

WBS No: 1AAC  
 Activity ID: 1AC0006200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

WBS No: 1AAC Title: Deactivation  
 Activity ID: 1AC0006200 Description: Set 6 B371 Fluorination - Deactivation  
 Cost Risk 3 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
Set 6 Prep	Prep Sets for Deactivation of B371	1.00	each	EE	415	415	16,482	7,375	0	23,857	7,862	31,719
3511 1-GLV	Glovebox Readiness	26.00	each	EE	1	34	774	1,416	0	2,191	369	2,560
3511 1-LSE	Remove Loose Equipment, trash, etc. from GB	1.00	day	EE	36	36	801	51	0	852	382	1,234
3511 1-SCOScan	GB SCO Scans	1,070.00	cf	EE	0	198	5,066	2,675	0	7,741	2,417	10,158
3511 4-FC	Change GB Filters	3.00	ea	EE	8	24	498	900	0	1,398	237	1,635
3511 7-EQRmvl	GB Equipment Removal	3.00	ea	EE	451	1,353	28,228	0	0	28,228	13,465	41,693
SET6 4-OrLQ	Drain Organic Liquids	10.00	ea	EE	28	277	5,765	10	0	5,775	2,750	8,526
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	5,263	5,263	0	5,263
Total for Activity 1AC0006200:						2,337	57,615	12,427	5,263	75,306	27,483	102,788

**Line Item Set 6 Prep - Prep Sets for Deactivation of B371**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the CA Manager's Office.

Experience Item Desc - Preliminary Walkdowns will be conducted in each area of every set to determine current configuration of equipment and room. This activity includes all necessary preliminary evaluations, walkdown of drawings, and preparing documentation required to perform work in each set. Documentation includes, but is not limited to, Criticality Safety Operating Limits, Radiation Work Permit, Integrated Work Control Package, and Engineering Package. This line item also contains the scope for performing Engineering Design Packages (EDP) for the removal of the internal components for a glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed.

Breakdown of Cost Data:  
 Item - Preliminary Evaluation, walkdown of drawings, and documentation preparation.  
 Units - per set  
 Unit Cost -  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	25.00	Hours
Factors	0.5 ea	50	hrs to assist with area walkdowns			
750	STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	300.00	Hours
Factors	0.5 ea	600	average hours for an intricate CSOL			
750	STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	25.00	Hours
Factors	0.5 ea	50	hrs of Nuclear Safety Support for BIO			
750	STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
Factors	0.5 ea	1 ea	40 hrs to assist with BIO page changes			
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	0.00	Hours
Factors	1075	hrs drawing walkdown, IWCP	0			
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
Factors	0.5 ea	40	hours to support this activity			
750	STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	0.00	Hours
Factors	50	hrs to assist with IWCP preparation	0			
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	25.00	Hours
Factors	0.5 ea	50	hours to support this activity			
A57	LATA	P070 COST ESTIMATORS PLANNERS AN	KA20S B371/374 Facility Management	Linear	4,500.00	Dollars
Factors	0.5 ea	1 ea	75 \$/hour	120	hrs to develop and complete an	
A57	LATA	P160 TECHNICAL WRITERS AND EDITOR	KA70S B371 Facility Disposition	Linear	1,875.00	Dollars
Factors	0.5 ea	50	hours procedure support for changes	1	ea	
A5C	SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	1,000.00	Dollars
Factors	0.5 ea	1 ea	2000 misc. lighting, cans, & bags			

**Line Item 3511 1-GLV - Glovebox Readiness**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

WBS No: 1AAC  
 Activity ID: 1AC0006200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. The gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Quantity	Skill	Department	Curve	Units
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.03 Hours
	Factors	1 ea	2 people to operate drum counter	0.0167 factor for 60gloves/drum		
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.68 Hours
	Factors	1 glove	2 Process Specialists	1 ea	0.34 hours per glove (20 min/glove)	
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.34 Hours
	Factors	1 ea	0.34 hrs/glove (20 minutes/glove)			
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.27 Hours
	Factors	1 ea	0.27 hrs per glove (20 min/glove)	1 glove	1 RCT	
	A5C SUPPLIES	0000	NONE	K218S Financial Services	Linear	53.79 Dollars
	Factors	1.015 -- FY00 Escalation --	1 ea	53 \$/glove based on 30 mm glove		
	A5C SUPPLIES	0000	NONE	K218S Financial Services	Linear	0.68 Dollars
	Factors	1.015 -- FY00 Escalation --	1 ea	0.0167 factor for 60 gloves/drum	40 \$/supplies (includes tape, bags,	

**Line Item 3511 1-LSE - Remove Loose Equipment, trash, etc. from GB**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - All loose equipment, trash, etc. will be removed from each glovebox in order to stripcoat the glovebox. Amount removed from each glovebox will vary. Cubic foot/glovebox is used to estimate average amount of equipment to be removed. Necessary supplies include, but are not limited to: Drums @ \$35/drum, 2" rolls of yellow tape @ \$2.50/roll, Bag-out bags @ \$14/bag for a 10X96 bag, 18X24 waste bag/bag cut @ .25/bag (for loose equipment removed).

Breakdown of Cost Data:  
 Item - Removal of loose equipment, trash, etc., place in drum and count drum  
 Units - per day to clean out glovebox  
 Unit Cost - 36 hrs/day \$50/day supply cost  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Quantity	Skill	Department	Curve	Units
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00 Hours
	Factors	4 hr/dav	2 fte to operate drum counter			
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	16.00 Hours
	Factors	8 hr/dav	2 fte/dav			
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.00 Hours
	Factors	8 hrs/dav	1 ea			
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	4.00 Hours
	Factors	4 hrs/dav	1 ea			
	A5C SUPPLIES	0000	NONE	K218S Financial Services	Linear	50.75 Dollars
	Factors	1.015 -- FY00 Escalation --	50 supply dollars per day(includes			

**Line Item 3511 1-SCOsCan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

WBS No: 1AAC  
 Activity ID: 1AC006200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Breakdown of Cost Data:

Item - Perform a radiological survey of a cleaned up and empty glove box

Unit -Per glove box

Unit Cost -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i> 1 Rad Ops Foreman	0.05 hrs/CF of GB				
750 STRAIGHT TIME BASE	P080 HEALTH PHYSICISTS	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i> 1 Rad Engineer	0.045 hrs/CF of GB				
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.09	Hours
<i>Factors</i> 2 RCTs	0.045 hrs/CF of GB				
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	2.50	Dollars
<i>Factors</i> 2.5	\$/CF to replace/calibrate heads				

**Line Item 3511 4-FC - Change GB Filters**

**BOE**

Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

Breakdown of cost item

Item - glove box filter change

Unit - per filter

Unit Cost -

Unit Cost Adjustment Factor -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i> 2 Process Specialists	2 hrs/filter	2 filters/GB			
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	300.00	Dollars
<i>Factors</i> 150	\$/filter (incls. Filter, drum, tape, bags 2 filters/GB				

**Line Item 3511 7-EQRmvl - GB Equipment Removal**

**BOE**

Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

Item - Perform glove box internal equipment removal

Unit - Equipment pieces per glove box

WBS No: 1AAC  
 Activity ID: 1AC0006200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.36	Hours
	Factors 35.42 hrs/piece of equipment	8 pieces of equipment /std GB				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	35.40	Hours
	Factors 8.85 hrs/piece of equipment	4 Cuts per piece of equipment				
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	0.20	Hours
	Factors 0.05 hrs/piece of equipment	4 Cuts per piece of equipment				
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
	Factors 0.21 hrs/piece of equipment	8 pieces of equipment /std GB				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
	Factors 0.21 hrs/piece of equipment	8 pieces of equipment /std GB	1 Rad Ops Foreman			
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.20	Hours
	Factors 0.05 hrs/piece of equipment	4 Cuts per piece of equipment	1 Rad Ops Foreman			
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	14.16	Hours
	Factors 3.54 hrs/piece of equipment	4 Cuts per piece of equipment				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.36	Hours
	Factors 14.17 hrs/piece of equipment	8 pieces of equipment /std GB				
	750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.88	Hours
	Factors 0.11 hrs/piece of equipment	8 pieces of equipment /std GB				
	750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.12	Hours
	Factors 0.03 hrs/piece of equipment	4 Cuts per piece of equipment				

**Line Item SET6 4-OrLQ - Drain Organic Liquids**

**BOE**  
 Estimator's Experience - Estimate based on similar tasks from glove box equipment disassembly work done during liquid draining operations.  
 Experience Item Description-Some pumps and equipment inside gloveboxes have lubricating oils and greases that have not been removed. Waste stream requirements dictate that these be segregated and handled separately from non-organic waste streams. This line item is to disassemble a piece of glove box equipment containing such organic, drain and/or remove the lubricant and clean up the piece of equipment as possible.  
 Breakdown of cost item  
 Item - remove lubricants from glove box equipment  
 Unit - per piece of equipment  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	19.00	Hours
	Factors 2 D&D Skilled Trades	9.5 hrs/piece of equipment				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.10	Hours
	Factors 1 Rad Ops Foreman	0.1 hrs/piece of equipment				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	7.60	Hours
	Factors 1 RCT	7.6 hrs/piece of equipment				
	750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	1.00	Hours
	Factors 1 Laboratory Tech	1 hrs/piece of equipment				
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	1.00	Dollars
	Factors 1 \$/equipment cost of storage bottle for					

**Line Item SYS - Contingency And Escalation**

**BOE**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1AC0006220

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \* Starts In FY \*

CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	3,212.55	Dollars
Factors 3212.55 Dollars								
ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	2,050.73	Dollars
Factors 2050.73 Dollars								

Activity ID: 1AC0006220 Description: Set 6 B371 Fluorination - Deactivation Rm 3515

Cost Risk 3 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
Set 6 Prep	Prep Sets for Deactivation of B371	1.00	each	EE	991	991	36,223	7,643	0	43,866	12,787	56,653
3515 1-GLV	Glovebox Readiness	37.00	each	EE	1	49	1,102	2,016	0	3,117	389	3,506
3515 1-LSE	Remove Loose Equipment, trash, etc. from GB	1.00	dav	EE	36	36	801	50	0	851	283	1,134
3515 1-SCOScan	GB SCO Scans	1,166.00	cf	EE	0	216	5,521	2,915	0	8,436	1,949	10,385
3515 4-FC	Change GB Filters	3.00	ea	EE	8	24	498	900	0	1,398	176	1,573
3515 4-SCANGB	Glovebox Scan for SNM	1,166.00	cf	EE	0	166	3,425	0	0	3,425	1,209	4,634
3515 7-EQRmvl	GB Equipment Removal	3.00	ea	EE	451	1,353	28,228	0	0	28,228	9,965	38,193
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	17,718	17,718	0	17,718
Total for Activity 1AC0006220:						2,835	75,798	13,523	17,718	107,039	26,757	133,796

Line Item Set 6 Prep - Prep Sets for Deactivation of B371

<b>BOE</b>	<p>Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the CA Manager's Office.</p> <p>Experience Item Desc - Preliminary Walkdowns will be conducted in each area of every set to determine current configuration of equipment and room. This activity includes all necessary preliminary evaluations, walkdown of drawings, and preparing documentation required to perform work in each set. Documentation includes, but is not limited to, Criticality Safety Operating Limits, Radiation Work Permit, Integrated Work Control Package, and Engineering Package. This line item also contains the scope for performing Engineering Design Packages (EDP) for the removal of the internal components for a glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed.</p> <p>Breakdown of Cost Data:          Item - Preliminary Evaluation, walkdown of drawings, and documentation preparation.          Units - per set          Unit Cost - Subcontractor Costs - Supplies          Unit Cost Adjustment factor - N/A</p>
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Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	25.35	Hours
Factors 0.5071 ea 1 ea 50 hrs to assist with area walkdowns						
750	STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSQC 371 Closure Project	Linear	304.26	Hours
Factors 0.5071 ea 600 average hours for an intricate CSOL						
750	STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSQC 371 Closure Project	Linear	25.35	Hours
Factors 0.5071 ea 50 hrs of Nuclear Safety Support for BIO						
750	STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	SA01S SSQC 371 Closure Project	Linear	20.28	Hours
Factors 0.5071 ea 1 ea 40 hrs to assist with BIO page changes						
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSQC 371 Closure Project	Linear	545.13	Hours
Factors 1075 hrs drawing walkdown, IWCP 0.5071 ea						
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSQC 371 Closure Project	Linear	20.28	Hours
Factors 0.5071 ea 40 hours to support this activity						
750	STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSQC 371 Closure Project	Linear	25.35	Hours
Factors 50 hrs to assist with IWCP preparation 0.5071 ea						
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	25.35	Hours
Factors 0.5071 ea 50 hours to support this activity						
A57	LATA	P070 COST ESTIMATORS, PLANNERS AN	KA20S B371/374 Facility Management	Linear	4,668.08	Dollars
Factors 0.5071 ea 1.02283 -- FY00 Escalation -- 75 \$/hour 120 hrs to develop and complete an						
A57	LATA	P160 TECHNICAL WRITERS AND EDITOR	SA01S SSQC 371 Closure Project	Linear	1,945.03	Dollars
Factors 0.5071 ea 50 hours procedure support for changes 1.02283 -- FY00 Escalation -- 75 \$/hr						
A5C	SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	1,029.41	Dollars
Factors 0.5071 ea 1.015 -- FY00 Escalation -- 2000 misc. lighting, cans, & bags						

WBS No: 1AAC  
 Activity ID: 1AC006220

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

**Line Item 3515 1-GLV - Glovebox Readiness**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	0.03	Hours
<i>Factors</i> 0.0167 factor for 60gloves/drum 2 people to operate drum counter 1 ea								
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	0.68	Hours
<i>Factors</i> 0.34 hours per glove (20 min/glove) 1 glove 2 Process Specialists								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.34	Hours
<i>Factors</i> 1 ea 0.34 hrs/glove (20 minutes/glove)								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.27	Hours
<i>Factors</i> 0.27 hrs per glove (20 min/glove) 1 RCT 1 glove								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	53.79	Dollars
<i>Factors</i> 1.015 -- FY00 Escalation -- 53 \$/glove based on 30 mm glove 1 ea								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	0.68	Dollars
<i>Factors</i> 1.015 -- FY00 Escalation -- 40 \$/supplies (includes tape, baqs. 0.0167 factor for 60 gloves/drum								

**Line Item 3515 1-LSE - Remove Loose Equipment, trash, etc. from GB**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - All loose equipment, trash, etc. will be removed from each glovebox in order to stripcoat the glovebox. Amount removed from each glovebox will vary. Cubic foot/glovebox is used to estimate average amount of equipment to be removed. Necessary supplies include, but are not limited to: Drums @ \$35/drum, 2" rolls of yellow tape @ \$2.50/roll, Bag-out bags @ \$14/bag for a 10X96 bag, 18X24 waste bag/bag cut @ .25/bag (for loose equipment removed).

Breakdown of Cost Data:  
 Item - Removal of loose equipment, trash, etc., place in drum and count drum  
 Units - per day to clean out glovebox  
 Unit Cost - 36 hrs/day \$50/day supply cost  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	16.00	Hours
<i>Factors</i> 8 hr/dav 2 fte/dav								
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i> 4 hr/dav 2 fte to operate drum counter								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
<i>Factors</i> 8 hrs/dav								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	4.00	Hours
<i>Factors</i> 4 hrs/dav								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	50.00	Dollars
<i>Factors</i> 1 ea 50 supply dollars per day(includes								

**Line Item 3515 1-SCOScan - GB SCO Scans**

**BOE** Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a

WBS No: 1AAC  
 Activity ID: 1AC0006220

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:

Item - Perform a radiological survey of a cleaned up and empty glove box

Unit -Per glove box

Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
	<i>Factors</i> 1 Rad Ops Foreman 0.05 hrs/CF of GB					
	750 STRAIGHT TIME BASE	P080 HEALTH PHYSICISTS	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
	<i>Factors</i> 1 Rad Engineer 0.045 hrs/CF of GB					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.09	Hours
	<i>Factors</i> 2 RCTs 0.045 hrs/CF of GB					
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	2.50	Dollars
	<i>Factors</i> 2.5 \$/CF to replace/calibrate heads					

**Line Item 3515 4-FC - Change GB Filters**

**BOE**  
 Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

Breakdown of cost item

Item - glove box filter change

Unit - per filter

Unit Cost -

Unit Cost Adjustment Factor -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
	<i>Factors</i> 2 Process Specialists 2 hrs/filter 2 filters/GB					
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	300.00	Dollars
	<i>Factors</i> 150 \$/filter (incls. Filter, drum, tape, bags 2 filters/GB					

**Line Item 3515 4-SCANGB - Glovebox Scan for SNM**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.

Breakdown of Cost Data:

Item - Scan glovebox for SNM removal

Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.

Unit Cost - .16 hrs/cubic foot

Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.07	Hours
	<i>Factors</i> 0.04 hours/cf of glovebox 2 scans, one prior to removal, second 0.891 January 2000 Earned Value Factor					

WBS No: 1AAC  
 Activity ID: 1AC006220

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \* Starts In FY \*

750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KA70H	371 Facility Disposition Steelworkers	Linear	0.07	Hours
<i>Factors</i>	1 technician	0.04	hours per cubic foot of glovebox	2	Scans, one prior to removal, second	0.891	January 2000	Earned Value Factor

**Line Item 3515 7-EQRmvl - GB Equipment Removal**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:  
 Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.36	Hours
<i>Factors</i>	35.42 hrs/piece of equipment	8	pieces of equipment /std GB				
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	35.40	Hours
<i>Factors</i>	8.85 hrs/piece of equipment	4	Cuts per piece of equipment				
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i>	0.21 hrs/piece of equipment	8	pieces of equipment /std GB				
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	0.20	Hours
<i>Factors</i>	0.05 hrs/piece of equipment	4	Cuts per piece of equipment				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i>	0.21 hrs/piece of equipment	8	pieces of equipment /std GB	1 Rad Ops Foreman			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.20	Hours
<i>Factors</i>	0.05 hrs/piece of equipment	4	Cuts per piece of equipment	1 Rad Ops Foreman			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.36	Hours
<i>Factors</i>	14.17 hrs/piece of equipment	8	pieces of equipment /std GB				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	14.16	Hours
<i>Factors</i>	3.54 hrs/piece of equipment	4	Cuts per piece of equipment				
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.88	Hours
<i>Factors</i>	0.11 hrs/piece of equipment	8	pieces of equipment /std GB				
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.12	Hours
<i>Factors</i>	0.03 hrs/piece of equipment	4	Cuts per piece of equipment				

**Line Item SYS - Contingency And Escalation**

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
CON	CONTINGENCY	0000	NONE	ZDEPT No Department	Linear	12,293.52	Dollars
<i>Factors</i>	12293.5 Dollars						
ESC	ESCALATION	0000	NONE	ZDEPT No Department	Linear	5,424.48	Dollars
<i>Factors</i>	5424.48 Dollars						

Activity ID: 1AC0603200 Description: Set 3 B371 Mission Specific-Rm 3305 Deactivation

Cost Risk 3 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
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WBS No: 1AAC  
 Activity ID: 1AC0603200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

3305 1-SCOScan	GB SCO Scans	4.843.00	cf	EE	0	896	22.931	12.108	0	35.038	10.938	45.976	
3305 4-FC	Change GB Filters	8.00	ea	EE	8	64	1.327	2.400	0	3.727	633	4.360	
3305 4-OrLQ	Drain Organic Liquids	22.00	ea	EE	28	609	12.684	22	0	12.706	6.050	18.756	
3305 7-EQRmvl	GB Equipment Removal	6.00	ea	EE	802	4.810	100.326	0	0	100.326	47.855	148.181	
3305 7-EQRmvl1	GB Equipment Removal GB 38	1.00	ea	EE	1.603	1.603	33.442	0	0	33.442	15.952	49.394	
3305 7-EQRmvl2	GB Equipment Removal GB 36	1.00	ea	EE	4.031	4.031	84.078	0	0	84.078	40.105	124.183	
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	21.094	21.094	0	21.094	
Total for Activity 1AC0603200:							12.013	254.786	14.530	21.094	290.409	121.533	411.942

**Line Item 3305 1-SCOScan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box  
 Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
Factors	1	Rad Ops Foreman	0.05 hrs/CF of GB			
750	STRAIGHT TIME BASE	P080 HEALTH PHYSICISTS	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
Factors	1	Rad Engineer	0.045 hrs/CF of GB			
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.09	Hours
Factors	2	RCTs	0.045 hrs/CF of GB			
A5C	SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	2.50	Dollars
Factors	2.5	\$/CF to replace/calibrate heads				

**Line Item 3305 4-FC - Change GB Filters**

**BOE**  
 Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

Breakdown of cost item  
 Item - glove box filter change  
 Unit - per filter  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
Factors	2	Process Specialists	2 hrs/filter	2 filters/GB		
A5C	SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	300.00	Dollars
Factors	150	\$/filter (incls. Filter, drum, tape, baas 2 filters/GB				

WBS No: 1AAC  
 Activity ID: 1AC0603200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

**Line Item 3305 4-OrLQ - Drain Organic Liquids**

**BOE**  
 Estimator's Experience - Estimate based on similar tasks from glove box equipment disassembly work done during liquid draining operations.  
 Experience Item Description-Some pumps and equipment inside gloveboxes have lubricating oils and greases that have not been removed. Waste stream requirements dictate that these be segregated and handled separately from non-organic waste streams. This line item is to disassemble a piece of glove box equipment containing such organic, drain and/or remove the lubricant and clean up the piece of equipment as possible.  
 Breakdown of cost item  
 Item - remove lubricants from glove box equipment  
 Unit - per piece of equipment  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	19.00	Hours
<i>Factors</i>		2	D&D Skilled Trades	9.5	hrs/piece of equipment		
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.10	Hours
<i>Factors</i>		1	Rad Ops Foreman	0.1	hrs/piece of equipment		
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	7.60	Hours
<i>Factors</i>		1	RCT	7.6	hrs/piece of equipment		
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	1.00	Hours
<i>Factors</i>		1	Laboratory Tech	1	hrs/piece of equipment		
A5C	SUPPLIES	0000	NONE	KA70S B371 Facility Disposition	Linear	1.00	Dollars
<i>Factors</i>		1	\$/equipment cost of storage bottle for				

**Line Item 3305 7-EQRmvl - GB Equipment Removal**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.  
 Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.  
 Breakdown of Cost Data:  
 Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.20	Hours
<i>Factors</i>		8.85	hrs/piece of equipment	4	Cuts per piece of equipment	8	ea equip
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.36	Hours
<i>Factors</i>		35.42	hrs/piece of equipment	8	pieces of equipment /std GB		
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i>		0.21	hrs/piece of equipment	8	pieces of equipment /std GB		
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.60	Hours
<i>Factors</i>		0.05	hrs/piece of equipment	4	Cuts per piece of equipment	8	ea equip

WBS No: 1AAC  
 Activity ID: 1AC0603200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i>	0.21 hrs/piece of equipment		8 pieces of equipment /std GB		1 Rad Ops Foreman			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	1.60	Hours
<i>Factors</i>	0.05 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea equip			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	113.28	Hours
<i>Factors</i>	3.54 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea equip			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	113.36	Hours
<i>Factors</i>	14.17 hrs/piece of equipment		8 pieces of equipment /std GB					
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	0.88	Hours
<i>Factors</i>	0.11 hrs/piece of equipment		8 pieces of equipment /std GB					
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	0.96	Hours
<i>Factors</i>	0.03 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea equip			

**Line Item 3305 7-EQRmvl1 - GB Equipment Removal GB 38**

BOE

Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to remove all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

Item - Perform glove box internal equipment removal

Unit - Equipment pieces per glove box

Unit Cost -

Resources

<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>		<i>Curve</i>	<i>Quantity</i>	<i>Units</i>
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	566.72	Hours
<i>Factors</i>	35.42 hrs/piece of equipment		8 pieces of equipment /std GB		2 times difficulty factor			
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	566.40	Hours
<i>Factors</i>	8.85 hrs/piece of equipment		4 Cuts per piece of equipment		2 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	3.36	Hours
<i>Factors</i>	0.21 hrs/piece of equipment		8 pieces of equipment /std GB		2 times difficulty factor			
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	3.20	Hours
<i>Factors</i>	0.05 hrs/piece of equipment		4 Cuts per piece of equipment		2 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	3.36	Hours
<i>Factors</i>	0.21 hrs/piece of equipment		8 pieces of equipment /std GB		2 times difficulty factor			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	3.20	Hours
<i>Factors</i>	0.05 hrs/piece of equipment		4 Cuts per piece of equipment		2 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	226.72	Hours
<i>Factors</i>	14.17 hrs/piece of equipment		8 pieces of equipment /std GB		2 times difficulty factor			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	226.56	Hours
<i>Factors</i>	3.54 hrs/piece of equipment		4 Cuts per piece of equipment		2 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	1.76	Hours
<i>Factors</i>	0.11 hrs/piece of equipment		8 pieces of equipment /std GB		2 times difficulty factor			
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	1.92	Hours
<i>Factors</i>	0.03 hrs/piece of equipment		4 Cuts per piece of equipment		2 times difficulty factor	8 ea		

WBS No: 1AAC  
 Activity ID: 1AC0603200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

**Line Item 3305 7-EQRmv12 - GB Equipment Removal GB 36**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:  
 Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1,416.00	Hours
Factors		8.85 hrs/piece of equipment	4 Cuts per piece of equipment	5 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1,416.80	Hours
Factors		35.42 hrs/piece of equipment	8 pieces of equipment /std GB	5 times difficulty factor			
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	8.40	Hours
Factors		0.21 hrs/piece of equipment	8 pieces of equipment /std GB	5 times difficulty factor			
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
Factors		0.05 hrs/piece of equipment	4 Cuts per piece of equipment	5 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.40	Hours
Factors		0.21 hrs/piece of equipment	8 pieces of equipment /std GB	5 times difficulty factor			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
Factors		0.05 hrs/piece of equipment	4 Cuts per piece of equipment	5 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H 371 Complex Steelworkers	Linear	589.60	Hours
Factors		14.74 hrs/piece of equipment	8 pieces of equipment /std GB	5 times difficulty factor			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H 371 Complex Steelworkers	Linear	566.40	Hours
Factors		3.54 hrs/piece of equipment	4 Cuts per piece of equipment	5 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	4.80	Hours
Factors		0.03 hrs/piece of equipment	4 Cuts per piece of equipment	5 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	4.40	Hours
Factors		0.11 hrs/piece of equipment	8 pieces of equipment /std GB	5 times difficulty factor			

**Line Item SYS - Contingency And Escalation**

**BOE**

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
CON	CONTINGENCY	0000	NONE	ZDEPT No Department	Linear	12,874.89	Dollars
Factors		12874.9 Dollars					
ESC	ESCALATION	0000	NONE	ZDEPT No Department	Linear	8,218.68	Dollars
Factors		8218.68 Dollars					

Activity ID: 1AC0603300 Description: Set 3 B371 Mission Specific-Rm 3206 Deactivation

Cost Risk 3 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
3206 1-GLV	Glovebox Readiness	205.00	each	EE	1	271	6,105	11,002	0	17,107	2,135	19,242
3206 1-Lathe	Lathe in Rm 3206	1.00	each	EE	505	505	11,812	350	0	12,162	4,132	16,294

WBS No: 1AAC  
 Activity ID: 1AC0603300

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Code	Description	Quantity	Unit	Estimate									
3206 1-LSE	Remove Loose Equipment, trash, etc. from GB	5.00	dav	EE	36	180	4,007	250	0	4,257	1,402	5,659	
3206 1-SCOsCan	GB SCO Scans	3,486.00	cf	EE	0	645	16,506	8,715	0	25,221	5,773	30,994	
3206 4-FC	Change GB Filters	16.00	ea	EE	8	128	2,653	4,800	0	7,453	928	8,382	
3206 4-OrlQ	Drain Organic Liquids	8.00	ea	EE	28	222	4,612	8	0	4,620	1,613	6,234	
3206 4-SCANGB	Glovebox Scan for SNM	3,486.00	cf	EE	0	558	11,493	0	0	11,493	4,020	15,512	
3206 5-FRN	Calcinina Furnaces in Gloveboxes	6.00	each	EE	12	72	1,645	0	0	1,645	575	2,221	
3206 7-EQRmvl	GB Equipment Removal	14.00	ea	EE	802	11,222	234,093	0	0	234,093	81,880	315,973	
3206 7-EQRmvl1	GB Equipment Removal GB 41	1.00	ea	EE	4,008	4,008	83,605	0	0	83,605	29,243	112,847	
3206 7-EQRmvl2	GB Equipment Removal GB 45	1.00	ea	EE	1,603	1,603	33,442	0	0	33,442	11,697	45,139	
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	114,991	114,991	0	114,991	
Total for Activity 1AC0603300:							19,414	409,972	25,125	114,991	550,089	143,398	693,487

**Line Item 3206 1-GLV - Glovebox Readiness**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.  
 Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.03	Hours
<i>Factors</i> 2 people to operate drum counter 0.0167 factor for 60gloves/drum						
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.68	Hours
<i>Factors</i> 1 glove 0.34 hrs per glove (20 min/glove) 2 Process Specialists						
750	STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.34	Hours
<i>Factors</i> 0.34 hrs/glove (20 minutes/glove)						
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.27	Hours
<i>Factors</i> 0.27 hrs per glove (20 min/glove) 1 glove 1 RCT						
A5C	SUPPLIES	0000 NONE	K218S Financial Services	Linear	53.00	Dollars
<i>Factors</i> 53 \$/glove based on 30 mm glove						
A5C	SUPPLIES	0000 NONE	K218S Financial Services	Linear	0.67	Dollars
<i>Factors</i> 0.0167 factor for 60 gloves/drum 40 \$/supplies (includes tape, bags).						

**Line Item 3206 1-Lathe - Lathe in Rm 3206**

**BOE**  
 Estimators Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the CA Manager's Office.  
 Experience Item Desc - Dismantle lathe and remove SNM hold-up. The SNM holdup is not attached to the lathe. The lathe will be dismantled as necessary to reach the location and remove the SNM hold-up. The material will be placed in an approved container and properly stored for further stabilization by PUSPS operations. This estimate does not include processing of SNM hold-up through PUSPS. Complete dismantlement and removal of the lathe equipment is not included in this estimate. Dismantlement and removal is included in Decommissioning. Calorimetry cost is not included here, it is in WAD 41.  
 Breakdown of Cost Data:  
 Item - Dismantle as necessary and remove SNM hold-up.  
 Units - cost per lathe  
 Unit Cost - 505 hrs/lathe Supply Cost - \$350  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	160.00	Hours
<i>Factors</i> 2 pipefitters 8 hrs/dav 10 days						
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	160.00	Hours
<i>Factors</i> 8 hours/day 10 days 2 process specialists						

WBS No: 1AAC  
 Activity ID: 1AC0603300

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	80.00	Hours
<i>Factors</i>		10	days	8	hrs			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	80.00	Hours
<i>Factors</i>		8	hrs/day	10	days			
750	STRAIGHT TIME BASE	P140	SAFEGUARDS AND OTHER SECURI	SA01S	SSOC 371 Closure Project	Linear	15.00	Hours
<i>Factors</i>		15	hrs support of SNM removal					
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	10.00	Hours
<i>Factors</i>		1	hr/day	10	days			
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	350.00	Dollars
<i>Factors</i>		2	cans for SNM removal	175	cost/can for 8801 & 8802 cans. baas.			

**Line Item 3206 1-LSE - Remove Loose Equipment, trash, etc. from GB**

**BOE**

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the CA Manager's Office.

Experience Item Desc - All loose equipment, trash, etc. will be removed from each glovebox in order to stripcoat the glovebox. Amount removed from each glovebox will vary. Cubic foot/glovebox is used to estimate average amount of equipment to be removed. Necessary supplies include, but are not limited to: Drums @ \$35/drum, 2" rolls of yellow tape @ \$2.50/roll, Bag-out bags @ \$14/bag for a 10X96 bag, 18X24 waste bag/bag cut @ .25/bag (for loose equipment removed).

Breakdown of Cost Data:  
 Item - Removal of loose equipment, trash, etc., place in drum and count drum  
 Units - per day to clean out glovebox  
 Unit Cost - 36 hrs/cubic foot      \$50/day supply cost  
 Unit Cost Adjustment factor - N/A

**Resources**

<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>		<i>Curve</i>	<i>Quantity</i>	<i>Units</i>
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i>		4	hr/day	2	fte to operate drum counter			
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	16.00	Hours
<i>Factors</i>		2	fte/day	8	hr/day			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
<i>Factors</i>		8	hrs/day					
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	4.00	Hours
<i>Factors</i>		4	hrs/day					
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	50.00	Dollars
<i>Factors</i>		50	supply dollars per day(includes					

**Line Item 3206 1-SCOsCan - GB SCO Scans**

**BOE**

Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box  
 Unit Cost -

**Resources**

<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>		<i>Curve</i>	<i>Quantity</i>	<i>Units</i>
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i>		1	Rad Ops Foreman	0.05	hrs/CF of GB			

WBS No: 1AAC  
 Activity ID: 1AC0603300

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	P080	HEALTH PHYSICISTS	SA01S	SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i>		1	Rad Engineer	0.045	hrs/CF of GB			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.09	Hours
<i>Factors</i>		2	RCTs	0.045	hrs/CF of GB			
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	2.50	Dollars
<i>Factors</i>		2.5	\$/CF to replace/calibrate heads					

**Line Item 3206 4-FC - Change GB Filters**

**BOE** Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

Breakdown of cost item

Item - glove box filter change

Unit - per filter

Unit Cost -

Unit Cost Adjustment Factor -

**Resources**

<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>		<i>Curve</i>	<i>Quantity</i>	<i>Units</i>
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i>		2	Process Specialists	2	hrs/filter			
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	300.00	Dollars
<i>Factors</i>		150	\$/filter (incls. Filter, drum, tape, bags 2 filters/GB)					

**Line Item 3206 4-OrLQ - Drain Organic Liquids**

**BOE** Estimator's Experience - Estimate based on similar tasks from glove box equipment disassembly work done during liquid draining operations.

Experience Item Description-Some pumps and equipment inside gloveboxes have lubricating oils and greases that have not been removed. Waste stream requirements dictate that these be segregated and handled separately from non-organic waste streams. This line item is to disassemble a piece of glove box equipment containing such organic, drain and/or remove the lubricant and clean up the piece of equipment as possible.

Breakdown of cost item

Item - remove lubricants from glove box equipment

Unit - per piece of equipment

Unit Cost -

Unit Cost Adjustment Factor -

**Resources**

<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>		<i>Curve</i>	<i>Quantity</i>	<i>Units</i>
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	19.00	Hours
<i>Factors</i>		2	D&D Skilled Trades	9.5	hrs/piece of equipment			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.10	Hours
<i>Factors</i>		1	Rad Ops Foreman	0.1	hrs/piece of equipment			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	7.60	Hours
<i>Factors</i>		1	RCT	7.6	hrs/piece of equipment			
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	1.00	Hours
<i>Factors</i>		1	Laboratory Tech	1	hrs/piece of equipment			
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	1.00	Dollars
<i>Factors</i>		1	\$/equipment cost of storage bottle for					

**Line Item 3206 4-SCANGB - Glovebox Scan for SNM**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

WBS No: 1AAC  
 Activity ID: 1AC0603300

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.

Breakdown of Cost Data:

Item - Scan glovebox for SNM removal  
 Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.  
 Unit Cost - .16 hrs/cubic foot  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.08	Hours
<i>Factors</i> 2 scans, one prior to removal, second 0.04 hours/cf of glovebox						
	750 STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KA70H 371 Facility Disposition Steelworkers	Linear	0.08	Hours
<i>Factors</i> 2 Scans, one prior to removal, second 1 technician 0.04 hours per cubic foot of glovebox						

**Line Item 3206 5-FRN - Calcining Furnaces in Gloveboxes**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Dismantle as necessary calcining or muffle furnace in glovebox and remove the SNM hold-up. The material will be placed in an approved container and properly stored. This estimate does not include processing of SNM hold-up through PuSPS. Calorimetry cost is not included here. Dismantlement to remove SNM hold-up assumes that all liquid was previously drained out of the cooling coils during a separate activity; therefore, cost to drain cooling coils is not captured in this activity. Complete dismantlement and removal of equipment is not included in this estimate. Dismantlement and removal is included in Decommissioning.

Breakdown of Cost Data:  
 Item - Dismantle as necessary and remove SNM hold-up.  
 Units - per furnace  
 Unit Cost - 12 hours/furnace in Glovebox  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	2.00	Hours
<i>Factors</i> 2 hrs/furnace						
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	4.00	Hours
<i>Factors</i> 2 process specialists 2 hours per calcining furnace						
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSQC 371 Closure Project	Linear	1.00	Hours
<i>Factors</i> 1 Process Specialist Supervisor 1 hour per dav						
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSQC 371 Closure Project	Linear	1.00	Hours
<i>Factors</i> 1 RCT supervisor 1 hour per calcining furnace						
	750 STRAIGHT TIME BASE	P140 SAFEGUARDS AND OTHER SECURI	SA01S SSQC 371 Closure Project	Linear	2.00	Hours
<i>Factors</i> 2 hrs support of SNM removal						
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	2.00	Hours
<i>Factors</i> 1 RCT 2 hrs per furnace						

**Line Item 3206 7-EQRmvl - GB Equipment Removal**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

WBS No: 1AAC  
 Activity ID: 1AC0603300

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.36	Hours
Factors 35.42 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.20	Hours
Factors 8.85 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
Factors 0.21 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.60	Hours
Factors 0.05 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
Factors 0.21 hrs/piece of equipment	8 pieces of equipment /std GB	1 Rad Ops Foreman			
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.60	Hours
Factors 0.05 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.36	Hours
Factors 14.17 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.28	Hours
Factors 3.54 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.88	Hours
Factors 0.11 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.96	Hours
Factors 0.03 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			

**Line Item 3206 7-EQRmvl1 - GB Equipment Removal GB 41**

**BOE**

Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1,416.80	Hours
Factors 35.42 hrs/piece of equipment	8 pieces of equipment /std GB	5 times difficulty factor			
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1,416.00	Hours
Factors 8.85 hrs/piece of equipment	4 Cuts per piece of equipment	5 times difficulty factor	8 ea		
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	8.40	Hours
Factors 0.21 hrs/piece of equipment	8 pieces of equipment /std GB	5 times difficulty factor			

WBS No: 1AAC  
 Activity ID: 1AC0603300

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
<i>Factors</i>	0.05 hrs/piece of equipment		4 Cuts per piece of equipment		5 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.40	Hours
<i>Factors</i>	0.21 hrs/piece of equipment		8 pieces of equipment /std GB		5 times difficulty factor			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
<i>Factors</i>	0.05 hrs/piece of equipment		4 Cuts per piece of equipment		5 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	566.80	Hours
<i>Factors</i>	14.17 hrs/piece of equipment		8 pieces of equipment /std GB		5 times difficulty factor			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	566.40	Hours
<i>Factors</i>	3.54 hrs/piece of equipment		4 Cuts per piece of equipment		5 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	4.40	Hours
<i>Factors</i>	0.11 hrs/piece of equipment		8 pieces of equipment /std GB		5 times difficulty factor			
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	4.80	Hours
<i>Factors</i>	0.03 hrs/piece of equipment		4 Cuts per piece of equipment		5 times difficulty factor	8 ea		

**Line Item 3206 7-EQRmvl2 - GB Equipment Removal GB 45**

**BOE**

Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

Item - Perform glove box internal equipment removal

Unit - Equipment pieces per glove box

Unit Cost -

**Resources**

	<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>	<i>Curve</i>	<i>Quantity</i>	<i>Units</i>
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	566.72	Hours
<i>Factors</i>	35.42 hrs/piece of equipment		8 pieces of equipment /std GB		2 times difficulty factor			
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	566.40	Hours
<i>Factors</i>	8.85 hrs/piece of equipment		4 Cuts per piece of equipment		2 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	3.36	Hours
<i>Factors</i>	0.21 hrs/piece of equipment		8 pieces of equipment /std GB		2 times difficulty factor			
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	3.20	Hours
<i>Factors</i>	0.05 hrs/piece of equipment		4 Cuts per piece of equipment		2 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	3.36	Hours
<i>Factors</i>	0.21 hrs/piece of equipment		8 pieces of equipment /std GB		2 times difficulty factor			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	3.20	Hours
<i>Factors</i>	0.05 hrs/piece of equipment		4 Cuts per piece of equipment		2 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	226.72	Hours
<i>Factors</i>	14.17 hrs/piece of equipment		8 pieces of equipment /std GB		2 times difficulty factor			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	226.56	Hours
<i>Factors</i>	3.54 hrs/piece of equipment		4 Cuts per piece of equipment		2 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	1.76	Hours
<i>Factors</i>	0.11 hrs/piece of equipment		8 pieces of equipment /std GB		2 times difficulty factor			

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 Activity ID: 1AC0603300

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	1.92	Hours
<i>Factors</i>	0.03 hrs/piece of equipment	4	Cuts per piece of equipment	2	times difficulty factor	8	ea	

**Line Item SYS - Contingency And Escalation**

**BOE**

**Resources**

Cost Element		Skill		Department		Curve	Quantity	Units
CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	79.997.29	Dollars
<i>Factors</i>	79997.3 Dollars							
ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	34.994.04	Dollars
<i>Factors</i>	34994.0 Dollars							

Activity ID: 1AC0702100 Description: Set 2 GB Tech Deployment IWCP Dev/Prep

Cost Risk 3 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
2-IWCP GB Decon	Standard IWCP for Cerium Decon GB	1.00	each	EE	160	160	5.474	8.856	0	14.330	2.671	17.001
3-EO's Decon	Test Plan & IWCP to Test Cerium	1.00	each	EE	40	40	1.368	0	0	1.368	668	2.036
Coupon Testing	Offsite Coupon Testing	1.00	each	EE	0	0	0	10.000	0	10.000	0	10.000
Crit Limits	Develop Critical Limits	1.00	each	EE	400	400	13.684	0	0	13.684	6.678	20.362
GB36 1-GLV	Glovebox Readiness	205.00	each	EE	1	271	6.105	11.002	0	17.107	2.979	20.086
IWCP Bulkhead	IWCP to Set up Bulkhead	1.00	each	EE	240	240	8.210	500	0	8.710	4.007	12.717
P&E for Deploy	Planning & Engineering for Deployment	1.00	each	EE	188	188	5.909	3.100	0	9.009	2.884	11.892
Prep GB	Prep Glovebox for Decon (GB36)	1.00	each	EE	383	383	8.282	8.050	0	16.333	4.042	20.374
USQD	Nuclear Safety Evals (USQD)	1.00	each	EE	80	80	2.737	0	0	2.737	1.336	4.072
Total for Activity 1AC0702100:						1.761	51.769	41.508	0	93.277	25.263	118.540

**Line Item 2-IWCP GB Decon - Standard IWCP for Cerium Decon GB**

**BOE**

Estimator's Experience - Estimate based on standard duration for the preparation of a standard work package for the IWCP process, based upon actual historical data from work performed.

Experience Item Description

This line item contains the work scope for completing SWP, Nuclear Screen and RWP/ALARA review.

Breakdown of cost item

Item - use of a planner to develop the work package, with screens and input from nuclear safety and radiological controls

Unit - per SWP

Unit Cost -

Unit Cost Adjustment Factor -

**Resources**

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	80.00	Hours
<i>Factors</i>	1 Rad. Engineer /Complete	2	weeks	40	hrs/wk			
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	80.00	Hours
<i>Factors</i>	1 Rad. Control /Complete	2	weeks	40	hrs/wk			
A57	LATA	E130	OTHER ENGINEERS	KA10S	B371 ESH&Q	Linear	80.00	Dollars
<i>Factors</i>	1 Nuclear Safety (Complete	Nuclear	2	weeks	40	hrs/wk		
A57	LATA	P070	COST ESTIMATORS PLANNERS AN	KA20S	B371/374 Facility Management	Linear	8.776.00	Dollars
<i>Factors</i>	160 Hours (Maint. Planner) Devl. IWCP	54.85	\$/hr					

**Line Item 3-EO's Decon - Test Plan & IWCP to Test Cerium**

**BOE**

Estimator's Experience - Estimate based on previous experience to develop a test plan for other RFETS tasks in the Liquid Stabilization activities. Test plan development for such activities as Raschig Ring fogging and CWTS operations were used as the basis for the estimate.

Experience Item Description

Preparation of a test plan to apply CeN decon solution to varying sections of glove boxes, coupons, or equipment (using different parameters) and the removal

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**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
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Starts In FY \*

of the CeN from the surfaces is the scope of the work in this line item.

Breakdown of cost item

Item - prepare a test plan

Unit - per plan

Unit Cost -

Unit Cost Adjustment Factor -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
Factors		1	Week (Project Engineer) Devl. EO	40	hrs/week		

**Line Item Coupon Testing - Offsite Coupon Testing**

**BOE** Estimator's Experience - Estimate based on experience of performing off site testing during the Liquid Stabilization Program and the fogging and coating experimentation done in the past year.

Experience Item Description

This line item will provide the funding for Encapsulation Technologies, llc to test a series of coupons in order to provide data from which decisions of ventilation control during size reduction activities can be made. The great majority of glove boxes and tanks in B371 will have to be size reduced in place. All are contaminated to the point that, without a decon and subsequent encapsulation process, work would have to be done in supplied breathing air garments. Encapsulation of the surfaces to be cut with plasma torch, coupled with a localized ventilation capture system will eliminate the need to work in supplied breathing air. A series of tests on coupons that are fogged and then coated with different encapsulation coatings will provide a definitive measurement of loss of contained surface during cutting activities. From that measurement, a model can be developed that will approximate release factor of contamination and the necessary ventilation requirements to capture that release at the source of the cut.

Breakdown of cost item

Item - Test Coupons

Unit - per contract

Unit Cost -

Unit Cost Adjustment Factor -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S B371 Facility Disposition	Linear	10.000.00	Dollars
Factors		10000	dollars				

**Line Item Crit Limits - Develop Critical Limits**

**BOE** Estimator's Experience - Estimate based on actual costs to develop a criticality limit for RFETS use.

Experience Item Description

Preparation of a criticality limit to apply CeN decon solution to varying sections of glove boxes, coupons, or equipment (using different parameters) and the removal of the CeN from the surfaces; is the scope of the work in this line item.

Breakdown of cost item

Item - prepare a criticality limit

Unit - per criticality limit

Unit Cost -

Unit Cost Adjustment Factor -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	400.00	Hours
Factors		400	hours				

WBS No: 1AAC  
 Activity ID: 1AC0702100

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
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Starts In FY \*

**Line Item GB36 1-GLV - Glovebox Readiness**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Quantity	Skill	Department	Curve	Units
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.03 Hours
	<i>Factors</i> 2 people to operate drum counter 0.0167 factor for 60gloves/drum					
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.68 Hours
	<i>Factors</i> 1 glove 0.34 hours per glove (20 min/glove) 2 Process Specialists					
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.34 Hours
	<i>Factors</i> 0.34 hrs/glove (20 minutes/glove)					
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.27 Hours
	<i>Factors</i> 0.27 hrs per glove (20 min/glove) 1 glove 1 RCT					
	A5C SUPPLIES	0000	NONE	K218S Financial Services	Linear	53.00 Dollars
	<i>Factors</i> 53 \$/glove based on 30 mm glove					
	A5C SUPPLIES	0000	NONE	K218S Financial Services	Linear	0.67 Dollars
	<i>Factors</i> 0.0167 factor for 60 gloves/drum 40 \$/supplies (includes tape, bags.					

**Line Item IWCP Bulkhead - IWCP to Set up Bulkhead**

**BOE** Estimator's Experience - Estimate based on experience of Randy Blair and Mike Bogard (who have a combined 20+ years of engineering and executing similar planning documents). Similar tasks for Engineering Design Packages have been prepared for IWCP work and are reflected here.

Experience Item Description

This line item will develop moveable bulkheads to be installed inside gloveboxes. These bulkheads will provide barriers during CeN testing to isolate one test from another and from the rest of the glovebox.

Breakdown of cost item

Item - Develop IWCP for bulkhead installation

Unit - per IWCP

Unit Cost -

Unit Cost Adjustment Factor -

Resources	Cost Element	Quantity	Skill	Department	Curve	Units
	750 STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	240.00 Hours
	<i>Factors</i> 240 hours					
	A5C SUPPLIES	0000	NONE	KA70S B371 Facility Disposition	Linear	500.00 Dollars
	<i>Factors</i> 500 dollars					

**Line Item P&E for Deploy - Planning & Engineering for Deployment**

**BOE** Estimator's Experience - Estimate based on general IWCP walk down guidelines and the historical time from the liquid stabilization program to prepare an engineering design package.

Experience Item Description

This line item scope is to determine the configuration, hazards, controls and equipment layout for CeN technology deployment testing in gloveboxes. The information from this line item will feed the engineering design process and the IWCP process.

Breakdown of cost item

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 Activity ID: 1AC0702100

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
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Starts In FY \*

Item - Perform P&E for CeN Technology Deployment in GBs  
 Unit - P&E Deployment  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	18.00	Hours
<i>Factors</i>		18	hours				
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	150.00	Hours
<i>Factors</i>		150	hours				
750	STRAIGHT TIME BASE	R070	WASTE TREATMENT OPERATOR A	KA70H 371 Facility Disposition Steelworkers	Max Backload	15.00	Hours
<i>Factors</i>		15	hours				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	4.50	Hours
<i>Factors</i>		4.5	hours				
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S B371 Facility Disposition	Linear	3.100.00	Dollars
<i>Factors</i>		50	hours for ET Support	62	dollars/hr		

**Line Item Prep GB - Prep Glovebox for Decon (GB36)**

**BOE** Estimator's Experience - Estimate based on historical glove box preparation costs and the engineering estimate for additional work scope for this task.  
 Experience Item Description  
 This line item contains scope to perform standard glovebox readiness items; such as glove changes, ventilation checks, magnahelic checks, etc. In addition, this task includes verifying criticality drains, removal of windows to insert equipment (if necessary), visual and radiological surveys of the surface areas.  
 Breakdown of cost item  
 Item - Prep GB 36 for CeN Technology Deployment  
 Unit - Prep Glovebox  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	8.00	Hours
<i>Factors</i>		0.5	hours per drain	8	drains	2	Process Specialists
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	102.00	Hours
<i>Factors</i>		1	glove	0.34	hours/glove (20 min/glove)	2	Process Specialists
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	80.00	Hours
<i>Factors</i>		80	hours - remove windows				
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	27.00	Hours
<i>Factors</i>		27	hours - remove equip				
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	1.00	Hours
<i>Factors</i>		1	hour - visual indicators				
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	4.00	Hours
<i>Factors</i>		4	hours - surveys				
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	5.01	Hours
<i>Factors</i>		2	people to operate drum counter	0.0167	factor for 60 gloves/drum	150	gloves
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	51.00	Hours
<i>Factors</i>		0.34	hours/glove (20 min/glove)	150	gloves		
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	4.50	Hours
<i>Factors</i>		4.5	hours - remove equip				

WBS No: 1AAC  
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**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
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Starts In FY \*

750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Max Backload	1.00	Hours
<i>Factors</i> 1 hour - visual indicator								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Max Backload	8.00	Hours
<i>Factors</i> 8 hours - surveys								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Max Backload	40.00	Hours
<i>Factors</i> 40 hours - remove windows								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Max Backload	51.00	Hours
<i>Factors</i> 1 glove 0.34 hours/glove (20 min/glove) 1 RCT 150 gloves								
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	100.20	Dollars
<i>Factors</i> 0.0167 factor for 60 gloves/drum 40 \$/supplies (includes tape, bags, drums) 150 gloves								
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	7,950.00	Dollars
<i>Factors</i> 53 \$/glove based on 30 mm glove 150 gloves								

**Line Item USQD - Nuclear Safety Evals (USQD)**

<b>BOE</b>	Estimator's Experience - Estimate based on historical costs for the preparation of USQDs.
	Experience Item Description
	This line item contains scope to perform a USQD for the use of CeN in GB 36 for technology deployment testing.
	Breakdown of cost item
	Item - perform a USQD for the use of CeN in GB 36
	Unit - USQD
	Unit Cost -
	Unit Cost Adjustment Factor

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	80.00	Hours
<i>Factors</i> 80 hours						

Activity ID: 1AC0702200 Description: Set 2 GB Tech Deploy Cerium Decon Test (GB 36)

Cost Risk 3 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
Cen Process Svs	Setup CeN Process System	1.00	each	EE	25	25	518	1,182	0	1,700	248	1,948
Decon Cycle	Perform Decon Cycle	1.00	each	EE	138	138	3,094	17,862	0	20,956	1,477	22,433
Encapsulation Pro	Set up Encapsulation Process	1.00	each	EE	43	43	879	1,738	0	2,617	420	3,037
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	1,347	1,347	0	1,347
Total for Activity 1AC0702200:						206	4,492	20,782	1,347	26,620	2,145	28,765

**Line Item Cen Process Sys - Setup CeN Process System**

<b>BOE</b>	Estimator's Experience - Randy Blair and Mike Bogard have been performing successful engineering design work and installation at RFETS for 20+ years. The cost to install and set up the decon process system in GB 36 is based on their years of similar activities at RFETS.
	Experience Item Description
	This line item contains scope to install and make operational the CeN decon system in GB 36 for technology deployment testing. D&D utility workers with the assistance of engineering will do most of the work. The fogging and encapsulation equipment for that part of the testing will be provided by and set up by the vendor, Encapsulation Technologies, llc.
	Breakdown of cost item
	Item - Install and make operational the CeN technology deployment test station in GB 36
	Unit - One installation
	Unit Cost -

WBS No: 1AAC  
 Activity ID: 1AC0702200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Unit Cost Adjustment Factor

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	13.00	Hours
<i>Factors</i> 13 hours for Application System					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	6.00	Hours
<i>Factors</i> 6 hours for Rinsate System					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	6.00	Hours
<i>Factors</i> 6 hours for Application System					
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	500.00	Dollars
<i>Factors</i> 500 dollars for Application System					
A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	496.00	Dollars
<i>Factors</i> 8 hours for Application System 62 \$/hr					
A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	186.00	Dollars
<i>Factors</i> 3 hours for Rinsate System 62 \$/hr					

**Line Item Decon Cycle - Perform Decon Cycle**

**BOE**

Estimator's Experience - The estimates in this line item are based on information from Larry Martella, the Project Engineer for the RR Tanks Decon project.. His information was derived from the work performed with CeN at the Hanford site and the expectations presented by that staff. Based on RFETS abilities, the Hanford approach was modified for deployment testing on a modified basis.

Experience Item Description

The Hanford approach required 1.1 liters per square foot of CeN for their process. RFETS cannot presently handle the liquid generation for this technology based on those numbers and will test with significantly less liquid application. The application will be reapplied in different cycles with varying concentrations, application methods, and removal processes. Each test cycle will be documented and evaluated for large-scale application to B371 gloveboxes.

B371 Operators, under close supervision and with guidance from the D&D Project Engineers, will actually apply the CeN process to designated targets and glove box areas. The removal of CeN after application will be done using the B371 Operators for some of the tests and the Encapsulation Technologies technicians for some of the tests.

Once the tests are completed, the results will be evaluated and a report issued.

Breakdown of cost item

Item - Perform a test cycle for CeN decontamination technology

Unit - One test cycle

Unit Cost -

Unit Cost Adjustment Factor

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	18.00	Hours
<i>Factors</i> 18 hours for Rinsing/Foa CeN Solution					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	36.00	Hours
<i>Factors</i> 36 hours for Applying CeN Solution					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	18.00	Hours
<i>Factors</i> 18 hours for Reapplying if necessary					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	4.00	Hours
<i>Factors</i> 4 hours for Mark of "Hot Spots"					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	4.00	Hours
<i>Factors</i> 4 hours for Removal of CeN Decon					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	4.00	Hours
<i>Factors</i> 4 hours for Survey/Evaluation					
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	18.00	Hours
<i>Factors</i> 18 hours for Applying CeN Solution					

WBS No: 1AAC  
Activity ID: 1AC0702200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
WBS Filter: 1AAC  
Activity Filter: \*

Starts In FY \*

750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	4.00	Hours
<i>Factors</i> 4 hours for Removal of CeN Decon								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	9.00	Hours
<i>Factors</i> 9 hours for Rinsing/Fog CeN Solution								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	9.00	Hours
<i>Factors</i> 9 hours for Applying CeN Solution								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	4.50	Hours
<i>Factors</i> 4.5 hours for Reapplying if necessary								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	9.00	Hours
<i>Factors</i> 9 hours for Survey/Evaluation								
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	250.00	Dollars
<i>Factors</i> 250 \$ for Removal of CeN Decon								
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	350.00	Dollars
<i>Factors</i> 350 \$ For Reapplying if necessary								
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	10,000.00	Dollars
<i>Factors</i> 10000 \$ for Survey/Evaluation								
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	10.00	Dollars
<i>Factors</i> 10 hours for Removal of CeN Decon								
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	1,488.00	Dollars
<i>Factors</i> 24 hours for Rinsing/Fog CeN Solution 62 \$/hr								
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	2,976.00	Dollars
<i>Factors</i> 48 hours for Applying CeN Solution 62 \$/hr								
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	1,300.00	Dollars
<i>Factors</i> 1300 \$ for Applying CeN Solution								
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	1,488.00	Dollars
<i>Factors</i> 24 hours for Reapplying if necessary 62 \$/hr								

**Line Item Encapsulation Proc - Set up Encapsulation Process**

**BOE**  
Estimator's Experience - The estimates in this line item are based on previous activities in the Liquid Stabilization program utilizing the encapsulation process in rooms in B371.

Experience Item Description

This line item consists of moving the encapsulation and coating equipment into to the test glove box and connecting hoses, power cords and attaching the "fogging" flexible trunks to the glovebox or other space to be encapsulated. It also consists of configuring the ventilation in the glovebox to optimize the process, then applying the fog, applying the strippable coating, stripping the coating and bagging out the waste and hoses, etc as necessary. The application of the fog/strip process is done as a part of the CeN technology application and will be done to several segments of glovebox and possible several cycles of testing.

This task is a joint effort between D&D workers and the encapsulation vendor.

Breakdown of cost item

Item - Set up and use encapsulation process

Unit - One application

Unit Cost -

Unit Cost Adjustment Factor

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1.00	Hours
<i>Factors</i> 1 hour for Restoring Ventilation						
750	STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	6.00	Hours
<i>Factors</i> 6 hours for Configuring Ventilation						
750	STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i> 8 hours for Fogging the GB						

WBS No: 1AAC  
 Activity ID: 1AC0702200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	1.00	Hours
<i>Factors</i> 1 hour for Sprav Coating								
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	4.00	Hours
<i>Factors</i> 4 hours for Bag Equipment Out								
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	1.00	Hours
<i>Factors</i> 1 hour for Remove Foaaina Equip								
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	2.00	Hours
<i>Factors</i> 2 hours for Restorina Ventilation								
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	7.00	Hours
<i>Factors</i> 7 hours for Setup/Foa/Encaps Equip								
750	STRAIGHT TIME BASE	R070	WASTE TREATMENT OPERATOR A	KA70H	371 Facility Disposition Steelworkers	Linear	1.00	Hours
<i>Factors</i> 1 hour for Confiaurina Ventilation								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	2.00	Hours
<i>Factors</i> 2 hours for Confiaurina Ventilation								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	4.00	Hours
<i>Factors</i> 4 hours for Foaaina the GB								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	2.00	Hours
<i>Factors</i> 2 hours for Bag Equipment Out								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	1.00	Hours
<i>Factors</i> 1 hour for Remove Foaaina Equip								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	3.00	Hours
<i>Factors</i> 3 hours for Setup/Foa/Encaps Equip								
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	250.00	Dollars
<i>Factors</i> 250 \$'s for Setup/Foa/Encaps Equip								
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	250.00	Dollars
<i>Factors</i> 250 \$'s for Spray Coating								
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	250.00	Dollars
<i>Factors</i> 250 \$'s for Remove Foaaina Equip								
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	950.00	Dollars
<i>Factors</i> 950 \$'s for Foaaina the GB								
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	8.00	Dollars
<i>Factors</i> 8 hours for Setup/Foa/Encaps Equip								
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	2.00	Dollars
<i>Factors</i> 2 hours for Confiaurina Ventilation								
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	4.00	Dollars
<i>Factors</i> 4 hours for Sprav Coating								
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	4.00	Dollars
<i>Factors</i> 4 hours for Bag Equipment Out								
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	4.00	Dollars
<i>Factors</i> 4 hours for Remove Foaaina Equip								
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	16.00	Dollars
<i>Factors</i> 16 hours for Foaaina the GB								

**Line Item SYS - Contingency And Escalation**

BOE

Resources

Cost Element	Skill	Department	Curve	Quantity	Units
CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	795.11	Dollars
<i>Factors</i> 795.114 Dollars					
ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	551.43	Dollars
<i>Factors</i> 551.432 Dollars					

Activity ID: 1AC0702300 Description: Set 2 Final Cerium GB Decon Test Report

Cost Risk 1 Schedule Risk 1

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
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WBS No: 1AAC  
 Activity ID: 1AC0702300

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	536	536	0	536
Test Report	Test Report for Technology Deployment	1.00	each	HC	200	200	6,842	0	0	6,842	3,264	10,106
Total for Activity 1AC0702300:					200	200	6,842	0	536	7,378	3,264	10,641

**Line Item SYS - Contingency And Escalation**

BOE

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
CON	CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	323.26	Dollars
Factors 323,258 Dollars						
ESC	ESCALATION	0000 NONE	ZDEPT No Department	Linear	212.50	Dollars
Factors 212,499 Dollars						

**Line Item Test Report - Test Report for Technology Deployment**

BOE

Estimator's Experience - The estimates in this line item are based on previous testing activities performed by the Liquid Stabilization program and the time it took to prepare those reports.

Experience Item Description

This line item consists of preparing the report on the results of the CeN and fogging tests performed on selected glove box(es). Once all the tests are completed in accordance with the test plan, a report will be issued and the results of that report will guide the direction of the strip out of gloveboxes in B371. The report will be available to all other buildings at RFETS with similar tasks as well as the DOE complex in the whole.

Breakdown of cost item

Item - Prepare final report

Unit - One report

Unit Cost -

Unit Cost Adjustment Factor

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	200.00	Hours
Factors 200 hours for Test Report on Tech						

Activity ID: 1AC0702400 Description: Set 2 STD GB Decon IWCP Development

Cost Risk 3 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
1-Crit Limits	Crit limits for GB/Decon IWCP Development	1.00	each	EE	320	320	13,846	0	0	13,846	6,605	20,451
2-EOs GB Fog	EO's GB/Decon IWCP Dev for Fogging	1.00	each	EE	40	40	1,368	0	0	1,368	653	2,021
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	1,213	1,213	0	1,213
Total for Activity 1AC0702400:						360	15,215	0	1,213	16,428	7,257	23,685

**Line Item 1-Crit Limits - Crit limits for GB/Decon IWCP Development**

BOE

Estimator's Experience - The estimates in this line item are based on actual times to prepare limits as established by the Criticality Engineering group.

Experience Item Description

This line item consists of preparing a criticality limit for the application of the CeN technology and fogging technology as developed during testing phase. The limit would be for the work to be done throughout the glove box removal D&D process in B371.

Breakdown of cost item

Item - Prepare a criticality limit to use CeN and compatible technology during glovebox decon

Unit - One criticality limit

Unit Cost -

Unit Cost Adjustment Factor

WBS No: 1AAC  
 Activity ID: 1AC0702400

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	KA10S B371 ESH&Q	Linear	160.00	Hours
Factors	1 Crit Safety Officer	4 weeks	40 hrs/wk			
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	160.00	Hours
Factors	1 Crit Engineer	4 weeks	40 hrs/wk			

**Line Item 2-EOs GB Fog - EO's GB/Decon IWCP Dev for Fogging**

**BOE**  
 Estimator's Experience - The estimates in this line item are based on historical time required by B371 D&D Engineering to prepare an Engineering Design Package (EDP).  
 Experience Item Description  
 This line item consists of preparing an Engineering Design Package (EDP) to apply the decon process to selected glove boxes in Set 2. The engineers will review drawings, walk down the immediate area and add the necessary scope of work via the EDP to a standard IWCP work package for decon work in glove boxes.  
 Breakdown of cost item  
 Item - Prepare the EDP for decon work in glove boxes in a Set  
 Unit - One EDP  
 Unit Cost -  
 Unit Cost Adjustment Factor

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
Factors	1 Week (Project Engineer) Devl. EO	40 hrs/week				

**Line Item SYS - Contingency And Escalation**

**BOE**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	740.26	Dollars
Factors	740.255 Dollars					
	ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	472.54	Dollars
Factors	472.541 Dollars					

Activity ID: 1AC0804100 Description: Set 4 CSV Eng/Design/Install Rm 1111 Decon Cost Risk 4 Schedule Risk 4

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
1111 - 01	Equipment Removal GB's 68, 69, 70, 74	1.00	ls	EE	354	354	9,938	0	0	9,938	4,776	14,714
1111 - 02	Modifv Lathe in GB 74 for Staging Platform	1.00	ls	EE	386	386	11,001	500	0	11,501	5,263	16,764
1111 - 03	Material Handling Device in GB 22 & 70	1.00	ls	EE	410	410	13,008	1,000	0	14,008	6,223	20,231
1111 - 04	Modifv GB22 for Hot Drum Drop	1.00	ls	EE	348	348	10,188	1,000	0	11,188	4,876	16,063
1111 - 05	Install Crit Drains	1.00	ls	EE	358	358	10,093	1,500	0	11,593	4,828	16,421
1111 - 06	Transfer Line to CWTS	1.00	ls	EE	428	428	11,892	500	0	12,392	5,689	18,081
1111 - 07	C-Cell for SCO Removal	1.00	ls	EE	556	556	15,499	10,000	0	25,499	7,421	32,920
1111 - 08	Modifv for New Exhaust	1.00	ls	EE	958	958	24,238	500	0	24,738	11,596	36,333
1111 - 09	CeN (Cerium) Decon Station	1.00	ls	EE	676	676	20,579	15,000	0	35,579	9,849	45,428
1111 - 10	Fogging/Coating Station	1.00	ls	EE	330	330	9,800	500	0	10,300	4,688	14,988
1111 - 11	Position Can Size Reduction	1.00	ls	EE	626	626	20,693	2,000	0	22,693	9,900	32,593
1111 - 12	Install 4 Bulkhead Doors	1.00	ls	EE	462	462	14,147	2,500	0	16,647	6,768	23,414
1111 - 13	Crit Eval/Review	1.00	ls	EE	400	400	17,308	0	0	17,308	8,291	25,599
SYS	Contingency And Escalation	1.00	lea	EE	0	0	0	0	13,768	13,768	0	13,768
Total for Activity 1AC0804100:						6,292	188,383	35,000	13,768	237,151	90,166	327,318

**Line Item 1111 - 01 - Equipment Removal GB's 68, 69, 70, 74**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and

WBS No: 1AAC  
 Activity ID: 1AC0804100

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description

This line item consists of removing equipment from the inside of GB's 68, 69, 70, 74 in Room 1111. The equipment must be removed to install a decon and size reduction process in these boxes. The decon and size reduction operation in this glove box train are a part of the removal of the storage pallets from the CSV.

Breakdown of Cost Data:

Item - Perform glove box internal equipment removal

Unit - Equipment pieces per glove box

Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C040 MAINTENANCE MACHINIST (incl Exp	KA20H 371/374 Facility Mgmt Steelworkers	Trianldr Decr	160.00	Hours
	Factors 80 hrs	2 to Remove Equipment				
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Trianldr Decr	20.00	Hours
	Factors 20 hrs	1 ENG				
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Trianldr Decr	80.00	Hours
	Factors 80 hrs	1 IWCP				
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Trianldr Decr	90.00	Hours
	Factors 90 hrs	1 PROJ PLAN				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Trianldr Decr	4.00	Hours
	Factors 4 hrs	1 Is INSTALL				

**Line Item 1111 - 02 - Modify Lathe in GB 74 for Staging Platform**

BOE Estimator's Experience - The estimates in this line item are based on engineering estimates to modify a lathe in Glovebox 74 to support the decon and size reduction process in Room 1111. Randy Blair and Mike Bogard have been performing successful engineering design work and installation at RFETS for 20+ years. The cost to modify this lathe is based on their years of similar activities at RFETS.

Experience Item Description

This line item consists of modifying an existing lath in GB 74 in Room 1111. The lathe will not be used in the decon/size reduction process, but the space it occupies will be needed to stage materials during processing. This task is basically to install a platform and work area on top and around the lathe so that the area can be efficiently utilized.

Breakdown of cost item

Item - install platform, modify lathe

Unit - One installation

Unit Cost -

Unit Cost Adjustment Factor

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C090 STRUCTURAL AND METAL WORKE	KA20H 371/374 Facility Mgmt Steelworkers	Back Loaded	80.00	Hours
	Factors 40 hrs	2 to INSTALL				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Back Loaded	80.00	Hours
	Factors 40 hrs	2 to INSTALL				
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded	40.00	Hours
	Factors 40 hrs	1 ENG				

WBS No: 1AAC  
 Activity ID: 1AC0804100

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	80.00	Hours
Factors	80 hrs		1 IWCP					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	90.00	Hours
Factors	90 hrs		1 PROJ PLAN					
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Back Loaded	16.00	Hours
Factors	16 hrs		1 Is INSTALL					
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	500.00	Dollars
Factors	500 \$		1 MATL					

**Line Item 1111 - 03 - Material Handling Device in GB 22 & 70**

BOE

Estimator's Experience - The estimates in this line item are based on engineering estimates to add a material handling capability in GB's 22 and 70 to support the decon and size reduction process in Room 1111. Randy Blair and Mike Bogard have been performing successful engineering design work and installation at RFETS for 20+ years. The cost to modify this lathe is based on their years of similar activities at RFETS.

Experience Item Description

This line item consists of procuring and installing a material handling system that will allow heavy pieces of equipment to be moved from IO station #8, into GB 22 and then into the receiving area of GB 70. From there the decon/size reduction operation will begin. The material handling capability will consist of an overhead rail and a small tracking chain hoist which will lift and move the equipment pieces into the proper location.

Breakdown of cost item

Item - purchase and install material handling equipment

Unit - One installation

Unit Cost -

Unit Cost Adjustment Factor

Resources

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	C040	MAINTENANCE MACHINIST (incl Exp	KA20H	371/374 Facility Mgmt Steelworkers	Back Loaded	72.00	Hours
Factors	36 hrs		2 to INSTALL					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	160.00	Hours
Factors	160 hrs		1 ENG					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	80.00	Hours
Factors	80 hrs		1 IWCP					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	90.00	Hours
Factors	90 hrs		1 PROJ PLAN					
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Back Loaded	8.00	Hours
Factors	8 hrs		1 Is INSTALL					
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	1,000.00	Dollars
Factors	1000 \$		1 MATL					

**Line Item 1111 - 04 - Modify GB22 for Hot Drum Drop**

BOE

Estimator's Experience - The estimates in this line item are based on engineering estimates to add a drum drop in GB 22 to support the decon and size reduction process in Room 1111. Randy Blair and Mike Bogard have been performing successful engineering design work and installation at RFETS for 20+ years. The cost to install this drop is based on their years of similar activities at RFETS.

Experience Item Description

This line item consists of installing a drum drop in GB 22 that will allow the removal of pieces of equipment from IO #8 that are not targeted for decontamination or that have been through the decon process and low level status was not achieved. The design of the decon process flow goes to a low level container or SCO container. Anything that does not go through this process or that does not decon successfully will be removed as TRU through this drum drop.

