	HEPA filters	24 cu ft
Filter housings	30 cu ft	conduit & switches	4 cu ft

Output Descriptions:

1. Loading dock area with HEPA ventilation systems removed and underlying surfaces stabilized for building demolition.
2. Completed work instruction data package.
3. HEPA filter waste:

HEPA filters	24 cu ft	LLW metal	74 cu ft
Job control waste	43 cu ft		

Assumptions:

1. Task will require 1 day setup, 2 days material removal, one day cleanup for two filter system plus 3 days to decon/stabilize the inside of the A-G tornado housing.

Estimated Time to Plan the Work (Including Review and Approval): 10 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1 / 1 / 4*
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40 + 1/1/4*
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 10 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

* Additional review time for Level 2 hazard rating.

Estimated Time to Perform the Work: 12 days.

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 12 / 12		
Project Manager/HP Manager	HBPM	2 / 12 / 48		
Task Leader	HBTL	1 / 12 / 96	Group 0	12
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 2 / 4	Group 0	2
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 12 / 384	Group 0 / Group 2	40 / 16
Bartlett Maint Specialist	HRDS	1 / 3 / 12	Group 0	3
Bartlett Health Physics	HRH	2 / 12 / 192	Group 0 / Group 2	20 / 8
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: Air Compressor Rental 130-200 CFM =$582

Special Equipment/Material: 10 mils Polyurea encapsulant @ 144 sq ft/gal = 1gal = $42

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Estimate based on field experience with filter changes, duct removal experience at KA buildings.

Completed by: D. A. Seifert **Date:** 4/17/02 **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C036 **Work Pkg. No.:** 7C46-B06

Function Name: Remove Utilities from Pump Room

Component Name: JN-1 Pump Room

Function Description: Ducting, piping, exposed drains, and electrical services will be removed from the pump room to prepare for building dismantling.

Basis of Estimate

Strategy for Accomplishing Function: All utilities except lighting will be removed from the pump room using appropriate tools and equipment. Lighting electrical will then be disabled and removed.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-03, 04; DD-OP-075, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 29.0; HP-OP-011, 012, 019, 106; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04, 06; SM-OP-001; TD-AP-2.0, 3.0; WA-OP-020

Input Descriptions:

1. JN-1 Pump Room (812 sq ft) after waste compaction equipment, the new water processing equipment and ACM has been removed.
2. Pump Room Equipment:

Lamp ballasts	2 cu ft	Lamp tubes	4 cu ft
Ductwork	80 cu ft	Lamp fixtures	56 cu ft
Piping	23 cu ft	Drain piping	3 cu ft

Output Descriptions:

1. JN-1 Pump Room with critical utilities removed in preparation for surface decontamination/stabilization.
2. Completed work instruction data package.
3. Containerized utility waste:

PCB waste	2 cu ft	Pb/Hg waste	4 cu ft
LLW metal	162 cu ft	Job control waste	198 cu ft

Assumptions:

1. Production rate will be approximately 200 sq ft per day with one crew.
2. This work will require a level 2 hazard review.

Estimated Time to Plan the Work (Including Review and Approval): 10 days.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	2 / 1 / 2
Technical Advisors	HBTA	2 / 2 / 16
Project Manager/HP Manager	HBPM	2 / 10 / 40
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 1 / 2
Support Professional	HBP	1 / 1 / 2
Bartlett Health Physics	HRH	
	HBCO	

Estimated Time to Perform the Work: 10 days.

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 *Group 1* *160*

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 10 / 10		
Project Manager/HP Manager	HBPM	2 / 10 / 30		
Task Leader	HBTL	1 / 10 / 80	Group 0	10
Battelle Technician	HBT	1 / 5 / 20	Group 1	5
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 4 / 8		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 2 / 4	Group 1	2
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 10 / 320	Group 2 / Group 1	60 / 20
Bartlett Maint Specialist	HRDS	1 / 10 / 20	Group 2	4
Bartlett Health Physics	HRH	3 / 10 / 240	Group 2 / Group 1	10 / 10
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Production rate estimated on basis of previous experience at KA buildings.

Completed by: D. A. Seifert (Updated by PJW) **Date:** 5/15/01 (Updated 4-24-02) **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C037 **Work Pkg. No.:** 7C46-B06

Function Name: Decon/Stabilize Pump Room Surfaces

Component Name: JN-1 Pump room

Function Description: Remove loose contamination from surfaces in the JN-1 Pump room to the extent practical and stabilize to prevent contamination migration during building dismantling.

Basis of Estimate

Strategy for Accomplishing Function: Building surfaces will be decontaminated using non destructive methods such as vacuuming, wiping, and washing (including power washing) or application and removal of strippable coatings. After decontamination, surfaces still exhibiting smearable contamination will be stabilized with a durable coating such as an epoxy enamel.

Applicable Requirements/Procedures:

DD-90-02; DD-93-04; DD-OP-065, 075, 076; HS-AP-4.0, 5.0; HS-OP-001; HP-AP-1.0, 2.0, 5.0, 8.0; HP-OP-012; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-06; SM-OP-001; TD-AP-2.0, 3.0; WA-OP-020, 061

Input Descriptions:

1. JN-1 Pump Room (3562 sq ft total surface) with all utilities and equipment removed.

Output Descriptions:

1. JN-1 Pump Room with surfaces decontaminated/stabilized & ready for building dismantling.
2. Completed work instruction data package.
3. Job control waste – 60 cu ft

Assumptions:

1. Decontamination can be accomplished at the rate of 500 sq ft per day by vacuuming.
2. Stabilization at the rate of 250 sq ft per day will be required for approximately 50% of building surfaces.
3. This work will require a level 2 hazard review.

Estimated Time to Plan the Work (Including Review and Approval): 10 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 1 / 2
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 1 / 2
	HBCO	

Estimated Time to Perform the Work: 15 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 *Group 1* *160*

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 15 / 15		
Project Manager/HP Manager	HBPM	2 / 15 / 45		
Task Leader	HBTL	1 / 15 / 120	Group 0	15
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 3 / 6		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 15 / 480	Group 1 / Group 0	64 / 28
Bartlett Maint Specialist	HRDS	1 / 15 / 30	Group 2	3
Bartlett Health Physics	HRH	2 / 15 / 180	Group 1 / Group 0	16 / 22
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: 20 gal epoxy = $1,191

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Estimate based on field experience in various similar areas of JN-1.

Completed by: D. A. Seifert (Updated by PJW) **Date:** 6/17/00 (Updated 4-24-02) **Rev. No.:** 1

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No: C040 **Work Package No.:** 7C47-B06

Function Name: Remove Material from HEC Operations Area

Component Name: The HEC Operations Area

Function Description: Equipment and non-structural materials/waste will be removed from the HEC Operating area of JN-1.

Basis of Estimate

Strategy for Accomplishing Function: The HEC Operating area supports manipulator operations, HP counting area and personnel decontamination station. Most of the waste/ material for removal are small tools, desk type material needed for day to day operations.

Applicable Requirements/Procedures:

BCLDP-90-1, 2; DD-90-02; DD-93-02, 04; HP-AP-1.0, 2.0, 5.0, 29.0; HP-OP-011, 012, 018, 019; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; SM-OP-001; TD-AP-2.0, 3.0; WA-OP-020

Input Descriptions:

1. The decontamination/stabilization of the HEC is completed.
2. Material, waste and non-structural materials as described in Waste volumes & types FY 2001 and a physical walk down of the building.
3. Work Instruction with appropriate RWP, Safety & WM Checklists.

Output Descriptions:

Free Released Clean waste	31 cu ft
LLW	
Compactable	20 cu ft
Non-compactable	279 cu ft

Assumptions:

1. This work can begin when the project no longer needs an HP counting area and general support for the area.
2. 10% of the waste/material will undergo the free release process or be moved to a new location out of the way.

Estimated Time to Plan the Work (Including Review and Approval): 10 days.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Total Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1/10/10
Project Manager/HP Manager	HBPM	2/10/40
Task Leader	HBTL	1/10/20
Secretary/Clerical	HBS	1/10/10
Support Professional	HBP	
Bartlett Health Physics	HRH	1/5/5

Estimated Time to Perform the Work: 3 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Total Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 3 / 3		
Project Manager/HP Manager	HBPM	2 / 3 / 12		
Task Leader	HBTL	1 / 3 / 9		
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	2 / 3 / 32	0	
Bartlett Maint Specialist	HRDS	1 / 3 / 6		
Bartlett Health Physics	HRH	2 / 3 / 48	0	
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: N/A

Special Equipment/Material: N/A

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Activity Number: C040

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: P. Weaver/D. Seifert **Date:** 4/20/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C042 **Work Pkg. No.:** 7C47-B07

Function Name: Remove Utilities from HEC Operations Area

Component Name: JN-1 HEC Operations Area

Function Description: Dismantle & remove ductwork, piping & electrical systems from the HEC operations area. Decontaminate/stabilize building surfaces as necessary for final demolition.

Basis of Estimate

Strategy for Accomplishing Function: Removal of ductwork, piping, and electrical systems using appropriate tools and equipment according to Work Instruction, RWP, Safety & WM Checklists. Building surfaces will be checked and decontaminated/stabilized as necessary as they are exposed to minimize spread of contamination.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-02, 04; DD-OP-075, 102, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 29.0; HP-OP-011, 012, 019; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; SIH-PP-04, 06; SM-OP-001; TD-AP-2.0; WA-OP-020

Input Descriptions:

1. HEC operations area (1200 sq ft) including decon room & fan room stairs with materials and asbestos removed.
2. Decon/stabilization of HEC & cask washdown room complete, including removal of manipulators and lead glass windows.
3. Appropriate waste containers for LLW and clean waste streams.
4. Operating Area utilities:

Lamp ballasts	2 cu ft	Lamp tubes	4 cu ft
Conduit	8 cu ft	Ducting	248 cu ft
Light fixtures	26 cu ft	Piping	9 cu ft
Transformers	32 cu ft		

Output Descriptions:

1. Operating area with all utilities removed and required surface stabilization performed.
2. Utility Removal Waste:

PCB waste	2 cu ft	Pb/Hg waste	4 cu ft
LLW metal	323 cu ft	Job control waste	96 cu ft

Assumptions:

1. Production rate will be approximately 50 sq ft per day including decon/stabilization.
2. All elevated surfaces will require wash/wipe decontamination and 10% (800 sq ft) will require stabilization with a durable coating.

Estimated Time to Plan the Work (Including Review and Approval): 10 days.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1 / 1 / 4*
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40 1/1/4*
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 10 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

* Additional review time for Level 2 hazard rating.

Estimated Time to Perform the Work: 25 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 *Group 1* *160*

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 25 / 25		
Project Manager/HP Manager	HBPM	2 / 25 / 100		
Task Leader	HBTL	1 / 25 / 200	Group 0	25
Battelle Technician	HBT	1 / 25 / 48	Group 1	6
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 6 / 48	Group 0	6
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 25 / 800	Group 1 / Group 0	104 / 48
Bartlett Maint Specialist	HRDS	1 / 4 / 16	Group 2	4
Bartlett Health Physics	HRH	2 / 25 / 300	Group 1 / Group 0	26 / 24
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: Air Compressor Rental 130-200 CFM = $687

Special Equipment/Material: 7 gal Polyurea encapsulant @ $42/gal = $295 assuming 25% loss for start-up/shutdown

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Estimate based on experience with similar areas in KA buildings.

Completed by: D. A. Seifert **Date:** 4/20/02 **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C048 **Work Pkg. No.:** 7C46-B04

Function Name: Remove Material and Stainless Steel Liner from Pool

Component Name: JN-1 Pool

Function Description: Remove miscellaneous material and the Stainless Steel Liner from the JN-1 pool. The liner removal will involve application of a durable coating to eliminate loose contamination from the interior surface and execution of a contract to cut the liner along the weld seams for large piece removal. Dispose of all material through the LLW program.

Basis of Estimate

Strategy for Accomplishing Function: Remove plywood floor covering and plastic pool protector from the JN-1 spent fuel pool. Seal and stabilize the pool liner for potential contamination control. Generate a contract to cut the liner from the concrete shell of the pool. This can be accomplished by rigging each liner piece, cutting along the weld seams and removing the liner for further size reduction. Generate a support work instruction package to provide D&D and WM support and HP oversight for removal of the liner. Perform removal and size reduction of the liner and have Waste Management dispose of the pieces.

Applicable Requirements/Procedures:

DD-90-02; DD-93-04, 05; DD-OP-029; HP-AP-1.0, 2.0, 5.0; HP-OP-012, 090; HS-AP-4.0, 5.0; HS-OP-001; QD-AP-4.1, 5.2, 6.1, 7.1; RL-AP-1.0; SIH-PP-06, 08; SM-AP-001; TD-AP-2.0; WA-OP-020, 066.

Input Descriptions:

1. JN-1 high bay with HEC, cask washdown walls, and pool tornado covers removed.
2. JN-1 pool with TRU waste removed but plastic liner and plywood floor cover in place.

Output Descriptions:

1. JN-1 high bay area prepared for final drain line and utility removal
2. Completed work instruction data package
3. Packaged removed waste:

Stainless Liner	45 cu ft	Consumables (blades, etc.)	5 cu ft
Job Control Waste	260 cu ft	Miscellaneous Plastic/metal	100 cu ft
Plywood (clean)	25 cu ft		

Assumptions:

1. Planning will include a Level 2 Hazard Analysis.
2. There are no hazardous constituents in the work area and the area is dedicated for this work
3. Manpower, equipment, resources, and the area are available for this activity when scheduled
4. There are no RCRA considerations in the pool area
5. Pool surfaces can be cleaned and coated at the rate of 150 sq ft / hr each.
6. 2260 lineal ft of cutting at 10 feet per hour
7. Job involves 5 days for setups, 5 days for cleaning and coating, 40 days for cuts, and 7 days for material removal.
8. The work instruction and procedures are in place sufficiently early to perform this activity on schedule

Estimated Time to Plan the Work (Including Review and Approval): 60 Days for both the contract award and the supporting work instruction package.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	4 / 5 / 10
Technical Advisors	HBTA	2 / 60 / 20
Project Manager/HP Manager	HBPM	2 / 60 / 240
Task Leader	HBTL	1 / 60 / 60
Secretary/Clerical	HBS	1 / 60 / 40
Support Professional	HBP	1 / 60 / 10
Bartlett Health Physics	HRH	1 / 60 / 10

Estimated Time to Perform the Work: 57 Days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 57 / 57		
Project Manager/HP Manager	HBPM	2 / 57 / 228		
Task Leader	HBTL	1 / 57 / 456	Group 0	57
Battelle Technician	HBT	1 / 57 / 57		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 57 / 30		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 57 / 20	Group 0	5
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5/ 57 / 2280	Group 1	228
Bartlett Maint Specialist	HRDS	1 / 57 / 171	Group 0	50
Bartlett Health Physics	HRH	3 / 57 / 1368	Group 1	114
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: 35 gal polyurea coating @ $42.08/gal = $1,473
48 ft scissor lift, 4 months rental @ $2,221 = $8990

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites).

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? Yes, activities occur in a 45' pit lifting heavy, bulky side walls.

Completed by: C. Voth (updated by D Seifert) **Date:** 05/21/02 **Rev. No.:** 3

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C052 **Work Pkg. No.:**7C2-B01

Function Name: Survey & Monitor Pool/Transfer Canal

Component Name: JN-1 Pool/Transfer Canal

Function Description: Pool/Transfer Canal wall, floor surfaces & surrounding soils will be surveyed consistent with the requirements of NUREG 5849.

Basis of Estimate

Strategy for Accomplishing Function: Pool/Transfer Canal surfaces will be subjected to the survey and release process defined in NUREG 5849 "Manual for Conducting Radiological Surveys in Support of License Termination" The soils around the pool will be sampled, screened and submitted for laboratory analysis to a depth 3m below the pool. The soils underneath the Pool/Transfer Canal will be sampled at the center of the 4 quadrants that make up the pool floor to a depth of 1 m.

Applicable Requirements/Procedures:

NUREG 5849 " Manual for Conducting Radiological Surveys in Support of License Termination"; Characterization and Final Status Plan for West Jefferson North Site (DD-97-02) , March 2000; BCLDP Procedure DD-CP-004 / DD-CP-002 / SC-SP-004.1 / SC-SP-004.2; DD-93-04; DD-97-02; DD-CP-004, 007, 030; DD-OP-090, 216; HP-AP-1.0, 2.0, 5.0; HS-AP-5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; SC-SP-004.1; SC-AP-004.2; SIH-PP-06, 08; SM-OP-001; TD-AP-2.0, 3.0

Input Descriptions:

1. Background Levels of Radiation must be Low to correctly assess background (e.g. JN-1 waste removed or shielded)
2. Scissor lift available for working in the Pool/Transfer Canal.
3. Confined space training

Output Descriptions:

1. Establish DLV's & Bkgd radiation levels
2. 158 smear samples to the laboratory / 6 sediment & solid samples (6 gamma spec + 2 alpha isotopic) to lab / data to report generation
3. 43 soil samples gamma specs and 4 alpha isotopic to the laboratory
4. WI

Assumptions:

Establish DLVs & Radiological Background

1. 3 types of materials exist in Pool/Transfer Canal area
2. (40) 1 minute measurements for Alpha & Beta window per material
3. (40) 1 minute measurements for alpha window per material
4. 3 minute prep/setup/taking floor & lower wall readings (50%) = 6hrs
5. 10 minute prep/setup/taking upper wall readings(50%) = 12hr
6. 1.25 hr to establish DLV for each material (spreadsheet)
7. Crane, manbasket, & confined space training necessary

Pool/Transfer Canal Surfaces :

1. 100% of the floor & wall surfaces of the Pool/Transfer Canal will be surveyed.
2. Pool Dimensions are 20'x20'x 48' (6.1m x 6.1m x 14.63m); Transfer Canal Dimensions are 11.5' x 4' x 47' (3.5m x 1.2m x 14.3)
3. Normal Rate for Characterization Surveys is 6 sq. m per technician-hr. (Pool/Transfer Canal floor & walls to 3m.)
4. Ladder & Basket Survey Rate for Pool/Transfer Canal was assumed to be 4 sq. m per technician-hr.
5. 2 technicians survey floor; only 1 technician in lift; only 1 survey operation at a time
6. 4 hours training confined space/lift
7. Rev 3 Baseline Waste Volume Estimate

8. No significant down time
9. Instrument Cal @ 8 hrs + 10 % time for repairs

Soil Sampling :

1. 10 sampling locations around the Pool/Transfer Canal to a depth of 58ft.
2. Samples around the Pool/Transfer Canal will take 4/hrs per location to sample; 4 hours to core 18" concrete
3. 4 sampling locations within the Pool/Transfer Canal to a depth of 1m.
4. Sampling time within Pool/Transfer Canal is 2/hrs per location to sample; 4 hours per location to core
5. 3 technicians to do core work
6. 4 hour training
7. 2 Highest Samples below DLV at each depth for 36 samples ; 5% of 144 samples > DLV to Lab for 7 samples
8. Line Loc. 2techs 2 days/1 tech 2days to document/ BCO Utilities 2 techs 2days to review & approve

Estimated Time to Plan the Work (Including Review and Approval): 10 days; 5 d to complete/approve Work Instruction / 5d for line location; includes C054

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1/10/32
Technical Advisors (Safety) (Rad Work Permit) (Waste Management)	HBTA	1/1/8 (2 hr lift training) 1/1/8 1/1/4
Project Manager/HP Manager	HBPM	2/1/8
Task Leader	HBTL	
Secretary/Clerical	HBS	1/1/8
Support Professional (Line Loc)	HBP	4/5/80
Bartlett Health Physics	HRH	

Estimated Time to Perform the Work: 2 d DLVs + 13d (soil) + 12d (walls) + 1d training /prep

Estimated Resources Required to Perform the Work

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB	1/28/63	NA	NA
Technical Advisors-- Safety	HBTA	1/28/28	NA	NA
Project Manager/HP Manager	HBPM			
Task Leader	HBTL	1/28/112	0	23
Battelle Technician (HP)	HBT	1/28/224	0	23
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician (Coring)	HRD	3/28/216	0	23
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics Bartlett Health Physics (data) Instruments	HRH	3/28/520 1/28/128 1/28/32	0 NA NA	69 NA NA

Bartlett Admin Support	HRA			

Subcontract/Purchased Service: None Identified

Special Equipment/Material: 50' Scissor lift 1 month @ $2,221.

Comments/Explanations: None

Basis of Estimate

What is the estimator's experience?
15 years of health physics & radiological release program management

What experience is directly related to the BCLDP?
10 years of BCLCP characterization & radiological release program experience

Was a complexity factor used?
No, work similar to KA

Completed by: J.F. Poliziani (Revised by PJW) **Date:** 5/30/2001 (Revised 6-11-02) **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C054 **Work Pkg. No.:**7C46-B05

Function Name: Perform Pool/Transfer Canal Decon Completion Survey

Component Name: JN-1 Pool/Transfer Canal

Function Description: Pool/Transfer Canal wall and floor surfaces will be remediated and surveyed consistent with the requirements of NUREG 5849. A final status survey will also be performed to release the Pool/Transfer Canal in place.

Basis of Estimate

Strategy for Accomplishing Function: Pool/Transfer Canal surfaces will be subjected to the survey and release process defined in NUREG 5849 "Manual for Conducting Radiological Surveys in Support of License Termination"

Applicable Requirements/Procedures:

NUREG 5849 " Manual for Conducting Radiological Surveys in Support of License Termination"; Characterization and Final Status Plan for West Jefferson North Site (DD-97-02) , March 2000; BCLDP Procedure DD-CP-004 / DD-CP-002; DD-93-04; DD-97-02; DD-CP-004, 007, 030; DD-OP-090, 216; HP-AP-1.0, 2.0, 5.0; HS-AP-5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; SIH-PP-06, 08; SM-OP-001; TD-AP-2.0, 3.0

Input Descriptions:

1. Background Levels of Radiation must be Low to correctly assess background (e.g. JN-1 waste removed or shielded)
2. Confined space training / manbasket training /crane training
3. WI

Output Descriptions:

1. 202 smear samples to the laboratory (30 from each wall and floor in pool; 20 from each large wall, 4 from floor/roof, and 8 from small wall in the transfer canal)
2. Survey data to report generation

Assumptions:

Pool/Transfer Canal Surfaces :

1. 100% of the contaminated floor & wall surfaces of the Pool/Transfer Canal will be surveyed.
2. 5 % of the Pool/Transfer Canal surface is contaminated
3. Pool Dimensions are 20'x20'x 48' (6.1m x 6.1m x 14.63m) ; Transfer Canal Dimensions are 11.5' x 4' x 47' (3.5m x 1.2m x 14.3)
4. Normal Rate for Characterization Surveys is 6 sq. m per technician-hr. (Pool/Transfer Canal floor & walls to 3m.)
5. Lift Survey Rate for Pool/Transfer Canal was assumed to be 4 sq. m per technician-hr.
6. 2 technicians survey floor; only 1 technician in man basket ; only one crew at a time
7. Final Status Survey includes 30 grids from each wall and floor to be monitored.
8. No significant downtime
9. WI under 1.1.18.4.2

Soil Sampling :

1. None of the soils surrounding and under the pool are contaminated.

Estimated Time to Plan the Work (Including Review and Approval): Work Instruction included under C052

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	NA
Technical Advisors	HBTA	NA
Project Manager/HP Manager	HBPM	NA
Task Leader	HBTL	NA
Secretary/Clerical	HBS	NA
Support Professional	HBP	NA
Bartlett Health Physics	HRH	NA

Estimated Time to Perform the Work: 6 days to status survey

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB	1/6/12	0	3
Technical Advisors (Safety)	HBTA	1/6/12		
Project Manager/HP Manager	HBPM			
Task Leader	HBTL	1/6/24	0	3
Battelle Technician (HP)	HBT	1/6/48	0	3
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD		0	0
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics Bartlett Health Physics (data) Instruments	HRH	3/6/144 1/6/24 1/3/3	0 NA NA	3 NA NA
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: 50' Scissor Lift 2 weeks @ $1,480.

Comments/Explanations: None

Basis of Estimate

What is the Estimator's Experience?
15 years of health physics & radiological release program management

What experience is directly applicable to the BCLDP?
10 years of BCLDP characterization & radiological release program experience: 2 yrs at West Jefferson

Was a complexity factor used?
No, work similar to KA experience

Completed by: J.F. Poliziani (Revised by PJW) **Date:** 5/30/2001 (Revised 6-11-02) **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C056 **Work Pkg. No.:** 7C47-B13

Function Name: Remove Utilities from Waste Storage Shed

Component Name: JN-1 Waste Storage Shed

Function Description: Dismantle & remove plumbing & electrical systems from the waste storage shed. Decontaminate/stabilize building surfaces as necessary for final demolition.

Basis of Estimate

Strategy for Accomplishing Function: Water and electricity will be turned off and disconnected. Fluids will be drained from lines. Drain piping and electrical systems will be removed using appropriate tools and equipment according to Work Instruction, RWP, Safety & WM Checklists. Building surfaces will be checked and decontaminated/stabilized as necessary as they are exposed to minimize spread of contamination.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-02, 03, 04; DD-OP-075, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 29.0; HP-OP-011, 012, 019, 106; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; SIH-PP-04, 06; SM-OP-001; TD-AP-2.0, 3.0; WA-OP-020

Input Descriptions:

1. Waste Storage Shed (2278 sq ft) including mezzanine with materials and asbestos removed.
2. Appropriate waste containers for LLW and clean waste streams.
3. Operating Area utilities:

Lamp ballasts	2 cu ft	Lamp tubes	1 cu ft
Drain piping	1 cu ft	Jib Crane	15 cu ft
Light fixtures	80 cu ft		

Output Descriptions:

1. Waste Storage Shed with critical utilities removed and required surface stabilization performed.
2. Utility Removal Waste:

PCB waste	2 cu ft	Pb/Hg waste	1 cu ft
LLW metal	101 cu ft	Job control waste	46 cu ft

3. WI data package

Assumptions:

1. Production rate will be approximately 125 sq ft per day for utility removal.
2. Decon/Stabilization at the rate of 150 sq ft per day will be required for approximately 5% of area surfaces (760 sq ft).
3. This work will require a level 2 hazard review.

Estimated Time to Plan the Work (Including Review and Approval): 10 days including JHA.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	2 / 1 / 2
Technical Advisors	HBTA	2 / 2 / 44
Project Manager/HP Manager	HBPM	2 / 10 / 40
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 1 / 2
Support Professional	HBP	1 / 1 / 2
Bartlett Health Physics	HRH	
	HBCO	

Estimated Time to Perform the Work: 23 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 *Group 1* *160*

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 23 / 23		
Project Manager/HP Manager	HBPM	2 / 23 / 69		
Task Leader	HBTL	1 / 23 / 184	Group 0	23
Battelle Technician	HBT	1 / 5 / 20	Group 0	5
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 5 / 10		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 5 / 20	Group 0	5
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 23 / 736	Group 0	92
Bartlett Maint Specialist	HRDS	1 / 23 / 46	Group 0	5
Bartlett Health Physics	HRH	2 / 23 / 368	Group 0	28
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: Epoxy enamel: 8 gal = $476

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? Yes. Estimated production rate for utility removal 25% greater than experience at KA buildings because not all utilities to be removed prior to demolition.

Completed by: D. A. Seifert (Updated by PJW) **Date:** 5/15/01 (Updated 4-24-02) **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C070 **Work Pkg. No.:**7C47-B15

Function Name: Remove NESHAPS Material from Office & Machine Shop Area External Building Surfaces

Component Name: JN-1 building with windows containing asbestos material

Function Description: Asbestos abatement subcontractor will remove and dispose of building windows and any other residual asbestos material. Subcontractor will be responsible for providing all materials and for disposal of all asbestos related materials and windows.

Basis of Estimate

Strategy for Accomplishing Function: Procure asbestos abatement subcontractor to perform task

Applicable Requirements/Procedures:

Approved work instruction; Contract for asbestos abatement subcontractor; OEPA and ODOH asbestos abatement regulations; DD-93-04, 05; HS-AP-4.0; HS-OP-001; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; SIH-PP-09; TD-AP-2.0

Input Descriptions:

1. JN-1 less internal materials, building ready for demolition

Output Descriptions:

1. JN-1 building ready for demolition less any NESHAPS material
2. All asbestos related waste to be disposed of by subcontractor as non-rad asbestos contaminated waste
3. Asbestos release surveys, air sampling results (if required) and final disposal documents.

Assumptions:

1. No rad contaminated material is involved.
2. All asbestos related material to be disposed of in local approved landfill by asbestos abatement subcontractor.
3. Price quote is based on work being performed in FY 2001.

Estimated Time to Plan the Work (Including Review and Approval): 15 days including notification to ODOH and OEPA by asbestos abatement subcontractor.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of FTE's, Days, and Hours necessary to plan the work, e.g., 2/5/80

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1/1/2
Project Manager/HP Manager	HBPM	2/15/20
Task Leader	HBTL	1/15/10
Secretary/Clerical	HBS	1/1/5
Support Professional	HBP	1/10/10
Bartlett Health Physics	HRH	1/5/5
Bartlett Technician	HRD	

Estimated Time to Perform the Work: 5 days to remove windows

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1/5/2		
Project Manager/HP Manager	HBPM	2/5/10		
Task Leader	HBTL	1/5/10		
Battelle Technician	HBT	1/5/5		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	1/5/20 hrs		
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH			
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: $6,427 asbestos abatement (AHC, Inc.) estimate from 06/14/00.

Special Equipment/Material: Ladders and manlifts to be supplied by BCLDP. All other material to be supplied by asbestos abatement subcontractor.

Comments/Explanations: No rad contamination is involved. All material to be disposed of by asbestos abatement subcontractor. Windows to be free released.

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Estimate supplied by abatement contractor based on examination of the area.

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C071A **Work Pkg. No.:**7C47-B16

Function Name: Dismantle JN-1A / JN-1B Building and Waste Storage Shed above grade and slab

Component Name: JN-1A / JN-1B Building and the Waste Storage Shed

Function Description: Engage demolition contractor to engineer and take down the original building structure and the Waste Storage Shed for transport and disposal as LLW.

Basis of Estimate

Strategy for Accomplishing Function: Demolition contractor prepares an engineered design and executes a plan for deconstruction of the building based on radiological data provided by BCLDP, including floor slab, interior wall structures, exterior shell, roof and structural bracing and prepares components for shipment to burial site according to Waste Management protocol An estimate has been prepared for the demolition of JN-1 as a coordinated project. It defines the condition of the facility when the contractor takes over. Also included is the in-house demolition support required for package preparation (2 ea.), containment support (2 ea.), waste management support (2 ea.), decontamination activities (2 ea.), and management oversight.

Applicable Requirements/Procedures:

DD-93-04, 05; DD-OP-029; HP-AP-1.0, 2.0, 5.0; HP-OP-012, 019; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; TD-AP-2.0; TR-OP-003; WA-OP-020

Input Descriptions:

1. Building shell minus the hot cells, equipment, and some piping, services, and mechanical systems
2. Signed demolition contract
3. Demolition contractor with all tools, materials, equipment needed for task.

Output Descriptions:

1. WI
2. 564 B-25, 37 Sea/Lands, 500 pieces of diamond cut concrete

Concrete above grade	810 cu yd	Masonry	650 cu yd
Structural Steel	552 cu yd	Equipment	127 cu yd
Concrete Floors	1036 cu yd	Job control waste	100 cu yd
Roofing	260 cu yd		

Assumptions:

1. Each step of the operation (above grade) will be carried out by demolition contractor with BCLDP HP and WM oversight/support.
2. Disassembly of the above grade portion of the building is estimated to require 500 days assuming the estimate for demolition is constrained due to radiological conditions.
3. Due to the need for extra considerations, coordination, and modifications when taking the building down in separate sections, a 10% cost adjustment has been included to the estimate.

Estimated Time to Plan the Work (Including Review and Approval): 100 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	2 / 2 / 8
Technical Advisors	HBTA	1 / 2 / 4
Project Manager/HP Manager	HBPM	2 / 100 / 360
Task Leader	HBTL	1 / 100 / 100
Secretary/Clerical	HBS	1 / 2 / 32
Support Professional	HBP	1 / 1 / 4
Bartlett Health Physics	HRH	1 / 10/ 20

Estimated Time to Perform the Work: 247 days per B & R esitmate

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 247 / 494		
Project Manager/HP Manager	HBPM	2 / 247 / 988	N/A	
Task Leader	HBTL	2 / 247 / 3952	Group 1	494
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	8/ 247 / 15,808	Group 1	1976
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH	6 / 247 / 11,856	Group 1	1482
Bartlett Admin Support	HRA			
Demolition Contractor		12 / 247 / 2964	Group 1	2964

Subcontract/Purchased Service: Demolition contractor per revised estimate 5/01/02 = $6,867,908

Special Equipment/Material: Provided by demolition contractor

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites).

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? Yes, A Preliminary Engineered Cost Estimate for the Demolition of Building JN-1 was prepared by The Chamberlain Group dated April 30, 2001. This was used as the basis of estimate for each building section. This estimate integrated the demolition of the entire facility to provide the most effective and efficient demolition. Since the decision has been made to demolish the JN-1 sections separately and to apply current BCLDP practices to this work, a complexity factor 1.1 has been applied to the cost. This accommodates for the extra coordination, analysis, and uncertainty.

Completed by: C. B. Voth/D Seifert **Date:** 4/30/02 **Rev. No.:** 3

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C071C **Work Pkg. No.:**7C47-B16

Function Name: Dismantle JN-1 Building Office & Machine Shop Addition above grade and slab

Component Name: JN-1C Office/Machine Shop Addition

Function Description: Engage demolition contractor to engineer and take down the office area and machine shop area building structure for transport and disposal at construction landfill.

Basis of Estimate

Strategy for Accomplishing Function: Demolition contractor prepares and executes a plan for demolition of the building addition as a clean entity based on radiological data provided by BCLDP, including floor slab and interior wall structures and prepares components for shipment to a construction landfill.

Applicable Requirements/Procedures:

DD-93-04, 05; DD-OP-029; HP-AP-1.0, 2.0, 5.0; HP-OP-012, 019; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; TD-AP-2.0; TR-OP-003; WA-OP-020

Input Descriptions:

1. Building shell of the office and machine shop area, equipment, and some piping, services, and mechanical systems
2. This section of the building has been free released for demolition
3. Signed demolition contract
4. Demolition contractor with all tools, materials, equipment needed for task.

Output Descriptions:

1. WI
2. Clean demolition waste

Concrete above grade	36 cu yd	Masonry	119 cu yd
Structural Steel	13 cu yd	Equipment	60 cu yd
Concrete Floors	72 cu yd		
Job control waste	10 cu yd	Roofing	36 cu yd

Assumptions:

1. Each step of the operation (above grade & foundations) will be carried out by demolition contractor with BCLDP HP and WM oversight/support.
2. Disassembly of the above grade portion of the building is estimated to require 26 days assuming the area established for non-radioactive demolition is adequate.

Estimated Time to Plan the Work (Including Review and Approval): 60 days including contracting for demolition services.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	2 / 2 / 8
Technical Advisors	HBTA	1 / 60 / 10
Project Manager/HP Manager	HBPM	2 / 60 / 80
Task Leader	HBTL	1 / 15 / 10
Secretary/Clerical	HBS	1 / 10 / 16
Support Professional	HBP	1 / 1 / 2
Bartlett Health Physics	HRH	1/ 5 / 5

Estimated Time to Perform the Work: 26 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 26 / 26		
Project Manager/HP Manager	HBPM	2 / 26 / 52	N/A	
Task Leader	HBTL	2 / 26 / 52	Group 0	26
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD			
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH			
Bartlett Admin Support	HRA			
Demolition Contractor		12 / 26	Group 0	312

Subcontract/Purchased Service: Demolition contractor = $177,575 per revised estimate 5/01/02.

Special Equipment/Material: Provided by demolition contractor

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites).

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? Yes, a Preliminary Engineered Cost Estimate for the Demolition of Building JN-1 was prepared by The Chamberlain Group dated April 30, 2001. This was used as the basis of estimate for each building section. This estimate integrated the demolition of the entire facility to provide the most effective and efficient demolition. Since the decision has been made to demolish JN-1 sections separately and to apply current BCLDP practices to this work, a complexity factor 1.1 has been applied to the cost. This accommodates for the extra coordination, analysis and uncertainty.

Completed by: C. B. Voth (edited by D Seifert) **Date:** 5/14/02 **Rev. No.:** 3

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C073 **Work Pkg. No.:**7C2-B02

Function Name: Survey & Monitor JN-1A/JN-1B Underground

Component Name: JN-1 Underground Area (less Office Area but including the mechanical room and control point)

Function Description: Underground material surfaces will be surveyed consistent with the requirements of NUREG 5849. Soils in the JN-1 footprint will also be sampled and analyzed to ensure radiological limits are satisfied. A work instruction is necessary to complete the work.

Basis of Estimate

Strategy for Accomplishing Function: Underground surfaces will be subjected to the survey and release process defined in NUREG 5849 "Manual for Conducting Radiological Surveys in Support of License Termination" Gamma walkover type surveys will be done for the open soil footprint area. The soils in the footprint will be also sampled, screened and submitted for laboratory analysis to a depth of 1m below the surface at the center of the 4 quadrants that make up 10m x 10m grids.

Applicable Requirements/Procedures:

NUREG 5849 " Manual for Conducting Radiological Surveys in Support of License Termination"; Characterization and Final Status Plan for West Jefferson North Site (DD-97-02), March 2000; BCLDP Procedure DD-CP-004 / DD-CP-002 / SC-SP-004.1 / SC-SP-004.2; DD-93-04, 05; DD-97-02; DD-CP-002, 004, 030; HP-AP-1.0, 2.0, 5.0; HS-AP-2.0, 4.0, 5.0; HS-OP-001; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; RL-AP-1.0; SIH-PP-08; TD-AP-2.0

Input Descriptions:

1. JN-1 Demolished ; Excavation open ; radiological background low
2. 478 ft underground drain trenches

Output Descriptions:

1. 120 soil, gamma isotopic, and 12, alpha isotopic samples to the laboratory / data to report generation
2. WI
3. 150 gamma spec samples from underground drain trenches
4. 15 alpha spec samples from underground drain trenches
5. Establish Bkgd & DLVs at beginning of work

Assumptions:

Establish DLVs & Background Levels

1. 3 types of materials exist in the underground area
2. (40) 1 minute measurements for alpha + beta window per material
3. (40) 1 minute measurements for alpha window per material
4. 3 minute prep/setup/taking floor & wall readings (50%) = 12 hrs
5. 1.25 hr to establish DLVfor each material (spreadsheet) = 4 hr

Soil Walkovers:

1. 1973 sq. m footprint
2. Walkover rate is 200 sq. m / tech/hr ; 3 techs total
3. 0.5 days to perform walkover surveys

Soil Sampling :

1. Footprint is 1973 sq. m. or 20 (100 sq m grids).
2. Samples at surface and to a depth of 1m.
3. 1 grid is assumed contaminated (8 additional samples are needed). 5% contamination rate; 1d to survey
4. Instrument Cal @ 8 hrs + 10% time
5. No Significant Down time

6. Line Location will take 2 persons, 2 days to survey, 1 person 2 days to document---Outside vendor (48 hrs); BCO Utilities 2 persons, 2d to review & approve (32 hrs); Total Line Location = 80 hours
7. Underground drain trenches will be sampled every 3 ft for gamma spec and every 30 ft for alpha spec

Estimated Time to Plan the Work (Including Review and Approval): 10 days; 5 d to complete/approve Work Instruction; 5 d to perform/document line location; includes function 1.1.24.3.1

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1/4/32
Technical Advisors (Safety) (Rad Work Permit) (Waste Management)	HBTA	1/1/8 1/1/8 1/1/4
Project Manager/HP Manager	HBPM	2/1/8
Task Leader	HBTL	
Secretary/Clerical	HBS	1/1/8
Support Professional (Line Loc)	HBP	
Bartlett Health Physics	HRH	
	HCE	2/2/32

Estimated Time to Perform the Work: 1d DLV & Bkgd +2 d (soil walkovers) + 19d (soil sampling) = 22dtotal

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB	1/22/44	NA	NA
Technical Advisors	HBTA	1/22/22 (Safety)	NA	NA
Project Manager/HP Manager	HBPM			
Task Leader	HBTL	1/22/88	0	22
Battelle Technician (HP)	HBT	1/22/88	0	22
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD			
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH	3/22/528	0	66

Bartlett Health Physics (data) Instruments		1/22/176 1/22/44	NA NA	NA NA
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: Line Location Services---Crew of 2 Utilocate for 48 hrs = $4,822

Special Equipment/Material: Geoprobe & tooling ; calibrated instruments

Comments/Explanations: None

Basis of Estimate

What is estimator's experience?
15 years health physics & radiological release program management

What experience is directly related to the BCLDP?
10 years of BCLDP characterization & radiological release program experience

Was a complexity factor used?
No, work similar to KA

Completed by: J.F. Poliziani (Updated by PJW) **Date:** 5/31/2001 (Updated 4-29-02) **Rev. No.:** 2

☒JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Monit. ☐ Sample Analysis ☐ Waste Mgmt

Activity No.: C075A **Work Pkg. No.:**7C47-B17

Function Name: Excavate JN-1A/JN-1B Underground

Component Name: JN-1A/JN-1B Footprint (19,450 sq ft)

Function Description: Excavate and remove contaminated soil from below building footprint.

Basis of Estimate

Strategy for Accomplishing Function: Engage trained excavation contractor to excavate contaminated soil into bags for disposal at approved site. Soil is screened for activity during excavation and delivered to waste management.

Applicable Requirements/Procedures/Work Instructions:

DD-93-04; HS-AP-2.0, 4.0, 5.0; HS-OP-001; HP-AP-1.0, 2.0, 5.0; MA-AP-20.1; PR-AP-17.1; RL-AP-1.0; QD-AP-5.2, 6.1; SM-OP-001; TD-AP-2.0, 3.0; WA-OP-020, 036

Input Descriptions:

1. 144 cu yd of contaminated soil within JN-1A/JN-1B footprint. (10% of footprint x 2 ft depth)

Output Descriptions:

1. 86 cu yd of contaminated soil containerized in bulk in dump trailers for shipping off site.
2. Characterization completion survey data.
3. Completed work instruction data package.
4. 17 gamma spectrum samples, 2 alpha isotopic samples
5. Job control waste 105 cu ft
6. WI data package & RAL reports

Assumptions:

1. Production rate is 24 cu yd per day allowing for field screening and sampling.
2. One day needed for mobilization of excavator, 4 days for decon & release of equipment
3. Excavated soil can be bulk loaded into lined dump trailers for shipment to disposal site.
4. Any soil contamination at the bottoms of dewatering wells (2) and sumps (3) will be minor, is chemically bonded to the ambient clay, and will be left in place and be permanently isolated during backfilling after building demolition due to its depth (48 – 50 ft) below grade.

Estimated Time to Plan the Work (Including Review and Approval): 30 days including procurement of excavation contractor and transportation.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 30 / 40
Task Leader	HBTL	1 / 10 / 10
Secretary/Clerical	HBS	1 / 10 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

Estimated Time to Perform the Work: 17 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 17 / 17		
Project Manager/HP Manager	HBPM	2 / 17 / 68		
Task Leader	HBTL	1 / 17 / 136	Group 0	6
Battelle Technician	HBT	1 / 17 / 17		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	3 / 17 / 408	Group 1	102
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH	3 / 17 / 408	Group 1	102
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: Excavation contractor: operator 11 days = $4,188 + PC200 `excavator, 17 days = $4,780.

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Estimate based on similar activities in KA buildings.

Completed by: D. A. Seifert **Date:** 4/24/02 **Rev. No.:** 2

☒JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Monit. ☐ Sample Analysis ☐ Waste Mgmt

Activity No.: C075C **Work Pkg. No.:**7C47-B17

Function Name: Excavate underground JN-1 Office Addition Area

Component Name: JN-1 Office Addition Footprint (3950 sq ft)

Function Description: Excavate and remove contaminated soil from below building footprint.

Basis of Estimate

Strategy for Accomplishing Function: Engage trained excavation contractor to excavate contaminated soil into bags for disposal at approved site. Soil is screened for activity during excavation and delivered to waste management.

Applicable Requirements/Procedures/Work Instructions:

DD-93-04; HS-AP-2.0, 4.0, 5.0; HS-OP-001; HP-AP-1.0, 2.0, 5.0; MA-AP-20.1; PR-AP-17.1; RL-AP-1.0; QD-AP-5.2, 6.1; SM-OP-001; TD-AP-2.0, 3.0; WA-OP-020, 036

Input Descriptions:

1. 30 cu yd of contaminated soil within JN-1C footprint. (10% of footprint x 2 ft depth)

Output Descriptions:

1. 30 cu yd of contaminated soil containerized in bulk in dump trailers for shipping off site.
2. Characterization completion survey data.
3. Completed work instruction data package.
4. 6 gamma spectrum samples, 1 alpha isotopic samples
5. Job control waste 46 cu ft
6. WI data package & RAL reports

Assumptions:

1. Production rate is 24 cu yd per day allowing for field screening and sampling.
2. One day needed for mobilization of excavator, 4 days for decon & release of equipment
3. Excavated soil can be bulk loaded into lined dump trailers for shipment to disposal site.

Estimated Time to Plan the Work (Including Review and Approval): 30 days including procurement of excavation contractor and transportation for contaminated soil.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	/ 30 / 40
Task Leader	HBTL	1 / 10 / 10
Secretary/Clerical	HBS	1 / 10 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

Estimated Time to Perform the Work: 7 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 7 / 7		
Project Manager/HP Manager	HBPM	2 / 7 / 28		
Task Leader	HBTL	1 / 7 / 56	Group 0	7
Battelle Technician	HBT	1 / 7 / 7		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	3 / 7 / 168	Group 1	42
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH	3 / 7 / 168	Group 1	42
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: Excavation contractor: operator 4 days = $1,523 + PC200 `excavator, 7 days = $2,986.

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Estimate based on similar activities in KA buildings.

Completed by: D. A. Seifert **Date:** 4/24/02 **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C076 **Work Pkg. No.:**7C47-B18

Function Name: Perform JN-1 Underground Material Decon Completion Survey

Component Name: JN-1 Footprint

Function Description: JN-1 Footprint materials and soil surfaces will be remediated and surveyed consistent with the requirements of NUREG 5849.

Basis of Estimate

Strategy for Accomplishing Function: Footprint materials and surfaces will be subjected to the survey and release process defined in NUREG 5849 "Manual for Conducting Radiological Surveys in Support of License Termination"

Applicable Requirements/Procedures:

NUREG 5849 " Manual for Conducting Radiological Surveys in Support of License Termination"; Characterization and Final Status Plan for West Jefferson North Site (DD-97-02) , March 2000; BCLDP Procedure DD-CP-004 / DD-CP-002; DD-93-04; DD-97-02; DD-CP-002, 004, 010, 030; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; SIH-PP-06; SM-OP-001; TD-AP-2.0

Input Descriptions:

1. Background Levels of Radiation must be Low to correctly assess background (e.g. JN-1 waste removed or shielded)
2. WI

Output Descriptions:

1. 8 gamma spec and one alpha isotopic soil samples to the laboratory
2. Survey data to report generation

Assumptions:

Soil Sampling :

1. One JN-1 grid is contaminated ---5% contamination rate.
2. No deep samples necessary
3. No down time
4. 1 grid contaminated ; 4locations ;16 locations per d with Geoprobe
5. Walkover rate 200 sq m per hr per tech

Estimated Time to Plan the Work (Including Review and Approval): 0 days; Work Instruction included under C073

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	NA
Technical Advisors	HBTA	NA
Project Manager/HP Manager	HBPM	NA
Task Leader	HBTL	NA
Secretary/Clerical	HBS	NA

Support Professional	HBP	NA
Bartlett Health Physics	HRH	NA

Estimated Time to Perform the Work: 1 d status survey

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB	1/1/2	NA	NA
Technical Advisors(Safety)	HBTA	1/1/1	NA	NA
Project Manager/HP Manager	HBPM			
Task Leader	HBTL	1/1/4	0	1
Battelle Technician (HP)	HBT	1/1/8	0	1
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD			
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics Bartlett Health Physics (data) Instruments	HRH	3/1/24 1/1/8 1/1/1	0 NA NA	3 NA NA
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: None Identified

Special Equipment/Material: None

Comments/Explanations: None

Basis of Estimate

What is the estimator's experience?
15 years of health physics & radiological release program management

What experience is directly related to the BCLDP?
10 years of BCLDP characterization & radiological release experience

Was a complexity factor used?
No, work similar to KA

Completed by: J.F. Poliziani **Date:** 5/31/2001 **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C079A **Work Pkg. No.:**7C41-B05

Function Name: Finish removing of material from Hydraulic Room

Component Name: The Hydraulic Pit is located in JN-1 facility.

Function Description: Waste oil, water, equipment and non-structural materials/waste will be removed from the Hydraulic Pit of JN-1.

Basis of Estimate

Strategy for Accomplishing Function: Because this area is a confined space with the possibilities of hazardous constituents and very high dose rates will present a real challenge performing these activities.

1. Characterization of the liquid waste for hazardous constituents.
2. Remotely pumping the oil and water from the pit.
3. Characterization of the sludge waste.
4. Manual removal of the sludge waste.
5. Packaging waste stream properly for the hazards identified in the sampling.
6. Performing mechanical decontamination on the walls (up to three feet) and floors depending on the hazardous contaminates.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; DD-98-04; DD-OP-075, 095, 215; HP-AP-1.0, 2.0, 5.0, 8.0, 10.0, 11.0, 15.0, 17.0, 29.0; HP-OP-012, 018, 019, 027, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; SIH-PP-08; SM-OP-001; TD-AP-2.0, 3.0; WA-OP-020, 061

Input Descriptions:

1. Completion of the material removal from the hydraulic room identified in the FY-02 CYWP.
2. Material, waste and non-structural materials as described in Waste volumes & types FY 2001 and a physical walk down of the building.

Output Descriptions:

LLW 100% (Oil and Water from washdown)	50 gallons
LLW	
Compactable 70% cat 1 30% cat 3	100 cu ft
Non-compactable 100% cat 3	50 cu ft
TRU Waste	20 cu ft
Mixed LLW	300 gallons
Samples	
Alpha Spec	4
Gamma Spec	4
Off site, high rad RCRA analysis	2

Assumptions:

1. The oil/water will be hazardous mixed waste.
2. Characterization data will be available for the liquid waste from FY-01.
3. The current liquid level in the pit is 3 feet.
4. That the dose rates are low enough to allow manned entry into the pit after oil/water removal from the pit.
5. The pit is considered a confined space and entries will be made using airlines with escape paks.
6. Decontamination of the walls (up to three feet) and floor of the pit using some type of mechanical means like high pressure water and/or possibly vacuum blasting.
7. The oil/water from wash down activities will be treated with an oil/water separator.

8. The project can dispose of the waste stream.

Estimated Time to Plan the Work (Including Review and Approval): N/A (completed as part of the FY-02 CYWP.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Total Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	
Project Manager/HP Manager	HBPM	
Task Leader	HBTL	
Secretary/Clerical	HBS	
Support Professional	HBP	
Bartlett Health Physics	HRH	

Estimated Time to Perform the Work: 20 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Total Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1/20/40		
Project Manager/HP Manager	HBPM	2/20/60		
Task Leader	HBTL	1/20/160		
Battelle Technician	HBT	1/20/160	Group III	20
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5/20/800	Group III	80
Bartlett Maint Specialist	HRDS	1/20/80		
Bartlett Health Physics	HRH	4/20/640	Group III / II	40 / 20
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: (2) High dose RCRA sample analysis @$5,932 = $11,864

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. A complexity factor of two was used based on the confined space requirements and the high initial dose/contamination levels.

Completed by: P. Weaver **Date:** 5/10/01 (updated 4-21-02) **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C082 **Work Pkg. No.:**7C41-B06

Function Name: Decon/Stabilize Hydraulic Room Surfaces

Component Name: JN-1 CAA Hydraulic Room

Function Description: After all utilities and equipment have been removed, hydraulic room surfaces will be decontaminated/stabilized to prepare for building demolition.

Basis of Estimate

Strategy for Accomplishing Function: After removal of hydraulics and support equipment, building surfaces will be decontaminated using appropriate nonaggressive techniques such as pressure washing or strippable coating application and then stabilized for building demolition using a durable coating such as epoxy enamel.

Applicable Requirements/Procedures:

DD-90-02; DD-93-04; DD-OP-065, 075, 076; HS-AP-4.0, 5.0; HS-OP-001; HP-AP-1.0, 2.0, 5.0, 8.0; HP-OP-012; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; SM-OP-001; TD-AP-2.0; WA-OP-020, 061

Input Descriptions:

1. Hydraulic room (approx. 500 sq ft floor & walls) with hydraulic equipment and utilities removed and majority of surfaces decontaminated due to earlier hazardous materials and listed residues removal.
2. Hot pressure washer, HEPA wet vac, encapsulant, and application equipment.

Output Descriptions:

1. Hydraulic room stabilized & ready for building demolition.
2. Pressure wash water – approx. 50 gal.
3. Containerized painting tools, encapsulant waste – 2 cu ft
4. Data sheets for inclusion in work instruction data package and preparation of shipping documents.
5. Job control waste – 44 cu ft

Assumptions:

1. Activity will require approximately 2 days for setup & pressure washing, one day for drying, and one day for painting.
2. Most of the area will already have been decontaminated to the extent possible prior to this activity.

Estimated Time to Plan the Work (Including Review and Approval): Ten days.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1 / 1 / 4*
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40 + 4 / 1 / 4*
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 10 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

* Additional review time for Level 2 hazard rating.

Estimated Time to Perform the Work: 5 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 5 / 5		
Project Manager/HP Manager	HBPM	2 / 5 / 20		
Task Leader	HBTL	1 / 5 / 40	Group 2	5
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 1 / 2		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	3 / 5 / 120	Group 2	30
Bartlett Maint Specialist	HRDS	1 / 1 / 4	Group 2	1
Bartlett Health Physics	HRH	1 / 5 / 40	Group 2	10
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: Air Compressor Rental 130-200 CFM =$212

Special Equipment/Material: 10 mil Polyurea encapsulant @ 144 sq ft/gal = 4 gal = $168

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Estimate based on experience with similar activity in LLC.

Completed by: D. A. Seifert **Date:** 4/17/02 **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C089 **Work Pkg. No.:**7C42-B01

Function Name: Remove Material from Charpy Room

Component Name: The Charpy Cell located in JN-1 facility.

Function Description: Waste and non-structural materials will be removed from the Charpy Cell Area of JN-1

Basis of Estimate

Strategy for Accomplishing Function: Material from the Charpy Cell consists of a sorting table, waste compactor and other miscellaneous equipment. The material and equipment will be removed manually in a low dose rate area. The waste compactor and sorting table will be removed and relocated to a new location.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 17.0; HP-OP-012, 018, 201; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RS-AP-1.0; RS-OP-002; SM-AP-001; TD-AP-2.0; WA-OP-020

Input Descriptions:

1. Charpy Cell Waste compaction equipment.
2. Material, waste and non-structural materials from the Charpy Cell of JN-1 as described in Waste volumes & types FY 2001 and a physical walk down of the building.
3. WI from activity C092.

Output Descriptions: Charpy Cell ready for utility removal.

50 ft^3 non compactable LLW.

Assumptions: The Charpy Cell was cleaned out once and then turned into a sorting and compaction facility.

1. The compactor and sorting table will be relocated to a different location.
2. CAA, HLC, LLC, MTC, and HESR will be emptied, decontaminated and utilities remove before this work starts.
3. Work will require a level 2 hazard analysis.

Estimated Time to Plan the Work (Including Review and Approval): 10 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Total Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1/10/10
Project Manager/HP Manager	HBPM	2/10/40
Task Leader	HBTL	1/10/20
Secretary/Clerical	HBS	1/10/10
Support Professional	HBP	
Bartlett Health Physics	HRH	1/5/5
	HBCO	1/5/4

Estimated Time to Perform the Work: 10 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Total Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1/10/100		
Project Manager/HP Manager	HBPM	2/10/20		
Task Leader	HBTL	1/10/40		
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4/10/320	Group 2	20
Bartlett Maint Specialist	HRDS	1/10/20		
Bartlett Health Physics	HRH	2/10/160	Group 2	20
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: N/A

Special Equipment/Material: N/A

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: P. Weaver **Date:** 5/10/01 **Rev. No.:** 0

Activity Number: C089

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C090 **Work Pkg. No.:** 7C42-B02

Function Name: Remove Charpy Room Utilities

Component Name: JN-1 Charpy Area

Function Description: Electrical lighting, piping, floor and wall plugs, and leaded glass window will be removed from the Charpy Cell room in preparation for area decontamination/ stabilization prior to building demolition.

Basis of Estimate

Strategy for Accomplishing Function: After the Charpy room has been decontaminated, lighting and other facilities will be removed from the area, working from the CAA and the outside of the cell. The door separating the cell from the CAA will be removed first followed by lighting, piping, and then the floor well plugs. The lead glass window will be removed and disposed of.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-02, 03, 04; DD-OP-029, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 19.0; HP-OP-011, 012, 018, 106, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; WA-OP-020, 022

Input Descriptions:

1. Charpy cell with all material removed.
2. Utility Items and Materials:

Lamp Ballasts	1 cu ft	Hg vapor bulbs	1 cu ft
Inner doors	12 cu ft	Drain Piping	1 cu ft
Lead Plugs	8 cu ft	Lead Glass Window	24 cu ft
Light Fixtures	12 cu ft	Job Control Waste	58 cu ft

Output Descriptions:

1. Charpy Cell area (400 sq ft) ready with all utilities removed, ready for final decontamination/stabilization.
2. Completed Forms DD-103 for inclusion in work instruction data package.
3. 4 Area CAM samples for analysis in the RAL, one per day.
4. Containerized waste:

PCB Waste (RMW?)	1 cu ft	Pb/Hg Waste	34 cu ft
LLW metal	25 cu ft	Job Control Waste	58 cu ft

Assumptions:

1. Planning for this function will be included in Activity C092.
2. Production rate will be approximately 100 sq ft per day with one work crew in a contaminated area requiring respiratory protection.
3. This work will require a level 2 hazard review.

Estimated Time to Plan the Work (Including Review and Approval): 10 days.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 10 / 5
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5
	HBCO	

Estimated Time to Perform the Work: 10 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 10 / 10		
Project Manager/HP Manager	HBPM	2 / 10 / 40		
Task Leader	HBTL	1 / 10 / 80	Group 2	8
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 1 / 2		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 5 / 20	Group 2	1
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5 / 10 / 400	Group 2	40
Bartlett Maint Specialist	HRDS	1 / 10 / 20	Group 2	1
Bartlett Health Physics	HRH	3 / 10 / 240	Group 2	20
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Estimate based on having performed prior work in the area and similar work in the CAA.