Breakdown of cost item

Item - Install drum drop in GB 22

WBS No: 1AAC  
 Activity ID: 1AC0804100

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Unit - One installation  
 Unit Cost -  
 Unit Cost Adjustment Factor

**Resources**

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	C090	STRUCTURAL AND METAL WORKE	KA20H	371/374 Facility Mamt Steelworkers	Linear	120.00	Hours
<i>Factors</i>	60 hrs		2 to INSTALL					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	40.00	Hours
<i>Factors</i>	40 hrs		1 ENG					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	80.00	Hours
<i>Factors</i>	80 hrs		1 IWCP					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	90.00	Hours
<i>Factors</i>	90 hrs		1 PROJ PLAN					
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
<i>Factors</i>	8 hrs		1 Is INSTALL					
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	10.00	Hours
<i>Factors</i>	10 hrs		1 to INSTALL					
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	1,000.00	Dollars
<i>Factors</i>	1000 \$		1 MATL					

**Line Item 1111 - 05 - Install Crit Drains**

**BOE**

Estimator's Experience - The estimates in this line item are based on previous criticality drain installations done during the liquid stabilization program in B371.

Experience Item Description

This line item consists of installing a criticality drain in GB 68 or 69 to meet liquid use requirements for glove boxes.

Breakdown of cost item

Item - Install criticality drain

Unit - One installation

Unit Cost -

Unit Cost Adjustment Factor

**Resources**

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	C010	CARPENTERS	KA20H	371/374 Facility Mamt Steelworkers	Back Loaded	30.00	Hours
<i>Factors</i>	30 hrs		1 to INSTALL					
750	STRAIGHT TIME BASE	C090	STRUCTURAL AND METAL WORKE	KA20H	371/374 Facility Mamt Steelworkers	Back Loaded	120.00	Hours
<i>Factors</i>	60 hrs		2 to INSTALL					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	20.00	Hours
<i>Factors</i>	20 hrs		1 ENG					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	80.00	Hours
<i>Factors</i>	80 hrs		1 IWCP					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	90.00	Hours
<i>Factors</i>	90 hrs		1 PROJ PLAN					
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Back Loaded	8.00	Hours
<i>Factors</i>	8 hrs		1 Is INSTALL					
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Back Loaded	10.00	Hours
<i>Factors</i>	10 hrs		1 to INSTALL					
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	1,500.00	Dollars
<i>Factors</i>	1500 \$		1 MATL					

**Line Item 1111 - 06 - Transfer Line to CWTS**

**BOE**

WBS No: 1AAC  
 Activity ID: 1AC0804100

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Estimator's Experience - The estimates in this line item are based on engineering estimates to add a transfer line from the decon and size reduction process in Room 1111 to the CWTS operation in room 1115. Randy Blair and Mike Bogard have been performing successful engineering design work and installation at RFETS for 20+ years. The cost to install the transfer line is based on their years of similar activities at RFETS.

Experience Item Description

This line item consists of designing and installing a transfer line that will allow liquid generated during CeN or other liquid decon operations in Room 1111 to be moved to the CWTS operation in Room 1115.

Breakdown of cost item

Item - design and install transfer line

Unit - One installation

Unit Cost -

Unit Cost Adjustment Factor

Resources

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C010 CARPENTERS	KA20H 371/374 Facility Maint Steelworkers	Back Loaded	30.00	Hours
Factors 30 hrs	1 to INSTALL				
750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Back Loaded	144.00	Hours
Factors 72 hrs	2 to INSTALL				
750 STRAIGHT TIME BASE	C090 STRUCTURAL AND METAL WORKE	KA20H 371/374 Facility Maint Steelworkers	Back Loaded	16.00	Hours
Factors 16 hrs	1 to INSTALL				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSQC 371 Closure Project	Back Loaded	40.00	Hours
Factors 40 hrs	1 ENG				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSQC 371 Closure Project	Back Loaded	80.00	Hours
Factors 80 hrs	1 IWCP				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSQC 371 Closure Project	Back Loaded	90.00	Hours
Factors 90 hrs	1 PROJ PLAN				
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSQC 371 Closure Project	Back Loaded	8.00	Hours
Factors 8 hrs	1 Is INSTALL				
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Back Loaded	20.00	Hours
Factors 20 hrs	1 to INSTALL				
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	500.00	Dollars
Factors 500 \$	1 MATL				

Line Item 1111 - 07 - C-Cell for SCO Removal

BOE

Estimator's Experience - The estimates in this line item are based on engineering estimates to add a containment structure on the end of the decon and size reduction process in Room 1111. Randy Blair and Mike Bogard have been performing successful engineering design work and installation at RFETS for 20+ years. The cost to install the containment structure is based on their years of similar activities at RFETS and previous costs of similar structures during decontamination of rooms in B371.

Experience Item Description

This line item consists of designing, purchasing and installing a containment structure that will low level/SCO waste generated during decon/size reduction operations in Room 1111 to be placed into containers for disposal.

Breakdown of cost item

Item - design and install containment structure

Unit - One installation

Unit Cost -

Unit Cost Adjustment Factor

WBS No: 1AAC  
 Activity ID: 1AC0804100

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C010 CARPENTERS	KA20H 371/374 Facility Mamt Steelworkers	Back Loaded	18.00	Hours
	<i>Factors</i> 9 hrs	2 to INSTALL				
	750 STRAIGHT TIME BASE	C020 ELECTRICIANS	KA20H 371/374 Facility Mamt Steelworkers	Back Loaded	36.00	Hours
	<i>Factors</i> 36 hrs	1 to INSTALL				
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mamt Steelworkers	Back Loaded	160.00	Hours
	<i>Factors</i> 80 hrs	2 to INSTALL				
	750 STRAIGHT TIME BASE	C090 STRUCTURAL AND METAL WORKE	KA20H 371/374 Facility Mamt Steelworkers	Back Loaded	16.00	Hours
	<i>Factors</i> 16 hrs	1 to INSTALL				
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	100.00	Hours
	<i>Factors</i> 100 hrs	1 ENG				
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	80.00	Hours
	<i>Factors</i> 80 hrs	1 IWCP				
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	90.00	Hours
	<i>Factors</i> 90 hrs	1 PROJ PLAN				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Back Loaded	20.00	Hours
	<i>Factors</i> 20 hrs	1 Is INSTALL				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Back Loaded	36.00	Hours
	<i>Factors</i> 36 hrs	1 to INSTALL				
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	10.000.00	Dollars
	<i>Factors</i> 10000 \$	1 MATL				

**Line Item 1111 - 08 - Modify for New Exhaust**

**BOE**

Estimator's Experience - The estimates in this line item are based on engineering estimates to add additional exhaust line from the decon and size reduction process in Room 1111 to the HVAC system. Randy Blair and Mike Bogard have been performing successful engineering design work and installation at RFETS for 20+ years. The cost to install the exhaust line is based on their years of similar activities at RFETS.

Experience Item Description

This line item consists of designing and installing additional exhaust line(s) from the decon/size reduction glove boxes in Room 1111. Because of the need to install bulkhead doors to block off areas in the glove boxes, the additional exhaust lines will be needed.

Breakdown of cost item

Item - design and install exhaust line

Unit - One design and installation

Unit Cost -

Unit Cost Adjustment Factor

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C010 CARPENTERS	KA20H 371/374 Facility Mamt Steelworkers	Back Loaded	48.00	Hours
	<i>Factors</i> 24 hrs	2 to INSTALL				
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mamt Steelworkers	Back Loaded	480.00	Hours
	<i>Factors</i> 240 hrs	2 to INSTALL				
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded	100.00	Hours
	<i>Factors</i> 100 hrs	1 ENG				
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded	90.00	Hours
	<i>Factors</i> 90 hrs	1 PROJ PLAN				
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded	80.00	Hours
	<i>Factors</i> 80 hrs	1 IWCP				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Back Loaded	40.00	Hours
	<i>Factors</i> 40 hrs	1 Is INSTALL				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Back Loaded	120.00	Hours
	<i>Factors</i> 120 hrs	1 to INSTALL				

WBS No: 1AAC  
 Activity ID: 1AC0804100

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	500.00	Dollars
Factors	500 \$	1	MATL					

**Line Item 1111 - 09 - CeN (Cerium) Decon Station**

**BOE**  
 Estimator's Experience - The estimates in this line item are based on engineering estimates to install equipment to apply a Cerium and Nitric Acid (CeN) decon station. Randy Blair and Mike Bogard have been performing successful engineering design work and installation at RFETS for 20+ years. The cost to install and set up this process is based on their years of similar activities at RFETS.

Experience Item Description

This line item consists of installing equipment inside of GB's 68, 69, 70, 74 in Room 1111. The equipment will be used to decontaminate stainless steel cans after they are removed from storage pallets and other equipment pieces from D&D activities. Decontamination will occur to reduce radiation levels to below TRU category waste.

Breakdown of cost item

Item - install decontamination equipment inside glove box

Unit - One installation

Unit Cost -

Unit Cost Adjustment Factor

Resources		Cost Element	Skill	Department	Curve	Quantity	Units	
750	STRAIGHT TIME BASE	C020	ELECTRICIANS	KA20H 371/374 Facility Mgmt Steelworkers	Back Loaded	36.00	Hours	
Factors	18 hrs		2 to INSTALL					
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mgmt Steelworkers	Back Loaded	120.00	Hours	
Factors	60 hrs		2 to INSTALL					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	80.00	Hours	
Factors	80 hrs		1 IWCP					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	90.00	Hours	
Factors	90 hrs		1 PROJ PLAN					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded	300.00	Hours	
Factors	300 hrs		1 ENG					
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Back Loaded	10.00	Hours	
Factors	10 hrs		1 Is INSTALL					
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Back Loaded	40.00	Hours	
Factors	40 hrs		1 to INSTALL					
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	15,000.00	Dollars
Factors	15000 \$	1	MATL					

**Line Item 1111 - 10 - Fogging/Coating Station**

**BOE**  
 Estimator's Experience - The estimates in this line item are based on previous activities in the Liquid Stabilization program utilizing the encapsulation process in rooms in B371.

Experience Item Description

This line item consists of moving the encapsulation and coating equipment into to the test glove box and connecting hoses, power cords and attaching the "fogging" flexible trunks to the glovebox or other space to be encapsulated. It also consists of configuring the ventilation in the glovebox to optimize the process, then applying the fog, applying the strippable coating, stripping the coating and bagging out the waste and hoses, etc as necessary. The application of the fog/strip process is done as a part of the CeN technology application and will be done to several segments of glovebox and possible several cycles of testing.

This task is a joint effort between D&D workers and the encapsulation vendor.

Breakdown of cost item

Item - Set up and use encapsulation process

Unit - One application

WBS No: 1AAC  
 Activity ID: 1AC0804100

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Unit Cost -

Unit Cost Adjustment Factor

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C020 ELECTRICIANS	KA20H 371/374 Facility Mamt Steelworkers	Back Loaded	16.00	Hours
<i>Factors</i> 8 hrs	2 to INSTALL				
750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mamt Steelworkers	Back Loaded	80.00	Hours
<i>Factors</i> 40 hrs	2 to INSTALL				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded	40.00	Hours
<i>Factors</i> 40 hrs	1 ENG				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded	80.00	Hours
<i>Factors</i> 80 hrs	1 IWCP				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded	90.00	Hours
<i>Factors</i> 90 hrs	1 PROJ PLAN				
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Back Loaded	4.00	Hours
<i>Factors</i> 4 hrs	1 Is INSTALL				
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Back Loaded	20.00	Hours
<i>Factors</i> 20 hrs	1 to INSTALL				
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	500.00	Dollars
<i>Factors</i> 500 \$	1 MATL				

**Line Item 1111 - 11 - Position Can Size Reduction**

**BOE**

Estimator's Experience - The estimates in this line item are based on engineering estimates to install equipment to cut up the stainless steel cans after they are removed from a pallet. Randy Blair and Mike Bogard have been performing successful engineering design work and installation at RFETS for 20+ years. The cost to install and set up this process is based on their years of similar activities at RFETS.

Experience Item Description

This line item consists of installing equipment inside of GB's 68, 69, 70, 74 in Room 1111. The equipment will be used to cut up the stainless steel cans after they are removed from storage pallets used in the CSV. Once the cans are cut into pieces the lead shielding that is welded inside the can will be removed and disposed as a non-mixed waste. The stainless steel can pieces will then be wasted as SCO category material.

Breakdown of cost item

Item - install size reduction equipment inside glove box

Unit - One installation

Unit Cost -

Unit Cost Adjustment Factor

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C020 ELECTRICIANS	KA20H 371/374 Facility Mamt Steelworkers	Back Loaded	18.00	Hours
<i>Factors</i> 9 hrs	2 to INSTALL				
750 STRAIGHT TIME BASE	C040 MAINTENANCE MACHINIST (incl Exp)	KA20H 371/374 Facility Mamt Steelworkers	Back Loaded	36.00	Hours
<i>Factors</i> 18 hrs	2 to INSTALL				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded	400.00	Hours
<i>Factors</i> 400 hrs	1 ENG				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded	80.00	Hours
<i>Factors</i> 80 hrs	1 IWCP				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded	90.00	Hours
<i>Factors</i> 90 hrs	1 PROJ PLAN				
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Back Loaded	2.00	Hours
<i>Factors</i> 2 hrs	1 Is INSTALL				

WBS No: 1AAC  
 Activity ID: 1AC0804100

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	2,000.00	Dollars
<i>Factors</i>		2000	\$	1	MATL			

**Line Item 1111 - 12 - Install 4 Bulkhead Doors**

**BOE**  
 Estimator's Experience - The estimates in this line item are based on engineering estimates to install equipment in Gloveboxes 68, 69, 70, 74 to separate one decon or size reduction process from another. Randy Blair and Mike Bogard have been performing successful engineering design work and installation at RFETS for 20+ years. The cost to install and set up this process is based on their years of similar activities at RFETS.

Experience Item Description

This line item consists of installing equipment inside of GB's 68, 69, 70, 74 in Room 1111. The bulkhead doors will be used to separate sections of decon operations and size reduction operations to insure that clean areas can be kept "cold" for the removal and disposal of non-mixed waste.

Breakdown of cost item

Item - install 4 bulkhead doors inside glove box

Unit - One installation

Unit Cost -

Unit Cost Adjustment Factor

Resources		Cost Element	Skill	Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	C090	STRUCTURAL AND METAL WORKE	KA20H	371/374 Facility Maint Steelworkers	Back Loaded	128.00	Hours
<i>Factors</i>		64	hrs	2	to INSTALL			
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	160.00	Hours
<i>Factors</i>		160	hrs	1	ENG			
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	80.00	Hours
<i>Factors</i>		80	hrs	1	IWCP			
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	90.00	Hours
<i>Factors</i>		90	hrs	1	PROJ PLAN			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Back Loaded	4.00	Hours
<i>Factors</i>		4	hrs	1	is INSTALL			
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	2,500.00	Dollars
<i>Factors</i>		2500	\$	1	MATL			

**Line Item 1111 - 13 - Crit Eval/Review**

**BOE**  
 Estimator's Experience - The estimates in this line item are based on actual times to prepare limits as established by the Criticality Engineering group.

Experience Item Description

This line item consists of preparing a criticality limit for the application of the CeN technology and fogging technology and size reduction operation in Room 1111. The limit would be for all work to be done tin these glove boxes during the D&D process in B371.

Breakdown of cost item

Item - Prepare a criticality limit to use CeN and compatible technology during glovebox decon

Unit - One criticality limit

Unit Cost -

Unit Cost Adjustment Factor

Resources		Cost Element	Skill	Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	400.00	Hours
<i>Factors</i>		400	hrs	1	CRIT EVAL			

**Line Item SYS - Contingency And Escalation**

**BOE**

WBS No: 1AAC  
 Activity ID: 1AC0804100

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
CON	CONTINGENCY	0000	NONE	ZDEPT No Department	Linear	8.183.26	Dollars
Factors		8183.26 Dollars					
ESC	ESCALATION	0000	NONE	ZDEPT No Department	Linear	5.584.88	Dollars
Factors		5584.88 Dollars					

Activity ID: 1AC0804200 Description: Set 4 CSV Eng/Design/Install Mod 8 Stat

Cost Risk 4 Schedule Risk 4

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
I/O 8 - 1	Adjust Limits on Lift I/O 8	1.00	ls	EE	348	348	10.617	100	0	10.717	5.098	15.815
I/O 8 - 2	PMO I/O 8	1.00	ls	EE	288	288	8.403	2,500	0	10.903	4.023	14.926
I/O 8 - 3	Guillotine Doors I/O 8	1.00	ls	FF	290	290	8.792	2,000	0	10.792	4.206	14.998
I/O 8 - 4	Install Catch Trav I/O Station	1.00	ls	EE	326	326	9.704	1,000	0	10.704	4.642	15.346
I/O 8 - 5	Material Transfer Device I/O 8	1.00	ls	EE	480	480	13.507	10,000	0	23.507	6.462	29.969
I/O 8 - 6	Install Size Reduction Saw I/O 8	1.00	ls	EE	464	464	13.700	5,000	0	18.700	6.554	25.254
I/O 8 - 7	Install "Position Can" Removal Tool	1.00	ls	EE	344	344	10.564	1,000	0	11.564	5.054	16.618
I/O 8 - 8	Crit Eval/Review	1.00	ls	EE	400	400	17.308	0	0	17.308	8.291	25.599
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	6.909	6.909	0	6.909
Total for Activity 1AC0804200:						2,940	92,594	21,600	6,909	121,104	44,331	165,435

**Line Item I/O 8 - 1 - Adjust Limits on Lift I/O 8**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 team starting with demolition of Incineration System Unit 4 and has intimate knowledge of the effort required for decontamination and size reduction activities. Randy Blair has extensive engineering and construction experience including twelve years in B371 and has comprehensive knowledge required for development of decontamination and size reduction processes in B371. Mike Bogard has extensive machining, welding, and fabrication experience in the nuclear industry, including two years of SNM Removal and fissile solution draining in B371, and has specific knowledge pertinent to size reduction and decontamination equipment. The estimates in this line item are based on similar activities performed in B371 on other lift stations and engineering estimates on the requirements for the lift.

Experience Item Description  
 This line item consists of developing a work order and of maintenance performing the limit adjustment to IO #8, which will support the size reduction of the aluminum pallets stored in the CSV.

Breakdown of cost item  
 Item - Adjust IO station limits  
 Unit - One work order  
 Unit Cost -  
 Unit Cost Adjustment Factor

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C040	MAINTENANCE MACHINIST (incl Exp	KA20H 371/374 Facility Maint Steelworkers	Linear	72.00	Hours
Factors		36 hrs 2 to INSTALL					
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	18.00	Hours
Factors		9 hrs 2 to INSTALL					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Trianglr Decr	80.00	Hours
Factors		80 hrs 1 ENG					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Trianglr Decr	90.00	Hours
Factors		90 hrs 1 PROJ PLAN					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Trianglr Decr	80.00	Hours
Factors		80 hrs 1 IWCP					
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	4.00	Hours
Factors		4 hrs 1 ls INSTALL					
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	4.00	Hours
Factors		4 hrs 1 to INSTALL					

WBS No: 1AAC  
 Activity ID: 1AC0804200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	100.00	Dollars
Factors	100	\$	1	MATL				

**Line Item I/O 8 - 2 - PMO I/O 8**

**BOE**  
 Estimator's Experience - The estimates in this line item are based on similar activities performed in B371 on other lift stations.  
 Experience Item Description  
 This line item consists of developing a work order and of maintenance performing the required preventive maintenance tasks to IO #8, which will support the size reduction of the aluminum pallets stored in the CSV.  
 Breakdown of cost item  
 Item - PMO IO #8  
 Unit - One work order  
 Unit Cost -  
 Unit Cost Adjustment Factor

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C020	ELECTRICIANS	KA20H	371/374 Facility Maint Steelworkers	Back Loaded 80.00 Hours
Factors	40 hrs	2	to INSTALL			
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Back Loaded 18.00 Hours
Factors	9 hrs	2	to INSTALL			
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear 90.00 Hours
Factors	90 hrs	1	PROJ PLAN			
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear 80.00 Hours
Factors	80 hrs	1	IWCP			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Back Loaded 10.00 Hours
Factors	10 hrs	1	to INSTALL			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Back Loaded 10.00 Hours
Factors	10 hrs	1	to INSTALL			
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear 2,500.00 Dollars
Factors	2500	\$	1	MATL		

**Line Item I/O 8 - 3 - Guillotine Doors I/O 8**

**BOE**  
 Estimator's Experience - The estimates in this line item are based on similar activities performed in B371 on other lift stations and engineering estimates on the requirements for the lift.  
 Experience Item Description  
 This line item consists of developing a work order and of maintenance performing the maintenance and operability check for the guillotine doors to IO #8, which will support the size reduction of the aluminum pallets stored in the CSV.  
 Breakdown of cost item  
 Item - Perform maintenance to guillotine doors  
 Unit - One work order  
 Unit Cost -  
 Unit Cost Adjustment Factor

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C040	MAINTENANCE MACHINIST (incl Exp	KA20H	371/374 Facility Maint Steelworkers	Back Loaded 36.00 Hours
Factors	18 hrs	2	to INSTALL			
750	STRAIGHT TIME BASE	C090	STRUCTURAL AND METAL WORKE	KA20H	371/374 Facility Maint Steelworkers	Back Loaded 36.00 Hours
Factors	18 hrs	2	to INSTALL			

WBS No: 1AAC  
 Activity ID: 1AC0804200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	30.00	Hours
<i>Factors</i>	30 hrs		1 ENG					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	80.00	Hours
<i>Factors</i>	80 hrs		1 IWCP					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	90.00	Hours
<i>Factors</i>	90 hrs		1 PROJ PLAN					
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Back Loaded	8.00	Hours
<i>Factors</i>	8 hrs		1 Is INSTALL					
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Back Loaded	10.00	Hours
<i>Factors</i>	10 hrs		1 to INSTALL					
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	2,000.00	Dollars
<i>Factors</i>	2000 \$		1 MATL					

**Line Item I/O 8 - 4 - Install Catch Tray I/O Station**

**BOE**  
 Estimator's Experience - The estimates in this line item are based on engineering estimates to add a catch tray to IO #8. Randy Blair and Mike Bogard have been performing successful engineering design work and installation at RFETS for 20+ years. The cost to install a catch tray is based on their years of similar activities at RFETS.

Experience Item Description

This line item consists of developing a work order and for maintenance to build and install a catch tray in IO #8. The catch tray is needed to catch pieces of the storage pallet when rivets are removed and to catch cuttings when the pallets are size reduced in the IO station..

Breakdown of cost item

Item - design and install catch tray

Unit - One work order

Unit Cost -

Unit Cost Adjustment Factor

**Resources**

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	C040	MAINTENANCE MACHINIST (incl Exp	KA20H	371/374 Facility Mgmt Steelworkers	Back Loaded	18.00	Hours
<i>Factors</i>	9 hrs		2 to INSTALL					
750	STRAIGHT TIME BASE	C090	STRUCTURAL AND METAL WORKE	KA20H	371/374 Facility Mgmt Steelworkers	Back Loaded	80.00	Hours
<i>Factors</i>	40 hrs		2 to INSTALL					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	40.00	Hours
<i>Factors</i>	40 hrs		1 ENG					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	80.00	Hours
<i>Factors</i>	80 hrs		1 IWCP					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	90.00	Hours
<i>Factors</i>	90 hrs		1 PROJ PLAN					
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Back Loaded	8.00	Hours
<i>Factors</i>	8 hrs		1 Is INSTALL					
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Back Loaded	10.00	Hours
<i>Factors</i>	10 hrs		1 to INSTALL					
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	1,000.00	Dollars
<i>Factors</i>	1000 \$		1 MATL					

**Line Item I/O 8 - 5 - Material Transfer Device I/O 8**

**BOE**  
 Estimator's Experience - The estimates in this line item are based on engineering estimates to add a material handling capability in IO #8 to support size reduction in the IO station and to handle any heavy equipment sent to the decon station via the IO system. Randy Blair and Mike Bogard have been performing successful engineering design work and installation at RFETS for 20+ years. The cost to design and install the equipment is based on their years of similar activities at RFETS.

Experience Item Description

WBS No: 1AAC  
 Activity ID: 1AC0804200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

This line item consists of procuring and installing a material handling system that will allow heavy pieces of equipment to be moved in and from IO #8 and be transferred into GB 22. The material handling capability will consist of an overhead rail and a small tracking chain hoist which will lift and move the equipment pieces into the proper location.

Breakdown of cost item

Item - purchase and install material handling equipment

Unit - One installation

Unit Cost -

Unit Cost Adjustment Factor

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C020 ELECTRICIANS	KA20H 371/374 Facility Maint Steelworkers	Back Loaded	48.00	Hours
	<i>Factors</i> 24 hrs	2 to INSTALL				
	750 STRAIGHT TIME BASE	C040 MAINTENANCE MACHINIST (incl Exp	KA20H 371/374 Facility Maint Steelworkers	Back Loaded	36.00	Hours
	<i>Factors</i> 18 hrs	2 to INSTALL				
	750 STRAIGHT TIME BASE	C090 STRUCTURAL AND METAL WORKE	KA20H 371/374 Facility Maint Steelworkers	Back Loaded	80.00	Hours
	<i>Factors</i> 40 hrs	2 to INSTALL				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Back Loaded	36.00	Hours
	<i>Factors</i> 18 hrs	2 to INSTALL				
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded	80.00	Hours
	<i>Factors</i> 80 hrs	1 ENG				
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded	80.00	Hours
	<i>Factors</i> 80 hrs	1 IWCP				
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded	90.00	Hours
	<i>Factors</i> 90 hrs	1 PROJ PLAN				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Back Loaded	12.00	Hours
	<i>Factors</i> 12 hrs	1 Is INSTALL				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Back Loaded	18.00	Hours
	<i>Factors</i> 18 hrs	1 to INSTALL				
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Back Loaded	10.000.00	Dollars
	<i>Factors</i> 10000 \$	1 MATL				

**Line Item I/O 8 - 6 - Install Size Reduction Saw I/O 8**

**BOE** Estimator's Experience - The estimates in this line item are based on engineering estimates to add a size Reduction saw in IO #8 to cut up the aluminum storage. Randy Blair and Mike Bogard have been performing successful engineering design work and installation at RFETS for 20+ years. The cost to design and install the equipment is based on their years of similar activities at RFETS.

Experience Item Description

This line item consists of procuring and installing a radial type cutting saw and moveable position table that will allow cutting up the aluminum pallet bases in IO #8. The pallets must be cut into smaller pieces in order to remove them from the IO station and process them through the decon station.

Breakdown of cost item

Item - purchase and install size reduction saw

Unit - One installation

Unit Cost -

Unit Cost Adjustment Factor

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C020 ELECTRICIANS	KA20H 371/374 Facility Maint Steelworkers	Back Loaded	48.00	Hours
	<i>Factors</i> 24 hrs	2 to INSTALL				

WBS No: 1AAC  
 Activity ID: 1AC0804200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	C040	MAINTENANCE MACHINIST (incl Exp	KA20H	371/374 Facility Maint Steelworkers	Back Loaded	18.00	Hours
Factors	9 hrs		2 to INSTALL					
750	STRAIGHT TIME BASE	C090	STRUCTURAL AND METAL WORKE	KA20H	371/374 Facility Maint Steelworkers	Back Loaded	80.00	Hours
Factors	40 hrs		2 to INSTALL					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	120.00	Hours
Factors	120 hrs		1 ENG					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	80.00	Hours
Factors	80 hrs		1 IWCP					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	90.00	Hours
Factors	90 hrs		1 PROJ PLAN					
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Back Loaded	10.00	Hours
Factors	10 hrs		1 Is INSTALL					
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Back Loaded	18.00	Hours
Factors	18 hrs		1 to INSTALL					
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Back Loaded	5,000.00	Dollars
Factors	5000 \$		1 MATL					

**Line Item I/O 8 - 7 - Install "Position Can" Removal Tool**

BOE

Estimator's Experience - The estimates in this line item are based on engineering estimates to add a tool to remove the stainless steel 'position cans' on the storage pallets in IO #8. Randy Blair and Mike Bogard have been performing successful engineering design work and installation at RFETS for 20+ years. The cost to design and install the equipment is based on their years of similar activities at RFETS.

Experience Item Description

This line item consists of procuring and installing a tool that will cut the stainless position cans free from the aluminum pallet bases in IO #8. The cans must be removed from the pallet in order to size reduce the pallets and remove them from the IO station and process them through the decon station.

Breakdown of cost item

Item - purchase and install cutting tool

Unit - One installation

Unit Cost -

Unit Cost Adjustment Factor

Resources

Cost Element	Skill	Department	Curve	Quantity	Units			
750	STRAIGHT TIME BASE	C020	ELECTRICIANS	KA20H	371/374 Facility Maint Steelworkers	Back Loaded	36.00	Hours
Factors	18 hrs		2 to INSTALL					
750	STRAIGHT TIME BASE	C040	MAINTENANCE MACHINIST (incl Exp	KA20H	371/374 Facility Maint Steelworkers	Back Loaded	36.00	Hours
Factors	18 hrs		2 to INSTALL					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	80.00	Hours
Factors	80 hrs		1 ENG					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	80.00	Hours
Factors	80 hrs		1 IWCP					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Back Loaded	90.00	Hours
Factors	90 hrs		1 PROJ PLAN					
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Back Loaded	4.00	Hours
Factors	4 hrs		1 Is INSTALL					
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Back Loaded	18.00	Hours
Factors	18 hrs		1 to INSTALL					
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	1,000.00	Dollars
Factors	1000 \$		1 MATL					

**Line Item I/O 8 - 8 - Crit Eval/Review**

BOE

Estimator's Experience - The estimates in this line item are based on actual times to prepare limits as established by the Criticality Engineering group.

WBS No: 1AAC  
 Activity ID: 1AC0804200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Experience Item Description  
 This line item consists of preparing a criticality limit for size reducing the CSV storage pallets in IO #8, Room 1111.  
 Breakdown of cost item  
 Item - Prepare a criticality limit to use IO #8 for size reduction  
 Unit - One criticality limit  
 Unit Cost -  
 Unit Cost Adjustment Factor

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	400.00	Hours
	Factors 400 hrs	1 CRIT EVAL				

**Line Item SYS - Contingency And Escalation**

BOE

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	4.106.68	Dollars
	Factors 4106.68 Dollars					
	ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	2.802.71	Dollars
	Factors 2802.71 Dollars					

Activity ID: 1AC0804300 Description: Set 4 CSV Eng/Design/Mod GB Rm 3305

Cost Risk 4 Schedule Risk 4

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
I/O 5 - 01	Tech Deployment Planning & Eng	1.00	ls	EE	300	300	10.263	97.000	0	107.263	4.930	112.193
I/O 5 - 02	Tech Deployment GB 37 Modifications	1.00	ls	EE	236	236	7.129	1.200	0	8.329	3.425	11.754
I/O 5 - 03	Tech Deployment Crit Evals/Review	1.00	ls	EE	400	400	17.308	0	0	17.308	8.340	25.648
I/O 5 - 04	Tech Deployment Testing Cans/Rins/Coupons/Alum	10.00	wk	EE	164	1.644	38.420	95.000	0	133.420	18.326	151.746
I/O 5 - 05	Tech Deployment Scanning	1.00	ls	EE	300	300	6.223	0	0	6.223	2.968	9.191
I/O 5 - 06	Tech Deployment Samples/Results	100.00	ea	EE	1	80	1.659	150.000	0	151.659	795	152.455
I/O 5 - 07	Tech Deployment Report	1.00	ls	EE	40	40	1.368	0	0	1.368	653	2.021
I/O 5 - 08	S/R Can Disposal Planning & Eng	1.00	ls	EE	200	200	6.842	0	0	6.842	3.264	10.106
I/O 5 - 09	S/R Can Disposal GB 37 Modifications	1.00	ls	EE	344	344	9.922	2.000	0	11.922	4.776	16.698
I/O 5 - 10	S/R Can Disposal Equipment Install	1.00	ls	EE	497	497	13.221	7.500	0	20.721	6.306	27.027
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	23.405	23.405	0	23.405
Total for Activity 1AC0804300:						4.041	112.355	352.700	23.405	488.459	53.784	542.244

**Line Item I/O 5 - 01 - Tech Deployment Planning & Eng**

BOE  
 Estimator's Experience - The estimates in this line item are based on the number of hours for B371 D&D Engineering to prepare design documents for the Room 3501 decon station. It also includes a dollar amount for the encapsulation contractor to provide necessary design support and equipment to support the design effort.  
 Experience Item Description  
 This line item consists of preparing a design package for the installation and operation of a decon station in GB 37, Room 3501  
 Breakdown of cost item  
 Item - Prepare a design package for a decon station in Room 3501  
 Unit - One design package  
 Unit Cost -  
 Unit Cost Adjustment Factor

WBS No: 1AAC  
 Activity ID: 1AC0804300

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Resources	Cost Element	Quantity	Unit	Skill	Department	Curve	Starts In FY	Units
	750 STRAIGHT TIME BASE	E130	150	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded		150.00 Hours
	Factors		150 hrs	1 ENG				
	750 STRAIGHT TIME BASE	E130	150	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded		150.00 Hours
	Factors		150 hrs	1 IWCP				
	A5C SUPPLIES	0000	25000 \$	NONE	KA70S B371 Facility Disposition	Linear		25.000.00 Dollars
	Factors		25000 \$	1 MATL and Cerium Equipment				
	A5H SUBCONTRACTED SRVS	0000	72000 \$	NONE	KA70S B371 Facility Disposition	Back Loaded		72.000.00 Dollars
	Factors		72000 \$	1 Is for ET				

**Line Item I/O 5 - 02 - Tech Deployment GB 37 Modifications**

**BOE** Estimator's Experience - The estimates in this line item are based on engineering estimates to Glovebox 37 to support the decon and size reduction process in Room 3501. Randy Blair and Mike Bogard have been performing successful engineering design work and installation at RFETS for 20+ years. The cost to modify this lathe is based on their years of similar activities at RFETS.

Experience Item Description

This line item consists of modifying GB 37 in Room 3501 to the decon/size reduction process. This line item will develop and install moveable bulkheads inside the glovebox. These bulkheads will provide barriers during CeN testing to isolate one test from another and from the rest of the glovebox. Modifications include the addition of a CeN solution and rinse station, a fogging station, a coating station and a size reduction station. Ventilation modification may be necessary to support the decon operation

Breakdown of cost item

Item - modify GB37

Unit - One modification

Unit Cost -

Unit Cost Adjustment Factor

Resources	Cost Element	Quantity	Unit	Skill	Department	Curve	Starts In FY	Units
	750 STRAIGHT TIME BASE	C090	36	STRUCTURAL AND METAL WORKE	KA20H 371/374 Facility Maint Steelworkers	Back Loaded		72.00 Hours
	Factors		36 hrs	2 to INSTALL				
	750 STRAIGHT TIME BASE	E130	80	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded		80.00 Hours
	Factors		80 hrs	1 ENG				
	750 STRAIGHT TIME BASE	E130	80	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Back Loaded		80.00 Hours
	Factors		80 hrs	1 IWCP				
	750 STRAIGHT TIME BASE	M010	4	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Back Loaded		4.00 Hours
	Factors		4 hrs	1 Is INSTALL				
	A5C SUPPLIES	0000	1200 \$	NONE	KA70S B371 Facility Disposition	Linear		1.200.00 Dollars
	Factors		1200 \$	1 MATL				

**Line Item I/O 5 - 03 - Tech Deployment Crit Evals/Review**

**BOE** Estimator's Experience - The estimates in this line item are based on actual times to prepare limits as established by the Criticality Engineering group.

Experience Item Description

This line item consists of preparing a criticality limit for decontamination and size reducing the CSV storage position inner cans and 8801 cans in GB 37, Room 3501

Breakdown of cost item

Item - Prepare a criticality limit to use GB 37 for decon and size reduction

Unit - One criticality limit

Unit Cost -

WBS No: 1AAC  
 Activity ID: 1AC0804300

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Unit Cost Adjustment Factor

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	400.00	Hours
<i>Factors</i> 400 hrs	1 CRIT EVAL				

**Line Item I/O 5 - 04 - Tech Deployment Testing Cans/Rings/Coupons/Alum**

**BOE**

Estimator's Experience - The estimates in this line item are based on a series of tests to determine the effectiveness of CeN - fogging technology combinations on glove boxes and materials, CSV pallet materials, 8801 cans, etc.

Experience Item Description

This line item consists of a series of tests with both the CeN technology and the fog/coat technology to determine the most effective approach for decontamination of materials and contamination levels. This activity supports both deactivation and decommissioning tasks. The test area will be in GB 36, which will be sectioned off by bulkheads (another line item estimate exists for that task) to separate the tests. A test plan will be used to control the tests and a written report will result. The testing period is based on completion of all tests within a 10-week period.

Breakdown of cost item

Item - Perform technology testing on RFETS specific equipment and needs

Unit - One test period

Unit Cost -

Unit Cost Adjustment Factor

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C020 ELECTRICIANS	KA20H 371/374 Facility Maint Steelworkers	Max Backload	2.40	Hours
<i>Factors</i> 2.4 hrs	1 to TEST				
750 STRAIGHT TIME BASE	C040 MAINTENANCE MACHINIST (incl Exp)	KA20H 371/374 Facility Maint Steelworkers	Max Backload	2.40	Hours
<i>Factors</i> 1.2 hrs	2 to TEST				
750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Max Backload	2.40	Hours
<i>Factors</i> 1.2 hrs	2 to TEST				
750 STRAIGHT TIME BASE	C090 STRUCTURAL AND METAL WORKE	KA20H 371/374 Facility Maint Steelworkers	Max Backload	7.20	Hours
<i>Factors</i> 3.6 hrs	2 to TEST				
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	80.00	Hours
<i>Factors</i> 40 hrs	2 to TEST				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Max Backload	10.00	Hours
<i>Factors</i> 10 hrs	1 ENG				
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	10.00	Hours
<i>Factors</i> 10 hrs	1 Is TESTING				
750 STRAIGHT TIME BASE	P170 OTHER ADMINISTRATIVE & PROFE	SA01S SSOC 371 Closure Project	Max Backload	40.00	Hours
<i>Factors</i> 40 hrs	1 IWCP				
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	10.00	Hours
<i>Factors</i> 10 hrs	1 to TEST				
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	1,000.00	Dollars
<i>Factors</i> 1000 \$	1 MATL				
A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Max Backload	8,500.00	Dollars
<i>Factors</i> 8500 \$	1 Is for ET				

**Line Item I/O 5 - 05 - Tech Deployment Scanning**

**BOE**

Estimator's Experience - The estimates in this line item are based on a series of tests to determine the effectiveness of CeN - fogging technology combinations on glove boxes and materials, CSV pallet materials, 8801 cans, etc. The scanning of the glove boxes and equipment will be done to determine the capacity of existing or new equipment to properly evaluate the results of decontamination.

Experience Item Description

This line item consists of a series of scans after each technology test using the CeN technology and the fog/coat technology to determine the effectiveness of existing and/or new technology instrumentation. There are new generation instruments being prepared to assist in SCO category determination and may be compared to existing capability as it effects this decon technology. The scans will be done intermittently over the ten week test period.

WBS No: 1AAC  
 Activity ID: 1AC0804300

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Breakdown of cost item  
 Item - Perform scanning to support new decon technology testing  
 Unit - One test period of scanning  
 Unit Cost -  
 Unit Cost Adjustment Factor

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	100.00 Hours
Factors	50 hrs		2 to SCAN				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	200.00 Hours
Factors	100 hrs		2 to SCAN				

**Line Item I/O 5 - 06 - Tech Deployment Samples/Results**

**BOE**  
 Estimator's Experience - The estimates in this line item are based on the current costs for taking samples and having them analyzed by a laboratory. The costs reflect the costs incurred from similar tasks last year in the liquid stabilization and draining activity.  
 Experience Item Description  
 This line item consists of taking and analyzing approximately 100 liquid samples from the CeN decon technology deployment test phase. The work will be done in GB36 and the liquid generated during testing will be sent to the CWTS for disposal. Samples are required to analyze the effectiveness of the CeN process on stainless steel and other materials. Also  
 Breakdown of cost item  
 Item - Perform scanning to support new decon technology testing  
 Unit - One test period of scanning  
 Unit Cost -  
 Unit Cost Adjustment Factor

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.40 Hours
Factors	0.4 Hours		1 Collect Samples				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Alternate Linear	0.40 Hours
Factors	0.4 Hours		1 Collect Samples				
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Max Backload	1,500.00 Dollars
Factors	1500 \$		1 SAMPLES				

**Line Item I/O 5 - 07 - Tech Deployment Report**

**BOE**  
 Estimator's Experience - The estimates in this line item are based on previous report generation from the liquid stabilization program.  
 Experience Item Description  
 This line item consists of preparing the written report on the results of the technology deployment testing done in GB 36.  
 Breakdown of cost item  
 Item - Prepare a report  
 Unit - One report  
 Unit Cost -  
 Unit Cost Adjustment Factor

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1AC0804300

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Max Backload	40.00	Hours
<i>Factors</i>	40 hrs		1 ENG					

**Line Item I/O 5 - 08 - S/R Can Disposal Planning & Eng**

**BOE**  
 Estimator's Experience - The estimates in this line item are based on the number of hours for B371 D&D Engineering and Planning to develop necessary EDPs and IWCPs based on the technology deployment testing performed.

Experience Item Description

This line item consists of preparing an engineering design package and IWCP and any procedures necessary to operate the Room 3501 Decon Station throughout the activity.

Breakdown of cost item

Item - Prepare an operating procedure (IWCP, etc) for a decon station in Room 3501

Unit - One operating procedure

Unit Cost -

Unit Cost Adjustment Factor

**Resources**

<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>		<i>Curve</i>	<i>Quantity</i>	<i>Units</i>
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Max Backload	100.00	Hours
<i>Factors</i>	100 hrs		1 IWCP					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Max Backload	100.00	Hours
<i>Factors</i>	100 hrs		1 ENG					

**Line Item I/O 5 - 09 - S/R Can Disposal GB 37 Modifications**

**BOE**  
 Estimator's Experience - The estimates in this line item are based on engineering estimates to Glovebox 37 to support the decon and size reduction process in Room 3501. Randy Blair and Mike Bogard have been performing successful engineering design work and installation at RFETS for 20+ years. The cost to modify this lathe is based on their years of similar activities at RFETS.

Experience Item Description

This line item consists of modifying GB 37 in Room 3501 to the decon/size reduction process. This process will dispose of thousands of residual loose cans from CSV operations and any other equipment deemed necessary. The cans and or equipment will be moved into GB 37 via IO #5 where necessary decontamination and size reduction will take place. Modifications include the addition of a CeN solution and rinse station, a fogging station, a coating station and a size reduction station. Ventilation modification may be necessary to support the decon operation

Breakdown of cost item

Item - modify GB37

Unit - One modification

Unit Cost -

Unit Cost Adjustment Factor

**Resources**

750	STRAIGHT TIME BASE	C010	CARPENTERS	KA20H	371/374 Facility Maint Steelworkers	Back Loaded	36.00	Hours
<i>Factors</i>	18 hrs		2 to INSTALL					
750	STRAIGHT TIME BASE	C020	ELECTRICIANS	KA20H	371/374 Facility Maint Steelworkers	Back Loaded	36.00	Hours
<i>Factors</i>	18 hrs		2 to INSTALL					
750	STRAIGHT TIME BASE	C040	MAINTENANCE MACHINIST (incl Exp	KA20H	371/374 Facility Maint Steelworkers	Back Loaded	9.00	Hours
<i>Factors</i>	9 hrs		1 to INSTALL					
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Maint Steelworkers	Back Loaded	36.00	Hours
<i>Factors</i>	18 hrs		2 to INSTALL					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	100.00	Hours
<i>Factors</i>	100 hrs		1 IWCP					

WBS No: 1AAC  
 Activity ID: 1AC0804300

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	100.00	Hours
Factors	100	hrs	1	ENG				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Back Loaded	9.00	Hours
Factors	9	hrs	1	Is INSTALL				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Back Loaded	18.00	Hours
Factors	18	hrs	1	to INSTALL				
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	2,000.00	Dollars
Factors	2000	\$	1	MATL				

**Line Item I/O 5 - 10 - S/R Can Disposal Equipment Install**

BOE

Estimator's Experience - The estimates in this line item are based on engineering estimates to add a tool to size reduce the inner cans from the storage locations and residual 8801 cans in the CSV. Randy Blair and Mike Bogard have been performing successful engineering design work and installation at RFETS for 20+ years. The cost to design and install the equipment is based on their years of similar activities at RFETS.

Experience Item Description

This line item consists of procuring and installing a tool that will size reduce the stainless position inner cans and residual 8801 cans that have been stored in the CSV and installing the bulkheads in the glovebox that will separate the decon processes from each other. Engineering will design and issue procurement orders and B371 crafts will install them.

Breakdown of cost item

Item - purchase and install size reduction tool and bulkheads

Unit - One installation

Unit Cost -

Unit Cost Adjustment Factor

Resources

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C020 ELECTRICIANS	KA20H 371/374 Facility Mgmt Steelworkers	Max Backload	36.00	Hours
Factors 18 hrs	2 to INSTALL				
750 STRAIGHT TIME BASE	C040 MAINTENANCE MACHINIST (incl Exp)	KA20H 371/374 Facility Mgmt Steelworkers	Max Backload	9.00	Hours
Factors 9 hrs	1 to INSTALL				
750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mgmt Steelworkers	Max Backload	36.00	Hours
Factors 18 hrs	2 to INSTALL				
750 STRAIGHT TIME BASE	C090 STRUCTURAL AND METAL WORKE	KA20H 371/374 Facility Mgmt Steelworkers	Max Backload	36.00	Hours
Factors 18 hrs	2 to INSTALL				
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	144.00	Hours
Factors 72 hrs	2 to INSTALL				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Max Backload	100.00	Hours
Factors 100 hrs	1 ENG				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Max Backload	100.00	Hours
Factors 100 hrs	1 IWCP				
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	18.00	Hours
Factors 18 hrs	1 Is INSTALL				
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	18.00	Hours
Factors 18 hrs	1 to INSTALL				
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Back Loaded	7,500.00	Dollars
Factors 7500 \$	1 MATL				

**Line Item SYS - Contingency And Escalation**

BOE

Resources

Cost Element	Skill	Department	Curve	Quantity	Units
CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	13,910.77	Dollars
Factors 13910.8	Dollars				

WBS No: 1AAC  
 Activity ID: 1AC0804300

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	9,493.77	Dollars
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Activity ID: 1AC0804500 Description: Set 4 CSV Size Reduce Pallets/Decon to SCO

Cost Risk 4 Schedule Risk 4

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
1111 - OPS	Size Reduce/Decon to SCO S/R Pallets Operations	1.00	ls	EE	8.996	8.996	190,071	573,448	0	763,519	70,590	834,109
1111 - WATER	Remove Water from S/R Pallet Locations	182.00	drums	EE	30	5,460	113,215	364,000	0	477,215	42,047	519,262
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	183,897	183,897	0	183,897
Total for Activity 1AC0804500:						14.456	303,286	937,448	183,897	1,424,631	112,637	1,537,268

**Line Item 1111 - OPS - Size Reduce/Decon to SCO S/R Pallets Operations**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the following steps:

Move Pallets to IO #8 and Remove Storage Locations -The scope for the movement of a Central Storage Vault (CSV) pallet from the CSV to IO #8. Once the pallet is secured in IO #8, the four (4) material storage locations riveted to each pallet will be removed. Once removed they will be sent via Glove Box 22 into the decon station in Room 1111.

Decontaminate Storage Locations-The scope for the decontamination of the CSV pallet storage locations that have been removed from the pallet. Each location will be decontaminated as necessary, using one or more of the technology deployment processes installed in Room 1111-decontamination station. The decontamination of these storage locations is necessary because they have to be cut apart and the lead shielding removed from inside each storage location. By having a deconned and contained surface during cutting, the lead will remain non-contaminated and can be disposed as a non-mixed waste.

Remove lead from Storage Locations - This line item contains the scope for cutting up the CSV pallet storage locations that have been removed from the pallet. Each location will be decontaminated and fixed as necessary, then cut apart and the lead shielding removed from inside each storage location. The lead will be disposed as a non-mixed waste and the stainless steel cans can be disposed as SCO waste.

Size Reduction of the CSV Pallet Bases -The scope for cutting up the CSV pallet aluminum base. Each aluminum base (4' X 4' X 0.5") will be cut into manageable and disposable size pieced inside IO #8. The pallet bases are too large to be removed from any IO station without size reduction. Once the pallet is reduced into the appropriate size, it will be removed through the IO and then into the Room 1111 decon station for processing.

Decontamination of the CSV Pallet Bases - This line item contains the scope for decontamination of the pieces of the CSV pallet aluminum base. Each aluminum base (4' X 4' X 0.5") will be cut into manageable and disposable size pieced inside IO #8. Once the pallet is reduced into the appropriate size, it will be removed through the IO and then into the Room 1111 decon station for processing. Once in the decon station, it will be decontaminated to SCO levels using one of the technology deployment processes located in the station. Once the correct levels are reached, it will be disposed as SCO or fixed and disposed as SCO.

Breakdown of Cost Data:

Item - Size Reduce Pallets and Decon to SCO  
 Unit - Per pallet  
 Unit Cost -

Resources	Cost Element	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSQC 371 Closure Project	900.00	Hours
Factors	900 hrs	1 ls OPS			
	750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	5,400.00	Hours
Factors	1800 hrs	3 for OPS			
	750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	480.00	Hours
Factors	160 hrs	3 for DRUM TEAM			
	750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	416.00	Hours
Factors	4 hrs	52 WKS	2 SNM in 8001 CANS		
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	1,800.00	Hours
Factors	1800 hrs	1 for OPS			

WBS No: 1AAC  
 Activity ID: 1AC0804500

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

A5C	SUPPLIES	0000	NONE		KA70S	B371 Facility Disposition		Linear	5,000.00	Dollars
Factors	5000	\$	1	MATL						
A5H	SUBCONTRACTED SRVS	0000	NONE		KA70S	B371 Facility Disposition		Linear	170,250.00	Dollars
Factors	227	days	750	\$/Day Work days						
A5H	SUBCONTRACTED SRVS	0000	NONE		KA70S	B371 Facility Disposition		Back Loaded	379,998.00	Dollars
Factors	227	days	1.5	ET FTE's/shift	18	2 Shifts	62	\$/HR		
A5H	SUBCONTRACTED SRVS	0000	NONE		KA70S	B371 Facility Disposition		Back Loaded	18,200.00	Dollars
Factors	91	days	200	\$/day Stand by						

**Line Item 1111 - WATER - Remove Water from S/R Pallet Locations**

BOE

Estimator's Experience - The estimates in this line item are based on an Engineering evaluation for the draining of the water from the annulus of the storage pallet locations and transferring it to B374 processing.

Experience Item Description

This line item consists of draining the water from the annulus of each storage location from each pallet in the CSV. As each location is removed from the pallet in IO #8, it will be moved into the adjoining decon station. Once in the decon station, the filler cap will be removed and the water pumped into an approved container. The container may be sampled when full, then moved to B374 and transferred into their process system. The assumption is that at least half of the water is gone from the annuluses by evaporation from deteriorated seals on the filler. The estimate is for 10,000 gallons of water to be removed. This activity will be conducted throughout the pallet size reduction activity.

Breakdown of cost item

Item - Remove water from annuluses and transfer to B374 processing

Unit - One 55 gallon drum of water (182 containers total)

Unit Cost -

Unit Cost Adjustment Factor

Resources

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	18.00	Hours
Factors	2 D&D Workers to set up equipment	9 hrs			
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	2.00	Hours
Factors	1 D&D Worker to sample container	2 hrs			
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	2.00	Hours
Factors	2 hrs to transfer container to 374				
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	4.00	Hours
Factors	1 RCT to set up equipment	4 hrs			
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	2.00	Hours
Factors	1 RCT to sample container	2 hrs			
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	2.00	Hours
Factors	2 hrs to transfer container to 374				
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	500.00	Dollars
Factors	500 \$ for Equipment				
A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	1,500.00	Dollars
Factors	1500 \$/sample				

**Line Item SYS - Contingency And Escalation**

BOE

Resources

Cost Element	Skill	Department	Curve	Quantity	Units
CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	125,477.50	Dollars
Factors	125478 Dollars				
ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	58,419.71	Dollars
Factors	58419.7 Dollars				

Activity ID: 1AC0804600 Description: Set 4 CSV S/R Can Decon Operations Rm 3305 GB 37

Cost Risk 4 Schedule Risk 4

Line Item	Description	Quantity	Units	BOE	Labor	Labor Hours	Labor Cost	Materials/ Sub	Contingency	Total Prime	Burden Cost	Total Cost
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WBS No: 1AAC  
 Activity ID: 1AC0804600

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC

			Type	Hours/Unit	Total	Total	Activity Filter	* & Escalation	Cost	Starts In FY	*	
3305 - OPS	S/R Can Decon Operations	1.00	ls	EE	2,976	2,976	67,409	205,040	0	272,449	27,302	299,751
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	32,318	32,318	0	32,318
Total for Activity 1AC0804600:						2,976	67,409	205,040	32,318	304,767	27,302	332,069

**Line Item 3305 - OPS - S/R Can Decon Operations**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 team starting with demolition of Incineration System Unit 4 and has intimate knowledge of the effort required for decontamination and size reduction activities. Randy Blair has extensive engineering and construction experience including twelve years in B371 and has comprehensive knowledge required for development of decontamination and size reduction processes in B371. Mike Bogard has extensive machining, welding, and fabrication experience in the nuclear industry, including two years of SNM Removal and fissile solution draining in B371, and has specific knowledge pertinent to size reduction and decontamination equipment.

Experience Item Desc -  
 Breakdown of Cost Data:  
 Item -  
 Units -  
 Unit Cost -  
 Unit Cost Adjustment factor -  
 Revised Unit Cost -  
 Basis for adjustment -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	2,160.00	Hours
Factors 1080 hrs	2 for OPS				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	200.00	Hours
Factors 200 hrs	1 IWCP				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
Factors 40 hrs	1 ENG				
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	360.00	Hours
Factors 360 hrs	1 ls OPS				
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	216.00	Hours
Factors 216 hrs	1 for OPS				
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	5,000.00	Dollars
Factors 5000 \$	1 MATL				
A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	100,440.00	Dollars
Factors 120 DAYS	1.5 ET FTE'S	9 hours	62 \$/shift		
A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	9,600.00	Dollars
Factors 48 days	200 \$/dav Standby				
A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	90,000.00	Dollars
Factors 120 days	750 \$/dav Work days				

**Line Item SYS - Contingency And Escalation**

**BOE**

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	21,594.80	Dollars
Factors 21594.8 Dollars					
ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	10,723.04	Dollars
Factors 10723.0 Dollars					

Activity ID: 1AC0804700 Description: Set 4 Verify SNM Removal from CSV

Cost Risk 5 Schedule Risk 5

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
SNM Verification	SNM Removal Verification of the CSV	1.00	each	EE	212	212	4,751	15,988	0	20,739	1,651	22,390
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	5,534	5,534	0	5,534
Total for Activity 1AC0804700:						212	4,751	15,988	5,534	26,274	1,651	27,925

**Line Item SNM Verification - SNM Removal Verification of the CSV**

**BOE**  
 Estimator's Experience - The estimates in this line item are based on the current costs and duration to perform similar tasks in B371. The calculation for fogging is based on the volume and the injection rate. The surveying of the floor level of the CSV by RCTs and Accountability personnel are based on survey

WBS No: 1AAC  
 Activity ID: 1AC0804700

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

rates and equipment used currently in B371.

Experience Item Description

This line item consists of fogging the entire CSV prior to attempting a walk down and survey of the floor level of the area. The CSV size will not allow the use of supplied breathing air to the end of the storage chamber. It is assumed that a floor level walk down is all that is required, as all the storage pallets and loose equipment or items will have been removed. The survey team will do a visual inspection and perform a field instrument survey, looking for 'hot' spots that indicate residual material above the levels of concern for PA closure. There is no expectation that such level of material will be found, but the survey must document findings.

Breakdown of cost item

Item - Perform SNM removal verification of the CSV

Unit - One verification process

Unit Cost -

Unit Cost Adjustment Factor

**Resources**

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	36.00	Hours
Factors	2 D&D Workers		18 hrs to set up/remove equipment					
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	18.00	Hours
Factors	2 D&D Workers		9 hrs to configure ventilation					
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	36.00	Hours
Factors	9 hrs/day		4 days to fog CSV					
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	36.00	Hours
Factors	4 D&D Workers		9 hrs to walkdown CSV					
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSQC 371 Closure Project	Linear	20.00	Hours
Factors	20 hrs to prepare report							
750	STRAIGHT TIME BASE	P140	SAFEGUARDS AND OTHER SECURI	K290S	Material Control & Accountabilty	Linear	18.00	Hours
Factors	2 NM&C		9 hrs to walkdown CSV					
750	STRAIGHT TIME BASE	R070	WASTE TREATMENT OPERATOR A	KA20H	371/374 Facility Mamt Steelworkers	Linear	4.00	Hours
Factors	4 hrs							
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	8.00	Hours
Factors	1 RCT		8 hrs to set up/remove equipment					
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	36.00	Hours
Factors	4 RCTs		9 hrs to walkdown CSV					
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	32.00	Dollars
Factors	2 ET Support		16 hrs to set up/remove equipment					
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	550.00	Dollars
Factors	2 days		275 \$/day fog equip. stand-by costs					
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	3,800.00	Dollars
Factors	4 days		950 \$/day fog equip. use charges					
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	11,606.40	Dollars
Factors	2 ET Support to fog CSV/shift 60.45 \$/hr		3 shifts/day					
				8 hrs/shift		4 days		

**Line Item SYS - Contingency And Escalation**

**BOE**

**Resources**

Cost Element		Skill		Department		Curve	Quantity	Units
CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	3,958.79	Dollars
Factors	3958.79 Dollars							
ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	1,575.63	Dollars
Factors	1575.63 Dollars							

Activity ID: 1ACSRMG100 Description: Operate Stacker Retriever FY00

Cost Risk 1 Schedule Risk 1

WBS No: 1AAC  
 Activity ID: 1ACSRMG100

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
N1Q0398T16b	Ops Tech Stacker/Retriever Support	1.00	each	HC	1.318	1.318	34.571	0	0	34.571	16.871	51.442
Total for Activity 1ACSRMG100:						1.318	34.571	0	0	34.571	16.871	51.442

**Line Item N1Q0398T16b - Ops Tech Stacker/Retriever Support**

**BOE**  
 Historical Data Source - The historical data is the FY99 Work Plan and the B371 Actuals: P&I reports (002 and 002a) through July 1999. The FY99 Work Plan was based on previous years experience for the same activities at Rocky Flats.  
 Item Desc - This activity includes the following:  
 - Provide technical support for Stacker/Retriever control systems. This includes operating the S/R, coordinating and scheduling maintenance and repairs, and coordinating day-to-day usage. A total of 2 personnel generally service the Stacker/Retriever. In addition, the scope includes the maintenance of the PU&D lay down yard.  
 Breakdown of Historical Data:  
 Item - Annual labor hours (pro-rated Jun-Sep)  
 Units & Unit Cost - 1,318 hours

Resources	Cost Element	Skill	Department	Curve	Quantity	Units		
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	SA01S	SSOC 371 Closure Project	Linear	1.318.00	Hours

Factors 2 FTEs 659 hrs/FTE (Jun-Sep)

Activity ID: 1ACSRMG101

Description: Operate Stacker Retriever FY01

Cost Risk 1 Schedule Risk 1

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
N1Q0398T16b	Ops Tech Stacker/Retriever Support	1.00	each	HC	3.640	3.640	95.477	0	0	95.477	45.543	141.020
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	7.476	7.476	0	7.476
Total for Activity 1ACSRMG101:						3.640	95.477	0	7.476	102.953	45.543	148.496

**Line Item N1Q0398T16b - Ops Tech Stacker/Retriever Support**

**BOE**  
 Historical Data Source - The historical data is the FY99 Work Plan and the B371 Actuals: P&I reports (002 and 002a) through July 1999. The FY99 Work Plan was based on previous years experience for the same activities at Rocky Flats.  
 Item Desc - This activity includes the following:  
 - Provide technical support for Stacker/Retriever control systems. This includes operating the S/R, coordinating and scheduling maintenance and repairs, and coordinating day-to-day usage. A total of 2 personnel generally service the Stacker/Retriever. In addition, the scope includes the maintenance of the PU&D lay down yard.  
 Breakdown of Historical Data:  
 Item - Annual labor hours  
 Units & Unit Cost - 3,640 hours

Resources	Cost Element	Skill	Department	Curve	Quantity	Units		
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	SA01S	SSOC 371 Closure Project	Linear	3.640.00	Hours

Factors 3640 hrs using 2 FTE

**Line Item SYS - Contingency And Escalation**

**BOE**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units		
CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	4.510.93	Dollars
Factors 4510.93 Dollars								
ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	2.965.33	Dollars
Factors 2965.33 Dollars								

Activity ID: 1ACSRMG102

Description: Operate Stacker Retriever FY02

Cost Risk 1 Schedule Risk 1

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
N1Q0398T16b	Ops Tech Stacker/Retriever Support	1.00	each	HC	3.640	3.640	95.477	0	0	95.477	33.686	129.163
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	19.044	19.044	0	19.044
Total for Activity 1ACSRMG102:						3.640	95.477	0	19.044	114.522	33.686	148.207

WBS No: 1AAC  
 Activity ID: 1ACSRMG102

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

**Line Item N1Q0398T16b - Ops Tech Stacker/Retriever Support**

**BOE**  
 Historical Data Source - The historical data is the FY99 Work Plan and the B371 Actuals: P&I reports (002 and 002a) through July 1999. The FY99 Work Plan was based on previous years experience for the same activities at Rocky Flats.

Item Desc - This activity includes the following:  
 - Provide technical support for Stacker/Retriever control systems. This includes operating the S/R, coordinating and scheduling maintenance and repairs, and coordinating day-to-day usage. A total of 2 personnel generally service the Stacker/Retriever. In addition, the scope includes the maintenance of the PU&D lay down yard.

Breakdown of Historical Data:  
 Item - Annual labor hours  
 Units & Unit Cost - 3,640 hours

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	SA01S	SSOC 371 Closure Project	Linear	3,640.00	Hours

Factors 3640 hrs using 2 FTE

**Line Item SYS - Contingency And Escalation**

**BOE**

Cost Element		Skill		Department		Curve	Quantity	Units
CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	12,907.03	Dollars
Factors 12907.0 Dollars								
ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	6,137.28	Dollars
Factors 6137.28 Dollars								

Activity ID: 1ACSRMG103 Description: Operate Stacker Retriever FY03

Cost Risk 1 Schedule Risk 1

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
N1Q0398T16b	Ops Tech Stacker/Retriever Support	1.00	each	HC	3,640	3,640	95,477	0	0	95,477	32,461	127,939
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	31,370	31,370	0	31,370
Total for Activity 1ACSRMG103:						3,640	95,477	0	31,370	126,847	32,461	159,309

**Line Item N1Q0398T16b - Ops Tech Stacker/Retriever Support**

**BOE**  
 Historical Data Source - The historical data is the FY99 Work Plan and the B371 Actuals: P&I reports (002 and 002a) through July 1999. The FY99 Work Plan was based on previous years experience for the same activities at Rocky Flats.

Item Desc - This activity includes the following:  
 - Provide technical support for Stacker/Retriever control systems. This includes operating the S/R, coordinating and scheduling maintenance and repairs, and coordinating day-to-day usage. A total of 2 personnel generally service the Stacker/Retriever. In addition, the scope includes the maintenance of the PU&D lay down yard.

Breakdown of Historical Data:  
 Item - Annual labor hours  
 Units & Unit Cost - 3,640 hours

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	SA01S	SSOC 371 Closure Project	Linear	3,640.00	Hours

Factors 3640 hrs using 2 FTE

**Line Item SYS - Contingency And Escalation**

**BOE**

Cost Element		Skill		Department		Curve	Quantity	Units
CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	21,336.77	Dollars
Factors 21336.8 Dollars								
ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	10,033.14	Dollars
Factors 10033.1 Dollars								

Activity ID: 1ACSRPRT10 Description: Purchase SR Spare Parts

Cost Risk 1 Schedule Risk 1

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
CSV - Parts	Purchase Spare Parts	1.00	each	VQ	0	0	0	228,000	0	228,000	0	228,000

WBS No: 1AAC  
 Activity ID: 1ACSRPRT10

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \* Starts In FY \*

SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	13.414	13.414	0	13.414	
					Total for Activity 1ACSRPRT10:		0	0	228.000	13.414	241.414	0	241.414

**Line Item CSV - Parts - Purchase Spare Parts**

**BOE**  
 Vendor Name - "Best Supplier"  
 Vendor Quote -  
 Quote Received by - Nick Chavez  
 Date Received - 5/22/00  
 Item being quoted - See resource list  
 Other Info -  
 Availability -

Resources	Cost Element	Quantity	Units	Skill	Department	Curve	Quantity	Units
A5C	SUPPLIES	50000	NONE	KA70S	B371 Facility Disposition	Linear	50.000.00	Dollars
<i>Factors</i> 50000 Reducer for Horizontal Motor								
A5C	SUPPLIES	15000	NONE	KA70S	B371 Facility Disposition	Linear	15.000.00	Dollars
<i>Factors</i> 15000 Horizontal Motor								
A5C	SUPPLIES	10000	NONE	KA70S	B371 Facility Disposition	Linear	10.000.00	Dollars
<i>Factors</i> 10000 Mechanical Shafts/Gears								
A5C	SUPPLIES	5000	NONE	KA70S	B371 Facility Disposition	Linear	5.000.00	Dollars
<i>Factors</i> 5000 Bearings								
A5C	SUPPLIES	3000	NONE	KA70S	B371 Facility Disposition	Linear	3.000.00	Dollars
<i>Factors</i> 3000 Re-string 300' Cable on Recovery								
A5C	SUPPLIES	10000	NONE	KA70S	B371 Facility Disposition	Linear	10.000.00	Dollars
<i>Factors</i> 10000 Vertical Read Head								
A5C	SUPPLIES	10000	NONE	KA70S	B371 Facility Disposition	Linear	10.000.00	Dollars
<i>Factors</i> 10000 Horizontal Read Head								
A5C	SUPPLIES	10000	NONE	KA70S	B371 Facility Disposition	Linear	10.000.00	Dollars
<i>Factors</i> 10000 Lube Change for Recovery Wench								
A5C	SUPPLIES	15000	NONE	KA70S	B371 Facility Disposition	Linear	15.000.00	Dollars
<i>Factors</i> 15000 Vertical Motor								
A5H	SUBCONTRACTED SRVS	50000	NONE	KA70S	B371 Facility Disposition	Linear	50.000.00	Dollars
<i>Factors</i> 50000 Horizontal Control Cards Re-								
A5H	SUBCONTRACTED SRVS	50000	NONE	KA70S	B371 Facility Disposition	Linear	50.000.00	Dollars
<i>Factors</i> 50000 Reducer for Vertical Motor								

**Line Item SYS - Contingency And Escalation**

**BOE**

Resources	Cost Element	Quantity	Units	Skill	Department	Curve	Quantity	Units
CON	CONTINGENCY	8094.45	Dollars	ZDEPT	No Department	Linear	8.094.45	Dollars
<i>Factors</i> 8094.45 Dollars								
ESC	ESCALATION	5319.15	Dollars	ZDEPT	No Department	Linear	5.319.15	Dollars
<i>Factors</i> 5319.15 Dollars								

Activity ID: 1ACT302010 Description: Std Work Pkg/EDP RR Removal/Cerium Decon

Cost Risk 1 Schedule Risk 1

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost	
1.01 Nuc Screen	Nuclear Screen (1ACT302010)	1.00	ea	EE	40	40	1,397	0	0	1,397	682	2,078	
1.02 RWP/ALARA	RWP/ALARA (1ACT302010)	1.00	each	EE	80	80	2,198	0	0	2,198	1,073	3,271	
1.03 Crit Limit	Crit Limits (1ACT302010)	1.00	each	EE	40	40	1,731	0	0	1,731	845	2,575	
1.04 JHA/JHIT	JHA/JHIT (1ACT302010)	1.00	each	EE	140	140	3,612	0	0	3,612	1,763	5,375	
1.08 Pre Scan	Pre Scan of Tanks (1ACT302010)	6.00	each	EE	9	54	1,199	0	0	1,199	585	1,785	
1.10 WGIs	WGIs for Waste and Sludge (1ACT302010)	1.00	each	EE	160	160	4,730	0	0	4,730	2,308	7,038	
2.0 EDP	Ena. Des Pka. RR/Foa/Cerium (6 tks) (1ACT302010)	1.00	each	EE	140	140	4,789	0	0	4,789	2,337	7,127	
					Total for Activity 1ACT302010:		654	19,657	0	0	19,657	9,592	29,249

**Line Item 1.01 Nuc Screen - Nuclear Screen (1ACT302010)**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371

WBS No: 1AAC  
 Activity ID: 1ACT302010

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope to screen against the current building AB for tank fogging, Raschig ring removal, and cerium decontamination.

Breakdown of cost item

Item - Screen against the current building AB for tank fogging, Raschig ring removal, and cerium decontamination.  
 Unit - One nuclear screen  
 Unit Cost -  
 Unit Cost Adjustment Factor

Resources		Cost Element	Skill	Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	40.00	Hours
<i>Factors</i>		1	Nuclear Safety Eng.	40	hrs			

**Line Item 1.02 RWP/ALARA - RWP/ALARA (1ACT302010)**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope to develop the RWP and address the ALARA issues for tank fogging, Raschig ring removal, and cerium decontamination.

Breakdown of cost item

Item - Develop the RWP and address the ALARA issues for tank fogging, Raschig ring removal, and cerium decontamination.  
 Unit - One lump sum  
 Unit Cost -  
 Unit Cost Adjustment Factor

Resources		Cost Element	Skill	Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	40.00	Hours
<i>Factors</i>		1	Rad Eng	40	hrs			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	40.00	Hours
<i>Factors</i>		1	RCT	40	hrs			

**Line Item 1.03 Crit Limit - Crit Limits (1ACT302010)**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope of preparing a criticality limit covering 1) tank fogging, 2) Raschig ring removal, and 3) cerium decontamination.

Breakdown of cost item

Item - Prepare a criticality limits for tank fogging, Raschig ring removal, and cerium decontamination.  
 Unit - One criticality limit  
 Unit Cost -  
 Unit Cost Adjustment Factor

Resources		Cost Element	Skill	Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	40.00	Hours
<i>Factors</i>		1	Crit Eng	40	hrs			

WBS No: 1AAC  
 Activity ID: 1ACT302010

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

**Line Item 1.04 JHA/JHIT - JHA/JHIT (1ACT302010)**

**BOE** Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has intimate knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for completing the JHA/JHIT.

Breakdown of Cost Data:  
 Item - Cost for project engineer and team, Industrial Hygiene to complete the JHA/JHT.

Units - lot  
 Unit Cost - Hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C020	ELECTRICIANS	KA20H 371/374 Facility Maint Steelworkers	Linear	20.00	Hours
Factors		20	hrs				
750	STRAIGHT TIME BASE	C040	MAINTENANCE MACHINIST (incl Exp)	KA20H 371/374 Facility Maint Steelworkers	Linear	20.00	Hours
Factors		20	hrs				
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	20.00	Hours
Factors		20	hrs				
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	20.00	Hours
Factors		20	hrs				
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
Factors		20	hrs				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
Factors		20	hrs				
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
Factors		20	hrs				

**Line Item 1.08 Pre Scan - Pre Scan of Tanks (1ACT302010)**

**BOE** Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has intimate knowledge of the requirements.

Experience Item Desc -Prescan 2 tanks per day, 3 days for 6 tanks. If pre-scan is less than 200g no gram estimation is required of tank and sludge. If scan exceeds 200g then each individual of container and rings must be gram estimated.

Breakdown of Cost Data:  
 Item - One prescan per tank  
 Units - lot  
 Unit Cost - Hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA10H 371 Complex Steelworkers	Linear	9.00	Hours
Factors		2	NDA Techs	4.5	hrs/tank		

**Line Item 1.10 WGs - WGs for Waste and Sludge (1ACT302010)**

**BOE** Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has intimate knowledge of the requirements.

Experience Item Desc - Waste Generation Instructions (WGs) will be developed for each IDC within the project scope. Material removed from the tanks will be packaged in accordance with WGs developed for each IDC.

Breakdown of Cost Data:

WBS No: 1AAC  
 Activity ID: 1ACT302010

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Item - Waste Generation Instructions  
 Units - lot  
 Unit Cost - Hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	E050 ENVIRONMENTAL ENGINEERS	K266S Envir. Safety, Health & Quality	Linear	160.00	Hours
<i>Factors</i> 2 ESH&Q Eng 80 hrs						

**Line Item 2.0 EDP - Eng. Des Pkg. RR/Fog/Cerium (6 tks) (1ACT302010)**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has intimate knowledge of the requirements.

Experience Item Desc -An Engineering Design Package (EDP) will be developed for each room containing tanks to be included in the Raschig Ring removal campaign. The EDP will provide tank specific information for each tank in the room. The EDP will be incorporated into the Standard Work Package for the room being worked.

Breakdown of Cost Data:  
 Item - Engineering Design Package (EDP)  
 Units - lot  
 Unit Cost - Hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	80.00	Hours
<i>Factors</i> 40 hrs/tank cluster 2 clusters						
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
<i>Factors</i> 20 hrs/single tank 1 single tank						
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
<i>Factors</i> 40 hrs/room 1 room (3559)						

Activity ID: 1ACT302050 Description: Maintenance IWCP's Fab Tools/Connections

Cost Risk 1 Schedule Risk 1

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
1.1 Design RR	IWCP Design Tools/Cont. Pen/Retainer/Port	1.00	ls	EE	160	160	5,474	0	0	5,474	2,671	8,145
1.5 Fab RR	Fab RR Tools/Cont. Pen/Retainer/Port	1.00	ls	EE	160	160	3,408	0	0	3,408	1,663	5,071
2 & 3 Des/Fab	Design & Fab Foa/Cerium Connection	1.00	ls	EE	80	80	1,704	0	0	1,704	832	2,536
Total for Activity 1ACT302050:						400	10,586	0	0	10,586	5,166	15,751

**Line Item 1.1 Design RR - IWCP Design Tools/Cont. Pen/Retainer/Port**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for designing tools, containment pen, ring retainer, and replacement port for the Raschig Ring Removal for the first 6 Test Tanks in Set 2 (Tanks D55A, D55B, D56, D69A, D69B, D69C).

Breakdown of Cost Data:  
 Item - Cost of design  
 Units - tank  
 Unit Cost - 160 hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1ACT302050

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	80.00	Hours
<i>Factors</i>	1	Design Eng.	80	hrs				
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	80.00	Hours
<i>Factors</i>	1	Engineer	80	hrs				

**Line Item 1.5 Fab RR - Fab RR Tools/Cont. Pen/Retainer/Port**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for designing tools, containment pen, ring retainer, and replacement port for the Raschig Ring Removal for the first 6 Test Tanks in Set 2 (Tanks D55A, D55B, D56, D69A, D69B, D69C). Based on walk downs, in certain room specific things may need to be fixed.

Breakdown of Cost Data:  
 Item - Cost of design  
 Units - tank  
 Unit Cost - 160 hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C040	MAINTENANCE MACHINIST (incl Exp	KA20H	371/374 Facility Maint Steelworkers	Linear	80.00
<i>Factors</i>	1	Machinist	80	hrs			
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Maint Steelworkers	Linear	80.00
<i>Factors</i>	1	Pipefitter	80	hrs			

**Line Item 2 & 3 Des/Fab - Design & Fab Fog/Cerium Connection**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for designing and fabrication of the fogging and cerium connection for the first 6 Test Tanks in Set 2 (Tanks D55A, D55B, D56, D69A, D69B, D69C). Based on walk downs, in certain room specific things may need to be fixed.

Breakdown of Cost Data:  
 Item - Cost of design/fab  
 Units - tank  
 Unit Cost - 80 hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C040	MAINTENANCE MACHINIST (incl Exp	KA20H	371/374 Facility Maint Steelworkers	Linear	40.00
<i>Factors</i>	1	Machinist	40	hrs			
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Maint Steelworkers	Linear	40.00
<i>Factors</i>	1	Pipefitter	40	hrs			

Activity ID: 1ACT302060 Description: Engineering Design Pkg for Bal of Set 2 RR Tanks

Cost Risk 1 Schedule Risk 1

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
2.0 EDP	Eng. Design Pkg. RR/Fog/Cerium (28 tanks)	1.00	each	EE	660	660	22,579	0	0	22,579	10,770	33,349
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	1,768	1,768	0	1,768
Total for Activity 1ACT302060:						660	22,579	0	1,768	24,347	10,770	35,117

**Line Item 2.0 EDP - Eng. Design Pkg. RR/Fog/Cerium (28 tanks)**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has intimate knowledge of the requirements.

Experience Item Desc -An Engineering Design Package (EDP) will be developed for each room containing tanks to be included in the Raschig Ring removal campaign. The EDP will provide tank specific information for each tank in the room. The EDP will be incorporated into the Standard Work Package for the

WBS No: 1AAC  
 Activity ID: 1ACT302060

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

room being worked.

Breakdown of Cost Data:  
 Item - Engineering Design Package (EDP)  
 Units - lot  
 Unit Cost - Hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	360.00	Hours
<i>Factors</i> 40 hrs/tank cluster 9 clusters						
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	100.00	Hours
<i>Factors</i> 20 hrs/single tank 5 single tanks						
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	200.00	Hours
<i>Factors</i> 40 hrs/room 5 rooms						

**Line Item SYS - Contingency And Escalation**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
CON	CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	1,066.75	Dollars
<i>Factors</i> 1066.75 Dollars						
ESC	ESCALATION	0000 NONE	ZDEPT No Department	Linear	701.25	Dollars
<i>Factors</i> 701.246 Dollars						

Activity ID: 1ACT302100 Description: Set 2 RR Tank Foa/Rina/Sludge Removal (6 tanks)

Cost Risk 3 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
3.1.1 Fog Tank	Foa Tanks (1ACT302100)	1.00	each	EE	936	936	20,684	0	0	20,684	9,874	30,558
3.2.1 RR/Sludge R	RR Pre Req & Remov/Sludge Remov (1ACT302100)	1.00	each	EE	2,560	2,560	55,323	0	0	55,323	26,411	81,734
3.2.3 Post Config.	Post Tank Configuration (1ACT302100)	6.00	each	EE	306	1,836	40,192	0	0	40,192	19,188	59,380
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	8,491	8,491	0	8,491
Total for Activity 1ACT302100:						5,332	116,199	0	8,491	124,689	55,473	180,163

**Line Item 3.1.1 Fog Tank - Fog Tanks (1ACT302100)**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for hydrogen purging, fogging, removal of fogging equipment, and perform post valve lineup for the first 6 Test Tanks in Set 2 (Tanks D55A, D55B, D56, D69A, D69B, D69C).

Breakdown of Cost Data:  
 Item - Cost of hydrogen purging and fogging.  
 Units - tank  
 Unit Cost - hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	36.00	Hours
<i>Factors</i> 2 Pipefitters (fab connections) 2 days 9 hrs/day						
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	540.00	Hours
<i>Factors</i> 3 Process Specialists (tank prep/fog) 30 hrs/tank 6 tanks						
750	STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	180.00	Hours
<i>Factors</i> 1 Foreman (tank prep/fog) 30 hrs/tank 6 tanks						

WBS No: 1AAC  
 Activity ID: 1ACT302100

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	180.00	Hours
<i>Factors</i>	1	RCT (tank prep/foq)	30	hrs/tank	6	tanks		

**Line Item 3.2.1 RR/Sludge Rmvl - RR Pre Req & Remov/Sludge Remov (1ACT302100)**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for Deliver commodities, install Permacon, isolate inlet valves IAW EDP/Raschig Rings, install scaffolding, erect containment pen and air movers, install ring retainer, remove port and level sensor, take DAC reading, adjust port air flow, adjust ventilation, stage drums, position container and bags, add kitty litter (oil dry), remove rings using tools and place in 5 liter poly bottles, X Tape lids, place poly containers in bags, bag out poly containers, use two bag process, gram estimate (if pre-scan of tank is greater than 200 grams, place containers in drums in a three X two array (probably 30 gallons of rings in a 55 gallon drum), disposition drum (drum gets sealed and transferred to nuclear operations IH&P, position new drum, 1-4 sludge bottles per tank, stage four liter wide mouth bottles, scoop sludge into four liter bottles (Note fill only one four liter poly bottle at a time; next bottle cannot be filled until previous filled bottle is removed IAW crit limits, six hot samples, one for each tank if >10%, gram estimate sludge, count/Cal Poly bottles of sludge, sample sludge for tank characterization IAW RCRA, swab out bottom of tank using tools, bag out sludge for the first 6 Test Tanks in Set 2 (Tanks D55A, D55B, D56, D69A, D69B, D69C).

Breakdown of Cost Data:  
 Item - Cost of Raschig ring and sludge removal.  
 Units - tank  
 Unit Cost - hours and \$/tank  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Deliver commodities, install Permacon, isolate inlet valves IAW EDP/Raschig Rings, install scaffolding, erect containment pen and air movers, install ring retainer, remove port and level sensor, take DAC reading, adjust port air flow, adjust ventilation, stage drums, position container and bags, add kitty litter (oil dry), remove rings using tools and place in 5 liter poly bottles, X Tape lids, place poly containers in bags, bag out poly containers, use two bag process, gram estimate (if pre-scan of tank is greater than 200 grams, place containers in drums in a three X two array (probably 30 gallons of rings in a 55 gallon drum), disposition drum (drum gets sealed and transferred to nuclear operations, IH&P, position new drum, 1-4 sludge bottles per tank, stage four liter wide mouth bottles, scoop sludge into four liter bottles (Note fill only one four liter poly bottle at a time; next bottle cannot be filled until previous filled bottle is removed IAW crit limits, six hot samples, one for each tank if >10%, gram estimate sludge, count/Cal Poly bottles of sludge, sample sludge for tank characterization IAW RCRA, swab out bottom of tank using tools, bag out sludge

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C020 ELECTRICIANS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	24.00	Hours
<i>Factors</i>	2 Electricians	2 hrs/tank (disconnect sensors)		6	tanks
750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	216.00	Hours
<i>Factors</i>	2 Pipefitters	18 hrs/tank (fab connections/scaffold)		6	tanks
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	300.00	Hours
<i>Factors</i>	50 hrs/room for Pre Reqs	1 room		6	D&D Workers
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1,440.00	Hours
<i>Factors</i>	6 D&D Workers	40 hrs/tank		6	tanks
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	50.00	Hours
<i>Factors</i>	50 hrs/room for Pre Reqs	1 room			
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	240.00	Hours
<i>Factors</i>	40 hrs/tank	6 tanks			
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	50.00	Hours
<i>Factors</i>	50 hrs/room for Pre Reqs	1 room			
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	240.00	Hours
<i>Factors</i>	40 hrs/tank	6 tanks			

**Line Item 3.2.3 Post Config. - Post Tank Configuration (1ACT302100)**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for removing the retainer ring, re-install port, remove scaffolding, remove pen, and perform post valve lineup for the first 6 Test Tanks in Set 2 (Tanks D55A, D55B, D56, D69A, D69B, D69C).

Breakdown of Cost Data:  
 Item - Cost of post tank configuration.

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 Activity ID: 1ACT302100

**Rockv Flats Closure Project**  
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Starts In FY \*

Units - tank  
 Unit Cost - 306 hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	216.00	Hours
<i>Factors</i>	2 Pipefitters	18 hrs/tank(ports/scaffold)	6 tanks			
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	54.00	Hours
<i>Factors</i>	3 D&D Workers	18 hrs/tank				
750	STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	18.00	Hours
<i>Factors</i>	18 hrs/tank					
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	18.00	Hours
<i>Factors</i>	18 hrs/tank					

**Line Item SYS - Contingency And Escalation**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
CON	CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	5.013.77	Dollars
<i>Factors</i>	5013.77 Dollars					
ESC	ESCALATION	0000 NONE	ZDEPT No Department	Linear	3.477.18	Dollars
<i>Factors</i>	3477.18 Dollars					

Activity ID: 1ACT302200 Description: Set 2 B371 Main Aques Proc-RR Rmvl(Rem 28 tanks) Cost Risk 3 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
1.5 Fab RR	Fab RR Tools/Cont. Pen/Retainer/Port	1.00	ls	EE	480	480	10.224	0	0	10.224	4.367	14.591
3.1.1 Fog Tank	Fog Tanks	1.00	each	EE	5.208	5.208	114.836	84.230	0	199.067	49.045	248.112
3.2.1 RR/Sludae R	RR Pre Rea and Removal/Sludae Removal	1.00	each	EE	12.080	12.080	261.051	0	0	261.051	111.492	372.542
3.2.3 Post Config.	Post Tank Configuration	28.00	each	EE	306	8.568	187.564	0	0	187.564	80.106	267.670
B	Project Planning & Implementation	1.00	each	EE	0	0	0	89.332	0	89.332	0	89.332
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	87.814	87.814	0	87.814
Total for Activity 1ACT302200:						26.336	573.675	173.562	87.814	835.051	245.010	1.080.061

**Line Item 1.5 Fab RR - Fab RR Tools/Cont. Pen/Retainer/Port**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Positioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for fabricating tools, containment pen, ring retainer, and replacement port for the Raschig Ring Removal for the for the remaining 28 Tanks in Set 2. Based on walk downs, in certain room specific things may need to be fixed.

Breakdown of Cost Data:  
 Item - Cost of fabrication  
 Units - lump sum  
 Unit Cost - 480 hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C040 MAINTENANCE MACHINIST (incl Exp	KA20H 371/374 Facility Maint Steelworkers	Linear	240.00	Hours
<i>Factors</i>	1 Machinist	80 hrs	3 times amt. for 1st 6 tanks			
750	STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	240.00	Hours
<i>Factors</i>	1 Pipefitter	80 hrs	3 times amt. for 1st 6 tanks			

**Line Item 3.1.1 Fog Tank - Fog Tanks**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Positioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

WBS No: 1AAC  
 Activity ID: 1ACT302200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
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 Activity Filter \*

Starts In FY \*

Experience Item Desc - This line item contains the work scope for hydrogen purging, fogging, removal of fogging equipment, and perform post valve lineup for the remaining 28 Tanks in Set 2.

Breakdown of Cost Data:  
 Item - Cost of hydrogen purging and fogging.  
 Units - tank  
 Unit Cost - hours and \$/tank  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	1,008.00	Hours
Factors 2 Pipefitters (fab connections)	2 days	9 hrs/dav	28 tanks		
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	2,520.00	Hours
Factors 3 D&D Worker (tank prep/foq)	30 hrs/tank	28 tanks			
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSQC 371 Closure Project	Linear	840.00	Hours
Factors 1 Foreman (tank prep/foq)	30 hrs/tank	28 tanks			
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	840.00	Hours
Factors 1 RCT (tank prep/foq)	30 hrs/tank	28 tanks			
A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	14,508.00	Dollars
Factors 3 ET Labor (prep & foqing)	2 days - 1 set up & 1 to remove/room	5 rooms	8 hrs/dav		
60.45 \$/hr					
A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	26,600.00	Dollars
Factors 1 dav/tank	950 \$/dav (equip. use charges)	28 tanks			
A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	40,622.40	Dollars
Factors 3 ET Labor (prep & foqing)	1 dav to foq/tank	28 tanks	8 hrs/dav		
60.45 \$/hr					
A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	2,500.00	Dollars
Factors 2 dav/room	250 \$/dav (equip. set up/removal)	5 rooms			

**Line Item 3.2.1 RR/Sludge Rmvl - RR Pre Req and Removal/Sludge Removal**

**BOE**

Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for Deliver commodities, install Permacon, isolate inlet valves IAW EDP/Raschig Rings, install scaffolding, erect containment pen and air movers, install ring retainer, remove port and level sensor, take DAC reading, adjust port air flow, adjust ventilation, stage drums, position container and bags, add kitty litter (oil dry), remove rings using tools and place in 5 liter poly bottles, X Tape lids, place poly containers in bags, bag out poly containers, use two bag process, gram estimate (if pre-scan of tank is greater than 200 grams, place containers in drums in a three X two array (probably 30 gallons of rings in a 55 gallon drum), disposition drum (drum gets sealed and transferred to nuclear operations IH&P, position new drum, 1-4 sludge bottles per tank, stage four liter wide mouth bottles, scoop sludge into four liter bottles (Note fill only one four liter poly bottle at a time; next bottle cannot be filled until previous filled bottle is removed IAW crit limits, six hot samples, one for each tank if >10%, gram estimate sludge, count/Cal Poly bottles of sludge, sample sludge for tank characterization IAW RCRA, swab out bottom of tank using tools, bag out sludge for the for the remaining 28 Tanks in Set 2.

Breakdown of Cost Data:  
 Item - Cost of Raschig ring and sludge removal  
 Units - per tank  
 Unit Cost - hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C020 ELECTRICIANS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	112.00	Hours
Factors 2 Electricians	2 hrs/tank (disconnect sensors)	28 tanks			
750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	1,008.00	Hours
Factors 2 Pipefitters	18 hrs/tank (fab connections/scaffold)	28 tanks			

WBS No: 1AAC  
 Activity ID: 1ACT302200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
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Starts In FY \*

750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	1,500.00	Hours
<i>Factors</i>	6	D&D Workers	5	room	50	hrs/room for Pre Reqs		
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	6,720.00	Hours
<i>Factors</i>	6	D&D Workers	28	tanks	40	hrs/tank		
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	250.00	Hours
<i>Factors</i>	50	hrs/room for Pre Reqs	5	room				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	1,120.00	Hours
<i>Factors</i>	40	hrs/tank	28	tanks				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	250.00	Hours
<i>Factors</i>	50	hrs/room for Pre Reqs	5	room				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	1,120.00	Hours
<i>Factors</i>	40	hrs/tank	28	tanks				

**Line Item 3.2.3 Post Config. - Post Tank Configuration**

**BOE**

Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for removing the retainer ring, re-install port, remove scaffolding, remove pen, and perform post valve lineup for the Raschig Ring Removal for the for the remaining 28 Tanks in Set 2.

Breakdown of Cost Data:  
 Item - Cost of post tank configuration  
 Units - per tank  
 Unit Cost - 306 hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units			
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Linear	216.00	Hours
<i>Factors</i>	2	Pipefitters	18	hrs/tank(ports/scaffold)	6	tanks		
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	54.00	Hours
<i>Factors</i>	3	D&D Workers	18	hrs/tank				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	18.00	Hours
<i>Factors</i>	18	hrs/tank						
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	18.00	Hours
<i>Factors</i>	18	hrs/tank						

**Line Item B - Project Planning & Implementation**

**BOE**

Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences.

Experience Item Desc - This line item contains the work scope for planning & implementation of the Set 2 Raschig Ring Tank Fogging/Ring Removal effort.

Breakdown of Cost Data:  
 Item - Cost for subcontract consultant to oversee the planning and implementation of the Set 2 Raschig Ring Tank Fogging/Ring Removal effort.  
 Units - lot  
 Unit Cost - \$83,332  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units			
A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	KA70S	B371 Facility Disposition	Linear	89,331.90	Dollars
<i>Factors</i>	0.75	FTE (Kohler @ 75%)	140	days	8	hrs/dav	103.25	\$/hr
	1.03	Rate escalation						

**Line Item SYS - Contingency And Escalation**

**BOE**

Cost Element	Skill	Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1ACT302200

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	57,123.48	Dollars
<i>Factors</i> 57123.5 Dollars								
ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	30,690.91	Dollars
<i>Factors</i> 30690.9 Dollars								

Activity ID: 1ACT302300 Description: Cerium Decon Mockup Cold

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
1.0 Dev IWCP	Develop IWCP (1ACT302300)	1.00	each	EE	40	40	1,139	0	0	1,139	554	1,693
4.0 IWCPs/Fab	Dev IWCPs/Fab Cold Mockup Components (1ACT302300)	1.00	each	EE	280	280	6,824	0	0	6,824	3,322	10,147
5.0 Test	Test (Corrosion/Deliv Rts. Fixative) (1ACT302300)	1.00	each	EE	490	490	11,843	0	0	11,843	5,765	17,609
B (2300)	Project Planning & Implementation (1ACT302300)	1.00	each	EE	365	365	12,470	0	0	12,470	6,070	18,540
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	264	264	0	264
Total for Activity 1ACT302300:						1,175	32,276	0	264	32,540	15,712	48,252

**Line Item 1.0 Dev IWCP - Develop IWCP (1ACT302300)**

**BOE** Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has intimate knowledge of the test requirements.

Experience Item Desc - This line item contains the work scope for developing the IWCP to construct the cold mockup.

Breakdown of Cost Data:  
 Item - Cost for MTCE planner to develop the IWCP  
 Units - lot  
 Unit Cost - 40 hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units		
750	STRAIGHT TIME BASE	P070	COST ESTIMATORS PLANNERS AN	KA20S	B371/374 Facility Management	Linear	40.00	Hours
<i>Factors</i> 1 MTCE Planner 40 hrs								

**Line Item 4.0 IWCPs/Fab - Dev IWCPs/Fab Cold Mockup Components (1ACT302300)**

**BOE** Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has intimate knowledge of the test requirements.

Experience Item Desc - This line item contains the work scope for developing the IWCP and fabricating the cold mockup components: Spray header, port, delivery system.

Breakdown of Cost Data:  
 Item - IWCP and fabricating the cold mockup components: Spray header, port, delivery system.  
 Units - lot  
 Unit Cost - 280 hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units		
750	STRAIGHT TIME BASE	C040	MAINTENANCE MACHINIST (incl Exp	KA20H	371/374 Facility Maint Steelworkers	Linear	80.00	Hours
<i>Factors</i> 1 Machinist 80 hrs								
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Maint Steelworkers	Linear	80.00	Hours
<i>Factors</i> 1 Pipefitter 80 hrs								
750	STRAIGHT TIME BASE	P070	COST ESTIMATORS PLANNERS AN	KA20S	B371/374 Facility Management	Linear	120.00	Hours
<i>Factors</i> 1 MTCE Planner 120 hrs								

**Line Item 5.0 Test - Test (Corrosion/Deliv Rts, Fixative) (1ACT302300)**

**BOE** Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has intimate knowledge of the test requirements.

WBS No: 1AAC  
 Activity ID: 1ACT302300

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Experience Item Desc - This line item contains the work scope for testing corrosion rates, delivery rates, and fixative.

Breakdown of Cost Data:  
 Item - Cost for project engineer and subcontractor to test corrosion rates, delivery rates, and fixative.  
 Units - lot  
 Unit Cost - 490 hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	245.00	Hours
Factors	1 D&D Worker	7 weeks	35 hrs/wk			
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	245.00	Hours
Factors	1 Foreman	7 weeks	35 hrs/wk			

**Line Item B (2300) - Project Planning & Implementation (1ACT302300)**

BOE Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Positioning team over the past year. He compiled the estimate based upon his previous experiences.

Experience Item Desc - This line item contains the work scope for planning & implementation of the Cerium Decon Mockup effort. The subcontract consultant portion is being funded by EM50 funding.

Breakdown of Cost Data:  
 Item - Cost for planning and implementation of the Cerium Decon Mockup effort.  
 Units - lot  
 Unit Cost - \$  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	364.50	Hours
Factors	729 Hours	0.5 Martella @ 50%				

**Line Item SYS - Contingency And Escalation**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	154.57	Dollars
Factors	154.566 Dollars					
	ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	108.96	Dollars
Factors	108.96 Dollars					

Activity ID: 1ACT302400 Description: Final Cerium Decon Tank Test Report

Cost Risk 1 Schedule Risk 1

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
B.5.2	Final Test Report - (Cold Mockup)	1.00	each	EE	40	40	1,368	0	0	1,368	653	2,021
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	107	107	0	107
Total for Activity 1ACT302400:						40	1,368	0	107	1,475	653	2,128

**Line Item B 5.2 - Final Test Report - (Cold Mockup)**

BOE Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Positioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has intimate knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for completing the final test report. The report will provide decontamination test results and a set of standard decontamination protocols for different sizes, material compositions, and process histories.

Breakdown of Cost Data:  
 Item - Cost for 1 Project Engineer to prepare the final test report.  
 Units - 1 Report  
 Unit Cost - 40 hours

WBS No: 1AAC  
 Activity ID: 1ACT302400

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Unit Cost Adjustment factor - N/A
Revised Unit Cost - N/A
Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
<i>Factors</i>	1 Project Engineer	1 week	40 hrs/wk			

**Line Item SYS - Contingency And Escalation**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	64.65	Dollars
<i>Factors</i>	64.6517 Dollars					
	ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	42.50	Dollars
<i>Factors</i>	42.4998 Dollars					

Activity ID: 1ACT302500 Description: Set 2 Cerium Decon Tank Test (6 tanks)

Cost Risk 3 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
3.3.1 Cerium Deco	Cerium Decon Tank (1ACT302500)	6.00	each	EE	400	2,400	52,493	0	0	52,493	25,039	77,532
3.3.3 Post Confia	Post Cerium Tank Configuration (1ACT302500)	6.00	each	EE	108	648	14,409	0	0	14,409	6,873	21,283
3.3.4 Post Fixative	Prep/Apply Fixative, Smear&Rmv Equip. (1ACT302500)	6.00	each	EE	82	492	10,971	0	0	10,971	5,233	16,204
B (2500)	Project Planning & Implementation (1ACT302500)	1.00	each	EE	405	405	13,855	0	0	13,855	6,609	20,464
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	7,312	7,312	0	7,312
Total for Activity 1ACT302500:						3,945	91,728	0	7,312	99,040	43,754	142,794

**Line Item 3.3.1 Cerium Decon - Cerium Decon Tank (1ACT302500)**

BOE	Description
	Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.
	Experience Item Desc - This line item contains the work scope for cerium decon of the first 6 Test Tanks in Set 2 Room 3559(Tanks D55A, D55B, D56, D69A, D69B, D69C). Room preparations and a second cerium application, rinse and smear is included in the estimate.
	Breakdown of Cost Data: Item - Cost preps, 2 cerium applications and smears. Units - tank Unit Cost - hours and \$/tank Unit Cost Adjustment factor - N/A Revised Unit Cost - N/A Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	24.00	Hours
<i>Factors</i>	2 Pipefitters	12 hrs/tank (scafflod/ports)				
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	16.00	Hours
<i>Factors</i>	2 Pipefitters	8 hrs/tank (prep for smears)				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	240.00	Hours
<i>Factors</i>	4 D&D Workers	60 hrs/tank				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	60.00	Hours
<i>Factors</i>	60 hrs/tank					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	60.00	Hours
<i>Factors</i>	60 HRS/TANK					

**Line Item 3.3.3 Post Config - Post Cerium Tank Configuration (1ACT302500)**

BOE	Description
	Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.
	Experience Item Desc - This line item contains the work scope for removing the scaffolding and delivery system, isolating the exhaust and drain lines, and covering the port of the first 6 Test Tanks in Set 2 Room 3559(Tanks D55A, D55B, D56, D69A, D69B, D69C).

WBS No: 1AAC  
 Activity ID: 1ACT302500

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Breakdown of Cost Data:  
 Item - Cost remove scaffolding and delivery system, cut exhaust lines, cover port.  
 Units - tank  
 Unit Cost - hours and \$/tank  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	36.00	Hours
	Factors 2 Pipefitters	18 hrs/tank				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	36.00	Hours
	Factors 2 D&D Workers	18 hrs/tank				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	18.00	Hours
	Factors 18 hrs (foreman)					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	18.00	Hours
	Factors 18 Hrs (RCT)					

**Line Item 3.3.4 Post Fixative - Prep/Apply Fixative, Smear&Rmv Equip. (1ACT302500)**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Positioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for post decon fixative application, smearing the tank after fixative application, and removal of delivery system of the first 6 Test Tanks in Set 2 Room 3559 (Tanks D55A, D55B, D56, D69A, D69B, D69C).

Breakdown of Cost Data:  
 Item - Costs for fixative application, smearing the tank after fixative application, and removal of delivery system.  
 Unit Cost - 82 hours and \$5,164/tank  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	4.00	Hours
	Factors 1 Pipefitter	4 hrs (smears)				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	18.00	Hours
	Factors 1 D&D Worker	2 days (prep/apply fixative)	9 hrs/dav			
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	16.00	Hours
	Factors 2 D&D Workers	8 hrs (smears/equip removal)				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	18.00	Hours
	Factors 2 days (prep/apply fixative)	9 hrs/dav				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	8.00	Hours
	Factors 1 RCT	8 hrs (smears/equip removal)				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	18.00	Hours
	Factors 1 RCT	2 days/tnk (prep/apply fixative)	9 hrs/dav			

**Line Item B (2500) - Project Planning & Implementation (1ACT302500)**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Positioning team over the past year. He compiled the estimate based upon his previous experiences.

Experience Item Desc - This line item contains the work scope for planning & implementation of the Cerium Decon Mockup effort.

Breakdown of Cost Data:  
 Item - Cost for subcontract consultant to oversee the planning and implementation of the Cerium Decon Mockup effort.  
 Units - lot  
 Unit Cost - \$  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

WBS No: 1AAC  
 Activity ID: 1ACT302500

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	405.00	Hours
<i>Factors</i> 90 days 0.5 Martella @ 50% 9 hrs/dav						

**Line Item SYS - Contingency And Escalation**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	4.462.91	Dollars
<i>Factors</i> 4462.91 Dollars						
	ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	2.848.90	Dollars
<i>Factors</i> 2848.9 Dollars						

Activity ID: 1ACT302600 Description: Set 2 Cerium Tank Decon on Bal of RR Tanks Cost Risk 3 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
2 & 3 Des/Fab	Design & Fab Fog/Cerium Connection	1.00	ls	EE	240	240	5.112	0	0	5.112	2.102	7.214
3.3.1 Cerium Decon	Cerium Decon Tank	28.00	each	EE	256	7.168	156.746	0	0	156.746	64.442	221.189
3.3.3 Post Confia	Post Cerium Tank Configuration	28.00	each	EE	72	2.016	45.269	0	0	45.269	18.611	63.881
3.3.4 Post Fixative	Prep/Apply Fixative. Smear & Remove Equip.	28.00	each	EE	82	2.296	51.198	144.600	0	195.798	21.049	216.847
B	Project Planning & Implementation	1.00	each	EE	756	756	25.863	0	0	25.863	10.633	36.496
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	55.123	55.123	0	55.123
Total for Activity 1ACT302600:						12.476	284.188	144.600	55.123	483.911	116.837	600.748

**Line Item 2 & 3 Des/Fab - Design & Fab Fog/Cerium Connection**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Positioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for designing and fabrication of the fogging and cerium connection for the remaining 28 Tanks in Set 2. Based on walk downs, in certain room specific things may need to be fixed.

Breakdown of Cost Data:  
 Item - Cost of design/fab  
 Units - lump sum  
 Unit Cost - 240 hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C040 MAINTENANCE MACHINIST (incl Exp	KA20H 371/374 Facility Mgmt Steelworkers	Linear	120.00	Hours
<i>Factors</i> 1 Machinist 40 hrs 3 times amt. For 1st 6 tanks						
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	120.00	Hours
<i>Factors</i> 1 Pipefitter 40 hrs 3 times amt. For 1st 6 tanks						

**Line Item 3.3.1 Cerium Decon - Cerium Decon Tank**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Positioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for cerium decon for the remaining 28 Tanks in Set 2. Room preparations and smears is also included in the estimate.

Breakdown of Cost Data:  
 Item - Cost for tank prep and cerium decon.  
 Units - tank  
 Unit Cost - hours and \$/tank  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1ACT302600

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Linear	16.00	Hours
<i>Factors</i>	2 Pipefitters		8 hrs/tank (prep for smears)					
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Linear	24.00	Hours
<i>Factors</i>	2 Pipefitters		12 hrs/tank (scafflod/ports)					
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	144.00	Hours
<i>Factors</i>	4 D&D Workers		36 hrs/tank					
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	36.00	Hours
<i>Factors</i>	36 hrs/tank							
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	36.00	Hours
<i>Factors</i>	36 HRS/TANK							

**Line Item 3.3.3 Post Config - Post Cerium Tank Configuration**

**BOE** Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for removing the scaffolding and delivery system, isolating the exhaust lines, and covering the port of the remaining 28 Tanks in Set 2.

Breakdown of Cost Data:  
 Item - Cost remove scaffolding and delivery system, isolate exhaust lines, cover port.  
 Units - tank  
 Unit Cost - hours and \$/tank  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	36.00	Hours
<i>Factors</i>	2 D&D Workers		18 hrs/tank					
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	18.00	Hours
<i>Factors</i>	18 hrs/tank							
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	18.00	Hours
<i>Factors</i>	18 hrs/tank							

**Line Item 3.3.4 Post Fixative - Prep/Apply Fixative, Smear & Remove Equip.**

**BOE** Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for post decon fixative application, smearing the tank after fixative application, and removal of delivery system for the remaining 28 Tanks in Set 2.

Breakdown of Cost Data:  
 Item - Costs for fixative application, smearing the tank after fixative application, and removal of delivery system  
 Unit Cost - 82 hours and \$5,164/tank  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Linear	4.00	Hours
<i>Factors</i>	1 Pipefitter		4 hrs (smears)					
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	18.00	Hours
<i>Factors</i>	1 D&D Worker		2 days (prep/apply fixative)				9	hrs/dav
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	16.00	Hours
<i>Factors</i>	2 D&D Workers		8 hrs (smears/equip removal)					
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	18.00	Hours
<i>Factors</i>	2 days (prep/apply fixative)		9 hrs/dav					

WBS No: 1AAC  
 Activity ID: 1ACT302600

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	8.00	Hours
<i>Factors</i>		1	RCT	8	hrs (smears/equip. removal)			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	18.00	Hours
<i>Factors</i>		1	RCT	2	days/tnk (prep/applv fixative)		9	hrs/dav
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facilitv Disposition	Linear	1,900.00	Dollars
<i>Factors</i>		2	days/tank	950	\$/dav (equip use charges)			
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facilitv Disposition	Linear	3,264.30	Dollars
<i>Factors</i>		3	ET Labor	2	days/tank		9	hrs/dav
							60.45	\$/dav

**Line Item B - Project Planning & Implementation**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences.

Experience Item Desc - This line item contains the work scope for planning & implementation of the Cerium Decon Mockup effort.

Breakdown of Cost Data:  
 Item - Cost for subcontract consultant to oversee the planning and implementation of the Cerium Decon Mockup effort.  
 Units - lot  
 Unit Cost - \$  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	756.00	Hours
<i>Factors</i>		168 days	0.5 Martella @ 50%	9	hrs/dav

**Line Item SYS - Contingency And Escalation**

**BOE**

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	36,424.28	Dollars
<i>Factors</i>		36424.3 Dollars			
ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	18,698.29	Dollars
<i>Factors</i>		18698.3 Dollars			

**Activity ID: 1AQ00WCP00** Description: Purchase Taps for Non-Actinide Draining

Cost Risk 1 Schedule Risk 1

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
SCAP0640B	Purchase Taps - FY00	150.00	each	EE	0	0	0	52,500	0	52,500	0	52,500
SYS	Contingency And Escalation	1.00	lea	EE	0	0	0	0	351	351	0	351
Total for Activity 1AQ00WCP00:						0	0	52,500	351	52,851	0	52,851

**Line Item SCAP0640B - Purchase Taps - FY00**

**BOE**  
 Estimators Experience - Chuck Chambers has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Draining activities. He compiled the estimate based upon his previous experience, previous history for B371 Draining Preparations, and Engineering estimates based on FY98 and FY99 operations.

Experience Item Desc - Purchase taps based on the number of taps calculated by the "Walkdown" teams.

Breakdown of Cost Data:  
 Item - Purchase taps to meet all B371 draining requirements.  
 Units - 150 taps  
 Unit Cost - \$350/Tap  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

WBS No: 1AAC  
 Activity ID: 1AQ00WCP00

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
A5C	SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Back Loaded	350.00	Dollars
Factors 350 \$/Tap						

**Line Item SYS - Contingency And Escalation**

BOE

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
CON	CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	204.52	Dollars
Factors 204.521 Dollars						
ESC	ESCALATION	0000 NONE	ZDEPT No Department	Linear	146.44	Dollars
Factors 146.443 Dollars						

Activity ID: 1AQ01CL100 Description: Develop Plan for Closing MAA/PA

Cost Risk 3 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
Proi. Support	Proi. Support to Developing Plan	1.00	each	EE	140	140	6,713	0	0	6,713	3,202	9,916
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	535	535	0	535
Total for Activity 1AQ01CL100:						140	6,713	0	535	7,249	3,202	10,451

**Line Item Proj. Support - Proj. Support to Developing Plan**

BOE  
 Estimators Experience - The 771 SNM Removal Team Lead has over 27 years of experience managing multi-disciplined tasks. His project management experience has also included a SNM holdup removal project in B-779. The following cost estimate was derived from the SNM Removal Team Lead's diverse experience. The hours are the same but the department codes have been modified to reflect the appropriate resources supporting B371.  
 Experience Item Desc - SNM Holdup Removal activities  
 Breakdown of Cost Data:  
 Item - Develop Plan for Closing B371 MAA  
 Units - 1  
 Unit Cost - 140 hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
Factors 1 engineer 40 hours in support of development of						
750	STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	K275S Security	Linear	20.00	Hours
Factors 1 Safeguards and Security person 20 hours to provide input to the Plan for						
750	STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	SA01S SSOC 371 Closure Project	Linear	80.00	Hours
Factors 1 SSOC Proi. Manager 80 hours to support development of						

**Line Item SYS - Contingency And Escalation**

BOE

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
CON	CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	326.63	Dollars
Factors 326.631 Dollars						
ESC	ESCALATION	0000 NONE	ZDEPT No Department	Linear	208.50	Dollars
Factors 208.505 Dollars						

Activity ID: 1AQ01VA100 Description: Vulnerability Analysis

Cost Risk 3 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
Analysis	Vulnerability Analysis	1.00	each	EE	120	120	3,059	0	0	3,059	1,459	4,518
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	244	244	0	244
Total for Activity 1AQ01VA100:						120	3,059	0	244	3,303	1,459	4,762

**Line Item Analysis - Vulnerability Analysis**

BOE  
 Estimators Experience - The 771 SNM Removal Team Lead has over 27 years of experience managing multi-disciplined tasks. His project management experience has also included a SNM holdup removal project in B-779. The following cost estimate was derived from the SNM Removal Team Lead's diverse experience. The hours are the same but the department codes have been modified to reflect the appropriate resources supporting B371.  
 Experience Item Desc - SNM Holdup Removal Activities

WBS No: 1AAC  
 Activity ID: 1AQ01VA100

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Breakdown of Cost Data:  
 Item - Completed vulnerability analysis  
 Units - hours  
 Unit Cost - 120 Hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	P140 SAFEGUARDS AND OTHER SECURI	SA01S SSOC 371 Closure Project	Linear	120.00	Hours
<i>Factors</i> 120 Other Engineers						

**Line Item SYS - Contingency And Escalation**

**BOE**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	148.82	Dollars
<i>Factors</i> 148.822 Dollars						
	ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	95.00	Dollars
<i>Factors</i> 95.0002 Dollars						

**Activity ID: 1AQ0222000** Description: Deactivate Vault Alarms in B371

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
3B0001700	Plan/Engineer/Remove Security Wiring Vault #449	7.00	each	EE	503	3,521	88,093	57,260	0	145,353	30,480	175,833
3B0001750	Final Vault Scans	7.00	each	EE	104	728	18,025	0	0	18,025	6,237	24,261
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	56,031	56,031	0	56,031
Total for Activity 1AQ0222000:						4,249	106,118	57,260	56,031	219,408	36,717	256,125

**Line Item 3B0001700 - Plan/Engineer/Remove Security Wiring Vault #449**

**BOE**

Estimators Experience - Management of FY98 SNM Holdup Removal activities in B776 (Vault 152), management of other SNM Consolidation programs in B776, 779 and 707.

Experience Item Desc - Perform the planning, engineering and removal/modification of the vault security system in Rooms 3606, 3337, 3321, 3327, 1101, 1208, & 1258.

Basis of Cost Data: Estimates are based upon one vault

Item -	Units	Unit Cost	UC Adj	Revised Unit Cost	Basis for Adjustment
Hourly ST	Hours	182	NA	182	
Hourly OT	Hours		NA		
Salaried ST	Hours	321	NA	321	
Salaried OT	Hours		NA		
Materials/Supplies	Dollars		NA		
Subcontracts	Dollars	\$8160	NA	\$8160	

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	E050 ENVIRONMENTAL ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
<i>Factors</i> 1 engineer (provide oversight) 40 hours						
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	32.00	Hours
<i>Factors</i> 1 ARCIE Supervisor 32 hours						
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	6.00	Hours
<i>Factors</i> 1 foreman 1 design walkdown 6 hours per walkdown						
	750 STRAIGHT TIME BASE	P140 SAFEGUARDS AND OTHER SECURI	SA01S SSOC 371 Closure Project	Linear	6.00	Hours
<i>Factors</i> 1 design walkdown 1 NMC specialist 6 hours per walkdown						
	750 STRAIGHT TIME BASE	P140 SAFEGUARDS AND OTHER SECURI	SA01S SSOC 371 Closure Project	Linear	16.00	Hours
<i>Factors</i> 1 NMC Specialist 16 hours (construction support)						
	750 STRAIGHT TIME BASE	P170 OTHER ADMINISTRATIVE & PROFE	SA01S SSOC 371 Closure Project	Linear	124.00	Hours
<i>Factors</i> 1 person 1 drawing search/design check 124 hours						

WBS No: 1AAC  
 Activity ID: 1AQ0222000

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: 1AAC  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	SA01S	SSOC 371 Closure Project	Linear	15.00	Hours
Factors	1	field supervisor (construction)	15	hours				
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	SA01S	SSOC 371 Closure Project	Linear	6.00	Hours
Factors	1	person	1	Vault walkdown for design	6	hours per walkdown		
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	SA01S	SSOC 371 Closure Project	Linear	56.00	Hours
Factors	1	review/roundtable	7	reviewers	8	hours per reviewer		
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	SA01S	SSOC 371 Closure Project	Linear	11.00	Hours
Factors	1	engineer closeout walkdown/drawing	11	hours				
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	W103S	Human Resources	Linear	9.00	Hours
Factors	9	hours	1	WSI Data base support (construction)				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	32.00	Hours
Factors	1	RCT	32	hours construction support				
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	10.00	Hours
Factors	2	ARCIE Techs (closeout walkdowns)	5	hours each				
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	12.00	Hours
Factors	1	walkdown for design	6	hours each	2	ARCIE Alarm Tech		
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	128.00	Hours
Factors	32	hours each	4	ARCIE techs (for construction)				
A57	LATA	P070	COST ESTIMATORS PLANNERS AN	KA70S	B371 Facility Disposition	Linear	4.800.00	Dollars
Factors	80	HOURS	1	planner	60	\$/hour		
A58	ASI	0000	NONE	KA70S	B371 Facility Disposition	Linear	2.800.00	Dollars
Factors	40	hours	70	\$/hour	1	ASI support for as-builts		
A58	ASI	0000	NONE	KA70S	B371 Facility Disposition	Linear	580.00	Dollars
Factors	40	dollars per hour	1	ea	14.5	hours	1	reproduction services/interim drawing

**Line Item 3B0001750 - Final Vault Scans**

<b>BOE</b>	Estimators Experience - Management of FY98 SNM Holdup Removal activities in B776 (Vault 152), management of other SNM Consolidation programs in B776, 779 and 707.					
	Experience Item Desc - Perform the final vault scan to ensure that all material has been removed from the Rooms: 3606, 3337, 3321, 1101, 1208, & 1258 vaults.					
	Basis of Cost Data: Cost Estimate based upon 1 vault.					
	Item -	Units	Unit Cost	UC Adj	Revised Unit Cost	Basis for Adjustment
	Hourly ST	Hours	16	NA	16	
	Hourly OT	Hours		NA		
	Salaried ST	Hours	88	NA	88	
	Salaried OT	Hours		NA		
	Materials/Supplies	Dollars				
	Subcontracts	Dollars				

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear 8.00 Hours
Factors	1	process specialists	8	hours		
750	STRAIGHT TIME BASE	P140	SAFEGUARDS AND OTHER SECURI	SA01S	SSOC 371 Closure Project	Linear 8.00 Hours
Factors	8	hours	1	NMC		
750	STRAIGHT TIME BASE	P140	SAFEGUARDS AND OTHER SECURI	SA01S	SSOC 371 Closure Project	Linear 80.00 Hours
Factors	80	hours	1	safeguards person		
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear 8.00 Hours
Factors	1	RCT	8	hours		

**Line Item SYS - Contingency And Escalation**

<b>BOE</b>						
<b>Resources</b>	Cost Element	Skill	Department	Curve	Quantity	Units
	CON	CONTINGENCY	0000	NONE	ZDEPT	No Department
	Factors	40686.5	Dollars			

WBS No: 1AAC  
 Activity ID: 1AQ0222000

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	15,344.28	Dollars
Factors 15344.3 Dollars								

Activity ID: 1AQ02VW100 Description: Final Facility Scan/MAA Closure Activities

Cost Risk 3 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
1	SNM Verification Walkdowns	1.00	each	HC	3.542	3.542	91.142	0	0	91.142	31.535	122.677
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	34.714	34.714	0	34.714
Total for Activity 1AQ02VW100:						3.542	91.142	0	34.714	125.856	31.535	157.391

**Line Item 1 - SNM Verification Walkdowns**

**BOE**  
 Historical Data Source - The historical data is in the FY98 workplan. The adjustments are based on actual costs in WAD60 for scanning 45 areas in FY98.  
 Item Desc - Perform safeguards measurements and walkdown validation for final facility scans (high and low gamma scans) of approximately 111 points in B371. These scans verify that SNM holdup (above safeguard termination limits) have been removed from the facility  
 Item Desc - Final facility scans  
 Breakdown of Historical Data:  
 Item - Facility Scan  
 Units - hours  
 Unit Cost - 20 hours per item scanned  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	P170 OTHER ADMINISTRATIVE & PROFE	SA01S SSOC 371 Closure Project	Linear	3.220	0.00 Hours
Factors 161 Validation Points 20 hrs.					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	322.00	Hours
Factors 161 Validation Points 20 hrs. 0.1 (10% of scanner time)					

**Line Item SYS - Contingency And Escalation**

**BOE**

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	25.306	46 Dollars
Factors 25306.5 Dollars					
ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	9.407	54 Dollars
Factors 9407.54 Dollars					

Activity ID: 1AQ31CWTS0 Description: B371/4 Caustic Waste Treatment Ops FY00

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
CWTS00	Treat and Process FY00	1.00	lot	EE	1.550	1.550	36.971	46.431	0	83.402	18.000	101.402
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	532	532	0	532
Total for Activity 1AQ31CWTS0:						1.550	36.971	46.431	532	83.934	18.000	101.934

**Line Item CWTS00 - Treat and Process FY00**

**BOE**  
 Estimators Experience - Larry Martella (current B371 processing lead) has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Treating and Processing activities. He compiled the estimate based upon his previous experience, previous history for B371 Treat and Process activities, and Engineering estimates based on FY98 and FY99 operations.  
 Experience Item Desc - This line item contains the work scope for B371 tank draining to remove residual liquids, solutions, and reagents from the B371 process tanks. It also includes Caustic Waste Treatment System (CWTS) processing.  
 Breakdown of Cost Data:  
 Item - Treat and Process  
 Units - Annual Lot  
 Unit Cost - 1,550 Hours and \$46,431

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	39.40	Hours
Factors 0.2 FTE 197 hrs/FTE (Sep)					

WBS No: 1AAC  
 Activity ID: 1AQ31CWTS0

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	100.00	Hours
<i>Factors</i> 100 hrs (Systems Ena. Subt. For svstem								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	197.00	Hours
<i>Factors</i> 1 FTE (Proc. Spec.) Foreman) 197 hrs/FTE (Sep)								
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFF	SA01S	SSOC 371 Closure Project	Linear	98.50	Hours
<i>Factors</i> 0.5 FTE (Martella) 197 hrs/FTE (Sep)								
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	985.00	Hours
<i>Factors</i> 5 FTE (Proc. Spec.) 197 hrs/FTE (Sep)								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	49.25	Hours
<i>Factors</i> 0.25 FTE (RCT) 197 hrs/FTE (Sep)								
751	OVERTIME BASE & PRE.	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mamt Steelworkers	Linear	32.51	Hours
<i>Factors</i> 0.5 FTE (Pipefitter) 197 hrs/FTE (Sep) 0.33 support every third processinga dav								
751	OVERTIME BASE & PRE.	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	32.51	Hours
<i>Factors</i> 0.5 FTE (Maint Foreman) 197 hrs/FTE (Sep) 0.33 support every third processinga dav								
751	OVERTIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	16.25	Hours
<i>Factors</i> 0.25 FTE (RCT) 197 hrs/FTE (Sep) 0.33 support every third processinga dav								
A57	LATA	P150	TRAINERS	KA10S	B371 ESH&Q	Linear	3,276.00	Dollars
<i>Factors</i> 3276 dollars/ea								
A57	LATA	P160	TECHNICAL WRITERS AND EDITOR	KA10S	B371 ESH&Q	Linear	7,586.00	Dollars
<i>Factors</i> 7586 dollars/ea								
A57	LATA	S010	CHEMISTS	KA70S	B371 Facility Disposition	Linear	7,298.00	Dollars
<i>Factors</i> 7298 dollars								
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	25,513.00	Dollars
<i>Factors</i> 1 ea 25513 Dollars/ea (Processinga material.								
A5H	SUBCONTRACTED SRVS	E080	NUCLEAR (CRITICALITY) ENGINEER	KA70S	B371 Facility Disposition	Linear	2,758.00	Dollars
<i>Factors</i> 0.2 FTE 197 hrs/FTE (Jun-Sep) 70 \$/hr								

**Line Item SYS - Contingency And Escalation**

**BOE**

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	311.779	Dollars
<i>Factors</i> 311.779 Dollars					
ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	219.79	Dollars
<i>Factors</i> 219.785 Dollars					

Activity ID: 1AQ31CWTS1

Description: B371/4 Caustic Waste Treatment Ops FY01

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
CWTS01	Treat and Process FY01	1.00	lot	EE	14,958	14,958	347,098	149,152	0	496,250	160,333	656,583
CWTSPUMPS	Backup Pumps	1.00	each	EE	99	99	2,769	5,080	0	7,849	1,267	9,115
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	41,156	41,156	0	41,156
Total for Activity 1AQ31CWTS1:						15.057	349,867	154,232	41,156	545,255	161,600	706,855

**Line Item CWTS01 - Treat and Process FY01**

**BOE**

Estimators Experience - Larry Martella (current B371 processing lead) has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Treating and Processing activities. He compiled the estimate based upon his previous experience, previous history for B371 Treat and Process activities, and Engineering estimates based on FY98 and FY99 operations.

Experience Item Desc - This line item contains the work scope for B371 tank draining to remove residual liquids, solutions, and reagents from the B371 process tanks. It also includes Caustic Waste Treatment System (CWTS) processing.

Breakdown of Cost Data:  
 Item - Treat and Process  
 Units - Annual Lot  
 Unit Cost - 14,958 Hours and \$151,359

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1AQ31CWTS1

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	403.60	Hours
Factors	0.2	FTE	2018	hrs/FTE				
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	100.00	Hours
Factors	100	hrs (Systems Ena. Supt. For system						
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	2,018.00	Hours
Factors	1	FTE (Proc. Spec.) Foreman)	2018	hrs/FTE				
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	SA01S	SSOC 371 Closure Project	Linear	1,009.00	Hours
Factors	0.5	FTE (Martella)	2018	hrs/FTE				
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	10,090.00	Hours
Factors	5	FTE (Proc. Spec.)	2018	hrs/FTE				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	504.50	Hours
Factors	0.25	FTE (RCT)	2018	hrs/FTE				
751	OVERTIME BASE & PRE.	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Linear	332.97	Hours
Factors	0.5	FTE (Pipefitter)	2018	hrs/FTE	0.33 support every third processinga dav			
751	OVERTIME BASE & PRE.	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	332.97	Hours
Factors	0.5	FTE (Maint Foreman)	2018	hrs/FTE	0.33 support every third processinga dav			
751	OVERTIME BASE & PRE.	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	166.49	Hours
Factors	0.25	FTE (RCT)	2018	hrs/FTE	0.33 support every third processinga dav			
A57	LATA	P150	TRAINERS	KA70S	B371 Facility Disposition	Linear	9,068.00	Dollars
Factors	9068	dollars						
A57	LATA	P160	TECHNICAL WRITERS AND EDITOR	KA70S	B371 Facility Disposition	Linear	21,000.00	Dollars
Factors	21000	dollars						
A57	LATA	S010	CHEMISTS	KA70S	B371 Facility Disposition	Linear	20,204.00	Dollars
Factors	20204	dollars						
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	70,628.00	Dollars
Factors	1	ea	70628	Dollars/ea (Processing material.				
A5H	SUBCONTRACTED SRVS	E080	NUCLEAR (CRITICALITY) ENGINEER	KA70S	B371 Facility Disposition	Linear	28,252.00	Dollars
Factors	0.2	FTE	2018	hrs/FTE	70 \$/hr			

**Line Item CWTSPUMPS - Backup Pumps**

**BOE**  
 Estimators Experience - Larry Martella has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Treating and Processing activities. He compiled the estimate based upon his previous experience, previous history for B371 Treat and Process activities, and Engineering estimates based on projected operations.

Experience Item Desc - This line item contains the work scope for pump replacement in the event they break down.

Breakdown of Cost Data:  
 Item - Pump Replacement  
 Units - Each  
 Unit Cost - 99 Hours and \$5,080

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Back Loaded	45.00	Hours
Factors	5	days	9	hrs/dav				
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	KA10S	B371 ESH&Q	Back Loaded	45.00	Hours
Factors	5	days	9	hrs/dav				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Back Loaded	9.00	Hours
Factors	5	days	9	hrs/dav	0.2 supv. Factor			
A57	LATA	P070	COST ESTIMATORS PLANNERS AN	KA20S	B371/374 Facility Management	Back Loaded	1,080.00	Dollars
Factors	2	days	9	hrs/dav	60 \$/hr			
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Back Loaded	4,000.00	Dollars
Factors	2000	\$/pump	2	pumps				

**Line Item SYS - Contingency And Escalation**

**BOE**

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1AQ31CWTS1

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \* Starts In FY \*

CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	25,188.61	Dollars
<i>Factors</i> 25188.6 Dollars								
ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	15,967.53	Dollars
<i>Factors</i> 15967.5 Dollars								

Activity ID: 1AQ31CWTS2 Description: B371/4 Caustic Waste Treatment Ops FY02

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
CWTS02	Treat and Process FY02	1.00	lot	EE	14,950	14,950	346,928	149,138	0	496,066	121,906	617,971
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	105,889	105,889	0	105,889
Total for Activity 1AQ31CWTS2:						14,950	346,928	149,138	105,889	601,955	121,906	723,861

**Line Item CWTS02 - Treat and Process FY02**

**BOE**  
 Estimators Experience - Larry Martella (current B371 processing lead) has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Treating and Processing activities. He compiled the estimate based upon his previous experience, previous history for B371 Treat and Process activities, and Engineering estimates based on FY98 and FY99 operations.

Experience Item Desc - This line item contains the work scope for B371 tank draining to remove residual liquids, solutions, and reagents from the B371 process tanks. It also includes Caustic Waste Treatment System (CWTS) processing.

Breakdown of Cost Data:  
 Item - Treat and Process  
 Units - Annual Lot  
 Unit Cost - 14,950 Hours and \$149,138

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	403.40	Hours
<i>Factors</i> 0.2 FTE 2017 hrs/FTE					
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	100.00	Hours
<i>Factors</i> 100 hrs (Svstem Eng. Suot. For svstem)					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	2,017.00	Hours
<i>Factors</i> 1 FTE (Proc. Spec.) Foreman) 2017 hrs/FTE					
750 STRAIGHT TIME BASE	P170 OTHER ADMINISTRATIVE & PROFE	SA01S SSOC 371 Closure Project	Linear	1,008.50	Hours
<i>Factors</i> 0.5 FTE (Martella) 2017 hrs/FTE					
750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	10,085.00	Hours
<i>Factors</i> 5 FTE (Proc. Spec.) 2017 hrs/FTE					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	504.25	Hours
<i>Factors</i> 0.25 FTE (RCT) 2017 hrs/FTE					
751 OVERTIME BASE & PRE.	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mamt Steelworkers	Linear	332.81	Hours
<i>Factors</i> 0.5 FTE (Pipefitter) 2017 hrs/FTE 0.33 support every third processing day					
751 OVERTIME BASE & PRE.	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	332.81	Hours
<i>Factors</i> 0.5 FTE (Maint Foreman) 2017 hrs/FTE 0.33 support every third processing day					
751 OVERTIME BASE & PRE.	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	166.40	Hours
<i>Factors</i> 0.25 FTE (RCT) 2017 hrs/FTE 0.33 support every third processing day					
A57 LATA	P150 TRAINERS	KA70S B371 Facility Disposition	Linear	9,068.00	Dollars
<i>Factors</i> 9068 dollars					
A57 LATA	P160 TECHNICAL WRITERS AND EDITOR	KA70S B371 Facility Disposition	Linear	21,000.00	Dollars
<i>Factors</i> 21000 dollars					
A57 LATA	S010 CHEMISTS	KA70S B371 Facility Disposition	Linear	20,204.00	Dollars
<i>Factors</i> 20204 dollars					
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	70,628.00	Dollars
<i>Factors</i> 1 ea 70628 Dollars/ea (Processing material)					
A5H SUBCONTRACTED SRVS	E080 NUCLEAR (CRITICALITY) ENGINEER	KA70S B371 Facility Disposition	Linear	28,238.00	Dollars
<i>Factors</i> 0.2 FTE 2017 hrs/FTE 70 \$/hr					

**Line Item SYS - Contingency And Escalation**

**BOE**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1AQ31CWTS2

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

CON	CONTINGENCY	0000	NONE	ZDEPT	No Department		Linear	72,757.45	Dollars
Factors 72757.5 Dollars									
ESC	ESCALATION	0000	NONE	ZDEPT	No Department		Linear	33,131.90	Dollars
Factors 33131.9 Dollars									

Activity ID: 1AQ31CWTS3 Description: B371/4 Caustic Waste Treatment Ops FY03

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
CWTS03	Treat and Process FY03	1.00	lot	EE	3,738	3,738	86,732	37,285	0	124,016	30,009	154,026
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	43,131	43,131	0	43,131
Total for Activity 1AQ31CWTS3:						3,738	86,732	37,285	43,131	167,147	30,009	197,156

**Line Item CWTS03 - Treat and Process FY03**

**BOE**  
 Estimators Experience - Larry Martella (current B371 processing lead) has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Treating and Processing activities. He compiled the estimate based upon his previous experience, previous history for B371 Treat and Process activities, and Engineering estimates based on FY98 and FY99 operations.

Experience Item Desc - This line item contains the work scope for B371 tank draining to remove residual liquids, solutions, and reagents from the B371 process tanks. It also includes Caustic Waste Treatment System (CWTS) processing.

Breakdown of Cost Data:  
 Item - Treat and Process  
 Units - Annual Lot  
 Unit Cost - 3,738 Hours and \$37,285

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSQC 371 Closure Project	Linear	100.85	Hours
Factors 0.2 FTE	2017 hrs/FTE	0.25 1/4 of year			
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSQC 371 Closure Project	Linear	25.00	Hours
Factors 100 hrs (Svstems Eng. Suot. For svstem	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSQC 371 Closure Project	Linear	504.25	Hours
Factors 1 FTE (Proc. Spec.) Foreman)	2017 hrs/FTE	0.25 1/4 of year			
750 STRAIGHT TIME BASE	P170 OTHER ADMINISTRATIVE & PROFE	SA01S SSQC 371 Closure Project	Linear	252.13	Hours
Factors 0.5 FTE (Martella)	2017 hrs/FTE	0.25 1/4 of year			
750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	2,521.25	Hours
Factors 5 FTE (Proc. Spec.)	2017 hrs/FTE	0.25 1/4 of year			
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLIGI	KA10H 371 Complex Steelworkers	Linear	126.06	Hours
Factors 0.25 FTE (RCT)	2017 hrs/FTE	0.25 1/4 of year			
751 OVERTIME BASE & PRE.	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	83.20	Hours
Factors 0.5 FTE (Pipefitter)	2017 hrs/FTE	0.33 support every third processing day	0.25 1/4 of year		
751 OVERTIME BASE & PRE.	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSQC 371 Closure Project	Linear	83.20	Hours
Factors 0.5 FTE (Maint Foreman)	2017 hrs/FTE	0.33 support every third processing day	0.25 1/4 of year		
751 OVERTIME BASE & PRE.	T050 RADIATION CONTROL TECHNOLIGI	KA10H 371 Complex Steelworkers	Linear	41.60	Hours
Factors 0.25 FTE (RCT)	2017 hrs/FTE	0.33 support every third processing day	0.25 1/4 of year		
A57 LATA	P150 TRAINERS	KA70S B371 Facility Disposition	Linear	2,267.00	Dollars
Factors 9068 dollars	1 ea	0.25 1/4 of year			
A57 LATA	P160 TECHNICAL WRITERS AND EDITOR	KA70S B371 Facility Disposition	Linear	5,250.00	Dollars
Factors 21000 dollars	1 ea	0.25 1/4 of year			
A57 LATA	S010 CHEMISTS	KA70S B371 Facility Disposition	Linear	5,051.00	Dollars
Factors 20204 dollars	1 ea	0.25 1/4 of year			
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	17,657.00	Dollars
Factors 1 ea	70628 Dollars/ea (Processing material.	0.25 1/4 of year			
A5H SUBCONTRACTED SRVS	E080 NUCLEAR (CRITICALITY) ENGINEER	KA70S B371 Facility Disposition	Linear	7,059.50	Dollars
Factors 0.2 FTE	2017 hrs/FTE	70 \$/hr	0.25 1/4 of year		

**Line Item SYS - Contingency And Escalation**

**BOE**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1AQ31CWTS3

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

CON	CONTINGENCY	0000	NONE	ZDEPT	No Department				Linear	31,319.02	Dollars
Factors 31319.0 Dollars											
ESC	ESCALATION	0000	NONE	ZDEPT	No Department				Linear	11,811.50	Dollars
Factors 11811.5 Dollars											

Activity ID: 1AQ31DR001 Description: B371 Set 1 Eval/Prep/Drain Non-actinide Liquids

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
S3RM1200	Drain - Area 13	1.00	ea	EE	305	305	6,620	3,411	0	10,031	3,231	13,262
Total for Activity 1AQ31DR001:						305	6,620	3,411	0	10,031	3,231	13,262

**Line Item S3RM1200 - Drain - Area 13**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Draining activities. He compiled the estimate based upon his previous experience, previous history for B371 Draining activities, and Engineering estimates based on FY98 and FY99 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Draining requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for setting up purging and draining equipment, draining of solutions, sampling of solutions, bag in and bag out of gloveboxes, purging hydrogen, aligning valves, and removal of draining and purging equipment.  
 Breakdown of Cost Data:  
 Item - Drain - Area 13 (Engineering teams and Building Operations drain the Area)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 305 Hours/Area and \$3,411/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	59.00	Hours
Factors 59 Hours					
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	18.00	Hours
Factors 18 Hours					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	2.00	Hours
Factors 2 Hours (Maint Supv)					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	10.00	Hours
Factors 10 Hours					
750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	216.00	Hours
Factors 216 Hours					
A57 LATA	E110 QUALITY CONTROL ENGINEERS	KA10S B371 ESH&Q	Linear	350.00	Dollars
Factors 350 Dollars/ea					
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	2,065.00	Dollars
Factors 2065 \$					
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	963.00	Dollars
Factors 963 Dollars/ea					
A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	33.00	Dollars
Factors 33 Dollars					

Activity ID: 1AQ31DR006 Description: B371 Set 6 Eval/Prep/Drain Non-actinide Liquids

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
S3BM0490	Prep to Drain - Area 6	1.00	ea	EE	543	543	13,537	600	0	14,137	6,589	20,726
S3RMT499	Drain Area 6	1.00	ea	EE	268	268	6,140	5,765	0	11,905	2,989	14,894
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	244	244	0	244
WD	Complete Actinide Walk Down for Non-Actinide Pipin	4.00	each	EE	0	0	0	6,720	0	6,720	0	6,720
Total for Activity 1AQ31DR006:						811	19,677	13,085	244	33,005	9,578	42,583

**Line Item S3BM0490 - Prep to Drain - Area 6**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Preparations to Drain. He compiled the estimate based upon his previous experience, previous history for B371 Draining Preparations, and

WBS No: 1AAC  
 Activity ID: 1AQ31DR006

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Engineering estimates based on FY98 and FY99 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Preparation to Drain requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for setting up scaffolding, changing glovebox gloves and preparing gloveboxes for draining, performing administrative reviews and permits, moving drums as necessary, modifying equipment as necessary, modifying draining procedures, and placing LO/TO  
 Breakdown of Cost Data:  
 Item - Prep to Drain - Area 6 (Engineering teams and Building Operations prepare necessary paperwork, set up the Area Rooms and gloveboxes for draining)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 543 Hours/Area and \$600/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C010 CARPENTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	54.00	Hours
<i>Factors</i> 54 Hours					
750 STRAIGHT TIME BASE	C020 ELECTRICIANS	KA20H 371/374 Facility Maint Steelworkers	Linear	26.00	Hours
<i>Factors</i> 26 Hours					
750 STRAIGHT TIME BASE	C070 PAINTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	15.00	Hours
<i>Factors</i> 15 Hours					
750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	75.00	Hours
<i>Factors</i> 75 Hours					
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	12.00	Hours
<i>Factors</i> 12 Hours					
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	25.00	Hours
<i>Factors</i> 25 Hours (CSO)					
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	30.00	Hours
<i>Factors</i> 30 Hours (Rad Eng)					
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	30.00	Hours
<i>Factors</i> 30 Hours					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	30.00	Hours
<i>Factors</i> 30 Hours					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
<i>Factors</i> 20 Hours (Maint Supv)					
750 STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	24.00	Hours
<i>Factors</i> 24 Hours (Indus Hygienists)					
750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	123.00	Hours
<i>Factors</i> 123 Hours					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	79.00	Hours
<i>Factors</i> 79 Hours					
A57 LATA	P160 TECHNICAL WRITERS AND EDITOR	KA10S B371 ESH&O	Linear	600.00	Dollars
<i>Factors</i> 600 Dollars/ea					

**Line Item S3RMT499 - Drain Area 6**

**BOE**

Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Draining activities. He compiled the estimate based upon his previous experience, previous history for B371 Draining activities, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Draining requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for setting up purging and draining equipment, draining of solutions, sampling of solutions, bag in and bag out of gloveboxes, purging hydrogen, aligning valves, and removal of draining and purging equipment.  
 Breakdown of Cost Data:  
 Item - Drain - Area 6 (Engineering teams and Building Operations drain the Area)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 268 Hours/Area and \$5,765/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

WBS No: 1AAC  
 Activity ID: 1AQ31DR006

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	61.00	Hours
	<i>Factors</i> 61 Hours					
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	10.00	Hours
	<i>Factors</i> 10 Hours (Rad Eng)					
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
	<i>Factors</i> 20 Hours					
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	2.00	Hours
	<i>Factors</i> 2 Hours (Maint Supv)					
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	13.00	Hours
	<i>Factors</i> 13 Hours					
	750 STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	5.00	Hours
	<i>Factors</i> 5 Hours (Indus Hvgienists)					
	750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	130.00	Hours
	<i>Factors</i> 130 Hours					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	27.00	Hours
	<i>Factors</i> 27 Hours					
	A57 LATA	E110 QUALITY CONTROL ENGINEERS	KA10S B371 ESH&Q	Linear	630.00	Dollars
	<i>Factors</i> 9 hrs 70 Dollars/hr					
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	1,616.00	Dollars
	<i>Factors</i> 1616 Dollars/ea					
	A5C SUPPLIES	0000 NONE	SA01S SSOC 371 Closure Project	Linear	2,304.00	Dollars
	<i>Factors</i> 2304 Dollars/ea					
	A5C SUPPLIES	0000 NONE	SA01S SSOC 371 Closure Project	Linear	1,160.00	Dollars
	<i>Factors</i> 1160 Dollars/ea					
	A5H SUBCONTRACTED SRVS	E130 OTHER ENGINEERS	KA10S B371 ESH&Q	Linear	55.00	Dollars
	<i>Factors</i> 55 Dollars/ea					

**Line Item SYS - Contingency And Escalation**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	142.87	Dollars
	<i>Factors</i> 142,866 Dollars					
	ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	100.71	Dollars
	<i>Factors</i> 100,712 Dollars					

**Line Item WD - Complete Actinide Walk Down for Non-Actinide Pipin**

**BOE**  
 Estimators Experience - Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Each room in the Actinide Tap and Drain Program had a walk down performed to validate actual piping and equipment in building drawings, determine probable drain locations and provide sketches to the Evaluation and Draining crews. Areas 3, 4, 5, 7 and 10 were completed to support both actinide and non-actinide draining. When the project re-baseline was submitted, rooms in Areas 2a, 2b, 6, 8, 9, 11, 12a, and 12b were not completed for the non-actinide piping and equipment. This task is to complete the walk down packages for the non-actinide systems in order to determine solutions, systems, piping and equipment that must be drained. The Evaluation portion of the process depends on the information developed during the walk down in order to make proper decisions as to when and where to drain a room, system or area. The information in this BOE was developed from Randy Blair, the B371 Liquids Program lead engineer.

Breakdown of Cost Data: Walkdowns for Rooms 3521, 3525, 3529, and 3531.  
 Item - Walkdowns  
 Units - \$6,720 Subcontractor Cost/room

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	A57 LATA	E130 OTHER ENGINEERS	KA70S B371 Facility Disposition	Linear	1,120.00	Dollars
	<i>Factors</i> 2 days 8 hrs (Chemical Eng) 1 FTE 70 \$/hour					
	A57 LATA	E130 OTHER ENGINEERS	KA70S B371 Facility Disposition	Linear	560.00	Dollars
	<i>Factors</i> 0.5 FTE (drafter0) 2 DAYS 8 HRS/DAY 70 \$/HR					

Activity ID: 1AQ31DR012 Description: B371 Set 4 Drain CWTS Tanks and Lines

Cost Risk 2 Schedule Risk 2

WBS No: 1AAC  
 Activity ID: 1AQ31DR012

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
CWTS_D1	Deactivation of CWTS Residual	1.00	each	EE	840	840	18,246	0	0	18,246	6,141	24,387
CWTS_D2	Tap and Drain B371 to B374	1.00	each	EE	264	264	7,287	2,800	0	10,087	2,453	12,540
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	8,979	8,979	0	8,979
Total for Activity 1AQ31DR012:						1.104	25,533	2,800	8,979	37,312	8,593	45,905

**Line Item CWTS D1 - Deactivation of CWTS Residual**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - The Caustic Waste Treatment System (CWTS) utilizes a pumping system for transferring processed solutions to Building 374 Waste Treatment. Therefore, solution always remains in the D-2402A, D-2402B, and D-2403 tanks after transfer (approximately 150 liters total). This solution will have to be tapped and drained into 4-liter bottles and transferred to Building 374 or 774. Also, non-processed solution remains in the D-2401 A,B,C, and D tanks (approx. 70 liters) which will require processing and transfer to Building 374. The D-2401's will be tapped and drained into 4-liter bottles and processed through CWTS equipment. The filtrate will be transferred to Building 374 or 774.