Completed by: D. A. Seifert (updated by PJW) **Date:** 5/16/01 (updated 4-24-02) **Rev. No.**: 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C091 **Work Pkg. No.:** 7C42-B02

Function Name: Decon/Stabilize Charpy Room Surfaces

Component Name: JN-1 Charpy Area

Function Description: After all utilities have been removed, exposed building surfaces will be decontaminated to the extent practical and then stabilized for building demolition by application of a durable coating such as epoxy paint.

Basis of Estimate

Strategy for Accomplishing Function: the floors, walls, and ceilings will be vacuum cleaned and/or wiped down to remove loose contamination and foreign materials which might inhibit adherence of the stabilizing coating. Floor, wall, and ceiling surfaces will then be heavily coated with a layer of tough durable material such as poly urea. The open floor wells will be stabilized by first introducing enough concrete grout to seal any leakage and then treated in the same manner as the other surfaces.

Applicable Requirements/Procedures:

DD-90-02; DD-93-04; DD-OP-065, 075; HS-AP-4.0, 5.0; HS-OP-001; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002; SM-OP-001; TD-AP-2.0; WA-OP-020, 061

Input Descriptions:

1. Charpy Room with all materials and utilities removed.
2. Poly Urea to cover 3000 sq ft of surface (approx. 30 gal.)
3. Concrete grout to bottom plug up to 10 leaking floor wells.

Output Descriptions:

1. Charpy Room with any loose contamination fixed into the adherent surface coating, ready for building dismantlement.
2. Completed Forms DD-103 for inclusion in work instruction data package.
3. Unused coating materials, used application tools, and 49 cu ft job control waste

Assumptions:

1. Scaffolding required to reach ceiling and upper walls will be available from work in the adjacent CAA.
2. Work will require a level 2 hazard analysis.

Estimated Time to Plan the Work (Including Review and Approval): 10 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1/10/10
Project Manager/HP Manager	HBPM	2/10/40
Task Leader	HBTL	1/10/20
Secretary/Clerical	HBS	1/10/10
Support Professional	HBP	
Bartlett Health Physics	HRH	1/5/5
	HBCO	

Estimated Time to Perform the Work: 5 days.

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 5 / 5		
Project Manager/HP Manager	HBPM	2 / 5 / 20		
Task Leader	HBTL	1 / 5 / 40	Group 1	5
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 1 / 4		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 5 / 160	Group 2/Group 1	24/16
Bartlett Maint Specialist	HRDS	2 / 5 / 18	Group 2	1
Bartlett Health Physics	HRH	3 / 5 / 120	Group 2/Group 1	6/14
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: Air Compressor Rental 130-200 CFM = @212

Special Equipment/Material: 30 gal. Poly Urea = $1,262

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Estimate based on recent experience in Alpha/Gamma Cell area.

Completed by: D. A. Seifert (updated by PJW) **Date:** 5-12-01 (updated 4-21-02) **Rev. No.**: 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C092 **Work Pkg. No.:**7C45-B02

Function Name: Remove Material from CAA

Component Name: The CAA is located in JN-1 facility.

Function Description: Waste, equipment and non-structural materials will be removed from the CAA and Old Back Dock.

Basis of Estimate

Strategy for Accomplishing Function: Material from the CAA and Old Back Dock will consist of contaminated equipment and material used in supporting the HLC and LLC decontamination and dismantlement. The removal of material from this area will be done using personnel in contaminated and lower dose rate areas.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0; HP-OP-012, 018, 027, 201; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RS-AP-1.0; RS-OP-002; SM-AP-001; TD-AP-2.0; WA-OP-020

Input Descriptions:

1. CAA, HLC and LLC support equipment and material.
2. Material, waste and non-structural materials from the CAA and Old Back Dock of JN-1 as described in Waste volumes & types FY 2001 and a physical walk down of the building.

Output Descriptions:

LLW 20% compactable 75% non-compactable cat 1 5% non-compactable cat 3	962 cu ft
TRU	60 cu ft

Assumptions:

1. The CAA and Old Back Dock can begin after the Cask Sabotage Pit, Hydraulic Pit and stabilization is complete.
2. This work will require a level 2 hazard review.
3. HESR already had material removed (CYWP PCR)

Estimated Time to Plan the Work (Including Review and Approval): 20 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Total Hours
Manager/Senior Staff	HBB	1/20/10
Technical Advisors	HBTA	1/20/20
Project Manager/HP Manager	HBPM	2/20/80
Task Leader	HBTL	1/20/40
Secretary/Clerical	HBS	1/20/10
Support Professional	HBP	1/20/32
Bartlett Health Physics	HRH	1/20/10
	HBCO	

Estimated Time to Perform the Work: 20 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Total Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1/20/20		
Project Manager/HP Manager	HBPM	2/20/40		
Task Leader	HBTL	1/20/160		
Battelle Technician	HBT	1/20/160		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5/20/800	Group 3 / 2	120 / 60
Bartlett Maint Specialist	HRDS	1/20/20		
Bartlett Health Physics	HRH	4/20/640	Group 3 / 2	40 / 40
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: N/A

Special Equipment/Material: N/A

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

Activity Number: C092

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: P. Weaver **Date:** 5/10/01 (Updated 4-24-02) **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C094 **Work Pkg. No.:**7C45-B03

Function Name: Remove CAA Utilities

Component Name: JN-1 CAA

Function Description: A work instruction, RWP, and Safety & Waste Management Checklists will be prepared to define the scope of work required to dismantle and remove utilities from the subject area and decon/stabilize it for building demolition. Work crews, tools and equipment will be mobilized to perform the prescribed work according to authorizing documentation.

Basis of Estimate

Strategy for Accomplishing Function: Scope of work will include removal of contaminated electrical service, lighting, ductwork, piping, and exposed drains from the CAA, Old Back Dock, and Hot Equipment Storage Room. Work will begin in the Old Back Dock and proceed into the Hot Equipment Storage Room before entering the CAA itself. Piping will be removed first followed by any duct work, exposed drains, electrical service, and finally lighting. Removed items will be segregated into appropriate categories and containerized for disposal by Waste Management.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-02, 03, 04; DD-OP-029, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 19.0; HP-OP-011, 012, 018, 027, 106, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; TD-AP-2.0; WA-OP-020, 022

Input Descriptions:

1. Approved work instruction, RWP, Safety & WM Checklists.
2. CAA Area (2651 sq ft) with gross surface contamination, utilities, and cell doors removed from adjacent high level cell, low level cell, mechanical test cell, and HESR room.
3. Waste containers for appropriate waste categories.
4. Utilities & Services:

Lamp Ballasts	5 cu ft	Bulbs	3 cu ft
Conduit	5 cu ft	Rail Crane	60 cu ft
Ductwork	85 cu ft	Jib Crane	10 cu ft
Light Fixtures	136 cu ft	Piping	57 cu ft
Drain Piping	7 cu ft		

Output Descriptions:

1. CAA Area with utilities removed, ready for decontamination/stabilization in preparation for building to be dismantled.
2. Completed work instruction data package.
3. 28 gamma spectrum samples
4. Containerized Low Level Waste

Misc. Metal	360 cu ft	PCB Waste	5 cu ft
Pb/Hg Waste	10 cu ft	Job Control Waste	587 cu ft

5. WI Data Package

Assumptions:

1. Production rate will be approximately 100 sq ft per day with one work crew in a contaminated area requiring respiratory protection.

2. Only ductwork inside the area will be removed back to area boundaries. HEPA ventilation physically located outside the area will remain operational as long as possible.
3. This work will require a level 2 hazard anlaysis.

Estimated Time to Plan the Work (Including Review and Approval): 30 days.

Estimated Resources Required to Plan the Work

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	2 / 1 / 2
Technical Advisors	HBTA	1 / 2 / 8
Project Manager/HP Manager	HBPM	2 / 30 / 120
Task Leader	HBTL	1 / 30 / 60
Secretary/Clerical	HBS	1 / 15 / 15
Support Professional	HBP	1 / 8 / 16
	HBCO	
Bartlett Health Physics	HRH	1 / 5/ 4

Estimated Time to Perform the Work: 40 days

Estimated Resources Required to Perform the Work

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 40 / 40		
Project Manager/HP Manager	HBPM	2 / 40 / 80		
Task Leader	HBTL	1 / 40 / 320	Group 1	26
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 5 / 10		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 7 / 56	Group 3	7
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5 / 40 / 1600	Group 3	208
Bartlett Maint Specialist	HRDS	1 / 40 / 80	Group 3	7
Bartlett Health Physics	HRH	4 / 40 / 1280	Group 3 / Group 1	52 / 52
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: Equipment Riggers/Movers 225 Hrs @$62.25/Hr = $14,006

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Estimate based on conduct of recent work of similar nature in the CAA.

Completed by: D. A. Seifert (updated by PJW) **Date:** 6/12/01 (updated 4-21-02) **Rev. No.:** 3

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C095 **Work Pkg. No.:** 7C45-B03

Function Name: Decon/Stabilize CAA Surfaces.

Component Name: JN-1 CAA

Function Description: Decontaminate the subject area to the extent practical using non invasive techniques such as vacuum/ washdown, ALARA paint/strip, etc., to remove smearable contamination and lower dose rates. Stabilize area surfaces by coating with a suitable adherent material to lock in contamination during dismantling of building.

Basis of Estimate

Strategy for Accomplishing Function: After utilities are removed, ceiling, wall, and floor surfaces (13,770 sq ft) will be decontaminated to remove as much loose contamination as practical by vacuum cleaning followed by washdown or coating with ALARA paint followed by stripping. Surfaces will then be stabilized by painting with a durable coating such as epoxy enamel to lock in any remaining contamination. Work will be conducted in convenient sized areas, starting at a convenient entry point and working inward.

Applicable Requirements/Procedures:

DD-90-02; DD-93-04; DD-OP-065, 075, 076; HS-AP-4.0, 5.0; HS-OP-001; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0; HP-OP-012, 027; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002; SM-OP-001; TD-AP-2.0; WA-OP-020, 061

Input Descriptions:

1. The CAA area, including Old Back Dock and Hot Equipment Storage Room with utilities removed to the extent necessary and building surfaces exposed for decontamination/stabilization.
2. ALARA paint (688 gal), epoxy enamel (69 gal), painting tools & equipment, moveable scaffolding
3. This work will require a level 2 hazard review.

Output Descriptions:

1. CAA area with building surfaces coated to lock in any contamination that could not be reasonably removed.
2. Containerized waste:

Stripped coating	92 cu ft	Vac cleaner bags	7 cu ft
Job control waste	889 cu ft		

Assumptions:

1. Initial cleanup of area and application of each coating are estimated to require 16 days each.
2. Stripping of ALARA paint is expected to require 20 days per DOE technical investigation report.
3. A waiting period of 15 days between application and stripping of ALARA paint is anticipated for optimum decontamination factors.

Estimated Time to Plan the Work (Including Review and Approval): 10 days.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 5 / 5
	HBCO	
Bartlett Health Physics	HRH	1 / 10 / 10

Estimated Time to Perform the Work: 84 days total span with 69 days active work.

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 69 / 69		
Project Manager/HP Manager	HBPM	2 / 69 / 207		
Task Leader	HBTL	1 / 69 / 552	Group 1	69
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 12 / 24		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	6 / 69 / 3312	Group 3 / Group 1	272 / 336
Bartlett Maint Specialist	HRDS	1 / 69 / 138	Group 1	16
Bartlett Health Physics	HRH	4 / 69 / 2208	Group 3 / Group 1	65 / 84
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: Air Compressor Rental 130-200 CFM = $1,851

Special Equipment/Material: ALARA paint - 150 gal = $15,783
Poly Urea - 69 gal = $2,904

Comments/Explanations:

Basis of Estimate:
What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Estimate based on prior experience with this and similar areas in JN-1

Completed by: D. A. Seifert (updated by PJW) **Date:** 6/12/01 (updated 4-21-022 **Rev. No.:** 3

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C096 **Work Pkg. No.:** 7C41-B04

Function Name: Remove High Level Cell, Low Level Cell, and Mezzanine

Component Name: LLC, HLC and Mezzanine

Function Description: Remove the mezzanine deck and support beams adjacent to the HLC by saw cutting the deck into manageable size pieces, then cut the LLC/HLC structure into appropriate sized blocks using Diamond Wire technology. Use a crane to lift the cut blocks through the building roof onto trucks for disposal as LLW.

Basis of Estimate

Strategy for Accomplishing Function: Generate contracts to Diamond Wire and saw cut the HLC/LLC structure and mezzanine deck into pieces for disposal. Generate a support work instruction package to provide D&D support for water management, HP oversight, and Waste Management support for removal and preparation of the pieces for disposal as LLW.

Applicable Requirements/Procedures:

DD-90-02; DD-93-04, 05; DD-OP-029, 090; HP-AP-1.0, 2.0, 5.0; HP-OP-012; HS-AP-4.0, 5.0; HS-OP-001; QD-AP-4.1, 5.2, 6.1, 7.1; RL-AP-1.0; SIH-PP-06; SM-AP-001; TD-AP-2.0; WA-OP-020

Input Descriptions:

1. The HLC/LLC and associated operations area with all utilities and HEPA ventilation removed/stabilized, and an opening prepared in the roof above the cells.
2. Embedded piping/ductwork in the HLC/LLC dividing wall stabilized and sealed.

Output Descriptions:

1. JN-1 building area prepared for final drain line and utility removal
2. completed work instruction data package
3. packaged removed waste:

Cut Concrete	18,000 cu ft	Consumables (wire, etc.)	1100 cu ft
Job Control Waste	485 cu ft	Cutting water & sludge	250 cu ft
Steel beams	32 cu ft		

4. WI data package

Assumptions:

1. The LLC/HLC is essentially non-smearable and does not pose an undue exposure risk.
2. There are no hazardous constituents in the work area and the area is dedicated for this work
3. Manpower, equipment, resources, and the area are available for this activity when scheduled
4. There are no RCRA considerations in the HLC structure
5. Concrete cutting rate is 25 square feet per hour, 40,000# blocks, 2800 square feet
6. Job involves 30 days for setups, 70 days for cuts, 30 days for material removal, 7 days for demobilization.
7. The work instruction and procedures are in place sufficiently early to perform this activity on schedule

Estimated Time to Plan the Work (Including Review and Approval): 100 Days for both the contract award and the supporting work instruction package.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	4 / 5 / 10*
Technical Advisors	HBTA	2 / 100 / 20
Project Manager/HP Manager	HBPM	3 / 100 / 120*
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 10 / 20
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 100 / 10

* Additional review time included for Level 2 hazard rating.

Estimated Time to Perform the Work: 137 Days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 137/ 140		
Project Manager/HP Manager	HBPM	2 / 137 / 500		
Task Leader	HBTL	1 / 137 / 1096	Group 0	137
Battelle Technician	HBT	1 / 137 / 137		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 137 / 20	Group 0	15
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5/ 137 / 5480	Group 1	548
Bartlett Maint Specialist	HRDS	1 / 137 / 274	Group 0	137
Bartlett Health Physics	HRH	1 / 137 / 1096	Group 1	274
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Diamond Wire Subcontractor for concrete cutting, Support Operator - $630,506 based on contractor discussions and revised 6/21/02 estimate.
Equipment Rigger/Mover Contractor for moving items for transport – 785 Hrs @ $63.70/ Hr = $50,005
100 ton Crane and Operating for 30 days - $24,443 (RS Means line 01590-600-1200)
Eng. Sectioning Plan (Chamberlain est) 40 Hrs @$85/ Hr = $3,400

Special Equipment/Material:

Comments/Explanations: Based on JN-3 Performance, added the extra time and cuts for the attached Mezzanine

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites).

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? Yes, very heavy pieces are cut and structural considerations must be taken into account.

Completed by: C. Voth (updated by D Seifert) **Date:** 05/20/02 **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C098 **Work Pkg. No.:**7C47-B02

Function Name: Remove material from Old Operations Area.

Component Name: JN-1 Old Operations Area.

Function Description: Equipment and non-structural materials/waste will be removed from the Old Operations Area of JN-1.

Basis of Estimate

Strategy for Accomplishing Function: The Old Operations Area is used as storage for support equipment, laundry storage and control point for CAA work.

- It is estimated that 10% of the waste/material from this area could be free released. Items that are small, painted or have inaccessible areas will be disposed of as LLW. Some of the equipment has known fixed contamination.
- A production free release area should be set up because of the large volume of waste that would require surveying.

Applicable Requirements/Procedures:

BCLDP-90-1, 2; DD-90-02; DD-93-02, 04; HP-AP-1.0, 2.0, 5.0, 8.0, 29.0; HP-OP-011, 012, 018, 019; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; SM-OP-001; TD-AP-2.0, 3.0; WA-OP-020, 022

Input Descriptions:

1. Manipulator operations completed in the HLC, LLC, and MTC.
2. PPE storage has moved to another central location.
3. Material, waste and non-structural materials as described in Waste volumes & types FY 2001 and a physical walk down of the building.

Output Descriptions:

Free Released Clean waste/reusable material and equipment.	380 cu ft
LLW	
Compactable Envirocare	300 cu ft
Non-compactable Envirocare	3140 cu ft
Hazardous BCO	7 cu ft

Assumptions:

1. The control point is no longer needed for CAA work.
2. Cells have been decommissioned and manipulators removed.
3. PPE storage has moved to another central location

Estimated Time to Plan the Work (Including Review and Approval): 10 days.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Total Hours
Manager/Senior Staff	HBB	1 / 1 / 4*
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40 1/1/4*
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 10 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

* Additional review time for Level 2 hazard rating.

Estimated Time to Perform the Work: 15 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Total Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 15 / 15		
Project Manager/HP Manager	HBPM	2 / 15 / 60		
Task Leader	HBTL	1 / 15 / 120		
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 15 / 480	0	60
Bartlett Maint Specialist	HRDS	1 / 15 / 30		
Bartlett Health Physics	HRH	4 / 15 / 480	0	60
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: N/A

Special Equipment/Material: N/A

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

Activity Number: C098

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: P. Weaver/D. Seifert **Date:** 4/18/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C099 **Work Pkg. No.:**7C47-B03

Function Name: Remove asbestos from Old Operations Area

Component Name: JN-1 Old Operations Area

Function Description: Remove asbestos from the old operations area prior to decon activities. This includes asbestos pipe insulation and floor tile and mastic and any wall through sections containing asbestos material.

Basis of Estimate

Strategy for Accomplishing Function: Procure asbestos abatement subcontractor to perform work.

Applicable Requirements/Procedures:

Approved work instruction; Subcontract with asbestos abatement contractor; ODOH and OEPA asbestos abatement regulations; BCLDP-90-1; DD-93-04, 05, 11; HP-AP-1.0, 2.0, 5.0, 8.0; HP-OP-012, 018, 023; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; SIH-PP-09; SM-OP-001; TD-AP-2.0, 3.0; WA-OP-022

Input Descriptions:

1. JN-1 old operations area less non-structural materials
2. Approximately 140 pipe elbows and associated attached asbestos insulation, 15 wall thru sections and 5,300 sq. ft. of floor tile and mastic.

Output Descriptions:

1. Old operations area ready for utility removal, decon.
2. App. 900 cu. ft. of low level asbestos waste.
3. 125 cu. ft. job control waste

Assumptions:

1. Suspect material assumed to be asbestos containing material.
2. No confirmatory samples for asbestos content have been taken.
3. Price quote assumed work to be performed in FY 2001
4. Price quote based on walkdown with asbestos abatement contractor for the purposes of cost estimating.

Estimated Time to Plan the Work (Including Review and Approval): Planning time of 20 days includes notification to ODOH and OEPA of abatement activities.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1/20/10
Project Manager/HP Manager	HBPM	2/20/40
Task Leader	HBTL	1/20/20
Secretary/Clerical	HBS	1/20/10
Support Professional	HBP	
Bartlett Health Physics	HRH	1/5/5

Estimated Time to Perform the Work: Approximately 17 days to include set-up, tear-down and clearance sampling if required.

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA			
Project Manager/HP Manager	HBPM	2/17/17	N/A	
Task Leader	HBTL	1/17/51	N/A	
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP		N/A	
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	1/17/34	N/A	
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH	1/17/25	N/A	
Bartlett Admin Support	HRA			
Asbestos Abate. Ctr.		680 manhours	Group 2	125

Subcontract/Purchased Service: Purchased Services Asbestos abatement (AHC., Inc.)estimate from 5/16/00 of $43,554 (escalated).

Special Equipment/Material: Ladders, scaffolding, manlift, HEPA air units, HEPA vacuums. All other material and supplies to be supplied by the abatement contractor with the exception of PPE, i.e., clothing and respirators.

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Estimate supplied by abatement contractor.

Completed by: D. A. Seifert **Date:** 04/18/02 **Rev. No.**: 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C100 **Work Pkg. No.:** 7C47-B03

Function Name: Remove Utilities from Old Operations Area

Component Name: JN-1 Old Operations Area

Function Description: Electrical utilities, piping, heaters, cranes and hoists will be removed from the old cell operating area and mezzanine. Surfaces will be decontaminated/stabilized as necessary in preparation for building demolition.

Basis of Estimate

Strategy for Accomplishing Function: After all decontamination/stabilization activities have been completed in the HLC, LLC, and MTC, utilities except for HEPA ventilation units will be removed from the old operating area. Cranes, hoists and rails, heaters, and piping, will be removed first. Electrical and lighting will be removed last.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-02, 04; DD-OP-075, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 29.0; HP-OP-011, 012, 019; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; SM-OP-001; TD-AP-2.0; WA-OP-020

Input Descriptions:

1. Approved work instruction, RWP, Safety & Waste Management checklists.
2. Old operating area (3460 sq ft including HLC/LLC and MTC mezzanine areas) with HLC & LLC decontaminated, stabilized for demolition and materials & equipment removed.
3. Waste disposal containers.
4. Utility waste items:

Lamp ballasts	5 cu ft	metal bracing	45 cu ft
Fluorescent Tubes	15 cu ft	Drain piping	210 cu ft
Cross beams	470 cu ft	Ducting	112 cu ft
HVAC & registers	502 cu ft	Ladders & stairs	544 cu ft
Light fixtures	132 cu ft	Piping	578 cu ft
Crane & Hoist	41 cu ft		

Output Descriptions:

1. Old operating area rooms with nonessential utilities removed.
2. Completed work instruction data package.
3. Containerized utility waste:

PCB waste	5 cu ft	Pb/Hg waste	15 cu ft
Misc metal items	2640 cu ft	Job control waste	124 cu ft

Assumptions:

1. Production rate is approximately 85 sq ft per day due to high ceilings and density of utilities in the area.
2. HEPA ventilation and main power distribution center will remain active until no longer needed for building support.
3. Contamination levels in most of the area will be low enough to avoid significant decon/stabilization following utility removal.

Estimated Time to Plan the Work (Including Review and Approval): 10 days.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1 / 1 / 4*
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40 1 / 1 / 4*
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 1o / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

* Additional review time for Level 2 hazard rating.

Estimated Time to Perform the Work: 40 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 40 / 40		
Project Manager/HP Manager	HBPM	2 / 40 / 160		
Task Leader	HBTL	1 / 40 / 320	Group 0	40
Battelle Technician	HBT	1 / 60 / 240	Group 0	40
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 20 / 80	Group 0	20
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 40 / 1280	Group 0	160
Bartlett Maint Specialist	HRDS	1 / 24 / 96	Group 0	24
Bartlett Health Physics	HRH	2 / 40 / 480	Group 0	60
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: 9 gal polyurea encapsulant @ 144 sq ft/gal x $42/gal = $378

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? Yes. See assumption number 1 above.

Completed by: D. A. Seifert **Date:** 4/21/02 **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C101 **Work Pkg. No.:** 7C47-B03

Function Name: Remove Ventilation from Old Operations Area

Component Name: JN-1 Operations Area

Function Description: Remove HEPA ventilation from the JN-1 Old Ops Area. Decontaminate/stabilize exposed surfaces as necessary for building demolition.

Basis of Estimate

Strategy for Accomplishing Function: After HEPA ventilation systems are no longer needed to maintain building integrity, they will be turned off and disabled for removal. The HEPA ventilation units above the HLC/LLC and MTC will be removed first, followed by the ladder/stair access to the mezzanine. Each area will be surveyed and stabilized as needed after removal activities are complete using appropriate methods followed by stabilization with a durable coating.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-02, 04; HP-AP-1.0, 2.0, 5.0, 29.0; HP-OP-011, 012, 019; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; SM-OP-001; TD-AP-2.0; WA-OP-020

Input Descriptions:

1. Building JN-1 with all decontamination/stabilization activities complete and areas vacated.
2. HEPA ventilation systems:

HEPA filters & housings	64 cu ft	Access stairs	245 cu ft
Ducting	20 cu ft		

Output Descriptions:

1. Completed work instruction data package.
2. Building with ventilation removed & surfaces stabilized.
3. HEPA waste 64 cu ft
4. Metal waste 247 cu ft (ducting reduces to 10% of its original volume)
5. Job control waste 145 cu ft

Assumptions:

1. Approximately 7 days will be required for removal and stabilization of each of the 3 HEPA systems in the area.
2. Hot side ducting for each of the three systems will have been removed during stabilization of the respective hot cells.

Estimated Time to Plan the Work (Including Review and Approval): 10 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1 / 1 / 4*
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40 1 / 1 / 4*
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 10 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

* Additional review time for Level 2 hazard rating

Estimated Time to Perform the Work: 21 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 21 / 21		
Project Manager/HP Manager	HBPM	2 / 21 / 84		
Task Leader	HBTL	1 / 21 / 168	Group 0	21
Battelle Technician	HBT	1 / 21 / 21		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 2 / 4	Group 0	2
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 21 / 672	Group 2 / Group 0	66 / 51
Bartlett Maint Specialist	HRDS	1 / 4 / 8	Group 2	4
Bartlett Health Physics	HRH	2 / 21 / 336	Group 2 / Group 0	22 / 31
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: Air Compressor Rental 130-200 CFM = $555

Special Equipment/Material: Polyurea encapsulant 2 gal @ 144 sq ft/gal x $42 = $84

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Activity similar to those conducted in KA buildings & surfaces will have been stabilized prior to start.

Completed by: D. A. Seifert **Date:** 4/24/02 **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C103 **Work Pkg. No.:** 7C47-B04

Function Name: Remove Underground Drains from JN-1A Area

Component Name: JN-1A Underground drains.

Function Description: Excavate and remove underground process and sanitary drains within the designated area of Building JN-1.

Basis of Estimate

Strategy for Accomplishing Function: After asbestos abatement and surface decontamination/stabilization are complete, mark locations of underground drain lines within the building area. Engage concrete cutting contractor and excavator operator to remove floor and excavate soil above drain lines. Excavate and remove drain lines and deliver to Waste Management for processing.

Applicable Requirements/Procedures:

DD-90-02; DD-93-03, 04, 05; DD-OP-029, 090; HP-AP-1.0, 2.0, 5.0, 8.0, 9.0, 29.0; HP-OP-012, 017, 106; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; RL-AP-1.0; QD-AP-4.1, 5.2, 6.1, 7.1; SIH-PP-08; TD-AP-2.0, 3.0; WA-OP-020

Input Descriptions:

1. Building JN-1 Area A after asbestos and utilities are removed and surface decontamination/stabilization is complete.
2. 260 ft of buried process drain piping at an average depth of 3 ft below the floor.
3. 114 ft of buried sanitary drain piping at an average depth of 4.5 ft below the floor.

Output Descriptions:

1. Building JN-1 Area A with concrete flooring, underground drains, and surrounding soil removed for processing/disposal by Waste Management.
2. Completed work instruction data package.
3. Underground drain removal waste:

Concrete floor blocks	1000 cu ft	Excavated clean soil	164 cu yd
Drain piping (Pb/Hg)	374 lf	Cutting water & Sludge	16 cu ft
Mixed waste	6 cu ft	Job control waste	188 cu ft
Excavated contam soil	62 cu yd	112 gamma spectrum samples	
		11 alpha isotopic samples	

Assumptions:

1. All drains are internally contaminated
2. Concrete cutting rate is 50 lin ft per hr, soil excavation rate is 8 bags (cu yds) per day.
3. All concrete and soil are suspect contaminated.
4. A 3 x 3 ft area around 50% of the piping has contaminated soil.

Estimated Time to Plan the Work (Including Review and Approval): 20 days including acquisition of purchased services

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1 / 1 / 4*
Technical Advisors	HBTA	/ 10 / 10
Project Manager/HP Manager	HBPM	2 / 20 / 40 + 1/1/4*
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 10 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

* Additional review time for Level 2 hazard rating.

Estimated Time to Perform the Work: 20 days allowing for simultaneous cutting, excavation, and pipe removal plus setup/demobilization.

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 *Group 1* *160*

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 20 / 20		
Project Manager/HP Manager	HBPM	2 / 20 / 80		
Task Leader	HBTL	1 / 20 / 160	Group 1	20
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 5 / 10		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5 / 20 / 800	Group 1	200
Bartlett Maint Specialist	HRDS	1 / 7 / 14	Group 1	7
Bartlett Health Physics	HRH	3 / 20 / 480	Group 1	120
Bartlett Admin Support	HRA			
Concrete Cutting Contractor		1 / 9 / 72	Group 1	18
Excavation Contractor		1 / 20 / 160	Group 0	20

Subcontract/Purchased Service:
Concrete Cutter 1267 lin ft @ $7.93/lin ft concrete on grade = $10,047
Excavator: 160 operator hours = $7,614 + TB007 excavator for 1 month = $1,851

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? Yes. Indoor excavation rate is approximately ¼ that outside due to smaller equipment and higher contamination probability.