Breakdown of Cost Data:  
 Item - Deactivation of CWTS Residual  
 Units - Lot  
 Unit Cost - 840 hrs  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	160.00	Hours
Factors	20	days	8	hrs/dav				
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	640.00	Hours
Factors	4	Process Specialists	20	days	8	hrs/dav		
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	40.00	Hours
Factors	2	hrs/dav	20	days				

**Line Item CWTS D2 - Tap and Drain B371 to B374**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - There are approximately 7 transfer lines from Building 371 to Building 374. The portion of transfer piping housed in Building 371 is cost estimated with the liquids program. The portion of transfer piping housed in Building 37 is cost estimated here. B374 and B371 personnel will be required to coordinate and perform this task.

Breakdown of Cost Data:  
 Item - Tap and Drain B371 to B374 Transfer Piping  
 Units - Lot  
 Unit Cost - 264 hrs \$2,800 - Subcontractor Cost  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Linear	48.00	Hours
Factors	24	hours/FTE	2	FTE				
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	80.00	Hours
Factors	10	days to perform walkdowns	8	hours/dav (Chemical Eng)				
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	40.00	Hours
Factors	5	days	8	hours (Chemical Eng)				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	24.00	Hours
Factors	24	hours						
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	48.00	Hours
Factors	24	hours	2	FTE				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	24.00	Hours
Factors	24	hours						
A57	LATA	P070	COST ESTIMATORS PLANNERS AN	KA20S	B371/374 Facility Management	Linear	2,800.00	Dollars
Factors	70	\$/hr	40	hours				

**Line Item SYS - Contingency And Escalation**

**BOE**

WBS No: 1AAC  
 Activity ID: 1AQ31DR012

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Resources	Cost Element	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
	CON CONTINGENCY	0000	NONE			ZDEPT	No Department		Linear		6.045.88	Dollars
	Factors 6045.88 Dollars											
	ESC ESCALATION	0000	NONE			ZDEPT	No Department		Linear		2.933.06	Dollars
	Factors 2933.06 Dollars											

Activity ID: 1AQ31DR02A Description: B371 Set 2a Eval/Prep/Drain Non-actinide Liquids

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
S3BM0262	Prep to Drain - Area 2A	1.00	ea	EE	463	463	10.796	2.290	0	13.086	5.268	18.354
S3RMT260	Drain Area 2A	1.00	ea	EE	498	498	11.944	12.327	0	24.271	5.829	30.100
Total for Activity 1AQ31DR02A:						960	22.740	14.617	0	37.357	11.097	48.454

Line Item S3BM0262 - Prep to Drain - Area 2A

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Preparations to Drain. He compiled the estimate based upon his previous experience, previous history for B371 Draining Preparations, and Engineering estimates based on FY98 and FY99 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Preparation to Drain requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for setting up scaffolding, changing glovebox gloves and preparing gloveboxes for draining, performing administrative reviews and permits, moving drums as necessary, modifying equipment as necessary, modifying draining procedures, and placing LO/TO  
 Breakdown of Cost Data:  
 Item - Prep to Drain - Area 2A (Engineering teams and Building Operations prepare necessary paperwork, set up the Area Rooms and gloveboxes for draining)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 463 Hours/Area and \$2,290/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
750	STRAIGHT TIME BASE	C010	CARPENTERS		KA20H	371/374 Facility Maint Steelworkers			Linear		64.20	Hours
	Factors 107 Hours 0.6 March 2000 Earned Value Factor											
750	STRAIGHT TIME BASE	C020	ELECTRICIANS		KA20H	371/374 Facility Maint Steelworkers			Linear		30.00	Hours
	Factors 50 Hours 0.6 March 2000 Earned Value Factor											
750	STRAIGHT TIME BASE	C070	PAINTERS		KA20H	371/374 Facility Maint Steelworkers			Linear		16.80	Hours
	Factors 28 Hours 0.6 March 2000 Earned Value Factor											
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS		KA20H	371/374 Facility Maint Steelworkers			Linear		44.40	Hours
	Factors 74 Hours 0.6 March 2000 Earned Value Factor											
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER		SA01S	SSOC 371 Closure Project			Linear		9.00	Hours
	Factors 15 Hours 0.6 March 2000 Earned Value Factor											
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER		SA01S	SSOC 371 Closure Project			Linear		15.00	Hours
	Factors 25 Hours (CSO) 0.6 March 2000 Earned Value Factor											
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS		SA01S	SSOC 371 Closure Project			Linear		18.00	Hours
	Factors 30 Hours (Rad Eng) 0.6 March 2000 Earned Value Factor											
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP		SA01S	SSOC 371 Closure Project			Linear		16.20	Hours
	Factors 27 Hours (Maint Supv) 0.6 March 2000 Earned Value Factor											
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP		SA01S	SSOC 371 Closure Project			Linear		24.00	Hours
	Factors 40 Hours 0.6 March 2000 Earned Value Factor											
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS		SA01S	SSOC 371 Closure Project			Linear		16.80	Hours
	Factors 28 Hours 0.6 March 2000 Earned Value Factor											
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (		KA70H	371 Facility Disposition Steelworkers			Linear		148.20	Hours
	Factors 247 Hours 0.6 March 2000 Earned Value Factor											
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI		KA10H	371 Complex Steelworkers			Linear		60.00	Hours
	Factors 100 Hours 0.6 March 2000 Earned Value Factor											
A57	LATA	E130	OTHER ENGINEERS		KA70S	B371 Facility Disposition			Linear		1,428.00	Dollars
	Factors 70 \$/Hour 34 Hours 1 ea 0.6 March 2000 Earned Value Factor											

WBS No: 1AAC  
 Activity ID: 1AQ31DR02A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

A57	LATA	P160	TECHNICAL WRITERS AND EDITOR	KA10S	B371 ESH&Q	Linear	595.00	Dollars
Factors	850	Dollars/ea	1	ea	0.7	March 2000 Earned Value Factor		
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	152.40	Dollars
Factors	1	ea	254	Dollars/ea	0.6	March 2000 Earned Value Factor		
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	109.20	Dollars
Factors	182	Dollars/ea	1	ea	0.6	March 2000 Earned Value Factor		
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	5.40	Dollars
Factors	9	Dollars/ea	1	ea	0.6	March 2000 Earned Value Factor		

**Line Item S3RMT260 - Drain Area 2A**

**BOE**

Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Draining activities. He compiled the estimate based upon his previous experience, previous history for B371 Draining activities, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Draining requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.

Experience Item Desc - This line item contains the work scope for setting up purging and draining equipment, draining of solutions, sampling of solutions, bag in and bag out of gloveboxes, purging hydrogen, aligning valves, and removal of draining and purging equipment.

Breakdown of Cost Data:  
 Item - Drain - Area 2A (Engineering teams and Building Operations drain the Area)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 498 Hours/Area and \$12,327/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units			
750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	110.60	Hours			
Factors	158	Hours	0.7	March 2000 Earned Value Factor				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	84.00	Hours			
Factors	120	Hours	0.7	March 2000 Earned Value Factor				
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	6.30	Hours			
Factors	9	Hours (Maint Supv)	0.7	March 2000 Earned Value Factor				
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	28.00	Hours			
Factors	40	Hours	0.7	March 2000 Earned Value Factor				
750 STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	16.10	Hours			
Factors	23	Hours	0.7	March 2000 Earned Value Factor				
750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	172.90	Hours			
Factors	247	Hours	0.7	March 2000 Earned Value Factor				
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	79.80	Hours			
Factors	114	Hours	0.7	March 2000 Earned Value Factor				
A57 LATA	E110 QUALITY CONTROL ENGINEERS	KA10S B371 ESH&Q	Linear	2,100.00	Dollars			
Factors	3000	Dollars/ea	1	ea	0.7	March 2000 Earned Value Factor		
A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	4,813.20	Dollars			
Factors	6876	Dollars/ea	1	ea	0.7	March 2000 Earned Value Factor		
A5C SUPPLIES	0000 NONE	SA01S SSOC 371 Closure Project	Linear	5,250.00	Dollars			
Factors	7500	Dollars/ea	1	ea	0.7	March 2000 Earned Value Factor		
A5H SUBCONTRACTED SRVS	E130 OTHER ENGINEERS	KA10S B371 ESH&Q	Linear	163.80	Dollars			
Factors	234	Dollars/ea	1	ea	0.7	March 2000 Earned Value Factor		

Activity ID: 1AQ31DR02B

Description: B371 Set 2b Eval/Prep/Drain Non-actinide Liquids

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
DC Set 2b	Document Control Requirements for Draining	1.00	each	EE	9	9	308	0	0	308	150	458
S3BM0262B	Prep to Drain - Area 2B	1.00	ea	EE	962	962	22,703	1,000	0	23,703	11,057	34,760
S3DMEV02B	Evaluate Area 2B	1.00	ea	EE	91	91	2,740	0	0	2,740	1,335	4,075
S3RMT260B	Drain Area 2B	1.00	ea	EE	886	886	20,596	20,100	0	40,696	10,030	50,726
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	483	483	0	483
WVD	Complete Actinide Walk Down for Non-Actinide Pipin	10.00	each	EE	0	0	0	16,800	0	16,800	0	16,800

WBS No: 1AAC  
 Activity ID: 1AQ31DR02B

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Total for Activity 1AQ31DR02B:

1.948	46.347	37.900	483	84.730	22.572	107.302
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**Line Item DC Set 2b - Document Control Requirements for Draining**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Preliminary Engineering walkdown will be conducted in Area 2b of Set 2b. This activity includes all necessary preliminary evaluations, walkdown of drawings, and preparing documentation required to perform draining in each set.

Breakdown of Cost Data:  
 Item - Preliminary Engineering walkdown  
 Units - per set  
 Unit Cost - 9 hrs  
 Unit Cost Adjustment factor - N/A

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	9.00	Hours

Factors 9 hrs drawing walkdown, IWCP

**Line Item S3BM0262B - Prep to Drain - Area 2B**

**BOE** Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Preparations to Drain. He compiled the estimate based upon his previous experience, previous history for B371 Draining Preparations, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Preparation to Drain requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.

Experience Item Desc - This line item contains the work scope for setting up scaffolding, changing glovebox gloves and preparing gloveboxes for draining, performing administrative reviews and permits, moving drums as necessary, modifying equipment as necessary, modifying draining procedures, and placing LO/TO

Breakdown of Cost Data:  
 Item - Prep to Drain - Area 2B (Engineering teams and Building Operations prepare necessary paperwork, set up the Area Rooms and gloveboxes for draining)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 962 Hours/Area and \$1,000/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	C010	CARPENTERS	KA20H	371/374 Facility Mgmt Steelworkers	Linear	150.00	Hours
Factors 150 Hours								
750	STRAIGHT TIME BASE	C020	ELECTRICIANS	KA20H	371/374 Facility Mgmt Steelworkers	Linear	60.00	Hours
Factors 60 Hours								
750	STRAIGHT TIME BASE	C070	PAINTERS	KA20H	371/374 Facility Mgmt Steelworkers	Linear	40.00	Hours
Factors 40 Hours								
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Linear	150.00	Hours
Factors 150 Hours								
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	40.00	Hours
Factors 40 Hours								
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	80.00	Hours
Factors 80 Hours								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	20.00	Hours
Factors 20 Hours (Maint Supv)								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	45.00	Hours
Factors 45 Hours								
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	SA01S	SSOC 371 Closure Project	Linear	31.00	Hours
Factors 31 Hours								
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	200.00	Hours
Factors 200 Hours								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	146.00	Hours
Factors 146 Hours								
A57	LATA	P160	TECHNICAL WRITERS AND EDITOR	KA10S	B371 ESH&Q	Linear	1.000.00	Dollars
Factors 1000 Dollars/ea								

WBS No: 1AAC  
 Activity ID: 1AQ31DR02B

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

**Line Item S3DMEV02B - Evaluate Area 2B**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Evaluations. He compiled the estimate based upon his previous experience, previous history for B371 Walkdown/Evaluations, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Evaluation requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for walkdown drawings, evaluating drawings from rooms, developing Area draining low points, developing drain sequences that support draining and hydrogen purging, finalizing drain packages, preparing standard work packages, and closing the packages after draining is completed.  
 Breakdown of Cost Data:  
 Item - Evaluate Area 2B (Engineering teams evaluate Area for the optimum draining scenarios, prepare draining engineering packages, prepare standard work packages for draining, and close out IWCP draining packages when completed)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 91 Hours/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	60.00	Hours
<i>Factors</i>		60	Hours/ea				
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	4.00	Hours
<i>Factors</i>		4	Hours/ea				
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	18.00	Hours
<i>Factors</i>		18	Hours/ea				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	9.00	Hours
<i>Factors</i>		9	Hours/ea				

**Line Item S3RMT260B - Drain Area 2B**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Draining activities. He compiled the estimate based upon his previous experience, previous history for B371 Draining activities, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Draining requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for setting up purging and draining equipment, draining of solutions, sampling of solutions, bag in and bag out of gloveboxes, purging hydrogen, aligning valves, and removal of draining and purging equipment.  
 Breakdown of Cost Data:  
 Item - Drain - Area 2B (Engineering teams and Building Operations drain the Area)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 886 Hours/Area and \$20,100/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	120.00	Hours
<i>Factors</i>		120	Hours				
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	60.00	Hours
<i>Factors</i>		60	Hours				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	50.00	Hours
<i>Factors</i>		50	Hours				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
<i>Factors</i>		20	Hours (Maint Supv)				
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	71.00	Hours
<i>Factors</i>		71	Hours				
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	300.00	Hours
<i>Factors</i>		300	Hours				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	265.00	Hours
<i>Factors</i>		265	Hours				

WBS No: 1AAC  
 Activity ID: 1AQ31DR02B

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

A57	LATA	E110	QUALITY CONTROL ENGINEERS	KA10S	B371 ESH&Q	Linear	2,100.00	Dollars
<i>Factors</i>		2100	Dollars/ea					
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	5,000.00	Dollars
<i>Factors</i>		5000	Dollars/ea					
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	13,000.00	Dollars
<i>Factors</i>		13000	Dollars/ea					

**Line Item SYS - Contingency And Escalation**

**BOE**

**Resources**

<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>		<i>Curve</i>	<i>Quantity</i>	<i>Units</i>
CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	283.26	Dollars
<i>Factors</i>		283.257	Dollars					
ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	199.68	Dollars
<i>Factors</i>		199.679	Dollars					

**Line Item WD - Complete Actinide Walk Down for Non-Actinide Pipin**

**BOE**

Estimators Experience - Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Each room in the Actinide Tap and Drain Program had a walk down performed to validate actual piping and equipment in building drawings, determine probable drain locations and provide sketches to the Evaluation and Draining crews. Areas 3, 4, 5, 7 and 10 were completed to support both actinide and non-actinide draining. When the project re-baseline was submitted, rooms in Areas 2a, 2b, 6, 8, 9, 11, 12a, and 12b were not completed for the non-actinide piping and equipment. This task is to complete the walk down packages for the non-actinide systems in order to determine solutions, systems, piping and equipment that must be drained. The Evaluation portion of the process depends on the information developed during the walk down in order to make proper decisions as to when and where to drain a room, system or area. The information in this BOE was developed from Randy Blair, the B371 Liquids Program lead engineer.

Breakdown of Cost Data: Walkdowns for Rooms 3545, 3547, 3549, 3553, 3555, 3557, 3559, 3561, 3563, and 3567.

Item - Walk down of rooms  
 Units - \$16,800 Subcontractor Cost/Room

**Resources**

<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>		<i>Curve</i>	<i>Quantity</i>	<i>Units</i>	
A57	LATA	E130	OTHER ENGINEERS	KA70S	B371 Facility Disposition	Linear	1,120.00	Dollars	
<i>Factors</i>		8	hrs (Chemical End)	1	FTE	2	days	70	\$/hour
A57	LATA	E130	OTHER ENGINEERS	KA70S	B371 Facility Disposition	Linear	560.00	Dollars	
<i>Factors</i>		0.5	FTE (Drafter)	2	days	8	hrs/dav	70	\$/hr

Activity ID: 1AQ31DR04A Description: B371 Set 4a Eval/Prep/Drain Non-actinide Liquids

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
DC Set 4a	Document Control Requirements for Draining	1.00	each	EE	18	18	616	0	0	616	301	916
S3BM0540	Prep to Drain - Area 11	1.00	ea	EE	529	529	12,974	1,882	0	14,856	6,331	21,188
S3BM0820	Prep to Drain - Area 12A	1.00	ea	EE	643	643	15,602	350	0	15,952	7,614	23,565
S3DMEV11A	Evaluate Area 11	1.00	ea	EE	32	32	943	0	0	943	460	1,403
S3DMEV12A	Evaluate Area 12A	1.00	ea	FF	35	35	1,018	0	0	1,018	497	1,515
S3RMT549	Drain Area 11	1.00	ea	EE	245	245	5,555	6,524	0	12,079	2,711	14,789
S3RMT830	Drain Area 12A	1.00	ea	EE	444	444	9,965	13,896	0	23,861	4,863	28,723
WD	Complete Actinide Walk Down for Non-Actinide Pipin	7.00	each	EE	0	0	0	11,760	0	11,760	0	11,760
Total for Activity 1AQ31DR04A:						1.946	46,672	34,412	0	81,084	22,776	103,860

**Line Item DC Set 4a - Document Control Requirements for Draining**

**BOE**

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Preliminary Engineering walkdown will be conducted in Area 12a of Set 4a. This activity includes all necessary preliminary evaluations, walkdown of drawings, and preparing documentation required to perform draining in each set.

Breakdown of Cost Data:  
 Item - Preliminary Engineering walkdown  
 Units - per set  
 Unit Cost - 18 hrs

WBS No: 1AAC  
 Activity ID: 1AQ31DR04A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	18.00	Hours

Factors 18 hrs drawing walkdown, IWCP

**Line Item S3BM0540 - Prep to Drain - Area 11**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Preparations to Drain. He compiled the estimate based upon his previous experience, previous history for B371 Draining Preparations, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Preparation to Drain requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for setting up scaffolding, changing glovebox gloves and preparing gloveboxes for draining, performing administrative reviews and permits, moving drums as necessary, modifying equipment as necessary, modifying draining procedures, and placing LO/TO  
 Breakdown of Cost Data:  
 Item - Prep to Drain - Area 11 (Engineering teams and Building Operations prepare necessary paperwork, set up the Area Rooms and gloveboxes for draining)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 529 Hours/Area and \$1,882/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C010 CARPENTERS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	51.00	Hours
	750 STRAIGHT TIME BASE	C020 ELECTRICIANS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	25.00	Hours
	750 STRAIGHT TIME BASE	C070 PAINTERS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	14.00	Hours
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	90.00	Hours
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	24.00	Hours
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	10.00	Hours
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	18.00	Hours
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	24.00	Hours
	750 STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	25.00	Hours
	750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	130.00	Hours
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLIGI	KA10H 371 Complex Steelworkers	Linear	78.00	Hours
	A57 LATA	P160 TECHNICAL WRITERS AND EDITOR	KA10S B371 ESH&Q	Linear	206.00	Dollars
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	533.00	Dollars
	A5C SUPPLIES	0000 NONE	SA01S SSOC 371 Closure Project	Linear	1,143.00	Dollars

**Line Item S3BM0820 - Prep to Drain - Area 12A**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort

WBS No: 1AAC  
 Activity ID: 1AQ31DR04A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

required for Preparations to Drain. He compiled the estimate based upon his previous experience, previous history for B371 Draining Preparations, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Preparation to Drain requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for setting up scaffolding, changing glovebox gloves and preparing gloveboxes for draining, performing administrative reviews and permits, moving drums as necessary, modifying equipment as necessary, modifying draining procedures, and placing LO/TO  
 Breakdown of Cost Data:  
 Item - Prep to Drain - Area 12A (Engineering teams and Building Operations prepare necessary paperwork, set up the Area Rooms and gloveboxes for draining)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 643 Hours/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C010 CARPENTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	60.00	Hours
	Factors 60 Hours					
	750 STRAIGHT TIME BASE	C020 ELECTRICIANS	KA20H 371/374 Facility Maint Steelworkers	Linear	40.00	Hours
	Factors 40 Hours					
	750 STRAIGHT TIME BASE	C070 PAINTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	18.00	Hours
	Factors 18 Hours					
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	100.00	Hours
	Factors 100 Hours					
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	14.00	Hours
	Factors 14 Hours					
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	30.00	Hours
	Factors 30 Hours (CSO)					
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	30.00	Hours
	Factors 30 Hours					
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
	Factors 20 Hours (Rad Eng)					
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	27.00	Hours
	Factors 27 Hours					
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	10.00	Hours
	Factors 10 Hours (Maint Supv)					
	750 STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	27.00	Hours
	Factors 27 Hours					
	750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	150.00	Hours
	Factors 150 Hours					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	117.00	Hours
	Factors 117 Hours					
	A57 LATA	P160 TECHNICAL WRITERS AND EDITOR	KA10S B371 ESH&Q	Linear	350.00	Dollars
	Factors 350 dollars					

**Line Item S3DMEV11A - Evaluate Area 11**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Evaluations. He compiled the estimate based upon his previous experience, previous history for B371 Walkdown/Evaluations, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Evaluation requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for walkdown drawings, evaluating drawings from rooms, developing Area draining low points, developing drain sequences that support draining and hydrogen purging, finalizing drain packages, preparing standard work packages, and closing the packages after draining is completed.  
 Breakdown of Cost Data:  
 Item - Evaluate Area 11 (Engineering teams evaluate Area for the optimum draining scenarios, prepare draining engineering packages, prepare standard work packages for draining, and close out IWCP draining packages when completed)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 32 Hours/Area  
 Unit Cost Adjustment factor - N/A

WBS No: 1AAC  
 Activity ID: 1AQ31DR04A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
	<i>Factors</i> 20 Hours/ea					
	750 STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	1.00	Hours
	<i>Factors</i> 1 Hours/ea					
	750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
	<i>Factors</i> 8 Hours/ea					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	3.00	Hours
	<i>Factors</i> 3 Hours/ea					

**Line Item S3DMEV12A - Evaluate Area 12A**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Evaluations. He compiled the estimate based upon his previous experience, previous history for B371 Walkdown/Evaluations, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Evaluation requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for walkdown drawings, evaluating drawings from rooms, developing Area draining low points, developing drain sequences that support draining and hydrogen purging, finalizing drain packages, preparing standard work packages, and closing the packages after draining is completed.  
 Breakdown of Cost Data:  
 Item - Evaluate Area 12A (Engineering teams evaluate Area for the optimum draining scenarios, prepare draining engineering packages, prepare standard work packages for draining, and close out IWCP draining packages when completed)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 35 Hours/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
	<i>Factors</i> 20 Hours/ea					
	750 STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	2.00	Hours
	<i>Factors</i> 2 Hours/ea					
	750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
	<i>Factors</i> 8 Hours/ea					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	5.00	Hours
	<i>Factors</i> 5 Hours/ea					

**Line Item S3RMT549 - Drain Area 11**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Draining activities. He compiled the estimate based upon his previous experience, previous history for B371 Draining activities, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Draining requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for setting up purging and draining equipment, draining of solutions, sampling of solutions, bag in and bag out of gloveboxes, purging hydrogen, aligning valves, and removal of draining and purging equipment.  
 Breakdown of Cost Data:  
 Item - Drain - Area 11 (Engineering teams and Building Operations drain the Area)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 245 Hours/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	50.00	Hours
	<i>Factors</i> 50 Hours					
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
	<i>Factors</i> 20 Hours					

WBS No: 1AAC  
 Activity ID: 1AQ31DR04A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	2.00	Hours
<i>Factors</i> 2 Hours (Maint Supv)								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	16.00	Hours
<i>Factors</i> 16 Hours								
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	SA01S	SSOC 371 Closure Project	Linear	6.00	Hours
<i>Factors</i> 6 Hours								
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	120.00	Hours
<i>Factors</i> 120 Hours								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	31.00	Hours
<i>Factors</i> 31 Hours								
A57	LATA	E110	QUALITY CONTROL ENGINEERS	KA10S	B371 ESH&Q	Linear	630.00	Dollars
<i>Factors</i> 630 dollars								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	1,875.00	Dollars
<i>Factors</i> 1875 dollars								
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	4,019.00	Dollars
<i>Factors</i> 4019 dollars								

**Line Item S3RMT830 - Drain Area 12A**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Draining activities. He compiled the estimate based upon his previous experience, previous history for B371 Draining activities, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Draining requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for setting up purging and draining equipment, draining of solutions, sampling of solutions, bag in and bag out of gloveboxes, purging hydrogen, aligning valves, and removal of draining and purging equipment.  
 Breakdown of Cost Data:  
 Item - Drain - Area 12A (Engineering teams and Building Operations drain the Area)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 444 Hours/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Maint Steelworkers	Linear	60.00	Hours
<i>Factors</i> 60 Hours								
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	20.00	Hours
<i>Factors</i> 20 Hours								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	24.00	Hours
<i>Factors</i> 24 Hours								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
<i>Factors</i> 8 Hours (maint Supv)								
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	SA01S	SSOC 371 Closure Project	Linear	22.00	Hours
<i>Factors</i> 22 Hours								
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	200.00	Hours
<i>Factors</i> 200 Hours								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	110.00	Hours
<i>Factors</i> 110 Hours								
A57	LATA	E110	QUALITY CONTROL ENGINEERS	KA10S	B371 ESH&Q	Linear	1,470.00	Dollars
<i>Factors</i> 70 dollars/hr								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	1,500.00	Dollars
<i>Factors</i> 1500 Dollars/ea								
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	9,426.00	Dollars
<i>Factors</i> 9426 Dollars/ea								
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	1,500.00	Dollars
<i>Factors</i> 1500 dollars								

WBS No: 1AAC  
 Activity ID: 1AQ31DR04A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

**Line Item WD - Complete Actinide Walk Down for Non-Actinide Pipin**

**BOE**  
 Estimators Experience - Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Each room in the Actinide Tap and Drain Program had a walk down performed to validate actual piping and equipment in building drawings, determine probable drain locations and provide sketches to the Evaluation and Draining crews. Areas 3, 4, 5, 7 and 10 were completed to support both actinide and non-actinide draining. When the project re-baseline was submitted, rooms in Areas 2a, 2b, 6, 8, 9, 11, 12a, and 12b were not completed for the non-actinide piping and equipment. This task is to complete the walk down packages for the non-actinide systems in order to determine solutions, systems, piping and equipment that must be drained. The Evaluation portion of the process depends on the information developed during the walk down in order to make proper decisions as to when and where to drain a room, system or area. The information in this BOE was developed from Randy Blair, the B371 Liquids Program lead engineer.

Breakdown of Cost Data: Walkdowns for Rooms 1103, 1105, 1107, 1109, 1111, 1115 and 1127.  
 Item - Walkdowns  
 Units - \$11,760 Subcontractor Costs/room

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
A57	LATA	E130	OTHER ENGINEERS	KA70S B371 Facility Disposition	Linear	560.00	Dollars
Factors	1 ea	0.5	FTE (Drafter)	2 days	8	hrs/dav	
	70 \$/hr						
A57	LATA	E130	OTHER ENGINEERS	KA70S B371 Facility Disposition	Linear	1,120.00	Dollars
Factors	8 hrs	1	FTE (Chemical Engineer)	2 days	70	\$/hr	

Activity ID: 1AQ31DR04B Description: B371 Set 4b Eval/Prep/Drain Non-actinide Liquids Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
DC Set 4b	Document Control Requirements for Draining	1.00	each	EE	18	18	616	0	0	616	301	916
DECON	Decon Rooms 1117 and 1125	1.00	each	EE	0	0	0	137,514	0	137,514	0	137,514
S3BM0820B	Prep to Drain - Area 12B	1.00	ea	EE	577	577	13,762	1,000	0	14,762	6,716	21,478
S3DMEV12B	Evaluate Area 12B	1.00	ea	EE	64	64	2,024	0	0	2,024	988	3,011
S3RMT830B	Drain Area 12B	1.00	ea	EE	425	425	9,816	12,988	0	22,804	4,790	27,595
WD	Complete Actinide Walk Down for Non-Actinide Pipin	3.00	each	EE	0	0	0	5,040	0	5,040	0	5,040
Total for Activity 1AQ31DR04B:						1.084	26,218	156,542	0	182,760	12,794	195,554

**Line Item DC Set 4b - Document Control Requirements for Draining**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Preliminary Engineering walkdown will be conducted in Area 12b of Set 4b. This activity includes all necessary preliminary evaluations, walkdown of drawings, and preparing documentation required to perform draining in each set.

Breakdown of Cost Data:  
 Item - Preliminary Engineering walkdown  
 Units - per set  
 Unit Cost - 18 hrs  
 Unit Cost Adjustment factor - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	18.00	Hours
Factors	18 hrs drawing walkdown, IWCP						

**Line Item DECON - Decon Rooms 1117 and 1125**

**BOE**  
 Estimators Experience - Keith Cavin has over 20 years experience in Decontamination. He compiled the estimate based upon his previous experience, previous history (FY98 and FY99 Operations) for B371 fogging activities, and Decon Engineering estimates as to work remaining. Dick Hogue (previous B371 Decon project lead) also helped develop the estimate and has intimate knowledge of the Decon process. Rooms 3549 and 3559 were used for some historical reference as well as observations made during performed activities.

Experience Item Desc - This Line Scope contains the work scope for decontaminating the room. It includes removing plastic wrapped leak spots, decontaminating the spots as needed, and recontaining the leaking source. Various pipe fittings have leaked and the Room has many contaminated surfaces, most of which impact the Tap & Drain activities. The resource requirements for completing this line item will depend on the level and type of contamination, the room size and location. The goal of this line item is to reduce the contamination level of a room to a level where walk down and draining functions can be performed in a more efficient, effective and safe condition.

Breakdown of Cost Data:  
 Item - Decon Rooms 1117 and 1125 (Decontamination to include fogging and stripcoting the Rooms)  
 Units - 2 Rooms

WBS No: 1AAC  
 Activity ID: 1AQ31DR04B

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Unit Cost - \$67,080/Room  
 Unit Cost Adjustment factor - 1.025  
 Revised Unit Cost - \$68,757/Room  
 Basis for adjustment - The estimate was originally developed for the B37 Liquids Project in FY99. The scope was never accomplished. The unit cost adjustment factor takes into consideration rate escalation for the subcontractor.

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	137.514.00	Dollars

Factors 134160 Encapsulation Technology 1.025 Escallation from FY99 Estimate

**Line Item S3BM0820B - Prep to Drain - Area 12B**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Preparations to Drain. He compiled the estimate based upon his previous experience, previous history for B371 Draining Preparations, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Preparation to Drain requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for setting up scaffolding, changing glovebox gloves and preparing gloveboxes for draining, performing administrative reviews and permits, moving drums as necessary, modifying equipment as necessary, modifying draining procedures, and placing LO/TO  
 Breakdown of Cost Data:  
 Item - Prep to Drain - Area 12B (Engineering teams and Building Operations prepare necessary paperwork, set up the Area Rooms and gloveboxes for draining)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 577 Hours/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C010 CARPENTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	70.00	Hours
	Factors 70 Hours					
	750 STRAIGHT TIME BASE	C020 ELECTRICIANS	KA20H 371/374 Facility Maint Steelworkers	Linear	18.00	Hours
	Factors 18 Hours					
	750 STRAIGHT TIME BASE	C070 PAINTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	18.00	Hours
	Factors 18 Hours					
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	80.00	Hours
	Factors 80 Hours					
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
	Factors 20 Hours (CSO)					
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	14.00	Hours
	Factors 14 Hours					
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
	Factors 20 Hours					
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	10.00	Hours
	Factors 10 Hours (Rad Eng)					
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
	Factors 40 Hours					
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	10.00	Hours
	Factors 10 Hours (Maint Supv)					
	750 STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	26.00	Hours
	Factors 26 Hours					
	750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	150.00	Hours
	Factors 150 Hours					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	101.00	Hours
	Factors 101 Hours					
	A57 LATA	P160 TECHNICAL WRITERS AND EDITOR	KA10S B371 ESH&Q	Linear	1.000.00	Dollars
	Factors 1000 dollars					

**Line Item S3DMEV12B - Evaluate Area 12B**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Evaluations. He compiled the estimate based upon his previous experience, previous history for B371 Walkdown/Evaluations, and Engineering

WBS No: 1AAC  
 Activity ID: 1AQ31DR04B

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Evaluation requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for walkdown drawings, evaluating drawings from rooms, developing Area draining low points, developing drain sequences that support draining and hydrogen purging, finalizing drain packages, preparing standard work packages, and closing the packages after draining is completed.  
 Breakdown of Cost Data:  
 Item - Evaluate Area 12B (Engineering teams evaluate Area for the optimum draining scenarios, prepare draining engineering packages, prepare standard work packages for draining, and close out IWCP draining packages when completed)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 64 Hours/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	50.00	Hours
<i>Factors</i> 50 Hours/ea					
750 STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	2.00	Hours
<i>Factors</i> 2 Hours/ea					
750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i> 8 Hours/ea					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	4.00	Hours
<i>Factors</i> 4 Hours/ea					

**Line Item S3RMT830B - Drain Area 12B**

**BOE**

Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Draining activities. He compiled the estimate based upon his previous experience, previous history for B371 Draining activities, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Draining requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for setting up purging and draining equipment, draining of solutions, sampling of solutions, bag in and bag out of gloveboxes, purging hydrogen, aligning valves, and removal of draining and purging equipment.  
 Breakdown of Cost Data:  
 Item - Drain - Area 12B (Engineering teams and Building Operations drain the Area)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 425 Hours/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	80.00	Hours
<i>Factors</i> 80 Hours					
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	50.00	Hours
<i>Factors</i> 50 Hours					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	5.00	Hours
<i>Factors</i> 5 Hours (Maint Supv)					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	20.00	Hours
<i>Factors</i> 20 Hours					
750 STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	12.00	Hours
<i>Factors</i> 12 Hours					
750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	200.00	Hours
<i>Factors</i> 200 Hours					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	58.00	Hours
<i>Factors</i> 58 Hours					
A57 LATA	E110 QUALITY CONTROL ENGINEERS	KA10S B371 ESH&Q	Linear	2.100.00	Dollars
<i>Factors</i> 2100 dollars					
A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	3.463.00	Dollars
<i>Factors</i> 3463 dollars					

WBS No: 1AAC  
 Activity ID: 1AQ31DR04B

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	7,425.00	Dollars
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Factors 7425 Dollars/ea

**Line Item WD - Complete Actinide Walk Down for Non-Actinide Pipin**

**BOE**  
 Estimators Experience - Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Each room in the Actinide Tap and Drain Program had a walk down performed to validate actual piping and equipment in building drawings, determine probable drain locations and provide sketches to the Evaluation and Draining crews. Areas 3, 4, 5, 7 and 10 were completed to support both actinide and non-actinide draining. When the project re-baseline was submitted, rooms in Areas 2a, 2b, 6, 8, 9, 11, 12a, and 12b were not completed for the non-actinide piping and equipment. This task is to complete the walk down packages for the non-actinide systems in order to determine solutions, systems, piping and equipment that must be drained. The Evaluation portion of the process depends on the information developed during the walk down in order to make proper decisions as to when and where to drain a room, system or area. The information in this BOE was developed from Randy Blair, the B371 Liquids Program lead engineer.

Breakdown of Cost Data: Walkdowns for Rooms 1117, 1125, 2327.  
 Item - Walkdowns  
 Units - \$5,040 Subcontractor Cost/room

Cost Element		Skill		Department		Curve	Quantity	Units
A57	LATA	E130	OTHER ENGINEERS	KA70S	B371 Facility Disposition	Linear	1,120.00	Dollars
Factors	8 hrs	1	FTE (Chemical Engineer)	2	days	70	\$/hr	
A57	LATA	E130	OTHER ENGINEERS	KA70S	B371 Facility Disposition	Linear	560.00	Dollars
Factors	1 ea	0.5	FTE (Drafter)	2	days	8	hrs/dav	
	70 \$/hr							

Activity ID: 1AQ31DR05A Description: B371 Set 5a Eval/Prep/Drain Non-actinide Liquids

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
S3BM0530	Prep to Drain - Area 8	1.00	ea	EE	546	546	13,827	1,633	0	15,460	6,748	22,208
S3DMEV08A	Evaluate Area 8	1.00	ea	EE	54	54	1,682	0	0	1,682	821	2,502
S3RMT550	Drain Area 8	1.00	ea	EE	402	402	9,288	15,705	0	24,993	4,532	29,525
Total for Activity 1AQ31DR05A:						1,002	24,796	17,338	0	42,134	12,101	54,235

**Line Item S3BM0530 - Prep to Drain - Area 8**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Preparations to Drain. He compiled the estimate based upon his previous experience, previous history for B371 Draining Preparations, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Preparation to Drain requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.

Experience Item Desc - This line item contains the work scope for setting up scaffolding, changing glovebox gloves and preparing gloveboxes for draining, performing administrative reviews and permits, moving drums as necessary, modifying equipment as necessary, modifying draining procedures, and placing LO/TO

Breakdown of Cost Data:  
 Item - Prep to Drain - Area 8 (Engineering teams and Building Operations prepare necessary paperwork, set up the Area Rooms and gloveboxes for draining)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 546 Hours/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	C010	CARPENTERS	KA20H	371/374 Facility Mamt Steelworkers	Linear	70.00	Hours
Factors	70 Hours							
750	STRAIGHT TIME BASE	C020	ELECTRICIANS	KA20H	371/374 Facility Mamt Steelworkers	Linear	30.00	Hours
Factors	30 Hours							
750	STRAIGHT TIME BASE	C070	PAINTERS	KA20H	371/374 Facility Mamt Steelworkers	Linear	18.00	Hours
Factors	18 Hours							
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mamt Steelworkers	Linear	80.00	Hours
Factors	80 Hrs							
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	14.00	Hours
Factors	14 Hours							

WBS No: 1AAC  
 Activity ID: 1AQ31DR05A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	43.00	Hours
<i>Factors</i> 43 Hours (CSO)								
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	30.00	Hours
<i>Factors</i> 30 Hrs								
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	20.00	Hours
<i>Factors</i> 20 Hours (Rad Eno)								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	10.00	Hours
<i>Factors</i> 10 Hours (Maint Supv)								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	25.00	Hours
<i>Factors</i> 25 Hrs								
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	SA01S	SSOC 371 Closure Project	Linear	26.00	Hours
<i>Factors</i> 26 Hrs								
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	120.00	Hours
<i>Factors</i> 120 Hrs								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	60.00	Hours
<i>Factors</i> 60 Hrs								
A57	LATA	P160	TECHNICAL WRITERS AND EDITOR	KA10S	B371 ESH&Q	Linear	700.00	Dollars
<i>Factors</i> 700 dollars								
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	297.00	Dollars
<i>Factors</i> 297 dollars								
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	423.00	Dollars
<i>Factors</i> 423 dollars								
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	213.00	Dollars
<i>Factors</i> 213 dollars								

**Line Item S3DMEV08A - Evaluate Area 8**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Evaluations. He compiled the estimate based upon his previous experience, previous history for B371 Walkdown/Evaluations, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Evaluation requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for walkdown drawings, evaluating drawings from rooms, developing Area draining low points, developing drain sequences that support draining and hydrogen purging, finalizing drain packages, preparing standard work packages, and closing the packages after draining is completed.  
 Breakdown of Cost Data:  
 Item - Evaluate Area 8 (Engineering teams evaluate Area for the optimum draining scenarios, prepare draining engineering packages, prepare standard work packages for draining, and close out IWCP draining packages when completed)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 54 Hours/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	40.00	Hours
<i>Factors</i> 40 Hours/ea								
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	SA01S	SSOC 371 Closure Project	Linear	2.00	Hours
<i>Factors</i> 2 Hours/ea								
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i> 8 Hours/ea								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	4.00	Hours
<i>Factors</i> 4 Hours/ea								

**Line Item S3RMT550 - Drain Area 8**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Draining activities. He compiled the estimate based upon his previous experience, previous history for B371 Draining activities, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Draining requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.

WBS No: 1AAC  
 Activity ID: 1AQ31DR05A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Experience Item Desc - This line item contains the work scope for setting up purging and draining equipment, draining of solutions, sampling of solutions, bag in and bag out of gloveboxes, purging hydrogen, aligning valves, and removal of draining and purging equipment.  
 Breakdown of Cost Data:  
 Item - Drain - Area 8 (Engineering teams and Building Operations drain the Area)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 402 Hours/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	120.00	Hours
<i>Factors</i> 120 Hours					
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
<i>Factors</i> 40 Hours					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	6.00	Hours
<i>Factors</i> 6 Hours (Maint Supv)					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	18.00	Hours
<i>Factors</i> 18 Hours					
750 STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	14.00	Hours
<i>Factors</i> 14 Hours					
750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	150.00	Hours
<i>Factors</i> 150 Hours					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	54.00	Hours
<i>Factors</i> 54 Hours					
A57 LATA	E110 QUALITY CONTROL ENGINEERS	KA10S B371 ESH&Q	Linear	2,100.00	Dollars
<i>Factors</i> 2100 dollars					
A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	4,327.00	Dollars
<i>Factors</i> 4327 dollars					
A5C SUPPLIES	0000 NONE	SA01S SSOC 371 Closure Project	Linear	9,278.00	Dollars
<i>Factors</i> 9278 dollars					

Activity ID: 1AQ31DR05B Description: B371 Set 5b Eval/Prep/Drain Non-actinide Liquids

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
S3BM0450	Prep to Drain - Area 9	1.00	ea	EE	652	652	15,657	1,285	0	16,942	7,641	24,583
S3DMEV09A	Evaluate Area 9	1.00	ea	EE	72	72	2,187	0	0	2,187	1,067	3,254
S3RMT460	Drain Area 9	1.00	ea	EE	650	650	14,618	20,860	0	35,478	7,133	42,611
Total for Activity 1AQ31DR05B:						1,374	32,461	22,145	0	54,606	15,841	70,447

**Line Item S3BM0450 - Prep to Drain - Area 9**

**BOE**

Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Preparations to Drain. He compiled the estimate based upon his previous experience, previous history for B371 Draining Preparations, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Preparation to Drain requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for setting up scaffolding, changing glovebox gloves and preparing gloveboxes for draining, performing administrative reviews and permits, moving drums as necessary, modifying equipment as necessary, modifying draining procedures, and placing LO/TO  
 Breakdown of Cost Data:  
 Item - Prep to Drain - Area 9 (Engineering teams and Building Operations prepare necessary paperwork, set up the Area Rooms and gloveboxes for draining)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 652 Hours/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C010 CARPENTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	80.00	Hours
<i>Factors</i> 80 Hours					

WBS No: 1AAC  
 Activity ID: 1AQ31DR05B

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: 1AAC  
 WBS Filter: 1AAC  
 Activity Filter: \*

Baseline Devl: 1AAC  
 Starts In FY: \*

750	STRAIGHT TIME BASE	C020	ELECTRICIANS	KA20H	371/374 Facility Maint Steelworkers	Linear	40.00	Hours
<i>Factors</i> 40 Hours								
750	STRAIGHT TIME BASE	C070	PAINTERS	KA20H	371/374 Facility Maint Steelworkers	Linear	18.00	Hours
<i>Factors</i> 18 Hours								
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Maint Steelworkers	Linear	80.00	Hours
<i>Factors</i> 80 Hours								
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	15.00	Hours
<i>Factors</i> 15 Hours								
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	30.00	Hours
<i>Factors</i> 30 Hours (CSO)								
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	10.00	Hours
<i>Factors</i> 10 Hours (Rad Ena)								
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	20.00	Hours
<i>Factors</i> 20 Hours								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	40.00	Hours
<i>Factors</i> 40 Hours								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	20.00	Hours
<i>Factors</i> 20 Hours (Maint Supv)								
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	SA01S	SSOC 371 Closure Project	Linear	28.00	Hours
<i>Factors</i> 28 Hours								
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	178.00	Hours
<i>Factors</i> 178 Hours								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	93.00	Hours
<i>Factors</i> 93 Hours								
A57	LATA	P160	TECHNICAL WRITERS AND EDITOR	KA10S	B371 ESH&Q	Linear	700.00	Dollars
<i>Factors</i> 700 dollars								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	186.00	Dollars
<i>Factors</i> 186 dollars								
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	399.00	Dollars
<i>Factors</i> 399 dollars								

**Line Item S3DMEV09A - Evaluate Area 9**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Evaluations. He compiled the estimate based upon his previous experience, previous history for B371 Walkdown/Evaluations, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Evaluation requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for walkdown drawings, evaluating drawings from rooms, developing Area draining low points, developing drain sequences that support draining and hydrogen purging, finalizing drain packages, preparing standard work packages, and closing the packages after draining is completed.  
 Breakdown of Cost Data:  
 Item - Evaluate Area 9 (Engineering teams evaluate Area for the optimum draining scenarios, prepare draining engineering packages, prepare standard work packages for draining, and close out IWCP draining packages when completed)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 72 Hours/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	50.00
<i>Factors</i> 50 Hours/ea							
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	SA01S	SSOC 371 Closure Project	Linear	2.00
<i>Factors</i> 2 Hours/ea							
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	15.00
<i>Factors</i> 15 Hours/ea							

WBS No: 1AAC  
 Activity ID: 1AQ31DR05B

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY: \*

750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	5.00	Hours	
<i>Factors</i>		5	Hours/ea						

**Line Item S3RMT460 - Drain Area 9**

**BOE**  
 Estimators Experience - Keith Cavin has been an integral part of the B371 Liquids team over the past several years and has intimate knowledge of the effort required for Draining activities. He compiled the estimate based upon his previous experience, previous history for B371 Draining activities, and Engineering estimates based on FY98 operations. Randy Blair (current B371 Engineering lead) also helped develop the estimate and has intimate knowledge of the Draining requirements. A standard cost model was developed based upon Areas 3, 4, 7, and 10 historical data and work observations and can be obtained from Keith Cavin at X-3713.  
 Experience Item Desc - This line item contains the work scope for setting up purging and draining equipment, draining of solutions, sampling of solutions, bag in and bag out of gloveboxes, purging hydrogen, aligning valves, and removal of draining and purging equipment.  
 Breakdown of Cost Data:  
 Item - Drain - Area 9 (Engineering teams and Building Operations drain the Area)  
 Units - Area (contains a group of Rooms)  
 Unit Cost - 650 Hours/Area  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element		Skill		Department		Curve	Quantity	Units	
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Maint Steelworkers	Linear	120.00	Hours	
<i>Factors</i>		120	Hours						
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	40.00	Hours	
<i>Factors</i>		40	Hours						
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	9.00	Hours	
<i>Factors</i>		9	Hours (Maint Supv)						
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	40.00	Hours	
<i>Factors</i>		40	Hours						
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	SA01S	SSOC 371 Closure Project	Linear	22.00	Hours	
<i>Factors</i>		22	Hours						
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	336.00	Hours	
<i>Factors</i>		336	Hours						
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	82.50	Hours	
<i>Factors</i>		82.5	Hours						
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	6.635.00	Dollars	
<i>Factors</i>		6635	dollars						
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	14.225.00	Dollars	
<i>Factors</i>		14225	dollars						

Activity ID: 1AQ31MG001 Description: B371 Project Management (00)- Deac/SNM Removal

Cost Risk 1 Schedule Risk 1

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
2	Program Management	1.00	each	EE	3.954	3.954	170.602	92.376	0	262.978	83.254	346.232
6	Bldg Downtime	1.00	each	EE	2.041	2.041	42.314	0	0	42.314	20.649	62.963
Total for Activity 1AQ31MG001:						5.995	212.916	92.376	0	305.292	103.903	409.195

**Line Item 2 - Program Management**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Program Management consists of a Program Manager and three Leads for the major activities in Deactivation. The Program Manager should have a person to do administrative work as the scope of the operations would warrant such additional responsibilities. Each of the three major activities will have to have a lead to assure the work is accomplished and to manage the personnel issues of those assigned salaried, hourly, or contracted services. Each lead will need a technically qualified support engineer to work on issues and problems that will occur daily in the performance of tasks associated with the activity. Additionally, the technical engineers will have to work together on many unknowns that will surface during the deactivation tasks. Because of the newness of the tasks that are going to be done in deactivation, it is probable that some travel to other DOE or nuclear sites will be necessary to determine how efficiencies from similar work can be captured for B371 Deactivation work. As there is a great deal of planning involved, off site meeting to support large numbers or personnel or lengthy sessions will also occasionally be necessary. As this is a new process and many unknowns are expected, it is likely that outside contractors will be required to solve specific problems or that a new technology will arise to speed up the process, make it safer or simpler, or that a contractor will be used to perform a task within the activity.  
 Breakdown of Cost Data:

WBS No: 1AAC  
 Activity ID: 1AQ31MG001

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Item - Program Management for Deactivation  
 Units - Lot  
 Unit Cost - 3,954 hrs \$88,192 - Sub Costs \$4,184 - Supply Costs  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	G010 ADMINISTRATIVE ASSISTANTS	KA70S B371 Facility Disposition	Linear	659.00	Hours
Factors	659 Hours (Jun-Sep) Sally	1 full time support				
	750 STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	KA70S B371 Facility Disposition	Linear	659.00	Hours
Factors	659 Hours (Jun-Sep) Maestic	1 full time support				
	750 STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	KA70S B371 Facility Disposition	Linear	659.00	Hours
Factors	659 Hours (Jun-Sep) Floerke	1 full time support				
	750 STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	KA70S B371 Facility Disposition	Linear	659.00	Hours
Factors	659 Hours (Jun-Sep) Wrapp	1 full time support				
	750 STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	KA70S B371 Facility Disposition	Linear	659.00	Hours
Factors	659 Hours (Jun-Sep) Chavez	1 full time support				
	750 STRAIGHT TIME BASE	P070 COST ESTIMATORS PLANNERS AN	KA70S B371 Facility Disposition	Linear	659.00	Hours
Factors	659 Hours (Jun-Sep) (Steinaeur)	1 full time support				
	A52 TENERA	P070 COST ESTIMATORS PLANNERS AN	KA70S B371 Facility Disposition	Linear	88.192.00	Dollars
Factors	11024 \$/month	4 months	2 Tina Meins/Mary Nixon			
	A5C SUPPLIES	0000 NONE	SA01S SSOC.371 Closure Project	Linear	4.184.00	Dollars
Factors	1046 \$/month	4 months				

**Line Item 6 - Bldg Downtime**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - This activity is to capture costs for building downtime resulting from events occurring in B371 which periodically shutdown program operations and inventory which is conducted every six weeks and can shut down operations for at a minimum of one week. 90% building availability is projected. Training hours are also include in this activity.

Breakdown of Cost Data:  
 Item - Hours per year for training, inventory shutdown, and building downtime.  
 Units - Hours  
 Unit Cost - 2,041 hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	2,041.20	Hours
Factors	729 available hours (Jun-Sep)	0.1 90% building availability factor	28 D&D Workers			

Activity ID: 1AQ31MG002

Description: B371 Project Management (01)- Deac/SNM Removal

Cost Risk 1 Schedule Risk 1

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
2	Deactivation Program Management	1.00	each	EE	6.405	6.405	262.925	144.840	0	407.765	125.415	533.181
6	Deact/SNM Removal Bldg Downtime	1.00	each	EE	5.656	5.656	117.249	0	0	117.249	55.928	173.177
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	37.448	37.448	0	37.448
Total for Activity 1AQ31MG002:						12.061	380.174	144.840	37.448	562.462	181.343	743.805

**Line Item 2 - Deactivation Program Management**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Program Management consists of a Program Manager and three Leads for the major activities in Deactivation. The Program Manager should have a person to do administrative work as the scope of the operations would warrant such additional responsibilities. Each of the three major activities will have to have a lead to assure the work is accomplished and to manage the personnel issues of those assigned salaried, hourly, or contracted services. Each lead will need a technically qualified support engineer to work on issues and problems that will occur daily in the performance of tasks associated with the activity. Additionally, the technical engineers will have to work together on many unknowns that will surface during the deactivation tasks. Because of the newness of the tasks that are going to be done in deactivation, it is probable that some travel to other DOE or nuclear sites will be necessary to determine how efficiencies from similar work can be captured for B371 Deactivation work. As there is a great deal of planning involved, off site meeting to support large numbers or personnel or lengthy sessions will also occasionally be necessary. As this is a new process and many unknowns are expected, it is

WBS No: 1AAC  
 Activity ID: 1AQ31MG002

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

likely that outside contractors will be required to solve specific problems or that a new technology will arise to speed up the process, make it safer or simpler, or that a contractor will be used to perform a task within the activity.

Breakdown of Cost Data:  
 Item - Program Management for Deactivation  
 Units - Lot  
 Unit Cost - 6,405 hrs \$132,288 - Sub Costs \$12,552 - Supply Cost  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	G010 ADMINISTRATIVE ASSISTANTS	KA70S B371 Facility Disposition	Linear	915.00	Hours
<i>Factors</i>	1830 Hours/FTE Sallv	0.5 1/2 time support				
750	STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	KA70S B371 Facility Disposition	Linear	915.00	Hours
<i>Factors</i>	1830 Hours/FTE Maiestic	0.5 1/2 time support				
750	STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	KA70S B371 Facility Disposition	Linear	915.00	Hours
<i>Factors</i>	1830 Hours/FTE Floerke	0.5 1/2 time support				
750	STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	KA70S B371 Facility Disposition	Linear	915.00	Hours
<i>Factors</i>	1830 Hours/FTE Wrapp	0.5 1/2 time support				
750	STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	KA70S B371 Facility Disposition	Linear	915.00	Hours
<i>Factors</i>	1830 Hours/FTE Chavez	0.5 1/2 time support				
750	STRAIGHT TIME BASE	P070 COST ESTIMATORS PLANNERS AN	KA70S B371 Facility Disposition	Linear	1.830.00	Hours
<i>Factors</i>	1830 Hours/FTE Annette	1 full time support				
A52	TENERA	P070 COST ESTIMATORS PLANNERS AN	KA70S B371 Facility Disposition	Linear	132.288.00	Dollars
<i>Factors</i>	11024 \$/month	12 months				
A5C	SUPPLIES	0000 NONE	SA01S SSOC 371 Closure Project	Linear	12.552.00	Dollars
<i>Factors</i>	1046 \$/month	12 months				

**Line Item 6 - Deact/SNM Removal Bldg Downtime**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - This activity is to capture costs for building downtime resulting from events occurring in B371 which periodically shutdown program operations and inventory which is conducted every six weeks and can shut down operations for at a minimum of one week. 90% building availability is projected. Training hours are also include in this activity.

Breakdown of Cost Data:  
 Item - Hours per year for training, inventory shutdown, and building downtime.  
 Units - Hours  
 Unit Cost - 5,656 hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	5.656.00	Hours
<i>Factors</i>	2020 available hrs/yr	0.1 90% building availability factor	28 D&D Workers			

**Line Item SYS - Contingency And Escalation**

**BOE**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
CON	CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	22.594.90	Dollars
<i>Factors</i>	22594.9 Dollars					
ESC	ESCALATION	0000 NONE	ZDEPT No Department	Linear	14.853.11	Dollars
<i>Factors</i>	14853.1 Dollars					

Activity ID: 1AQ31MG003 Description: B371 Project Management (02)- Deac/SNM Removal

Cost Risk 1 Schedule Risk 1

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
2	Deactivation Program Management	1.00	each	EE	6.405	6.405	262.925	144.840	0	407.765	92.813	500.578
6	Deact/SNM Removal Bldg Downtime	1.00	each	EE	5.656	5.656	117.249	0	0	117.249	41.389	158.638
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	98.529	98.529	0	98.529

WBS No: 1AAC  
 Activity ID: 1AQ31MG003

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Total for Activity 1AQ31MG003:

12.061	380.174	144.840	98.529	623.543	134.201	757.744
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**Line Item 2 - Deactivation Program Management**

BOE

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Program Management consists of a Program Manager and three Leads for the major activities in Deactivation. The Program Manager should have a person to do administrative work as the scope of the operations would warrant such additional responsibilities. Each of the three major activities will have to have a lead to assure the work is accomplished and to manage the personnel issues of those assigned salaried, hourly, or contracted services. Each lead will need a technically qualified support engineer to work on issues and problems that will occur daily in the performance of tasks associated with the activity. Additionally, the technical engineers will have to work together on many unknowns that will surface during the deactivation tasks. Because of the newness of the tasks that are going to be done in deactivation, it is probable that some travel to other DOE or nuclear sites will be necessary to determine how efficiencies from similar work can be captured for B371 Deactivation work. As there is a great deal of planning involved, off site meeting to support large numbers or personnel or lengthy sessions will also occasionally be necessary. As this is a new process and many unknowns are expected, it is likely that outside contractors will be required to solve specific problems or that a new technology will arise to speed up the process, make it safer or simpler, or that a contractor will be used to perform a task within the activity.

Breakdown of Cost Data:  
 Item - Program Management for Deactivation  
 Units - Lot  
 Unit Cost - 6,405 hrs \$132,288 - Sub Costs \$12,552 - Supply Cost  
 Unit Cost Adjustment factor - N/A

Resources

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	G010 ADMINISTRATIVE ASSISTANTS	KA70S B371 Facility Disposition	Linear	915.00	Hours
Factors 1830 Hours/FTE Sally	0.5 1/2 time support				
750 STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	KA70S B371 Facility Disposition	Linear	915.00	Hours
Factors 1830 Hours/FTE Maestic	0.5 1/2 time support				
750 STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	KA70S B371 Facility Disposition	Linear	915.00	Hours
Factors 1830 Hours/FTE Floerke	0.5 1/2 time support				
750 STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	KA70S B371 Facility Disposition	Linear	915.00	Hours
Factors 1830 Hours/FTE Wrap	0.5 1/2 time support				
750 STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	KA70S B371 Facility Disposition	Linear	915.00	Hours
Factors 1830 Hours/FTE Chavez	0.5 1/2 time support				
750 STRAIGHT TIME BASE	P070 COST ESTIMATORS PLANNERS AN	KA70S B371 Facility Disposition	Linear	1.830.00	Hours
Factors 1830 Hours/FTE Annette	1 full time support				
A52 TENERA	P070 COST ESTIMATORS PLANNERS AN	KA70S B371 Facility Disposition	Linear	132.288.00	Dollars
Factors 11024 \$/month	12 months				
A5C SUPPLIES	0000 NONE	SA01S SSOC 371 Closure Project	Linear	12.552.00	Dollars
Factors 1046 \$/month	12 months				

**Line Item 6 - Deact/SNM Removal Bldg Downtime**

BOE

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - This activity is to capture costs for building downtime resulting from events occurring in B371 which periodically shutdown program operations and inventory which is conducted every six weeks and can shut down operations for at a minimum of one week. 90% building availability is projected. Training hours are also include in this activity.

Breakdown of Cost Data:  
 Item - Hours per year for training, inventory shutdown, and building downtime.  
 Units - Hours  
 Unit Cost - 5,656 hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	5.656.00	Hours
Factors 2020 available hrs/yr	0.1 90% building availability factor	28 D&D Workers			

**Line Item SYS - Contingency And Escalation**

BOE

Resources

Cost Element	Skill	Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1AQ31MG003

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	67,722.42	Dollars
<i>Factors</i> 67722.4 Dollars								
ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	30,806.10	Dollars
<i>Factors</i> 30806.1 Dollars								

Activity ID: 1AQ31MG004 Description: B371 Project Management (03)- Deac/SNM Removal

Cost Risk 1 Schedule Risk 1

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
2	Deactivation Program Management	1.00	each	EE	6.405	6.405	262,925	144,840	0	407,765	89,430	497,195
6	Deact/SNM Removal Bldg Downtime	1.00	each	EE	5.656	5.656	117,249	0	0	117,249	39,881	157,129
7	Records Management Support	1.00	each	EE	0	0	0	117,625	0	117,625	0	117,625
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	189,333	189,333	0	189,333
Total for Activity 1AQ31MG004:						12.061	380,174	262,465	189,333	831,972	129,311	961,283

**Line Item 2 - Deactivation Program Management**

<b>BOE</b>	<p>Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.</p> <p>Experience Item Desc - Program Management consists of a Program Manager and three Leads for the major activities in Deactivation. The Program Manager should have a person to do administrative work as the scope of the operations would warrant such additional responsibilities. Each of the three major activities will have to have a lead to assure the work is accomplished and to manage the personnel issues of those assigned salaried, hourly, or contracted services. Each lead will need a technically qualified support engineer to work on issues and problems that will occur daily in the performance of tasks associated with the activity. Additionally, the technical engineers will have to work together on many unknowns that will surface during the deactivation tasks. Because of the newness of the tasks that are going to be done in deactivation, it is probable that some travel to other DOE or nuclear sites will be necessary to determine how efficiencies from similar work can be captured for B371 Deactivation work. As there is a great deal of planning involved, off site meeting to support large numbers or personnel or lengthy sessions will also occasionally be necessary. As this is a new process and many unknowns are expected, it is likely that outside contractors will be required to solve specific problems or that a new technology will arise to speed up the process, make it safer or simpler, or that a contractor will be used to perform a task within the activity.</p> <p>Breakdown of Cost Data:          Item - Program Management for Deactivation          Units - Lot          Unit Cost - 6,405 hrs \$132,288 - Sub Costs \$12,552 - Supply Cost          Unit Cost Adjustment factor - N/A</p>
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Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	G010 ADMINISTRATIVE ASSISTANTS	KA70S B371 Facility Disposition	Linear	915.00	Hours
<i>Factors</i> 1830 Hours/FTE Sally 0.5 1/2 time support						
750	STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	KA70S B371 Facility Disposition	Linear	915.00	Hours
<i>Factors</i> 1830 Hours/FTE Maestic 0.5 1/2 time support						
750	STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	KA70S B371 Facility Disposition	Linear	915.00	Hours
<i>Factors</i> 1830 Hours/FTE Floerke 0.5 1/2 time support						
750	STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	KA70S B371 Facility Disposition	Linear	915.00	Hours
<i>Factors</i> 1830 Hours/FTE Wrapp 0.5 1/2 time support						
750	STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	KA70S B371 Facility Disposition	Linear	915.00	Hours
<i>Factors</i> 1830 Hours/FTE Chavez 0.5 1/2 time support						
750	STRAIGHT TIME BASE	P070 COST ESTIMATORS PLANNERS AN	KA70S B371 Facility Disposition	Linear	1,830.00	Hours
<i>Factors</i> 1830 Hours/FTE Annette 1 full time support						
A52	TENERA	P070 COST ESTIMATORS PLANNERS AN	KA70S B371 Facility Disposition	Linear	132,288.00	Dollars
<i>Factors</i> 11024 \$/month 12 months						
A5C	SUPPLIES	0000 NONE	SA01S SSOC 371 Closure Project	Linear	12,552.00	Dollars
<i>Factors</i> 1046 \$/month 12 months						

**Line Item 6 - Deact/SNM Removal Bldg Downtime**

<b>BOE</b>	<p>Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.</p> <p>Experience Item Desc - This activity is to capture costs for building downtime resulting from events occurring in B371 which periodically shutdown program operations and inventory which is conducted every six weeks and can shut down operations for at a minimum of one week. 90% building availability is projected. Training hours are also include in this activity.</p> <p>Breakdown of Cost Data:</p>
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WBS No: 1AAC  
 Activity ID: 1AQ31MG004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Item - Hours per year for training, inventory shutdown, and building downtime.  
 Units - Hours  
 Unit Cost - 5,656 hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	5.656	000 Hours
<i>Factors</i>	2020 available hrs/vr	0.1 90% building availability factor	28 D&D Workers			

**Line Item 7 - Records Management Support**

**BOE**  
 Estimators Experience - Project Managers forecast of costs associated with dispositioning of all project records.  
 Experience Item Desc - Dispositioning of project files including project correspondence, project status reports, project procurement files, etc.  
 Breakdown of Cost Data:  
 Item - Dispositioning of project records to records management.  
 Units - dollars  
 Unit Cost - \$115,000  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	A5H SUBCONTRACTED SRVS	0000 NONE	SA01S SSOC 371 Closure Project	Linear	117.625	500 Dollars
<i>Factors</i>	1.02283 -- FY00 Escalation --	115000 dollars to support Records				

**Line Item SYS - Contingency And Escalation**

**BOE**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	128.807	300 Dollars
<i>Factors</i>	128807 Dollars					
	ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	60.525	470 Dollars
<i>Factors</i>	60525.5 Dollars					

Activity ID: 1AQ31RR001 Description: Tank and CWTS Sludge Calcining FY01

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
1	Calcining Sludge in B371 (<10% Pu by Weight)	1.00	each	BM	3.197	3.197	69.576	91.859	0	161.434	32.139	193.573
2	Calcining Sludge in B371 (>10% Pu by Weight)	1.00	each	EE	1.410	1.410	40.215	4.000	0	44.215	18.576	62.792
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	15.869	15.869	0	15.869
Total for Activity 1AQ31RR001:						4.607	109.791	95.859	15.869	221.519	50.715	272.234

**Line Item 1 - Calcining Sludge in B371 (<10% Pu by Weight)**

**BOE**  
 Calcining of Sludge in B371 Estimate Basis: The calcining sludge effort will require 20 operators and 2 Foreman for a total of 20,572 hours and 2057 respectively. This includes a week for start up, a week for shut down, and 208 days for operations. In addition, the estimate includes 400 hours for waste management support, 550 hours for maintenance, \$5,000 per drum for processing 104 waste drums, 2,000 hours for overtime, and 3000 hrs for 2 months for packaging support for 10 operators and 1 foreman.  
 Assumptions: It is assumed that operations can process 2 kg's per shift. A building availability factor of 90% was used in the calculations. Some of the material will require calcination, but will not prevent operations from processing 2 kg's day. It is also assumed that the process will not produce more than 104 drums of secondary waste, and that the cost per drum of processing these drums will not exceed \$5,000 per waste drum.

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	50.00	Hours
<i>Factors</i>	400 Hours	0.125 % calculated on assuming 50% level				
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	125.00	Hours
<i>Factors</i>	0.125 % calculated on assuming 50% level	1000 Hours				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	257.13	Hours
<i>Factors</i>	2057 Hours	0.125 % calculated on assuming 50% level				
	750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	514.25	Hours
<i>Factors</i>	4114 Hours	0.125 % calculated on assuming 50% level				

WBS No: 1AAC  
 Activity ID: 1AQ31RR001

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	68.75	Hours
<i>Factors</i> 0.125 % calculated on assuming 50% level .550 Hours								
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KA70H	371 Facility Disposition Steelworkers	Linear	2,057.25	Hours
<i>Factors</i> 16458 Hours 0.125 % calculated on assuming 50% level								
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KA70H	371 Facility Disposition Steelworkers	Linear	125.00	Hours
<i>Factors</i> 1000 Hours 0.125 % calculated on assuming 50% level								
A52	TENERA	0000	NONE	R100S	RMRS Salaried	Linear	66,483.95	Dollars
<i>Factors</i> 1.02283 -- FY00 Escalation -- 0.125 % calculated on assuming 50% level 5000 \$/drum 104 drums								
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	25,375.00	Dollars
<i>Factors</i> 1.015 -- FY00 Escalation -- 200000 Dollars 0.125 % calculated on assuming 50% level								

**Line Item 2 - Calcining Sludge in B371 (>10% Pu by Weight)**

**BOE**  
 Estimators Experience - Larry Martella is the current Project Engineer and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences.

Experience Item Desc - It is estimated that 8 tanks will have holdup higher than 10% Pu by weight. The 8 tanks will generate 10 bottles per tank and will require 4 burns per bottle for a total of 320 burns. 2 furnaces are currently owned by the B371 Wet Combustible Project and will be transferred to the Facility Disposition Project.

Breakdown of Cost Data:  
 Item - Cost for crit limit, procedure, and calcining sludge >10% Pu by weight.  
 Units - hours  
 Unit Cost - 1,410 Hours and \$4,000  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	KA10S B371 ESH&Q	Linear	160.00	Hours
<i>Factors</i> 1 Crit Safey Officer (devl crit limits) 4 weeks 40 hrs/wk					
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	160.00	Hours
<i>Factors</i> 1 Crit Engineer (devl crit limits) 4 weeks 40 hrs/wk					
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	80.00	Hours
<i>Factors</i> 1 Project Engineer (proc devl supt) 2 weeks 40 hrs/wk					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	424.00	Hours
<i>Factors</i> 1 Foreman (operations) 53 days 8 hrs/dav					
750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	424.00	Hours
<i>Factors</i> 1 Process Specialist (operations) 53 days 8 hrs/dav					
750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	108.00	Hours
<i>Factors</i> 2 Process Specialists (baa out every 27 days 2 hrs/dav					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	54.00	Hours
<i>Factors</i> 1 RCT (baa out every other day) 27 days 2 hrs/dav					
A57 LATA	P160 TECHNICAL WRITERS AND EDITOR	KA10S B371 ESH&Q	Linear	4,000.00	Dollars
<i>Factors</i> 1 Procedure Writer 2 weeks 40 hrs/wk 50 \$/hr					

**Line Item SYS - Contingency And Escalation**

**BOE**

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	9,714.62	Dollars
<i>Factors</i> 9714.62 Dollars					
ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	6,154.49	Dollars
<i>Factors</i> 6154.49 Dollars					

**Activity ID: 1AQ31RR002** Description: Tank and CWTS Sludae Calcining FY02

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
1	Calcining Sludae in B371 (<10% Pu by Weight)	1.00	each	BM	3.197	3.197	69,576	91,859	0	161,434	24,448	185,882
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	31,856	31,856	0	31,856

WBS No: 1AAC  
 Activity ID: 1AQ31RR002

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Total for Activity 1AQ31RR002:	3.197	69.576	91.859	31.856	193.290	24.448	217.738
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**Line Item 1 - Calcining Sludge in B371 (<10% Pu by Weight)**

**BOE**  
 Calcining of Sludge in B371 Estimate Basis: The calcining sludge effort will require 20 operators and 2 Foreman for a total of 20,572 hours and 2057 respectively. This includes a week for start up, a week for shut down, and 208 days for operations. In addition, the estimate includes 400 hours for waste management support, 550 hours for maintenance, \$5,000 per drum for processing 104 waste drums, 2,000 hours for overtime, and 3000 hrs for 2 months for packaging support for 10 operators and 1 foreman.  
 Assumptions: It is assumed that operations can process 2 kg's per shift. A building availability factor of 90% was used in the calculations. Some of the material will require calcination, but will not prevent operations from processing 2 kg's day. It is also assumed that the process will not produce more than 104 drums of secondary waste, and that the cost per drum of processing these drums will not exceed \$5,000 per waste drum.

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	50.00	Hours
<i>Factors</i> 400 Hours 0.125 % calculated on assuming 50% level						
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	125.00	Hours
<i>Factors</i> 0.125 % calculated on assuming 50% level 1000 Hours						
750	STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	257.13	Hours
<i>Factors</i> 2057 Hours 0.125 % calculated on assuming 50% level						
750	STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	514.25	Hours
<i>Factors</i> 4114 Hours 0.125 % calculated on assuming 50% level						
750	STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	68.75	Hours
<i>Factors</i> 0.125 % calculated on assuming 50% level 550 Hours						
750	STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KA70H 371 Facility Disposition Steelworkers	Linear	125.00	Hours
<i>Factors</i> 1000 Hours 0.125 % calculated on assuming 50% level						
750	STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KA70H 371 Facility Disposition Steelworkers	Linear	2,057.25	Hours
<i>Factors</i> 16458 Hours 0.125 % calculated on assuming 50% level						
A52	TENERA	0000 NONE	R100S RMRS Salaried	Linear	66.483.95	Dollars
<i>Factors</i> 1.02283 -- FY00 Escalation -- 0.125 % calculated on assuming 50% level 5000 \$/drum 104 drums						
A5C	SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	25.375.00	Dollars
<i>Factors</i> 1.015 -- FY00 Escalation -- 200000 Dollars 0.125 % calculated on assuming 50% level						

**Line Item SYS - Contingency And Escalation**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
CON	CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	21.888.49	Dollars
<i>Factors</i> 21888.5 Dollars						
ESC	ESCALATION	0000 NONE	ZDEPT No Department	Linear	9.967.19	Dollars
<i>Factors</i> 9967.19 Dollars						

Activity ID: 1AQ31RR003 Description: Tank and CWTS Sludge Calcining FY03

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
1	Calcining Sludge in B371 (<10% Pu by Weight)	1.00	each	BM	799	799	17.394	22.965	0	40.359	6.018	46.377
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	12.987	12.987	0	12.987
Total for Activity 1AQ31RR003:						799	17.394	22.965	12.987	53.345	6.018	59.363

**Line Item 1 - Calcining Sludge in B371 (<10% Pu by Weight)**

**BOE**  
 Calcining of Sludge in B371 Estimate Basis: The calcining sludge effort will require 20 operators and 2 Foreman for a total of 20,572 hours and 2057 respectively. This includes a week for start up, a week for shut down, and 208 days for operations. In addition, the estimate includes 400 hours for waste management support, 550 hours for maintenance, \$5,000 per drum for processing 104 waste drums, 2,000 hours for overtime, and 3000 hrs for 2 months for packaging support for 10 operators and 1 foreman.  
 Assumptions: It is assumed that operations can process 2 kg's per shift. A building availability factor of 90% was used in the calculations. Some of the material will require calcination, but will not prevent operations from processing 2 kg's day. It is also assumed that the process will not produce more than 104 drums of secondary waste, and that the cost per drum of processing these drums will not exceed \$5,000 per waste drum.