Completed by: D. A. Seifert **Date:** 5/1/02 **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C106 **Work Pkg. No.:** 7C43-B01

Function Name: Remove Alpha/Gamma Area Equipment and Utilities

Component Name: JN-1 Alpha/Gamma Area

Function Description: After area cleanup, miscellaneous equipment, piping, insulation, ductwork, conduit, and other utilities will be stripped from the area to the extent necessary to allow building surfaces to be decontaminated/stabilized for demolition.

Basis of Estimate

Strategy for Accomplishing Function: Starting with asbestos pipe insulation, utilities will be manually dismantled, size reduced, removed from the JN-1 basement area, and turned over to Waste Management. Lighting will be removed last to facilitate work. Sump pumps will remain in place to avoid water accumulation until building is ready for deconstruction.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-02, 03, 04, 05; DD-OP-029, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0; HP-OP-011, 012, 018, 019, 023, 027, 106, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; WA-OP-020, 022

Input Descriptions:

1. Basement cell area (1344 sq ft) plus the Evaporator tank room. Gross area decontamination is complete with area properly surveyed and posted.
2. Utility items and materials:

Asbestos covered piping	38 cu ft	Lamp Ballasts	1 cu ft
Fluorescent tubes	4 cu ft	Conduit	6 cu ft
Ductwork	50 cu ft	Electric boxes	12 cu ft
Elevated Drain piping	4 cu ft	HVAC unit	125 cu ft
Light fixtures	44 cu ft	Piping	90 cu ft
Sink	8 cu ft	Evaporator Tank	76 cu ft

Output Descriptions:

1. JN-1 basement area with all utilities removed, ready for building surface decontamination/stabilization.
2. Completed work instruction data package.
3. 27 Area CAM samples for analysis, one per operating day.
4. Containerized waste:

ACM Waste	38 cu ft	Metal LLW	414 cu ft
Pb/Hg Waste	4 cu ft	PCB Waste	1 cu ft
Job Control Waste	50 cu ft		

Assumptions:

1. Production rate will be approximately 100 sq ft per day.
2. Respiratory protection will be required for approximately 50% of the work.
3. Hot sump will remain operational until Evaporator operations are complete.
4. Cold sump will remain operational until building is ready for demolition.

Estimated Time to Plan the Work (Including Review and Approval): 20 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 20 / 10
Project Manager/HP Manager	HBPM	2 / 20 / 40
Task Leader	HBTL	1 / 20 / 20
Secretary/Clerical	HBS	1 / 20 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1/ 20 / 20

Estimated Time to Perform the Work: 20 days

Estimated Resources Required to Perform the Work

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 20 / 20		
Project Manager/HP Manager	HBPM	2 / 20 / 52		
Task Leader	HBTL	1 / 20 / 160	Group 0	20
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 3 / 6		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 20 / 40	Group 0	10
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5 / 20 / 800	Group 2 / Group 0	46/ 60
Bartlett Maint Specialist	HRDS	1 / 7 / 14	Group 2	7
Bartlett Health Physics	HRH	2 / 20 / 320	Group 2 / Group 0	10/ 30
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: Lift is needed for the HVAC Unit. Some size reduction on equipment must occur.

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites).

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? No, this is a straight forward process.

Completed by: C. B. Voth/D Seifert **Date:** 4/26/02 **Rev. No.**: 3

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C108 **Work Pkg. No.:** 7C44-B03

Function Name: Remove High Energy Cell Walls and Cask Washdown Room using Diamond Wire

Component Name: HEC

Function Description: Remove the HEC structure through a contract that utilizes the Diamond Wire technology to remove large monoliths of structure. Dispose of these through the LLW program.

Basis of Estimate

Strategy for Accomplishing Function: Generate a contract to Diamond Wire cut the cell roof, rear and side walls into pieces for disposal. Generate a support work instruction package to remove the HEC structure. Perform removal of the HEC and have Waste Management dispose of the pieces.

Applicable Requirements/Procedures:

DD-90-02; DD-93-04, 05; DD-OP-029; HP-AP-1.0, 2.0, 5.0; HP-OP-012; HS-AP-4.0, 5.0; HS-OP-001; QD-AP-4.1, 5.2, 6.1, 7.1; RL-AP-1.0; SIH-PP-6.0, 8.0; SM-AP-001; TD-AP-2.0; WA-OP-020

Input Descriptions:

1. HEC after all materials & utilities removed and internal surfaces decontaminiate/stabilized.
2. Waste Items include approximately 18000 cu ft of hot cell structure and liner derived from the HEC ceiling and walls

Output Descriptions:

1. JN-1 building area prepared for final drain line and utility removal
2. completed work instruction data package
3. packaged removed waste:

Cut Concrete	18000 cu ft	Consumables (wire, etc.)	1500 cu ft
Job Control Waste	750 cu ft	Cutting water & sludge	300 cu ft

4. WI

Assumptions:

1. The HEC is essentially non-smearable and does not pose an undue exposure risk.
2. Manpower, equipment, resources, and the area are available for this activity when scheduled
3. There are no RCRA considerations in the HEC structure
4. Concrete cutting rate is 25 square feet per hour, 40,000# Blocks, 8500 Square feet of cut, 2 saws
5. Job involves 50 days for setups, 90 days for cuts, 50 days for material removal, 23 days for demobilization.
6. The work instruction and procedures are in place sufficiently early to perform this activity on schedule
7. Planning includes a Level 2 hazard analysis.

Estimated Time to Plan the Work (Including Review and Approval): 81Days, and 19 days in FY02 for both the contract award and the supporting work instruction package.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	4 / 5 / 18
Technical Advisors	HBTA	2 / 81 / 16
Project Manager/HP Manager	HBPM	2 / 81 / 183
Task Leader	HBTL	1 / 81 / 38
Secretary/Clerical	HBS	1 / 81 / 32
Support Professional	HBP	1 / 81 / 8
Bartlett Health Physics	HRH	1 / 81 / 10

Estimated Time to Perform the Work: 213 Days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 213 / 120		
Project Manager/HP Manager	HBPM	2 / 213 / 500		
Task Leader	HBTL	1 / 213 / 1704	Group 0	213
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 213 / 30		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 213 / 100	Group 0	20
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5/ 213 / 8520	Group 1	1210
Bartlett Maint Specialist	HRDS	1 / 213 / 852	Group 0	213
Bartlett Health Physics	HRH	3 / 213 / 5112	Group 1	1210
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Diamond Wire Subcontractor for concrete cutting, Support Operator - $1,794,368 based on contractor discussions and revised 6/21/02 estimate.
Equipment Rigging/Mover Contractor for moving items for transport 300 Hrs @$63.70/ Hrs = $19,200
Structural Engineer Services 300 Hrs @$85/ Hr = $25,500

Special Equipment/Material: Use of 50 ton building crane is essential

Comments/Explanations: Based on JN-3 performance

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites).

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? Yes, very heavy pieces are in an elevated setting and structural considerations must be taken into account.

Completed by: C. Voth/D Seifert **Date:** 05/15/ 01 **Rev. No.**: 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C109 **Work Pkg. No.:**7C46-B01

Function Name: Remove staged area and miscellaneous material from high bay area.

Component Name: The highbay is located in JN-1 facility.

Function Description: : Equipment and non-structural materials/waste will be removed from the highbay of JN-1.

Basis of Estimate

Strategy for Accomplishing Function: The highbay is an operating work area with a 50 ton crane. Most of the waste/ material for removal is tools, equipment and stored waste containers needed for day to day operations.

Applicable Requirements/Procedures:

BCLDP-90-1, 2; DD-90-02; DD-93-02, 04; HP-AP-1.0, 2.0, 5.0, 29.0; HP-OP-011, 012, 018, 019; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; SM-OP-001; TD-AP-2.0, 3.0; WA-OP-020

Input Descriptions:

1. The removal and completion of the HEC, TRU waste shipping, pool liner removal and D&D of the pool area.
2. Material, waste and non-structural materials as described in Waste volumes & types FY 2001 and a physical walk down of the building.
3. TRU waste equipement (i.e. Dufranes, 10-160 B support equipment) has been excessed to another DOE site.

Output Descriptions:

Free Released Clean waste	125 cu ft
LLW	
Compactable	50 cu ft
Non-compactable	1125 cu ft

Assumptions: The waste/material can be removed from the highbay when:

1. The project no longer needs the overhead crane is when the highbay can be cleaned out
2. 10% of the waste/material will undergo the free release process.
3. This work will require a level 2 hazard analysis.

Estimated Time to Plan the Work (Including Review and Approval): 5 days.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Total Hours
Manager/Senior Staff	HBB	2/2/4
Technical Advisors	HBTA	2/1/8
Project Manager/HP Manager	HBPM	2/5/20
Task Leader	HBTL	1/2/4
Secretary/Clerical	HBS	1/1/4
Support Professional	HBP	1/1/8
Bartlett Health Physics	HRH	1/1/4

Estimated Time to Perform the Work: 10 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Total Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 10 / 12		
Project Manager/HP Manager	HBPM	2 / 10 / 40		
Task Leader	HBTL	1 / 10 / 80		
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5 / 10 / 400	0	
Bartlett Maint Specialist	HRDS	1 / 10 / 20		
Bartlett Health Physics	HRH	3 / 10 / 240	0	
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: N/A

Special Equipment/Material: N/A

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: P. Weaver **Date:** 5/10/01 (updated 4-21-02) **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C111 **Work Pkg. No.:** 7C46-B02

Function Name: Remove Utilities from High Bay Area

Component Name: JN-1 High Bay

Function Description: Dismantle & remove ductwork, heating units, & electrical systems from the JN-1 High Bay.

Basis of Estimate

Strategy for Accomplishing Function: Removal of systems except the overhead crane using appropriate tools and equipment according to Work Instruction, RWP, Safety & WM Checklists. Use of a telescoping boom lift will be required to perform equipment removal from the area.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-02, 04, 05; DD-OP-075, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 29.0; HP-OP-011, 12, 019; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; SIH-PP-04, 06; SM-OP-001; TD-AP-2.0; WA-OP-020

Input Descriptions:

1. JN-1 High Bay area (3011 sq ft) after decontamination/stabilization of the HEC and Cask Washdown Room with asbestos containing materials removed.
2. High Bay utilities:

Ducting	62 cu ft	Heaters	99 cu ft
Drain piping	102 cu ft		

Output Descriptions:

1. JN-1 High Bay with all utilities removed
2. High Bay utility waste:

LLW metal	263 cu ft
Job control waste	353 cu ft

3. WI Data Package

Assumptions:

1. Production rate is estimated to be approximately 75 sq ft per day because of 60 ft high ceiling and obstructions.
2. Removal of lighting will be delayed until after surfaces above 8 ft have been decontaminated/stabilized and overhead crane has been dismantled and removed.
3. This work will require a level 2 hazard review.

Estimated Time to Plan the Work (Including Review and Approval): 20 days.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	2 / 1 / 2
Technical Advisors	HBTA	2 / 4 / 26
Project Manager/HP Manager	HBPM	2 / 20 / 40
Task Leader	HBTL	1 / 20 / 40
Secretary/Clerical	HBS	1 / 1 / 2
Support Professional	HBP	1 / 1 / 2
Bartlett Health Physics	HRH	1 / 8 / 16
	HBCO	

Estimated Time to Perform the Work: 30 days.

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 30 / 30		
Project Manager/HP Manager	HBPM	2 / 30 / 60		
Task Leader	HBTL	1 / 30 / 240	Group 0	40
Battelle Technician	HBT	1 / 20 / 80	Group 1	20
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 8 / 16		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 10 / 40	Group 1	10
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5 / 30 / 1200	Group 1	180
Bartlett Maint Specialist	HRDS	1 / 30 / 60	Group 1	15
Bartlett Health Physics	HRH	4 / 30 / 960	Group 1 / Group 0	40 / 40
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: 80 foot boom lift for 30 days = $7,298

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? Yes. See Assumption 1 above.

Completed by: D. A. Seifert (Updated by PJW) **Date:** 5/16/01 (Updated 4-24-02) **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C112 **Work Pkg. No.:** 7C46-B02

Function Name: Decon/Stabilize High Bay Area Surfaces

Component Name: JN-1 High Bay Area

Function Description: Remove loose contamination from elevated surfaces in the JN-1 High Bay to the extent practical and stabilize to prevent contamination migration during building dismantling.

Basis of Estimate

Strategy for Accomplishing Function: Building surfaces above approximately 8 ft will be decontaminated using non destructive methods such as vacuuming, wiping, and washing (including power washing) or application and removal of strippable coatings. After decontamination, surfaces still exhibiting smearable contamination will be stabilized with a durable coating such as an epoxy enamel.

Applicable Requirements/Procedures:

DD-90-02; DD-93-04; DD-OP-065, 075, 076; HS-AP-4.0, 5.0; HS-OP-001; HP-AP-1.0, 2.0, 5.0, 8.0; HP-OP-012; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; SIH-PP-06; SM-OP-001; TD-AP-2.0; WA-OP-020, 061

Input Descriptions:

1. JN-1 High Bay area surfaces (30,700 sq ft) with utility removal complete except for area lighting, pool covers (for safety), and the overhead crane.
2. 85 ft boom lift, power washer, wet/dry vacuums, etc. available for use.

Output Descriptions:

1. JN-1 High Bay area with elevated building surfaces stabilized, ready for removal of overhead crane and area lighting.
2. Completed work instruction data package.
3. 500 gal of wash water for filtration/evaporation.
4. 50 cu ft of contaminated filter media
5. 50 cu ft of contaminated wipes & rags for disposal.
6. Job control waste – 892 cu ft.
7. WI data package

Assumptions:

1. Decontamination washing can be accomplished at the rate of 500 sq ft per day by vacuuming and power washing.
2. Stabilization at the rate of 250 sq ft per day will be required for approximately 10% of building surfaces.
3. This work will require a level 2 hazard review.

Estimated Time to Plan the Work (Including Review and Approval): 20 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	2 / 1 / 2
Technical Advisors	HBTA	2 / 10 / 72
Project Manager/HP Manager	HBPM	3 / 20 / 40
Task Leader	HBTL	1 / 4 / 8
Secretary/Clerical	HBS	1 / 1 / 2
Support Professional	HBP	1 / 1 / 2
Bartlett Health Physics	HRH	
	HBCO	

Estimated Time to Perform the Work: 75 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 *Group 1* *160*

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 75 / 75		
Project Manager/HP Manager	HBPM	2 / 75 / 300		
Task Leader	HBTL	1 / 75 / 600	Group 2 / Group 0	38 / 37
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 15 / 30		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 75 / 2400	Group 2	600
Bartlett Maint Specialist	HRDS	1 / 75 / 150	Group 2	30
Bartlett Health Physics	HRH	3 / 75 / 1800	Group 2	225
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: 80 foot boom list for 75 days = $17,026
160 gal epoxy paint = $9,525

Comments/Explanations:

Basis of Estimate:
What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? Yes. Production rate expected to be approximately ½ normal due to building interior height.

Completed by: D. A. Seifert (Updated by PJW) **Date:** 5/12/01 (Updated 4-24-02) **Rev. No.**: 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C115 **Work Pkg. No.:**7C47-B05

Function Name: Remove asbestos from JN-1B area

Component Name: JN-1B Operations Area

Function Description: Remove asbestos from the JN-1B area prior to utility removal, decon activities. This includes the high bay area, fan room, pump room and HEC Operations area. This includes asbestos pipe insulation and any wall through sections containing asbestos material.

Basis of Estimate

Strategy for Accomplishing Function: Procure asbestos abatement subcontractor to perform work.

Applicable Requirements/Procedures:

Approved work instruction; Subcontract with asbestos abatement contractor; ODOH and OEPA asbestos abatement regulations; BCLDP-90-1; DD-93-04, 05, 11; DD-OP-065; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0; HP-OP-012, 023; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; SIH-PP-09; SM-OP-001; TD-AP-2.0, 3.0; WA-OP-022

Input Descriptions:

1. JN-1B area less non-structural materials
2. Approximately 262 pipe elbows and associated attached asbestos insulation.

Output Descriptions:

1. JN-1B area ready for decon.
2. App. 360 cu. ft. of low level asbestos waste.
3. App. 48 cu. ft of job related low level waste.

Assumptions:

1. Suspect material assumed to be asbestos containing material.
2. No confirmatory samples for asbestos content have been taken.
3. Price quote assumed work to be performed in FY 2001
4. Price quote based on walkdown with asbestos abatement contractor for the purposes of cost estimating.

Estimated Time to Plan the Work (Including Review and Approval): Planning time of 20 days includes notification to ODOH and OEPA of abatement activities.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1/20/10
Project Manager/HP Manager	HBPM	2/20/40
Task Leader	HBTL	1/20/20
Secretary/Clerical	HBS	1/110/10
Support Professional	HBP	
Bartlett Health Physics	HRH	1/5/5

Estimated Time to Perform the Work: Approximately 9 days to include set-up, tear-down and clearance sampling if required.

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA			
Project Manager/HP Manager	HBPM	2/9/18	N/A	
Task Leader	HBTL	1/9/18	N/A	
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1/9/25	N/A	
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	1/9/9	N/A	
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH	1/9/18	N/A	
Bartlett Admin Support	HRA			
Asbestos Abate. Ctr.		260 manhours	Group 2	48

Subcontract/Purchased Service: Purchased Services Asbestos abatement (AHC, Inc.) estimate from 5/16/00 of $19,172 (escalated).

Special Equipment/Material: Ladders, scaffolding, manlift, HEPA air units, HEPA vacuums. All other material and supplies to be supplied by the abatement contractor with the exception of PPE, i.e., clothing and respirators.

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Estimate supplied by abatement contractor based on examination of the area.

Completed by: D. A. Seifert **Date:** 04/18/02 **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C116 **Work Pkg. No.:** 7C47-B05

Function Name: Remove Utilities and Stabilize Fan Room

Component Name: JN-1 Fan Room

Function Description: Dismantle & remove HVAC system, HEPA ventilation systems, ductwork, plumbing & electrical systems. Decontaminate/stabilize building surfaces as necessary for final demolition.

Basis of Estimate

Strategy for Accomplishing Function: Removal of systems using appropriate tools and equipment according to Work Instruction, RWP, Safety & WM Checklists. HVAC system, decommissioned HEPA exhaust systems, and HEC crane controls will be removed first to facilitate erection of scaffolding for removal of the HEC exhaust vent stack. Building surfaces will be checked and decontaminated/stabilized as necessary as they are exposed to take advantage of scaffolding. It is anticipated this activity would not be performed until after stabilization of all other portions of JN-1 Area B, and possibly not until removal of non load bearing portions of the HEC itself have been removed and the pool decontaminated and stabilized. Rigging contractor may be required to assist with equipment removal from the area.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-02, 04, 05; DD-OP-029, 065, 075, 102, 116; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 11.0, 15.0; HP-OP-011, 012, 018, 019, 023; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-4.0, 6.0; SM-OP-001; TD-AP-2.0, 3.0; WA-OP-020

Input Descriptions:

1. Building JN-1 Area B with all utilities removed and surfaces stabilized in the HEC, high bay, pool and operating area.
2. Fan room with asbestos containing materials removed.
3. Appropriate waste containers for LLW and clean waste streams.
4. Fan Room Utilities:

Catwalk	120 cu ft	Ducting	250 cu ft
Fan motors	240 cu ft	Filter Housings	136 cu ft
HEPA filters	24 cu ft	Drain piping	61 cu ft
Ballasts		Lamp tubes	61 cu ft
Light fixtures			

Output Descriptions:

1. Fan room (1232 sq ft) with all utilities removed and required surface stabilization performed.
2. Utility removal waste:

Clean metal waste	610 cu ft		
LLW metal	136 cu ft	HEPA Filters	24 cu ft
Pb/Hg waste	61 cu ft	Job control waste	278 cu ft

Assumptions:

1. Production rate is estimated to be approximately 25 sq ft per day because of room access limits and 40 ft high ceiling.
2. HVAC system, supply piping, and HEPA ventilation systems downstream of filters are expected to be releasable.
3. All elevated surfaces will require wash/wipe decontamination and 10% (800 sq ft) will require stabilization with a durable coating.

Estimated Time to Plan the Work (Including Review and Approval): 20 days including execution of task order for rigging services.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1 / 1 / 4*
Technical Advisors	HBTA	1 / 20 / 10
Project Manager/HP Manager	HBPM	2 / 20 / 40 1/1/4*
Task Leader	HBTL	1 / 20 / 20
Secretary/Clerical	HBS	1 / 10 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

* Additional review time for Level 2 hazard rating.

Estimated Time to Perform the Work: 50 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 *Group 1* *160*

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 50 / 50		
Project Manager/HP Manager	HBPM	2 / 50 / 200		
Task Leader	HBTL	1 / 50 / 400	Group 0	50
Battelle Technician	HBT	1 / 50 / 64		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 12 / 48	Group 0	12
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 50 / 1600	Group 2 / Group 0	176 / 112
Bartlett Maint Specialist	HRDS	1 / 5 / 20	Group 2	5
Bartlett Health Physics	HRH	1 / 50 / 400	Group 2 / Group 0	44 / 28
Bartlett Admin Support	HRA			
Rigging Contractor		3 / 15 / 360	Group 0	45

Subcontract/Purchased Service: Equipment Rigger/Movers contractor: Manpower = $22,410 + Tool Truck $1,115 + Forklift 10,000 # = $2,549.
Air Compressor Rental 130-200 CFM = $1,375.

Special Equipment/Material: Polyurea encapsulant: 7 gal @ $42 = $295. Assumes 25% material loss for start-up/shut down.

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? Yes. See assumption 1 above.

Completed by: D. A. Seifert **Date:** 4/20/02 **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C118 **Work Pkg. No.:** 7C47-B08

Function Name: Remove underground drains from JN-1B area

Component Name: JN-1B

Function Description: Excavate and remove underground drains within the designated building area.

Basis of Estimate

Strategy for Accomplishing Function: After surface decontamination/stabilization is complete in the high bay, cask washdown room, and pump room, and HEC/cask washdown room walls are removed, mark locations of underground drain and deionized water lines within the building. Engage concrete cutting and excavation contractors to remove floor and excavate soil above drain lines. Excavate and remove drain lines and deliver to Waste Management for processing.

Applicable Requirements/Procedures:

DD-90-02; DD-93-03, 04, 05; DD-OP-029, 090; HP-AP-1.0, 2.0, 5.0, 8.0, 9.0, 29.0; HP-OP-012, 017, 106; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; RL-AP-1.0; QD-AP-4.1, 5.2, 6.1, 7.1; SIH-PP-08; TD-AP-2.0, 3.0; WA-OP-020

Input Descriptions:

1. Building JN-1B after surface decontamination/stabilization complete and HEC/cask washdown room removed.
2. 163 ft of drain piping cast into concrete floor.
3. 288 ft of DI water and sump discharge piping buried under floor.

Output Descriptions:

1. Building JN-1B with drain/deionized water lines excavated and removed
2. Completed work instruction data package
3. Containerized drain removal waste:

Excavated DIW piping	12 cu ft	Excavated suspect soil	936 cu ft
Drain piping in concrete	545 cu ft	Concrete floor blocks	230 cu ft
Cutting water & sludge	30 cu ft	Job control waste	57 cu ft

4. WI Data Package

Assumptions:

1. Underground drains are contaminated with Hg, RCRA material, and Rad.
2. Underground drains are cast into concrete floor and will be filled with chemical grout for removal.
3. Average depth of drains is 1 ft below bottom of 8-in thick concrete slab.
4. Concrete cutting rate is 50 lin ft per hr, soil excavation rate is 8 bags (cu yds) per day.
5. Various activities can be conducted concurrently after appropriate lead time for startup.

Estimated Time to Plan the Work (Including Review and Approval): 20 days including execution of task orders and purchased service contracts.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 20 / 40
Task Leader	HBTL	1 / 20 / 20
Secretary/Clerical	HBS	1 / 10 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

Estimated Time to Perform the Work: 10 days with 1 crew, concrete cutter, and excavator

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA			
Project Manager/HP Manager	HBPM	2 / 10 / 40	None	
Task Leader	HBTL	1 / 10 / 80	Group 0	10
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 10 / 320	Group 1	80
Bartlett Maint Specialist	HRDS	1 / 3 / 12	Group 1	3
Bartlett Health Physics	HRH	1 / 10 / 80	Group 1	20
Bartlett Admin Support	HRA			
Concrete cutter		1 / 3 / 24	Group 1	6
Excavator Operator		1 / 5 / 40	None	

Subcontract/Purchased Service:

1. Concrete cutting – 586 lin. ft @ $7.93/lin ft = $4,647
2. Excavation Contractor – 40 hrs operator = $1,904 + TB015 excavator = $772
3. Chemical Grout application Contractor – 1 persons 1 week = $4,451

Special Equipment/Material:

10 cu ft (75 gal) chemical grout for drain piping =$32,130.
High Viscosity Pump 15 HP = $2,689.

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Excavation of underground piping estimated based on experience in KA buildings with adjustments for dealing with concrete encased piping added in. Application of chemical grout for stabilization of pipes encased in concrete is based on written estimate from Eurotech.

Completed by: D. A. Seifert **Date:** 4/20/02 **Rev. No.:** 2

☐JN-1 ☒ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Monit. ☐ Sample Analysis ☐ Waste Mgmt

Activity No.: C130 **Work Pkg. No.: 7C47-B19**

Function Name: Perform JN-1 Office & Machine Shop Area Final Status Survey (excluding the mechanical room and control point)

Component Name: JN-1 Office Area & Machine Shop

Function Description: Baseline Final Status of the JN-1 Office Area & Machine Shop Survey (excluding the mechanical room and control point)

Basis of Estimate

Strategy for Accomplishing Function: Perform Baseline Final Status consistent with NUREG 5849

Applicable Requirements/Procedures/Work Instructions:

NUREG 5849 "Manual for Conducting Radiological Surveys in Support of License Termination"; Characterization & Final Status Survey Plan for the West Jefferson North Site; DD-CP-002, 004, 010, & 030; DD-93-04; DD-97-02; HS-AP-2.0, 4.0, & 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2 & 6.1; RL-AP-1.0; SIH-PP-06; SM-OP-001; TD-AP-2.0

Input Descriptions:

1. Rooms and Areas that have undergone material removal, M&E removal, and decon.
2. Approved Work Instruction.

Output Descriptions:

1. 834 Smears to lab; gross alpha/beta
2. 7 sediment & solid samples to lab; gamma spec
3. Data to report generation
4. 1 alpha isotopic samples

Assumptions:

1. 15% of all monitored areas were found contaminated inside
2. 40% of roof contaminated
3. 10% of exterior walls contaminated
4. 100% of all floor area were surveyed
5. 100% of all wall area up to 2m were surveyed
6. 120% of all ceilings were surveyed (20% added for horizontal surfaces)
7. 10%or 30sq. meters whichever is larger of wall areas greater than 2m were monitored
8. Normal rate for characterization surveys is 6 square meters per technician-hour
9. Ladder rate for characterization surveys is 5 square meters per technician-hour
10. Lift rate for characterization surveys is 4 square meters per technician-hour
11. The rate for characterization surveys includes:
    - 5cm/sec survey rate
    - documentation
    - assess elevated levels>DLV,
    - alpha, alpha + beta 2 min counts required,
    - perform smears
10. Room & Area Volumes were taken from the REV3 Baseline waste volume inventory
11. Dimensions 80'x80'x12'
12. WI / Instrument Calibration

13. No significant down time

Estimated Time to Plan the Work (Including Review and Approval): 0 days; WI under FY02

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	NA
Technical Advisors	HBTA	NA
Project Manager/HP Manager	HBPM	NA
Task Leader	HBTL	NA
Secretary/Clerical	HBS	NA
Support Professional	HBP	NA
Bartlett Health Physics	HRH	NA

Estimated Time to Perform the Work: 7 work days for final status survey

Estimated Resources Required to Perform the Work

Labor Type	Code	Persons/Days/Hours	PPE / Laundry Group	Total Jumps
Program Manager	HBA			
Manager / Senior Staff	HBB	1/7/28	NA	NA
Technical Advisors (Safety)	HBTA	1/7/7	NA	NA
Project Manager / HP Manager	HBPM			
Task Leader	HBTL	1/7/56	0	7
Battelle Technician (HP)	HBT	1/7/56	0	7
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary / Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD			
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics (Instruments) (Data)	HRH	3/7/168 1/7/14 1/7/56	0 NA NA	20 NA NA
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: None identified

Special Equipment/Material: 5 days of 50 ft Scissor Lift = $740

Comments/Explanations: None

Basis of Estimate

What is the estimator's experience?
15 years of health physics and radiological release program management

What experience is directly related to the BCLDP?
10 years of BCLDP characterization & radiological release program experience

Was a complexity factor used?
Work was similar to KA-2 & KA-3 and a complexity factor was not used.

Completed by: J.F. POLIZIANI (Updated by PJW) **Date:** 6/14/01 (Updated 4-29-02) **Rev. No. : 2**

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C131 **Work Pkg. No.:** 7C5-B02

Function Name: Conduct JN-1 Office and Machine Shop Area IVC before dismantle

Component Name: IVC for JN-1 Office Area

Function Description: Support & have an Independent Verification Contractor (IVC) perform verification surveys & sampling consistent with the requirements of NUREG 5849.

Basis of Estimate

Strategy for Accomplishing Function: JN-1 Office Area (IVC) will be subjected to the release process defined in NUREG 5849 "Manual for Conducting Radiological Surveys in Support of License Termination" Part of the process is to perform an IVC type survey to ensure release criteria have been satisfied.

Applicable Requirements/Procedures:

NUREG 5849 " Manual for Conducting Radiological Surveys in Support of License Termination"; Characterization and Final Status Plan for West Jefferson North Site (DD-97-02), March 2000; HS-AP-5.0; HS-OP-001.

Input Descriptions:

1. Areas to be IVC surveyed are remediated & a BCLDP final status survey performed.
2. BCLDP Characterization & Final Status Report for Building JN1 Office Area

Output Descriptions:

1. IVC Survey Plan
2. IVC survey results & soil samples
3. IVC Survey Report

Assumptions:

1. Onsite survey & sampling takes IVC 5 days (1 day travel)
2. One HBTA to assist full time
3. 2 Bartlett HP tech to assist full time
4. Additional Significant Remediation not needed.
5. Spot decon @ 3 techs for 1 day

Estimated Time to Plan the Work (Including Review and Approval): 30 d

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1/30/20
Technical Advisors	HBTA	NA
Project Manager/HP Manager	HBPM	NA
Task Leader	HBTL	NA
Secretary/Clerical	HBS	NA
Support Professional	HBP	NA
Bartlett Health Physics	HRH	NA

Estimated Time to Perform the Work: 65 Total Days ;5 d onsite/travel; 30d lab analysis; 30d report generation

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 *Group 1* *160*

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB	1/5/40	NA	NA
Technical Advisors—Safety Technical Advisor ---Char	HBTA	1/5/5	NA 0	NA 5
Project Manager/HP Manager	HBPM			
Task Leader-Decon	HBTL	1/5/40		5
Battelle Technician (HP)	HBT		0	0
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician-Decon	HRD	2/1/16	0	4
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics Bartlett Health Physics (full)	HRH	 2/5/80	0 0	 10
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: IVC Services for $40,000

Special Equipment/Material: 50 ft Scissor lift for 5 days = $740

Comments/Explanations: Estimate to be verified w/IVC

Basis of Estimate

What is the estimator's experience?
15 years of health physics & radiological release program management

What experience is directly related to the BCLDP?
10 years of BCLDP characterization & radiological release program experience; 2 years at West Jefferson

Was a complexity factor used?
No, work similar to KA

Completed by: J.F. POLIZIANI **Date:** 5/30/2001 **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C133 **Work Pkg. No.:** 7C44-B04

Function Name: TRU Packaging Location Removal

Component Name: TRU Packaging Location Removal

Function Description: Decon and remove the new TRU packaging location after verification that all TRU waste in JN-1 has been packaged for shipment.

Basis of Estimate

Strategy for Accomplishing Function: The new TRU packaging location will be deconned to below TRU levels and then a fixative (i.e. ALARA paint) will be applied. Afterwards, the storage location will be disassembled (i.e. size reduced) and disposed of as LLW.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; DD-98-04; DD-OP-029, 030; HL-OP-015; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 17.0; HP-OP-012, 018, 019, 027; HS-AP-5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-08; TD-AP-2.0, 3.0; WA-OP-020

Input Descriptions:

- All TRU waste has been packaged for shipment.
- Permi-con building from the Sonatol system

Output Descriptions:

LLW Non-compactable (Envirocare)	500 cu ft

Assumptions:

- All TRU waste will have been removed from the packaging location.
- This work will require a level 2 hazard analysis

Estimated Time to Plan the Work (Including Review and Approval): 15 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	2 / 15 / 30
Project Manager/HP Manager	HBPM	1 / 15 / 60
Task Leader	HBTL	1 / 15 / 15
Secretary/Clerical	HBS	1 / 15 / 24
Support Professional	HBP	
Bartlett Health Physics	HRH	

Estimated Time to Perform the Work: 25 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 *Group 1* *160*

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 25 / 25		
Project Manager/HP Manager	HBPM	2 / 25 / 25		
Task Leader	HBTL	1 / 25 / 100		
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5 / 25 / 960	II / I	60 / 110
Bartlett Maint Specialist	HRDS	1 / 25 / 50		
Bartlett Health Physics	HRH	3 / 25 / 480	II / I	30 / 70
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: P. Weaver **Date:** 5/10/01 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C134 **Work Pkg. No.:**7C45-B05

Function Name: Remove Material from Evaporator Room

Component Name: The Evaporator Room is located in JN-1 facility.

Function Description: Waste, equipment and non-structural materials will be removed from the Evaporator Room of JN-1.

Basis of Estimate

Strategy for Accomplishing Function: Material from the Evaporator Room will consist of contaminated equipment and material used in supporting water evaporation for the JN-1 facility. The removal of material from this area will be done using personnel in contaminated and lower dose rate areas.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0; HP-OP-012, 018, 027, 201; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RS-AP-1.0; RS-OP-002; SM-AP-001; TD-AP-2.0; WA-OP-020

Input Descriptions:

1. Evaporator Room equipment and material.
2. Material, waste and non-structural materials from the Evaporator Room Area of JN-1 as described in Waste volumes & types FY 2001 and a physical walk down of the building.

Output Descriptions:

1. Work instruction data package for this activity.
2. Evaporator Room ready for decon/stabilization.

LLW 25% non-compactable cat 1 75% non-compactable cat 3	90 cu ft

Assumptions:

1. Evaporator has been relocated to the JN-1B facility.
2. This work will require a level 2 hazard analysis.

Estimated Time to Plan the Work (Including Review and Approval): 10 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Total Hours
Manager/Senior Staff	HBB	1/4/4
Technical Advisors	HBTA	2/4/8
Project Manager/HP Manager	HBPM	2/10/40
Task Leader	HBTL	1/5/40
Secretary/Clerical	HBS	1/5/10
Support Professional	HBP	1/10/10
Bartlett Health Physics	HRH	1/5/8

Estimated Time to Perform the Work: 5 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 *Group 1* *160*

Labor Type	Code	Persons/Days/Total Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1/5/5		
Project Manager/HP Manager	HBPM	2/5/10		
Task Leader	HBTL	1/5/20		
Battelle Technician	HBT	2/5/60		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	3/5/120	Group 3 / 2	20 / 10
Bartlett Maint Specialist	HRDS	1/5/10		
Bartlett Health Physics	HRH	3/5/120	Group 3 / 2	10 / 10
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: N/A

Special Equipment/Material: N/A

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

Activity Number: C134

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: P. Weaver **Date:** 5/10/01 (updated 4-21-02) **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C135 **Work Pkg. No.:** 7C45-B04

Function Name: Remove Evaporator Room Utilities

Component Name: JN-1 Evaporator Room

Function Description: A work instruction, RWP, and Safety & Waste Management Checklists will be prepared to define the scope of work required to dismantle and remove utilities from the subject area and decon/stabilize it for building demolition. Work crews, tools and equipment will be mobilized to perform the prescribed work according to authorizing documentation.

Basis of Estimate

Strategy for Accomplishing Function: Scope of work will include removal of contaminated electrical service, lighting, ductwork, piping, and exposed drains from the Evaporator Room. Piping will be removed first followed by any duct work, exposed drains, electrical service, and finally lighting. Removed items will be segregated into appropriate categories and containerized for disposal by Waste Management.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-02, 03, 04; DD-OP-029, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 19.0; HP-OP-011, 012, 018, 027, 106, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; TD-AP-2.0; WA-OP-020, 022

Input Descriptions:

1. Approved work instruction, RWP, Safety & WM Checklists.
2. Evaporator Room Area (128 sq ft) with gross surface contamination removed.
3. Waste containers for appropriate waste categories.
4. Utilities & Services:

Canopy Hood	24 cu ft	Bulbs	1 cu ft
Conduit	1 cu ft	Light Fixtures	2 cu ft
Ductwork	4 cu ft		
Piping	2 cu ft		

Output Descriptions:

1. Evaporator Room with utilities removed, ready for decontamination/stabilization in preparation for building to be dismantled.
2. Completed work instruction data package.
3. 1 gamma spectrum samples
4. Containerized Low Level Waste

Misc. Metal	33 cu ft	Job Control Waste	29 cu ft
Pb/Hg Waste	1 cu ft		

5. WI Data Package

Assumptions:

1. Production rate will be approximately 100 sq ft per day with one work crew in a contaminated area requiring respiratory protection.
2. Only ductwork inside the area will be removed back to area boundaries. HEPA ventilation physically located outside the area will remain operational as long as possible.
3. This work will require a level 2 hazard analysis.

Estimated Time to Plan the Work (Including Review and Approval): 20 days.

Estimated Resources Required to Plan the Work

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	2 / 1 / 2
Technical Advisors	HBTA	1 / 2 / 8
Project Manager/HP Manager	HBPM	2 / 20 / 40
Task Leader	HBTL	1 / 20 / 20
Secretary/Clerical	HBS	1 / 1 / 2
Support Professional	HBP	1 / 8 / 16
Bartlett Health Physics	HRH	

Estimated Time to Perform the Work: 5 days

Estimated Resources Required to Perform the Work

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 5 / 25		
Project Manager/HP Manager	HBPM	2 / 5 / 10		
Task Leader	HBTL	1 / 5 / 40	Group 1	2
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 1 / 2		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 1 / 8	Group 3	1
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5 / 5 / 200	Group 3	20
Bartlett Maint Specialist	HRDS	1 / 5 / 10		
Bartlett Health Physics	HRH	3 / 5 / 120	Group 3 / Group 1	10 / 10
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Estimate based on conduct of recent work of similar nature in the CAA.

Completed by: D. A. Seifert (updated by PJW) **Date:** 6/12/01 (updated 4-21-02) **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C136 **Work Pkg. No.:** 7C45-B04

Function Name: Decon/Stabilize Evaporator Room Surfaces.

Component Name: JN-1 Evaporator Room

Function Description: Decontaminate the subject area to the extent practical using non invasive techniques such as vacuum/ washdown, ALARA paint/strip, etc., to remove smearable contamination and lower dose rates. Stabilize area surfaces by coating with a suitable adherent material to lock in contamination during dismantling of building.

Basis of Estimate

Strategy for Accomplishing Function: After utilities are removed, ceiling, wall, and floor surfaces (832 sq ft) will be decontaminated to remove as much loose contamination as practical by vacuum cleaning followed by washdown or coating with ALARA paint followed by stripping. Surfaces will then be stabilized by painting with a durable coating such as epoxy enamel to lock in any remaining contamination. Work will be conducted in convenient sized areas, starting at a convenient entry point and working inward.

Applicable Requirements/Procedures:

DD-90-02; DD-93-04; DD-OP-065, 075, 076; HS-AP-4.0, 5.0; HS-OP-001; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0; HP-OP-012, 027; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002; SM-OP-001; TD-AP-2.0; WA-OP-020, 061

Input Descriptions:

1. The Evaporator Room with utilities removed to the extent necessary and building surfaces exposed for decontamination/stabilization.
2. ALARA paint (42 gal), epoxy enamel (5 gal), painting tools & equipment, moveable scaffolding
3. WI

Output Descriptions:

1. CAA area with building surfaces coated to lock in any contamination that could not be reasonably removed.
2. Containerized waste:

Stripped coating	6 cu ft	Vac cleaner bags	1 cu ft
Job control waste	54 cu ft		

Assumptions:

1. Initial cleanup of area and application of each coating are estimated to require 1 days each.
2. Stripping of ALARA paint is expected to require 2 days per DOE technical investigation report.
3. A waiting period of 15 days between application and stripping of ALARA paint is anticipated for optimum decontamination factors.
4. This work will require a level 2 hazard analysis.

Estimated Time to Plan the Work (Including Review and Approval): 10 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 5 / 5
Support Professional	HBCO	1 / 5 / 4
Bartlett Health Physics	HRH	1 / 5 / 4

Estimated Time to Perform the Work: 25 days including 15 day paint wait.

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 10 / 10		
Project Manager/HP Manager	HBPM	2 / 10 / 20		
Task Leader	HBTL	1 / 10 / 80	Group 1	6
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 1 / 4		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 10 / 320	Group 3 / Group 1	18 / 18
Bartlett Maint Specialist	HRDS	1 / 10 / 20	Group 1	1
Bartlett Health Physics	HRH	3 / 10 / 240	Group 3 / Group 1	6 / 12
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: ALARA paint - 20 gal = $2,104
Poly Urea - 10 gal = $421
Air compressor rental 130-200 cfm = $423

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Estimate based on prior experience with this and similar areas in JN-1

Completed by: D. A. Seifert (updated by PJW) **Date:** 6/12/01 (updated on 4-21-02) **Rev. No.:** 0

☒JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Monit. ☐ Sample Analysis ☐ Waste Mgmt

Activity Number: C140 **Work Package No: 7C5-B03**

Function Name: Prepare JN-1 Office and Machine Shop Area Characterization & Final Status Report

Component Name: JN-1 Building

Function Description: Characterization & Fianl Status Report of Building JN-1 Office Area

Basis of Estimate

Strategy for Accomplishing Function: Perform Baseline Characterization & Final Status consistent with NUREG 5849

Applicable Requirements/Procedures/Work Instructions:

1. NUREG 5849 "Manual for Conducting Radiological Surveys in Support of License Termination"
2. Characterization & Final Status Survey Plan for the West Jefferson North Site March 2000
3. DD-CP-004 "Radioactive Contamination Monitoring Requirements for Facility Surface Characterization"
4. DD-CP-002 "Facility Post-Decontamination Final Status Survey for Baseline Areas"

Input Descriptions:

Characterization:

1. Completed Data Sheets form Characterization Field Work
2. 2500 grids with 3 data values for each grid
3. 1675 smear results from laboratory (2 data values/smear).

Final Status:

1. Completed Data Sheets from Final Status Survey
2. 50% of grids covered during final status with 3 data values each
3. 900 final status smears taken

Output Descriptions:

1. Characterization & Final Status Report for Building JN-1 Office Area.

Assumptions:

1. Data Reduction & Report Generation will take 20 working-d post field activities
2. Review & Comment Resolution will take 15 working-d in schedule
3. Report Schedule will take 40 working-d total.
4. Map production will take 10d of labor
5. 6 professionals will take 8 hrs each to review/comment/resolve comments
6. 5 d of technician time is necessary to resolve/incorporate comments
7. Room & Area Volumes were taken from the REV3 Baseline waste volume inventory.
8. WI under 1.2.1.6
9. IVC/NRC approval review necessary for Building Characterization/Final Status Report
10. Only one Building Report will be produced
11. 15% of grids contaminated; 40% grids are adjacent. 55% of grids are unaffected and scanned @ 10%;
12. 50% of grids rescanned for Final Status Survey

Estimated Time to Plan the Work (Including Review and Approval): 0 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	NA
Technical Advisors	HBTA	NA
Project Manager/HP Manager	HBPM	NA
Task Leader	HBTL	NA
Secretary/Clerical	HBS	NA
Support Professional	HBP	NA
Bartlett Health Physics	HRH	NA

Estimated Time to Perform the Work: 40 working days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB	1/40/20	NA	NA
Technical Advisors	HBTA			
Project Manager/HP Manager	HBPM	6/8/48	NA	NA
Task Leader	HBTL			
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD			
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics (Maps) (Data)	HRH	1/10/80 1/25/200	NA	NA
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: None identified

Special Equipment/Material: None

Comments/Explanations: None

Basis of Estimate

What is the estimator's experience?
15 years of health physics & radiological release program management

What experience is directly applicable to BCLDP?
10 years of BCLDP characterization & radiological release program experience; 2 years At West Jefferson

Was a complexity factor used?
No, work similar to that experienced at KA

Completed by: J.F. POLIZIANI **Date:** 5/30/01 **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C141 **Work Pkg. No.:**7C2-B04

Function Name: Survey & Monitor Underground JN1 Office Area after Building Demolition

Component Name: JN-1 Underground Area (Office Area excluding the mechanical room and control point)

Function Description: Underground material surfaces will be surveyed consistent with the requirements of NUREG 5849. Soils in the JN-1 footprint will also be sampled and analyzed to ensure radiological limits are satisfied. A work instruction is necessary to complete the work.

Basis of Estimate

Strategy for Accomplishing Function: Underground surfaces will be subjected to the survey and release process defined in NUREG 5849 "Manual for Conducting Radiological Surveys in Support of License Termination" Gamma walkover type surveys will be done for the open soil footprint area. The soils in the footprint will be also sampled, screened and submitted for laboratory analysis to a depth of 1m below the surface at the center of the 4 quadrants that make up 10m x 10m grids.

Applicable Requirements/Procedures:

NUREG 5849 " Manual for Conducting Radiological Surveys in Support of License Termination"; Characterization and Final Status Plan for West Jefferson North Site (DD-97-02), March 2000; BCLDP Procedure DD-CP-004 / DD-CP-002 / SC-SP-004.1 / SC-SP-004.2; DD-93-04, 05; DD-97-02; DD-CP-002, 004, 030; HP-AP-1.0, 2.0, 5.0; HS-AP-2.0, 4.0, 5.0; HS-OP-001; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; RL-AP-1.0; SIH-PP-08; TD-AP-2.0

Input Descriptions:

1. JN-1 Office Area Demolished ; radiological background low
2. 273 ft underground drain trenches; 1 128 ft3 sump

Output Descriptions:

1. 40 soil, gamma isotopic, and 4, alpha isotopic samples to the laboratory / data to report generation
2. WI
3. 100 gamma spec samples from underground drain trenches
4. 10 alpha spec samples from underground drain trenches
5. Establish Bkgd & DLVs at beginning of work
6. 10 gamma 1 alpha from sump

Assumptions:

Establish DLVs & Background Levels

1. 3 types of materials exist in the underground area
2. (40) 1 minute measurements for alpha + beta window per material
3. (40) 1 minute measurements for alpha window per material
4. 3 minute prep/setup/taking floor & wall readings (50%) = 12 hrs
5. 1.25 hr to establish DLVfor each material (spreadsheet) = 4 hr

Soil Walkovers:

1. 400 sq. m footprint
2. Walkover rate is 200 sq. m / tech/hr ; 3 techs total
3. 0.5 days to perform walkover surveys
4. 2 d survey/ sample sump

Soil Sampling :

1. Footprint is 400 sq. m. or 4 (100 sq m grids).
2. Samples at surface and to a depth of 1m.
3. 1 grid is assumed contaminated (8 additional samples are needed). 5% contamination rate
4. Instrument Cal @ 8 hrs + 10% time

5. No Significant Down time
6. Line Location will take 2 persons, 2 days to survey, 1 person 2 days to document---Outside vendor (48 hrs); BCO Utilities 2 persons, 2d to review & approve (32 hrs); Total Line Location = 80 hours
7. Underground drain trenches will be sampled every 3 ft for gamma spec and every 30 ft for alpha spec

Estimated Time to Plan the Work (Including Review and Approval): 10 days; 5 d to complete/approve Work Instruction; 5 d to perform/document line location; includes activity C142

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1/4/32
Technical Advisors (Safety) (Rad Work Permit) (Waste Management)	HBTA	1/1/8 1/1/8 1/1/4
Project Manager/HP Manager	HBPM	2/1/8
Task Leader	HBTL	
Secretary/Clerical	HBS	1/1/8
Support Professional (Line Loc)	HBP	
Bartlett Health Physics	HRH	
	HCE	2/2/32

Estimated Time to Perform the Work: 1d DLV & Bkgd +1 d (soil walkovers) + 6 (soil sampling) = 8 total

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB	1/8/16	NA	NA
Technical Advisors	HBTA	1/8/8 (Safety)	NA	NA
Project Manager/HP Manager	HBPM			
Task Leader	HBTL	1/8/32	0	8
Battelle Technician (HP)	HBT	1/8/32	0	8
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD			
Bartlett Maint Specialist	HRDS			

Bartlett Health Physics Bartlett Health Physics (data) Instruments	HRH	3/8/192 1/8/64 1/8/16	0 NA NA	20 NA NA
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: Line Location Services crew of 2 ---Utilocate for 48 hrs = $4,822

Special Equipment/Material: Geoprobe & tooling ; calibrated instruments

Comments/Explanations: None

Basis of Estimate

What is estimator's experience?
15 years health physics & radiological release program management

What experience is directly related to the BCLDP?
10 years of BCLDP characterization & radiological release program experience

Was a complexity factor used?
No, work similar to KA

Completed by: J.F. Poliziani (Updated by PJW) **Date:** 5/31/2001 (Updated 4-29-02) **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C142 **Work Pkg. No.:**7C47-B22

Function Name: Perform JN-1 Office Area Underground Remediation Completion Survey

Component Name: JN-1 Footprint Office Area

Function Description: JN-1 Footprint Office Area materials and soil surfaces will be remediated and surveyed consistent with the requirements of NUREG 5849.

Basis of Estimate

Strategy for Accomplishing Function: Footprint materials and surfaces will be subjected to the survey and release process defined in NUREG 5849 "Manual for Conducting Radiological Surveys in Support of License Termination"

Applicable Requirements/Procedures:

NUREG 5849 " Manual for Conducting Radiological Surveys in Support of License Termination"; Characterization and Final Status Plan for West Jefferson North Site (DD-97-02) , March 2000; BCLDP Procedure DD-CP-004 / DD-CP-002; DD-93-04; DD-97-02; DD-CP-002, 004, 010, 030; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; SIH-PP-06; SM-OP-001; TD-AP-2.0

Input Descriptions:

1. Background Levels of Radiation must be Low to correctly assess background (e.g. JN-1 waste removed or shielded)
2. WI

Output Descriptions:

1. 8 gamma spec and one alpha isotopic soil samples to the laboratory
2. Survey data to report generation

Assumptions:

Soil Sampling :

1. One JN-1 grid is contaminated ---5% contamination rate.
2. No deep samples necessary
3. No down time
4. 1 grid contaminated ; 4locations ;16 locations per d with Geoprobe
5. Walkover rate 200 sq m per hr per tech

Estimated Time to Plan the Work (Including Review and Approval): 0 days; Work Instruction included under activity C141

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	NA
Technical Advisors	HBTA	NA
Project Manager/HP Manager	HBPM	NA
Task Leader	HBTL	NA
Secretary/Clerical	HBS	NA

Support Professional	HBP	NA
Bartlett Health Physics	HRH	NA

Estimated Time to Perform the Work: 1 d status survey

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB	1/1/2	NA	NA
Technical Advisors(Safety)	HBTA	1/1/1	NA	NA
Project Manager/HP Manager	HBPM			
Task Leader	HBTL	1/1/4	0	1
Battelle Technician (HP)	HBT	1/1/8	0	1
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD			
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics Bartlett Health Physics (data) Instruments	HRH	3/1/24 1/1/8 1/1/1	0 NA NA	3 NA NA
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: None Identified

Special Equipment/Material: None

Comments/Explanations: None

Basis of Estimate

What is the estimator's experience?
15 years of health physics & radiological release program management

What experience is directly related to the BCLDP?
10 years of BCLDP characterization & radiological release experience

Was a complexity factor used?
No, work similar to KA

Completed by: J.F. Poliziani **Date:** 5/31/2001 **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C145 **Work Pkg. No.:7C46-B08**

Function Name: Remove compaction equipment from the pump room

Component Name: Remove compaction equipment from the pump room.

Function Description: The waste compactor and sorting table will be disassembled to remove non-conforming waste material and then packaged as LLW

Basis of Estimate

Strategy for Accomplishing Function: Compaction equipment consists of a sorting table and waste compactor. The equipment will be removed manually in a low dose rate area where the compactor will be disassembled to remove non-conforming waste items. After the compaction equipment has been removed, the containment building will then be deconned, disassembled, and packaged as waste.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 17.0; HP-OP-012, 018, 201; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RS-AP-1.0; RS-OP-002; SM-AP-001; TD-AP-2.0; WA-OP-020

Input Descriptions:

1. Compaction equipment.
2. Containment building

Output Descriptions:

1. Pump room ready for utility removal
2. Non compactable LLW – 144 cf^3 (consisting of the compactor, sorting table, containment building, and decontamination waste).

Assumptions:

1. There will no longer be a need for compaction of LLW.
2. This work will require a level 2 hazard review.

Estimated Time to Plan the Work (Including Review and Approval): 5

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Total Hours
Manager/Senior Staff	HBB	2/2/4
Technical Advisors	HBTA	1/5/10
Project Manager/HP Manager	HBPM	2/5/40
Task Leader	HBTL	1/5/10
Secretary/Clerical	HBS	1/3/12
Support Professional	HBP	
Bartlett Health Physics	HRH	
BCO Skilled Labor	HCE	

Estimated Time to Perform the Work: 10 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 *Group 1* *160*

Labor Type	Code	Persons/Days/Total Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1/10/10		
Project Manager/HP Manager	HBPM	2/10/20		
Task Leader	HBTL	1/10/80		
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4/10/320	Group 2	20
Bartlett Maint Specialist	HRDS	1/10/20		
Bartlett Health Physics	HRH	3/10/240	Group 2	20
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: ALARA paint – 10 gallons @ $1,052

Special Equipment/Material: N/A

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

Activity Number: C145

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: P. Weaver **Date:** 5/10/01 (Updated 4-24-02) **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C150 **Work Pkg. No.:** 7C41-B04

Function Name: Remove JN-1A Roof Section for HLC/LLC Removal

Component Name: JN-1A Roof

Function Description: Remove a portion of the JN-1 roof and support structure directly above the LLC and HLC, and construct a removable cover for crane access during demolition/removal of the two cells and adjacent mezzanine

Basis of Estimate

Strategy for Accomplishing Function: Generate contracts to (1) perform an engineering analysis/review and (2) remove a 19 ft x 16 ft section of the JN-1 roof and supporting structural steel from directly above the HLC/LLC for removal of cut pieces of the cell monoliths using a crane. Construct a curb around the opening and a removable cover to protect the building interior during inactive periods. Generate a work instruction package to provide logistical support and HP oversight for the activity.

Applicable Requirements/Procedures:

DD-90-02; DD-93-04, 05; DD-OP-029; DD-OP-090; HP-AP-1.0, 2.0, 5.0; HP-OP-012; HS-AP-2.0, 4.0, 5.0; HS-OP-001; QD-AP-4.1, 5.2, 6.1, 7.1; SIH-PP-06; TD-AP-2.0; WA-OP-020

Input Descriptions:

1. The JN-1A HLC/LLC and operating area with interfering materials and utilities, including cell ventilation, removed.
2. All affected surfaces have been stabilized for removal and are non-smearable.
3. Lumber, plywood, and roofing materials for construction of a 22 ft x 18 ft weather proof covering for the roof opening.

Output Descriptions:

1. JN-1 building area prepared for final drain line and utility removal
2. completed work instruction data package
3. packaged removed waste:

Cut Roofing Material	100 cu ft	Consumables	100 cu ft
Job Control Waste	53 cu ft	Concrete channel slabs	100 cu ft
Structural Steel	20 cu ft		

4. WI Data package

Assumptions:

1. The JN-1 roof is essentially non-smearable and does not pose an undue exposure risk.
2. There are no hazardous constituents in the work area and the area is dedicated for this work.
3. Manpower, equipment, resources, and the area are available for this activity when scheduled
4. There are no RCRA considerations in the roof structure
5. Job involves 5 days for setups, 20 days operations, 5 days for extraneous material removal, 5 days for demobilization.
6. The work instruction and procedures are in place sufficiently early to perform this activity on schedule.

Estimated Time to Plan the Work (Including Review and Approval): 60 Days for both the contract award and the supporting work instruction package.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1 / 1 / 4*
Technical Advisors	HBTA	1 / 60 / 10
Project Manager/HP Manager	HBPM	2 / 60 / 250 1 / 1 / 4*
Task Leader	HBTL	1 / 60 / 10
Secretary/Clerical	HBS	1 / 60 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1/ 60/ 10

* Additional review time for Level 2 hazard rating.

Estimated Time to Perform the Work: 35 Days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 35/ 35		
Project Manager/HP Manager	HBPM	2 / 35 / 140		
Task Leader	HBTL	1 / 35 / 280	Group 0	35
Battelle Technician	HBT	1 / 35 / 35		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	3 / 35 / 560	Group 0	105
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH	2 / 35 /560	Group 0	70
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:
Roof removal - $1,728 (RS Means 02225-690-0010 & -3000, -390-2080)
Roof cap fabrication - $1,117 (RS Means 06110-555-5060, 06160-800-0102, 07310-980-2400)
Hydraulic Crane + operator (12 ton) – 10 days @ $698.16 = $6,982 (RS Means 01590-600-2400)
Eng. Evaluation (Chamberlain estimate) @ $85/hr x 40 hours = $3,400

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites).

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? Yes, very heavy pieces are cut and structural considerations must be taken into account.

Completed by: C. Voth (updated by D Seifert) **Date:** 05/20/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C152 **Work Pkg. No.:** 7C43-B01

Function Name: Remove Top Layer of Floor and Drain/Sump Removal in Alpha/Gamma Area

Component Name: JN-1 Alpha/Gamma Area

Function Description: The top layer of floor will be chipped off the original floor of the Alpha Gamma Cell Area. The drains, catch basin, and sump will be removed in preparation for building demolition.

Basis of Estimate

Strategy for Accomplishing Function: Jackhammer the top layer of floor off, fill waste boxes, and turn over to Waste Management. Remove, size reduce, and dispose of embedded steel beams. If radiological concerns arise, saw cut the layer and remove. The original floor drains will be filled and sealed. The original floor will then be saw cut to expose and remove contaminated drains and catch basin. The sump pumps and sumps will be removed last to facilitate work and avoid water accumulation.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-02, 03, 04, 05; DD-OP-029, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0; HP-OP-011, 012, 018, 019, 023, 027, 106, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; WA-OP-020, 022

Input Descriptions:

1. Basement cell area (1344 sq ft) plus the Evaporator tank room. Gross area decontamination is complete with area properly surveyed and posted.
2. JN-1 basement area with all utilities removed, ready for building surface decontamination/stabilization.