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	31.25	Hours
<i>Factors</i> 0.125 % calculated on assuming 50% level 1000 Hours 0.25 1/4 of year						

WBS No: 1AAC  
 Activity ID: 1AQ31RR003

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	12.50	Hours
<i>Factors</i>		400	Hours	0.125	% calculated on assuming 50% level	0.25	1/4 of year	
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	64.28	Hours
<i>Factors</i>		2057	Hours	0.125	% calculated on assuming 50% level	0.25	1/4 of year	
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	128.56	Hours
<i>Factors</i>		4114	Hours	0.125	% calculated on assuming 50% level	0.25	1/4 of year	
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	17.19	Hours
<i>Factors</i>		0.125	% calculated on assuming 50% level	550	Hours	0.25	1/4 of year	
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KA70H	371 Facility Disposition Steelworkers	Linear	31.25	Hours
<i>Factors</i>		1000	Hours	0.125	% calculated on assuming 50% level	0.25	1/4 of year	
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KA70H	371 Facility Disposition Steelworkers	Linear	514.31	Hours
<i>Factors</i>		16458	Hours	0.125	% calculated on assuming 50% level	0.25	1/4 of year	
A52	TENERA	0000	NONE	R100S	RMRS Salaried	Linear	16,620.99	Dollars
<i>Factors</i>		1.02283	-- FY00 Escalation --	0.125	% calculated on assuming 50% level	5000	\$/drum	104 drums
		0.25	1/4 of year					
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	6,343.75	Dollars
<i>Factors</i>		1.015	-- FY00 Escalation --	200000	Dollars	0.125	% calculated on assuming 50% level	0.25 1/4 of year

**Line Item SYS - Contingency And Escalation**

**BOE**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units		
CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	9,430.12	Dollars
<i>Factors</i>		9430.12	Dollars					
ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	3,556.43	Dollars
<i>Factors</i>		3556.43	Dollars					

**Activity ID: 1AQ31ST001** Description: Set 1 B371 Attic & Chem Makeup - Deactivation

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
Set 1 Deac	Loose equip/property disposition	1.00	each	EE	120	120	2,626	0	0	2,626	908	3,534
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	990	990	0	990
Total for Activity 1AQ31ST001:						120	2,626	0	990	3,615	908	4,524

**Line Item Set 1 Deac - Loose equip/property disposition**

**BOE**

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Preliminary Walkdowns will be conducted in each area of every set to determine current configuration of equipment and room. This activity includes all necessary preliminary evaluations, walkdown of drawings, and preparing documentation required to perform work in each set. Documentation includes, but is not limited to, Criticality Safety Operating Limits, Radiation Work Permit, Integrated Work Control Package, and Engineering Package.

Breakdown of Cost Data:  
 Item - Preliminary Evaluation, walkdown of drawings, and documentation preparation.  
 Units - per set  
 Unit Cost - 120 hrs  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units		
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	80.00	Hours
<i>Factors</i>		4	D&D Workers	20	hrs			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	20.00	Hours
<i>Factors</i>		1	Foreman	20	hrs			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	20.00	Hours
<i>Factors</i>		20	hours					

**Line Item SYS - Contingency And Escalation**

**BOE**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1AQ31ST001

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \* Starts In FY \*

CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	718.60	Dollars
<i>Factors</i> 718.603 Dollars								
ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	271.01	Dollars
<i>Factors</i> 271.010 Dollars								

Activity ID: 1AQ31ST003 Description: Set 3 B371 Mission Specific- Rm 3305 SNM Remova1

Cost Risk 4 Schedule Risk 4

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
3305 4-SCANGB	Glovebox Scan for SNM	4.843	cf	EE	0	581	12,003	0	0	12,003	5,839	17,842
3305 5-TP	Tilt Pour Furnace	1.00	ls	EE	3.863	3,863	85,425	19,400	0	104,824	41,559	146,383
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	1,158	1,158	0	1,158
Total for Activity 1AQ31ST003:						4,444	97,428	19,400	1,158	117,986	47,398	165,384

**Line Item 3305 4-SCANGB - Glovebox Scan for SNM**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.

Breakdown of Cost Data:  
 Item - Scan glovebox for SNM removal  
 Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.  
 Unit Cost - .16 hrs/cubic foot  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.08	Hours
<i>Factors</i> 0.04 hours/cf of glovebox 2 scans, one prior to removal, second						
	750 STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KA70H 371 Facility Disposition Steelworkers	Linear	0.04	Hours
<i>Factors</i> 1 technician 0.04 hours per cubic foot of glovebox 2 Scans, one prior to removal, second 0.5 Mav EV						

**Line Item 3305 5-TP - Tilt Pour Furnace**

**BOE** Estimators Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Dismantle the tilt-pour furnace as necessary and scrape out the SNM hold-up. One tilt-pour was dismantled in the 80's that required approximately a month to dismantle using typical maintenance tools and procedures. Dismantling was labor intensive and cumbersome and the project was stopped. Dismantling effectiveness will be based on the amount and location of SNM holdup in the tilt-pour. The holdup was mainly molten plutonium metal solidified to the tilt-pour crucible and furnace cavity. The plutonium metal may have since been oxidized. If the plutonium is still in the metal state, the equipment will be removed from the glovebox and oxidized in either PUSPS or in the fluoride furnaces in Glovebox 32, Room 3515. Any size reduction of equipment holding the SNM will be performed in the tilt-pour gloveboxes. Cost here includes the dismantling, any size reduction, and removal of the SNM from the glovebox. If the SNM is oxidized, the material will be placed in an approved container and properly stored for further stabilization via PUSPS. This estimate does not include processing of SNM hold-up through PuSPS or the fluorides glovebox. Calorimetry cost is not included here. Dismantlement to remove SNM hold-up assumes that all liquid was previously drained out of the cooling coils during a separate activity; therefore, cost to drain cooling coils is not captured in this activity. Complete dismantlement and removal of equipment is not included in this estimate. Dismantlement and removal is included in Decommissioning.

Breakdown of Cost Data:  
 Item - Dismantle as necessary and remove SNM hold-up  
 Units - cost per tilt pour furnace  
 Unit Cost - hours and \$ per tilt pour furnace  
 Unit Cost Adjustment factor -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mamt Steelworkers	Linear	1,280.00	Hours
<i>Factors</i> 2 ea 8 hrs/dav 80 days						
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	640.00	Hours
<i>Factors</i> 1 Foreman 8 hrs/dav 80 days						
	750 STRAIGHT TIME BASE	P140 SAFEGUARDS AND OTHER SECURI	SA01S SSOC 371 Closure Project	Linear	22.50	Hours
<i>Factors</i> 1.5 risk factor 15 hrs support of SNM removal						

WBS No: 1AAC  
 Activity ID: 1AQ31ST003

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	1,280.00	Hours
Factors	8 hrs/day		2 Process Specialists		80 days			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	640.00	Hours
Factors	8 hr/day		1 RCT		80 days			
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	350.00	Dollars
Factors	175		supply cost per can includes 8801.		2 cans/furnace			
A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	KA70S	B371 Facility Disposition	Linear	19,049.63	Dollars
Factors	0.25		1/4 time (Joel Kohler)		9 hrs/day			
					82 days		103.25	\$/hr

**Line Item SYS - Contingency And Escalation**

**BOE**

**Resources**

	Cost Element		Skill		Department		Curve	Quantity	Units
CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear		688.51	Dollars
Factors	688.513		Dollars						
ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear		469.89	Dollars
Factors	469.894		Dollars						

Activity ID: 1AQ31ST004 Description: Set 4 B371 Sub-Basement - Deactivation

Cost Risk 3 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
Set 4 Prep	Prep Sets for Deactivation of B371	1.00	each	EE	1,955	1,955	71,432	14,955	0	86,388	24,485	110,873
All GB Set 4 LSE	Remove Loose Equipment, trash, etc. from GB	6.00	day	EE	36	216	4,808	305	0	5,113	1,648	6,761
1103 1-SCOsca	GB SCO Scans	321.00	cf	EE	0	59	1,520	803	0	2,322	521	2,843
1103 2-TNK	Remove Raschia Rinos from Tanks	835.00	gal	EE	1	685	14,829	1,589	0	16,419	5,083	21,502
1103 2-TNWCP-	IWCP, Pen/Tent Install. SBA Suits, Foo	1.00	each	EE	296	296	7,795	25,233	0	33,028	2,672	35,700
1103 4-FC	Change GB Filters	2.00	ea	EE	8	16	332	600	0	932	125	1,057
1103 4-SCANGB	Glovebox Scan for SNM	321.00	cf	EE	0	51	1,058	0	0	1,058	382	1,440
1103 7-EQRmvl	GB Equipment Removal	2.00	ea	EE	802	1,603	33,442	0	0	33,442	11,463	44,905
1105 1-GLV	Glovebox Readiness	170.00	each	EE	1	225	5,062	9,124	0	14,186	1,735	15,921
1105 1-SCOsca	GB SCO Scans	313.00	cf	EE	0	58	1,482	783	0	2,264	508	2,772
1105 2-TNK	Remove Raschia Rinos from Tanks	4,414.00	gal	EE	1	3,619	78,392	8,276	0	86,668	26,870	113,538
1105 2-TNWCP	IWCP, Pen/Tent Install. SBA Suits, Foo	4.00	each	EE	296	1,184	31,181	100,931	0	132,113	10,688	142,801
1105 4-FC	Change GB Filters	2.00	ea	EE	8	16	332	600	0	932	114	1,045
1105 7-EQRmvl	GB Equipment Removal	2.00	ea	EE	802	1,603	33,442	0	0	33,442	11,463	44,905
1111 1-GLV	Glovebox Readiness	64.00	each	EE	1	85	1,906	3,435	0	5,341	653	5,994
1111 1-Lathe	Lathe in Rm 1111, GB 74	1.50	each	EE	175	263	7,200	533	0	7,733	2,468	10,201
1111 1-SCOsca	GB SCO Scans	798.00	cf	EE	0	148	3,778	1,995	0	5,773	1,295	7,068
1111 4-FC	Change GB Filters	6.00	ea	EE	8	48	995	1,800	0	2,795	341	3,136
1111 4-SCANGB	Glovebox Scan for SNM	698.00	cf	EE	0	112	2,301	0	0	2,301	789	3,090
1111 7-EQRmvl	GB Equipment Removal	6.00	ea	EE	802	4,810	100,326	0	0	100,326	34,388	134,714
1115 1-GLV	Glovebox Readiness	262.00	each	EE	1	347	7,802	14,061	0	21,863	2,674	24,537
1115 1-SCOsca	GB SCO Scans	2,636.00	cf	EE	0	488	12,481	6,590	0	19,071	4,278	23,349
1115 2-TNK	Remove Raschia Rinos from Tanks	1,888.00	gal	EE	1	1,548	33,531	3,540	0	37,071	11,493	48,564
1115 2-TNWCP	IWCP, Pen/Tent Install. SBA Suits, Foo	7.00	each	EE	296	2,072	54,568	172,830	0	227,398	18,704	246,102
1115 4-FC	Change GB Filters	12.00	ea	EE	8	96	1,990	3,600	0	5,590	682	6,272
1115 4-SCANGB	Glovebox Scan for SNM	2,575.00	cf	EE	0	412	8,489	0	0	8,489	2,910	11,399
1115 5-DP	Disconnect Pumps/Disposition Liquid	9.00	each	EE	23	203	4,563	0	0	4,563	1,564	6,127
1115 7-EQRmvl	GB Equipment Removal	6.00	ea	EE	802	4,810	100,326	0	0	100,326	34,388	134,714
1115 7-EQRmvl1	GB Equipment Removal GBs 17, 18, 19, 20, 62, 2404	6.00	ea	EE	2,405	14,429	300,977	0	0	300,977	103,165	404,142
1117 1-SCOsca	GB SCO Scans	258.00	cf	EE	0	48	1,222	645	0	1,867	462	2,329
1117 2-TNK	Remove Raschia Rinos from Tanks	1,336.00	gal	EE	1	1,096	23,727	2,543	0	26,270	8,973	35,242
1117 2-TNWCP	IWCP, Pen/Tent Install. SBA Suits, Foo	4.00	each	EE	296	1,184	31,181	100,931	0	132,113	11,792	143,904
1117 4-FC	Change GB Filters	1.00	ea	EE	8	8	166	300	0	466	63	529
1117 5-DP	Disconnect Pumps/Disposition Liquid	2.00	each	EE	23	45	1,014	0	0	1,014	383	1,397

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

1117 7-EQRmvl	GB Equipment Removal	1.00	ea	EE	802	802	16,721	0	0	16,721	6,323	23,044
1127 2-TNK	Remove Raschia Rings from Tanks	366.00	gal	EE	1	300	6,500	697	0	7,197	2,458	9,655
1127 2-TNWCP	IWCP. Pen/Tent Install. SBA Suits. Fog	2.00	each	EE	296	592	15,591	50,466	0	66,056	5,896	71,952
1127 4-Tank SCA	Tank Scan in pit area of Rm 1127	2.00	ea	EE	104	208	4,489	3,045	0	7,534	1,698	9,232
1210 2-TNK	Remove Raschia Rings from Tanks	3,636.00	gal	EE	1	2,982	64,575	6,818	0	71,392	22,134	93,526
1210 2-TNWCP	IWCP. Pen/Tent Install. SBA Suits. Fog	3.00	each	EE	296	888	23,386	74,070	0	97,456	8,016	105,472
1216 1-GLV-	Glovebox Readiness	25.00	each	EE	1	33	744	1,342	0	2,086	255	2,341
1216 1-SCOScan	GB SCO Scans	278.00	cf	EE	0	51	1,316	695	0	2,011	451	2,462
1216 4-FC	Change GB Filters	2.00	ea	EE	8	16	332	600	0	932	125	1,057
1216 7-EQRmvl	GB Equipment Removal	2.00	ea	EE	802	1,603	33,442	0	0	33,442	11,463	44,905
1222 1-GLV	Glovebox Readiness	4.00	each	EE	1	5	119	215	0	334	41	375
1222 1-SCOScan	GB SCO Scans	45.00	cf	EE	0	8	213	113	0	326	73	399
1222 4-FC	Change GB Filters	1.00	ea	EE	8	8	166	300	0	466	57	523
1222 7-EQRmvl	GB Equipment Removal	1.00	ea	EE	802	802	16,721	0	0	16,721	5,731	22,452
2.0 EDP	Eng. Design Pkg. RR/Fog/Cerium (27 tanks)	1.00	each	EE	800	800	27,368	0	0	27,368	10,350	37,718
2015 1-GLV	Glovebox Readiness	11.00	each	EE	1	15	328	590	0	918	112	1,030
2203 1-GLV	Glovebox Readiness	11.00	each	EE	1	15	328	590	0	918	112	1,030
2207 1-GLV-	Glovebox Readiness	11.00	each	EE	1	15	328	590	0	918	112	1,030
2216 1-GLV-	Glovebox Readiness	13.00	each	EE	1	17	387	698	0	1,085	133	1,218
2216 1-SCOScan	GB SCO Scans	80.00	cf	EE	0	15	379	200	0	579	130	709
2216 4-FC	Change GB Filters	1.00	ea	EE	8	8	166	300	0	466	57	523
2216 7-EQRmvl	GB Equipment Removal	1.00	ea	EE	802	802	16,721	0	0	16,721	5,731	22,452
3.3.4 Post Fixative	Prep/Apply Fixative. Smear & Remove Equip.	27.00	each	EE	82	2,214	49,370	139,436	0	188,806	16,922	205,728
Set 4 - Cerium De	Cerium Decon for Set 4 Tanks	19.00	ea	EE	538	10,213	238,786	116,220	0	355,006	81,848	436,854
Set 4 - TKSCN	Holdup Scans on Tanks	53.00	each	EE	14	742	16,170	0	0	16,170	5,543	21,713
SET4 4-OrLQ	Drain Organic Liquids	30.00	ea	EE	28	831	17,296	30	0	17,326	5,929	23,255
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	717,809	717,809	0	717,809
Total for Activity 1AQ31ST004:						67,818	1,535,590	873,014	717,809	3,126,413	530,924	3,657,337

**Line Item Set 4 Prep - Prep Sets for Deactivation of B371**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the CA Manager's Office.

Experience Item Desc - Preliminary Walkdowns will be conducted in each area of every set to determine current configuration of equipment and room. This activity includes all necessary preliminary evaluations, walkdown of drawings, and preparing documentation required to perform work in each set. Documentation includes, but is not limited to, Criticality Safety Operating Limits, Radiation Work Permit, Integrated Work Control Package, and Engineering Package. This line item also contains the scope for performing Engineering Design Packages (EDP) for the removal of the internal components for a glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed.

Breakdown of Cost Data:  
 Item - Preliminary Evaluation, walkdown of drawings, and documentation preparation.  
 Units - per set  
 Unit Cost - 1955 hrs \$12,955 - Subcontractor Costs  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	50.00	Hours
	Factors 50 hrs to assist with area walkdowns					
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Max Backload	600.00	Hours
	Factors 600 average hours for an intricate CSOL					
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Max Backload	50.00	Hours
	Factors 50 hrs of Nuclear Safety Support for BIO					
	750 STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	SA01S SSOC 371 Closure Project	Max Backload	40.00	Hours
	Factors 40 hrs to assist with BIO page changes					
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Max Backload	40.00	Hours
	Factors 40 hours to support this activity					

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY: \*

750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Max Backload	1,075.00	Hours
<i>Factors</i> 1075 hrs drawing walkdown IWCP								
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	SA01S	SSOC 371 Closure Project	Max Backload	50.00	Hours
<i>Factors</i> 50 hrs to assist with IWCP preparation								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	50.00	Hours
<i>Factors</i> 50 hours to support this activity								
A57	LATA	P070	COST ESTIMATORS PLANNERS AN	SA01S	SSOC 371 Closure Project	Max Backload	9,205.47	Dollars
<i>Factors</i> 1,02283 -- FY00 Escalation -- 120 hrs to develop and complete an 75 \$/hour								
A57	LATA	P160	TECHNICAL WRITERS AND EDITOR	SA01S	SSOC 371 Closure Project	Max Backload	3,750.00	Dollars
<i>Factors</i> 50 hours procedure support for changes 1 ea 75 \$/hr								
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Max Backload	2,000.00	Dollars
<i>Factors</i> 1 ea 2000 misc. lighting, cans. & bags								

**Line Item All GB Set 4 LSE - Remove Loose Equipment, trash, etc. from GB**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the CA Manager's Office.

Experience Item Desc - All loose equipment, trash, etc. will be removed from each glovebox in order to stripcoat the glovebox. Amount removed from each glovebox will vary. Cubic foot/glovebox is used to estimate average amount of equipment to be removed. Necessary supplies include, but are not limited to: Drums @ \$35/drum, 2" rolls of yellow tape @ \$2.50/roll, Bag-out bags @ \$14/bag for a 10X96 bag, 18X24 waste bag/bag cut @ .25/bag (for loose equipment removed).

Breakdown of Cost Data:  
 Item - Removal of loose equipment, trash, etc., place in drum and count drum  
 Units - per day to clean out glovebox  
 Unit Cost - 36 hrs/day \$50/day supply cost  
 Unit Cost Adjustment factor - N/A

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	16.00	Hours
<i>Factors</i> 8 hr/dav 2 fte/dav								
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	8.00	Hours
<i>Factors</i> 4 hr/dav 2 fte to operate drum counter								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	8.00	Hours
<i>Factors</i> 8 hrs/dav								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	4.00	Hours
<i>Factors</i> 4 hrs/day								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Max Backload	50.75	Dollars
<i>Factors</i> 50 supply dollars per day(includes 1.015 -- FY00 Escalation --								

**Line Item 1103 1-SCOScan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box  
 Unit Cost -

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	0.05	Hours
<i>Factors</i> 1 Rad Ops Foreman 0.05 hrs/CF of GB								
750	STRAIGHT TIME BASE	P080	HEALTH PHYSICISTS	SA01S	SSOC 371 Closure Project	Max Backload	0.05	Hours
<i>Factors</i> 1 Rad Eng. 0.045 hrs/CF of GB								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	0.09	Hours
<i>Factors</i> 2 RCTs 0.045 hrs/CF of GB								
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Max Backload	2.50	Dollars
<i>Factors</i> 2.5 \$/CF to replace/calibrate heads								

**Line Item 1103 2-TNK - Remove Raschig Rings from Tanks**

BOE

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Removal of Raschig Rings from the tank is based on capacity of the tank. Rings absorb 34% of the tank capacity; therefore, gallons of raschig rings is 34% of gallons in each tank. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. Any sludge removed from the tank will be calcined in Glovebox 32, Room 3515, fluoride calcination furnace. The fluoride calcining furnace is being designed to condense and collect moisture from calcined material. The calcined sludge may require further stabilization and packaging by PUSPS operations. Calcining of the sludge is not estimated here but will be budgeted through fluoride or PUSPS. This estimate assumes tanks cannot be shipped off-site with rings in place. If ring removal is not required, tanks less than 8' X 8' X 10' (meeting shipping crate size) will be dispositioned with rings in place during Decommissioning.

Breakdown of Cost Data:  
 Item - Removal of 1 gallon of raschig rings  
 Units - per gallon of raschig rings  
 Unit Cost - .82 hours/gallon of raschig rings  
 - \$1.88 supplies/gallon of raschig rings  
 Unit Cost Adjustment factor - N/A

Resources

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.44	Hours
<i>Factors</i> 0.11 hrs/gallon of rings 4 process specialists (includes 2 at the								
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.05	Hours
<i>Factors</i> 0.025 factor per gallon: 40 gallons/drum 2 process specialists to operate drum 1 hour to count 1 drum								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	0.11	Hours
<i>Factors</i> 1 RCT supervisor 0.11 hour per gallon of rings								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	0.22	Hours
<i>Factors</i> 0.11 hrs/gallon of rings 2 RCTs								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Max Backload	1.90	Dollars
<i>Factors</i> 0.025 factor: 40 gallons of rings/drum 1.015 -- FY00 Escalation -- 75 \$/drum (includes cost of drum, plastic								

**Line Item 1103 2-TNWCP- - IWCP, Pen/Tent Install, SBA Suits, Fog**

BOE

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Contractor policy specifies that removal of Raschig Rings requires a specific Integrated Work Control Package (IWCP) for each tank; however, in the future it may be possible to combine same size tanks in the same room into one IWCP. Each package requires support from Engineering for drawings, walkdowns, tank set-up for safe ring removal; Maintenance Planners for IWCP development; and Document Control support. In addition, each tank will be fogged prior to removal of rings. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. A tent and pen will be built and installed in order to remove the rings.

Breakdown of Cost Data:  
 Item - Integrated Work Control Package development, tent & pen installation, and tank fogging for each Raschig Ring Tank.  
 Units - per raschig ring tank  
 Unit Cost - 292 hours/tank \$22,025 Subcontractor Cost \$2,665 Supply Cost  
 Unit Cost Adjustment factor - N/A

Resources

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Max Backload	8.00	Hours
<i>Factors</i> 2 pipefitters to build tank port covers 4 hrs/each								
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	96.00	Hours
<i>Factors</i> 3 process specialists 4 days (install tent, pen, & adaptor) 8 hrs/day also includes hours for								

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	E070	MECHANICAL ENGINEERS	SA01S	SSOC 371 Closure Project	Max Backload	120.00	Hours
<i>Factors</i>		3	wks	40	hrs/wk			
750	STRAIGHT TIME BASE	L060	MISSION SUP SPEC II (FLTTC.H.WS	KA70H	371 Facility Disposition Steelworkers	Max Backload	8.00	Hours
<i>Factors</i>		8	hours to make tank adaptor and					
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	32.00	Hours
<i>Factors</i>		8	hrs/day	4	days (install tent pen. adaptor)			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	32.00	Hours
<i>Factors</i>		8	hrs/dav also includes hours for	4	days (tent. pen. adaptor)			
A57	LATA	P070	COST ESTIMATORS PLANNERS AN	SA01S	SSOC 371 Closure Project	Max Backload	2,863.92	Dollars
<i>Factors</i>		40	hrs/wk	1.02283	-- FY00 Escalation --	70	\$/hr	
A58	ASI	0000	NONE	K777C	Construction	Max Backload	2,045.66	Dollars
<i>Factors</i>		1.02283	-- FY00 Escalation --	50	\$/hr	40	hrs/wk	
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Max Backload	2,639.00	Dollars
<i>Factors</i>		2600	supply cost for tent and pen/tank	1.015	-- FY00 Escalation --			
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Max Backload	65.97	Dollars
<i>Factors</i>		65	\$/gallon of to capture/coat material	1.015	-- FY00 Escalation --			
A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Max Backload	17,618.25	Dollars
<i>Factors</i>		17225	\$ for Encapsulation Tech. To foq	1.02283	-- FY00 Escalation --			

**Line Item 1103 4-FC - Change GB Filters**

**BOE**  
 Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.  
 Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.  
 Breakdown of cost item  
 Item - glove box filter change  
 Unit - per filter  
 Unit Cost -  
 Unit Cost Adjustment Factor -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i>		2 Process Specialists		2	hrs/filter
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	300.00	Dollars
<i>Factors</i>		150 \$/filter (incls. Filter, drum, tape, bags		2	filters/GB

**Line Item 1103 4-SCANGB - Glovebox Scan for SNM**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.  
 Breakdown of Cost Data:  
 Item - Scan glovebox for SNM removal  
 Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.  
 Unit Cost - .16 hrs/cubic foot  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.08	Hours
<i>Factors</i>		2 scans, one prior to removal, second		0.04	hours/cf of glovebox

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.08	Hours
<i>Factors</i>		0.04	hours per cubic foot of glovebox	2	Scans, one prior to removal, second	1	technician	

**Line Item 1103 7-EQRmvl - GB Equipment Removal**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:  
 Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

**Resources**

<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>		<i>Curve</i>	<i>Quantity</i>	<i>Units</i>
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	283.36	Hours
<i>Factors</i>		35.42	hrs/piece of equipment	8	pieces of equipment /std GB			
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	283.20	Hours
<i>Factors</i>		8.85	hrs/piece of equipment	4	Cuts per piece of equipment	8	pieces of equip.	
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Max Backload	1.68	Hours
<i>Factors</i>		0.21	hrs/piece of equipment	8	pieces of equipment /std GB			
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Max Backload	1.60	Hours
<i>Factors</i>		0.05	hrs/piece of equipment	4	Cuts per piece of equipment	8	pieces of equip.	
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	1.68	Hours
<i>Factors</i>		0.21	hrs/piece of equipment	8	pieces of equipment /std GB	1	Rad Ops Foreman	
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	1.60	Hours
<i>Factors</i>		0.05	hrs/piece of equipment	4	Cuts per piece of equipment	8	pieces of equip.	
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	113.36	Hours
<i>Factors</i>		14.17	hrs/piece of equipment	8	pieces of equipment /std GB			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	113.28	Hours
<i>Factors</i>		3.54	hrs/piece of equipment	4	Cuts per piece of equipment	8	pieces of equip.	
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.88	Hours
<i>Factors</i>		0.11	hrs/piece of equipment	8	pieces of equipment /std GB			
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.96	Hours
<i>Factors</i>		0.03	hrs/piece of equipment	4	Cuts per piece of equipment	8	pieces of equip.	

**Line Item 1105 1-GLV - Glovebox Readiness**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.03	Hours
	<i>Factors</i> 0.0167 factor for 60gloves/drum 2 people to operate drum counter					
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.68	Hours
	<i>Factors</i> 2 Process Specialists 1 glove 0.34 hours per glove (20 min/glove)					
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	0.34	Hours
	<i>Factors</i> 0.34 hrs/glove (20 minutes/glove)					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	0.27	Hours
	<i>Factors</i> 0.27 hrs per glove (20 min/glove) 1 RCT 1 glove					
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Max Backload	53.00	Dollars
	<i>Factors</i> 53 \$/glove based on 30 mm glove					
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Max Backload	0.67	Dollars
	<i>Factors</i> 0.0167 factor for 60 gloves/drum 40 \$/supplies (includes tape, bas.					

**Line Item 1105 1-SCOScan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box  
 Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	0.05	Hours
	<i>Factors</i> 1 Rad Ops Foreman 0.05 hrs/CF of GB					
	750 STRAIGHT TIME BASE	P080 HEALTH PHYSICISTS	SA01S SSOC 371 Closure Project	Max Backload	0.05	Hours
	<i>Factors</i> 1 Rad Eng. 0.045 hrs/CF of GB					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	0.09	Hours
	<i>Factors</i> 2 RCTs 0.045 hrs/CF of GB					
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Max Backload	2.50	Dollars
	<i>Factors</i> 2.5 \$/CF to replace/calibrate heads					

**Line Item 1105 2-TNK - Remove Raschig Rings from Tanks**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Removal of Raschig Rings from the tank is based on capacity of the tank. Rings absorb 34% of the tank capacity; therefore, gallons of raschig rings is 34% of gallons in each tank. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. Any sludge removed from the tank will be calcined in Glovebox 32, Room 3515, fluoride calcination furnace. The fluoride calcining furnace is being designed to condense and collect moisture from calcined material. The calcined sludge may require further stabilization and packaging by PUSPS operations. Calcining of the sludge is not estimated here but will be budgeted through fluoride or PUSPS. This estimate assumes tanks cannot be shipped off-site with rings in place. If ring removal is not required, tanks less than 8' X 8' X 10' (meeting shipping crate size) will be dispositioned with rings in place during Decommissioning.

Breakdown of Cost Data:  
 Item - Removal of 1 gallon of raschig rings  
 Units - per gallon of raschig rings  
 Unit Cost - .82 hours/gallon of raschig rings  
 - \$1.88 supplies/gallon of raschig rings  
 Unit Cost Adjustment factor - N/A

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.05	Hours
Factors	0.025 factor per gallon: 40 gallons/drum	1 hour to count 1 drum	2 process specialists to operate drum			
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.44	Hours
Factors	4 process specialists (includes 2 at the	0.11 hrs/gallon of rings				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	0.11	Hours
Factors	1 RCT supervisor	0.11 hour per gallon of rings				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	0.22	Hours
Factors	2 RCTs	0.11 hrs/gallon of rings				
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Max Backload	1.88	Dollars
Factors	1 ea	0.025 factor: 40 gallons of rings/drum	75 \$/drum (includes cost of drum, plastic			

**Line Item 1105 2-TNWCP - IWCP, Pen/Tent Install, SBA Suits, Fog**

BOE	Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.
	Experience Item Desc - Contractor policy specifies that removal of Raschig Rings requires a specific Integrated Work Control Package (IWCP) for each tank; however, in the future it may be possible to combine same size tanks in the same room into one IWCP. Each package requires support from Engineering for drawings, walkdowns, tank set-up for safe ring removal; Maintenance Planners for IWCP development; and Document Control support. In addition, each tank will be fogged prior to removal of rings. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. A tent and pen will be built and installed in order to remove the rings.
	Breakdown of Cost Data: Item - Integrated Work Control Package development, tent & pen installation, and tank fogging for each Raschig Ring Tank. Units - per raschig ring tank Unit Cost - 292 hours/tank \$22,025 Subcontractor Cost \$2,665 Supply Cost Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mgmt Steelworkers	Max Backload	8.00	Hours
Factors	2 pipefitters to build tank port covers	4 hrs/each				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	96.00	Hours
Factors	3 process specialists	8 hrs/day also includes hours for	4 days (install tent, pen. & adaptor)			
	750 STRAIGHT TIME BASE	E070 MECHANICAL ENGINEERS	SA01S SSOC 371 Closure Project	Max Backload	120.00	Hours
Factors	3 wks	40 hrs/wk				
	750 STRAIGHT TIME BASE	L060 MISSION SUP SPEC II (FLTTCCH.WS	KA70H 371 Facility Disposition Steelworkers	Max Backload	8.00	Hours
Factors	8 hours to make tank adaptor and					
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	32.00	Hours
Factors	8 hrs/day	4 days (install tent, pen, adaptor)				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	32.00	Hours
Factors	8 hrs/day also includes hours for	4 days (tent, pen, adaptor)				
	A57 LATA	P070 COST ESTIMATORS PLANNERS AN	SA01S SSOC 371 Closure Project	Max Backload	2,863.92	Dollars
Factors	1.02283 -- FY00 Escalation --	40 hrs/wk	70 \$/hr			
	A58 ASI	0000 NONE	K777C Construction	Max Backload	2,045.66	Dollars
Factors	40 hrs/wk	1.02283 -- FY00 Escalation --	50 \$/hr			
	A5C SUPPLIES	0000 NONE	SA01S SSOC 371 Closure Project	Max Backload	65.97	Dollars
Factors	1.015 -- FY00 Escalation --	65 \$/gallon of to capture/coat material				
	A5C SUPPLIES	0000 NONE	SA01S SSOC 371 Closure Project	Max Backload	2,639.00	Dollars
Factors	1.015 -- FY00 Escalation --	2600 supply cost for tent and pen/tank				
	A5H SUBCONTRACTED SRVS	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Max Backload	17,618.25	Dollars
Factors	1.02283 -- FY00 Escalation --	17225 \$ for Encapsulation Tech. To fog				

**Line Item 1105 4-FC - Change GB Filters**

BOE	Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.
	Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Breakdown of cost item  
 Item - glove box filter change  
 Unit - per filter  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facilitv Disposition Steelworkers	Max Backload	8.00 Hours
Factors	2	Process Specialists	2	hrs/filter	2	filters/GB	
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facilitv Disposition	Max Backload	300.00 Dollars
Factors	150	\$/filter (incls. Filter, drum, tape, bags	2	filters/GB			

**Line Item 1105 7-EQRmvl - GB Equipment Removal**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facilitv Disposition Steelworkers	Max Backload	283.36 Hours
Factors	35.42	hrs/piece of equipment	8	pieces of equipment /std GB			
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facilitv Disposition Steelworkers	Max Backload	283.20 Hours
Factors	8.85	hrs/piece of equipment	4	Cuts per piece of equipment	8	pieces of equip.	
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Max Backload	1.60 Hours
Factors	0.05	hrs/piece of equipment	4	Cuts per piece of equipment	8	pieces of equip.	
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Max Backload	1.68 Hours
Factors	0.21	hrs/piece of equipment	8	pieces of equipment /std GB			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	1.60 Hours
Factors	0.05	hrs/piece of equipment	4	Cuts per piece of equipment	8	pieces of equip.	
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	1.68 Hours
Factors	0.21	hrs/piece of equipment	8	pieces of equipment /std GB	1	Rad Ops Foreman	
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	113.36 Hours
Factors	14.17	hrs/piece of equipment	8	pieces of equipment /std GB			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	113.28 Hours
Factors	3.54	hrs/piece of equipment	4	Cuts per piece of equipment	8	pieces of equip.	
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facilitv Disposition Steelworkers	Max Backload	0.88 Hours
Factors	0.11	hrs/piece of equipment	8	pieces of equipment /std GB			
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facilitv Disposition Steelworkers	Max Backload	0.96 Hours
Factors	0.03	hrs/piece of equipment	4	Cuts per piece of equipment	8	pieces of equip.	

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

**Line Item 1111 1-GLV - Glovebox Readiness**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the CAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Quantity	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.68	Hours
	Factors 2 Process Specialists		1 glove	0.34 hours per glove (20 min/glove)			
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.03	Hours
	Factors 2 people to operate drum counter		0.0167 factor for 60gloves/drum				
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	0.34	Hours
	Factors 0.34 hrs/glove (20 minutes/glove)						
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	0.27	Hours
	Factors 0.27 hrs per glove (20 min/glove)		1 glove	1 RCT			
	A5C SUPPLIES	0000	NONE	K218S Financial Services	Max Backload	53.00	Dollars
	Factors 53 \$/glove based on 30 mm glove						
	A5C SUPPLIES	0000	NONE	K218S Financial Services	Max Backload	0.67	Dollars
	Factors 40 \$/supplies (includes tape, baas.		0.0167 factor for 60 gloves/drum				

**Line Item 1111 1-Lathe - Lathe in Rm 1111, GB 74**

**BOE**  
 Estimators Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the CA Manager's Office.

Experience Item Desc - Dismantle lathe and remove SNM hold-up. The SNM holdup is not attached to the lathe. The lathe will be dismantled as necessary to reach the location and remove the SNM hold-up. The material will be placed in an approved container and properly stored for further stabilization by PUSPS operations. This estimate does not include processing of SNM hold-up through PuSPS. Complete dismantlement and removal of the lathe equipment is not included in this estimate. Dismantlement and removal is included in Decommissioning. Calorimetry cost is not included here, it is in MS.

Breakdown of Cost Data:  
 Item - Dismantle as necessary and remove SNM hold-up.  
 Units - cost per lathe  
 Unit Cost - 262 hrs/lathe Supply Cost - \$355  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Quantity	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	80.00	Hours
	Factors 10 days		8 hrs				
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	80.00	Hours
	Factors 8 hrs/dav		10 days				
	750 STRAIGHT TIME BASE	P140	SAFEGUARDS AND OTHER SECURI	SA01S SSOC 371 Closure Project	Max Backload	15.00	Hours
	Factors 15 hrs support of SNM removal						
	A5C SUPPLIES	0000	NONE	KA70S B371 Facility Disposition	Max Backload	355.25	Dollars
	Factors 2 cans for SNM removal		175 cost/can for 8801 & 8802 cans, baas.	1.015 -- FY00 Escalation --			

**Line Item 1111 1-SCOscan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

fixing for SCO disposal.

Breakdown of Cost Data:

Item - Perform a radiological survey of a cleaned up and empty glove box

Unit -Per glove box

Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	0.05	Hours
<i>Factors</i>	1 Rad Ons Foreman	0.05 hrs/CF of GB				
	750 STRAIGHT TIME BASE	P080 HEALTH PHYSICISTS	SA01S SSOC 371 Closure Project	Max Backload	0.05	Hours
<i>Factors</i>	1 Rad Eng.	0.045 hrs/CF of GB				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	0.09	Hours
<i>Factors</i>	2 RCTs	0.045 hrs/CF of GB				
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Max Backload	2.50	Dollars
<i>Factors</i>	2.5	\$/CF to replace/calibrate heads				

**Line Item 1111 4-FC - Change GB Filters**

**BOE** Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

Breakdown of cost item

Item - glove box filter change

Unit - per filter

Unit Cost -

Unit Cost Adjustment Factor -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	8.00	Hours
<i>Factors</i>	2 Process Specialists	2 hrs/filter	2 filters/GB			
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Max Backload	300.00	Dollars
<i>Factors</i>	150	\$/filter (incls. Filter, drum, tape, bags 2 filters/GB				

**Line Item 1111 4-SCANGB - Glovebox Scan for SNM**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.

Breakdown of Cost Data:

Item - Scan glovebox for SNM removal

Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.

Unit Cost - .16 hrs/cubic foot

Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	0.08	Hours
<i>Factors</i>	2 scans, one prior to removal, second	0.04 hours/cf of glovebox				
	750 STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.08	Hours
<i>Factors</i>	1 technician	0.04 hours per cubic foot of glovebox	2 Scans, one prior to removal, second			

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

**Line Item 1111 7-EQRmvl - GB Equipment Removal**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:  
 Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
	750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	283.36 Hours
	Factors	35.42 hrs/piece of equipment		8 pieces of equipment /std GB				
	750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	283.20 Hours
	Factors	8.85 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea		
	750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Max Backload	1.68 Hours
	Factors	0.21 hrs/piece of equipment		8 pieces of equipment /std GB				
	750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Max Backload	1.60 Hours
	Factors	0.05 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea		
	750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	1.68 Hours
	Factors	0.21 hrs/piece of equipment		8 pieces of equipment /std GB		1 Rad Ops Foreman		
	750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	1.60 Hours
	Factors	0.05 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea		
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	113.36 Hours
	Factors	14.17 hrs/piece of equipment		8 pieces of equipment /std GB				
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	113.28 Hours
	Factors	3.54 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea		
	750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.88 Hours
	Factors	0.11 hrs/piece of equipment		8 pieces of equipment /std GB				
	750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.96 Hours
	Factors	0.03 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea		

**Line Item 1115 1-GLV - Glovebox Readiness**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.68	Hours
<i>Factors</i>		2	Process Specialists	0.34	hours per glove (20 min/glove)	1	glove	
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.03	Hours
<i>Factors</i>		0.0167	factor for 60gloves/drum	2	people to operate drum counter			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	0.34	Hours
<i>Factors</i>		0.34	hrs/glove (20 minutes/glove)					
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	0.27	Hours
<i>Factors</i>		0.27	hrs per glove (20 min/glove)	1	RCT	1	glove	
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Max Backload	0.67	Dollars
<i>Factors</i>		0.0167	factor for 60 gloves/drum	40	\$/supplies (includes tape bags)			
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Max Backload	53.00	Dollars
<i>Factors</i>		53	\$/glove based on 30 mm glove					

**Line Item 1115 1-SCOScan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box  
 Unit Cost -

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	0.05	Hours
<i>Factors</i>		1	Rad Ops Foreman	0.05	hrs/CF of GB			
750	STRAIGHT TIME BASE	P080	HEALTH PHYSICISTS	SA01S	SSOC 371 Closure Project	Max Backload	0.05	Hours
<i>Factors</i>		1	Rad Eng	0.045	hrs/CF of GB			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	0.09	Hours
<i>Factors</i>		2	RCTs	0.045	hrs/CF of GB			
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Max Backload	2.50	Dollars
<i>Factors</i>		2.5	\$/CF to replace/calibrate heads					

**Line Item 1115 2-TNK - Remove Raschig Rings from Tanks**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Removal of Raschig Rings from the tank is based on capacity of the tank. Rings absorb 34% of the tank capacity; therefore, gallons of raschig rings is 34% of gallons in each tank. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. Any sludge removed from the tank will be calcined in Glovebox 32, Room 3515, fluoride calcination furnace. The fluoride calcining furnace is being designed to condense and collect moisture from calcined material. The calcined sludge may require further stabilization and packaging by PUSPS operations. Calcining of the sludge is not estimated here but will be budgeted through fluoride or PUSPS. This estimate assumes tanks cannot be shipped off-site with rings in place. If ring removal is not required, tanks less than 8' X 8' X 10' (meeting shipping crate size) will be dispositioned with rings in place during Decommissioning.

Breakdown of Cost Data:  
 Item - Removal of 1 gallon of raschig rings  
 Units - per gallon of raschig rings  
 Unit Cost - .82 hours/gallon of raschig rings  
 - \$1.88 supplies/gallon of raschig rings  
 Unit Cost Adjustment factor - N/A

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.44	Hours
Factors	4 process specialists (includes 2 at the 0.11 hrs/gallon of rings)					
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.05	Hours
Factors	0.025 factor per gallon: 40 gallons/drum 2 process specialists to operate drum 1 hour to count 1 drum					
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	0.11	Hours
Factors	1 RCT supervisor 0.11 hour per gallon of rings					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	0.22	Hours
Factors	2 RCTs 0.11 hrs/gallon of rings					
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Max Backload	1.88	Dollars
Factors	1 ea 75 \$/drum (includes cost of drum, plastic 0.025 factor: 40 gallons of rings/drum)					

**Line Item 1115 2-TNWCP - IWCP, Pen/Tent Install, SBA Suits, Fog**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Contractor policy specifies that removal of Raschig Rings requires a specific Integrated Work Control Package (IWCP) for each tank; however, in the future it may be possible to combine same size tanks in the same room into one IWCP. Each package requires support from Engineering for drawings, walkdowns, tank set-up for safe ring removal; Maintenance Planners for IWCP development; and Document Control support. In addition, each tank will be fogged prior to removal of rings. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. A tent and pen will be built and installed in order to remove the rings.

Breakdown of Cost Data:  
 Item - Integrated Work Control Package development, tent & pen installation, and tank fogging for each Raschig Ring Tank.  
 Units - per raschig ring tank  
 Unit Cost - 292 hours/tank \$22,025 Subcontractor Cost \$2,665 Supply Cost  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mgmt Steelworkers	Max Backload	8.00	Hours
Factors	2 pipefitters to build tank port covers 4 hrs/each					
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	96.00	Hours
Factors	3 process specialists 8 hrs/dav also includes hours for 4 days (install tent, pen. & adaptor)					
	750 STRAIGHT TIME BASE	E070 MECHANICAL ENGINEERS	SA01S SSOC 371 Closure Project	Max Backload	120.00	Hours
Factors	3 wks 40 hrs/wk					
	750 STRAIGHT TIME BASE	L060 MISSION SUP SPEC II (FLTTCCH, WS	KA70H 371 Facility Disposition Steelworkers	Max Backload	8.00	Hours
Factors	8 hours to make tank adaptor and					
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	32.00	Hours
Factors	8 hrs/dav 4 days (install tent, pen, adaptor)					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	32.00	Hours
Factors	8 hrs/dav also includes hours for 4 days (tent, pen, adaptor)					
	A57 LATA	P070 COST ESTIMATORS, PLANNERS AN	SA01S SSOC 371 Closure Project	Max Backload	2,800.00	Dollars
Factors	1 ea 40 hrs/wk 70 \$/hr					
	A58 ASI	0000 NONE	K777C Construction	Max Backload	2,000.00	Dollars
Factors	1 ea 40 hrs/wk 50 \$/hr					
	A5C SUPPLIES	0000 NONE	SA01S SSOC 371 Closure Project	Max Backload	2,600.00	Dollars
Factors	1 ea 2600 suplv cost for tent and pen/tank					
	A5C SUPPLIES	0000 NONE	SA01S SSOC 371 Closure Project	Max Backload	65.00	Dollars
Factors	1 ea 65 \$/gallon of to capture/coat material					
	A5H SUBCONTRACTED SRVS	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Max Backload	17,225.00	Dollars
Factors	1 ea 17225 \$ for Encapsulation Tech. To fog					

**Line Item 1115 4-FC - Change GB Filters**

**BOE**  
 Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Breakdown of cost item  
 Item - glove box filter change  
 Unit - per filter  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	8.00	Hours
Factors	2	Process Specialists	2	hrs/filter	2	filters/GB
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Max Backload	300.00	Dollars
Factors	150	\$/filter (incls. Filter, drum, tape, bags	2	filters/GB		

**Line Item 1115 4-SCANGB - Glovebox Scan for SNM**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.  
 Breakdown of Cost Data:  
 Item - Scan glovebox for SNM removal  
 Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.  
 Unit Cost - .16 hrs/cubic foot  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	0.08	Hours
Factors	2	scans, one prior to removal, second	0.04	hours/cf of glovebox		
	750 STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.08	Hours
Factors	0.04	hours per cubic foot of glovebox	1	technician	2	Scans, one prior to removal, second

**Line Item 1115 5-DP - Disconnect Pumps/Disposition Liquid**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Disconnect and drain liquid from pumps inside glovebox. There can be multiple pumps in each glovebox. Each pump takes approximately 4.5 hours to prep, drain, and disposition liquid. This estimate does not include the time and cost for pump removal. Pumps will be removed during Decommissioning when the glovebox is cut up and packaged for removal.  
 Breakdown of Cost Data:  
 Item - Disconnect and Drain each pump inside glovebox  
 Units - cost/pump  
 Unit Cost - 22.5 hours  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Max Backload	9.00	Hours
Factors	4.5	hrs/pump	2	Maintenance Pipefitters		
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	9.00	Hours
Factors	4.5	hours per pump	2	Process Specialists		
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	4.50	Hours
Factors	4.5	hours per day	1	Process Specialist Supervisor		

**Line Item 1115 7-EQRmvl - GB Equipment Removal**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

Item - Perform glove box internal equipment removal

Unit - Equipment pieces per glove box

Unit Cost -

**Resources**

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	283.20	Hours
<i>Factors</i> 8.85 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea				
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	283.36	Hours
<i>Factors</i> 35.42 hrs/piece of equipment		8 pieces of equipment /std GB						
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Max Backload	1.68	Hours
<i>Factors</i> 0.21 hrs/piece of equipment		8 pieces of equipment /std GB						
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Max Backload	1.60	Hours
<i>Factors</i> 0.05 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	1.68	Hours
<i>Factors</i> 0.21 hrs/piece of equipment		8 pieces of equipment /std GB		1 Rad Ops Foreman				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	1.60	Hours
<i>Factors</i> 0.05 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	113.36	Hours
<i>Factors</i> 14.17 hrs/piece of equipment		8 pieces of equipment /std GB						
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	113.28	Hours
<i>Factors</i> 3.54 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea				
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.96	Hours
<i>Factors</i> 0.03 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea				
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.88	Hours
<i>Factors</i> 0.11 hrs/piece of equipment		8 pieces of equipment /std GB						

**Line Item 1115 7-EQRmvl1 - GB Equipment Removal GBs 17, 18, 19, 20, 62, 2404**

**BOE**

Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

Item - Perform glove box internal equipment removal

Unit - Equipment pieces per glove box

Unit Cost -

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
	750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	850.08 Hours
	<i>Factors</i>	35.42 hrs/piece of equipment	8	pieces of equipment /std GB	3	times difficulty factor		
	750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	849.60 Hours
	<i>Factors</i>	8.85 hrs/piece of equipment	4	Cuts per piece of equipment	3	times difficulty factor	8	ea equip
	750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Max Backload	5.04 Hours
	<i>Factors</i>	0.21 hrs/piece of equipment	8	pieces of equipment /std GB	3	times difficulty factor		
	750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Max Backload	4.80 Hours
	<i>Factors</i>	0.05 hrs/piece of equipment	4	Cuts per piece of equipment	3	times difficulty factor	8	ea equip
	750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	5.04 Hours
	<i>Factors</i>	0.21 hrs/piece of equipment	8	pieces of equipment /std GB	3	times difficulty factor		
	750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	4.80 Hours
	<i>Factors</i>	0.05 hrs/piece of equipment	4	Cuts per piece of equipment	3	times difficulty factor	8	ea equip
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	339.84 Hours
	<i>Factors</i>	3.54 hrs/piece of equipment	4	Cuts per piece of equipment	3	times difficulty factor	8	ea equip
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	340.08 Hours
	<i>Factors</i>	14.17 hrs/piece of equipment	8	pieces of equipment /std GB	3	times difficulty factor		
	750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Max Backload	2.88 Hours
	<i>Factors</i>	0.03 hrs/piece of equipment	4	Cuts per piece of equipment	3	times difficulty factor	8	ea equip
	750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Max Backload	2.64 Hours
	<i>Factors</i>	0.11 hrs/piece of equipment	8	pieces of equipment /std GB	3	times difficulty factor		

**Line Item 1117 1-SCOscan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box  
 Unit Cost -

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
	750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.05 Hours
	<i>Factors</i>	1 Rad Ops Foreman	0.05	hrs/CF of GB				
	750	STRAIGHT TIME BASE	P080	HEALTH PHYSICISTS	SA01S	SSOC 371 Closure Project	Linear	0.05 Hours
	<i>Factors</i>	1 Rad Ena	0.045	hrs/cf of GB				
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.09 Hours
	<i>Factors</i>	2 RCTs	0.045	hrs/CF of GB				
	A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	2.50 Dollars
	<i>Factors</i>	2.5 \$/CF to replace/calibrate heads						

**Line Item 1117 2-TNK - Remove Raschig Rings from Tanks**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Removal of Raschig Rings from the tank is based on capacity of the tank. Rings absorb 34% of the tank capacity; therefore, gallons of raschig rings is 34% of gallons in each tank. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. Any sludge removed from the tank will be calcined in Glovebox 32, Room 3515, fluoride calcination furnace. The fluoride calcining furnace is being designed to condense and collect moisture from

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 Activity Filter: \*

Starts In FY \*

calicined material. The calcined sludge may require further stabilization and packaging by PUSPS operations. Calcining of the sludge is not estimated here but will be budgeted through fluoride or PUSPS. This estimate assumes tanks cannot be shipped off-site with rings in place. If ring removal is not required, tanks less than 8' X 8' X 10' (meeting shipping crate size) will be dispositioned with rings in place during Decommissioning.

Breakdown of Cost Data:  
 Item - Removal of 1 gallon of raschig rings  
 Units - per gallon of raschig rings  
 Unit Cost - .82 hours/gallon of raschig rings  
           - \$1.88 supplies/gallon of raschig rings  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.05	Hours
<i>Factors</i> 0.025 factor per gallon: 40 gallons/drum 1 hour to count 1 drum 2 process specialists to operate drum						
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.44	Hours
<i>Factors</i> 4 process specialists (includes 2 at the 0.11 hrs/gallon of rings						
750	STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.11	Hours
<i>Factors</i> 0.11 hour per gallon of rings 1 RCT supervisor						
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.22	Hours
<i>Factors</i> 0.11 hrs/gallon of rings 2 RCTs						
A5C	SUPPLIES	0000 NONE	K218S Financial Services	Linear	1.90	Dollars
<i>Factors</i> 0.025 factor: 40 gallons of rings/drum 1.015 -- FY00 Escalation -- 75 \$/drum (includes cost of drum, plastic						

**Line Item 1117 2-TNWCP - IWCP, Pen/Tent Install, SBA Suits, Fog**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Contractor policy specifies that removal of Raschig Rings requires a specific Integrated Work Control Package (IWCP) for each tank; however, in the future it may be possible to combine same size tanks in the same room into one IWCP. Each package requires support from Engineering for drawings, walkdowns, tank set-up for safe ring removal; Maintenance Planners for IWCP development; and Document Control support. In addition, each tank will be fogged prior to removal of rings. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. A tent and pen will be built and installed in order to remove the rings.  
 Breakdown of Cost Data:  
 Item - Integrated Work Control Package development, tent & pen installation, and tank fogging for each Raschig Ring Tank.  
 Units - per raschig ring tank  
 Unit Cost - 292 hours/tank \$22,025 Subcontractor Cost \$2,665 Supply Cost  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	8.00	Hours
<i>Factors</i> 4 hrs/each 2 pipefitters to build tank port covers						
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	96.00	Hours
<i>Factors</i> 3 process specialists 8 hrs/dav also includes hours for 4 days (install tent, pen, & adaptor)						
750	STRAIGHT TIME BASE	E070 MECHANICAL ENGINEERS	SA01S SSOC 371 Closure Project	Linear	120.00	Hours
<i>Factors</i> 3 wks 40 hrs/wk						
750	STRAIGHT TIME BASE	L060 MISSION SUP SPEC II (FLTTCCH. WS	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i> 8 hours to make tank adaptor and						
750	STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	32.00	Hours
<i>Factors</i> 4 days (install tent, pen, adaptor) 8 hrs/dav						
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	32.00	Hours
<i>Factors</i> 4 days (tent, pen, adaptor) 8 hrs/dav also includes hours for						
A57	LATA	P070 COST ESTIMATORS PLANNERS AN	SA01S SSOC 371 Closure Project	Linear	2.863.92	Dollars
<i>Factors</i> 1.02283 -- FY00 Escalation -- 40 hrs/wk 70 \$/hr						
A58	ASI	0000 NONE	K777C Construction	Linear	2.045.66	Dollars
<i>Factors</i> 1.02283 -- FY00 Escalation -- 50 \$/hr 40 hrs/wk						
A5C	SUPPLIES	0000 NONE	SA01S SSOC 371 Closure Project	Linear	2.639.00	Dollars
<i>Factors</i> 1.015 -- FY00 Escalation -- 2600 supply cost for tent and pen/tank						

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A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	65.97	Dollars
Factors		65	\$/gallon of to capture/coat material	1.015	-- FY00 Escalation --			
A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	17.618.25	Dollars
Factors		1.02283	-- FY00 Escalation --	17225	\$ for Encapsulation Tech. To foa			

**Line Item 1117 4-FC - Change GB Filters**

**BOE**  
 Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

Breakdown of cost item

Item - glove box filter change

Unit - per filter

Unit Cost -

Unit Cost Adjustment Factor -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear 8.00 Hours
Factors		2	Process Specialists	2	hrs/filter	2 filters/GB
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear 300.00 Dollars
Factors		150	\$/filter (incls. Filter, drum, tape, bags	2	filters/GB	

**Line Item 1117 5-DP - Disconnect Pumps/Disposition Liquid**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Disconnect and drain liquid from pumps inside glovebox. There can be multiple pumps in each glovebox. Each pump takes approximately 4.5 hours to prep, drain, and disposition liquid. This estimate does not include the time and cost for pump removal. Pumps will be removed during Decommissioning when the glovebox is cut up and packaged for removal.

Breakdown of Cost Data:

Item - Disconnect and Drain each pump inside glovebox

Units - cost/pump

Unit Cost - 22.5 hours

Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Linear 9.00 Hours
Factors		4.5	hrs/pump	2	Maintenance Pipefitters	
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear 9.00 Hours
Factors		4.5	hours per pump	2	Process Specialists	
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear 4.50 Hours
Factors		4.5	hours per day	1	Process Specialist Supervisor	

**Line Item 1117 7-EQRmvl - GB Equipment Removal**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

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**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
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Starts In FY \*

Breakdown of Cost Data:  
 Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.36	Hours
<i>Factors</i> 35.42 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.20	Hours
<i>Factors</i> 8.85 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i> 0.21 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.60	Hours
<i>Factors</i> 0.05 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i> 0.21 hrs/piece of equipment	8 pieces of equipment /std GB	1 Rad Ops Foreman			
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.60	Hours
<i>Factors</i> 0.05 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.36	Hours
<i>Factors</i> 14.17 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.28	Hours
<i>Factors</i> 3.54 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.88	Hours
<i>Factors</i> 0.11 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.96	Hours
<i>Factors</i> 0.03 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			

**Line Item 1127 2-TNK - Remove Raschig Rings from Tanks**

**BOE**

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Removal of Raschig Rings from the tank is based on capacity of the tank. Rings absorb 34% of the tank capacity; therefore, gallons of raschig rings is 34% of gallons in each tank. Fogging of raschig-ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. Any sludge removed from the tank will be calcined in Glovebox 32, Room 3515, fluoride calcination furnace. The fluoride calcining furnace is being designed to condense and collect moisture from calcined material. The calcined sludge may require further stabilization and packaging by PUSPS operations. Calcining of the sludge is not estimated here but will be budgeted through fluoride or PUSPS. This estimate assumes tanks cannot be shipped off-site with rings in place. If ring removal is not required, tanks less than 8' X 8' X 10' (meeting shipping crate size) will be dispositioned with rings in place during Decommissioning.

Breakdown of Cost Data:  
 Item - Removal of 1 gallon of raschig rings  
 Units - per gallon of raschig rings  
 Unit Cost - .82 hours/gallon of raschig rings  
 - \$1.88 supplies/gallon of raschig rings  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.05	Hours
<i>Factors</i> 1 hour to count 1 drum	0.025 factor per gallon: 40 gallons/drum	2 process specialists to operate drum			
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.44	Hours
<i>Factors</i> 0.11 hrs/gallon of rings	4 process specialists (includes 2 at the				
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.11	Hours
<i>Factors</i> 0.11 hour per gallon of rings	1 RCT supervisor				
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.22	Hours
<i>Factors</i> 0.11 hrs/gallon of rings	2 RCTs				

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A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	1.90	Dollars
<i>Factors</i> 1.015 -- FY00 Escalation -- 75 \$/drum (includes cost of drum, plastic 0.025 factor: 40 gallons of rings/drum								

**Line Item 1127 2-TNWCP - IWCP, Pen/Tent Install, SBA Suits, Fog**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Contractor policy specifies that removal of Raschig Rings requires a specific Integrated Work Control Package (IWCP) for each tank; however, in the future it may be possible to combine same size tanks in the same room into one IWCP. Each package requires support from Engineering for drawings, walkdowns, tank set-up for safe ring removal; Maintenance Planners for IWCP development; and Document Control support. In addition, each tank will be fogged prior to removal of rings. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. A tent and pen will be built and installed in order to remove the rings.

Breakdown of Cost Data:  
 Item - Integrated Work Control Package development, tent & pen installation, and tank fogging for each Raschig Ring Tank.  
 Units - per raschig ring tank  
 Unit Cost - 292 hours/tank \$22,025 Subcontractor Cost \$2,665 Supply Cost  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	8.00	Hours
<i>Factors</i> 2 pipefitters to build tank port covers 4 hrs/each						
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	96.00	Hours
<i>Factors</i> 8 hrs/day also includes hours for 4 days (install tent, pen, & adaptor) 3 process specialists						
750	STRAIGHT TIME BASE	E070 MECHANICAL ENGINEERS	SA01S SSOC 371 Closure Project	Linear	120.00	Hours
<i>Factors</i> 40 hrs/wk 3 wks						
750	STRAIGHT TIME BASE	L060 MISSION SUP SPEC II (FLTTCCH. WS	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i> 8 hours to make tank adaptor and						
750	STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	32.00	Hours
<i>Factors</i> 4 days (install tent, pen, adaptor) 8 hrs/day						
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	32.00	Hours
<i>Factors</i> 8 hrs/day also includes hours for 4 days (tent, pen, adaptor)						
A57	LATA	P070 COST ESTIMATORS PLANNERS AN	SA01S SSOC 371 Closure Project	Linear	2,863.92	Dollars
<i>Factors</i> 1.02283 -- FY00 Escalation -- 40 hrs/wk 70 \$/hr						
A58	ASI	0000 NONE	K777C Construction	Linear	2,045.66	Dollars
<i>Factors</i> 1.02283 -- FY00 Escalation -- 40 hrs/wk 50 \$/hr						
A5C	SUPPLIES	0000 NONE	SA01S SSOC 371 Closure Project	Linear	2,639.00	Dollars
<i>Factors</i> 2600 supply cost for tent and pen/tank 1.015 -- FY00 Escalation --						
A5C	SUPPLIES	0000 NONE	SA01S SSOC 371 Closure Project	Linear	65.97	Dollars
<i>Factors</i> 65 \$/gallon of to capture/coat material 1.015 -- FY00 Escalation --						
A5H	SUBCONTRACTED SRVS	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	17,618.25	Dollars
<i>Factors</i> 1.02283 -- FY00 Escalation -- 17225 \$ for Encapsulation Tech. To fog						

**Line Item 1127 4-Tank SCAN - Tank Scan in pit area of Rm 1127**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Experience Item Desc - A scan will be conducted after Raschig Ring removal on tank D-293B in the pit area of Rm 1127. Previous scans indicate the D-293B tank has high holdup. The holdup may be in the form of sludge. After the Raschig Rings have been removed, a scan of the tank will be conducted to confirm SNM hold-up removal has been completed. Any sludge removed from the tank will be calcined in Glovebox 32, Room 3515, fluoride calcination furnace. The fluoride calcining furnace is being designed to condense and collect moisture from calcined material. The calcined sludge may require further stabilization and packaging by PUSPS operations. Calcining of the sludge is not estimated here but will be budgeted through fluoride or PUSPS. There are three canyon areas that will be scanned for SNM hold-up. Cost is increased if portable trailer unit is used. Cost of Supplied Breathing Air Suits for this effort is included in this activity.

Breakdown of Cost Data:  
 Item - Scan Canyon area for SNM hold-up.  
 Units - 2 scans per canyon. One scan will be conducted prior to SNM hold-up removal, second scan will be conducted after SNM hold-up removal.  
 Unit Cost - 168 hrs/scan \$2,000 Supply Costs  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
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**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	40.00	Hours
<i>Factors</i> 4 process specialists (includes 3 on the 10 hrs/tank								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	4.00	Hours
<i>Factors</i> 4 hrs/tank								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	10.00	Hours
<i>Factors</i> 10 hrs/tank								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	20.00	Hours
<i>Factors</i> 2 RCTs (includes 1 on the inside, 1 on 10 hrs/tank								
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KA70H	371 Facility Disposition Steelworkers	Linear	30.00	Hours
<i>Factors</i> 10 hours per tank 3 technician								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	1,522.50	Dollars
<i>Factors</i> 3 SBA Suits/Scan 500 \$/suit 1.015 -- FY00 Escalation --								

**Line Item 1210 2-TNK - Remove Raschig Rings from Tanks**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Removal of Raschig Rings from the tank is based on capacity of the tank. Rings absorb 34% of the tank capacity; therefore, gallons of raschig rings is 34% of gallons in each tank. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. Any sludge removed from the tank will be calcined in Glovebox 32, Room 3515, fluoride calcination furnace. The fluoride calcining furnace is being designed to condense and collect moisture from calcined material. The calcined sludge may require further stabilization and packaging by PUSPS operations. Calcining of the sludge is not estimated here but will be budgeted through fluoride or PUSPS. This estimate assumes tanks cannot be shipped off-site with rings in place. If ring removal is not required, tanks less than 8' X 8' X 10' (meeting shipping crate size) will be dispositioned with rings in place during Decommissioning.

Breakdown of Cost Data:  
 Item - Removal of 1 gallon of raschig rings  
 Units - per gallon of raschig rings  
 Unit Cost - .82 hours/gallon of raschig rings  
           - \$1.88 supplies/gallon of raschig rings  
 Unit Cost Adjustment factor - N/A

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.44	Hours
<i>Factors</i> 0.11 hrs/gallon of rings 4 process specialists (includes 2 at the								
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.05	Hours
<i>Factors</i> 1 hour to count 1 drum 0.025 factor per gallon: 40 gallons/drum 2 process specialists to operate drum								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	0.11	Hours
<i>Factors</i> 0.11 hour per gallon of rings 1 RCT supervisor								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	0.22	Hours
<i>Factors</i> 2 RCTs 0.11 hrs/gallon of rings								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Max Backload	1.88	Dollars
<i>Factors</i> 1 ea 75 \$/drum (includes cost of drum, plastic 0.025 factor: 40 gallons of rings/drum								

**Line Item 1210 2-TNWCP - IWCP, Pen/Tent Install, SBA Suits, Fog**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Contractor policy specifies that removal of Raschig Rings requires a specific Integrated Work Control Package (IWCP) for each tank; however, in the future it may be possible to combine same size tanks in the same room into one IWCP. Each package requires support from Engineering for drawings, walkdowns, tank set-up for safe ring removal; Maintenance Planners for IWCP development; and Document Control support. In addition, each tank will be fogged prior to removal of rings. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. A tent and pen will be built and installed in order to remove the rings.

Breakdown of Cost Data:  
 Item - Integrated Work Control Package development, tent & pen installation, and tank fogging for each Raschig Ring Tank.  
 Units - per raschig ring tank  
 Unit Cost - 292 hours/tank \$22,025 Subcontractor Cost \$2,665 Supply Cost  
 Unit Cost Adjustment factor - N/A

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Max Backload	8.00	Hours
<i>Factors</i> 4 hrs/each 2 pipefitters to build tank port covers								
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	96.00	Hours
<i>Factors</i> 3 process specialists 4 days (install tent, pen. & adaptor) 8 hrs/dav also includes hours for								
750	STRAIGHT TIME BASE	E070	MECHANICAL ENGINEERS	SA01S	SSOC 371 Closure Project	Max Backload	120.00	Hours
<i>Factors</i> 3 wks 40 hrs/wk								
750	STRAIGHT TIME BASE	L060	MISSION SUP SPEC II (FLTTCH. WS	KA70H	371 Facility Disposition Steelworkers	Max Backload	8.00	Hours
<i>Factors</i> 8 hours to make tank adaptor and								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	32.00	Hours
<i>Factors</i> 4 days (install tent, pen. adaptor) 8 hrs/dav								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	32.00	Hours
<i>Factors</i> 4 days (tent, pen. adaptor) 8 hrs/dav also includes hours for								
A57	LATA	P070	COST ESTIMATORS PLANNERS AN	SA01S	SSOC 371 Closure Project	Max Backload	2,800.00	Dollars
<i>Factors</i> 40 hrs/wk 1 ea 70 \$/hr								
A58	ASI	0000	NONE	K777C	Construction	Max Backload	2,000.00	Dollars
<i>Factors</i> 1 ea 50 \$/hr 40 hrs/wk								
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Max Backload	2,600.00	Dollars
<i>Factors</i> 2600 supplv cost for tent and pen/tank 1 ea								
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Max Backload	65.00	Dollars
<i>Factors</i> 1 ea 65 \$/gallon of to capture/coat material								
A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Max Backload	17,225.00	Dollars
<i>Factors</i> 1 ea 17225 \$ for Encapsulation Tech. To fog								

**Line Item 1216 1-GLV - Glovebox Readiness**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.03	Hours
<i>Factors</i> 2 people to operate drum counter 0.0167 factor for 60gloves/drum								
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.68	Hours
<i>Factors</i> 1 glove 0.34 hours per glove (20 min/glove) 2 Process Specialists								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	0.34	Hours
<i>Factors</i> 0.34 hrs/glove (20 minutes/glove)								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	0.27	Hours
<i>Factors</i> 0.27 hrs per glove (20 min/glove) 1 glove 1 RCT								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Max Backload	0.67	Dollars
<i>Factors</i> 0.0167 factor for 60 gloves/drum 40 \$/supplies (includes tape, bags)								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Max Backload	53.00	Dollars
<i>Factors</i> 53 \$/glove based on 30 mm glove								

**Line Item 1216 1-SCOScan - GB SCO Scans**

**BOE** Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:

Item - Perform a radiological survey of a cleaned up and empty glove box

Unit -Per glove box

Unit Cost -

**Resources**

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	0.05	Hours
<i>Factors</i>	1	Rad Ops Foreman	0.05	hrs/CF of GB				
750	STRAIGHT TIME BASE	P080	HEALTH PHYSICISTS	SA01S	SSOC 371 Closure Project	Max Backload	0.05	Hours
<i>Factors</i>	1	Rad Engineer	0.045	hrs/CF of GB				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	0.09	Hours
<i>Factors</i>	2	RCTs	0.045	hrs/CF of GB				
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Max Backload	2.50	Dollars
<i>Factors</i>	2.5	\$/CF to replace/calibrate heads						

**Line Item 1216 4-FC - Change GB Filters**

**BOE**

Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

Breakdown of cost item

Item - glove box filter change

Unit - per filter

Unit Cost -

Unit Cost Adjustment Factor -

**Resources**

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i>	2	Process Specialists	2	hrs/filter	2	filters/GB		
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	300.00	Dollars
<i>Factors</i>	150	\$/filter (incls. Filter, drum, tape, bags		2	filters/GB			

**Line Item 1216 7-EQRmvl - GB Equipment Removal**

**BOE**

Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

Item - Perform glove box internal equipment removal

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Unit - Equipment pieces per glove box  
 Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	283.36	Hours
	Factors 35.42 hrs/piece of equipment	8 pieces of equipment /std GB				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	283.20	Hours
	Factors 8.85 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Max Backload	1.68	Hours
	Factors 0.21 hrs/piece of equipment	8 pieces of equipment /std GB				
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Max Backload	1.60	Hours
	Factors 0.05 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	1.60	Hours
	Factors 0.05 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	1.68	Hours
	Factors 0.21 hrs/piece of equipment	8 pieces of equipment /std GB	1 Rad Ops Foreman			
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	113.36	Hours
	Factors 14.17 hrs/piece of equipment	8 pieces of equipment /std GB				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	113.28	Hours
	Factors 3.54 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
	750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.88	Hours
	Factors 0.11 hrs/piece of equipment	8 pieces of equipment /std GB				
	750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.96	Hours
	Factors 0.03 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			

**Line Item 1222 1-GLV - Glovebox Readiness**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.68	Hours
	Factors 1 glove	0.34 hours per glove (20 min/glove)	2 Process Specialists			
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.03	Hours
	Factors 2 people to operate drum counter	0.0167 factor for 60gloves/drum				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	0.34	Hours
	Factors 0.34 hrs/glove (20 minutes/glove)					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	0.27	Hours
	Factors 0.27 hrs per glove (20 min/glove)	1 glove	1 RCT			
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Max Backload	53.00	Dollars
	Factors 53 \$/glove based on 30 mm glove					
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Max Backload	0.67	Dollars
	Factors 40 \$/supplies (includes tape, bags,	0.0167 factor for 60 gloves/drum				

**Line Item 1222 1-SCOsCan - GB SCO Scans**

**BOE** Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:

Item - Perform a radiological survey of a cleaned up and empty glove box

Unit -Per glove box

Unit Cost -

Resources		Cost Element	Skill	Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	0.05	Hours
<i>Factors</i>		1	Rad Ops Foreman	0.05	hrs/CF of GB			
750	STRAIGHT TIME BASE	P080	HEALTH PHYSICISTS	SA01S	SSOC 371 Closure Project	Max Backload	0.05	Hours
<i>Factors</i>		1	Rad Eng	0.045	hrs/cf of GB			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	0.09	Hours
<i>Factors</i>		2	RCTs	0.045	hrs/CF of GB			
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Max Backload	2.50	Dollars
<i>Factors</i>		2.5	\$/CF to replace/calibrate heads					

**Line Item 1222 4-FC - Change GB Filters**

**BOE**

Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

Breakdown of cost item

Item - glove box filter change

Unit - per filter

Unit Cost -

Unit Cost Adjustment Factor -

Resources		Cost Element	Skill	Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	8.00	Hours
<i>Factors</i>		2	Process Specialists	2	filters/GB			
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Max Backload	300.00	Dollars
<i>Factors</i>		150	\$/filter (incls. Filter, drum, tape, bags	2	filters/GB			

**Line Item 1222 7-EQRmvl - GB Equipment Removal**

**BOE**

Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Breakdown of Cost Data:  
 Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	283.36	Hours
Factors 35.42 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	283.20	Hours
Factors 8.85 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Max Backload	1.68	Hours
Factors 0.21 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Max Backload	1.60	Hours
Factors 0.05 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	1.68	Hours
Factors 0.21 hrs/piece of equipment	8 pieces of equipment /std GB	1 Rad Ops Foreman			
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	1.60	Hours
Factors 0.05 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLIGI	KA10H 371 Complex Steelworkers	Max Backload	113.36	Hours
Factors 14.17 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLIGI	KA10H 371 Complex Steelworkers	Max Backload	113.28	Hours
Factors 3.54 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.96	Hours
Factors 0.03 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.88	Hours
Factors 0.11 hrs/piece of equipment	8 pieces of equipment /std GB				

**Line Item 2.0 EDP - Eng. Design Pkg. RR/Fog/Cerium (27 tanks)**

**BOE**

Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has intimate knowledge of the requirements.