Output Descriptions:

1. JN-1 basement area is ready for area surface stabilization/demolition.
2. Completed work instruction data package.
3. 27 Area CAM samples for analysis, one per operating day.
4. Containerized waste:

Cement	1700 cu ft	Drain pipe	25 cu ft
Catch Basin	27 cu ft	Steel Beams	100 cu ft
Sump and pumps	75 cu ft	Job Control Waste	100 cu ft

Assumptions:

1. Production rate will be approximately 90 cu ft per day.
2. Respiratory protection will be required for approximately 50% of the work.
3. Hot sump will remain operational until floor operations are complete.
4. Cold sump will remain operational until building is ready for demolition.
5. Groundwater controls for JN-1 will be effectively operating.

Estimated Time to Plan the Work (Including Review and Approval): 40 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 40 / 10
Project Manager/HP Manager	HBPM	2 / 40 / 40
Task Leader	HBTL	1 / 40 / 20
Secretary/Clerical	HBS	1 / 40 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

Estimated Time to Perform the Work: 40 days

Estimated Resources Required to Perform the Work

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 40 / 20		
Project Manager/HP Manager	HBPM	2 / 40 / 80		
Task Leader	HBTL	1 / 40 / 320	Group 0	40
Battelle Technician	HBT	1 / 40 / 40		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 3 / 12		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 20 / 40	Group 0	10
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	3 / 40 / 960	Group 2 / Group 0	60/ 60
Bartlett Maint Specialist	HRDS	1 / 7 / 14	Group 2	7
Bartlett Health Physics	HRH	2 / 40 / 640	Group 2 / Group 0	20/ 30
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Concrete Cutting Contractor to saw cut 1275 linear ft of 8" floor @ $7..93 / ft = $10,111

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites).

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? No, this is a straight forward process.

Completed by: C. B. Voth/D Seifert **Date:** 5/09/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C153 **Work Pkg. No.:** 7C43-B01

Function Name: Remove HEPA/Ductwork from Alpha/Gamma Area

Component Name: JN-1 Alpha/Gamma Area

Function Description: After area cleanup, miscellaneous equipment, piping, insulation, ductwork, conduit, and other utilities will be stripped from the area to the extent necessary to allow building surfaces to be decontaminated/stabilized for demolition. This work package involves the filter bank and associated ductwork.

Basis of Estimate

Strategy for Accomplishing Function: Start by stabilizing ductwork and removing ductwork to the filter bank, then remove the primary HEPA filters, stabilize remaining contamination and remove primary framework, finally remove secondary HEPA filters. Turn over all waste to Waste Management.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-02, 03, 04, 05; DD-OP-029, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0; HP-OP-011, 012, 018, 019, 023, 027, 106, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; WA-OP-020, 022

Input Descriptions:

1. Basement cell area (1344 sq ft) plus the Evaporator tank room. Gross area decontamination is complete with area properly surveyed and posted.
2. Utility items and materials:

Dual HEPA filterbank	150 cu ft	Ductwork	50 cu ft

Output Descriptions:

1. JN-1 basement area with filter bank removed, ready for building surface decontamination/stabilization.
2. Completed work instruction data package.
3. 27 Area CAM samples for analysis, one per operating day.
4. Containerized waste:

HEPA Filters	80 cu ft	Metal LLW	120 cu ft
Job Control Waste	50 cu ft		

Assumptions:

1. Production rate will be approximately 20 cu ft per day.
2. Respiratory protection will be required for approximately 50% of the work.
3. Cold sump will remain operational until building is ready for demolition.

Estimated Time to Plan the Work (Including Review and Approval): 20 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 20 / 10
Project Manager/HP Manager	HBPM	2 / 20 / 40
Task Leader	HBTL	1 / 20 / 20
Secretary/Clerical	HBS	1 / 20 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1/ 10 / 10

Estimated Time to Perform the Work: 10 days

Estimated Resources Required to Perform the Work

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 10 / 10		
Project Manager/HP Manager	HBPM	2 / 10 / 40		
Task Leader	HBTL	1 / 10 / 80	Group 0	10
Battelle Technician	HBT	1 / 10 / 10		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP	1 / 3 / 3		
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 10 / 10	Group 0	5
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	3 / 10 / 240	Group 2	40
Bartlett Maint Specialist	HRDS	1 / 4 / 10	Group 2	4
Bartlett Health Physics	HRH	2 / 10 / 160	Group 2	20
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: Lift is needed for the ductwork. Some size reduction on ductwork must occur.

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites).

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? No, this is a straight forward process.

Completed by: C. B. Voth/D Seifert **Date:** 4/26/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C154 **Work Pkg. No.:** 7C43-B01

Function Name: Decon/Stabilize Alpha/Gamma area
Component Name: JN-1 Alpha/Gamma Area

Function Description: Prior to selective demolition , the area must be decontaminated and stabilized to minimize radioactive release and airborne for final building disposition.

Basis of Estimate

Strategy for Accomplishing Function: The area should be characterized and hot spots decontaminated. The area should then be thoroughly painted (without detecting airborne) in preparation of dismantlement of the building. All waste will be turned over to Waste Management.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-02, 03, 04, 05; DD-OP-029, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0; HP-OP-011, 012, 018, 019, 023, 027, 106, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; WA-OP-020, 022

Input Descriptions:

1. Basement cell area (5000 sq ft surface area) including the Evaporator tank room. Gross area decontamination is complete with area properly surveyed and posted.
2. All utility items and materials have been removed

Output Descriptions:

1. JN-1 basement area has been surface decontaminated/stabilized ready for demolition.
2. Completed work instruction data package.

Assumptions:

1. Production rate will be approximately 500 sq ft per day.
2. Respiratory protection will not be required
3. Cold sump will remain operational until building is ready for demolition.

Estimated Time to Plan the Work (Including Review and Approval): 20 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 20 / 10
Project Manager/HP Manager	HBPM	2 / 20 / 40
Task Leader	HBTL	1 / 20 / 20
Secretary/Clerical	HBS	1 / 20 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1/ 20 / 20

Estimated Time to Perform the Work: 10 days

Estimated Resources Required to Perform the Work

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 10 / 10		
Project Manager/HP Manager	HBPM	2 / 10 / 40		
Task Leader	HBTL	1 / 10 / 80	Group 0	10
Battelle Technician	HBT	1 / 10 / /10		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 10 / 10	Group 0	5
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	3 / 10 / 240	Group 0	30
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH	1 / 10 / 80	Group 0	10
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: Lift is needed for the stabilization.

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites).

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? No, this is a straight forward process.

Completed by: C. B. Voth/D Seifert **Date:** 4/26/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C155 **Work Pkg. No.: 7C44-B02**

Function Name: Remove shielding windows from the HEC

Component Name: HEC

Function Description: Manually remove the oil filled windows from the HEC after the cell has been deconned and dose rates are sufficiently low. After removal from the cell, the windows will be decontaminated and packaged for recycle.

Basis of Estimate

Strategy for Accomplishing Function: An outside company specializing in hot cell window will be contacted with to remove the windows. After removal, the windows will be decontaminated and packaged for disposal.

Applicable Requirements/Procedures:

Input Descriptions:

1. HEC with internal dose rates < 100 mR/hr.

Output Descriptions:

1. 130 ft^3 MW lead for disposal.
2. Job control waste – 20 ft^3.
3. 20 alpha spec and 20 gamma spec samples for the lab.

Assumptions:

1. An outside company will be available to remove the windows.
2. Windows will be disposed of as lead waste.
3. Windows weigh 18,000 each.
4. Bartlett staff will support the outside company with D&D and HP support.
5. This work will require a level 2 hazard analysis.
6. Windows can be removed without draining mineral oil.

Estimated Time to Plan the Work (Including Review and Approval): 20 days.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1 / 20 / 20
Technical Advisors	HBTA	2 / 20 / 40
Project Manager/HP Manager	HBPM	2 / 20 / 160
Task Leader	HBTL	1/ 20 / 40
Secretary/Clerical	HBS	1 / 20 / 10
Support Professional (Line Loc)	HBP	
Bartlett Health Physics	HRH	1 / 20 / 10
	HCE	
	HBCO	1 / 5 / 4

Estimated Time to Perform the Work: 40 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 40 / 40		
Project Manager/HP Manager	HBPM	2 / 40 / 120		
Task Leader	HBTL	1 / 40 / 320		
Battelle Technician (HP)	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 40 / 1280		
Bartlett Maint Specialist	HRDS	1 / 40 / 80		
Bartlett Health Physics	HRH	4 / 40 / 1280		
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: Hot Cell Services - $72,000

Special Equipment/Material: Air pallet and lifting equipment for window removal - $32,000

Comments/Explanations: None

Basis of Estimate

What is estimator's experience?

What experience is directly related to the BCLDP?

Was a complexity factor used?

Completed by: **Date:** **Rev. No.:**

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C156 **Work Pkg. No.:** 7C44-B02

Function Name: Crane removal from the HEC

Component Name: HEC

Function Description: After the HEC has completed gross decontamination; the in-cell cranes will be lowered to the floor and packaged as waste.

Basis of Estimate

Strategy for Accomplishing Function: A heavy lifting contractor will be brought in to lower the in-cell cranes to the floor. The cranes will be pressure washed to lower the dose rate and then painted to fix loose contamination. After the cranes have been painted, they will be size reduced, drained of any grease/oil, and packaged for waste disposal. After the cranes have been packaged as waste, the process will be repeated for the crane rails. Bartlett staff will provide decon, HP, and waste management support.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; DD-OP-029, 075, 076, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 19.0; HP-OP-011, 012, 018, 019, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; TD-AP-2.0; WA-OP-020, 022

Input Descriptions:

1. HEC after gross decontamination has been completed (i.e. general area dose rates <100 mR/hr).

Output Descriptions:

1. 564 ft^3 of non compactable (CAT III) LLW
2. 182 ft^3 of compactable waste
3. 3 ft^3 TRU waste
4. 20 Alpha spec and 20 Gamma spec samples
5. 500 gallons of pressure wash water
6. HEC ready for final decontamination/stabilization

Assumptions:

1. The cranes will be size reduced inside the HEC in order to fit inside B-25's
2. This work will require a level 3 hazard review.

Estimated Time to Plan the Work (Including Review and Approval): 40

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	2 / 6 / 96
Technical Advisors	HBTA	1 / 40 / 68
Project Manager/HP Manager	HBPM	2 / 40 / 160
Task Leader	HBTL	1 / 40 / 80
Secretary/Clerical	HBS	1 / 20 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 20
	HBCO	1 / 6 / 48

Estimated Time to Perform the Work: 40

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1/40/40		
Project Manager/HP Manager	HBPM	2/40/160		
Task Leader	HBTL	1/40/320		
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1/10/20		
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5/40/1600	3 / 2	120 / 240
Bartlett Maint Specialist	HRDS	1/40/80		
Bartlett Health Physics	HRH	4/40/1280	3 / 2	40 / 160
Bartlett Admin Support	HRA			
Asbestos Abate. Cntr.				

Subcontract/Purchased Service: Myers Movers – 1205 hours @ $62.25 = $75,011

Special Equipment/Material: ALARA paint – 10 gallons = $1,052

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: PJ Weaver **Date:** 4-24-02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C157 **Work Pkg. No.:** 7C44-B02

Function Name: Remove HEC Shield Door

Component Name: HEC

Function Description: The HEC shield door will be removed from the HEC and packaged for shipment to a waste disposal site.

Basis of Estimate

Strategy for Accomplishing Function: A heavy lifting contractor will be utilized for this work. The HEC door will be removed from its current location using the 50-ton overhead crane. It will be relocated to a stable location and deconned. The door will then be stabilized and laid down on its side in preparation for shipment to a disposal site.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; DD-OP-029, 075, 076, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 19.0; HP-OP-011, 012, 018, 019, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; TD-AP-2.0; WA-OP-020, 022

Input Descriptions:

1. HEC Door
2. JN-1B high bay crane.

Output Descriptions:

1. 85 ft^3 of oversize metal (LLW)
2. 10 ft^3 of non-compactable (LLW)
3. 40 ft^3 of job control/decon waste (LLW)

Assumptions:

1. The existing lifting points of the door will be used for moving and laying the door down.
2. This work will require a level 2 hazard review.

Estimated Time to Plan the Work (Including Review and Approval): 20 days (10 days planning, 10 days contract preparation)

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 5 / 5
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

Estimated Time to Perform the Work: 10 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 10 / 10		
Project Manager/HP Manager	HBPM	2 / 10 / 20		
Task Leader	HBTL	1 / 10 / 80		
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	3 / 10 / 240	2	12
Bartlett Maint Specialist	HRDS	1 / 10 / 20		
Bartlett Health Physics	HRH	3 / 10 / 240	2	20
Bartlett Admin Support	HRA			
Asbestos Abate. Cntr.				

Subcontract/Purchased Service: Myers Movers – 160 hours = $9,960

Special Equipment/Material: Poly-Urea Coating 15 gallons = $631
Air compressor rental 130-200 cfm = $423

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: PJ Weaver **Date:** 4-24-02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C158 **Work Pkg. No.:** 7C45-B06

Function Name: Install new water processing system in the JN-1B pump room

Component Name: JN-1B

Function Description: This work activity will install a new water processing system in the JN-1B pump room.

Basis of Estimate

Strategy for Accomplishing Function: A water processing system will be installed in the JN-1B pump room. The pit area will be utilized to prevent the need for additional secondary containment.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; DD-OP-029, 075, 076, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 19.0; HP-OP-011, 012, 018, 019, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; TD-AP-2.0; WA-OP-020, 022

Input Descriptions:

1. Water processing system procured under activity C183.
2. JN-1B pump room with all material removed from the pit area and contamination either removed or fixed in place.

Output Descriptions:

1. Water processing system ready to process water.

Assumptions:

1. The new water processing system will be designed and procured under activity C183.

Estimated Time to Plan the Work (Including Review and Approval): 10 days.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	
Support Professional	HBP	
Bartlett Health Physics	HRH	
	HBCO	

Estimated Time to Perform the Work: 10 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 10 / 10		
Project Manager/HP Manager	HBPM	2 / 10 / 40		
Task Leader	HBTL	1 / 10 / 80		
Battelle Technician	HBT	1 / 10 / 10		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	2 / 10 / 80	0	10
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	2 / 10 / 160	0	20
Bartlett Maint Specialist	HRDS	1 / 10 / 20		
Bartlett Health Physics	HRH	1 / 10 / 80	0	10
Bartlett Admin Support	HRA			
Asbestos Abate. Cntr.				

Subcontract/Purchased Service: N/A

Special Equipment/Material: N/A

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: PJ Weaver **Date:** 5-28-02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C159 **Work Pkg. No.:** 7C46-B02

Function Name: Remove lighting from the JN-1B high bay area.

Component Name: JN-1 High Bay

Function Description: Remove lighting from the JN-1B high bay area

Basis of Estimate

Strategy for Accomplishing Function: After utilities and drain lines have been removed from the high bay area, a boom lift will be used by staff to gain access to the overhead lights for removal. As the lighting is removed, temporary lighting will be set up.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; DD-OP-029, 075, 076, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 19.0; HP-OP-011, 012, 018, 019, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; TD-AP-2.0; WA-OP-020, 022

Input Descriptions:

1. JN-1B high bay with utilities and drain lines removed.

Output Descriptions:

1. 90 ft^3 of non-compactable LLW (lights).
2. 30 ft^3 Job Control waste

Assumptions:

1. Removal of lighting won't begin until after surfaces above 8 ft have been decontaminated/stabilized.
2. This work will require a level 2 hazard review.

Estimated Time to Plan the Work (Including Review and Approval): 10

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 5 / 5
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

Estimated Time to Perform the Work: 10 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 10 / 10		
Project Manager/HP Manager	HBPM	2 / 10 / 20		
Task Leader	HBTL	1 / 10 / 80		
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 10 / 80		
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 10 / 320	1	40
Bartlett Maint Specialist	HRDS	1 / 10 / 20		
Bartlett Health Physics	HRH	2 / 10 / 160	1	20
Bartlett Admin Support	HRA			
Asbestos Abate. Cntr.				

Subcontract/Purchased Service:

Special Equipment/Material: 80 ft boom lift 10 day rental @ $2,962

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: PJ Weaver **Date:** 4-30-02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C160 **Work Pkg. No.:** 7C46-B04

Function Name: Remove Stainless Steel Liner from Transfer Canal

Component Name: JN-1 Pool

Function Description: Remove miscellaneous material and the Stainless Steel Liner from the JN-1 Transfer Canal. The liner removal will involve a contract to cut the liner along the weld seams for large piece removal. Dispose of all material through the LLW program.

Basis of Estimate

Strategy for Accomplishing Function: Reseal and stabilize the liner for potential contamination control. Generate a contract to cut the liner from the concrete shell of the transfer canal. This can be accomplished by rigging each liner piece, cutting along the weld seams and removing the liner for further size reduction. Generate a work instruction package to provide D&D support, HP oversight remove the liner. Perform removal and size reduction of the liner and have Waste Management dispose of the pieces.

Applicable Requirements/Procedures:

DD-90-02; DD-93-04, 05; DD-OP-029; HP-AP-1.0, 2.0, 5.0; HP-OP-012; HS-AP-4.0, 5.0; HS-OP-001; QD-AP-4.1, 5.2, 6.1, 7.1; RL-AP-1.0; SIH-PP-6.0, 8.0; SM-AP-001; TD-AP-2.0; WA-OP-020, 066

Input Descriptions:

1. JN-1 high bay with HEC and Cask Washdown room removed, pool section of liner removed.
2. There are no hazardous constituents in the work area and the area is dedicated for this work.

Output Descriptions:

1. JN-1 pool and transfer canal ready for survey and decontamination.
2. Completed work instruction data package
3. Packaged removed waste:

Stainless Liner	15 cu ft	Consumables (blades, etc.)	5 cu ft
Job Control Waste	138 cu ft		

Assumptions:

1. Manpower, equipment, resources, and the area are available for this activity when scheduled
2. There are no RCRA considerations in the pool area
3. 800 lineal feet of stainless steel cutting at 10 lineal feet per hour
4. Job involves 3 days for surface cleaning and stabilization, 12 days for cuts, 5 days for material removal, 5 days for mobilization/demobilization.
5. The work instruction and procedures are in place sufficiently early to perform this activity on schedule

Estimated Time to Plan the Work (Including Review and Approval): 20 Days for both the contract award and the supporting work instruction package.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	2 / 2 / 5*
Technical Advisors	HBTA	2 / 20 / 10
Project Manager/HP Manager	HBPM	2 / 20 / 60 1 / 1 / 4*
Task Leader	HBTL	1 / 20 / 20
Secretary/Clerical	HBS	1 / 10 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1/ 20 / 10

* Additional review time for Level 2 hazard rating.

Estimated Time to Perform the Work: 25 Days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 25 / 20		
Project Manager/HP Manager	HBPM	2 / 25 / 100		
Task Leader	HBTL	1 / 25 / 200	Group 0	25
Battelle Technician	HBT	1 / 25 / 25		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 25 / 10	Group 0	5
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5/ 25 / 1000	Group 1	150
Bartlett Maint Specialist	HRDS	1 / 25 / 50	Group 0	20
Bartlett Health Physics	HRH	3 / 25 / 600	Group 1	100
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: 10 gal polyurea coating @ $42.08/gal = $421
48 ft scissor lift for 1 month rental = $2,327)

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites).

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? Yes, activities occur in a 45' pit lifting heavy, bulky side walls.

Completed by: C. Voth (updated by D Seifert) **Date:** 05/20/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C162 **Work Pkg. No.:**7C46-B04

Function Name: Decon/Stabilize Pool Surfaces

Component Name: JN-1 Pool

Function Description: After all utilities, equipment, and liner have been removed, surfaces will be decontaminated/stabilized to prepare for building demolition.

Basis of Estimate

Strategy for Accomplishing Function: After removal of the pool liner and support equipment, interior pool surfaces will be decontaminated using appropriate techniques such as roto-peening, scabbling, or vacublasting to achieve free release levels for building demolition. The pool walls will be collapsed to 14 ft below grade and back filled during building demolition.

Applicable Requirements/Procedures:

DD-90-02; DD-93-04; DD-OP-065, 075, 076; HS-AP-4.0, 5.0; HS-OP-001; HP-AP-1.0, 2.0, 5.0, 8.0; HP-OP-012; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; SM-OP-001; TD-AP-2.0; WA-OP-020, 061, 066

Input Descriptions:

1. The concrete pool surface is exposed (approx. 400 sq ft floor & 3650 sq ft walls) with equipment and utilities removed.
2. Radiological survey data indicating areas of contamination.
3. Roto-peen equipment, scabblers, HEPA vac, encapsulant, and application equipment.

Output Descriptions:

1. Pool decontaminated & ready for building demolition.
2. Concrete rubble/waste – approx. 45 cu ft assuming scabbling to depth of 1/16 inch over entire surface.
3. Data sheets for inclusion in work instruction data package and preparation of shipping documents.
4. Job control waste – 35 cu ft including spent cutter wheels.

Assumptions:

1. Radiological surveys indicate low level contamination above release over entire exposed concrete surface (3950 sq ft)
2. Contamination is confined to the first 1/16 inch of concrete surface.
3. Production rate is 50 sq ft / hr or 300 sq ft / day for roto-peen with a standard cutter hub. Job involves 13 days for decon, 5 days for setup, 5 days for mobilization/demobilization.

Estimated Time to Plan the Work (Including Review and Approval): 10 days.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1 / 1 / 4*
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40 1 / 1 / 4*
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 10 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

* Additional review time for Level 2 hazard rating.

Estimated Time to Perform the Work: 23 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 23 / 23		
Project Manager/HP Manager	HBPM	2 / 23 / 92		
Task Leader	HBTL	1 / 23 / 184	Group 0	23
Battelle Technician	HBT	1 / 23 / 23		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 23 / 736	Group 0	69
Bartlett Maint Specialist	HRDS	1 / 1 / 4	Group 0	1
Bartlett Health Physics	HRH	2 / 23 / 368	Group 0	23
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: 48 foot scissor lift for 1month rental = $2,327

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites).

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? No, this is a straight forward process.

Completed by: C. B. Voth (updated by D Seifert) **Date:** 5/22/02 **Rev. No.:** 0

☒ **JN-1** ☐ **JN-2** ☐ **JN-3** ☐ **Ext. Area** ☐ **Env. Mtr.** ☐ **Samples** ☐ **TRU/Waste** ☐ **Release Site**

Activity No.: C163 **Work Pkg. No.:**7C46-B04

Function Name: Decon/Stabilize Transfer Canal Surfaces

Component Name: JN-1 Pool

Function Description: After liner has been removed, transfer canal surfaces will be decontaminated/stabilized to prepare for building demolition.

Basis of Estimate

Strategy for Accomplishing Function: After removal of the transfer canal liner, the concrete surface will be decontaminated using appropriate techniques such as roto-peening, scabbling, or vacublasting to achieve free releasable levels for building demolition. The transfer canal walls will be collapsed to 14 ft below grade and backfilled during building demolition.

Applicable Requirements/Procedures:

DD-90-02; DD-93-04; DD-OP-065, 075, 076; HS-AP-4.0, 5.0; HS-OP-001; HP-AP-1.0, 2.0, 5.0, 8.0; HP-OP-012; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; SM-OP-001; TD-AP-2.0; WA-OP-020, 061, 066

Input Descriptions:

1. The concrete canal surface (approx. 44 sq ft floor & 1250 sq ft walls) with stainless steel liner removed.
2. Survey data locating contaminated areas of canal surface.

Output Descriptions:

1. Transfer canal decontaminated & ready for building demolition.
2. Concrete rubble/waste – approx. 7 cu ft assuming scabbling to depth of 1/16 inch over entire surface.
3. Data sheets for inclusion in work instruction data package and preparation of shipping documents.
4. Job control waste – 70 cu ft

Assumptions:

1. Radiological surveys indicate low level contamination above release over entire exposed concrete surface (1295 sq ft)
2. Contamination is confined to the first 1/16 inch of concrete surface.
3. Production rate is 50 sq ft / hr or 300 sq ft / day for roto-peen with a standard cutter hub. Job involves 5 days for decon, 5 days for setup, 5 days for mobilization/demobilization.

Estimated Time to Plan the Work (Including Review and Approval): Ten days.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1 / 1 / 4*
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40 1 / 1 / 4*
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 10 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

* Additional review time for Level 2 hazard rating.

Estimated Time to Perform the Work: 15 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 15 / 15		
Project Manager/HP Manager	HBPM	2 / 15 / 60		
Task Leader	HBTL	1 / 15 / 120	Group 0	15
Battelle Technician	HBT	1 / 15 / 15		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 15 / 480	Group 0	60
Bartlett Maint Specialist	HRDS	1 / 1 / 4	Group 0	1
Bartlett Health Physics	HRH	2 / 15 / 240	Group 0	10
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: 48 foot scissor lift for 1month rental = $2,327

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites).

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? Yes, this is a slightly more confined area than the pool

Completed by: C. B. Voth (updated by D Seifert) **Date:** 5/22/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C165 **Work Pkg. No.:** 7C46-B06

Function Name: Remove Tanks from Pump Room

Component Name: JN-1 Pump Room

Function Description: The 5000 gallon and 1000 gallon tanks located in the JN-1 pump room will be emptied, deconned, and removed from the building. All of the associated pumps and piping will also be removed.

Basis of Estimate

Strategy for Accomplishing Function: After the two tanks have been emptied, all associated pumps and piping will be removed. A heavy lifting contractor will then be utilized to elevate one end of the 5000-gallon tank to facilitate removal of the heel. The heel will then be removed and the inside of the tank washed and stabilized. The 5000-gallon tank and any support equipment (i.e. stands) will then be size reduced and packaged as waste. The process will then be repeated for the 1000-gallon tank.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; DD-OP-029, 075, 076, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 19.0; HP-OP-011, 012, 018, 019, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; TD-AP-2.0; WA-OP-020, 022

Input Descriptions:

1. 5000 gallon and 1000 gallon tanks with all water removed.

Output Descriptions:

1. Non compactable LLW – 1367 ft^3
2. Job Control and decon waste – 250 ft^3

Assumptions:

1. This work will require a level 3 hazard review.
2. The tanks will be size reduced using hand tools (i.e. no torch cutting)

Estimated Time to Plan the Work (Including Review and Approval): 20 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1 / 20 / 40
Technical Advisors	HBTA	1 / 20 / 40
Project Manager/HP Manager	HBPM	2 / 20 / 80
Task Leader	HBTL	1 / 20 / 40
Secretary/Clerical	HBS	1 / 5 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5
	HBCO	1 / 5 / 40

Estimated Time to Perform the Work: 60 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 60 / 60		
Project Manager/HP Manager	HBPM	2 / 60 / 120		
Task Leader	HBTL	1 / 60 / 480		
Battelle Technician	HBT	1 / 60 / 80		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 60 / 1360	2	240
Bartlett Maint Specialist	HRDS	2 / 60 / 200		
Bartlett Health Physics	HRH	3 / 60 / 1160	2	120
Bartlett Admin Support	HRA			
Asbestos Abate. Cntr.				

Subcontract/Purchased Service: Myers Movers for 800 hours = $49,800

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: PJ Weaver **Date:** 4-30-02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C166 **Work Pkg. No.:** 7C46-B06

Function Name: Remove new water processing system from the JN-1B pump room

Component Name: JN-1B

Function Description: The purpose of this activity is to remove the new water processing equipment from the JN-1B pump room.

Basis of Estimate

Strategy for Accomplishing Function: After the new water processing system is no longer needed, the system will be disassembled, size reduced (as needed), and packaged as LLW for disposal.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; DD-OP-029, 075, 076, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 19.0; HP-OP-011, 012, 018, 019, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; TD-AP-2.0; WA-OP-020, 022

Input Descriptions:

1. Water processing system which is no longer needed.

Output Descriptions:

1. 450 ft^3 of non-compactable LLW.
2. This work will require a level 2 hazard review.

Assumptions:

1. The new water processing system is no longer needed for processing water.

Estimated Time to Plan the Work (Including Review and Approval): 10 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 5 / 5
Support Professional	HBP	
Bartlett Health Physics	HRH	
	HBCO	1 / 5 / 4

Estimated Time to Perform the Work: 15 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 15 / 15		
Project Manager/HP Manager	HBPM	2 / 15 / 30		
Task Leader	HBTL	1 / 15 / 120		
Battelle Technician	HBT	1 / 15 / 15		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	2 / 10 / 80		
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 15 / 480		
Bartlett Maint Specialist	HRDS	1 / 15 / 30		
Bartlett Health Physics	HRH	3 / 15 / 360		
Bartlett Admin Support	HRA			
Asbestos Abate. Cntr.				

Subcontract/Purchased Service: N/A

Special Equipment/Material: N/A

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: PJ Weaver **Date:** 5-28-02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C169 **Work Pkg. No.:** 7C47-B03

Function Name: Remove Main Power Distribution Panel from Old Operations Area

Component Name: JN-1 Operations Area

Function Description: Remove the main building power distribution panel from the JN-1 Old Ops Area. Decontaminate/stabilize exposed surfaces as necessary for building demolition.

Basis of Estimate

Strategy for Accomplishing Function: After all activities requiring power in Building JN-1are complete, the distribution panel will be shut down, power lines supplying electricity to the building will be de-energized and disconnected, and the panel will be disassembled and removed. The underlying area will be surveyed and decontaminated as needed after removal activities are complete using appropriate methods followed by stabilization with a durable coating.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-02, 04; HP-AP-1.0, 2.0, 5.0, 29.0; HP-OP-011, 012, 019; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; SM-OP-001; TD-AP-2.0; WA-OP-020

Input Descriptions:

1. Building JN-1 with all decontamination/stabilization activities complete and areas vacated.
2. Main power distribution panel (720 cu ft) with internal wiring, switchgear, fuses, and controls.

Output Descriptions:

1. Completed work instruction data package.
2. Cold dark building
3. Lead (fuses & solder) waste 36 cu ft
4. Remaining metal waste (including insulated wire) 684 cu ft
5. Job control waste 12 cu ft

Assumptions:

1. Approximately 7 days will be required for removal and stabilization of the distribution panel.
2. All secondary wiring from the panel to building services will have been removed with the utilities supplied prior to removal of the cabinet and switch gear.

Estimated Time to Plan the Work (Including Review and Approval): 10 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 10 / 10
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

Estimated Time to Perform the Work: 7 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 7 / 7		
Project Manager/HP Manager	HBPM	2 / 7 / 28		
Task Leader	HBTL	1 / 7 / 56		
Battelle Technician	HBT	1 / 7 / 7		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 2 / 4	Group 0	2
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 7 / 224	Group 0	28
Bartlett Maint Specialist	HRDS	1 / 4 / 8	Group 0	4
Bartlett Health Physics	HRH	2 / 7 / 112	Group 0	14
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: Air compressor rental 130-200 cfm = $370

Special Equipment/Material: Polyurea encapsulant 2 gal @ 144 sq ft/gal x $42 = $84

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Activity similar to those conducted in KA buildings & surfaces will have been stabilized prior to start.

Completed by: D. A. Seifert **Date:** 4/24/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C170 **Work Pkg. No.:** 7C47-B11

Function Name: Remove materials from Mechanical Room

Component Name: JN-1 Mechanical/Boiler Room

Function Description: Remove materials and equipment from the mechanical/boiler room prior to decon activities and/or building demolition. This includes ductwork, overhead lighting, air compressors and any stored parts and components.

Basis of Estimate

Strategy for Accomplishing Function: Battelle skilled laborer will deenergize and lock/tag out all electrical sources, pumps, valves, etc. in the area. Loose items such as parts cabinets, ladders, storage shelves, etc., will be removed first, followed by water heaters, air compressors, etc. Electric lighting will be removed last. Major items such as boilers, chiller, HVAC unit, and installed piping will be left in place for removal by the demolition contractor.

Applicable Requirements/Procedures:

Approved work instruction; Subcontract with asbestos abatement contractor; ODOH and OEPA asbestos abatement regulations; BCLDP-90-1; DD-93-04, 05, 11; DD-OP-065; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0; HP-OP-012, 023; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; SIH-PP-09; SM-OP-001; TD-AP-2.0, 3.0; WA-OP-022

Input Descriptions:

1. JN-1 boiler room after the heating system is no longer needed.

Ductwork	31 cu ft	Fluorescent Lamps	16 cu ft
Ballasts	1 cu ft	Lamp Tubes	2 cu ft
Steel tanks	96 cu ft	Air Compressors	40 cu ft
Cabinets	72 cu ft	Misc. parts	16 cu ft
Ladder	16 cu ft	Storage Rack	8 cu ft
Water heater	11 cu ft		

Output Descriptions:

1. Mechanical/boiler room ready for asbestos removal.
2. Ductwork, cabinets & Steel tanks (size reduce to ~10% original) - 20 cu ft
   PCB Waste – 1 cu ft
   Pb/Hg waste – 2 cu ft
   Misc. noncompactable metal – 192 cu ft
3. Job control waste – 23 cu. ft.

Assumptions:

1. Contamination levels expected to be minimal in the area except above six ft.
2. Air compressor tanks will be cut open for size reduction and to verify contamination status as part of this work.
3. Hot water tanks are assumed to be internally clean.

Estimated Time to Plan the Work (Including Review and Approval): Planning time of 10 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1/10/10
Project Manager/HP Manager	HBPM	2/10/40
Task Leader	HBTL	1/10/20
Secretary/Clerical	HBS	1/10/10
Support Professional	HBP	
Bartlett Health Physics	HRH	1/5/5

Estimated Time to Perform the Work: Approximately 15 days due to close quarters, need to wipe down overhead areas, and volume reduce ducting and steel tanks.

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1/15/15		
Project Manager/HP Manager	HBPM	2/15/60	N/A	
Task Leader	HBTL	1/15/120	Group 0	15
Battelle Technician	HBT	1/15/15		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1/2/16	Group 0	2
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4/15/480	Group 0	60
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH	1/15/120	Group 0	15
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: Ladders, scaffolding, manlift, HEPA air units, HEPA vacuums.

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Based on estimate by abatement contractor based on examination of the area.

Completed by: D. A. Seifert **Date:** 04/28/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C171 **Work Pkg. No.:** 7C47-B11

Function Name: Remove asbestos from Mechanical Room

Component Name: JN-1 Mechanical/Boiler Room

Function Description: Remove asbestos from the mechanical/boiler room utilities prior to decon activities and/or building demolition. This includes asbestos pipe insulation, boiler insulation, and any wall through sections containing asbestos material.

Basis of Estimate

Strategy for Accomplishing Function: Have Battelle skilled laborer deenergize and lock/tag out all electrical sources, pumps, valves, etc. in the area. Procure asbestos abatement subcontractor to perform work according to ODOH and OEPA regulations with BCLDP radiological oversight. Turn ACM waste and job control waste over to Waste Management for disposal.

Applicable Requirements/Procedures:

Approved work instruction; Subcontract with asbestos abatement contractor; ODOH and OEPA asbestos abatement regulations; BCLDP-90-1; DD-93-04, 05, 11; DD-OP-065; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0; HP-OP-012, 023; HS-AP-4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; SIH-PP-09; SM-OP-001; TD-AP-2.0, 3.0; WA-OP-022

Input Descriptions:

1. JN-1 boiler room less non-structural materials after the heating system is no longer needed.
2. Approximately 250 pipe elbows and heating plant with associated attached asbestos insulation.

Output Descriptions:

1. Mechanical/boiler room ready for decontamination/building demolition.
2. App. 115 cu. ft. of Class I and 15 cu. Ft. Class II asbestos low level waste.
3. Job control waste – 58 cu. ft.

Assumptions:

1. Suspect material assumed to be asbestos containing material.
2. No confirmatory samples for asbestos content have been taken.
3. Price quote assumes work to be performed in FY 2001
4. Price quote based on walkdown with asbestos abatement contractor for the purposes of cost estimating.
5. work to be performed by trained asbestos workers with HP & D&D support.

Estimated Time to Plan the Work (Including Review and Approval): Planning time of 15 days includes notification to ODOH and OEPA of abatement activities.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1/10/10
Project Manager/HP Manager	HBPM	2/15/40
Task Leader	HBTL	1/10/20
Secretary/Clerical	HBS	1/10/10
Support Professional	HBP	
Bartlett Health Physics	HRH	1/5/5

Estimated Time to Perform the Work: Approximately 10 days to include set-up, tear-down and clearance sampling.

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA			
Project Manager/HP Manager	HBPM	2/10/20	N/A	
Task Leader	HBTL	1/10/40	N/A	
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1/2/16		
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	1/10/10	N/A	
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH	1/10/16	N/A	
Bartlett Admin Support	HRA			
Asbestos Abate. Cntr.		360 manhours	Group 2	16

Subcontract/Purchased Service: Asbestos abatement subcontractor (AHC, Inc.) estimate from 5/16/00 of $24,382.

Special Equipment/Material: Ladders, scaffolding, manlift, HEPA air units, HEPA vacuums. All other material and supplies to be supplied by the abatement contractor with the exception of PPE, i.e., clothing and respirators.

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Based on estimate by abatement contractor based on examination of the area.

Completed by: D. A. Seifert **Date:** 04/17/02 **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C174 **Work Pkg. No.:** 7C47-B11

Function Name: Remove underground drains and sump from offices & machine shop addition.

Component Name: JN-1 Offices & Machine Shop Addition

Function Description: Excavate and remove underground drains and abandoned sump within the designated building area.

Basis of Estimate

Strategy for Accomplishing Function: After surface decontamination/stabilization is complete in the offices and machine shop area, mark locations of underground drain lines within the building. Engage concrete cutting and excavation contractors to remove floor and excavate soil above drain lines. Excavate and remove drain lines & sump and deliver to Waste Management for processing/disposal.

Applicable Requirements/Procedures:

DD-90-02; DD-93-03, 04, 05; DD-OP-029, 090; HP-AP-1.0, 2.0, 5.0, 8.0, 9.0, 29.0; HP-OP-012, 017, 106; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; RL-AP-1.0; QD-AP-4.1, 5.2, 6.1, 7.1; SIH-PP-08; TD-AP-2.0, 3.0; WA-OP-020

Input Descriptions:

1. Building JN-1 Office & Machine Shop area after surface decontamination/stabilization complete
2. 68 ft of buried process drain piping @ 4 ft avg. depth.
3. 128 cu ft of concrete sump tank.
4. 69 ft of buried sanitary drain piping @ 5 ft avg. depth.

Output Descriptions:

1. Building JN-1 Office & Machine shop area with drain lines removed
2. Completed work instruction data package
3. Containerized drain removal waste:

Excavated piping	137 lf = 34 cu ft	Excavated suspect soil	788 cu ft
Excavated clean soil	53 cu yd	Concrete floor blocks	375 cu ft
Cutting water & sludge	20 cu ft	Concrete sump rubble	72 cu ft
Job control waste	127 cu ft	Mixed waste	4 cu ft

4. WI Data Package

Assumptions:

1. Underground drains are contaminated with Hg, RCRA material, and Rad.
2. Average depth of drains is 4 ft below bottom of 8-in thick concrete slab.
3. Concrete cutting rate is 50 lin ft per hr, soil excavation rate is 8 bags (cu yds) per day.
4. Excavation and pipe removal can be conducted concurrently after appropriate lead time for startup.

Estimated Time to Plan the Work (Including Review and Approval): Planning will have been completed under FY2002 CYWP.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	
Project Manager/HP Manager	HBPM	
Task Leader	HBTL	
Secretary/Clerical	HBS	
Support Professional	HBP	
Bartlett Health Physics	HRH	

Estimated Time to Perform the Work: 17 days with 1 crew

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 17 / 17		
Project Manager/HP Manager	HBPM	2 / 17 / 68		
Task Leader	HBTL	1 / 17 / 136	Group 0	17
Battelle Technician	HBT	1 / 17 / 17		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 17 / 544	Group 1	136
Bartlett Maint Specialist	HRDS	1 / 5 / 10	Group 1	5
Bartlett Health Physics	HRH	3 / 17 / 408	Group 1	102
Bartlett Admin Support	HRA			
Concrete cutter		1 / 4 / 32	Group 0	4
Excavator Operator		1 / 12 / 96		

Subcontract/Purchased Service:

1. Concrete cutting – 711 lin. ft @ $7.93 = $5,638 per verbal quote from Central Ohio Concrete Cutting.
2. Excavation Contractor – Operator for 12 days = $4,569 + TB015 excavator = $2,010

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. estimated rates based on experience with similar activities at KA buildings.

Completed by: D. A. Seifert **Date:** 5/1/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C175 **Work Pkg. No.: 7C47-B13**

Function Name: Remove Vault Door and Shield Wall from the Waste Storage Shed

Component Name: JN-1

Function Description: The purpose of this activity is to remove the vault shield door, portable shield walls, and loose block shield walls from the Waste Storage Shed.

Basis of Estimate

Strategy for Accomplishing Function: A heavy equipment moving contractor will be utilized to remove the shield door from its current location and laying it down in preparation for disposal as waste. On site staff will be utilized to remove the loose brick shield wall and package the bricks in waste containers for disposal. The portable shield walls will be packaged as waste for disposal.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; DD-OP-029, 075, 076, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 19.0; HP-OP-011, 012, 018, 019, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; TD-AP-2.0; WA-OP-020, 022

Input Descriptions:

1. 2 portable shield walls (68 ft^3)
2. 1 shield door (8 ft^3)
3. 4 concrete brick shield walls (256 ft^3)

Output Descriptions:

1. 552 ft^3 of non compactable LLW (increase in disposal volume is do to weight limitations on disposal containers)
2. 76 ft^3 of oversize LLW
3. Job Control Waste – 15 ft^3

Assumptions:

1. Shielded waste storage is no longer needed.
2. This work will require a level 1 hazard review.

Estimated Time to Plan the Work (Including Review and Approval): 10 days (includes time required to establish contract for heavy equipment mover)

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 5 / 5
Project Manager/HP Manager	HBPM	2 / 5 / 20
Task Leader	HBTL	1 / 5 / 10
Secretary/Clerical	HBS	1 / 5 / 5
Support Professional	HBP	
Bartlett Health Physics	HRH	
	HBCO	

Estimated Time to Perform the Work: 10 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 10 / 10		
Project Manager/HP Manager	HBPM	2 / 10 / 20		
Task Leader	HBTL	1 / 10 /80		
Battelle Technician	HBT	1 / 10 / 10		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 10 / 240	1	40
Bartlett Maint Specialist	HRDS	1 / 10 / 20		
Bartlett Health Physics	HRH	2 / 10 / 160	1	20
Bartlett Admin Support	HRA			
Asbestos Abate. Cntr.				

Subcontract/Purchased Service: Myers Movers – 80 hours x $63.70 = $5,096

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: PJ Weaver **Date:** 4-24-02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C176 **Work Pkg. No.: 7C45-B02**

Function Name: Remove Material from the Old Back Dock (OBD)

Component Name: CAA

Function Description: Waste, equipment, and non-structural materials will be removed from the OBD

Basis of Estimate

Strategy for Accomplishing Function: Material from the OBD consists of water processing equipment, portable HEPA units, and CAA support equipment. The removal of this equipment will be accomplished using personnel with hands on methods. Removed material will be size reduced as necessary to facilitate packaging as waste for disposal.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; DD-OP-029, 075, 076, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 19.0; HP-OP-011, 012, 018, 019, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; TD-AP-2.0; WA-OP-020, 022

Input Descriptions:

1. Water processing equipment
2. CAA support equipment
3. Portable HEPA units

Output Descriptions:

1. OBD ready for decon/stabilization/utilities removal.
2. 180 ft^3 non-compactable LLW
3. 50 ft^3 of job control/decon waste

Assumptions:

1. A new water processing area has been established
2. This work will require a level 2 hazard review.

Estimated Time to Plan the Work (Including Review and Approval): 10 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40
Task Leader	HBTL	1 / 10 / 20
Secretary/Clerical	HBS	1 / 5 / 5
Support Professional	HBP	
Bartlett Health Physics	HRH	

Estimated Time to Perform the Work: 10 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 10 / 10		
Project Manager/HP Manager	HBPM	2 / 10 / 20		
Task Leader	HBTL	1 / 10 / 80		
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 10 / 320	2	40
Bartlett Maint Specialist	HRDS	1 / 10 / 20		
Bartlett Health Physics	HRH	3 / 10 / 240	2	20
Bartlett Admin Support	HRA			
Asbestos Abate. Cntr.				

Subcontract/Purchased Service:

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: PJ Weaver **Date:** 5-1-02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C177 **Work Pkg. No.:** 7C2-B03

Function Name: Survey & Monitor JN-1 Building Exterior (Office and Machine Shop Area)

Component Name: Exterior building surfaces of JN-1 office/machine shop area including Roof

Function Description: Baseline Characterization of the JN-1 Office/Machine Shop External Building Surfaces

Basis of Estimate

Strategy for Accomplishing Function: Perform Baseline Characterization consistent with NUREG 5849

Applicable Requirements/Procedures:

NUREG 5849 "Manual for Conducting Radiological Surveys in Support of License Termination"; Characterization & Final Status Survey Plan for the West Jefferson North Site; DD-CP-002, 004, 010, & 030; DD-90-02; DD-93-04; DD-97-02; HP-AP-1.0, 5.0, 8.0, 9.0, & 19.0; HP-OP-011, 012, 017, 018, & 019; HS-AP-2.0, 4.0, & 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2 & 6.1; RL-AP-1.0; SIH-PP-06; SM-OP-001; TD-AP-2.0 & 3.0

Input Descriptions:

1. External Building Surfaces including roof have undergone material and M&E removal
2. Background established.

Output Descriptions:

1. 25 smears to lab; gross alpha/beta
2. Sediment & solid samples to lab
3. Data to report generation
4. 10 gamma spec samples
5. 1 alpha isotopic sample.

Assumptions:

External Surfaces :

1. 10% or 30 square meters whichever is larger of each external wall will be monitored
2. Normal rate for characterization surveys is 6 square meters per technician-hour
3. Ladder rate for characterization surveys is 5 square meters per technician-hour
4. Lift rate for characterization surveys is 4 square meters per technician-hour
5. Room & Area Volumes were taken from the REV3 Baseline waste volume inventory.
6. Building Dimensions 81'x60'x14'
7. Includes roof
8. No significant down time

Roof :

1. 10% or 30 square meters whichever is larger of the roof area will be monitored.
2. An additional 10% of the roof area shall be included for monitoring blower/ducts etc.
3. Roof rate for characterization survey is 5 square meters per technician-hour
4. Technician inputs 3 data values for each grid into spreadsheet
5. Technician also performs QA/QC for the data input & data sheets
6. Technician identifies grids above release criteria & background
7. External Walls and Roof Estimated to have 28 grids

Estimated Time to Plan the Work (Including Review and Approval): 5 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	3 / 5 / 32
Technical Advisors	HBTA	3 / 3 / 20
Project Manager/HP Manager	HBPM	NA
Task Leader	HBTL	NA
Secretary/Clerical	HBS	1 / 1 / 8
Support Professional	HBP	NA
Bartlett Health Physics	HRH	NA

Estimated Time to Perform the Work: 3 work days for survey

Estimated Resources Required to Perform the Work

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB	1/3/14	NA	NA
Technical Advisors—Safety	HBTA	1/3/3	NA	NA
Project Manager/HP Manager	HBPM			
Task Leader	HBTL	1/3/12	0	3
Battelle Technician—HP	HBT	1/3/3		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD			
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH	4/3/84	0	12
Instruments		1/3/2	NA	NA
Data		1/3/24	NA	NA
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: None identified

Special Equipment/Material:

Comments/Explanations: None

Completed by: P.J. Weaver **Date:** 5/21/02 **Rev. No.:** 0

☒ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Monit. ☐ Sample Analysis ☐ Waste Mgmt

Activity No.: C178 **Work Pkg. No.:** 7C47-B20

Function Name: Decontaminate external building surfaces (Office & Machine Shop Area)

Component Name: JN-1 Exterior building

Function Description: Assemble material resources & work crews and decontaminate designated surfaces according to work instruction.

Basis of Estimate

Strategy for Accomplishing Function: Brief work crews on scope of activities, procedures, radiological & safety concerns and requirements. Assemble materials, equipment and supplies; institute radiological and engineering controls & perform decontamination activities encompassing washing/wiping and scabbling of surfaces with Characterization support to monitor progress and determine completion.

Applicable Requirements/Procedures/Work Instructions:

DD-90-02; DD-93-02, 04, & 05; DD-CP-004 & 030; DD-OP-029, 075, 077, 195, & 215; HP-AP-1.0, 2.0, 5.0, 8.0, 9.0, & 19.0; HP-OP-011, 012, 017, 019, & 023; HS-AP-2.0, 4.0, & 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1 QD-AP-4.1, 5.2, 6.1, & 7.1; SIH-PP-06; SM-OP-001; TD-AP-2.0 & 3.0; WA-OP-020

Input Descriptions:

1. Demarcated exterior building surfaces for decontamination (50 sq ft)
2. Characterization data
3. Decon equipment: Hilti guns, HEPA Vacs, point of contact enclosures, elevated personnel platforms, fall protection, waste containers.
4. Approved Work Instruction.

Output Descriptions:

1. Exterior surfaces minus contamination
2. Completion survey data
3. Completed Work Instruction data package
4. Containerized LLW:
   - Concrete rubble – 2 cu ft
   - Job control waste (compatible) – 11 cu ft

Assumptions:

1. Building surface contamination is 50 sq ft total distributed among 10 scattered areas.
2. Contamination can be removed using Group 0 PPE by employing hooded HEPA enclosures at point of contact.
3. Surfaces can be scabbled to a depth of ¼ inch using Hilti guns at a rate of two areas per crew day including location, setup, Characterization oversight and verification.

Estimated Time to Plan the Work (Including Review and Approval): 10 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 10 / 5
Project Manager/HP Manager	HBPM	1 / 10 / 20
Task Leader	HBTL	1 / 10 / 10
Secretary/Clerical	HBS	1 / 10 / 5
Support Professional	HBP	
Bartlett Health Physics	HRH	1 / 5 / 5

Estimated Time to Perform the Work: 5 days

Estimated Resources Required to Perform the Work

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 5 / 5		
Project Manager/HP Manager	HBPM	2 / 5 / 20		
Task Leader	HBTL	1 / 5 / 40	Group 0	5
Battelle Technician	HBT	1 / 5 / 5		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE	1 / 2 / 4	Group 0	2
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 5 / 160	Group 0	20
Bartlett Maint Specialist	HRDS	1 / 5 / 10	Group 0	5
Bartlett Health Physics	HRH	2 / 5 / 80	Group 0	10
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: 5 days of 60 foot articulating boom = $846.

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Ten years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No

Completed by: D. A. Seifert **Date:** 05/24/02 **Rev. No.** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C179 **Work Pkg. No.:** 7C47-B21

Function Name: Perform JN-1 Building Exterior Decon Completion Survey (Office and Machine Shop Area)

Component Name: Perform JN-1 Building Exterior Decon Completion Survey (Office and Machine Shop Area)

Function Description: Perform JN-1 Building Exterior Decon Completion Survey (Office and Machine Shop Area)

Basis of Estimate

Strategy for Accomplishing Function: Perform Decon Completion Survey consistent with NUREG 5849

Applicable Requirements/Procedures:

NUREG 5849 "Manual for Conducting Radiological Surveys in Support of License Termination"; Characterization & Final Status Survey Plan for the West Jefferson North Site; DD-CP-002, 004, 010, & 030; DD-90-02; DD-93-04; DD-97-02; HP-AP-1.0, 5.0, 8.0, 9.0, & 19.0; HP-OP-011, 012, 017, 018, & 019; HS-AP-2.0, 4.0, & 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2 & 6.1; RL-AP-1.0; SIH-PP-06; SM-OP-001; TD-AP-2.0 & 3.0

Input Descriptions:

1. External Building Surfaces including roof have undergone material and M&E removal
2. Background established.
3. WI from C177

Output Descriptions:

1. 25 smears to lab; gross alpha/beta
2. Sediment & solid samples to lab
3. Data to report generation
4. 10 gamma spec samples
5. 1 alpha isotopic sample.

Assumptions:

External Surfaces :

1. 10% or 30 square meters whichever is larger of each external wall will be monitored
2. Normal rate for characterization surveys is 6 square meters per technician-hour
3. Ladder rate for characterization surveys is 5 square meters per technician-hour
4. Lift rate for characterization surveys is 4 square meters per technician-hour
5. Room & Area Volumes were taken from the REV3 Baseline waste volume inventory.
6. Building Dimensions 81'x60'x14'
7. Includes roof
8. No significant down time

Roof :

1. 10% or 30 square meters whichever is larger of the roof area will be monitored.
2. An additional 10% of the roof area shall be included for monitoring blower/ducts etc.
3. Roof rate for characterization survey is 5 square meters per technician-hour
4. Technician inputs 3 data values for each grid into spreadsheet
5. Technician also performs QA/QC for the data input & data sheets
6. Technician identifies grids above release criteria & background
7. External Walls and Roof Estimated to have 28 grids

Estimated Time to Plan the Work (Including Review and Approval): WI prepared under C177

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	NA
Technical Advisors	HBTA	NA
Project Manager/HP Manager	HBPM	NA
Task Leader	HBTL	NA
Secretary/Clerical	HBS	NA
Support Professional	HBP	NA
Bartlett Health Physics	HRH	NA

Estimated Time to Perform the Work: 3 work days for survey

Estimated Resources Required to Perform the Work

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB	1/3/14	NA	NA
Technical Advisors—Safety	HBTA	1/3/3	NA	NA
Project Manager/HP Manager	HBPM			
Task Leader	HBTL	1/3/12	0	3
Battelle Technician—HP	HBT	1/3/3		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD			
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH	4/3/84	0	12
Instruments		1/3/2	NA	NA
Data		1/3/24	NA	NA
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material:

Comments/Explanations: None

Completed by: P.J. Weaver **Date:** 5/21/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C180 **Work Pkg. No.:**7C47-B16

Function Name: Dismantle JN-1 Office and Machine Shop below Grade (foundations and footers)

Component Name: JN-1C Building

Function Description: Engage demolition contractor to engineer and dismantle the office and machine shop area foundations and footers.

Basis of Estimate

Strategy for Accomplishing Function: Demolition contractor prepares and executes a plan for the removal of the office and machine shop area foundations and footers. An estimate for this work has been prepared for the demolition of JN-1 as a coordinated project. It defines the condition of the facility when the contractor takes over.

Applicable Requirements/Procedures:

DD-93-04, 05; DD-OP-029; HP-AP-1.0, 2.0, 5.0; HP-OP-012, 019; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; TD-AP-2.0; TR-OP-003; WA-OP-020

Input Descriptions:

1. The JN-1 Office/Machine Shop area with above ground structure, floor slab, underground drains, and all contaminated dirt removed.
2. Signed demolition contract
3. Demolition contractor with all tools, materials, equipment needed for task

Output Descriptions:

1. WI data package
2. 10 B-25 containers, 1 thirty yard Roll-off
3. concrete from Foundations and footers 40 CY

Assumptions:

1. Each step of the operation will be carried out by demolition contractor with BCLDP HP and WM oversight/support.
2. All contaminated soil has been removed.

Estimated Time to Plan the Work (Including Review and Approval): 10 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1 / 1 / 4
Technical Advisors	HBTA	1 / 10 / 4
Project Manager/HP Manager	HBPM	2 / 10 / 40
Task Leader	HBTL	1 / 10 / 10
Secretary/Clerical	HBS	1 / 2 / 16
Support Professional	HBP	1 / 1 / 2
Bartlett Health Physics	HRH	1 / 5 / 5

Estimated Time to Perform the Work: 5 days for removal of foundations and footers per Burns and Roe.

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 5 / 5		
Project Manager/HP Manager	HBPM	2 / 5 / 20		
Task Leader	HBTL	1 / 5 / 30		
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5 / 5 / 200		
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH	2 / 5 / 80		
Bartlett Admin Support	HRA			
Demolition Contractor				

Subcontract/Purchased Service: Demolition contractor = $39,610 per revised estimate 5/1/02

Special Equipment/Material: Provided by demolition contractor

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites).

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? No, this is cold landscaping,

Completed by: C. B. Voth (reviewed by D Seifert) **Date:** 4/30/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C181 **Work Pkg. No.:**7C47-B16

Function Name: Stabilize JN-1 Office & Machine Shop Area after demolition

Component Name: JN-1 Office & Machine Shop Area

Function Description: Engage demolition contractor to engineer and stabilize the office and machine shop area for renovation as a free release area.

Basis of Estimate

Strategy for Accomplishing Function: After removal of contaminated soil from JN-1 office and machine shop footprint, IVC contractor is called in to verify area contamination is below established release limits. Demolition contractor prepares and executes a plan to backfill and the office and machine shop footprint as a free release area.

Applicable Requirements/Procedures:

DD-93-04, 05; DD-OP-029; HP-AP-1.0, 2.0, 5.0; HP-OP-012, 019; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; TD-AP-2.0; TR-OP-003; WA-OP-020

Input Descriptions:

1. The Building shell, footers and foundations, and all contaminated dirt is gone
2. Signed demolition contract
3. Demolition contractor with all tools, materials, equipment needed for task.
4. An estimated 7600 cu ft of clean landfill for backfill and contouring (See Activity Sheets C064, C075C, C180)

Output Descriptions:

1. WI data package
2. IVC confirmation that below grade soil meets release criteria.

Assumptions:

1. Each step of the operation will be carried out by demolition contractor with BCLDP HP and WM oversight/support.
2. Thirty days will be required for IVC surveys, data analysis, and draft confirmation. One day will be required for subcontractor to supply, backfill, and grade less than 800 cu yd clean soil volume.

Estimated Time to Plan the Work (Including Review and Approval): 10 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 2 / 4
Project Manager/HP Manager	HBPM	2 / 10 / 40
Task Leader	HBTL	1 / 10 / 10
Secretary/Clerical	HBS	1 / / 5
Support Professional	HBP	1 / 1 / 2
Bartlett Health Physics	HRH	1 / 5 / 5

Estimated Time to Perform the Work: 31 days for backfill and re-grade

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 3 / 3		
Project Manager/HP Manager	HBPM	2 / 3 / 12	N/A	
Task Leader	HBTL	2 / 5 / 20		
Battelle Technician	HBT	1/3/3		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD			
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH			
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: Purchased service to backfill and grade 285 cu yd @ $71.38/cu yd = $20,343

Special Equipment/Material: Soil provided by demolition contractor, 85 cu yd x $71.38 = $6,067

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites).

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? No, this is cold landscaping,

Completed by: C. B. Voth (rvs'd by DAS) **Date:** 6/7/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C182 **Work Pkg. No.:**7C47-B16

Function Name: Dismantle JN-1A / JN-1B Building and Waste Storage Shed Below Grade

Component Name: Building JN-1A / JN-1B and the Waste Storage Shed

Function Description: Engage demolition contractor to engineer and remove the below grade building structures for transport and disposal as LLW.

Basis of Estimate

Strategy for Accomplishing Function: Demolition contractor prepares an engineered design and executes a plan for removal of the below grade structures of JN-1A/JN-1B based on radiological data provided by BCLDP. Structure removal includes high and low level subcells, basement area, Charpy dry storage wells, cask sabotage pit, HEC storage wells, spent fuel pool to 14 ft below grade, footers, and foundations. Components are prepared for shipment to burial site according to Waste Management protocol. An estimate has been prepared for the demolition of JN-1 as a coordinated project. It defines the condition of the facility when the contractor takes over. Also included is the in-house demolition support required for package preparation (2 ea.), containment support (2 ea.), waste management support (2 ea.), decontamination activities (2 ea.), and management oversight.