Experience Item Desc -An Engineering Design Package (EDP) will be developed for each room containing tanks to be included in the Raschig Ring removal campaign. The EDP will provide tank specific information for each tank in the room. The EDP will be incorporated into the Standard Work Package for the room being worked.

Breakdown of Cost Data:  
 Item - Engineering Design Package (EDP)  
 Units - lot  
 Unit Cost - Hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	280.00	Hours
Factors 40 hrs/room	7 rooms				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	120.00	Hours
Factors 20 hrs/single tank	6 single tanks				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	400.00	Hours
Factors 40 hrs/tank cluster	10 clusters				

**Line Item 2015 1-GLV - Glovebox Readiness**

**BOE**

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.03	Hours
Factors	2 people to operate drum counter	0.0167 factor for 60gloves/drum				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.68	Hours
Factors	2 Process Specialists	1 glove	0.34 hours per glove (20 min/glove)			
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	0.34	Hours
Factors	0.34 hrs/glove (20 minutes/glove)					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	0.27	Hours
Factors	0.27 hrs per glove (20 min/glove)	1 glove	1 RCT			
A5C	SUPPLIES	0000 NONE	K218S Financial Services	Max Backload	0.67	Dollars
Factors	0.0167 factor for 60 gloves/drum	40 \$/supplies (includes tape, bags,				
A5C	SUPPLIES	0000 NONE	K218S Financial Services	Max Backload	53.00	Dollars
Factors	53 \$/glove based on 30 mm glove					

**Line Item 2203 1-GLV - Glovebox Readiness**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.03	Hours
Factors	2 people to operate drum counter	0.0167 factor for 60gloves/drum				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.68	Hours
Factors	1 glove	2 Process Specialists	0.34 hours per glove (20 min/glove)			
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	0.34	Hours
Factors	0.34 hrs/glove (20 minutes/glove)					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	0.27	Hours
Factors	0.27 hrs per glove (20 min/glove)	1 RCT	1 glove			
A5C	SUPPLIES	0000 NONE	K218S Financial Services	Max Backload	53.00	Dollars
Factors	53 \$/glove based on 30 mm glove					
A5C	SUPPLIES	0000 NONE	K218S Financial Services	Max Backload	0.67	Dollars
Factors	0.0167 factor for 60 gloves/drum	40 \$/supplies (includes tape, bags,				

**Line Item 2207 1-GLV - Glovebox Readiness**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.03	Hours
<i>Factors</i> 2 people to operate drum counter 0.0167 factor for 60gloves/drum					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.68	Hours
<i>Factors</i> 1 glove 0.34 hours per glove (20 min/glove) 2 Process Specialists					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	0.34	Hours
<i>Factors</i> 0.34 hrs/glove (20 minutes/glove)					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	0.27	Hours
<i>Factors</i> 0.27 hrs per glove (20 min/glove) 1 glove 1 RCT					
A5C SUPPLIES	0000 NONE	K218S Financial Services	Max Backload	53.00	Dollars
<i>Factors</i> 53 \$/glove based on 30 mm glove					
A5C SUPPLIES	0000 NONE	K218S Financial Services	Max Backload	0.67	Dollars
<i>Factors</i> 0.0167 factor for 60 gloves/drum 40 \$/supplies (includes tape, bas.					

**Line Item 2216 1-GLV- - Glovebox Readiness**

**BOE**

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.03	Hours
<i>Factors</i> 2 people to operate drum counter 0.0167 factor for 60gloves/drum					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	0.68	Hours
<i>Factors</i> 1 glove 0.34 hours per glove (20 min/glove) 2 Process Specialists					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	0.34	Hours
<i>Factors</i> 0.34 hrs/glove (20 minutes/glove)					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	0.27	Hours
<i>Factors</i> 0.27 hrs per glove (20 min/glove) 1 glove 1 RCT					
A5C SUPPLIES	0000 NONE	K218S Financial Services	Max Backload	0.67	Dollars
<i>Factors</i> 0.0167 factor for 60 gloves/drum 40 \$/supplies (includes tape, bas.					
A5C SUPPLIES	0000 NONE	K218S Financial Services	Max Backload	53.00	Dollars
<i>Factors</i> 53 \$/glove based on 30 mm glove					

**Line Item 2216 1-SCOsan - GB SCO Scans**

**BOE**

Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	0.05	Hours
Factors	1 Rad Ops Foreman	0.05 hrs/CF of GB				
	750 STRAIGHT TIME BASE	P080 HEALTH PHYSICISTS	SA01S SSOC 371 Closure Project	Max Backload	0.05	Hours
Factors	1 Rad Eng	0.045 hrs/CF of GB				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	0.09	Hours
Factors	2 RCTs	0.045 hrs/CF of GB				
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Max Backload	2.50	Dollars
Factors	2.5 \$/CF to replace/calibrate heads					

**Line Item 2216 4-FC - Change GB Filters**

BOE	Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.
	Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.
	Breakdown of cost item
	Item - glove box filter change
	Unit - per filter
	Unit Cost -
	Unit Cost Adjustment Factor -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	8.00	Hours
Factors	2 Process Specialists	2 hrs/filter	2 filters/GB			
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Max Backload	300.00	Dollars
Factors	150 \$/filter (incls. Filter, drum, tape, bags 2 filters/GB					

**Line Item 2216 7-EQRmvl - GB Equipment Removal**

BOE	Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.
	Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.
	Breakdown of Cost Data:
	Item - Perform glove box internal equipment removal
	Unit - Equipment pieces per glove box
	Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	283.36	Hours
Factors	35.42 hrs/piece of equipment	8 pieces of equipment /std GB				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	283.20	Hours
Factors	8.85 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Max Backload	1.68	Hours
<i>Factors</i>		0.21	hrs/piece of equipment	8	pieces of equipment /std GB			
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Max Backload	1.60	Hours
<i>Factors</i>		0.05	hrs/piece of equipment	4	Cuts per piece of equipment	8	ea	
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	1.68	Hours
<i>Factors</i>		0.21	hrs/piece of equipment	8	pieces of equipment /std GB	1	Rad Ops Foreman	
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	1.60	Hours
<i>Factors</i>		0.05	hrs/piece of equipment	4	Cuts per piece of equipment	8	ea	
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	113.28	Hours
<i>Factors</i>		3.54	hrs/piece of equipment	4	Cuts per piece of equipment	8	ea	
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	113.36	Hours
<i>Factors</i>		14.17	hrs/piece of equipment	8	pieces of equipment /std GB			
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.88	Hours
<i>Factors</i>		0.11	hrs/piece of equipment	8	pieces of equipment /std GB			
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Max Backload	0.96	Hours
<i>Factors</i>		0.03	hrs/piece of equipment	4	Cuts per piece of equipment	8	ea	

**Line Item 3.3.4 Post Fixative - Prep/Apply Fixative, Smear & Remove Equip.**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Positioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for post decon fixative application, smearing the tank after fixative application, and removal of delivery system for 27 Tanks in Set 4.

Breakdown of Cost Data:  
 Item - Costs for fixative application, smearing the tank after fixative application, and removal of delivery system  
 Unit Cost - 82 hours and \$5,164/tank  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

	<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>	<i>Curve</i>	<i>Quantity</i>	<i>Units</i>
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Maint Steelworkers	Max Backload	4.00	Hours
<i>Factors</i>		1	Pipefitter	4	hrs (smears)			
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	18.00	Hours
<i>Factors</i>		1	D&D Worker	2	days (prep/apply fixative)	9	hrs/dav	
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	16.00	Hours
<i>Factors</i>		2	D&D Workers	8	hrs (smears/equip removal)			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	18.00	Hours
<i>Factors</i>		2	days (prep/apply fixative)	9	hrs/dav			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	8.00	Hours
<i>Factors</i>		1	RCT	8	hrs (smears/equip. removal)			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	18.00	Hours
<i>Factors</i>		1	RCT	2	days/tnk (prep/apply fixative)	9	hrs/dav	
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Max Backload	1,900.00	Dollars
<i>Factors</i>		2	days/tank	950	\$/dav (equip use charges)			
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Max Backload	3,264.30	Dollars
<i>Factors</i>		3	ET Labor	2	days/tank	9	hrs/dav	60.45 \$/dav

**Line Item Set 4 - Cerium Decon - Cerium Decon for Set 4 Tanks**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Positioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has intimate knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for completing the following activities for the 19 Set 4 tanks: 1.) Room preparation (includes drum moves, lighting, and scaffolding) and Tank Preparation (includes remove flange, install spray header, and EO drain valve to CWTS). 2.) Cerium Tank Decontamination (includes receipt of CWST, chrome kill, and dilution if required). 3.) Fixative application, smearing the tank after fixative application, and removal of equipment. 4.) Installing ports and cutting off exhaust lines.

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Breakdown of Cost Data:  
 Item - Prepare Rooms and Tanks for Cerium Decontamination, perform Cerium Tank Decontamination (includes receipt of CWST, chrome kill, and dilution if required), perform fixative application, smear tank after fixative application, removal of equipment, install ports, and cut off exhaust lines.  
 Units - tank  
 Unit Cost - 538 hours and \$6,117/tank  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C020	ELECTRICIANS	KA20H	371/374 Facility Mgmt Steelworkers	Max Backload	40.00	Hours
Factors	1 Electrician (lighting)		1 week (prep rooms/tanks)	40	hrs/wk			
	750 STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Max Backload	40.00	Hours
Factors	1 Pipefitter (scaffolding)		1 week (prep rooms/tanks)	40	hrs/wk			
	750 STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Max Backload	4.00	Hours
Factors	1 Pipefitter		4 hours (smears)					
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	18.00	Hours
Factors	1 Process Specialists		2 days (prep/apply fixative)	9	hrs/day			
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	80.00	Hours
Factors	2 Process Specialists		1 week (prep rooms/tanks)	40	hrs/wk			
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	99.00	Hours
Factors	2 Process Specialists		5.5 days (tank decon)	9	hrs/day			
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	16.00	Hours
Factors	2 Process Specialists		8 hours (smears/equipment removal)					
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Max Backload	9.00	Hours
Factors	9 Hours (Proc Spec) ports/exhaust							
	750 STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Max Backload	40.00	Hours
Factors	1 Engineer (EO drain valve to CWTS)		1 week (prep rooms/tanks)	40	hrs/wk			
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	49.50	Hours
Factors	1 Foreman		5.5 days (tank decon)	9	hrs/day			
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	40.00	Hours
Factors	1 Foreman		1 week (prep rooms/tanks)	40	hrs/wk			
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	9.00	Hours
Factors	9 Hours (Foreman) ports/exhaust							
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Max Backload	18.00	Hours
Factors	1 Foreman		2 days (prep/apply fixative)	9	hrs/day			
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	18.00	Hours
Factors	1 RCT		2 days (prep/apply fixative)	9	hrs/day			
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	8.00	Hours
Factors	1 RCT		8 hours (smears/equipment removal)					
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	40.00	Hours
Factors	1 RCT		1 week (prep rooms/tanks)	40	hrs/wk			
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Max Backload	9.00	Hours
Factors	9 Hours (RCT) ports/exhaust							
	A57 LATA	E130	OTHER ENGINEERS	KA70S	B371 Facility Disposition	Max Backload	952.56	Dollars
Factors	1 Chemical Specialist		1.5 days (tank decon)	9	hrs/day	70.56 \$/hr		
	A5H SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Max Backload	1.900.00	Dollars
Factors	2 days		950 \$/day (decon equip. use charges)					
	A5H SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Max Backload	3.264.30	Dollars
Factors	3 ET Labor		2 days (prep/apply fixative)	9	hrs/day	60.45 avg \$/hr		

**Line Item Set 4 - TKSCN - Holdup Scans on Tanks**

BOE stimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - This cost includes scanning tanks that have had liquid and Rashig Ring removal prior to deactivation in Rooms: 1103, 1105, 1107, 1109,

WBS No: 1AAC  
 Activity ID: 1AQ31ST004

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

1115, 1117, 1121, 1127, and 1210. Pencil tanks, within these rooms, that once held plutonium solution and have been drained will also be scanned to verify there is no SNM Holdup.  
 Breakdown of Cost Data:  
 Item - Scan tanks for verification that SNM Holdup does not exist.  
 Units - 1 scan per tank.  
 Unit Cost - 14 hrs/scan  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	4.00	Hours
	Factors 1	RCT to support scan techs	4	hours per tank		
	750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Max Backload	10.00	Hours
	Factors 2	scan techs per one tank	5	hours per tank		

**Line Item SET4 4-OrLQ - Drain Organic Liquids**

**BOE**  
 Estimator's Experience - Estimate based on similar tasks from glove box equipment disassembly work done during liquid draining operations.  
 Experience Item Description-Some pumps and equipment inside gloveboxes have lubricating oils and greases that have not been removed. Waste stream requirements dictate that these be segregated and handled separately from non-organic waste streams. This line item is to disassemble a piece of glove box equipment containing such organic, drain and/or remove the lubricant and clean up the piece of equipment as possible.  
 Breakdown of cost item  
 Item - remove lubricants from glove box equipment  
 Unit - per piece of equipment  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Max Backload	19.00	Hours
	Factors 2	D&D Skilled Trades	9.5	hrs/piece of equipment		
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Max Backload	0.10	Hours
	Factors 1	Rad Ops Foreman	0.1	hrs/piece of equipment		
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Max Backload	7.60	Hours
	Factors 1	RCT	7.6	hrs/piece of equipment		
	750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Max Backload	1.00	Hours
	Factors 1	Laboratory Tech	1	hrs/piece of equipment		
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Max Backload	1.00	Dollars
	Factors 1	\$/equipment cost of storage bottle for				

**Line Item SYS - Contingency And Escalation**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	498.152	Dollars
	Factors 498153	Dollars				
	ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	219.656	Dollars
	Factors 219657	Dollars				

Activity ID: 1AQ31ST005

Description: Set 5 B371 Utility & Dissolution - Deact/SNM Rem

Cost Risk 3 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
Set 5 Prep	Prep Sets for Deactivation of B371	1.00	each	EE	1.955	1.955	71.432	14.750	0	86.182	25.098	111.280
All GB Set 5 LSE	Remove Loose Equipment, trash, etc. from GB	3.00	day	EE	36	108	2.404	152	0	2.556	845	3.401
2.0 EDP	Eng. Design Pkg. RR/Foa/Cerium (14 tanks)	1.00	each	EE	440	440	15.052	0	0	15.052	5.289	20.341
2223 1-GLV	Glovebox Readiness	2.00	each	EE	1	3	60	107	0	167	21	188
2223 1-SCOScan	GB SCO Scans	690.00	cf	EE	0	128	3.267	1.725	0	4.992	1.148	6.140
2223 2-TNK	Remove Raschia Rings from Tanks	1.464.00	gal	EE	1	1.200	26.000	2.786	0	28.787	9.135	37.922

WBS No: 1AAC  
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**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

2223 2-TNWCP	IWCP_Pen/Tent Install. SBA Suits. Fog	2.00	each	EE	296	592	15,591	50,466	0	66,056	5,478	71,534	
2223 4-FC	Change GB Filters	1.00	ea	EE	8	8	166	300	0	466	58	524	
2223 7-EQRmvl	GB Equipment Removal	1.00	ea	EE	451	451	9,409	0	0	9,409	3,306	12,715	
2306 1-GLV	Glovebox Readiness	15.00	each	EE	1	20	447	805	0	1,252	157	1,409	
2306 1-SCOScan	GB SCO Scans	690.00	cf	EE	0	128	3,267	1,725	0	4,992	1,148	6,140	
2306 4-FC	Change GB Filters	1.00	ea	EE	8	8	166	300	0	466	58	524	
2306 7-EQRmvl	GB Equipment Removal	1.00	ea	EE	451	451	9,409	0	0	9,409	3,306	12,715	
2307 2-TNK	Remove Raschia Rings from Tanks	1,326.00	gal	EE	1	1,087	23,549	2,524	0	26,073	8,274	34,347	
2307 2-TNWCP	IWCP_Pen/Tent Install. SBA Suits. Fog	2.00	each	EE	296	592	15,591	50,466	0	66,056	5,478	71,534	
2310 1-GLV	Glovebox Readiness	27.00	each	EE	1	36	804	1,449	0	2,253	282	2,536	
2310 1-SCOScan	GB SCO Scans	690.00	cf	EE	0	128	3,267	1,725	0	4,992	1,148	6,140	
2310 4-FC	Change GB Filters	1.00	ea	EE	8	8	166	300	0	466	58	524	
2310 7-EQRmvl	GB Equipment Removal	1.00	ea	EE	451	451	9,409	0	0	9,409	3,306	12,715	
2317 1-GLV	Glovebox Readiness	19.00	each	EE	1	25	566	1,020	0	1,585	199	1,784	
2317 1-SCOScan	GB SCO Scans	231.00	cf	EE	0	43	1,094	578	0	1,671	384	2,056	
2317 2-TNK	Remove Raschia Rings from Tanks	732.00	gal	EE	1	600	13,000	1,393	0	14,393	4,568	18,961	
2317 2-TNWCP	IWCP_Pen/Tent Install. SBA Suits. Fog	2.00	each	EE	296	592	15,591	50,466	0	66,056	5,478	71,534	
2317 4-FC	Change GB Filters	3.00	ea	EE	8	24	498	900	0	1,398	175	1,573	
2317 4-SCANGB	Glovebox Scan for SNM	231.00	cf	EE	0	37	762	0	0	762	268	1,029	
2317 5-DP	Disconnect Pumps/Disposition Liquid	3.00	each	EE	23	68	1,521	0	0	1,521	534	2,055	
2317 7-EQRmvl	GB Equipment Removal	3.00	ea	EE	451	1,353	28,228	0	0	28,228	9,918	38,146	
2319 2-TNK	Remove Raschia Rings from Tanks	720.00	gal	EE	1	590	12,787	1,370	0	14,157	4,493	18,650	
2319 2-TNWCP	IWCP_Pen/Tent Install. SBA Suits. Fog	8.00	each	EE	296	2,368	62,363	201,862	0	264,225	21,911	286,136	
2325 1-GLV	Glovebox Readiness	369.00	each	EE	1	488	10,988	19,803	0	30,792	3,861	34,653	
2325 1-SCOScan	GB SCO Scans	4,128.00	cf	EE	0	764	19,545	10,320	0	29,865	6,867	36,732	
2325 4-FC	Change GB Filters	7.00	ea	EE	8	56	1,161	2,100	0	3,261	408	3,669	
2325 4-SCANGB	Glovebox Scan for SNM	3,638.00	cf	EE	0	582	11,994	0	0	11,994	4,214	16,208	
2325 5-CD	Cascade Dissolver	40.00	each	EE	21	820	18,103	711	0	18,813	6,360	25,174	
2325 7-EQRmvl	GB Equipment Removal	3.00	ea	EE	802	2,405	50,163	0	0	50,163	17,625	67,787	
2325 7-EQRmvl1	GB Equipment Removal GBs 10, 12, 13.	3.00	ea	EE	1,603	4,810	100,326	0	0	100,326	35,249	135,575	
2325 7-EQRmvl2	GB Equipment Removal GB 7	1.00	ea	EE	4,008	4,008	83,605	0	0	83,605	29,374	112,979	
3.3.4 Post Fixative	Prep/Apply Fixative. Smear & Remove Equip.	14.00	each	EE	82	1,148	25,599	72,300	0	97,899	8,994	106,893	
Set 5 - Cerium De	Cerium Decon for Set 5 Tanks	14.00	ea	EE	538	7,525	175,947	85,636	0	261,583	61,819	323,402	
Set 6 - TKSCN	Holdup Scans on Tanks	6.00	each	EE	14	84	1,831	0	0	1,831	643	2,474	
SET5 4-OrLQ	Drain Organic Liquids	5.00	ea	EE	28	139	2,883	5	0	2,888	1,013	3,901	
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	299,801	299,801	0	299,801	
Total for Activity 1AQ31ST005:							36,321	848,010	578,043	299,801	1,725,855	297,947	2,023,802

**Line Item Set 5 Prep - Prep Sets for Deactivation of B371**

<b>BOE</b>	Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the CA Manager's Office.											
	Experience Item Desc - Preliminary Walkdowns will be conducted in each area of every set to determine current configuration of equipment and room. This activity includes all necessary preliminary evaluations, walkdown of drawings, and preparing documentation required to perform work in each set. Documentation includes, but is not limited to, Criticality Safety Operating Limits, Radiation Work Permit, Integrated Work Control Package, and Engineering Package. This line item also contains the scope for performing Engineering Design Packages (EDP) for the removal of the internal components for a glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed.											
	Breakdown of Cost Data: Item - Preliminary Evaluation, walkdown of drawings, and documentation preparation. Units - per set Unit Cost - 1955 hrs \$14,750 - Subcontractor Costs Unit Cost Adjustment factor - N/A											

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	50.00	Hours
Factors	50	hrs to assist with area walkdowns				

WBS No: 1AAC  
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**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	600.00	Hours
<i>Factors</i> 600 average hours for an intricate CSOL								
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	50.00	Hours
<i>Factors</i> 50 hrs of Nuclear Safety Support for BIO								
750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	40.00	Hours
<i>Factors</i> 40 hrs to assist with BIO page changes								
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	1,075.00	Hours
<i>Factors</i> 1075 hrs drawing walkdown. IWCP								
750	STRAIGHT TIME BASE	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	40.00	Hours
<i>Factors</i> 40 hours to support this activity								
750	STRAIGHT TIME BASE	P090	INDUSTRIAL HYGIENISTS	SA01S	SSOC 371 Closure Project	Linear	50.00	Hours
<i>Factors</i> 50 hrs to assist with IWCP preparation								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	50.00	Hours
<i>Factors</i> 50 hours to support this activity								
A57	LATA	P070	COST ESTIMATORS PLANNERS AN	SA01S	SSOC 371 Closure Project	Linear	9,000.00	Dollars
<i>Factors</i> 75 \$/hour 1 ea 120 hrs to develop and complete an								
A57	LATA	P160	TECHNICAL WRITERS AND EDITOR	SA01S	SSOC 371 Closure Project	Linear	3,750.00	Dollars
<i>Factors</i> 1 ea 75 \$/hr 50 hours procedure support for changes								
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	2,000.00	Dollars
<i>Factors</i> 1 ea 2000 misc. lighting, cans. & bags								

**Line Item All GB Set 5 LSE - Remove Loose Equipment, trash, etc. from GB**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - All loose equipment, trash, etc. will be removed from each glovebox in order to stripcoat the glovebox. Amount removed from each glovebox will vary. Cubic foot/glovebox is used to estimate average amount of equipment to be removed. Necessary supplies include, but are not limited to: Drums @ \$35/drum, 2" rolls of yellow tape @ \$2.50/roll, Bag-out bags @ \$14/bag for a 10X96 bag, 18X24 waste bag/bag cut @ .25/bag (for loose equipment removed).  
 Breakdown of Cost Data:  
 Item - Removal of loose equipment, trash, etc., place in drum and count drum  
 Units - per day to clean out glovebox  
 Unit Cost - 36 hrs/day \$50/day supply cost  
 Unit Cost Adjustment factor - N/A

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	16.00	Hours
<i>Factors</i> 8 hr/dav 2 fte/dav								
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i> 4 hr/dav 2 fte to operate drum counter								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
<i>Factors</i> 8 hrs/day								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	4.00	Hours
<i>Factors</i> 4 hrs/dav								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	50.75	Dollars
<i>Factors</i> 1.015 -- FY00 Escalation -- 50 supply dollars per day(includes								

**Line Item 2.0 EDP - Eng. Design Pkg. RR/Fog/Cerium (14 tanks)**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has intimate knowledge of the requirements.  
 Experience Item Desc -An Engineering Design Package (EDP) will be developed for each room containing tanks to be included in the Raschig Ring removal campaign. The EDP will provide tank specific information for each tank in the room. The EDP will be incorporated into the Standard Work Package for the room being worked.  
 Breakdown of Cost Data:  
 Item - Engineering Design Package (EDP)

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Project: Baseline Devl  
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Starts In FY \*

Units - lot  
 Unit Cost - Hours  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	0.00	Hours
<i>Factors</i>	20 hrs/single tank	0 single tanks				
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	280.00	Hours
<i>Factors</i>	40 hrs/tank cluster	7 clusters				
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	160.00	Hours
<i>Factors</i>	40 hrs/room	4 rooms				

**Line Item 2223 1-GLV - Glovebox Readiness**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.03	Hours
<i>Factors</i>	2 people to operate drum counter	0.0167 factor for 60gloves/drum				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.68	Hours
<i>Factors</i>	1 glove	0.34 hours per glove (20 min/glove)	2 Process Specialists			
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.34	Hours
<i>Factors</i>	0.34 hrs/glove (20 minutes/glove)					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.27	Hours
<i>Factors</i>	1 glove	0.27 hrs per glove (20 min/glove)	1 RCT			
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	53.00	Dollars
<i>Factors</i>	53 \$/glove based on 30 mm glove					
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	0.67	Dollars
<i>Factors</i>	0.0167 factor for 60 gloves/drum	40 \$/supplies (includes tape, baags.				

**Line Item 2223 1-SCOScan - GB SCO Scans**

**BOE** Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box  
 Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1AQ31ST005

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i>	1	Rad Ops Foreman	0.05	hrs/CF of GB				
750	STRAIGHT TIME BASE	P080	HEALTH PHYSICISTS	SA01S	SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i>	1	Rad Eng	0.045	hrs/CF of GB				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.09	Hours
<i>Factors</i>	2	RCTs	0.045	hrs/CF of GB				
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	2.50	Dollars
<i>Factors</i>	2.5	\$/CF to replace/calibrate heads						

**Line Item 2223 2-TNK - Remove Raschig Rings from Tanks**

**BOE**

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Removal of Raschig Rings from the tank is based on capacity of the tank. Rings absorb 34% of the tank capacity; therefore, gallons of raschig rings is 34% of gallons in each tank. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. Any sludge removed from the tank will be calcined in Glovebox 32, Room 3515, fluoride calcination furnace. The fluoride calcining furnace is being designed to condense and collect moisture from calcined material. The calcined sludge may require further stabilization and packaging by PUSPS operations. Calcining of the sludge is not estimated here but will be budgeted through fluoride or PUSPS. This estimate assumes tanks cannot be shipped off-site with rings in place. If ring removal is not required, tanks less than 8' X 8' X 10' (meeting shipping crate size) will be dispositioned with rings in place during Decommissioning.

Breakdown of Cost Data:  
 Item - Removal of 1 gallon of raschig rings  
 Units - per gallon of raschig rings  
 Unit Cost - .82 hours/gallon of raschig rings  
               - \$1.88 supplies/gallon of raschig rings  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	0.44	Hours
<i>Factors</i>	4	process specialists (includes 2 at the	0.11	hrs/gallon of rings				
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	0.05	Hours
<i>Factors</i>	0.025	factor per gallon: 40 gallons/drum	1	hour to count 1 drum	2	process specialists to operate drum		
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.11	Hours
<i>Factors</i>	1	RCT supervisor	0.11	hour per gallon of rings				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.22	Hours
<i>Factors</i>	2	RCTs	0.11	hrs/gallon of rings				
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	1.90	Dollars
<i>Factors</i>	1.015	-- FY00 Escalation --	0.025	factor: 40 gallons of rings/drum	75	\$/drum (includes cost of drum, plastic		

**Line Item 2223 2-TNWCP - IWCP, Pen/Tent Install, SBA Suits, Fog**

**BOE**

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Contractor policy specifies that removal of Raschig Rings requires a specific Integrated Work Control Package (IWCP) for each tank; however, in the future it may be possible to combine same size tanks in the same room into one IWCP. Each package requires support from Engineering for drawings, walkdowns, tank set-up for safe ring removal; Maintenance Planners for IWCP development; and Document Control support. In addition, each tank will be fogged prior to removal of rings. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. A tent and pen will be built and installed in order to remove the rings.

Breakdown of Cost Data:  
 Item - Integrated Work Control Package development, tent & pen installation, and tank fogging for each Raschig Ring Tank.  
 Units - per raschig ring tank  
 Unit Cost - 292 hours/tank               \$22,025 Subcontractor Cost               \$2,665 Supply Cost  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Linear	8.00	Hours
<i>Factors</i>	2	pipefitters to build tank port covers	4	hrs/each				
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	96.00	Hours
<i>Factors</i>	8	hrs/day also includes hours for	3	process specialists	4	days (install tent, pen, & adaptor)		

WBS No: 1AAC  
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**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
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Starts In FY \*

750	STRAIGHT TIME BASE	E070	MECHANICAL ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	120.00	Hours
<i>Factors</i>		3	wks	40	hrs/wk			
750	STRAIGHT TIME BASE	L060	MISSION SUP SPEC II (FLTTC.H.WS	KA70H	371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i>		8	hours to make tank adaptor and					
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	32.00	Hours
<i>Factors</i>		4	days (install tent, pen, adaptor)	8	hrs/dav			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	32.00	Hours
<i>Factors</i>		8	hrs/dav also includes hours for	4	days (tent, pen, adaptor)			
A57	LATA	P070	COST ESTIMATORS PLANNERS AN	SA01S	SSOC 371 Closure Project	Linear	2,863.92	Dollars
<i>Factors</i>		1.02283	-- FY00 Escalation --	70	\$/hr	40	hrs/wk	
A58	ASI	0000	NONE	K777C	Construction	Linear	2,045.66	Dollars
<i>Factors</i>		1.02283	-- FY00 Escalation --	40	hrs/wk	50	\$/hr	
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	65.97	Dollars
<i>Factors</i>		1.015	-- FY00 Escalation --	65	\$/gallon of to capture/coat material			
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	2,639.00	Dollars
<i>Factors</i>		2600	supply cost for tent and pen/tank	1.015	-- FY00 Escalation --			
A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	17,618.25	Dollars
<i>Factors</i>		1.02283	-- FY00 Escalation --	17225	\$ for Encapsulation Tech. To foq			

**Line Item 2223 4-FC - Change GB Filters**

**BOE** Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

Breakdown of cost item

Item - glove box filter change

Unit - per filter

Unit Cost -

Unit Cost Adjustment Factor -

**Resources**

	<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>	<i>Curve</i>	<i>Quantity</i>	<i>Units</i>
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i>		2	Process Specialists	2	hrs/filter	2	filters/GB	
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	300.00	Dollars
<i>Factors</i>		150	\$/filter (incls. Filter, drum, tape, bags	2	filters/GB			

**Line Item 2223 7-EQRmvl - GB Equipment Removal**

**BOE** Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

Item - Perform glove box internal equipment removal

WBS No: 1AAC  
 Activity ID: 1AQ31ST005

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Unit - Equipment pieces per glove box  
 Unit Cost -

Resources	Cost Element	Quantity	Unit	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	283.36	Hours
Factors	35.42 hrs/piece of equipment		8 pieces of equipment /std GB					
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	35.40	Hours
Factors	8.85 hrs/piece of equipment		4 Cuts per piece of equipment					
	750 STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	1.68	Hours
Factors	0.21 hrs/piece of equipment		8 pieces of equipment /std GB					
	750 STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	0.20	Hours
Factors	0.05 hrs/piece of equipment		4 Cuts per piece of equipment					
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	1.68	Hours
Factors	0.21 hrs/piece of equipment		8 pieces of equipment /std GB	1	Rad Ops Foreman			
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.20	Hours
Factors	0.05 hrs/piece of equipment		4 Cuts per piece of equipment	1	Rad Ops Foreman			
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	113.36	Hours
Factors	14.17 hrs/piece of equipment		8 pieces of equipment /std GB					
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	14.16	Hours
Factors	3.54 hrs/piece of equipment		4 Cuts per piece of equipment					
	750 STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	0.88	Hours
Factors	0.11 hrs/piece of equipment		8 pieces of equipment /std GB					
	750 STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	0.12	Hours
Factors	0.03 hrs/piece of equipment		4 Cuts per piece of equipment					

**Line Item 2306 1-GLV - Glovebox Readiness**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.  
 Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Quantity	Unit	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	0.03	Hours
Factors	0.0167 factor for 60gloves/drum		2 people to operate drum counter					
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	0.68	Hours
Factors	0.34 hours per glove (20 min/glove)		1 glove	2	Process Specialists			
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.34	Hours
Factors	0.34 hrs/glove (20 minutes/glove)							
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.27	Hours
Factors	1 glove		0.27 hrs per glove (20 min/glove)	1	RCT			
	A5C SUPPLIES	0000	NONE	K218S	Financial Services	Linear	53.00	Dollars
Factors	53 \$/glove based on 30 mm glove							
	A5C SUPPLIES	0000	NONE	K218S	Financial Services	Linear	0.67	Dollars
Factors	0.0167 factor for 60 gloves/drum		40 \$/supplies (includes tape, baqs.					

**Line Item 2306 1-SCOScan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

WBS No: 1AAC  
 Activity ID: 1AQ31ST005

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:

Item - Perform a radiological survey of a cleaned up and empty glove box

Unit -Per glove box

Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
	Factors 1 Rad Ops Foreman	0.05 hrs/CF of GB				
	750 STRAIGHT TIME BASE	P080 HEALTH PHYSICISTS	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
	Factors 1 Rad Eng	0.045 hrs/CF of GB				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.09	Hours
	Factors 2 RCTs	0.045 hrs/CF of GB				
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	2.50	Dollars
	Factors 2.5	\$/CF to replace/calibrate heads				

**Line Item 2306 4-FC - Change GB Filters**

**BOE**  
 Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.  
 Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.  
 Breakdown of cost item  
 Item - glove box filter change  
 Unit - per filter  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
	Factors 2 Process Specialists	2 hrs/filter	2 filters/GB			
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	300.00	Dollars
	Factors 150	\$/filter (incls. Filter, drum, tape, bags 2 filters/GB				

**Line Item 2306 7-EQRmvl - GB Equipment Removal**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.  
 Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.  
 Breakdown of Cost Data:

WBS No: 1AAC  
 Activity ID: 1AQ31ST005

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	35.40	Hours
<i>Factors</i> 8.85 hrs/piece of equipment 4 Cuts per piece of equipment					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.36	Hours
<i>Factors</i> 35.42 hrs/piece of equipment 8 pieces of equipment /std GB					
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i> 0.21 hrs/piece of equipment 8 pieces of equipment /std GB					
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	0.20	Hours
<i>Factors</i> 0.05 hrs/piece of equipment 4 Cuts per piece of equipment					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i> 0.21 hrs/piece of equipment 8 pieces of equipment /std GB 1 Rad Ops Foreman					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.20	Hours
<i>Factors</i> 0.05 hrs/piece of equipment 4 Cuts per piece of equipment 1 Rad Ops Foreman					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.36	Hours
<i>Factors</i> 14.17 hrs/piece of equipment 8 pieces of equipment /std GB					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	14.16	Hours
<i>Factors</i> 3.54 hrs/piece of equipment 4 Cuts per piece of equipment					
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.12	Hours
<i>Factors</i> 0.03 hrs/piece of equipment 4 Cuts per piece of equipment					
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.88	Hours
<i>Factors</i> 0.11 hrs/piece of equipment 8 pieces of equipment /std GB					

**Line Item 2307 2-TNK - Remove Raschig Rings from Tanks**

**BOE**

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Removal of Raschig Rings from the tank is based on capacity of the tank. Rings absorb 34% of the tank capacity; therefore, gallons of raschig rings is 34% of gallons in each tank. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. Any sludge removed from the tank will be calcined in Glovebox 32, Room 3515, fluoride calcination furnace. The fluoride calcining furnace is being designed to condense and collect moisture from calcined material. The calcined sludge may require further stabilization and packaging by PUSPS operations. Calcining of the sludge is not estimated here but will be budgeted through fluoride or PUSPS. This estimate assumes tanks cannot be shipped off-site with rings in place. If ring removal is not required, tanks less than 8' X 8' X 10' (meeting shipping crate size) will be dispositioned with rings in place during Decommissioning.

Breakdown of Cost Data:  
 Item - Removal of 1 gallon of raschig rings  
 Units - per gallon of raschig rings  
 Unit Cost - .82 hours/gallon of raschig rings  
 - \$1.88 supplies/gallon of raschig rings  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.05	Hours
<i>Factors</i> 1 hour to count 1 drum 2 process specialists to operate drum 0.025 factor per gallon: 40 gallons/drum					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.44	Hours
<i>Factors</i> 4 process specialists (includes 2 at the 0.11 hrs/gallon of rinas					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.11	Hours
<i>Factors</i> 1 RCT supervisor 0.11 hour per gallon of rinas					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.22	Hours
<i>Factors</i> 0.11 hrs/gallon of rinas 2 RCTs					
A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	1.90	Dollars
<i>Factors</i> 0.025 factor: 40 gallons of rinas/drum 75 \$/drum (includes cost of drum, plastic 1.015 -- FY00 Escalation --					

WBS No: 1AAC  
 Activity ID: 1AQ31ST005

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

**Line Item 2307 2-TNWCP - IWCP, Pen/Tent Install, SBA Suits, Fog**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Contractor policy specifies that removal of Raschig Rings requires a specific Integrated Work Control Package (IWCP) for each tank; however, in the future it may be possible to combine same size tanks in the same room into one IWCP. Each package requires support from Engineering for drawings, walkdowns, tank set-up for safe ring removal; Maintenance Planners for IWCP development; and Document Control support. In addition, each tank will be fogged prior to removal of rings. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. A tent and pen will be built and installed in order to remove the rings.

Breakdown of Cost Data:  
 Item - Integrated Work Control Package development, tent & pen installation, and tank fogging for each Raschig Ring Tank.  
 Units - per raschig ring tank  
 Unit Cost - 292 hours/tank      \$22,025 Subcontractor Cost      \$2,665 Supply Cost  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Code	Skill	Code	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mamt Steelworkers	Linear	8.00	Hours
<i>Factors</i>	4 hrs/each		2 pipefitters to build tank port covers					
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	96.00	Hours
<i>Factors</i>	3 process specialists		8 hrs/day also includes hours for		4 days (install tent, pen, & adaptor)			
	750 STRAIGHT TIME BASE	E070	MECHANICAL ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	120.00	Hours
<i>Factors</i>	3 wks		40 hrs/wk					
	750 STRAIGHT TIME BASE	L060	MISSION SUP SPEC II (FLTTC.H. WS	KA70H	371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i>	8 hours to make tank adaptor and							
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	32.00	Hours
<i>Factors</i>	4 days (install tent, pen, adaptor)		8 hrs/day					
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	32.00	Hours
<i>Factors</i>	4 days (tent, pen, adaptor)		8 hrs/day also includes hours for					
	A57 LATA	P070	COST ESTIMATORS PLANNERS AN	SA01S	SSOC 371 Closure Project	Linear	2,863.92	Dollars
<i>Factors</i>	1.02283 -- FY00 Escalation --		40 hrs/wk		70 \$/hr			
	A58 ASI	0000	NONE	K777C	Construction	Linear	2,045.66	Dollars
<i>Factors</i>	40 hrs/wk		1.02283 -- FY00 Escalation --		50 \$/hr			
	A5C SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	2,639.00	Dollars
<i>Factors</i>	1.015 -- FY00 Escalation --		2600 supply cost for tent and pen/tank					
	A5C SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	65.97	Dollars
<i>Factors</i>	1.015 -- FY00 Escalation --		65 \$/gallon of to capture/coat material					
	A5H SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	17,618.25	Dollars
<i>Factors</i>	1.02283 -- FY00 Escalation --		17225 \$ for Encapsulation Tech. To fog					

**Line Item 2310 1-GLV - Glovebox Readiness**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove      Unit Cost - 1 hr  
 Unit - per glove      Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Code	Skill	Code	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	0.03	Hours
<i>Factors</i>	0.0167 factor for 60gloves/drum		2 people to operate drum counter					
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	0.68	Hours
<i>Factors</i>	0.34 hours per glove (20 min/glove)		2 Process Specialists		1 glove			

WBS No: 1AAC  
 Activity ID: 1AQ31ST005

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.34	Hours
<i>Factors</i> 0.34 hrs/glove (20 minutes/glove)								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.27	Hours
<i>Factors</i> 1 RCT 0.27 hrs.per glove (20 min/glove) 1 glove								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	0.67	Dollars
<i>Factors</i> 0.0167 factor for 60 gloves/drum 40 \$/supplies (includes tape, bags)								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	53.00	Dollars
<i>Factors</i> 53 \$/glove based on 30 mm glove								

**Line Item 2310 1-SCOScan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box  
 Unit Cost -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i> 1 Rad Ops Foreman 0.05 hrs/CF of GB					
750 STRAIGHT TIME BASE	P080 HEALTH PHYSICISTS	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i> 1 Rad Eng 0.045 hrs/CF of GB					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.09	Hours
<i>Factors</i> 2 RCTs 0.045 hrs/CF of GB					
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	2.50	Dollars
<i>Factors</i> 2.5 \$/CF to replace/calibrate heads					

**Line Item 2310 4-FC - Change GB Filters**

**BOE**  
 Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

Breakdown of cost item  
 Item - glove box filter change  
 Unit - per filter  
 Unit Cost -  
 Unit Cost Adjustment Factor -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i> 2 Process Specialists 2 hrs/filter 2 filters/GB					
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	300.00	Dollars
<i>Factors</i> 150 \$/filter (incls. Filter, drum, tape, bags) 2 filters/GB					

WBS No: 1AAC  
 Activity ID: 1AQ31ST005

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

**Line Item 2310 7-EQRmvl - GB Equipment Removal**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:  
 Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.36	Hours
<i>Factors</i>		35.42 hrs/piece of equipment	8 pieces of equipment /std GB				
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	35.40	Hours
<i>Factors</i>		8.85 hrs/piece of equipment	4 Cuts per piece of equipment				
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i>		0.21 hrs/piece of equipment	8 pieces of equipment /std GB				
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	0.20	Hours
<i>Factors</i>		0.05 hrs/piece of equipment	4 Cuts per piece of equipment				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.20	Hours
<i>Factors</i>		0.05 hrs/piece of equipment	4 Cuts per piece of equipment	1 Rad Ops Foreman			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i>		0.21 hrs/piece of equipment	8 pieces of equipment /std GB	1 Rad Ops Foreman			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	14.16	Hours
<i>Factors</i>		3.54 hrs/piece of equipment	4 Cuts per piece of equipment				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.36	Hours
<i>Factors</i>		14.17 hrs/piece of equipment	8 pieces of equipment /std GB				
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.88	Hours
<i>Factors</i>		0.11 hrs/piece of equipment	8 pieces of equipment /std GB				
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.12	Hours
<i>Factors</i>		0.03 hrs/piece of equipment	4 Cuts per piece of equipment				

**Line Item 2317 1-GLV - Glovebox Readiness**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1AQ31ST005

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	0.68	Hours
<i>Factors</i>		2	Process Specialists	1	glove	0.34	hours per glove (20 min/glove)	
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	0.03	Hours
<i>Factors</i>		0.0167	factor for 60gloves/drum	2	people to operate drum counter			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.34	Hours
<i>Factors</i>		0.34	hrs/glove (20 minutes/glove)					
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.27	Hours
<i>Factors</i>		0.27	hrs per glove (20 min/glove)	1	RCT	1	glove	
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	0.67	Dollars
<i>Factors</i>		0.0167	factor for 60 gloves/drum	40	\$/supplies (includes tape bags)			
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	53.00	Dollars
<i>Factors</i>		53	\$/glove based on 30 mm glove					

**Line Item 2317 1-SCOScan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box  
 Unit Cost -

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i>		1	Rad Ops Foreman	0.05	hrs/CF of GB			
750	STRAIGHT TIME BASE	P080	HEALTH PHYSICISTS	SA01S	SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i>		1	Rad Eng	0.045	hrs/CF of GB			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.09	Hours
<i>Factors</i>		2	RCTs	0.045	hrs/CF of GB			
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	2.50	Dollars
<i>Factors</i>		2.5	\$/CF to replace/calibrate heads					

**Line Item 2317 2-TNK - Remove Raschig Rings from Tanks**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Removal of Raschig Rings from the tank is based on capacity of the tank. Rings absorb 34% of the tank capacity; therefore, gallons of raschig rings is 34% of gallons in each tank. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. Any sludge removed from the tank will be calcined in Glovebox 32, Room 3515, fluoride calcination furnace. The fluoride calcining furnace is being designed to condense and collect moisture from calcined material. The calcined sludge may require further stabilization and packaging by PUSPS operations. Calcining of the sludge is not estimated here but will be budgeted through fluoride or PUSPS. This estimate assumes tanks cannot be shipped off-site with rings in place. If ring removal is not required, tanks less than 8' X 8' X 10' (meeting shipping crate size) will be dispositioned with rings in place during Decommissioning.

Breakdown of Cost Data:  
 Item - Removal of 1 gallon of raschig rings  
 Units - per gallon of raschig rings  
 Unit Cost - .82 hours/gallon of raschig rings  
           - \$1.88 supplies/gallon of raschig rings  
 Unit Cost Adjustment factor - N/A

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1AQ31ST005

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	0.44	Hours
<i>Factors</i> 0.11 hrs/gallon of rings 4 process specialists (includes 2 at the								
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	0.05	Hours
<i>Factors</i> 0.025 factor per gallon: 40 gallons/drum 1 hour to count 1 drum 2 process specialists to operate drum								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.11	Hours
<i>Factors</i> 1 RCT supervisor 0.11 hour per gallon of rings								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.22	Hours
<i>Factors</i> 2 RCTs 0.11 hrs/gallon of rings								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	1.90	Dollars
<i>Factors</i> 1.015 -- FY00 Escalation -- 75 \$/drum (includes cost of drum, plastic 0.025 factor: 40 gallons of rings/drum								

**Line Item 2317 2-TNWCP - IWCP, Pen/Tent Install, SBA Suits, Fog**

BOE

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Contractor policy specifies that removal of Raschig Rings requires a specific Integrated Work Control Package (IWCP) for each tank; however, in the future it may be possible to combine same size tanks in the same room into one IWCP. Each package requires support from Engineering for drawings, walkdowns, tank set-up for safe ring removal; Maintenance Planners for IWCP development; and Document Control support. In addition, each tank will be fogged prior to removal of rings. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. A tent and pen will be built and installed in order to remove the rings.

Breakdown of Cost Data:  
 Item - Integrated Work Control Package development, tent & pen installation, and tank fogging for each Raschig Ring Tank.  
 Units - per raschig ring tank  
 Unit Cost - 292 hours/tank \$22,025 Subcontractor Cost \$2,665 Supply Cost  
 Unit Cost Adjustment factor - N/A

Resources

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Linear	8.00	Hours
<i>Factors</i> 4 hrs/each 2 pipefitters to build tank port covers								
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	96.00	Hours
<i>Factors</i> 3 process specialists 8 hrs/day also includes hours for 4 days (install tent, pen, & adaptor)								
750	STRAIGHT TIME BASE	E070	MECHANICAL ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	120.00	Hours
<i>Factors</i> 3 wks 40 hrs/wk								
750	STRAIGHT TIME BASE	L060	MISSION SUP SPEC II (FLTTC H. WS	KA70H	371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i> 8 hours to make tank adaptor and								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	32.00	Hours
<i>Factors</i> 8 hrs/dav 4 days (install tent, pen, adaptor)								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	32.00	Hours
<i>Factors</i> 8 hrs/dav also includes hours for 4 days (tent, pen, adaptor)								
A57	LATA	P070	COST ESTIMATORS PLANNERS AN	SA01S	SSOC 371 Closure Project	Linear	2.863.92	Dollars
<i>Factors</i> 1.02283 -- FY00 Escalation -- 70 \$/hr 40 hrs/wk								
A58	ASI	0000	NONE	K777C	Construction	Linear	2.045.66	Dollars
<i>Factors</i> 1.02283 -- FY00 Escalation -- 40 hrs/wk 50 \$/hr								
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	65.97	Dollars
<i>Factors</i> 1.015 -- FY00 Escalation -- 65 \$/gallon of to capture/coat material								
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	2.639.00	Dollars
<i>Factors</i> 2600 supply cost for tent and pen/tank 1.015 -- FY00 Escalation --								
A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	17.618.25	Dollars
<i>Factors</i> 1.02283 -- FY00 Escalation -- 17225 \$ for Encapsulation Tech. To fog								

**Line Item 2317 4-FC - Change GB Filters**

BOE

Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

Breakdown of cost item

WBS No: 1AAC  
 Activity ID: 1AQ31ST005

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Item - glove box filter change  
 Unit - per filter  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
	Factors 2 Process Specialists	2 hrs/filter	2 filters/GB			
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	300.00	Dollars
	Factors 150 \$/filter (incls. Filter, drum, tape, bags	2 filters/GB				

**Line Item 2317 4-SCANGB - Glovebox Scan for SNM**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.  
 Breakdown of Cost Data:  
 Item - Scan glovebox for SNM removal  
 Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.  
 Unit Cost - .16 hrs/cubic foot  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.08	Hours
	Factors 2 scans, one prior to removal, second	0.04 hours/cf of glovebox				
	750 STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KA70H 371 Facility Disposition Steelworkers	Linear	0.08	Hours
	Factors 1 technician	2 Scans, one prior to removal, second	0.04 hours per cubic foot of glovebox			

**Line Item 2317 5-DP - Disconnect Pumps/Disposition Liquid**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Disconnect and drain liquid from pumps inside glovebox. There can be multiple pumps in each glovebox. Each pump takes approximately 4.5 hours to prep, drain, and disposition liquid. This estimate does not include the time and cost for pump removal. Pumps will be removed during Decommissioning when the glovebox is cut up and packaged for removal.  
 Breakdown of Cost Data:  
 Item - Disconnect and Drain each pump inside glovebox  
 Units - cost/pump  
 Unit Cost - 22.5 hours  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	9.00	Hours
	Factors 2 Maintenance Pipefitters	4.5 hrs/pump				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	9.00	Hours
	Factors 2 Process Specialists	4.5 hours per pump				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSQC 371 Closure Project	Linear	4.50	Hours
	Factors 1 Process Specialist Supervisor	4.5 hours per day				

**Line Item 2317 7-EQRmvl - GB Equipment Removal**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

WBS No: 1AAC  
 Activity ID: 1AQ31ST005

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

Item - Perform glove box internal equipment removal

Unit - Equipment pieces per glove box

Unit Cost -

Resources

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.36	Hours
Factors 35.42 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	35.40	Hours
Factors 8.85 hrs/piece of equipment	4 Cuts per piece of equipment				
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
Factors 0.21 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	0.20	Hours
Factors 0.05 hrs/piece of equipment	4 Cuts per piece of equipment				
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
Factors 0.21 hrs/piece of equipment	8 pieces of equipment /std GB	1 Rad Ops Foreman			
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.20	Hours
Factors 0.05 hrs/piece of equipment	4 Cuts per piece of equipment	1 Rad Ops Foreman			
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.36	Hours
Factors 14.17 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	14.16	Hours
Factors 3.54 hrs/piece of equipment	4 Cuts per piece of equipment				
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.88	Hours
Factors 0.11 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.12	Hours
Factors 0.03 hrs/piece of equipment	4 Cuts per piece of equipment				

Line Item 2319 2-TNK - Remove Raschig Rings from Tanks

BOE

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Removal of Raschig Rings from the tank is based on capacity of the tank. Rings absorb 34% of the tank capacity; therefore, gallons of raschig rings is 34% of gallons in each tank. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. Any sludge removed from the tank will be calcined in Glovebox 32, Room 3515, fluoride calcination furnace. The fluoride calcining furnace is being designed to condense and collect moisture from calcined material. The calcined sludge may require further stabilization and packaging by PUSPS operations. Calcining of the sludge is not estimated here but will be budgeted through fluoride or PUSPS. This estimate assumes tanks cannot be shipped off-site with rings in place. If ring removal is not required, tanks less than 8' X 8' X 10' (meeting shipping crate size) will be dispositioned with rings in place during Decommissioning.

Breakdown of Cost Data:

Item - Removal of 1 gallon of raschig rings

Units - per gallon of raschig rings

Unit Cost - .82 hours/gallon of raschig rings

- \$1.88 supplies/gallon of raschig rings

Unit Cost Adjustment factor - N/A

Resources

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.44	Hours
Factors 0.11 hrs/gallon of rings	4 process specialists (includes 2 at the				

WBS No: 1AAC  
 Activity ID: 1AQ31ST005

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	0.05	Hours
<i>Factors</i>		1	hour to count 1 drum	0.025	factor per gallon: 40 gallons/drum	2	process specialists to operate drum	
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.11	Hours
<i>Factors</i>		0.11	hour per gallon of rings	1	RCT supervisor			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.22	Hours
<i>Factors</i>		0.11	hrs/gallon of rings	2	RCTs			
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	1.90	Dollars
<i>Factors</i>		1.015	-- FY00 Escalation --	75	\$/drum (includes cost of drum, plastic	0.025	factor: 40 gallons of rings/drum	

**Line Item 2319 2-TNWCP - IWCP, Pen/Tent Install, SBA Suits, Fog**

BOE

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Contractor policy specifies that removal of Raschig Rings requires a specific Integrated Work Control Package (IWCP) for each tank; however, in the future it may be possible to combine same size tanks in the same room into one IWCP. Each package requires support from Engineering for drawings, walkdowns, tank set-up for safe ring removal; Maintenance Planners for IWCP development; and Document Control support. In addition, each tank will be fogged prior to removal of rings. Fogging of raschig ring tank prior to removal will allow ring removal to be conducted in Powered Air Purifying Respirators instead of using Supplied Breathing Air Suits. Cost increases if supplied breathing air suits are used. A tent and pen will be built and installed in order to remove the rings.

Breakdown of Cost Data:  
 Item - Integrated Work Control Package development, tent & pen installation, and tank fogging for each Raschig Ring Tank.  
 Units - per raschig ring tank  
 Unit Cost - 292 hours/tank \$22,025 Subcontractor Cost \$2,665 Supply Cost  
 Unit Cost Adjustment factor - N/A

Resources

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Linear	8.00	Hours
<i>Factors</i>		2	pipefitters to build tank port covers	4	hrs/each			
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	96.00	Hours
<i>Factors</i>		3	process specialists	4	days (install tent, pen, & adaptor)	8	hrs/dav also includes hours for	
750	STRAIGHT TIME BASE	E070	MECHANICAL ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	120.00	Hours
<i>Factors</i>		40	hrs/wk	3	wks			
750	STRAIGHT TIME BASE	L060	MISSION SUP SPEC II (FLTTC. WS	KA70H	371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i>		8	hours to make tank adaptor and					
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	32.00	Hours
<i>Factors</i>		4	days (install tent, pen, adaptor)	8	hrs/dav			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	32.00	Hours
<i>Factors</i>		8	hrs/dav also includes hours for	4	days (tent, pen, adaptor)			
A57	LATA	P070	COST ESTIMATORS PLANNERS AN	SA01S	SSOC 371 Closure Project	Linear	2.863.92	Dollars
<i>Factors</i>		1.02283	-- FY00 Escalation --	40	hrs/wk	70	\$/hr	
A58	ASI	0000	NONE	K777C	Construction	Linear	2.045.66	Dollars
<i>Factors</i>		40	hrs/wk	1.02283	-- FY00 Escalation --	50	\$/hr	
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	65.97	Dollars
<i>Factors</i>		65	\$/gallon of to capture/coat material	1.015	-- FY00 Escalation --			
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	2.639.00	Dollars
<i>Factors</i>		1.015	-- FY00 Escalation --	2600	supply cost for tent and pen/tank			
A5H	SUBCONTRACTED SRVS	E130	OTHER ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	17.618.25	Dollars
<i>Factors</i>		17225	\$/ for Encapsulation Tech. To foq	1.02283	-- FY00 Escalation --			

**Line Item 2325 1-GLV - Glovebox Readiness**

BOE

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr

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Unit - per glove	Unit Cost - \$54.00
Unit Cost Adjustment factor - N/A	

Resources	Cost Element	Unit	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.03	Hours
<i>Factors</i> 0.0167 factor for 60gloves/drum 2 people to operate drum counter							
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.68	Hours
<i>Factors</i> 1 glove 2 Process Specialists 0.34 hours per glove (20 min/glove)							
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.34	Hours
<i>Factors</i> 0.34 hrs/glove (20 minutes/glove)							
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.27	Hours
<i>Factors</i> 1 glove 0.27 hrs per glove (20 min/glove) 1 RCT							
A5C	SUPPLIES	0000	NONE	K218S Financial Services	Linear	53.00	Dollars
<i>Factors</i> 53 \$/glove based on 30 mm glove							
A5C	SUPPLIES	0000	NONE	K218S Financial Services	Linear	0.67	Dollars
<i>Factors</i> 40 \$/supplies (includes tape, baas. 0.0167 factor for 60 gloves/drum							

**Line Item 2325 1-SCOScan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box  
 Unit Cost -

Resources	Cost Element	Unit	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i> 1 Rad Ops Foreman 0.05 hrs/CF of GB							
750	STRAIGHT TIME BASE	P080	HEALTH PHYSICISTS	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i> 1 Rad Ena 0.045 hrs/CF of GB							
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.09	Hours
<i>Factors</i> 2 RCTs 0.045 hrs/CF of GB							
A5C	SUPPLIES	0000	NONE	KA70S B371 Facility Disposition	Linear	2.50	Dollars
<i>Factors</i> 2.5 \$/CF to replace/calibrate heads							

**Line Item 2325 4-FC - Change GB Filters**

**BOE**  
 Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

Breakdown of cost item  
 Item - glove box filter change  
 Unit - per filter  
 Unit Cost -

WBS No: 1AAC  
 Activity ID: 1AQ31ST005

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Unit Cost Adjustment Factor -

Resources	Cost Element	Quantity	Skill	Department	Curve	Units
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00 Hours
	Factors 2 Process Specialists		2 hrs/filter	2 filters/GB		
	A5C SUPPLIES	0000	NONE	KA70S B371 Facility Disposition	Linear	300.00 Dollars
	Factors 150 \$/filter (incls. Filter, drum, tape, baqs		2 filters/GB			

**Line Item 2325 4-SCANGB - Glovebox Scan for SNM**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.

Breakdown of Cost Data:  
 Item - Scan glovebox for SNM removal  
 Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.  
 Unit Cost - .16 hrs/cubic foot  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Quantity	Skill	Department	Curve	Units
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.08 Hours
	Factors 2 scans, one prior to removal, second		0.04 hours/cf of glovebox			
	750 STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KA70H 371 Facility Disposition Steelworkers	Linear	0.08 Hours
	Factors 0.04 hours per cubic foot of glovebox		1 technician	2 Scans, one prior to removal, second		

**Line Item 2325 5-CD - Cascade Dissolver**

**BOE** Estimators Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Cost included is to dismantle cascade dissolver as necessary and remove the SNM hold-up. The material will be placed in an approved container and properly stored. This estimate does not include processing of SNM hold-up through PuSPS. Calorimetry cost is not included here. Complete dismantlement and removal of equipment is not included in this estimate. Dismantlement and removal is included in Decommissioning.

Breakdown of Cost Data:  
 Item - Dismantle as necessary and remove SNM hold-up.  
 Units - Per Cascade Dissolver  
 Unit Cost - 20.5 hrs/dissolver Supply Cost - \$17.50  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Quantity	Skill	Department	Curve	Units
	750 STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	8.00 Hours
	Factors 4 hrs/dissolver		2 pipefitters			
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00 Hours
	Factors 2 process specialists		4 hrs/dissolver			
	750 STRAIGHT TIME BASE	P140	SAFEGUARDS AND OTHER SECURI	SA01S SSOC 371 Closure Project	Linear	4.00 Hours
	Factors 4 hrs support of SNM removal					
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.50 Hours
	Factors 0.5 hrs/dissolver					
	A5C SUPPLIES	0000	NONE	SA01S SSOC 371 Closure Project	Linear	17.76 Dollars
	Factors 175 supply cost/can (includes 8801, 8802, 1.015 -- FY00 Escalation --			0.1 can/dissolver		

**Line Item 2325 7-EQRmvl - GB Equipment Removal**

**BOE** Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual

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Starts In FY \*

glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

Item - Perform glove box internal equipment removal

Unit - Equipment pieces per glove box

Unit Cost -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.20	Hours
<i>Factors</i> 8.85 hrs/piece of equipment 4 Cuts per piece of equipment 8 pieces of equip.					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.36	Hours
<i>Factors</i> 35.42 hrs/piece of equipment 8 pieces of equipment /std GB					
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i> 0.21 hrs/piece of equipment 8 pieces of equipment /std GB					
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.60	Hours
<i>Factors</i> 0.05 hrs/piece of equipment 4 Cuts per piece of equipment 8 pieces of equip.					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i> 0.21 hrs/piece of equipment 8 pieces of equipment /std GB 1 Rad Ops Foreman					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.60	Hours
<i>Factors</i> 0.05 hrs/piece of equipment 4 Cuts per piece of equipment 8 pieces of equip.					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.36	Hours
<i>Factors</i> 14.17 hrs/piece of equipment 8 pieces of equipment /std GB					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.28	Hours
<i>Factors</i> 3.54 hrs/piece of equipment 4 Cuts per piece of equipment 8 pieces of equip.					
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.96	Hours
<i>Factors</i> 0.03 hrs/piece of equipment 4 Cuts per piece of equipment 8 pieces of equip.					
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.88	Hours
<i>Factors</i> 0.11 hrs/piece of equipment 8 pieces of equipment /std GB					

**Line Item 2325 7-EQRmv11 - GB Equipment Removal GBs 10, 12, 13,**

**BOE**

Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

Item - Perform glove box internal equipment removal

Unit - Equipment pieces per glove box

Unit Cost -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
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WBS No: 1AAC  
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**Rocky Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	566.72	Hours
Factors	35.42	hrs/piece of equipment	8	pieces of equipment /std GB	2	times difficulty factor		
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	566.40	Hours
Factors	8.85	hrs/piece of equipment	4	Cuts per piece of equipment	2	times difficulty factor	8	pieces of equip.
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	3.20	Hours
Factors	0.05	hrs/piece of equipment	4	Cuts per piece of equipment	2	times difficulty factor	8	pieces of equip.
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	3.36	Hours
Factors	0.21	hrs/piece of equipment	8	pieces of equipment /std GB	2	times difficulty factor		
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	3.36	Hours
Factors	0.21	hrs/piece of equipment	8	pieces of equipment /std GB	2	times difficulty factor		
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	3.20	Hours
Factors	0.05	hrs/piece of equipment	4	Cuts per piece of equipment	2	times difficulty factor	8	pieces of equip.
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	226.72	Hours
Factors	14.17	hrs/piece of equipment	8	pieces of equipment /std GB	2	times difficulty factor		
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	226.56	Hours
Factors	3.54	hrs/piece of equipment	4	Cuts per piece of equipment	2	times difficulty factor	8	pieces of equip.
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	1.76	Hours
Factors	0.11	hrs/piece of equipment	8	pieces of equipment /std GB	2	times difficulty factor		
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	1.92	Hours
Factors	0.03	hrs/piece of equipment	4	Cuts per piece of equipment	2	times difficulty factor	8	pieces of equip.

**Line Item 2325 7-EQRmvl2 - GB Equipment Removal GB 7**

**BOE**

Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

Item - Perform glove box internal equipment removal

Unit - Equipment pieces per glove box

Unit Cost -

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	1.416.00	Hours
Factors	8.85	hrs/piece of equipment	4	Cuts per piece of equipment	5	times difficulty factor	8	pieces of equip.
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	1.416.80	Hours
Factors	35.42	hrs/piece of equipment	8	pieces of equipment /std GB	5	times difficulty factor		
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	8.40	Hours
Factors	0.21	hrs/piece of equipment	8	pieces of equipment /std GB	5	times difficulty factor		
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
Factors	0.05	hrs/piece of equipment	4	Cuts per piece of equipment	5	times difficulty factor	8	pieces of equip.
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.40	Hours
Factors	0.21	hrs/piece of equipment	8	pieces of equipment /std GB	5	times difficulty factor		
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
Factors	0.05	hrs/piece of equipment	4	Cuts per piece of equipment	5	times difficulty factor	8	pieces of equip.

WBS No: 1AAC  
 Activity ID: 1AQ31ST005

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	566.80	Hours
Factors	14.17	hrs/piece of equipment	8	pieces of equipment /std GB	5	times difficulty factor		
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	566.40	Hours
Factors	3.54	hrs/piece of equipment	4	Cuts per piece of equipment	5	times difficulty factor	8	pieces of equip.
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	4.80	Hours
Factors	0.03	hrs/piece of equipment	4	Cuts per piece of equipment	5	times difficulty factor	8	pieces of equip.
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	4.40	Hours
Factors	0.11	hrs/piece of equipment	8	pieces of equipment /std GB	5	times difficulty factor		

**Line Item 3.3.4 Post Fixative - Prep/Apply Fixative, Smear & Remove Equip.**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for post decon fixative application, smearing the tank after fixative application, and removal of delivery system for 14 Tanks in Set 5.

Breakdown of Cost Data:  
 Item - Costs for fixative application, smearing the tank after fixative application, and removal of delivery system  
 Unit Cost - 82 hours and \$5,164/tank  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Maint Steelworkers	Linear	4.00	Hours
Factors	1	Pipefitter	4	hrs (smears)				
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	18.00	Hours
Factors	1	D&D Worker	2	days (prep/apply fixative)	9	hrs/dav		
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	16.00	Hours
Factors	2	D&D Workers	8	hrs (smears/equip removal)				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	18.00	Hours
Factors	2	days (prep/apply fixative)	9	hrs/dav				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	8.00	Hours
Factors	1	RCT	8	hrs (smears/equip. removal)				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	18.00	Hours
Factors	1	RCT	2	days/tnk (prep/apply fixative)	9	hrs/dav		
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	1.900.00	Dollars
Factors	2	days/tank	950	\$/dav (equip use charges)				
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	3.264.30	Dollars
Factors	3	ET Labor	2	days/tank	9	hrs/dav	60.45	\$/dav

**Line Item Set 5 - Cerium Decon - Cerium Decon for Set 5 Tanks**

**BOE**  
 Estimators Experience - Joel Kohler is the current Raschig Ring Removal Technology Deployment (RTD) Project Lead and has been an integral part of the B371 Facility Dispositioning team over the past year. He compiled the estimate based upon his previous experiences. Larry Martella (current Project Engineer) also helped develop the estimate and has intimate knowledge of the requirements.

Experience Item Desc - This line item contains the work scope for completing the following activities for the 14 Set 5 tanks: 1.) Room preparation (includes drum moves, lighting, and scaffolding) and Tank Preparation (includes remove flange, install spray header, and EO drain valve to CWTS). 2.) Cerium Tank Decontamination (includes receipt of CWST, chrome kill, and dilution if required). 3.) Fixative application, smearing the tank after fixative application, and removal of equipment. 4.) Installing ports and cutting off exhaust lines.

Breakdown of Cost Data:  
 Item - Prepare Rooms and Tanks for Cerium Decontamination, perform Cerium Tank Decontamination (includes receipt of CWST, chrome kill, and dilution if required), perform fixative application, smear tank after fixative application, removal of equipment, install ports, and cut off exhaust lines.  
 Units - tank  
 Unit Cost - 538 hours and \$6,117/tank  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A

WBS No: 1AAC  
 Activity ID: 1AQ31ST005

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C020 ELECTRICIANS	KA20H 371/374 Facility Mamt Steelworkers	Linear	40.00	Hours
Factors 1	Electrician (lighting)	1 week (prep rooms/tanks)	40 hrs/wk		
750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mamt Steelworkers	Linear	40.00	Hours
Factors 1	Pipefitter (scaffolding)	1 week (prep rooms/tanks)	40 hrs/wk		
750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mamt Steelworkers	Linear	4.00	Hours
Factors 1	Pipefitter	4 hours (smears)			
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	99.00	Hours
Factors 2	Process Specialists	5.5 days (tank decon)	9 hrs/dav		
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	16.00	Hours
Factors 2	Process Specialists	8 hours (smears/equipment removal)			
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	18.00	Hours
Factors 1	Process Specialists	2 days (prep/apply fixative)	9 hrs/dav		
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	80.00	Hours
Factors 2	Process Specialists	1 week (prep rooms/tanks)	40 hrs/wk		
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	9.00	Hours
Factors 9	Hours (Proc.Speec) ports/exhaust				
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
Factors 1	Engineer (EO drain valve to CWTS)	1 week (prep rooms/tanks)	40 hrs/wk		
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	49.50	Hours
Factors 1	Foreman	5.5 days (tank decon)	9 hrs/dav		
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
Factors 1	Foreman	1 week (prep rooms/tanks)	40 hrs/wk		
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	9.00	Hours
Factors 9	Hours (Foreman) ports/exhaust				
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	18.00	Hours
Factors 1	Foreman	2 days (prep/apply fixative)	9 hrs/dav		
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	18.00	Hours
Factors 1	RCT	2 days (prep/apply fixative)	9 hrs/dav		
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	8.00	Hours
Factors 1	RCT	8 hours (smears/equipment removal)			
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	40.00	Hours
Factors 1	RCT	1 week (prep rooms/tanks)	40 hrs/wk		
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	9.00	Hours
Factors 9	Hours (RCT) ports/exhaust				
A57 LATA	E130 OTHER ENGINEERS	KA70S B371 Facility Disposition	Linear	952.56	Dollars
Factors 1	Chemical Specialist	1.5 days (tank decon)	9 hrs/dav	70.56 \$/hr	
A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	1,900.00	Dollars
Factors 2	days	950 \$/dav (decon equip. use charges)			
A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	3,264.30	Dollars
Factors 3	ET Labor	2 days (prep/apply fixative)	9 hrs/dav	60.45 avd \$/hr	

**Line Item Set 6 - TKSCN - Holdup Scans on Tanks**

**BOE** stimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - This cost includes scanning tanks that have had liquid and Rashig Ring removal prior to deactivation in Rooms: 2317 and 2319. Pencil tanks, within these rooms, that once held plutonium solution and have been drained will also be scanned to verify there is no SNM Holdup.

Breakdown of Cost Data:  
 Item - Scan tanks for verification that SNM Holdup does not exist.  
 Units - 1 scan per tank.  
 Unit Cost - 14 hrs/scan  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1AQ31ST005

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \* Starts In FY \*

750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	4.00	Hours
<i>Factors</i>		1	RCT to support scan techs	4	hours per tank			
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	10.00	Hours
<i>Factors</i>		2	scan techs per one tank	5	hours per tank			

**Line Item SET5 4-OrLQ - Drain Organic Liquids**

**BOE**  
 Estimator's Experience - Estimate based on similar tasks from glove box equipment disassembly work done during liquid draining operations.  
 Experience Item Description-Some pumps and equipment inside gloveboxes have lubricating oils and greases that have not been removed. Waste stream requirements dictate that these be segregated and handled separately from non-organic waste streams. This line item is to disassemble a piece of glove box equipment containing such organic, drain and/or remove the lubricant and clean up the piece of equipment as possible.  
 Breakdown of cost item  
 Item - remove lubricants from glove box equipment  
 Unit - per piece of equipment  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	19.00 Hours
<i>Factors</i>		2	D&D Skilled Trades	9.5	hrs/piece of equipment		
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.10 Hours
<i>Factors</i>		1	Rad Ops Foreman	0.1	hrs/piece of equipment		
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	7.60 Hours
<i>Factors</i>		1	RCT	7.6	hrs/piece of equipment		
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	1.00 Hours
<i>Factors</i>		1	Laboratory Tech	1	hrs/piece of equipment		
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	1.00 Dollars
<i>Factors</i>		1	\$/equipment cost of storage bottle for				

**Line Item SYS - Contingency And Escalation**

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	207,086.60 Dollars
<i>Factors</i>		207087	Dollars				
ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	92,714.82 Dollars
<i>Factors</i>		92714.8	Dollars				

Activity ID: 1AQ31ST008 Description: Set 8 B371 Lab/Vault/Process - Deactivation

Cost Risk 3 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
Set 8 Prep	Prep Sets for Deactivation of B371	1.00	each	EE	1.955	1.955	71.432	14.750	0	86.182	24.335	110.518
3321 5-DP	Disconnect Pumps/Disposition Liquid	4.00	each	EE	23	90	2,028	0	0	2,028	691	2,719
3323 1-GLV	Glovebox Readiness	60.00	each	EE	1	79	1,787	3,220	0	5,007	609	5,615
3323 1-SCOScan	GB SCO Scans	635.00	cf	EE	0	117	3,007	1,588	0	4,594	1,024	5,618
3323 4-FC	Change GB Filters	1.00	ea	EE	8	8	166	300	0	466	56	522
3323 4-SCANGB	Glovebox Scan for SNM	635.00	cf	EE	0	102	2,093	0	0	2,093	713	2,807
3323 5-DP	Disconnect Pumps/Disposition Liquid	13.00	each	EE	23	293	6,591	0	0	6,591	2,245	8,837
3323 7-EQRmvl	GB Equipment Removal GB 54	1.00	ea	EE	4,008	4,008	83,605	0	0	83,605	28,482	112,087
3335 1-GLV	Glovebox Readiness	49.00	each	EE	1	65	1,459	2,630	0	4,089	497	4,586
3335 1-SCOScan	GB SCO Scans	657.00	cf	EE	0	122	3,111	1,643	0	4,753	1,060	5,813
3335 4-FC	Change GB Filters	1.00	ea	EE	8	8	166	300	0	466	56	522
3335 4-SCANGB	Glovebox Scan for SNM	657.00	cf	EE	0	105	2,166	0	0	2,166	738	2,904
3335 5-DP	Disconnect Pumps/Disposition Liquid	11.00	each	EE	23	248	5,577	0	0	5,577	1,900	7,477

WBS No: 1AAC  
 Activity ID: 1AQ31ST008

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Activity	Description	Quantity	Unit	EE	EF	ES	EF	ES	EF	ES	EF	ES	EF	ES	EF
3335 7-EQRmvl	GB Equipment Removal GB 52	1.00	ea	EE	4.008	4.008	83.605	0	0	83.605	28.482	112.087			
3408 1-GLV	Glovebox Readiness	86.00	each	EE	1	114	2.561	4.615	0	7.176	872	8.049			
3408 1-SCOScan	GB SCO Scans	611.00	cf	EE	0	113	2.893	1.528	0	4.420	986	5.406			
3408 4-FC	Change GB Filters	5.00	ea	EE	8	40	829	1.500	0	2.329	282	2.612			
3408 4-SCANGB	Glovebox Scan for SNM	611.00	cf	EE	0	98	2.014	0	0	2.014	686	2.701			
3408 5-FRN	Calcinina Furnaces in Gloveboxes	1.00	each	EE	12	12	274	0	0	274	93	368			
3408 7-EQRmvl	GB Equipment Removal	5.00	ea	EE	802	4.008	83.605	0	0	83.605	28.482	112.087			
3412 1-GLV	Glovebox Readiness	20.00	each	EE	1	26	596	1.073	0	1.669	203	1.872			
3412 1-SCOScan	GB SCO Scans	4.994.00	cf	EE	0	924	23.646	12.485	0	36.131	8.055	44.186			
3412 4-FC	Change GB Filters	7.00	ea	EE	8	56	1.161	2.100	0	3.261	395	3.656			
3412 4-SCANGB-	Glovebox Scan for SNM	4.994.00	cf	EE	0	799	16.464	0	0	16.464	5.609	22.073			
3412 7-EQRmvl	GB Equipment Removal	7.00	ea	EE	802	5.611	117.046	0	0	117.046	39.875	156.921			
3602 1-GLV	Glovebox Readiness	59.00	each	EE	1	78	1.757	3.166	0	4.923	599	5.522			
3602 1-SCOScan	GB SCO Scans	1.476.00	cf	EE	0	273	6.989	3.690	0	10.679	2.381	13.059			
3602 4-FC	Change GB Filters	5.00	ea	EE	8	40	829	1.500	0	2.329	282	2.612			
3602 4-SCANGB	Glovebox Scan for SNM	1.476.00	cf	EE	0	236	4.866	0	0	4.866	1.658	6.524			
3602 7-EQRmvl	GB Equipment Removal	5.00	ea	EE	802	4.008	83.605	0	0	83.605	28.482	112.087			
All Set 8 GB LSE	Remove Loose Equipment, trash, etc. from GB	4.00	dav	EE	36	144	3.206	203	0	3.409	1.092	4.501			
SET8 4-OrLQ	Drain Oroanic Liquids	10.00	ea	EE	28	277	5.765	10	0	5.775	1.964	7.740			
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	220.319	220.319	0	220.319			
Total for Activity 1AQ31ST008:							28.064	624.898	56.301	220.319	901.518	212.887	1.114.405		

**Line Item Set 8 Prep - Prep Sets for Deactivation of B371**

<b>BOE</b>	Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.
	Experience Item Desc - Preliminary Walkdowns will be conducted in each area of every set to determine current configuration of equipment and room. This activity includes all necessary preliminary evaluations, walkdown of drawings, and preparing documentation required to perform work in each set. Documentation includes, but is not limited to, Criticality Safety Operating Limits, Radiation Work Permit, Integrated Work Control Package, and Engineering Package. This line item also contains the scope for performing Engineering Design Packages (EDP) for the removal of the internal components for a glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed.
	Breakdown of Cost Data: Item - Preliminary Evaluation, walkdown of drawings, and documentation preparation. Units - per set Unit Cost - 1955 hrs \$14,750 - Subcontractor Costs Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	50.00	Hours
Factors	50	hrs to assist with area walkdowns				
750	STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	50.00	Hours
Factors	50	hrs of Nuclear Safety Support for BIO				
750	STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	600.00	Hours
Factors	600	average hours for an intricate CSOL				
750	STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
Factors	40	hrs to assist with BIO page changes				
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	1.075.00	Hours
Factors	1075	hrs drawing walkdown, IWCP				
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
Factors	40	hours to support this activity				
750	STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	50.00	Hours
Factors	50	hrs to assist with IWCP preparation				
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	50.00	Hours
Factors	50	hours to support this activity				
A57	LATA	P070 COST ESTIMATORS PLANNERS AN	SA01S SSOC 371 Closure Project	Linear	9.000.00	Dollars
Factors	1	ea 120 hrs to develop and complete an	75 \$/hour			

WBS No: 1AAC  
 Activity ID: 1AQ31ST008

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

A57	LATA	P160	TECHNICAL WRITERS AND EDITOR	SA01S	SSOC 371 Closure Project	Linear	3,750.00	Dollars
Factors	75 \$/hr		1 ea		50 hours procedure support for changes			
A5C	SUPPLIES	0000	NONE	SA01S	SSOC 371 Closure Project	Linear	2,000.00	Dollars
Factors	2000 misc. lighting, cans. & bags		1 ea					

**Line Item 3321 5-DP - Disconnect Pumps/Disposition Liquid**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Disconnect and drain liquid from pumps inside glovebox. There can be multiple pumps in each glovebox. Each pump takes approximately 4.5 hours to prep, drain, and disposition liquid. This estimate does not include the time and cost for pump removal. Pumps will be removed during Decommissioning when the glovebox is cut up and packaged for removal.

Breakdown of Cost Data:  
 Item - Disconnect and Drain each pump inside glovebox  
 Units - cost/pump  
 Unit Cost - 22.5 hours  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	9.00	Hours
Factors	2 Maintenance Pipefitters			4.5 hrs/pump	
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	9.00	Hours
Factors	4.5 hours per pump			2 Process Specialists	
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	4.50	Hours
Factors	1 Process Specialist Supervisor			4.5 hours per day	

**Line Item 3323 1-GLV - Glovebox Readiness**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.03	Hours
Factors	0.0167 factor for 60gloves/drum			2 people to operate drum counter	
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.68	Hours
Factors	2 Process Specialists			1 glove	0.34 hours per glove (20 min/glove)
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.34	Hours
Factors	0.34 hrs/glove (20 minutes/glove)				
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.27	Hours
Factors	1 glove			1 RCT	0.27 hrs per glove (20 min/glove)
A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	53.00	Dollars
Factors	53 \$/glove based on 30 mm glove				
A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	0.67	Dollars
Factors	0.0167 factor for 60 gloves/drum			40 \$/supplies (includes tape, bags,	

**Line Item 3323 1-SCOScan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or

WBS No: 1AAC  
 Activity ID: 1AQ31ST008

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

fixing for SCO disposal.

Breakdown of Cost Data:

Item - Perform a radiological survey of a cleaned up and empty glove box

Unit -Per glove box

Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
	<i>Factors</i> 1 Rad Ons Foreman	0.05 hrs/CF of GB				
	750 STRAIGHT TIME BASE	P080 HEALTH PHYSICISTS	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
	<i>Factors</i> 1 Rad Eng	0.045 hrs/cf of GB				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.09	Hours
	<i>Factors</i> 2 RCTs	0.045 hrs/CF of GB				
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	2.50	Dollars
	<i>Factors</i> 2.5	\$/CF to replace/calibrate heads				

**Line Item 3323 4-FC - Change GB Filters**

**BOE** Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

Breakdown of cost item

Item - glove box filter change

Unit - per filter

Unit Cost -

Unit Cost Adjustment Factor -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
	<i>Factors</i> 2 Process Specialists	2 hrs/filter	2 filters/GB			
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	300.00	Dollars
	<i>Factors</i> 150	\$/filter (incls. Filter, drum, tape, bags 2 filters/GB				

**Line Item 3323 4-SCANGB - Glovebox Scan for SNM**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.

Breakdown of Cost Data:

Item - Scan glovebox for SNM removal

Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.

Unit Cost - .16 hrs/cubic foot

Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.08	Hours
	<i>Factors</i> 2 scans, one prior to removal, second	0.04 hours/cf of glovebox				
	750 STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KA70H 371 Facility Disposition Steelworkers	Linear	0.08	Hours
	<i>Factors</i> 0.04	hours per cubic foot of glovebox 1 technician	2 Scans, one prior to removal, second			

WBS No: 1AAC  
 Activity ID: 1AQ31ST008

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

**Line Item 3323 5-DP - Disconnect Pumps/Disposition Liquid**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Disconnect and drain liquid from pumps inside glovebox. There can be multiple pumps in each glovebox. Each pump takes approximately 4.5 hours to prep, drain, and disposition liquid. This estimate does not include the time and cost for pump removal. Pumps will be removed during Decommissioning when the glovebox is cut up and packaged for removal.  
 Breakdown of Cost Data:  
 Item - Disconnect and Drain each pump inside glovebox  
 Units - cost/pump  
 Unit Cost - 22.5 hours  
 Unit Cost Adjustment factor - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	9.00	Hours
<i>Factors</i>		4.5 hrs/pump	2 Maintenance Pipefitters				
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	9.00	Hours
<i>Factors</i>		4.5 hours per pump	2 Process Specialists				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	4.50	Hours
<i>Factors</i>		1 Process Specialist Supervisor	4.5 hours per day				

**Line Item 3323 7-EQRmvl - GB Equipment Removal GB 54**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.  
 Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.  
 Breakdown of Cost Data:  
 Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1,416.80	Hours
<i>Factors</i>		35.42 hrs/piece of equipment	8 pieces of equipment /std GB	5 times difficulty factor			
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1,416.00	Hours
<i>Factors</i>		8.85 hrs/piece of equipment	4 Cuts per piece of equipment	5 times difficulty factor	8 ea equip		
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	8.40	Hours
<i>Factors</i>		0.21 hrs/piece of equipment	8 pieces of equipment /std GB	5 times difficulty factor			
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
<i>Factors</i>		0.05 hrs/piece of equipment	4 Cuts per piece of equipment	5 times difficulty factor	8 ea equip		
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.40	Hours
<i>Factors</i>		0.21 hrs/piece of equipment	8 pieces of equipment /std GB	5 times difficulty factor			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
<i>Factors</i>		0.05 hrs/piece of equipment	4 Cuts per piece of equipment	5 times difficulty factor	8 ea equip		
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	566.80	Hours
<i>Factors</i>		14.17 hrs/piece of equipment	8 pieces of equipment /std GB	5 times difficulty factor			

WBS No: 1AAC  
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**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	566.40	Hours	
<i>Factors</i>		3.54	hrs/piece of equipment	4	Cuts per piece of equipment	5	times difficulty factor	8	ea equip
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	4.40	Hours	
<i>Factors</i>		0.11	hrs/piece of equipment	8	pieces of equipment /std GB	5	times difficulty factor		
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	4.80	Hours	
<i>Factors</i>		0.03	hrs/piece of equipment	4	Cuts per piece of equipment	5	times difficulty factor	8	ea equip

**Line Item 3335 1-GLV - Glovebox Readiness**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.  
 Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.68	Hours
<i>Factors</i>		1 glove	0.34 hours per glove (20 min/glove)	2	Process Specialists
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.03	Hours
<i>Factors</i>		2 people to operate drum counter	0.0167 factor for 60gloves/drum		
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.34	Hours
<i>Factors</i>		0.34 hrs/glove (20 minutes/glove)			
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.27	Hours
<i>Factors</i>		0.27 hrs per glove (20 min/glove)	1 glove	1	RCT
A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	0.67	Dollars
<i>Factors</i>		0.0167 factor for 60 gloves/drum	40 \$/supplies (includes tape, bags)		
A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	53.00	Dollars
<i>Factors</i>		53 \$/glove based on 30 mm glove			

**Line Item 3335 1-SCOScan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.  
 Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.  
 Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box  
 Unit Cost -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i>		1 Rad Ops Foreman	0.05 hrs/CF of GB		
750 STRAIGHT TIME BASE	P080 HEALTH PHYSICISTS	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i>		1 Rad Eng	0.045 hrs/cf of GB		
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.09	Hours
<i>Factors</i>		2 RCTs	0.045 hrs/CF of GB		

WBS No: 1AAC  
 Activity ID: 1AQ31ST008

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	2.50	Dollars
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Factors 2.5 \$/CF to replace/calibrate heads

**Line Item 3335 4-FC - Change GB Filters**

**BOE**  
 Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.  
 Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.  
 Breakdown of cost item  
 Item - glove box filter change  
 Unit - per filter  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
	Factors 2 Process Specialists	2 hrs/filter	2 filters/GB			
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	300.00	Dollars

Factors 150 \$/filter (incls. Filter. drum. tape. bags 2 filters/GB

**Line Item 3335 4-SCANB - Glovebox Scan for SNM**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.  
 Breakdown of Cost Data:  
 Item - Scan glovebox for SNM removal  
 Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.  
 Unit Cost - .16 hrs/cubic foot  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.08	Hours
	Factors 2 scans, one prior to removal, second	0.04 hours/cf of glovebox				
	750 STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KA70H 371 Facility Disposition Steelworkers	Linear	0.08	Hours
	Factors 1 technician	0.04 hours per cubic foot of glovebox	2 Scans, one prior to removal, second			

**Line Item 3335 5-DP - Disconnect Pumps/Disposition Liquid**

**BOE**  
 Estimator Experience - Larry Martella has been an integral part of plutonium processing and support operations at Rocky Flats Plant for 28 years. He has operational knowledge in Buildings 771, 776, and 371. Larry has been in the B371 Liquids Team organization since its origin. Larry defined, developed, and provided design criteria for the Caustic Waste Treatment System and continues as processing lead. Keith Cavin has been an integral part of the B371 Liquids team over the past several years. He has historical knowledge of the work performed in B371 and what is required to safely deactivate operations in B371.  
 Experience Item Desc - Disconnect and drain liquid from pumps inside glovebox. There can be multiple pumps in each glovebox. Each pump takes approximately 6.5 hours to prep, drain, and disposition liquid. This estimate does not include the time and cost for pump removal. Pumps will be removed during Decommissioning when the glovebox is cut up and packaged for removal.  
 Breakdown of Cost Data:  
 Item - Disconnect and Drain each pump inside glovebox  
 Units - cost/pump  
 Unit Cost - 22.5 hours  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1AQ31ST008

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Linear	9.00	Hours
<i>Factors</i>		2	Maintenance Pipefitters	4.5	hrs/pump			
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	9.00	Hours
<i>Factors</i>		2	Process Specialists	4.5	hours per pump			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	4.50	Hours
<i>Factors</i>		4.5	hours per day	1	Process Specialist Supervisor			

**Line Item 3335 7-EQRmvl - GB Equipment Removal GB 52**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:  
 Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

**Resources**

<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>		<i>Curve</i>	<i>Quantity</i>	<i>Units</i>
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	1.416.00	Hours
<i>Factors</i>		8.85	hrs/piece of equipment	4	Cuts per piece of equipment	5	times difficulty factor	8 ea equip
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	1.416.80	Hours
<i>Factors</i>		35.42	hrs/piece of equipment	8	pieces of equipment /std GB	5	times difficulty factor	
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	8.40	Hours
<i>Factors</i>		0.21	hrs/piece of equipment	8	pieces of equipment /std GB	5	times difficulty factor	
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
<i>Factors</i>		0.05	hrs/piece of equipment	4	Cuts per piece of equipment	5	times difficulty factor	8 ea equip
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.40	Hours
<i>Factors</i>		0.21	hrs/piece of equipment	8	pieces of equipment /std GB	5	times difficulty factor	
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
<i>Factors</i>		0.05	hrs/piece of equipment	4	Cuts per piece of equipment	5	times difficulty factor	8 ea equip
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	566.40	Hours
<i>Factors</i>		3.54	hrs/piece of equipment	4	Cuts per piece of equipment	5	times difficulty factor	8 ea equip
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	566.80	Hours
<i>Factors</i>		14.17	hrs/piece of equipment	8	pieces of equipment /std GB	5	times difficulty factor	
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	4.80	Hours
<i>Factors</i>		0.03	hrs/piece of equipment	4	Cuts per piece of equipment	5	times difficulty factor	8 ea equip
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	4.40	Hours
<i>Factors</i>		0.11	hrs/piece of equipment	8	pieces of equipment /std GB	5	times difficulty factor	

**Line Item 3408 1-GLV - Glovebox Readiness**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:

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**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.68	Hours
<i>Factors</i>	1 glove	2 Process Specialists	0.34 hours per glove (20 min/glove)			
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.03	Hours
<i>Factors</i>	2 people to operate drum counter	0.0167 factor for 60gloves/drum				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.34	Hours
<i>Factors</i>	0.34 hrs/glove (20 minutes/glove)					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.27	Hours
<i>Factors</i>	1 glove	0.27 hrs per glove (20 min/glove)	1 RCT			
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	0.67	Dollars
<i>Factors</i>	40 \$/supplies (includes tape, bags,	0.0167 factor for 60 gloves/drum				
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	53.00	Dollars
<i>Factors</i>	53 \$/glove based on 30 mm glove					

**Line Item 3408 1-SCOsan - GB SCO Scans**

**BOE** Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:

Item - Perform a radiological survey of a cleaned up and empty glove box

Unit -Per glove box

Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i>	1 Rad Ops Foreman	0.05 hrs/CF of GB				
	750 STRAIGHT TIME BASE	P080 HEALTH PHYSICISTS	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i>	1 Rad Eng	0.045 hrs/cf of GB				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.09	Hours
<i>Factors</i>	2 RCTs	0.045 hrs/CF of GB				
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	2.50	Dollars
<i>Factors</i>	2.5 \$/CF to replace/calibrate heads					

**Line Item 3408 4-FC - Change GB Filters**

**BOE** Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

Breakdown of cost item

Item - glove box filter change

Unit - per filter

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 Activity ID: 1AQ31ST008

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Unit Cost -  
 Unit Cost Adjustment Factor -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i>	2 Process Specialists	2 hrs/filter	2 filters/GB			
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	300.00	Dollars
<i>Factors</i>	150 \$/filter (incls. Filter, drum, tape, bags	2 filters/GB				

**Line Item 3408 4-SCANGB - Glovebox Scan for SNM**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.

Breakdown of Cost Data:  
 Item - Scan glovebox for SNM removal  
 Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.  
 Unit Cost - .16 hrs/cubic foot  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.08	Hours
<i>Factors</i>	0.04 hours/cf of glovebox	2 scans, one prior to removal, second				
	750 STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KA70H 371 Facility Disposition Steelworkers	Linear	0.08	Hours
<i>Factors</i>	1 technician	0.04 hours per cubic foot of glovebox	2 Scans, one prior to removal, second			

**Line Item 3408 5-FRN - Calcining Furnaces in Gloveboxes**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Dismantle as necessary calcining furnace in glovebox and remove the SNM hold-up. The material will be placed in an approved container and properly stored. This estimate does not include processing of SNM hold-up through PuSPS. Calorimetry cost is not included here. Dismantlement to remove SNM hold-up assumes that all liquid was previously drained out of the cooling coils during a separate activity; therefore, cost to drain cooling coils is not captured in this activity. Complete dismantlement and removal of equipment is not included in this estimate. Dismantlement and removal is included in Decommissioning.

Breakdown of Cost Data:  
 Item - Dismantle as necessary and remove SNM hold-up.  
 Units - per furnace  
 Unit Cost - 12 hours/furnace in Glovebox  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	2.00	Hours
<i>Factors</i>	2 hrs/furnace					
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	4.00	Hours
<i>Factors</i>	2 process specialists	2 hours per calcining furnace				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.00	Hours
<i>Factors</i>	1 hour per calcining furnace	1 RCT supervisor				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.00	Hours
<i>Factors</i>	1 Process Specialist Supervisor	1 hour per day				
	750 STRAIGHT TIME BASE	P140 SAFEGUARDS AND OTHER SECURI	SA01S SSOC 371 Closure Project	Linear	2.00	Hours
<i>Factors</i>	2 hrs support of SNM removal					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	2.00	Hours
<i>Factors</i>	1 RCT	2 hrs per furnace				

**Line Item 3408 7-EQRmvl - GB Equipment Removal**

**BOE** Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for

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 Activity ID: 1AQ31ST008

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**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

Item - Perform glove box internal equipment removal

Unit - Equipment pieces per glove box

Unit Cost -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.36	Hours
<i>Factors</i> 35.42 hrs/piece of equipment 8 pieces of equipment /std GB					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.20	Hours
<i>Factors</i> 8.85 hrs/piece of equipment 4 Cuts per piece of equipment 8 ea					
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i> 0.21 hrs/piece of equipment 8 pieces of equipment /std GB					
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.60	Hours
<i>Factors</i> 0.05 hrs/piece of equipment 4 Cuts per piece of equipment 8 ea					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i> 0.21 hrs/piece of equipment 8 pieces of equipment /std GB 1 Rad Ops Foreman					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.60	Hours
<i>Factors</i> 0.05 hrs/piece of equipment 4 Cuts per piece of equipment 8 ea					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.36	Hours
<i>Factors</i> 14.17 hrs/piece of equipment 8 pieces of equipment /std GB					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.28	Hours
<i>Factors</i> 3.54 hrs/piece of equipment 4 Cuts per piece of equipment 8 ea					
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.88	Hours
<i>Factors</i> 0.11 hrs/piece of equipment 8 pieces of equipment /std GB					
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.96	Hours
<i>Factors</i> 0.03 hrs/piece of equipment 4 Cuts per piece of equipment 8 ea					

**Line Item 3412 1-GLV - Glovebox Readiness**

**BOE**

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:

Item - Time and supply cost to replace each glove.

Unit - per glove

Unit Cost - 1 hr

Unit - per glove

Unit Cost - \$54.00

Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.03	Hours
<i>Factors</i> 0.0167 factor for 60gloves/drum 2 people to operate drum counter					

WBS No: 1AAC  
 Activity ID: 1AQ31ST008

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	0.68	Hours
<i>Factors</i>		1	glove	2	Process Specialists	0.34	hours per glove (20 min/glove)	
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.34	Hours
<i>Factors</i>		0.34	hrs/glove (20 minutes/glove)					
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.27	Hours
<i>Factors</i>		1	glove	0.27	hrs per glove (20 min/glove)	1	RCT	
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	0.67	Dollars
<i>Factors</i>		0.0167	factor for 60 gloves/drum	40	\$/supplies (includes tape, bags,			
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	53.00	Dollars
<i>Factors</i>		53	\$/glove based on 30 mm glove					

**Line Item 3412 1-SCOsCan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box  
 Unit Cost -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i>		1 Rad Ops Foreman	0.05	hrs/CF of GB	
750 STRAIGHT TIME BASE	P080 HEALTH PHYSICISTS	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i>		1 Rad Eng	0.045	hrs/cf of GB	
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.09	Hours
<i>Factors</i>		2 RCTs	0.045	hrs/CF of GB	
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	2.50	Dollars
<i>Factors</i>		2.5	\$/CF to replace/calibrate heads		

**Line Item 3412 4-FC - Change GB Filters**

**BOE**  
 Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

Breakdown of cost item  
 Item - glove box filter change  
 Unit - per filter  
 Unit Cost -  
 Unit Cost Adjustment Factor -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i>		2 Process Specialists	2	hrs/filter	2 filters/GB

WBS No: 1AAC  
 Activity ID: 1AQ31ST008

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	300.00	Dollars
<i>Factors</i>		150	\$/filter (incls. Filter, drum, tape, bags 2 filters/GB					

**Line Item 3412 4-SCANGB - Glovebox Scan for SNM**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.

Breakdown of Cost Data:  
 Item - Scan glovebox for SNM removal  
 Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.  
 Unit Cost - .16 hrs/cubic foot  
 Unit Cost Adjustment factor - N/A

<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>		<i>Curve</i>	<i>Quantity</i>	<i>Units</i>
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	B371 Complex Steelworkers	Linear	0.08	Hours
<i>Factors</i>		0.04	hours/cf of glovebox	2	scans. one prior to removal, second			
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KA70H	B371 Facility Disposition Steelworkers	Linear	0.08	Hours
<i>Factors</i>		1	technician	0.04	hours per cubic foot of glovebox	2	Scans. one prior to removal, second	

**Line Item 3412 7-EQRmvl - GB Equipment Removal**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to remove all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:  
 Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>		<i>Curve</i>	<i>Quantity</i>	<i>Units</i>
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	B371 Facility Disposition Steelworkers	Linear	283.20	Hours
<i>Factors</i>		8.85	hrs/piece of equipment	4	Cuts per piece of equipment	8	ea	
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	B371 Facility Disposition Steelworkers	Linear	283.36	Hours
<i>Factors</i>		35.42	hrs/piece of equipment	8	pieces of equipment /std GB			
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i>		0.21	hrs/piece of equipment	8	pieces of equipment /std GB			
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	1.60	Hours
<i>Factors</i>		0.05	hrs/piece of equipment	4	Cuts per piece of equipment	8	ea	
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i>		0.21	hrs/piece of equipment	8	pieces of equipment /std GB	1	Rad Ops Foreman	
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	1.60	Hours
<i>Factors</i>		0.05	hrs/piece of equipment	4	Cuts per piece of equipment	8	ea	
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	B371 Complex Steelworkers	Linear	113.36	Hours
<i>Factors</i>		14.17	hrs/piece of equipment	8	pieces of equipment /std GB			

WBS No: 1AAC  
 Activity ID: 1AQ31ST008

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	113.28	Hours
<i>Factors</i>		3.54	hrs/piece of equipment	4	Cuts per piece of equipment	8	ea	
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	0.96	Hours
<i>Factors</i>		0.03	hrs/piece of equipment	4	Cuts per piece of equipment	8	ea	
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	0.88	Hours
<i>Factors</i>		0.11	hrs/piece of equipment	8	pieces of equipment /std GB			

**Line Item 3602 1-GLV - Glovebox Readiness**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.  
 Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	0.68	Hours
<i>Factors</i>		1	glove	0.34	hours per glove (20 min/glove)	2	Process Specialists	
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	0.03	Hours
<i>Factors</i>		2	people to operate drum counter	0.0167	factor for 60gloves/drum			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.34	Hours
<i>Factors</i>		0.34	hrs/glove (20 minutes/glove)					
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.27	Hours
<i>Factors</i>		0.27	hrs per glove (20 min/glove)	1	glove	1	RCT	
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	53.00	Dollars
<i>Factors</i>		53	\$/glove based on 30 mm glove					
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	0.67	Dollars
<i>Factors</i>		40	\$/supplies (includes tape, baas.	0.0167	factor for 60 gloves/drum			

**Line Item 3602 1-SCOScan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.  
 Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.  
 Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box  
 Unit Cost -

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i>		1	Rad Ops Foreman	0.05	hrs/CF of GB			
750	STRAIGHT TIME BASE	P080	HEALTH PHYSICISTS	SA01S	SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i>		1	Rad Enr	0.045	hrs/cf of GB			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.09	Hours
<i>Factors</i>		2	RCTs	0.045	hrs/CF of GB			

WBS No: 1AAC  
 Activity ID: 1AQ31ST008

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	2.50	Dollars
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Factors 2.5 \$/CF to replace/calibrate heads

**Line Item 3602 4-FC - Change GB Filters**

**BOE**  
 Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.  
 Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.  
 Breakdown of cost item  
 Item - glove box filter change  
 Unit - per filter  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	8.00 Hours
Factors		2	Process Specialists	2	hrs/filter	2	filters/GB
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	300.00 Dollars

Factors 150 \$/filter (incls. Filter. drum. tape. baas 2 filters/GB

**Line Item 3602 4-SCANGB - Glovebox Scan for SNM**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.  
 Breakdown of Cost Data:  
 Item - Scan glovebox for SNM removal  
 Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.  
 Unit Cost - .16 hrs/cubic foot  
 Unit Cost Adjustment factor - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.08 Hours
Factors		0.04	hours/cf of glovebox	2	scans. one prior to removal. second		
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KA70H	371 Facility Disposition Steelworkers	Linear	0.08 Hours
Factors		0.04	hours per cubic foot of glovebox	2	Scans. one prior to removal. second	1	technician

**Line Item 3602 7-EQRmvl - GB Equipment Removal**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.  
 Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.  
 Breakdown of Cost Data:  
 Item - Perform glove box internal equipment removal

WBS No: 1AAC  
 Activity ID: 1AQ31ST008

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Unit - Equipment pieces per glove box  
 Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.36	Hours
	Factors 35.42 hrs/piece of equipment	8 pieces of equipment /std GB				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.20	Hours
	Factors 8.85 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
	Factors 0.21 hrs/piece of equipment	8 pieces of equipment /std GB				
	750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.60	Hours
	Factors 0.05 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
	Factors 0.21 hrs/piece of equipment	8 pieces of equipment /std GB	1 Rad Ops Foreman			
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.60	Hours
	Factors 0.05 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.36	Hours
	Factors 14.17 hrs/piece of equipment	8 pieces of equipment /std GB				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.28	Hours
	Factors 3.54 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
	750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.88	Hours
	Factors 0.11 hrs/piece of equipment	8 pieces of equipment /std GB				
	750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.96	Hours
	Factors 0.03 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			

**Line Item All Set 8 GB LSE - Remove Loose Equipment, trash, etc. from GB**

<b>BOE</b>	Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.					
	Experience Item Desc - All loose equipment, trash, etc. will be removed from each glovebox in order to stripcoat the glovebox. Amount removed from each glovebox will vary. Cubic foot/glovebox is used to estimate average amount of equipment to be removed. Necessary supplies include, but are not limited to: Drums @ \$35/drum, 2" rolls of yellow tape @ \$2.50/roll, Bag-out bags @ \$14/bag for a 10X96 bag, 18X24 waste bag/bag cut @ .25/bag (for loose equipment removed).					
	Breakdown of Cost Data: Item - Removal of loose equipment, trash, etc., place in drum and count drum Units - per day to clean out glovebox Unit Cost - 36 hrs/day \$50/day supply cost Unit Cost Adjustment factor - N/A					

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
	Factors 4 hr/day	2 fte to operate drum counter				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	16.00	Hours
	Factors 2 fte/day	8 hr/day				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
	Factors 8 hrs/day					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	4.00	Hours
	Factors 4 hrs/day					
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	50.75	Dollars
	Factors 1.015 -- FY00 Escalation --	50 supply dollars per day(includes				

**Line Item SET8 4-OrLQ - Drain Organic Liquids**

<b>BOE</b>	Estimator's Experience - Estimate based on similar tasks from glove box equipment disassembly work done during liquid draining operations.					
	Experience Item Description-Some pumps and equipment inside gloveboxes have lubricating oils and greases that have not been removed. Waste stream requirements dictate that these be segregated and handled separately from non-organic waste streams. This line item is to disassemble a piece of glove box equipment containing such organic, drain and/or remove the lubricant and clean up the piece of equipment as possible.					

WBS No: 1AAC  
 Activity ID: 1AQ31ST008

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Breakdown of cost item  
 Item - remove lubricants from glove box equipment  
 Unit - per piece of equipment  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	19.00	Hours
Factors	2	D&D Skilled Trades	9.5 hrs/piece of equipment			
750	STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.10	Hours
Factors	1	Rad.Ops Foreman	0.1 hrs/piece of equipment			
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	7.60	Hours
Factors	1	RCT	7.6 hrs/piece of equipment			
750	STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	1.00	Hours
Factors	1	Laboratory Tech	1 hrs/piece of equipment			
A5C	SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	1.00	Dollars
Factors	1	\$/equipment cost of storage bottle for				

**Line Item SYS - Contingency And Escalation**

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
CON	CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	151.435.10	Dollars
Factors	151435	Dollars				
ESC	ESCALATION	0000 NONE	ZDEPT No Department	Linear	68.884.16	Dollars
Factors	68884.2	Dollars				

Activity ID: 1AQ31ST009 Description: Set 9 B371 Office/Maint/Cold Lab - Deactivation

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
Set Prep	Prep Sets for Deactivation of B371	1.00	each	EE	2	2	55	0	0	55	19	74
3043 3-OFF	Deactivation of Office Areas in B371	1.00	each	EE	33	33	793	84	0	877	274	1,152
3044 3-OFF	Deactivation of Office Areas in B371	1.00	each	EE	33	33	793	84	0	877	274	1,152
3083 3-OFF	Deactivation of Office Areas in B371	1.00	each	EE	32	32	772	84	0	856	267	1,124
3148 3-MAINT	Deactivation of Maint. Area in B374	1.00	each	EE	278	278	5,896	0	0	5,896	2,040	7,936
3505 3-OFF	Deactivation of Office Areas in B371	1.00	each	EE	33	33	793	84	0	877	274	1,152
3517 3-MAINT	Deactivation of Maint. Area in B374	1.00	each	EE	130	130	2,751	0	0	2,751	952	3,703
3581 3-OFF	Deactivation of Office Areas in B371	1.00	each	EE	33	33	793	84	0	877	274	1,152
3583 3-OFF	Deactivation of Office Areas in B371	1.00	each	EE	33	33	793	84	0	877	274	1,152
3585 3-OFF	Deactivation of Office Areas in B371	1.00	each	EE	33	33	793	84	0	877	274	1,152
3587 3-OFF	Deactivation of Office Areas in B371	1.00	each	EE	33	33	793	84	0	877	274	1,152
MISC 3-OFF	Deactivation of Office Areas in B371	163.00	each	EE	33	5,346	129,282	13,692	0	142,974	44,732	187,706
SYS	Contingency And Escalation	1.00	lea	EE	0	0	0	0	58,413	58,413	0	58,413
Total for Activity 1AQ31ST009:						6.017	144,308	14,364	58,413	217,086	49,931	267,017

**Line Item Set Prep - Prep Sets for Deactivation of B371**

BOE	Description
	Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.
	Experience Item Desc - Preliminary Walkdowns by a RCT and a Radiological Engineer will be conducted in each office room to determine that there is no contamination. Upon completion of the walkdown, a letter will be completed that verify's that office areas contain no contamination and deactivation can proceed.
	Breakdown of Cost Data: Item - Preliminary Evaluation and documentation generation. Units - per room

WBS No: 1AAC  
 Activity ID: 1AQ31ST009

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Unit Cost - 1 hr/per room  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	1.00	Hours
Factors	1 hour per office	1 radiological engineer to verify no				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	1.00	Hours
Factors	1 hour per office	1 RCT to take general reading to				

**Line Item 3043 3-OFF - Deactivation of Office Areas in B371**

**BOE**  
 Estimators Experience - Estimate based upon the Disposal Cost Model developed by Kaiser-Hill Site Operations dated March 3, 1999.  
 Experience Item Desc - The scope of this activity includes the Deactivation of B371 office areas by removing all office equipment: including computer(s), desk(s), chair(s), and filing cabinet(s), conference room tables, conference chairs, etc. Any remaining documentation that may exist in file cabinets, drawers, etc. will be reviewed for proper disposition and either sent to Records Management to be archived or disposed of through the landfill. It is assumed that all office areas will be nonradioactive and will not require any additional SNM Removal. It is assumed that there will be an average of 15 items of office/computer equipment that must be removed from each office/conference room. It is assumed that PU&D will pick up the items from the B371 dock and will pay for transportation and disposition.  
 Breakdown of Cost Data:  
 Item - Remove all equipment, and disposition any remaining documentation  
 Units - hours per room  
 Unit Cost - 32.8 hours/room  
 \$4.00/room  
 Unit Cost Adjustment factor -N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	4.50	Hours
Factors	0.3 hours for readiness/removal per	15 pieces of equipment average per				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1.50	Hours
Factors	15 pieces of equipment average	0.1 hour for material handling per piece				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	3.00	Hours
Factors	0.2 hours per piece of equipment	15 pieces of equipment average per				
	750 STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	SA01S SSOC 371 Closure Project	Linear	0.80	Hours
Factors	0.2 hours for Hazard Assessment of	4 pieces of computer equipment				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	2.25	Hours
Factors	0.15 hours per item of equipment to fill out	15 pieces of equipment average per				
	750 STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	SA01S SSOC 371 Closure Project	Linear	2.00	Hours
Factors	1 project manager to review files for	2 hours per office				
	750 STRAIGHT TIME BASE	P170 OTHER ADMINISTRATIVE & PROFE	SA01S SSOC 371 Closure Project	Linear	3.75	Hours
Factors	0.25 hours per piece of equipment to	15 pieces of equipment average per				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	15.00	Hours
Factors	1 hour/swipe per equipment	15 pieces of equipment average per				
	A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	84.00	Dollars
Factors	21 \$/hr	4 hours per office	1 Document Control person			

**Line Item 3044 3-OFF - Deactivation of Office Areas in B371**

**BOE**  
 Estimators Experience - Estimate based upon the Disposal Cost Model developed by Kaiser-Hill Site Operations dated March 3, 1999.  
 Experience Item Desc - The scope of this activity includes the Deactivation of B371 office areas by removing all office equipment: including computer(s), desk(s), chair(s), and filing cabinet(s), conference room tables, conference chairs, etc. Any remaining documentation that may exist in file cabinets, drawers, etc. will be reviewed for proper disposition and either sent to Records Management to be archived or disposed of through the landfill. It is assumed that all office areas will be nonradioactive and will not require any additional SNM Removal. It is assumed that there will be an average of 15 items of office/computer equipment that must be removed from each office/conference room. It is assumed that PU&D will pick up the items from the B371 dock and will pay for transportation and disposition.  
 Breakdown of Cost Data:  
 Item - Remove all equipment, and disposition any remaining documentation  
 Units - hours per room  
 Unit Cost - 32.8 hours/room  
 \$4.00/room  
 Unit Cost Adjustment factor -N/A  
 Revised Unit Cost - N/A

WBS No: 1AAC  
 Activity ID: 1AQ31ST009

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	3.00	Hours
<i>Factors</i> 15 pieces of equipment average per 0.2 hours per piece of equipment					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	4.50	Hours
<i>Factors</i> 15 pieces of equipment average per 0.3 hours for readiness/removal per					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1.50	Hours
<i>Factors</i> 0.1 hour for material handling per piece 15 pieces of equipment average					
750 STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	SA01S SSOC 371 Closure Project	Linear	0.80	Hours
<i>Factors</i> 0.2 hours for Hazard Assessment of 4 pieces of computer equipment					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	2.25	Hours
<i>Factors</i> 0.15 hours per item of equipment to fill out 15 pieces of equipment average per					
750 STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	SA01S SSOC 371 Closure Project	Linear	2.00	Hours
<i>Factors</i> 1 project manager to review files for 2 hours per office					
750 STRAIGHT TIME BASE	P170 OTHER ADMINISTRATIVE & PROFE	SA01S SSOC 371 Closure Project	Linear	3.75	Hours
<i>Factors</i> 15 pieces of equipment average per 0.25 hours per piece of equipment to					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	15.00	Hours
<i>Factors</i> 15 pieces of equipment average per 1 hour/swipe per equipment					
A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	84.00	Dollars
<i>Factors</i> 21 \$/hr 1 Document Control person 4 hours per office					

**Line Item 3083 3-OFF - Deactivation of Office Areas in B371**

**BOE**

Estimators Experience - Estimate based upon the Disposal Cost Model developed by Kaiser-Hill Site Operations dated March 3, 1999.  
 Experience Item Desc - The scope of this activity includes the Deactivation of B371 office areas by removing all office equipment: including computer(s), desk(s), chair(s), and filing cabinet(s), conference room tables, conference chairs, etc. Any remaining documentation that may exist in file cabinets, drawers, etc. will be reviewed for proper disposition and either sent to Records Management to be archived or disposed of through the landfill. It is assumed that all office areas will be nonradioactive and will not require any additional SNM Removal. It is assumed that there will be an average of 15 items of office/computer equipment that must be removed from each office/conference room. It is assumed that PU&D will pick up the items from the B371 dock and will pay for transportation and disposition.  
 Breakdown of Cost Data:  
 Item - Remove all equipment, and disposition any remaining documentation  
 Units - hours per room  
 Unit Cost - 32.8 hours/room  
 \$4.00/room  
 Unit Cost Adjustment factor -N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	3.00	Hours
<i>Factors</i> 0.2 hours per piece of equipment 15 pieces of equipment average per					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	4.50	Hours
<i>Factors</i> 0.3 hours for readiness/removal per 15 pieces of equipment average per					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1.50	Hours
<i>Factors</i> 0.1 hour for material handling per piece 15 pieces of equipment average per					
750 STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	SA01S SSOC 371 Closure Project	Linear	0.80	Hours
<i>Factors</i> 0.2 hours for Hazard Assessment of 4 pieces of computer equipment					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.50	Hours
<i>Factors</i> 0.15 hours per item of equipment to fill out 10 pieces of equipment average per					
750 STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	SA01S SSOC 371 Closure Project	Linear	2.00	Hours
<i>Factors</i> 1 project manager to review files for 2 hours per office					
750 STRAIGHT TIME BASE	P170 OTHER ADMINISTRATIVE & PROFE	SA01S SSOC 371 Closure Project	Linear	3.75	Hours
<i>Factors</i> 0.25 hours per piece of equipment to 15 pieces of equipment average per					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	15.00	Hours
<i>Factors</i> 1 hour/swipe per equipment 15 pieces of equipment average per					
A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	84.00	Dollars
<i>Factors</i> 21 \$/hr 4 hours per office 1 Document Control person					

WBS No: 1AAC  
 Activity ID: 1AQ31ST009

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

**Line Item 3148 3-MAINT - Deactivation of Maint. Area in B374**

**BOE** Estimators Experience - Estimate based upon the Disposal Cost Model developed by Kaiser-Hill Site Operations dated March 3, 1999.

Experience Item Desc - The scope of this activity includes the Deactivation of B371 Maintenance Room 3148 by removing all equipment including: welding tables, layout tables, welding machines, etc. It is assumed that this room will be nonradioactive and will not require any additional SNM Removal. It is assumed that PU&D will pick up the items from the B371 dock and will pay for transportation and disposition.

Breakdown of Cost Data:  
 Item - Remove all equipment  
 Units - hours per room  
 Unit Cost - 277.5 hours/room  
 Unit Cost Adjustment factor -N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	16.50	Hours
<i>Factors</i>		1.1	hours per piece of equipment	15	pieces of equipment		
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	210.00	Hours
<i>Factors</i>		14	hours for readiness/removal per	15	pieces of equipment		
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	7.50	Hours
<i>Factors</i>		0.5	hour for material handling per piece	15	pieces of equipment		
750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	SA01S SSOC 371 Closure Project	Linear	7.50	Hours
<i>Factors</i>		15	pieces of equipment	0.5	hours for Hazard Assessment of		
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	2.25	Hours
<i>Factors</i>		0.15	hours per item of equipment to fill out	15	pieces of equipment		
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	SA01S SSOC 371 Closure Project	Linear	3.75	Hours
<i>Factors</i>		0.25	hours per piece of equipment to	15	pieces of equipment		
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	30.00	Hours
<i>Factors</i>		2	hour/swipe per equipment	15	pieces of equipment		

**Line Item 3505 3-OFF - Deactivation of Office Areas in B371**

**BOE** Estimators Experience - Estimate based upon the Disposal Cost Model developed by Kaiser-Hill Site Operations dated March 3, 1999.

Experience Item Desc - The scope of this activity includes the Deactivation of B371 office areas by removing all office equipment: including computer(s), desk(s), chair(s), and filing cabinet(s), conference room tables, conference chairs, etc. Any remaining documentation that may exist in file cabinets, drawers, etc. will be reviewed for proper disposition and either sent to Records Management to be archived or disposed of through the landfill. It is assumed that all office areas will be nonradioactive and will not require any additional SNM Removal. It is assumed that there will be an average of 15 items of office/computer equipment that must be removed from each office/conference room. It is assumed that PU&D will pick up the items from the B371 dock and will pay for transportation and disposition.

Breakdown of Cost Data:  
 Item - Remove all equipment, and disposition any remaining documentation  
 Units - hours per room  
 Unit Cost - 32.8 hours/room  
 \$4.00/room  
 Unit Cost Adjustment factor -N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1.50	Hours
<i>Factors</i>		0.1	hour for material handling per piece	15	pieces of equipment average		
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	4.50	Hours
<i>Factors</i>		0.3	hours for readiness/removal per	15	pieces of equipment average per		
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	3.00	Hours
<i>Factors</i>		0.2	hours per piece of equipment	15	pieces of equipment average per		
750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	SA01S SSOC 371 Closure Project	Linear	0.80	Hours
<i>Factors</i>		0.2	hours for Hazard Assessment of	4	pieces of computer equipment		
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	2.25	Hours
<i>Factors</i>		15	pieces of equipment average per	0.15	hours per item of equipment to fill out		

WBS No: 1AAC  
 Activity ID: 1AQ31ST009

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

750	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	SA01S	SSOC 371 Closure Project	Linear	2.00	Hours
<i>Factors</i> 1 project manager to review files for 2 hours per office								
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	SA01S	SSOC 371 Closure Project	Linear	3.75	Hours
<i>Factors</i> 0.25 hours per piece of equipment to 15 pieces of equipment average per								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	15.00	Hours
<i>Factors</i> 1 hour/swipe per equipment 15 pieces of equipment average per								
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	84.00	Dollars
<i>Factors</i> 21 \$/hr 1 Document Control person 4 hours per office								

**Line Item 3517 3-MAINT - Deactivation of Maint. Area in B374**

**BOE** Estimators Experience - Estimate based upon the Disposal Cost Model developed by Kaiser-Hill Site Operations dated March 3, 1999.

Experience Item Desc - The scope of this activity includes the Deactivation of B371 Maintenance Room 3157 by removing all equipment including: lathes, band saws, drill/arbor presses, mills, grinders, etc. It is assumed that this room will be nonradioactive and will not require any additional SNM Removal. It is assumed that PU&D will pick up the items from the B371 dock and will pay for transportation and disposition.

Breakdown of Cost Data:  
 Item - Remove all equipment  
 Units - hours per room  
 Unit Cost - 129.5 hours/room  
 Unit Cost Adjustment factor -N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	98.00	Hours
<i>Factors</i> 14 hours for readiness/removal per 7 pieces of equipment								
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	7.70	Hours
<i>Factors</i> 7 pieces of equipment 1.1 hours per piece of equipment								
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	3.50	Hours
<i>Factors</i> 0.5 hour for material handling per piece 7 pieces of equipment								
750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	3.50	Hours
<i>Factors</i> 0.5 hours for Hazard Assessment of 7 pieces of equipment								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	1.05	Hours
<i>Factors</i> 0.15 hours per item of equipment to fill out 7 pieces of equipment								
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	SA01S	SSOC 371 Closure Project	Linear	1.75	Hours
<i>Factors</i> 0.25 hours per piece of equipment to 7 pieces of equipment								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	14.00	Hours
<i>Factors</i> 2 hour/swipe per equipment 7 pieces of equipment								

**Line Item 3581 3-OFF - Deactivation of Office Areas in B371**

**BOE** Estimators Experience - Estimate based upon the Disposal Cost Model developed by Kaiser-Hill Site Operations dated March 3, 1999.

Experience Item Desc - The scope of this activity includes the Deactivation of B371 office areas by removing all office equipment: including computer(s), desk(s), chair(s), and filing cabinet(s), conference room tables, conference chairs, etc. Any remaining documentation that may exist in file cabinets, drawers, etc. will be reviewed for proper disposition and either sent to Records Management to be archived or disposed of through the landfill. It is assumed that all office areas will be nonradioactive and will not require any additional SNM Removal. It is assumed that there will be an average of 15 items of office/computer equipment that must be removed from each office/conference room. It is assumed that PU&D will pick up the items from the B371 dock and will pay for transportation and disposition.

Breakdown of Cost Data:  
 Item - Remove all equipment, and disposition any remaining documentation  
 Units - hours per room  
 Unit Cost - 26.8 hours/room  
 Unit Cost Adjustment factor -N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

	Cost Element		Skill		Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	3.00	Hours
<i>Factors</i> 0.2 hours per piece of equipment 15 pieces of equipment average per								

WBS No: 1AAC  
 Activity ID: 1AQ31ST009

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	4.50	Hours
<i>Factors</i>		15	pieces of equipment average per	0.3	hours for readiness/removal per			
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	1.50	Hours
<i>Factors</i>		0.1	hour for material handling per piece	15	pieces of equipment average			
750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	0.80	Hours
<i>Factors</i>		4	pieces of computer equipment	0.2	hours for Hazard Assessment of			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	2.25	Hours
<i>Factors</i>		0.15	hours per item of equipment to fill out	15	pieces of equipment average per			
750	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	SA01S	SSOC 371 Closure Project	Linear	2.00	Hours
<i>Factors</i>		1	project manager to review files for	2	hours per office			
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	SA01S	SSOC 371 Closure Project	Linear	3.75	Hours
<i>Factors</i>		0.25	hours per piece of equipment to	15	pieces of equipment average per			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	15.00	Hours
<i>Factors</i>		1	hour/swipe per equipment	15	pieces of equipment average per			
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	84.00	Dollars
<i>Factors</i>		21	\$/hr	4	hours per office	1	Document Control person	

**Line Item 3583 3-OFF - Deactivation of Office Areas in B371**

**BOE**  
 Estimators Experience - Estimate based upon the Disposal Cost Model developed by Kaiser-Hill Site Operations dated March 3, 1999.  
 Experience Item Desc - The scope of this activity includes the Deactivation of B371 office areas by removing all office equipment: including computer(s), desk(s), chair(s), and filing cabinet(s), conference room tables, conference chairs, etc. Any remaining documentation that may exist in file cabinets, drawers, etc. will be reviewed for proper disposition and either sent to Records Management to be archived or disposed of through the landfill. It is assumed that all office areas will be nonradioactive and will not require any additional SNM Removal. It is assumed that there will be an average of 15 items of office/computer equipment that must be removed from each office/conference room. It is assumed that PU&D will pick up the items from the B371 dock and will pay for transportation and disposition.  
 Breakdown of Cost Data:  
 Item - Remove all equipment, and disposition any remaining documentation  
 Units - hours per room  
 Unit Cost - 32.8 hours/room  
 \$4.00/room  
 Unit Cost Adjustment factor - N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

	<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>	<i>Curve</i>	<i>Quantity</i>	<i>Units</i>
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	1.50	Hours
<i>Factors</i>		0.1	hour for material handling per piece	15	pieces of equipment average			
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	4.50	Hours
<i>Factors</i>		0.3	hours for readiness/removal per	15	pieces of equipment average per			
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	3.00	Hours
<i>Factors</i>		0.2	hours per piece of equipment	15	pieces of equipment average per			
750	STRAIGHT TIME BASE	E120	SAFETY ENGINEERS	SA01S	SSOC 371 Closure Project	Linear	0.80	Hours
<i>Factors</i>		0.2	hours for Hazard Assessment of	4	pieces of computer equipment			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	2.25	Hours
<i>Factors</i>		0.15	hours per item of equipment to fill out	15	pieces of equipment average per			
750	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	SA01S	SSOC 371 Closure Project	Linear	2.00	Hours
<i>Factors</i>		1	project manager to review files for	2	hours per office			
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	SA01S	SSOC 371 Closure Project	Linear	3.75	Hours
<i>Factors</i>		0.25	hours per piece of equipment to	15	pieces of equipment average per			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	15.00	Hours
<i>Factors</i>		1	hour/swipe per equipment	15	pieces of equipment average per			
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	84.00	Dollars
<i>Factors</i>		21	\$/hr	4	hours per office	1	Document Control person	

**Line Item 3585 3-OFF - Deactivation of Office Areas in B371**

**BOE**  
 Estimators Experience - Estimate based upon the Disposal Cost Model developed by Kaiser-Hill Site Operations dated March 3, 1999.  
 Experience Item Desc - The scope of this activity includes the Deactivation of B371 office areas by removing all office equipment: including computer(s), desk(s), chair(s), and filing cabinet(s), conference room tables, conference chairs, etc. Any remaining documentation that may exist in file

WBS No: 1AAC  
 Activity ID: 1AQ31ST009

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

cabinets, drawers, etc. will be reviewed for proper disposition and either sent to Records Management to be archived or disposed of through the landfill. It is assumed that all office areas will be nonradioactive and will not require any additional SNM Removal. It is assumed that there will be an average of 15 items of office/computer equipment that must be removed from each office/conference room. It is assumed that PU&D will pick up the items from the B371 dock and will pay for transportation and disposition.

Breakdown of Cost Data:  
 Item - Remove all equipment, and disposition any remaining documentation  
 Units - hours per room  
 Unit Cost - 32.8 hours/room  
 \$4.00/room  
 Unit Cost Adjustment factor -N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	3.00	Hours
Factors 0.2	hours per piece of equipment	15 pieces of equipment average per			
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	4.50	Hours
Factors 0.3	hours for readiness/removal per	15 pieces of equipment average per			
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1.50	Hours
Factors 0.1	hour for material handling per piece	15 pieces of equipment average			
750 STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	SA01S SSOC 371 Closure Project	Linear	0.80	Hours
Factors 0.2	hours for Hazard Assessment of	4 pieces of computer equipment			
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	2.25	Hours
Factors 0.15	hours per item of equipment to fill out	15 pieces of equipment average per			
750 STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	SA01S SSOC 371 Closure Project	Linear	2.00	Hours
Factors 1	project manager to review files for	2 hours per office			
750 STRAIGHT TIME BASE	P170 OTHER ADMINISTRATIVE & PROFE	SA01S SSOC 371 Closure Project	Linear	3.75	Hours
Factors 0.25	hours per piece of equipment to	15 pieces of equipment average per			
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	15.00	Hours
Factors 15	pieces of equipment average per	1 hour/swipe per equipment			
A5H SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	84.00	Dollars
Factors 4	hours per office	21 \$/hr			
		1 Document Control person			

**Line Item 3587 3-OFF - Deactivation of Office Areas in B371**

**BOE**

Estimators Experience - Estimate based upon the Disposal Cost Model developed by Kaiser-Hill Site Operations dated March 3, 1999.

Experience Item Desc - The scope of this activity includes the Deactivation of B371 office areas by removing all office equipment: including computer(s), desk(s), chair(s), and filing cabinet(s), conference room tables, conference chairs, etc. Any remaining documentation that may exist in file cabinets, drawers, etc. will be reviewed for proper disposition and either sent to Records Management to be archived or disposed of through the landfill. It is assumed that all office areas will be nonradioactive and will not require any additional SNM Removal. It is assumed that there will be an average of 15 items of office/computer equipment that must be removed from each office. It is assumed that PU&D will pick up the items from the B371 dock and will pay for transportation and disposition.

Breakdown of Cost Data:  
 Item - Remove all equipment, and disposition any remaining documentation  
 Units - hours per room  
 Unit Cost - 32.8 hours/room  
 \$4.00/room  
 Unit Cost Adjustment factor -N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	3.00	Hours
Factors 0.2	hours per piece of equipment	15 pieces of equipment average per			
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1.50	Hours
Factors 0.1	hour for material handling per piece	15 pieces of equipment average			
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	4.50	Hours
Factors 0.3	hours for readiness/removal per	15 pieces of equipment average per			
750 STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	SA01S SSOC 371 Closure Project	Linear	0.80	Hours
Factors 4	pieces of computer equipment	0.2 hours for Hazard Assessment of			

WBS No: 1AAC  
 Activity ID: 1AQ31ST009

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	2.25	Hours
<i>Factors</i> 0.15 hours per item of equipment to fill out 15 pieces of equipment average per								
750	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	SA01S	SSOC 371 Closure Project	Linear	2.00	Hours
<i>Factors</i> 1 project manager to review files for 2 hours per office								
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	SA01S	SSOC 371 Closure Project	Linear	3.75	Hours
<i>Factors</i> 0.25 hours per piece of equipment to 15 pieces of equipment average per								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLIGI	KA10H	371 Complex Steelworkers	Linear	15.00	Hours
<i>Factors</i> 1 hour/swipe per equipment 15 pieces of equipment average per								
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	84.00	Dollars
<i>Factors</i> 21 \$/hr 1 Document Contol person 4 hours per office								

**Line Item MISC 3-OFF - Deactivation of Office Areas in B371**

BOE

Estimators Experience - Estimate based upon the Disposal Cost Model developed by Kaiser-Hill Site Operations dated March 3, 1999.  
 Experience Item Desc - The scope of this activity includes the Deactivation of B371 office areas by removing all office equipment: including computer(s), desk(s), chair(s), and filing cabinet(s), conference room tables, conference chairs, etc. Any remaining documentation that may exist in file cabinets, drawers, etc. will be reviewed for proper disposition and either sent to Records Management to be archived or disposed of through the landfill. It is assumed that all office areas will be nonradioactive and will not require any additional SNM Removal. It is assumed that there will be an average of 15 items of office/computer equipment that must be removed from each office. It is assumed that PU&D will pick up the items from the B371 dock and will pay for transportation and disposition.  
 Breakdown of Cost Data:  
 Item - Remove all equipment, and disposition any remaining documentation  
 Units - hours per room  
 Unit Cost - 32.8 hours/room  
 \$4.00/room  
 Unit Cost Adjustment factor -N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

Resources

Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1.50 Hours
<i>Factors</i> 15 pieces of equipment average 0.1 hour for material handling per piece					
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	4.50 Hours
<i>Factors</i> 15 pieces of equipment average per 0.3 hours for readiness/removal per					
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	3.00 Hours
<i>Factors</i> 15 pieces of equipment average per 0.2 hours per piece of equipment					
750	STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	SA01S SSOC 371 Closure Project	Linear	0.80 Hours
<i>Factors</i> 4 pieces of computer equipment 0.2 hours for Hazard Assessment of					
750	STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	2.25 Hours
<i>Factors</i> 15 pieces of equipment average per 0.15 hours per item of equipment to fill out					
750	STRAIGHT TIME BASE	M020 MANAGERS (GRADE 69 - 72)	SA01S SSOC 371 Closure Project	Linear	2.00 Hours
<i>Factors</i> 1 project manager to review files for 2 hours per office					
750	STRAIGHT TIME BASE	P170 OTHER ADMINISTRATIVE & PROFE	SA01S SSOC 371 Closure Project	Linear	3.75 Hours
<i>Factors</i> 15 pieces of equipment average per 0.25 hours per piece of equipment to					
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLIGI	KA10H 371 Complex Steelworkers	Linear	15.00 Hours
<i>Factors</i> 1 hour/swipe per equipment 15 pieces of equipment average per					
A5H	SUBCONTRACTED SRVS	0000 NONE	KA70S B371 Facility Disposition	Linear	84.00 Dollars
<i>Factors</i> 21 \$/hr 4 hours per office 1 Document Control person					

**Line Item SYS - Contingency And Escalation**

BOE

Resources

Cost Element	Skill	Department	Curve	Quantity	Units
CON	CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	42.416.62 Dollars
<i>Factors</i> 42416.6 Dollars					
ESC	ESCALATION	0000 NONE	ZDEPT No Department	Linear	15.996.78 Dollars
<i>Factors</i> 15996.8 Dollars					

Activity ID: 1AQ31ST010 Description: Set 10 B371 Process/PuSPS - Deactivation

Cost Risk 3 Schedule Risk 3

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
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WBS No: 1AAC  
 Activity ID: 1AQ31ST010

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC

Activity Filter	Activity Filter	Units	Rate	Hours	Cost	Cost	Cost	Cost	Starts In FY	Cost			
Set 10 Prep	Prep Sets for Deactivation of B371	1.00	each	EE	1,955	1,955	71,432	14,750	0	86,182	24,762	110,945	
3701 1-GLV	Glovebox Readiness	262.00	each	EE	1	347	7,802	14,061	0	21,863	2,705	24,568	
3701 1-LSE	Remove Loose Equipment, trash, etc. from GB	7.00	day	EE	36	252	5,610	355	0	5,965	1,945	7,910	
3701 1-SCOscan	GB SCO Scans	5,000.00	cf	EE	0	925	23,674	12,500	0	36,174	8,207	44,381	
3701 4-FC	Change GB Filters	12.00	ea	EE	8	96	1,990	3,600	0	5,590	690	6,280	
3701 7-EQRmvl	GB Equipment Removal	8.00	ea	EE	802	6,413	133,767	0	0	133,767	46,371	180,138	
3701 7-EQRmvl1	GB Equipment Removal	4.00	ea	EE	2,405	9,619	200,651	0	0	200,651	69,556	270,207	
SET10 4-OrLQ	Drain Organic Liquids	5.00	ea	EE	28	139	2,883	5	0	2,888	999	3,887	
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	161,045	161,045	0	161,045	
Total for Activity 1AQ31ST010:							19,745	447,809	45,271	161,045	654,125	155,234	809,360

**Line Item Set 10 Prep - Prep Sets for Deactivation of B371**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Preliminary Walkdowns will be conducted in each area of every set to determine current configuration of equipment and room. This activity includes all necessary preliminary evaluations, walkdown of drawings, and preparing documentation required to perform work in each set. Documentation includes, but is not limited to, Criticality Safety Operating Limits, Radiation Work Permit, Integrated Work Control Package, and Engineering Package. This line item also contains the scope for performing Engineering Design Packages (EDP) for the removal of the internal components for a glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed.