Applicable Requirements/Procedures:

DD-93-04, 05; DD-OP-029; HP-AP-1.0, 2.0, 5.0; HP-OP-012, 019; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; TD-AP-2.0; TR-OP-003; WA-OP-020

Input Descriptions:

1. Building shell has been demolished and contaminated dirt removed.
2. Signed demolition contract
3. Demolition contractor with all tools, materials, equipment needed for task.

Output Descriptions:

1. WI
2. 90 B-25 containers, 17 Sea/Lands

Subcell Concrete	50 cu yd	Basement Concrete	100 cu yd
Storage wells/pits	100 cu yd	Foundations/footers	940 cu yd
Job control waste	30 cu yd		

Assumptions:

1. Each step of the operation (above grade & foundations) will be carried out by demolition contractor with BCLDP HP and WM oversight/support.
2. Disassembly of the below grade portion of the building is estimated to require 65 days assuming the correct weather conditions and the estimate for demolition is constrained due to radiological conditions.
3. Due to the need for extra considerations, coordination, and modifications when taking the building down in separate sections, a 10% cost adjustment has been included to the estimate.

Estimated Time to Plan the Work (Including Review and Approval): 60 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	2 / 2 / 8
Technical Advisors	HBTA	1 / 2 / 4
Project Manager/HP Manager	HBPM	2 / 60 / 240
Task Leader	HBTL	1 / 15 / 10
Secretary/Clerical	HBS	1 / 2 / 16
Support Professional	HBP	1 / 1 / 2
Bartlett Health Physics	HRH	1 / 5 / 10

Estimated Time to Perform the Work: 27 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 27 / 27		
Project Manager/HP Manager	HBPM	2 / 27 / 108	N/A	
Task Leader	HBTL	1 / 27 / 216	Group 1	27
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 27 / 864	Group 1	216
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH	2 / 27 / 432	Group 1	108
Bartlett Admin Support	HRA			
Demolition Contractor		6 / 27	Group 1	162

Subcontract/Purchased Service: Demolition contractor = $1,366,719 per revised estimate 5/1/02

Special Equipment/Material: Provided by demolition contractor

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 21 years in the nuclear design field for DOE contractors (13 years as project manager / engineering manager / baseline manager in the D&D field at various DOE sites).

What experience is directly related to BCLDP? 7 years as BCLDP Building / Project Manager

Did we apply a complexity factor during our thought process? Yes, A Preliminary Engineered Cost Estimate for the Demolition of Building JN-1 was prepared by The Chamberlain Group dated April 30, 2001. This was used as the basis of estimate for each building section. This estimate integrated the demolition of the entire facility to provide the most effective and efficient demolition. Since the decision has been made to demolish the JN-1 sections separately and to apply current BCLDP practices to this work, a complexity factor 1.1 has been applied to the cost. This accommodates for the extra coordination, analysis, and uncertainty.

Completed by: C. B. Voth (reviewed by D Seifert) **Date:** 4/30/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C183 **Work Pkg. No.:** 7C45-B06

Function Name: Design new water processing system.

Component Name: JN-1B

Function Description: This work activity will provide for the design and purchase of a new water processing system for the JN-1B pump room.

Basis of Estimate

Strategy for Accomplishing Function: A water processing system will be designed by and purchased from a vendor specializing in water processing. The system will be designed to process water from HEC removal activities in addition to contaminated ground water.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; DD-OP-029, 075, 076, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 19.0; HP-OP-011, 012, 018, 019, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; TD-AP-2.0; WA-OP-020, 022

Input Descriptions:

1. Water volume estimates from ground water studies and HEC remediation activities.

Output Descriptions:

1. Water processing system ready for installation.

Assumptions:

1. The new water processing system will be installed under activity C158.

Estimated Time to Plan the Work (Including Review and Approval): 124 days.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	2 / 90 / 160
Technical Advisors	HBTA	2 / 90 / 160
Project Manager/HP Manager	HBPM	2 / 90 / 480
Task Leader	HBTL	1 / 90 / 320
Secretary/Clerical	HBS	
Support Professional	HBP	
Bartlett Health Physics	HRH	
	HBCO	

Estimated Time to Perform the Work:

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA			
Project Manager/HP Manager	HBPM			
Task Leader	HBTL			
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD			
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH			
Bartlett Admin Support	HRA			
Asbestos Abate. Cntr.				

Subcontract/Purchased Service: N/A

Special Equipment/Material: Water Processing System → $105,750

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: PJ Weaver **Date:** 6-18-02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C185 **Work Pkg. No.:** 7C44-B02

Function Name: Stabilize/Modify High Energy Cell Ventilation System

Component Name: HEC Ventilation System

Function Description: Reconfigure the HEC HEPA ventilation system to provide filtered exhaust to the JN-1B areas during removal of the HEC walls and until the building is ready for demolition.

Basis of Estimate

Strategy for Accomplishing Function: Generate a work instruction package to separate the HEPA filtered exhaust system from the HEC while continuing to maintain the building under negative pressure. Two of the three HEC blowers will be shut down, the primary filters will be removed from the cell back wall, and the secondary filters will be removed in the fan room. The cavity and ducting in the cell wall and ceiling will be decontaminated and stabilized to the extent possible. A tandem HEPA system will be constructed from a combination of new parts and portions of the secondary filter systems and will be connected to the spare blower in the fan room with intake trunks routed to the high bay area at both ends of the HEC structure. The third cell blower will then be shut down, the filters removed, and ducting surfaces stabilized as above. Stack alarms and exhaust dampers may or may not be required at this point.

Applicable Requirements/Procedures:

DD-90-02; DD-93-04; DD-OP-020, DD-OP-023, 029, 075, 076, 102, 215; HS-AP-4.0, 5.0; HS-OP-001, 004; HP-AP-1.0, 2.0, 5.0, 8.0; HP-OP-012; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; SM-OP-001; TD-AP-2.0; WA-OP-020, 060, 061, 066.

Input Descriptions:

1. Material and utility removal, including shield plugs, lead glass windows, and shield door from the HEC complete.
2. Interior surfaces of the HEC decontaminated and/or stabilized with permanent, durable coating.
3. There are no hazardous constituents in the HEC.

Output Descriptions:

1. Approximately 100 cubic feet of secondary (PPE) waste
2. Approximately 100 cubic feet of stripped ALARA paint
3. 100 ft^3 non compactable Cat 3 LLW
4. The HEC structure is ready to be removed

Assumptions:

1. Manpower, equipment, resources, and the area are available for this activity when scheduled
2. There are no RCRA constituents in the structure.
3. Production rates include 2 days for setup/engineering controls, 2 days for removal/disposal of primary HEPA filters, 1 day for removal/disposal of secondary HEPA filters, 6 days for decon/stabilization of embedded ducting and concurrent construction/assembly of replacement HEPA housings and ducting, and 2 days for recovery of controls.
4. The work instruction and procedures are in place sufficiently early to perform this activity on schedule.
5. This work will require a level 2 hazard analysis.

Estimated Time to Plan the Work (Including Review and Approval): 20 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1 / 20 / 10
Technical Advisors	HBTA	2 / 20 / 20
Project Manager/HP Manager	HBPM	2 / 20 / 80
Task Leader	HBTL	1 / 20 /40
Secretary/Clerical	HBS	1 / 4 / 8
Support Professional	HBP	
	HBCO	1/5/4
Bartlett Health Physics	HRH	1 / 5 / 10

Estimated Time to Perform the Work: 13 Days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 13 / 13		
Project Manager/HP Manager	HBPM	2 / 13 / 52		
Task Leader	HBTL	1 / 13 / 104	Group 0	13
Battelle Technician	HBT	1 / 13 / 13		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	5 / 13 / 520	Group 2/3	50/80
Bartlett Maint Specialist	HRDS	1 / 10 / 80	Group 0	10
Bartlett Health Physics	HRH	4 / 13 / 416	Group 1 / 3	32 / 20
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: Poly urea - 20 gallons = $842
Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Ten years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No.

Completed by: D. A. Seifert **Date:** 06/04/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C186 **Work Pkg. No.: 7C46-B01**

Function Name: Remove manipulator support material from the JN-1 high bay

Component Name: JN-1 high bay

Function Description: After all manipulator work has been completed, the manipulator repair station will be disassembled and packaged as waste for disposal. Spare parts will be excessed if possible or disposed of as waste.

Basis of Estimate

Strategy for Accomplishing Function: Tools and parts will be excessed if possible; otherwise they will be disposed of as waste. The repair area will be disassembled, size reduced if needed and packaged as waste for disposal.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; DD-OP-029, 075, 076, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 19.0; HP-OP-011, 012, 018, 019, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; TD-AP-2.0; WA-OP-020, 022

Input Descriptions:

1. Manipulator repair station and auxiliary equipment

Output Descriptions:

1. 90 ft^3 non compactable LLW
2. 20 ft^3 job control/decon waste.

Assumptions:

1. All manipulator work on the BCLDP has been completed
2. This work will require a level 2 hazard review
3. Receiving site will pay for transportation

Estimated Time to Plan the Work (Including Review and Approval): 5 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 5 / 5
Project Manager/HP Manager	HBPM	2 / 5 / 20
Task Leader	HBTL	1 / 5 / 10
Secretary/Clerical	HBS	1 / 5 / 5
Support Professional	HBP	
Bartlett Health Physics	HRH	

Estimated Time to Perform the Work: 5 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 5 / 5		
Project Manager/HP Manager	HBPM	2 / 5 / 10		
Task Leader	HBTL	1 / 5 / 40		
Battelle Technician	HBT	1 / 5 / 40		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	2 / 5 / 80	2	16
Bartlett Maint Specialist	HRDS	1 / 5 / 10		
Bartlett Health Physics	HRH	1 / 5 / 40	1	5
Bartlett Admin Support	HRA			
Asbestos Abate. Cntr.				

Subcontract/Purchased Service:

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: PJ Weaver **Date:** 5-1-02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C187 **Work Pkg. No.: 7C46-B01**

Function Name: Remove TRU support material from the JN-1 High Bay

Component Name: JN-1 High Bay

Function Description: Remove TRU related support equipment from the high bay. As much of the material as possible will be free released and sent to DOE excess.

Basis of Estimate

Strategy for Accomplishing Function: After all of the TRU waste has been shipped offsite, and/or when the equipment is no longer needed, the TRU waste support material will be free released and placed on the DOE excess list. In order to complete free release surveys, the material will be taken to a low background area.

Applicable Requirements/Procedures:

BCLDP-90-1; DD-90-02; DD-93-04; DD-OP-029, 075, 076, 110, 116, 217; EN-PC-4.0; HP-AP-1.0, 2.0, 5.0, 8.0, 11.0, 15.0, 19.0; HP-OP-011, 012, 018, 019, 201; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; RS-AP-1.0; RS-OP-002, 020; SIH-PP-04; TD-AP-2.0; WA-OP-020, 022

Input Descriptions:

1. All TRU waste has been shipped off site.

Output Descriptions:

1. Free released equipment:
   - 3 Dufrane Units
   - 2 lead drum shields
   - 1 lifting fixture
   - 1 – rotating block
   - 1 pallet shield
   - 1 hydraulic torque wrench
   - 1 cask platform
   - miscellaneous rigging
2. Job control/decon waste: 20 ft^3

Assumptions:

1. Material will be put on the DOE excess list
2. The receiving site will pay for transportation
3. This work will require a level 1 hazard review

Estimated Time to Plan the Work (Including Review and Approval): 5 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 5 / 5
Project Manager/HP Manager	HBPM	2 / 5 / 20
Task Leader	HBTL	1 / 5 / 5
Secretary/Clerical	HBS	1 / 5 / 5
Support Professional	HBP	
Bartlett Health Physics	HRH	
	HBCO	

Estimated Time to Perform the Work: 10 days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 10 / 10		
Project Manager/HP Manager	HBPM	2 / 10 / 20		
Task Leader	HBTL	1 / 10 / 80		
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	3 / 10 / 240	0	20
Bartlett Maint Specialist	HRDS	1 / 10 / 20		
Bartlett Health Physics	HRH	3 / 10 / 240	0	10
Bartlett Admin Support	HRA			
Asbestos Abate. Cntr.				

Subcontract/Purchased Service:

Special Equipment/Material:

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? 15 years experience in operational planning and execution in both private industry and DOE projects.

What experience is directly related to BCLDP? 5 years of direct experience in D&D of nuclear facilities within the DOE complex.

Did we apply a complexity factor during our thought process? The estimate was based on prior experience conducting similar work on the BCLDP. No complexity factor was used.

Completed by: PJ Weaver **Date:** 5-1-02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C188 **Work Pkg. No.:** 7C44-B02

Function Name: Isolate HEC Floor/Pool/Transfer Canal

Component Name: HEC Floor/Pool/Transfer Canal

Function Description: Cover and seal the JN-1 pool to prevent water incursion during removal of the HEC and cask washdown room by diamond wire sawing.

Basis of Estimate

Strategy for Accomplishing Function: Generate a work instruction package to cover and seal the top of the JN-1 pool to prevent water incursion during diamond wire sawing activities. A waterproof covering will be placed over the JN-1 pool cover and sealed tightly to the base of the HEC wall and the pool parapet wall in preparation for removal of the cell structure. Secondary cover will be placed over the waterproof covering to prevent rips and tears during wire sawing operations.

Applicable Requirements/Procedures:

DD-90-02; DD-93-04; DD-OP-020, DD-OP-023, 029, 090, 215; HS-AP-4.0, 5.0; HS-OP-001, 004; HP-AP-1.0, 2.0, 5.0, 8.0; HP-OP-012; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; SM-OP-001; TD-AP-2.0; WA-OP-020, 060, 061, 066.

Input Descriptions:

1. Material and utility removal, including shield plugs, lead glass windows, and shield door from the HEC complete.
2. Interior surfaces of the HEC decontaminated and/or stabilized/sealed with permanent, durable coating.
3. There are no hazardous constituents in the HEC.

Output Descriptions:

1. Water tight cover and protective overlay in place on the pool covers sealed to the base of the cell wall and parapet walls.
2. The HEC structure is ready to be removed
3. Job control waste – 6 cu ft.

Assumptions:

1. Manpower, equipment, resources, and the area are available for this activity when scheduled.
2. All TRU waste has been removed to an alternate storage location.
3. Surfaces inside the HEC, including seams between the cell walls and floor, hatch cover, and storage well covers were sealed with sufficient polyurea coating during decon/stabilization (Activity C014) to prevent water leakage into the pool/transfer canal, storage wells, and soil beneath the cell floor.
4. There are no RCRA constituents in the structure.
5. Activity will require 1 day to fasten pool covers in place, spread waterproof cover and seal to HEC wall, 1 day to fasten cover securely to parapet wall, and 1 day to lay damage protection over the waterproof covering.
6. The work instruction and procedures are in place sufficiently early to perform this activity on schedule.

Estimated Time to Plan the Work (Including Review and Approval): 5 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 5 / 5
Project Manager/HP Manager	HBPM	2 / 5 / 40
Task Leader	HBTL	1 / 5 /20
Secretary/Clerical	HBS	1 / 1 / 5
Support Professional	HBP	
	HBCO	
Bartlett Health Physics	HRH	1 / 5 / 5

Estimated Time to Perform the Work: 3 Days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 3 / 3		
Project Manager/HP Manager	HBPM	2 / 3 / 12		
Task Leader	HBTL	1 / 3 / 24	Group 0	3
Battelle Technician	HBT	1 / 3 / 3		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 3 / 96	Group 0	12
Bartlett Maint Specialist	HRDS	1 / 3 / 8	Group 0	3
Bartlett Health Physics	HRH	1 / 3 / 24	Group 0	3
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material:
Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Ten years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No.

Completed by: D. A. Seifert **Date:** 06/05/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C190 **Work Pkg. No.:** 7C46-B04

Function Name: Stabilize Pool and Transfer Canal

Component Name: JN-1 Pool/Transfer Canal

Function Description: After the JN-1 pool and transfer canal have been decontaminated and completion surveys performed, the pool covers will be inverted, cleaned and stabilized. They will then be reinstalled over the pool and sealed to prevent water incursion and recontamination during deconstruction of the above ground portion of JN-1.

Basis of Estimate

Strategy for Accomplishing Function: Generate a work instruction package to cover and seal the top of the JN-1 pool to prevent water incursion/recontamination during deconstruction/demolition of the JN-1 above ground structure. The pool covers will be inverted and decontaminated/stabilized. They will then be reinstalled on the pool. A waterproof covering will be placed over the JN-1 pool cover and sealed tightly to the base of the HEC wall and the pool parapet wall. A secondary cover will be placed over the waterproof covering to prevent rips and tears during building demolition.

Applicable Requirements/Procedures:

DD-90-02; DD-93-04; DD-OP-020, DD-OP-023, 029, 090, 215; HS-AP-4.0, 5.0; HS-OP-001, 004; HP-AP-1.0, 2.0, 5.0, 8.0; HP-OP-012; PR-AP-17.1; QD-AP-5.2, 6.1; RL-AP-1.0; SM-OP-001; TD-AP-2.0; WA-OP-020, 060, 061, 066.

Input Descriptions:

1. Pool liner removed and pool surfaces decontaminated.
2. Removal of the HEC and cask washdown walls completed.
3. There are no hazardous constituents in the area.

Output Descriptions:

1. Water tight cover and protective overlay in place on the pool covers sealed to the base of the cell wall and parapet walls.
2. The JN-1 high bay ready for demolition.
3. Job control waste – 37 cu ft.
4. Completed work instruction data package.

Assumptions:

1. Manpower, equipment, resources, and the area are available for this activity when scheduled.
2. All TRU waste has been removed to an alternate storage location.
3. Remaining surfaces inside the HEC, including seams between the cell walls and floor and hatch cover remain sealed with sufficient polyurea coating to prevent water leakage into the pool/transfer canal.
4. There are no RCRA constituents in the structure.
5. Activity will require 10 days to invert and decon/stabilize the undersides of the pool covers, 2 days to fasten pool covers in place, spread waterproof cover and seal to parapet and remaining HEC walls, and 1 day to lay damage protection floor over the waterproof covering.
6. The work instruction and procedures are in place sufficiently early to perform this activity on schedule.

Estimated Time to Plan the Work (Including Review and Approval): 10 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1 / 10 / 10
Project Manager/HP Manager	HBPM	2 / 10 / 40
Task Leader	HBTL	1 / 10 /20
Secretary/Clerical	HBS	1 / 1 / 5
Support Professional	HBP	
	HBCO	
Bartlett Health Physics	HRH	1 / 5 / 5

Estimated Time to Perform the Work: 13 Days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1 / 13 / 13		
Project Manager/HP Manager	HBPM	2 / 13 / 26		
Task Leader	HBTL	1 / 13 / 104	Group 0	13
Battelle Technician	HBT	1 / 13 / 13		
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	4 / 13 / 416	Group 1	52
Bartlett Maint Specialist	HRDS	1 / 3 / 8	Group 0	3
Bartlett Health Physics	HRH	1 / 13 / 104	Group 1	13
Bartlett Admin Support	HRA			

Subcontract/Purchased Service:

Special Equipment/Material: 30 gal polyurea coating, $1,263

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Ten years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No.

Completed by: D. A. Seifert **Date:** 06/06/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste ☐ Release Site

Activity No.: C191 **Work Pkg. No.:**7C46-B06

Function Name: Remove asbestos from Pump Room

Component Name: JN-1 Pump Room

Function Description: Remove asbestos from the JN-1 Pump Room prior to decon/stabilization activities. This includes asbestos pipe insulation and any through wall sections containing asbestos material.

Basis of Estimate

Strategy for Accomplishing Function: Procure asbestos abatement subcontractor to remove asbestos insulation from approximately 8 pipe fittings and valves using glove bag techniques.

Applicable Requirements/Procedures:

Approved work instruction; Subcontract with asbestos abatement contractor; ODOH and OEPA asbestos abatement regulations; BCLDP-90-1; DD-93-04, 05, 11; HP-AP-1.0, 2.0, 5.0, 8.0; HP-OP-012, 018, 023; HS-AP-2.0, 4.0, 5.0; HS-OP-001; MA-AP-20.1; PR-AP-17.1; QD-AP-4.1, 5.2, 6.1, 7.1; SIH-PP-09; SM-OP-001; TD-AP-2.0, 3.0; WA-OP-022

Input Descriptions:

1. JN-1 Pump Room after removal of 5000 gal tank from pit.
2. Approximately 8 pipe elbows and associated attached asbestos insulation, 1 wall thru section.

Output Descriptions:

1. JN-1 Pump Room ready for utility removal, decon/stabilization, or other activities.
2. App. 4 cu. ft. of low level asbestos waste.
3. 12 cu. ft. job control waste

Assumptions:

1. Other than straight run pipe insulation assumed to be asbestos containing material.
2. No confirmatory samples for asbestos content have been taken.
3. Activity will require 1 day to set up critical barriers, 1 day to erect scaffolding and bag out ACM, 1 day for air clearance, and 1 day to remove barriers and scaffolding.

Estimated Time to Plan the Work (Including Review and Approval): Planning time of 20 days includes 10 day notification to ODOH and OEPA of abatement activities.

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	
Technical Advisors	HBTA	1/20/5
Project Manager/HP Manager	HBPM	2/20/20
Task Leader	HBTL	1/20/10
Secretary/Clerical	HBS	1/1/5
Support Professional	HBP	
Bartlett Health Physics	HRH	1/5/5

Estimated Time to Perform the Work: Approximately 4 days to include set-up, tear-down and clearance sampling if required.

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB			
Technical Advisors	HBTA	1/4/4		
Project Manager/HP Manager	HBPM	2/4/8	N/A	
Task Leader	HBTL	1/4/4	N/A	
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP		N/A	
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD	1/4/8	N/A	
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics	HRH	1/4/12	N/A	
Bartlett Admin Support	HRA			
Asbestos Abate. Ctr.		2/4/64	Group 2	12

Subcontract/Purchased Service: Asbestos abatement subcontractor (AHC., Inc.) based on established hourly labor rates plus 20% overhead & profit, and $75 air sample analysis for 65 hours x $55.92 = $3,635 + $75 = $3,710 with sales tax = $3,923

Special Equipment/Material: Ladders, scaffolding, HEPA air units, HEPA vacuums. All other material and supplies to be supplied by the abatement contractor with the exception of PPE, i.e., clothing and respirators.

Comments/Explanations:

Basis of Estimate:

What is the estimator's experience? Twenty years experience in planning and conduct of government and industrial R&D projects at Battelle

What experience is directly related to BCLDP? Eight years of direct BCLDP experience planning and managing Remedial Action activities including material & utility removal, decontamination, excavation and drain removal, and asbestos abatement

Did we apply a complexity factor during our thought process? No. Estimate supplied by abatement contractor.

Completed by: D. A. Seifert **Date:** 06/06/02 **Rev. No.:** 0

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste

Activity No.: CS007 **Work Pkg. No.:** 7C5-B01

Function Name: Prepare JN-1 Areas Characterization & Final Status Report

Component Name: JN-1 Areas

Function Description: Produce the Characterization & Final Status Report for the JN-1 Areas and building demolition and all surrounding area remediation.

Basis of Estimate

Strategy for Accomplishing Function: Perform Baseline Characterization and Final Status Surveys consistent with NUREG 5849

Applicable Requirements/Procedures:

NUREG 5849 "Manual for Conducting Radiological Surveys in Support of License Termination"; Characterization & Final Status Survey Plan for the West Jefferson North Site March 2000; BCLDP Procedures DD-CP-002, 004; DD-93-04; PR-AP-17.1; TD-AP-2.0.

Input Descriptions:

1. Completed Data Sheets form Characterization & Final Status Field Work

Output Descriptions:

1. Characterization & Final Status Report for the JN-1 Area

Assumptions:

1. Data Reduction & Report Generation will take 20 working-d post field activities
2. Review & Comment Resolution will take 15 working-d in schedule
3. Report Schedule will take 40 working-d total.
4. Map production will take 10d of labor
5. 6 professionals will take 8 hrs each to review/comment/resolve comments
6. 5 d of technician time is necessary to resolve/incorporate comments
7. Room & Area Volumes were taken from the REV3 Baseline waste volume inventory.
8. IVC/NRC approval necessary for Area Report
9. Only one Area Report will be produced.

Estimated Time to Plan the Work (Including Review and Approval): 0 days

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	NA
Technical Advisors	HBTA	NA
Project Manager/HP Manager	HBPM	NA
Task Leader	HBTL	NA
Secretary/Clerical	HBS	NA
Support Professional	HBP	NA
Bartlett Health Physics	HRH	NA

Estimated Time to Perform the Work: 40 working days

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 Group 1 160

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB	1/40/200	NA	NA
Technical Advisors	HBTA	6/1/48	NA	NA
Project Manager/HP Manager	HBPM			
Task Leader	HBTL			
Battelle Technician	HBT			
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD			
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics –Maps Data	HRH	1/10/80 1/25/200	NA NA	NA NA
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: CAD Map Generation Services for 80 hours = $3,384

Special Equipment/Material: None Identified

Comments/Explanations: None

Basis of Estimate

What is the estimator's experience?
15 years of health physics & radiological release program management

What experience is directly related to the BCLDP?
10 years of BCLDP characterization & radiological release program experience

Was a complexity factor used?
No, work similar to KA

Completed by: J. F. Poliziani **Date:** 5/30/01 **Rev. No.:** 2

☒ JN-1 ☐ JN-2 ☐ JN-3 ☐ Ext. Area ☐ Env. Mtr. ☐ Samples ☐ TRU/Waste

Activity No.: CS008 **Work Pkg. No.:** 7C5-B01

Function Name: Conduct JN-1 Areas IVC

Component Name: JN-1 Areas

Function Description: Support & have an Independent Verification Contractor (IVC) perform verification surveys & sampling consistent with the requirements of NUREG 5849.

Basis of Estimate

Strategy for Accomplishing Function: JN-1 Areas (IVC) will be subjected to the release process defined in NUREG 5849 "Manual for Conducting Radiological Surveys in Support of License Termination" Part of the process is to perform an IVC type survey to ensure release criteria have been satisfied.

Applicable Requirements/Procedures:

NUREG 5849 " Manual for Conducting Radiological Surveys in Support of License Termination"; Characterization and Final Status Plan for West Jefferson North Site (DD-97-02), March 2000; HS-AP-5.0; HS-OP-001.

Input Descriptions:

1. Areas to be IVC surveyed are remediated & a BCLDP final status survey performed.
2. BCLDP Characterization & Final Status Report for JN-1 Area

Output Descriptions:

1. IVC Survey Plan
2. IVC survey results & soil samples
3. IVC Survey Report

Assumptions:

1. Onsite survey & sampling takes IVC 4 days (1 day travel)
2. One HBTA to assist full time
3. One Bartlett HP tech to assist full time
4. Geoprobe Crew to sample for 2 days
5. No significant decon needed
6. Crew of 3 techs for 1 d spot decon

Estimated Time to Plan the Work (Including Review and Approval): 30 d

Estimated Resources Required to Plan the Work

In the following table, for each appropriate labor type enter the # of Persons involved in planning the activity, the # of Days (full or partial) they will be involved, and the total # of person-Hours necessary to plan the work, e.g., 2/5/36

Labor Type	Code	Persons/Days/Hours
Manager/Senior Staff	HBB	1/30/20
Technical Advisors	HBTA	NA
Project Manager/HP Manager	HBPM	NA
Task Leader	HBTL	NA
Secretary/Clerical	HBS	NA
Support Professional	HBP	NA
Bartlett Health Physics	HRH	NA

Estimated Time to Perform the Work: 64 Total Days ;4 d onsite/travel; 30d lab analysis; 30d report generation

Estimated Resources Required to Perform the Work

In the following table, for each appropriate labor type enter the # of Persons working on the activity, the # of Days (full or partial) they are involved, and the total # of Hours necessary to actually perform the work; the PPE/Laundry Group to be used during the performance of the work; and the Total # of Jumps; e.g., 4/20/640 *Group 1* *160*

Labor Type	Code	Persons/Days/Hours	PPE/Laundry Group	Total Jumps
Program Manager	HBA			
Manager/Senior Staff	HBB	1/4/14	NA	NA
Technical Advisors—Safety Technical Advisor ---Char	HBTA	1/3/3 1/3/24	NA 0	NA 3
Project Manager/HP Manager	HBPM			
Task Leader	HBTL			
Battelle Technician (HP)	HBT	1/3/24	0	3
Battelle Technician O/T	HBTO			
RAL Staff	HBL			
Support Professional	HBP			
Secretary/Clerical	HBS			
Decon Ops Hourly	HBH			
BCO Support	HBCO			
BCO Skilled Laborer	HCE			
BCO Skilled Laborer O/T	HCEO			
BCO Facility Manager	HCF			
Bartlett Technician	HRD			
Bartlett Maint Specialist	HRDS			
Bartlett Health Physics Bartlett Health Physics (full)	HRH	3/2/48 1/3/24	0 0	12 6
Bartlett Admin Support	HRA			

Subcontract/Purchased Service: IVC Services for $35,000

Special Equipment/Material: None Identified

Comments/Explanations: Estimate to be verified w/IVC

Basis of Estimate

What is the estimator's experience?
15 years of health physics & radiological release program management

What experience is directly applicable to BCLDP?
10 years of BCLDP characterization 7 radiological release program experience; 2 years at West Jefferson

Was a complexity factor used?
No, work similar to KA

Completed by: J.F. POLIZIANI **Date:** 5/30/2001 **Rev. No.:** 2