Breakdown of Cost Data:  
 Item - Preliminary Evaluation, walkdown of drawings, and documentation preparation.  
 Units - per set  
 Unit Cost - 1955 hrs \$14,750 - Subcontractor Costs  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	50.00	Hours
Factors	50	hrs to assist with area walkdowns				
750	STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	600.00	Hours
Factors	600	average hours for an intricate CSOL				
750	STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	50.00	Hours
Factors	50	hrs of Nuclear Safety Support for BIO				
750	STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
Factors	40	hrs to assist with BIO page changes				
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	1,075.00	Hours
Factors	1075	hrs drawing walkdown, IWCP				
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
Factors	40	hours to support this activity				
750	STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	50.00	Hours
Factors	50	hrs to assist with IWCP preparation				
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	50.00	Hours
Factors	50	hours to support this activity				
A57	LATA	P070 COST ESTIMATORS PLANNERS AN	SA01S SSOC 371 Closure Project	Linear	9,000.00	Dollars
Factors	1	ea 75 \$/hour 120 hrs to develop and complete an				
A57	LATA	P160 TECHNICAL WRITERS AND EDITOR	SA01S SSOC 371 Closure Project	Linear	3,750.00	Dollars
Factors	75	\$/hr 50 hours procedure support for changes				
A5C	SUPPLIES	0000 NONE	SA01S SSOC 371 Closure Project	Linear	2,000.00	Dollars
Factors	1	ea 2000 misc. lighting, cans, & bags				

**Line Item 3701 1-GLV - Glovebox Readiness**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

WBS No: 1AAC  
 Activity ID: 1AQ31ST010

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.68	Hours
Factors	2 D&D Workers	0.34 hours per glove (20 min/glove)	1 glove			
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.03	Hours
Factors	0.0167 factor for 60gloves/drum	2 people to operate drum counter				
750	STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.34	Hours
Factors	0.34 hrs/glove (20 minutes/glove)					
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.27	Hours
Factors	0.27 hrs per glove (20 min/glove)	1 RCT	1 glove			
A5C	SUPPLIES	0000 NONE	K218S Financial Services	Linear	0.67	Dollars
Factors	40 \$/supplies (includes tape, bags,	0.0167 factor for 60 gloves/drum				
A5C	SUPPLIES	0000 NONE	K218S Financial Services	Linear	53.00	Dollars
Factors	53 \$/glove based on 30 mm glove					

**Line Item 3701 1-LSE - Remove Loose Equipment, trash, etc. from GB**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - All loose equipment, trash, etc. will be removed from each glovebox in order to stripcoat the glovebox. Amount removed from each glovebox will vary. Cubic foot/glovebox is used to estimate average amount of equipment to be removed. Necessary supplies include, but are not limited to: Drums @ \$35/drum, 2" rolls of yellow tape @ \$2.50/roll, Bag-out bags @ \$14/bag for a 10X96 bag, 18X24 waste bag/bag cut @ .25/bag (for loose equipment removed).  
 Breakdown of Cost Data:  
 Item - Removal of loose equipment, trash, etc., place in drum and count drum  
 Units - per day to clean out glovebox  
 Unit Cost - 36 hrs/day \$50/day supply cost  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	16.00	Hours
Factors	8 hr/day	2 fte/day				
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
Factors	4 hr/day	2 fte to operate drum counter				
750	STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
Factors	8 hrs/day					
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	4.00	Hours
Factors	4 hrs/day					
A5C	SUPPLIES	0000 NONE	K218S Financial Services	Linear	50.75	Dollars
Factors	50 supply dollars per day(includes	1.015 -- FY00 Escalation --				

**Line Item 3701 1-SCOsCan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.  
 Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.  
 Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box

WBS No: 1AAC  
 Activity ID: 1AQ31ST010

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Unit -Per glove box  
 Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC.371 Closure Project	Linear	0.05	Hours
Factors	1 Rad Ops Foreman	0.05 hrs/CF of GB				
	750 STRAIGHT TIME BASE	P080 HEALTH PHYSICISTS	SA01S SSOC.371 Closure Project	Linear	0.05	Hours
Factors	1 Rad Eng	0.045 hrs/CF of GB				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.09	Hours
Factors	2 RCTs	0.045 hrs/CF of GB				
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	2.50	Dollars
Factors	2.5 \$/CF to replace/calibrate heads					

**Line Item 3701 4-FC - Change GB Filters**

**BOE**  
 Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.  
 Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.  
 Breakdown of cost item  
 Item - glove box filter change  
 Unit - per filter  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
Factors	2 Process Specialists	2 hrs/filter	2 filters/GB			
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	300.00	Dollars
Factors	150 \$/filter (incls. Filter, drum, tape, bags 2 filters/GB					

**Line Item 3701 7-EQRmvl - GB Equipment Removal**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.  
 Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to remove all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.  
 Breakdown of Cost Data:  
 Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
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WBS No: 1AAC  
 Activity ID: 1AQ31ST010

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	283.36	Hours
<i>Factors</i>	35.42 hrs/piece of equipment		8 pieces of equipment /std GB					
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	283.20	Hours
<i>Factors</i>	8.85 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea			
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i>	0.21 hrs/piece of equipment		8 pieces of equipment /std GB					
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	1.60	Hours
<i>Factors</i>	0.05 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i>	0.21 hrs/piece of equipment		8 pieces of equipment /std GB		1 Rad Ops Foreman			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	1.60	Hours
<i>Factors</i>	0.05 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	113.28	Hours
<i>Factors</i>	3.54 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	113.36	Hours
<i>Factors</i>	14.17 hrs/piece of equipment		8 pieces of equipment /std GB					
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	0.96	Hours
<i>Factors</i>	0.03 hrs/piece of equipment		4 Cuts per piece of equipment		8 ea			
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	0.88	Hours
<i>Factors</i>	0.11 hrs/piece of equipment		8 pieces of equipment /std GB					

**Line Item 3701 7-EQRmvl1 - GB Equipment Removal**

**BOE**

Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

Item - Perform glove box internal equipment removal

Unit - Equipment pieces per glove box

Unit Cost -

**Resources**

	<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>	<i>Curve</i>	<i>Quantity</i>	<i>Units</i>
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	850.08	Hours
<i>Factors</i>	35.42 hrs/piece of equipment		8 pieces of equipment /std GB		3 times difficulty factor			
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	849.60	Hours
<i>Factors</i>	8.85 hrs/piece of equipment		4 Cuts per piece of equipment		3 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	5.04	Hours
<i>Factors</i>	0.21 hrs/piece of equipment		8 pieces of equipment /std GB		3 times difficulty factor			
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	4.80	Hours
<i>Factors</i>	0.05 hrs/piece of equipment		4 Cuts per piece of equipment		3 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	4.80	Hours
<i>Factors</i>	0.05 hrs/piece of equipment		4 Cuts per piece of equipment		3 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	5.04	Hours
<i>Factors</i>	0.21 hrs/piece of equipment		8 pieces of equipment /std GB		3 times difficulty factor			

WBS No: 1AAC  
 Activity ID: 1AQ31ST010

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \* Starts In FY \*

750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	340.08	Hours
<i>Factors</i>	14.17 hrs/piece of equipment		8 pieces of equipment /std GB		3 times difficulty factor			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	339.84	Hours
<i>Factors</i>	3.54 hrs/piece of equipment		4 Cuts per piece of equipment		3 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	2.64	Hours
<i>Factors</i>	0.11 hrs/piece of equipment		8 pieces of equipment /std GB		3 times difficulty factor			
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	2.88	Hours
<i>Factors</i>	0.03 hrs/piece of equipment		4 Cuts per piece of equipment		3 times difficulty factor	8 ea		

**Line Item SET10 4-OrLQ - Drain Organic Liquids**

**BOE**  
 Estimator's Experience - Estimate based on similar tasks from glove box equipment disassembly work done during liquid draining operations.  
 Experience Item Description-Some pumps and equipment inside gloveboxes have lubricating oils and greases that have not been removed. Waste stream requirements dictate that these be segregated and handled separately from non-organic waste streams. This line item is to disassemble a piece of glove box equipment containing such organic, drain and/or remove the lubricant and clean up the piece of equipment as possible.  
 Breakdown of cost item  
 Item - remove lubricants from glove box equipment  
 Unit - per piece of equipment  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	19.00	Hours
<i>Factors</i>	2 D&D Skilled Trades		9.5 hrs/piece of equipment				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.10	Hours
<i>Factors</i>	1 Rad Ops Foreman		0.1 hrs/piece of equipment				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	7.60	Hours
<i>Factors</i>	1 RCT		7.6 hrs/piece of equipment				
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	1.00	Hours
<i>Factors</i>	1 Laboratory Tech		1 hrs/piece of equipment				
A5C	SUPPLIES	0000	NONE	KA70S B371 Facility Disposition	Linear	1.00	Dollars
<i>Factors</i>	1 \$/equipment cost of storage bottle for						

**Line Item SYS - Contingency And Escalation**

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
CON	CONTINGENCY	0000	NONE	ZDEPT No Department	Linear	113,145.70	Dollars
<i>Factors</i>	113146 Dollars						
ESC	ESCALATION	0000	NONE	ZDEPT No Department	Linear	47,898.99	Dollars
<i>Factors</i>	47899 Dollars						

Activity ID: 1AQ31ST015 Description: Set 15 B371 Cluster Offices - Deactivation

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
Set 15 Prep	Prep Sets for Deactivation of Bldgs. Outside B371	1.00	each	EE	1.955	1.955	71,432	13,041	0	84,474	24,716	109,189
3-OFF-All Offices	Deactivation of Office Areas outside of B371	61.00	each	EE	33	2,001	48,382	5,124	0	53,506	16,740	70,246
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	50,246	50,246	0	50,246
Total for Activity 1AQ31ST015:						3.956	119,814	18,165	50,246	188,225	41,456	229,680

**Line Item Set 15 Prep - Prep Sets for Deactivation of Bldgs. Outside B371**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Preliminary Walkdowns will be conducted in each area of every set to determine current configuration of equipment and room. This activity includes all necessary preliminary evaluations, walkdown of drawings, and preparing documentation required to perform work in each set. Documentation includes, but is not limited to, Criticality Safety Operating Limits, Radiation Work Permit, Integrated Work Control Package, and Engineering

WBS No: 1AAC  
 Activity ID: 1AQ31ST015

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Package.  
 Breakdown of Cost Data:  
 Item - Preliminary Evaluation, walkdown of drawings, and documentation preparation.  
 Units - per set  
 Unit Cost - 1955 hrs \$12,750 - Subcontractor Costs  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	50.00	Hours
<i>Factors</i> 50 hrs to assist with area walkdowns					
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	600.00	Hours
<i>Factors</i> 600 average hours for an intricate CSOL					
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	50.00	Hours
<i>Factors</i> 50 hrs of Nuclear Safety Support for BIO					
750 STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
<i>Factors</i> 40 hrs to assist with BIO page changes					
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
<i>Factors</i> 40 hours to support this activity					
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	1,075.00	Hours
<i>Factors</i> 1075 hrs drawing walkdown. IWCP					
750 STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	50.00	Hours
<i>Factors</i> 50 hrs to assist with IWCP preparation					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	50.00	Hours
<i>Factors</i> 50 hours to support this activity					
A57 LATA	P070 COST ESTIMATORS PLANNERS AN	SA01S SSOC 371 Closure Project	Linear	9,205.47	Dollars
<i>Factors</i> 120 hrs to develop and complete an 75 \$/hour 1.02283 -- FY00 Escalation --					
A57 LATA	P160 TECHNICAL WRITERS AND EDITOR	SA01S SSOC 371 Closure Project	Linear	3,835.61	Dollars
<i>Factors</i> 50 hours procedure support for changes 1.02283 -- FY00 Escalation -- 75 \$/hr					

**Line Item 3-OFF-All Offices - Deactivation of Office Areas outside of B371**

**BOE**

Estimators Experience - Estimate based upon the Disposal Cost Model developed by Kaiser-Hill Site Operations dated March 3, 1999.  
 Experience Item Desc - The scope of this activity includes the Deactivation of B371 office areas by removing all office equipment: including computer(s), desk(s), chair(s), and filing cabinet(s), conference room tables, conference chairs, etc. Any remaining documentation that may exist in file cabinets, drawers, etc. will be reviewed for proper disposition and either sent to Records Management to be archived or disposed of through the landfill. It is assumed that all office areas will be nonradioactive and will not require any additional SNM Removal. It is assumed that there will be an average of 15 items of office/computer equipment that must be removed from each office/conference room. It is assumed that PU&D will pick up the items from the B371 dock and will pay for transportation and disposition.  
 Breakdown of Cost Data:  
 Item - Remove all equipment, and disposition any remaining documentation  
 Units - hours per room  
 Unit Cost - 32.8 hours/room  
 \$4.00/room  
 Unit Cost Adjustment factor -N/A  
 Revised Unit Cost - N/A  
 Basis for adjustment - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1.50	Hours
<i>Factors</i> 15 pieces of equipment average 0.1 hour for material handling per piece					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	3.00	Hours
<i>Factors</i> 15 pieces of equipment average per 0.2 hours per piece of equipment					
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	4.50	Hours
<i>Factors</i> 15 pieces of equipment average per 0.3 hours for readiness/removal per					
750 STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	SA01S SSOC 371 Closure Project	Linear	0.80	Hours
<i>Factors</i> 4 pieces of computer equipment 0.2 hours for Hazard Assessment of					
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	2.25	Hours
<i>Factors</i> 15 pieces of equipment average per 0.15 hours per item of equipment to fill out					

WBS No: 1AAC  
 Activity ID: 1AQ31ST015

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	M020	MANAGERS (GRADE 69 - 72)	KA70S	B371 Facility Disposition	Linear	2.00	Hours
<i>Factors</i> 1 project manager to review files for 2 hours per office								
750	STRAIGHT TIME BASE	P170	OTHER ADMINISTRATIVE & PROFE	SA01S	SSOC 371 Closure Project	Linear	3.75	Hours
<i>Factors</i> 15 pieces of equipment average per 0.25 hours per piece of equipment to								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	15.00	Hours
<i>Factors</i> 15 pieces of equipment average per 1 hour/swipe per equipment								
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	84.00	Dollars
<i>Factors</i> 21 \$/hr 4 hours per office 1 Document Control person								

**Line Item SYS - Contingency And Escalation**

BOE

Resources

Cost Element	Skill	Department	Curve	Quantity	Units
CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	36.485.64	Dollars
<i>Factors</i> 36485.6 Dollars					
ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	13.760.00	Dollars
<i>Factors</i> 13760 Dollars					

Activity ID: 1AQ31ST016

Description: Set 16 B371 Cluster Ancillary Bldgs

Cost Risk 2 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
Set 16 Prep	Prep Sets for Deactivation of B371	1.00	each	EE	1.955	1.955	71.432	13.041	0	84.474	24.716	109.189
SYS	Contingency And Escalation	1.00	lea	EE	0	0	0	0	30.575	30.575	0	30.575
Total for Activity 1AQ31ST016:						1.955	71.432	13.041	30.575	115.049	24.716	139.764

**Line Item Set 16 Prep - Prep Sets for Deactivation of B371**

BOE

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Preliminary Walkdowns will be conducted in each area of every set to determine current configuration of equipment and room. This activity includes all necessary preliminary evaluations, walkdown of drawings, and preparing documentation required to perform work in each set. Documentation includes, but is not limited to, Criticality Safety Operating Limits, Radiation Work Permit, Integrated Work Control Package, and Engineering Package.

Breakdown of Cost Data:  
 Item - Preliminary Evaluation, walkdown of drawings, and documentation preparation.  
 Units - per set  
 Unit Cost - 1955 hrs \$12,750 - Subcontractor Costs  
 Unit Cost Adjustment factor - N/A

Resources

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	50.00	Hours
<i>Factors</i> 50 hrs to assist with area walkdowns					
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	600.00	Hours
<i>Factors</i> 600 average hours for an intricate CSOL					
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	50.00	Hours
<i>Factors</i> 50 hrs of Nuclear Safety Support for BIO					
750 STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
<i>Factors</i> 40 hrs to assist with BIO page changes					
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
<i>Factors</i> 40 hours to support this activity					
750 STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	1.075.00	Hours
<i>Factors</i> 1075 hrs drawing walkdown. IWCP					
750 STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	50.00	Hours
<i>Factors</i> 50 hrs to assist with IWCP preparation					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	50.00	Hours
<i>Factors</i> 50 hours to support this activity					
A57 LATA	P070 COST ESTIMATORS PLANNERS AN	SA01S SSOC 371 Closure Project	Linear	9.205.47	Dollars
<i>Factors</i> 1.02283 -- FY00 Escalation -- 75 \$/hour 120 hrs to develop and complete an					

WBS No: 1AAC  
 Activity ID: 1AQ31ST016

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

A57	LATA	P160	TECHNICAL WRITERS AND EDITOR	SA01S	SSOC 371 Closure Project	Linear	3,835.61	Dollars
Factors		1.02283	-- FY00 Escalation --	50	hours procedure support for changes	75	\$/hr	

**Line Item SYS - Contingency And Escalation**

**BOE**

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
CON CONTINGENCY	0000 NONE	ZDEPT No Department	Linear	22,202.14	Dollars
Factors 22202.1 Dollars					
ESC ESCALATION	0000 NONE	ZDEPT No Department	Linear	8,373.20	Dollars
Factors 8373.2 Dollars					

Activity ID: 1AQ31ST02A

Description: Set 2 B371 Main Aques Proc-GB Deactivation

Cost Risk 3 Schedule Risk 2

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
Set 2 Prep	Prep Sets for Deactivation of B371	1.00	each	EE	1,955	1,955	71,432	14,750	0	86,182	34,073	120,256
3517 1-GLV	Glovebox Readiness	45.00	each	EE	1	60	1,340	2,415	0	3,755	639	4,394
3517 1-LSE	Remove Loose Equipment, trash, etc. from GB	2.00	dav	EE	36	72	1,603	100	0	1,703	765	2,467
3517 1-SCOscan	GB SCO Scans	523.00	cf	EE	0	97	2,476	1,308	0	3,784	1,181	4,965
3517 4-FC	Change GB Filters	3.00	ea	EE	8	24	498	900	0	1,398	237	1,635
3517 4-SCANGB	Glovebox Scan for SNM	523.00	cf	EE	0	84	1,724	0	0	1,724	822	2,547
3517 5-DP	Disconnect Pumps/Disposition Liquid	12.00	each	EE	23	270	6,084	0	0	6,084	2,902	8,986
3517 7-EQRmvl	GB Equipment Removal	3.00	ea	EE	802	2,405	50,163	0	0	50,163	23,928	74,090
3545 1-GLV	Glovebox Readiness	50.00	each	EE	1	66	1,489	2,683	0	4,172	710	4,883
3545 1-LSE	Remove Loose Equipment, trash, etc. from GB	10.00	dav	EE	36	360	8,014	500	0	8,514	3,823	12,337
3545 1-SCOscan	GB SCO Scans	715.00	cf	EE	0	132	3,385	1,788	0	5,173	1,615	6,788
3545 4-FC	Change GB Filters	1.00	ea	EE	8	8	166	300	0	466	79	545
3545 4-SCANGB	Glovebox Scan for SNM	715.00	cf	EE	0	114	2,357	0	0	2,357	1,124	3,482
3545 5-DP	Disconnect Pumps/Disposition Liquid	20.00	each	EE	23	450	10,140	0	0	10,140	4,837	14,977
3545 7-EQRmvl	GB Equipment Removal GB 58	1.00	ea	EE	4,008	4,008	83,605	0	0	83,605	39,879	123,484
3549 4-VRFRSN	Remove bottom of Anion Exchange to verfv Resin	8.00	each	EE	16	128	2,915	0	0	2,915	1,391	4,306
3557 1-GLV	Glovebox Readiness	43.00	each	EE	1	57	1,280	2,308	0	3,588	611	4,199
3557 1-LSE	Remove Loose Equipment, trash, etc. from GB	10.00	dav	EE	36	360	8,014	500	0	8,514	3,823	12,337
3557 1-SCOscan	GB SCO Scans	574.00	cf	EE	0	106	2,718	1,435	0	4,153	1,296	5,449
3557 4-FC	Change GB Filters	1.00	ea	EE	8	8	166	300	0	466	79	545
3557 4-SCANGB	Glovebox Scan for SNM	574.00	cf	EE	0	92	1,892	0	0	1,892	903	2,795
3557 5-DP	Disconnect Pumps/Disposition Liquid	13.00	each	EE	23	293	6,591	0	0	6,591	3,144	9,735
3557 7-EQRmvl	GB Equipment Removal GB 59	1.00	ea	EE	4,008	4,008	83,605	0	0	83,605	39,879	123,484
3571 1-GLV	Glovebox Readiness	11.00	each	EE	1	15	328	590	0	918	156	1,074
3571 1-LSE	Remove Loose Equipment, trash, etc. from GB	1.00	dav	EE	36	36	801	50	0	851	382	1,234
3571 1-SCOscan	GB SCO Scans	126.00	cf	EE	0	23	597	315	0	912	285	1,196
3571 4-FC	Change GB Filters	1.00	ea	EE	8	8	166	300	0	466	79	545
3571 4-SCANGB	Glovebox Scan for SNM	126.00	cf	EE	0	20	415	0	0	415	198	614
3571 5-DP	Disconnect Pumps/Disposition Liquid	5.00	each	EE	23	113	2,535	0	0	2,535	1,209	3,744
3571 7-EQRmvl	GB Equipment Removal	1.00	ea	EE	802	802	16,721	0	0	16,721	7,976	24,697
3573 1-GLV	Glovebox Readiness	17.00	each	EE	1	22	506	912	0	1,419	241	1,660
3573 1-LSE	Remove Loose Equipment, trash, etc. from GB	2.00	dav	EE	36	72	1,603	100	0	1,703	765	2,467
3573 1-SCOscan	GB SCO Scans	202.00	cf	EE	0	37	956	505	0	1,461	456	1,918
3573 4-FC	Change GB Filters	2.00	ea	EE	8	16	332	600	0	932	158	1,090
3573 4-SCANGB	Glovebox Scan for SNM	202.00	cf	EE	0	32	666	0	0	666	318	984
3573 5-DP	Disconnect Pumps/Disposition Liquid	8.00	each	EE	23	180	4,056	0	0	4,056	1,935	5,991
3573 7-EQRmvl	GB Equipment Removal	2.00	ea	EE	802	1,603	33,442	0	0	33,442	15,952	49,394
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	34,825	34,825	0	34,825
Total for Activity 1AQ31ST02A:						18,136	414,782	32,659	34,825	482,266	197,851	680,117

WBS No: 1AAC  
 Activity ID: 1AQ31ST02A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

**Line Item Set 2 Prep - Prep Sets for Deactivation of B371**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the CA Manager's Office.

Experience Item Desc - Preliminary Walkdowns will be conducted in each area of every set to determine current configuration of equipment and room. This activity includes all necessary preliminary evaluations, walkdown of drawings, and preparing documentation required to perform work in each set. Documentation includes, but is not limited to, Criticality Safety Operating Limits, Radiation Work Permit, Integrated Work Control Package, and Engineering Package. This line item also contains the scope for performing Engineering Design Packages (EDP) for the removal of the internal components for a glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed.

Breakdown of Cost Data:  
 Item - Preliminary Evaluation, walkdown of drawings, and documentation preparation.  
 Units - per set  
 Unit Cost - 774 hrs \$5,968 - Subcontractor Costs  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	50.00	Hours
<i>Factors</i>	50	hrs to assist with area walkdowns				
750	STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	600.00	Hours
<i>Factors</i>	600	average hours for an intricate CSOL				
750	STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	50.00	Hours
<i>Factors</i>	50	hrs of Nuclear Safety Support for BIO				
750	STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
<i>Factors</i>	40	hrs to assist with BIO page changes				
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	1,075.00	Hours
<i>Factors</i>	1075	hrs drawing walkdown, IWCP				
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	40.00	Hours
<i>Factors</i>	40	hours to support this activity				
750	STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	50.00	Hours
<i>Factors</i>	50	hrs to assist with IWCP preparation				
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	50.00	Hours
<i>Factors</i>	50	hours to support this activity				
A57	LATA	P070 COST ESTIMATORS PLANNERS AN	KA70S B371 Facility Disposition	Linear	9.000.00	Dollars
<i>Factors</i>	75	\$/hour	120	hrs to develop and complete an		
A57	LATA	P160 TECHNICAL WRITERS AND EDITOR	KA70S B371 Facility Disposition	Linear	3.750.00	Dollars
<i>Factors</i>	75	\$/hr	50	hours procedure support for changes		
A5C	SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	2.000.00	Dollars
<i>Factors</i>	2000	misc. lighting, cans, & baas				

**Line Item 3517 1-GLV - Glovebox Readiness**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.68	Hours
<i>Factors</i>	2	Process Specialists	1	glove	0.34	hours per glove (20 min/glove)
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.03	Hours
<i>Factors</i>	2	people to operate drum counter	0.0167	factor for 60gloves/drum		

WBS No: 1AAC  
 Activity ID: 1AQ31ST02A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.34	Hours
<i>Factors</i> 0.34 hrs/glove (20 minutes/glove)								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.27	Hours
<i>Factors</i> 1 glove 0.27 hrs per glove (20 min/glove) 1 RCT								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	0.67	Dollars
<i>Factors</i> 40 \$/supplies (includes tape, bags, 1 ea 0.0167 factor for 60 gloves/drum								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	53.00	Dollars
<i>Factors</i> 1 ea 53 \$/glove based on 30 mm glove								

**Line Item 3517 1-LSE - Remove Loose Equipment, trash, etc. from GB**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - All loose equipment, trash, etc. will be removed from each glovebox in order to stripcoat the glovebox. Amount removed from each glovebox will vary. Cubic foot/glovebox is used to estimate average amount of equipment to be removed. Necessary supplies include, but are not limited to: Drums @ \$35/drum, 2" rolls of yellow tape @ \$2.50/roll, Bag-out bags @ \$14/bag for a 10X96 bag, 18X24 waste bag/bag cut @ .25/bag (for loose equipment removed).  
 Breakdown of Cost Data:  
 Item - Removal of loose equipment, trash, etc., place in drum and count drum  
 Units - per day to clean out glovebox  
 Unit Cost - 36 hrs/day \$50/day supply cost  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i> 2 fte to operate drum counter 4 hr/dav								
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	16.00	Hours
<i>Factors</i> 2 fte/dav 8 hr/dav								
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
<i>Factors</i> 8 hrs/dav								
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	4.00	Hours
<i>Factors</i> 4 hrs/dav								
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	50.00	Dollars
<i>Factors</i> 1 ea 50 supply dollars per day/includes								

**Line Item 3517 1-SCOScan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.  
 Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.  
 Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box  
 Unit Cost -

**Resources**

Cost Element		Skill		Department		Curve	Quantity	Units
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i> 1 Rad Ops Foreman 0.05 hrs/CF of GB								
750	STRAIGHT TIME BASE	P080	HEALTH PHYSICISTS	SA01S	SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i> 1 Rad Eng 0.045 hrs/cf of GB								

WBS No: 1AAC  
 Activity ID: 1AQ31ST02A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \* Starts In FY \*

750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.09	Hours
Factors	2	RCTs	0.045	hrs/CF of GB				
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	2.50	Dollars
Factors	2.5	\$/CF to replace/calibrate heads						

**Line Item 3517 4-FC - Change GB Filters**

**BOE**  
 Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.  
 Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.  
 Breakdown of cost item  
 Item - glove box filter change  
 Unit - per filter  
 Unit Cost -  
 Unit Cost Adjustment Factor -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units			
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours		
Factors	2	Process Specialists	2	hrs/filter	2	filters/GB		
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	300.00	Dollars
Factors	150	\$/filter (incls. Filter, drum, tape, bags 2 filters/GB						

**Line Item 3517 4-SCANGB - Glovebox Scan for SNM**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.  
 Breakdown of Cost Data:  
 Item - Scan glovebox for SNM removal  
 Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.  
 Unit Cost - .16 hrs/cubic foot  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units	
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.08	Hours
Factors	2	scans, one prior to removal, second	0.04	hours/cf of glovebox		
750	STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KA70H 371 Facility Disposition Steelworkers	Linear	0.08	Hours
Factors	2	Scans, one prior to removal, second	1	technician	0.04	hours per cubic foot of glovebox

**Line Item 3517 5-DP - Disconnect Pumps/Disposition Liquid**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Disconnect and drain liquid from pumps inside glovebox. There can be multiple pumps in each glovebox. Each pump takes approximately 4.5 hours to prep, drain, and disposition liquid. This estimate does not include the time and cost for pump removal. Pumps will be removed during Decommissioning when the glovebox is cut up and packaged for removal.  
 Breakdown of Cost Data:  
 Item - Disconnect and Drain each pump inside glovebox  
 Units - cost/pump  
 Unit Cost - 22.5 hours  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units	
750	STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mgmt Steelworkers	Linear	9.00	Hours
Factors	4.5	hrs/pump	2	Maintenance Pipefitters		

WBS No: 1AAC  
 Activity ID: 1AQ31ST02A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \* Starts In FY \*

750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	9.00	Hours
<i>Factors</i>	4.5	hours per pump	2	Process Specialists				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	4.50	Hours
<i>Factors</i>	4.5	hours per day	1	Process Specialist Supervisor				

**Line Item 3517 7-EQRmvl - GB Equipment Removal**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:  
 Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

**Resources**

	<i>Cost Element</i>		<i>Skill</i>		<i>Department</i>	<i>Curve</i>	<i>Quantity</i>	<i>Units</i>
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	283.20	Hours
<i>Factors</i>	8.85	hrs/piece of equipment	4	Cuts per piece of equipment	8	ea		
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	283.36	Hours
<i>Factors</i>	35.42	hrs/piece of equipment	8	pieces of equipment /std GB				
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	1.60	Hours
<i>Factors</i>	0.05	hrs/piece of equipment	4	Cuts per piece of equipment	8	ea		
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S	SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i>	0.21	hrs/piece of equipment	8	pieces of equipment /std GB				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i>	0.21	hrs/piece of equipment	8	pieces of equipment /std GB	1			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	1.60	Hours
<i>Factors</i>	0.05	hrs/piece of equipment	4	Cuts per piece of equipment	8	ea		
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	113.36	Hours
<i>Factors</i>	14.17	hrs/piece of equipment	8	pieces of equipment /std GB				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	113.28	Hours
<i>Factors</i>	3.54	hrs/piece of equipment	4	Cuts per piece of equipment	8	ea		
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	0.96	Hours
<i>Factors</i>	0.03	hrs/piece of equipment	4	Cuts per piece of equipment	8	ea		
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H	371 Facility Disposition Steelworkers	Linear	0.88	Hours
<i>Factors</i>	0.11	hrs/piece of equipment	8	pieces of equipment /std GB				

**Line Item 3545 1-GLV - Glovebox Readiness**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr

WBS No: 1AAC  
 Activity ID: 1AQ31ST02A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Unit - per glove	Unit Cost - \$54.00
Unit Cost Adjustment factor - N/A	

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.03	Hours
	<i>Factors</i> 0.0167 factor for 60gloves/drum 2 people to operate drum counter					
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.68	Hours
	<i>Factors</i> 0.34 hours per glove (20 min/glove) 1 glove 2 Process Specialists					
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.34	Hours
	<i>Factors</i> 0.34 hrs/glove (20 minutes/glove)					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.27	Hours
	<i>Factors</i> 0.27 hrs per glove (20 min/glove) 1 RCT 1 glove					
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	0.67	Dollars
	<i>Factors</i> 0.0167 factor for 60 gloves/drum 1 ea 40 \$/supplies (includes tape, bags,					
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	53.00	Dollars
	<i>Factors</i> 53 \$/glove based on 30 mm glove					

**Line Item 3545 1-LSE - Remove Loose Equipment, trash, etc. from GB**

<b>BOE</b>	<p>Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.</p> <p>Experience Item Desc - All loose equipment, trash, etc. will be removed from each glovebox in order to stripcoat the glovebox. Amount removed from each glovebox will vary. Cubic foot/glovebox is used to estimate average amount of equipment to be removed. Necessary supplies include, but are not limited to: Drums @ \$35/drum, 2" rolls of yellow tape @ \$2.50/roll, Bag-out bags @ \$14/bag for a 10X96 bag, 18X24 waste bag/bag cut @ .25/bag (for loose equipment removed).</p> <p>Breakdown of Cost Data:          Item - Removal of loose equipment, trash, etc., place in drum and count drum          Units - per day to clean out glovebox          Unit Cost - 36 hrs/day \$50/day supply cost          Unit Cost Adjustment factor - N/A</p>
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Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	16.00	Hours
	<i>Factors</i> 8 hr/day 2 fte/dav					
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
	<i>Factors</i> 2 fte to operate drum counter 4 hr/day					
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
	<i>Factors</i> 8 hrs/day					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	4.00	Hours
	<i>Factors</i> 4 hrs/day					
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	50.00	Dollars
	<i>Factors</i> 50 supply dollars per day/includes					

**Line Item 3545 1-SCOScan - GB SCO Scans**

<b>BOE</b>	<p>Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&amp;D operation in B371 and has extensive D&amp;D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&amp;D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.</p> <p>Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.</p> <p>Breakdown of Cost Data:          Item - Perform a radiological survey of a cleaned up and empty glove box          Unit -Per glove box</p>
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WBS No: 1AAC  
 Activity ID: 1AQ31ST02A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
	<i>Factors</i> 1 Rad Ops Foreman 0.05 hrs/CF of GB					
	750 STRAIGHT TIME BASE	P080 HEALTH PHYSICISTS	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
	<i>Factors</i> 1 Rad Eng 0.045 hrs/CF of GB					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.09	Hours
	<i>Factors</i> 2 RCTs 0.045 hrs/CF of GB					
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	2.50	Dollars
	<i>Factors</i> 2.5 \$/CF to replace/calibrate heads					

**Line Item 3545 4-FC - Change GB Filters**

**BOE**  
 Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.  
 Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.  
 Breakdown of cost item  
 Item - glove box filter change  
 Unit - per filter  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
	<i>Factors</i> 2 Process Specialists 2 hrs/filter 2 filters/GB					
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	300.00	Dollars
	<i>Factors</i> 150 \$/filter (incls. Filter, drum, tape, bags 2 filters/GB					

**Line Item 3545 4-SCANGB - Glovebox Scan for SNM**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.  
 Breakdown of Cost Data:  
 Item - Scan glovebox for SNM removal  
 Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.  
 Unit Cost - .16 hrs/cubic foot  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.08	Hours
	<i>Factors</i> 1 ea 0.04 hours/cf of glovebox 2 scans, one prior to removal, second					
	750 STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KA70H 371 Facility Disposition Steelworkers	Linear	0.08	Hours
	<i>Factors</i> 2 Scans, one prior to removal, second 1 technician 0.04 hours per cubic foot of glovebox					

**Line Item 3545 5-DP - Disconnect Pumps/Disposition Liquid**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Disconnect and drain liquid from pumps inside glovebox. There can be multiple pumps in each glovebox. Each pump takes approximately 4.5 hours to prep, drain, and disposition liquid. This estimate does not include the time and cost for pump removal. Pumps will be removed during Decommissioning when the glovebox is cut up and packaged for removal.  
 Breakdown of Cost Data:

WBS No: 1AAC  
 Activity ID: 1AQ31ST02A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Item - Disconnect and Drain each pump inside glovebox  
 Units - cost/pump  
 Unit Cost - 22.5 hours  
 Unit Cost Adjustment factor - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	9.00	Hours
Factors	4.5 hrs/pump		2 Maintenance Pipefitters				
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	9.00	Hours
Factors	4.5 hours per pump		2 Process Specialists				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	4.50	Hours
Factors	1 Process Specialist Supervisor		4.5 hours per day				

**Line Item 3545 7-EQRmvl - GB Equipment Removal GB 58**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:  
 Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1,416.80	Hours
Factors	35.42 hrs/piece of equipment		8 pieces of equipment /std GB	5 times difficulty factor			
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1,416.00	Hours
Factors	8.85 hrs/piece of equipment		4 Cuts per piece of equipment	5 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	8.40	Hours
Factors	0.21 hrs/piece of equipment		8 pieces of equipment /std GB	5 times difficulty factor			
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
Factors	0.05 hrs/piece of equipment		4 Cuts per piece of equipment	5 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.40	Hours
Factors	0.21 hrs/piece of equipment		8 pieces of equipment /std GB	5 times difficulty factor			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
Factors	0.05 hrs/piece of equipment		4 Cuts per piece of equipment	5 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	566.80	Hours
Factors	14.17 hrs/piece of equipment		8 pieces of equipment /std GB	5 times difficulty factor			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	566.40	Hours
Factors	3.54 hrs/piece of equipment		4 Cuts per piece of equipment	5 times difficulty factor	8 ea		
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	4.40	Hours
Factors	0.11 hrs/piece of equipment		8 pieces of equipment /std GB	5 times difficulty factor			
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	4.80	Hours
Factors	0.03 hrs/piece of equipment		4 Cuts per piece of equipment	5 times difficulty factor	8 ea		

**Line Item 3549 4-VRFRSN - Remove bottom of Anion Exchange to verify Resin**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

WBS No: 1AAC  
 Activity ID: 1AQ31ST02A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Experience Item Desc - This cost includes sremoving the bottoms of 8 tanks in Room 3549 to verify no resin is present after scans have been taken.Rashig Ring removal prior to deactivation in Rooms: 3517, 3549, 3553, 3559, 3563, 3571, and 3573. Pencil tanks, within these rooms, that once held plutonium solution and have been drained will also be scanned to verify there is no SNM Holdup. If SNM Holdup is detected from the scans for the anion exchange columns, further evaluation will be required because the holdup will be in the form of plutonium impregnated resin attached to the sides of the columns. The columns are stainless steel 6 inch diameter and 15 foot high. Resin was normally slurried with water in a closed piping system for removal. A new removal method will have to be evaluated if residual resin impregnated in plutonium is detected.

Breakdown of Cost Data:  
 Item - Removal of the bottoms of 8 anion exchange columns in Room 3549 for verification that SNM Holdup does not exist.  
 Units - 1 Anion Exchange Column.  
 Unit Cost - hrs/column  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080 PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mamt Steelworkers	Linear	4.02	Hours
Factors	3 pipefitters	1.34 hours per anion exchange column				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	4.02	Hours
Factors	1.34 hours per anion exchange column	3 pipefitters				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	4.00	Hours
Factors	4 hours/anion exchange column	1 RCT Supervisor				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	4.00	Hours
Factors	4 hours/anion exchange column	1 RCT				

**Line Item 3557 1-GLV - Glovebox Readiness**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.03	Hours
Factors	2 people to operate drum counter	0.0167 factor for 60gloves/drum				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.68	Hours
Factors	1 glove	2 Process Specialists	0.34 hours per glove (20 min/glove)			
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.34	Hours
Factors	0.34 hrs/glove (20 minutes/glove)					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.27	Hours
Factors	1 glove	0.27 hrs per glove (20 min/glove)	1 RCT			
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	0.67	Dollars
Factors	0.0167 factor for 60 gloves/drum	40 \$/supplies (includes tape, bags,				
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	53.00	Dollars
Factors	53 \$/glove based on 30 mm glove					

**Line Item 3557 1-LSE - Remove Loose Equipment, trash, etc. from GB**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - All loose equipment, trash, etc. will be removed from each glovebox in order to stripcoat the glovebox. Amount removed from each glovebox will vary. Cubic foot/glovebox is used to estimate average amount of equipment to be removed. Necessary supplies include, but are not limited to: Drums @ \$35/drum, 2" rolls of yellow tape @ \$2.50/roll, Bag-out bags @ \$14/bag for a 10X96 bag, 18X24 waste bag/bag cut @ .25/bag (for loose equipment removed).

Breakdown of Cost Data:  
 Item - Removal of loose equipment, trash, etc., place in drum and count drum  
 Units - per day to clean out glovebox

WBS No: 1AAC  
 Activity ID: 1AQ31ST02A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Unit Cost - 36 hrs/day \$50/day supply cost  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i> 2 fte to operate drum counter 4 hr/dav						
750	STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	16.00	Hours
<i>Factors</i> 8 hr/dav 2 fte/dav						
750	STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
<i>Factors</i> 8 hrs/dav						
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	4.00	Hours
<i>Factors</i> 4 hrs/dav						
A5C	SUPPLIES	0000 NONE	K218S Financial Services	Linear	50.00	Dollars
<i>Factors</i> 50 supply dollars per day(includes						

**Line Item 3557 1-SCOscan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box  
 Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i> 1 Rad Ops Foreman 0.05 hrs/CF of GB						
750	STRAIGHT TIME BASE	P080 HEALTH PHYSICISTS	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i> 1 Rad Eng 0.045 hrs/CF of GB						
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.09	Hours
<i>Factors</i> 2 RCTs 0.045 hrs/CF of GB						
A5C	SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	2.50	Dollars
<i>Factors</i> 2.5 \$/CF to replace/calibrate heads						

**Line Item 3557 4-FC - Change GB Filters**

**BOE**  
 Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

Breakdown of cost item  
 Item - glove box filter change  
 Unit - per filter  
 Unit Cost -  
 Unit Cost Adjustment Factor -

WBS No: 1AAC  
 Activity ID: 1AQ31ST02A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	8.00	Hours
	Factors 2	Process Specialists	2 hrs/filter	2	filters/GB			
	A5C SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	300.00	Dollars
	Factors 150	\$/filter (incls. Filter, drum, tape, bags	2 filters/GB					

**Line Item 3557 4-SCANGB - Glovebox Scan for SNM**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.

Breakdown of Cost Data:  
 Item - Scan glovebox for SNM removal  
 Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.  
 Unit Cost - .16 hrs/cubic foot  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.08	Hours
	Factors 0.04	hours/cf of glovebox	2 scans, one prior to removal, second					
	750 STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KA70H	371 Facility Disposition Steelworkers	Linear	0.08	Hours
	Factors 2	Scans, one prior to removal, second	1 technician	0.04	hours per cubic foot of glovebox			

**Line Item 3557 5-DP - Disconnect Pumps/Disposition Liquid**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Disconnect and drain liquid from pumps inside glovebox. There can be multiple pumps in each glovebox. Each pump takes approximately 4.5 hours to prep, drain, and disposition liquid. This estimate does not include the time and cost for pump removal. Pumps will be removed during Decommissioning when the glovebox is cut up and packaged for removal.

Breakdown of Cost Data:  
 Item - Disconnect and Drain each pump inside glovebox  
 Units - cost/pump  
 Unit Cost - 22.5 hours  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Maint Steelworkers	Linear	9.00	Hours
	Factors 4.5	hrs/pump	2 Maintenance Pipefitters					
	750 STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	9.00	Hours
	Factors 4.5	hours per pump	2 Process Specialists					
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	4.50	Hours
	Factors 1	Process Specialist Supervisor	4.5 hours per day					

**Line Item 3557 7-EQRmvl - GB Equipment Removal GB 59**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

WBS No: 1AAC  
 Activity ID: 1AQ31ST02A

**Rocky Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1.416.80	Hours
Factors 35.42 hrs/piece of equipment	8 pieces of equipment /std GB	5 times difficulty factor			
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	1.416.00	Hours
Factors 8.85 hrs/piece of equipment	4 Cuts per piece of equipment	5 times difficulty factor	8 ea		
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	8.40	Hours
Factors 0.21 hrs/piece of equipment	8 pieces of equipment /std GB	5 times difficulty factor			
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
Factors 0.05 hrs/piece of equipment	4 Cuts per piece of equipment	5 times difficulty factor	8 ea		
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.40	Hours
Factors 0.21 hrs/piece of equipment	8 pieces of equipment /std GB	5 times difficulty factor			
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
Factors 0.05 hrs/piece of equipment	4 Cuts per piece of equipment	5 times difficulty factor	8 ea		
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	566.80	Hours
Factors 14.17 hrs/piece of equipment	8 pieces of equipment /std GB	5 times difficulty factor			
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	566.40	Hours
Factors 3.54 hrs/piece of equipment	4 Cuts per piece of equipment	5 times difficulty factor	8 ea		
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	4.40	Hours
Factors 0.11 hrs/piece of equipment	8 pieces of equipment /std GB	5 times difficulty factor			
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	4.80	Hours
Factors 0.03 hrs/piece of equipment	4 Cuts per piece of equipment	5 times difficulty factor	8 ea		

**Line Item 3571 1-GLV - Glovebox Readiness**

**BOE**

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:  
 Item - Time and supply cost to replace each glove.  
 Unit - per glove Unit Cost - 1 hr  
 Unit - per glove Unit Cost - \$54.00  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.68	Hours
Factors 0.34 hours per glove (20 min/glove)	1 glove	2 Process Specialists			
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.03	Hours
Factors 0.0167 factor for 60gloves/drum	2 people to operate drum counter				
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.34	Hours
Factors 0.34 hrs/glove (20 minutes/glove)					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.27	Hours
Factors 0.27 hrs per glove (20 min/glove)	1 RCT	1 glove			
A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	0.67	Dollars
Factors 0.0167 factor for 60 gloves/drum	1 ea	40 \$/supplies (includes tape, bags,			
A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	53.00	Dollars
Factors 53 \$/glove based on 30 mm glove					

**Line Item 3571 1-LSE - Remove Loose Equipment, trash, etc. from GB**

**BOE**

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

WBS No: 1AAC  
 Activity ID: 1AQ31ST02A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Experience Item Desc - All loose equipment, trash, etc. will be removed from each glovebox in order to stripcoat the glovebox. Amount removed from each glovebox will vary. Cubic foot/glovebox is used to estimate average amount of equipment to be removed. Necessary supplies include, but are not limited to: Drums @ \$35/drum, 2" rolls of yellow tape @ \$2.50/roll, Bag-out bags @ \$14/bag for a 10X96 bag, 18X24 waste bag/bag cut @ .25/bag (for loose equipment removed).

Breakdown of Cost Data:  
 Item - Removal of loose equipment, trash, etc., place in drum and count drum  
 Units - per day to clean out glovebox  
 Unit Cost - 36 hrs/day \$50/day supply cost  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
	Factors 4 hr/day	2 fte to operate drum counter				
	750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	16.00	Hours
	Factors 8 hr/day	2 fte/day				
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
	Factors 8 hrs/day					
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	4.00	Hours
	Factors 4 hrs/day					
	A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	50.00	Dollars
	Factors 1 ea	50 supply dollars per day(includes				

**Line Item 3571 1-SCOsCan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.

Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box  
 Unit Cost -

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
	Factors 1 Rad Ops Foreman	0.05 hrs/CF of GB				
	750 STRAIGHT TIME BASE	P080 HEALTH PHYSICISTS	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
	Factors 1 Rad Eng	0.045 hrs/CF of GB				
	750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.09	Hours
	Factors 2 RCTs	0.045 hrs/CF of GB				
	A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	2.50	Dollars
	Factors 2.5	\$/CF to replace/calibrate heads				

**Line Item 3571 4-FC - Change GB Filters**

**BOE**  
 Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.

Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.

Breakdown of cost item

WBS No: 1AAC  
 Activity ID: 1AQ31ST02A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Item - glove box filter change  
 Unit - per filter  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	8.00 Hours
Factors	2	Process Specialists	2	hrs/filter	2	filters/GB	
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	300.00 Dollars
Factors	150	\$/filter (incls. Filter, drum, tape, bags	2	filters/GB			

**Line Item 3571 4-SCANGB - Glovebox Scan for SNM**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.  
 Breakdown of Cost Data:  
 Item - Scan glovebox for SNM removal  
 Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.  
 Unit Cost - .16 hrs/cubic foot  
 Unit Cost Adjustment factor - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.08 Hours
Factors	0.04	hours/cf of glovebox	2	scans, one prior to removal, second			
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KA70H	371 Facility Disposition Steelworkers	Linear	0.08 Hours
Factors	1	technician	0.04	hours per cubic foot of glovebox	2	Scans, one prior to removal, second	

**Line Item 3571 5-DP - Disconnect Pumps/Disposition Liquid**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Disconnect and drain liquid from pumps inside glovebox. There can be multiple pumps in each glovebox. Each pump takes approximately 4.5 hours to prep, drain, and disposition liquid. This estimate does not include the time and cost for pump removal. Pumps will be removed during Decommissioning when the glovebox is cut up and packaged for removal.  
 Breakdown of Cost Data:  
 Item - Disconnect and Drain each pump inside glovebox  
 Units - cost/pump  
 Unit Cost - 22.5 hours  
 Unit Cost Adjustment factor - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Maint Steelworkers	Linear	9.00 Hours
Factors	2	Maintenance Pipefitters	4.5	hrs/pump			
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H	371 Facility Disposition Steelworkers	Linear	9.00 Hours
Factors	2	Process Specialists	4.5	hours per pump			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	4.50 Hours
Factors	1	Process Specialist Supervisor	4.5	hours per day			

**Line Item 3571 7-EQRmvl - GB Equipment Removal**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.  
 Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package

WBS No: 1AAC  
 Activity ID: 1AQ31ST02A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

(SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:

Item - Perform glove box internal equipment removal

Unit - Equipment pieces per glove box

Unit Cost -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.36	Hours
Factors 35.42 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.20	Hours
Factors 8.85 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
Factors 0.21 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.60	Hours
Factors 0.05 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
Factors 0.21 hrs/piece of equipment	8 pieces of equipment /std GB	1 Rad Ops Foreman			
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.60	Hours
Factors 0.05 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.36	Hours
Factors 14.17 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.28	Hours
Factors 3.54 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.88	Hours
Factors 0.11 hrs/piece of equipment	8 pieces of equipment /std GB				
750 STRAIGHT TIME BASE	T070 MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.96	Hours
Factors 0.03 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			

**Line Item 3573 1-GLV - Glovebox Readiness**

**BOE**

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Certain gloveboxes have been out of service for a significant period of time; therefore, some gloves will need to be replaced. Gloves will be removed from gloveboxes and placed in drums. Drums will be counted. This estimate assumes magnehelic gauges will not need to be replaced or calibrated.

Breakdown of Cost Data:

Item - Time and supply cost to replace each glove.

Unit - per glove Unit Cost - 1 hr

Unit - per glove Unit Cost - \$54.00

Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.03	Hours
Factors 2 people to operate drum counter	0.0167 factor for 60aloves/drum				
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	0.68	Hours
Factors 1 glove	0.34 hours per glove (20 min/glove)	2 Process Specialists			
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.34	Hours
Factors 0.34 hrs/glove (20 minutes/glove)					
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.27	Hours
Factors 1 RCT	1 glove	0.27 hrs per glove (20 min/glove)			

WBS No: 1AAC  
 Activity ID: 1AQ31ST02A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	0.67	Dollars
<i>Factors</i>		0.0167	factor for 60 gloves/drum	1	ea	40	\$/supplies (includes tape, bags)	
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	53.00	Dollars

*Factors* 53 \$/glove based on 30 mm glove

**Line Item 3573 1-LSE - Remove Loose Equipment, trash, etc. from GB**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - All loose equipment, trash, etc. will be removed from each glovebox in order to stripcoat the glovebox. Amount removed from each glovebox will vary. Cubic foot/glovebox is used to estimate average amount of equipment to be removed. Necessary supplies include, but are not limited to: Drums @ \$35/drum, 2" rolls of yellow tape @ \$2.50/roll, Bag-out bags @ \$14/bag for a 10X96 bag, 18X24 waste bag/bag cut @ .25/bag (for loose equipment removed).  
 Breakdown of Cost Data:  
 Item - Removal of loose equipment, trash, etc., place in drum and count drum  
 Units - per day to clean out glovebox  
 Unit Cost - 36 hrs/day \$50/day supply cost  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i>		4 hr/dav	2	fte to operate drum counter	
750 STRAIGHT TIME BASE	C120 D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	16.00	Hours
<i>Factors</i>		2 fte/dav	8	hr/dav	
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
<i>Factors</i>		8 hrs/day			
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	4.00	Hours
<i>Factors</i>		4 hrs/day			
A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	50.00	Dollars

*Factors* 50 supply dollars per day(includes

**Line Item 3573 1-SCOScan - GB SCO Scans**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.  
 Experience Item Description - This line item contains the scope for the survey to categorize the glove box. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box. Such actions could include decontamination or fixing for SCO disposal.  
 Breakdown of Cost Data:  
 Item - Perform a radiological survey of a cleaned up and empty glove box  
 Unit -Per glove box  
 Unit Cost -

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i>		1 Rad Ops Foreman	0.05	hrs/CF of GB	
750 STRAIGHT TIME BASE	P080 HEALTH PHYSICISTS	SA01S SSOC 371 Closure Project	Linear	0.05	Hours
<i>Factors</i>		1 Rad Eng	0.045	hrs/CF of GB	
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.09	Hours
<i>Factors</i>		2 RCTs	0.045	hrs/CF of GB	
A5C SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	2.50	Dollars

*Factors* 2.5 \$/CF to replace/calibrate heads

WBS No: 1AAC  
 Activity ID: 1AQ31ST02A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

**Line Item 3573 4-FC - Change GB Filters**

**BOE**  
 Estimator's Experience - Estimate based on actuals from glove box work done during liquid draining operations.  
 Experience Item Description-Glove box exhaust HEPA filters will be changed after SNM removal and decontamination of the box is completed. Changing the filters will remove any high level contamination prior to D&D and the decon process has a high probability to deteriorate the flow through of the filter, reducing proper ventilation on the box.  
 Breakdown of cost item  
 Item - glove box filter change  
 Unit - per filter  
 Unit Cost -  
 Unit Cost Adjustment Factor -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	8.00	Hours
<i>Factors</i>		2 Process Specialists	2 hrs/filter	2 filters/GB			
A5C	SUPPLIES	0000	NONE	KA70S B371 Facility Disposition	Linear	300.00	Dollars
<i>Factors</i>		150 \$/filter (incls. Filter, drum, tape, bags	2 filters/GB				

**Line Item 3573 4-SCANGB - Glovebox Scan for SNM**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.  
 Breakdown of Cost Data:  
 Item - Scan glovebox for SNM removal  
 Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.  
 Unit Cost - .16 hrs/cubic foot  
 Unit Cost Adjustment factor - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	0.08	Hours
<i>Factors</i>		0.04 hours/cf of glovebox	2 scans, one prior to removal, second				
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KA70H 371 Facility Disposition Steelworkers	Linear	0.08	Hours
<i>Factors</i>		1 technician	2 Scans, one prior to removal, second	0.04 hours per cubic foot of glovebox			

**Line Item 3573 5-DP - Disconnect Pumps/Disposition Liquid**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Disconnect and drain liquid from pumps inside glovebox. There can be multiple pumps in each glovebox. Each pump takes approximately 4.5 hours to prep, drain, and disposition liquid. This estimate does not include the time and cost for pump removal. Pumps will be removed during Decommissioning when the glovebox is cut up and packaged for removal.  
 Breakdown of Cost Data:  
 Item - Disconnect and Drain each pump inside glovebox  
 Units - cost/pump  
 Unit Cost - 22.5 hours  
 Unit Cost Adjustment factor - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Mamt Steelworkers	Linear	9.00	Hours
<i>Factors</i>		4.5 hrs/pump	2 Maintenance Pipefitters				
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	9.00	Hours
<i>Factors</i>		4.5 hours per pump	2 Process Specialists				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	4.50	Hours
<i>Factors</i>		4.5 hours per day	1 Process Specialist Supervisor				

WBS No: 1AAC  
 Activity ID: 1AQ31ST02A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

**Line Item 3573 7-EQRmvl - GB Equipment Removal**

**BOE**  
 Estimator's Experience - Randy Blair is a B371 Engineering lead with extensive construction and demolition experience in B371. Keith Cavin was a lead for the PROVE D&D operation in B371 and has extensive D&D experience at RFETS and commercial nuclear sites. Mike Bogard has extensive construction and engineering experience at RFETS and all have been involved with the Liquids Program, a D&D pre-cursor activity. The cost model development was done using similar glove box tasks in B771, for which cost models existed, and then modified by input from B771 personnel and extrapolated to the size and complexity of the B371 glove boxes.

Experience Item Description - This line item contains the scope the removal of the equipment and systems inside the glove box. A standard work package (SWP) is developed generic to removal all glove box internals and then an EDP is developed based on the actual components and specifics for an individual glove box. From the combination of the EDP and the SWP, an IWCP work package is generated that allows the work to be performed. Following the IWCP instructions, workers will then remove all the equipment and systems in the glove box; leaving only stubs where piping, power, etc. were introduced into the box. This line item also contains the scope for clean up and wipe down of a glove box from the internal equipment removal process. This task is not a full decon effort, only to remove filings, cuttings, debris and other material left in the box after the equipment and systems are removed. Once the box is cleaned up and wiped down, a survey will be performed to determine the next dismantlement actions that need to be done on the glove box.

Breakdown of Cost Data:  
 Item - Perform glove box internal equipment removal  
 Unit - Equipment pieces per glove box  
 Unit Cost -

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.36	Hours
<i>Factors</i>		35.42 hrs/piece of equipment	8 pieces of equipment /std GB				
750	STRAIGHT TIME BASE	C120	D&D SKILLED TRADES	KA70H 371 Facility Disposition Steelworkers	Linear	283.20	Hours
<i>Factors</i>		8.85 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i>		0.21 hrs/piece of equipment	8 pieces of equipment /std GB				
750	STRAIGHT TIME BASE	E080	NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	1.60	Hours
<i>Factors</i>		0.05 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.68	Hours
<i>Factors</i>		0.21 hrs/piece of equipment	8 pieces of equipment /std GB	1 Rad Ops Foreman			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	1.60	Hours
<i>Factors</i>		0.05 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.36	Hours
<i>Factors</i>		14.17 hrs/piece of equipment	8 pieces of equipment /std GB				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	113.28	Hours
<i>Factors</i>		3.54 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.88	Hours
<i>Factors</i>		0.11 hrs/piece of equipment	8 pieces of equipment /std GB				
750	STRAIGHT TIME BASE	T070	MAINT. TECHS. (INSTRUMENT TEC	KA70H 371 Facility Disposition Steelworkers	Linear	0.96	Hours
<i>Factors</i>		0.03 hrs/piece of equipment	4 Cuts per piece of equipment	8 ea			

**Line Item SYS - Contingency And Escalation**

**BOE**

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
CON	CONTINGENCY	0000	NONE	ZDEPT No Department	Linear	21,256.46	Dollars
<i>Factors</i>		21256.5 Dollars					
ESC	ESCALATION	0000	NONE	ZDEPT No Department	Linear	13,569.04	Dollars
<i>Factors</i>		13569.0 Dollars					

Activity ID: 1AQ31ST06A Description: Set 6 B371 Fluorination - Foa/SNM Removal

Cost Risk 5 Schedule Risk 5

Line Item	Description	Quantity	Units	BOE Type	Labor Hours/Unit	Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
Set 6 Prep	Prep Sets for Deactivation of B371	1.00	each	EE	991	991	36,213	7,480	0	43,692	17,647	61,339
3511 4-SCANGB	Glovebox Scan for SNM	1,070.00	cf	EE	0	171	3,528	0	0	3,528	1,719	5,247

WBS No: 1AAC  
 Activity ID: 1AQ31ST06A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

3511 4-SCT	Stripcoating of Glovebox 33	415.00	cf	EE	0	94	1,908	21,846	0	23,753	930	24,683
3511 5-CT	Carbon Trap in Rm 3511	2.00	dav	EE	40	80	1,717	700	0	2,417	837	3,254
3521 4-PCP	SNM Hold-Up on Equipment in a Canvon	12.00	each	EE	83	996	22,583	4,200	0	26,783	11,005	37,788
3521 4-SCANFN	Canvon Scan for SNM	1.00	ea	EE	160	160	3,397	2,030	0	5,427	1,655	7,082
3521 5-CFC	Calcining Furnaces in Canvon 3521	6.00	dav	EE	88	528	11,550	15,350	0	26,900	5,629	32,528
3521 5-FBT	Filter Boats in Canvon 3521	1.00	lot	EE	83	83	1,779	2,500	0	4,279	867	5,146
3521 6-FFCC	Foa/Filter Change in a Canvon	1.00	each	EE	48	48	1,040	37,100	0	38,140	507	38,647
3521 6-SBA	SBA Entries into a Canvon - SNM Hold-up on Equip.	1.00	each	EE	0	0	0	20,300	0	20,300	0	20,300
3523 4-SCANFN	Canvon Scan for SNM	1.00	ea	EE	168	168	3,618	2,030	0	5,648	1,763	7,411
3523 5-FR	Fluorination Reactor in Canvon 3523	2.00	dav	EE	86	172	3,834	5,400	0	9,234	1,868	11,102
3523 6-FFCC	Foa/Filter Change in a Canvon	1.00	each	EE	48	48	1,040	37,100	0	38,140	507	38,647
3531 4-PCP	SNM Hold-Up on Equipment in a Canvon	8.00	each	EE	83	664	15,055	2,842	0	17,897	7,337	25,234
3531 4-SCANFN	Canvon Scan for SNM	1.00	ea	EE	160	160	3,397	2,000	0	5,397	1,655	7,052
3531 6-FFC	Foa/Filter Change in a Canvon	1.00	each	EE	48	48	1,040	37,100	0	38,140	507	38,647
3531 6-SBA	SBA Entries	1.00	each	EE	0	0	0	20,300	0	20,300	0	20,300
SYS	Contingency And Escalation	1.00	ea	EE	0	0	0	0	1,282	1,282	0	1,282
Total for Activity 1AQ31ST06A:						4.411	111,699	218,277	1,282	331,258	54,433	385,691

**Line Item Set 6 Prep - Prep Sets for Deactivation of B371**

**BOE** Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Preliminary Walkdowns will be conducted in each area of every set to determine current configuration of equipment and room. This activity includes all necessary preliminary evaluations, walkdown of drawings, and preparing documentation required to perform work in each set. Documentation includes, but is not limited to, Criticality Safety Operating Limits, Radiation Work Permit, Integrated Work Control Package, and Engineering Package.

Breakdown of Cost Data:  
 Item - Preliminary Evaluation, walkdown of drawings, and documentation preparation.  
 Units - per set  
 Unit Cost - 883 hrs \$5,892 - Subcontractor Costs \$917 - Supplies  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	304.26	Hours
Factors	0.5071 ea	600 average hours for an intricate CSOL				
750	STRAIGHT TIME BASE	E080 NUCLEAR (CRITICALITY) ENGINEER	SA01S SSOC 371 Closure Project	Linear	25.35	Hours
Factors	0.5071 ea	50 hrs of Nuclear Safety Support for BIO				
750	STRAIGHT TIME BASE	E120 SAFETY ENGINEERS	SA01S SSOC 371 Closure Project	Linear	20.28	Hours
Factors	0.5071 ea	40 hrs to assist with BIO page changes				
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	545.13	Hours
Factors	1075 hrs drawing walkdown, IWCP	0.5071 ea				
750	STRAIGHT TIME BASE	E130 OTHER ENGINEERS	SA01S SSOC 371 Closure Project	Linear	20.28	Hours
Factors	0.5071 ea	40 hours to support this activity				
750	STRAIGHT TIME BASE	P090 INDUSTRIAL HYGIENISTS	SA01S SSOC 371 Closure Project	Linear	25.35	Hours
Factors	50 hrs to assist with IWCP preparation	0.5071 ea				
750	STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	25.35	Hours
Factors	0.5071 ea	50 hrs to assist with area walkdowns				
750	STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	25.35	Hours
Factors	0.5071 ea	50 hours to support this activity				
A57	LATA	P070 COST ESTIMATORS PLANNERS AN	KA70S B371 Facility Disposition	Linear	4,563.88	Dollars
Factors	0.5071 ea	1 ea	75 \$/hour	120 hrs to develop and complete an		
A57	LATA	P160 TECHNICAL WRITERS AND EDITOR	KA70S B371 Facility Disposition	Linear	1,901.62	Dollars
Factors	0.5071 ea	50 hours procedure support for changes	1 ea	75 \$/hr		
A5C	SUPPLIES	0000 NONE	KA70S B371 Facility Disposition	Linear	1,014.20	Dollars
Factors	0.5071 ea	1 ea	2000 misc. lighting, cans. & baqs			

**Line Item 3511 4-SCANGB - Glovebox Scan for SNM**

**BOE**

WBS No: 1AAC  
 Activity ID: 1AQ31ST06A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Scans will be conducted before and after SNM removal in gloveboxes. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a glovebox, a scan of the glovebox will be conducted to confirm SNM hold-up removal has been completed. The glovebox furnace scan is conducted at the same time as the glovebox scan.

Breakdown of Cost Data:  
 Item - Scan glovebox for SNM removal  
 Units - 2 scans per cubic foot of glovebox. One scan will be conducted prior to SNM hold-up removal, Second scan will be conducted after SNM hold-up removal.  
 Unit Cost - .16 hrs/cubic foot  
 Unit Cost Adjustment factor - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.08 Hours
Factors	2 scans, one prior to removal, second	1	EA	0.04	hours/cf of glovebox		
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KA70H	371 Facility Disposition Steelworkers	Linear	0.08 Hours
Factors	1 technician	0.04	hours per cubic foot of glovebox	2	Scans, one prior to removal, second		

**Line Item 3511 4-SCT - Stripcoating of Glovebox 33**

**BOE**

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Application and removal of Stripcoat on inside of each glovebox. Size of glovebox will vary; therefore, basis of estimate is per cubic foot of glovebox. Based on previous scans, 12 gloveboxes will be stripcoated. Gloveboxes include 58, 59, 64, 66, 67, 63, 33, 9, 10, 12, 7, and 13. Estimate is based on location of SNM determined when scan reading was conducted with high background. Initial deactivation scan could result in a variance depending on location of SNM. Cost of deactivation scan is covered in a separate line item.

This estimate assumes:  
 1. All small loose equipment, trash, etc., has previously been removed from the floor of the glovebox;  
 2. Application and removal can be successfully accomplished with one bag-in/bag-out;  
 3. Only one application of Stripcoat/glovebox will be required.

Therefore, any variance from these assumption will require additional hours.

Breakdown of Cost Data:  
 Item - One application and removal of Stripcoat per cubic foot of glovebox.  
 Units - per cubic foot  
 Unit Cost - 2 hrs/cu ft \$13.64/cu ft for supplies \$75/cu ft Subcontractor Cost

Unit Cost Adjustment factor - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	0.21 Hours
Factors	0.07 hours per cubic foot of glovebox	3	process specialist to remove stripcoat				
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	0.02 Hours
Factors	0.016 hours per day per cubic foot of	1	EA	1	RCT to assist Process Specialists		
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	4.00 Dollars
Factors	1 ea	0.1	drums/cubic ft	40	supply cost/drum includes tape, bags.		
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	3.64 Dollars
Factors	0.04 gal/cubic ft. for stripcoat	91	&/gallon				
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	45.00 Dollars
Factors	1 EA	45	ET average cost/cubic ft to stripcoat				

**Line Item 3511 5-CT - Carbon Trap in Rm 3511**

**BOE**

Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Dismantle Carbon Trap as necessary and remove the SNM hold-up. The material will be placed in an approved container and properly stored. This estimate does not include processing of SNM hold-up through PuSPS. Complete dismantlement and removal of equipment is not included in this estimate. Dismantlement and removal is included in Decommissioning. Calorimetry cost is not included here.

Breakdown of Cost Data:  
 Item - Dismantle as necessary and remove SNM hold-up.  
 Units - 4 Carbon Traps/day  
 Unit Cost - 40 hrs for 4 Carbon Traps \$350 Supply Cost  
 Unit Cost Adjustment factor - N/A

WBS No: 1AAC  
 Activity ID: 1AQ31ST06A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Linear	16.00	Hours
	<i>Factors</i> 1 EA		2 pipefitters	8	hrs to do 4 traps in one day			
	750 STRAIGHT TIME BASE	P140	SAFEGUARDS AND OTHER SECURI	SA01S	SSOC 371 Closure Project	Linear	4.00	Hours
	<i>Factors</i> 1 EA		4 hrs support of SNM removal/day					
	750 STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	16.00	Hours
	<i>Factors</i> 8		1 EA	2	process specialists			
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	4.00	Hours
	<i>Factors</i> 4		1 EA		hrs support to do 4 traps in one day			
	A5C SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	350.00	Dollars
	<i>Factors</i> 1 ea		175 supply cost including 8801, 8802.	2	cans for 4 carbon traps			

**Line Item 3521 4-PCP - SNM Hold-Up on Equipment in a Canyon**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - SNM Removal from Precipitators, Calcining Furnace, Induction Furnace, and Load Cells in an SBA/Canyon. This estimate assumes tanks were previously drained during a separate activity; therefore, cost to drain tanks is not captured in this activity. Cost included is to dismantle as necessary and remove the SNM hold-up. The material will be placed in an approved container and properly stored. This estimate does not include processing of SNM hold-up through PuSPS. Calorimetry cost is not included here. Estimate is based on location of SNM determined when scan reading was conducted with high background. Initial deactivation scan could result in a variance depending on location of SNM. Cost of deactivation scan is covered in a separate line item. Complete dismantlement and removal of equipment is not included in this estimate. Dismantlement and removal is included in Decommissioning. Estimate assumes building supplied air is functional. Cost is increased if portable trailer unit is used. Cost of Supplied Breathing Air Suits is not included in this estimate.

Breakdown of Cost Data:  
 Item - Dismantle as necessary and remove SNM hold-up.  
 Units - per piece of equipment  
 Unit Cost - 87 hours/piece of equipment \$350 - Supply Costs  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mgmt Steelworkers	Linear	16.00	Hours
	<i>Factors</i> 1 EA		8 hrs/dav per piece of equipment	2	pipefitters			
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	4.00	Hours
	<i>Factors</i> 1 EA		4 hrs/dav/piece of equipment					
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
	<i>Factors</i> 1 EA		1 RCT supervisor	1	dav per piece of equipment	8	hours per day	
	750 STRAIGHT TIME BASE	P140	SAFEGUARDS AND OTHER SECURI	SA01S	SSOC 371 Closure Project	Linear	15.00	Hours
	<i>Factors</i> 1 EA		15 hrs support of SNM removal					
	750 STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	24.00	Hours
	<i>Factors</i> 1 EA		3 process specialists (includes 2 on the	1	dav per piece of equipment	8	hours per day	
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	16.00	Hours
	<i>Factors</i> 1 EA		8 per dav	1	davs per piece of equipment	2	RCTs (includes 1 on the inside, 1 on	
	A5C SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	350.00	Dollars
	<i>Factors</i> 1 EA		2 cans	175	\$/can (includes 8801, 8802, bags,			

**Line Item 3521 4-SCANFN - Canyon Scan for SNM**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Scans will be conducted before and after SNM removal in Canyons. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a Canyon area, a scan of the canyon area will be conducted to confirm SNM hold-up removal has been completed. There are three canyon areas that will be scanned for SNM hold-up. The three areas include: Rooms 3521, 3523, and 3531. Glovebox scan for SNM is not included in this activity. Estimate assumes building supplied air is functional. Cost is increased if portable trailer unit is used. Cost of Supplied Breathing Air Suits for this effort is included in this activity.

Breakdown of Cost Data:  
 Item - Scan Canyon area for SNM hold-up.  
 Units - 2 scans per canyon. One scan will be conducted prior to SNM hold-up removal, second scan will be conducted after SNM hold-up removal.  
 Unit Cost - 168 hrs/scan \$2,000 Supply Costs  
 Unit Cost Adjustment factor - N/A

WBS No: 1AAC  
 Activity ID: 1AQ31ST06A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
Factors	1 EA		2 scans/canvon		4 hrs/scan			
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
Factors	1 EA		4 hrs/scan		2 scans/canvon			
	750 STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facilitv Disposition Steelworkers	Linear	64.00	Hours
Factors	8 hrs/scan		2 scans/canvon		4 process specialists (includes 3 on the			
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	64.00	Hours
Factors	1 EA		4 RCTs (includes 2 on the inside, 2 on		2 scans/canvon	8 hrs/scan		
	750 STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KA70H	371 Facilitv Disposition Steelworkers	Linear	16.00	Hours
Factors	1 technician		2 Scans, one prior to removal, second		1 EA	8 hours per canvon		
	A5C SUPPLIES	0000	NONE	K218S	Financial Services	Linear	2,030.00	Dollars
Factors	2 SBA Suits/Scan		500 \$/suit		2 Scans/Canyon	1.015 -- FY00 Escalation --		

**Line Item 3521 5-CFC - Calcining Furnaces in Canyon 3521**

**BOE**  
 Estimators Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Dismantle as necessary Calcining Furnaces and remove the SNM hold-up. The material will be placed in an approved container and properly stored for further stabilization by PUSPS operations. This estimate does not include processing of SNM hold-up through PuSPS. Complete dismantlement and removal of equipment is not included in this estimate. Complete dismantlement and removal is included in Decommissioning. Estimate assumes building supplied air is functional. Cost is increased if portable trailer unit is used. Cost of Supplied Breathing Air Suits for this effort is included in this activity. Calorimetry cost is not included here.

Breakdown of Cost Data:  
 Item - Dismantle as necessary and remove SNM hold-up.  
 Units - Cost per day @ 2 furnaces/day  
 Unit Cost - 88 hrs/day @ 2 furnaces/day Supply Cost - \$2860  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facilitv Mgmt Steelworkers	Linear	16.00	Hours
Factors	1 EA		2 pipefitters/day		8 hrs @ 2 furnaces/day			
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
Factors	8 hrs @ 2 furnaces/day							
	750 STRAIGHT TIME BASE	P140	SAFEGUARDS AND OTHER SECURI	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
Factors	1 EA		8 hrs support of SNM removal					
	750 STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facilitv Disposition Steelworkers	Linear	24.00	Hours
Factors	3 process specialists (includes 2 on the		8 hours @ 2 furnace/day					
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	32.00	Hours
Factors	1 EA		4 RCTs (includes 1 on the inside, 1 on		8 hrs @ 2 furnaces/day			
	A5C SUPPLIES	0000	NONE	K218S	Financial Services	Linear	2,500.00	Dollars
Factors	1 EA		500 \$/suit		1 ea	5 Suits/day		
	A5C SUPPLIES	0000	NONE	KA70S	B371 Facilitv Disposition	Linear	58.28	Dollars
Factors	1 EA		175 supply cost includes 8801, 8802.		0.333 factor for 4 cans SNM in 12 furnaces			

**Line Item 3521 5-FBT - Filter Boats in Canyon 3521**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's office.

Experience Item Desc - Remove and place filter boats in a glovebox, inspect and remove residual SNM on the filter, place filter boat in drum, and count drum. SNM remove from the filter boat will be place in an approved container and properly stored for further stabilization by PUSPS operations. The filter boats are metal fritted and minute SNM oxide may be embedded within the frit. The SNM, if present and embedded in the frit, had been calcined during operational days and cannot be removed from the frit without high acid concentration dissolution. There is currently no dissolution process operational for this activity. Estimate assumes building supplied air is functional. Cost is increased if portable trailer unit is used. Cost of Supplied Breathing Air Suits is included here. Filter Boats may have been removed; however, actual configuration cannot be verified until entry is made in the room.

Breakdown of Cost Data:  
 Item - Removal of filter boats, place filter boats in drum, and count drum.  
 Units - Lot  
 Unit Cost - 82.5 hrs \$2,538 Supply Cost  
 Unit Cost Adjustment factor - N/A

WBS No: 1AAC  
 Activity ID: 1AQ31ST06A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project: Baseline Devl  
 WBS Filter: 1AAC  
 Activity Filter: \*

Starts In FY \*

Resources	Cost Element		Skill		Department	Curve	Quantity	Units	
	750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	2.00	Hours
Factors	1	EA		2	hours for filter boats		1	process specialist supervisor	
	750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
Factors	1	EA		8	hours for filter boats		1	RCT supervisor	
	750	STRAIGHT TIME BASE	P140	SAFEGUARDS AND OTHER SECURI	SA01S	SSOC 371 Closure Project	Linear	4.50	Hours
Factors	1	EA		4.5	hrs support of SNM removal				
	750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	32.00	Hours
Factors	1	EA		8	hours for filter boats		4	process specialists (includes 3 on the	
	750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	20.00	Hours
Factors	1	EA		10	drums @ 1 hr/drum - 1 filter/drum		2	process specialists for drum count	
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	16.00	Hours
Factors	1	EA		8	hrs for all filter boat		2	RCTs (includes 1 on the outside, 1 on	
	A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	2,000.00	Dollars
Factors	1	EA		4	SBA Suits		500	\$/suit	
	A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	500.00	Dollars
Factors	1	EA		50	\$/drum for supplies including bags,		10	drums	

**Line Item 3521 6-FFCC - Fog/Filter Change in a Canyon**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the CA Manager's Office.

Experience Item Desc - Prep of canyon for SNM hold-up removal. Activity is completed in supplied breathing air. Estimate assumes building supplied air is functional. Cost is increased if portable trailer unit is used. This estimate does include cost of supplied breathing air suits to replace filters. Three canyons will require procedure: 3521, 3523, and 3531. Cost of fogging each canyon is based on the process not on square footage of canyon.

Breakdown of Cost Data:  
 Item - Fog and Filter change in a canyon  
 Units - Cost/Canyon  
 Unit Cost - 48 hours \$35,000 Subcontractor Costs \$2,100 Supply Costs  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element		Skill		Department	Curve	Quantity	Units	
	750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	4.00	Hours
Factors	1	EA		4	hrs				
	750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	4.00	Hours
Factors	1	EA		4	hrs				
	750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	24.00	Hours
Factors	1	EA		3	Process Specialists (includes 2 on		8	hrs to replace 4 filters/canyon	
	750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	16.00	Hours
Factors	2	RCTs (includes 1 on the inside, 1 on		8	hours to replace 4 filters/canyon				
	A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	600.00	Dollars
Factors	4	filters/canyon		150	supply dollars/filter includes prorated				
	A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	1,500.00	Dollars
Factors	1	EA		3	Supplied Breathing Air Suits to		500	\$/suit	
	A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	35,000.00	Dollars
Factors	1	EA		35000	Encapsulation Technology				

**Line Item 3521 6-SBA - SBA Entries into a Canyon - SNM Hold-up on Equip.**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Supplied Breathing Air (SBA) Suits for entry in Canyon for SNM Hold-up Removal

Breakdown of Cost Data:  
 Item - SBA Suits/Canyon for entry to remove SNM Hold-up  
 Units - SBA Suits/Canyon for entry to remove SNM Hold-up Unit Cost - \$20,000  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element		Skill		Department	Curve	Quantity	Units	
	A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	20,300.00	Dollars
Factors	500	per suit		8	Entries/Canyon		5	suits/entry	

WBS No: 1AAC  
 Activity ID: 1AQ31ST06A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

**Line Item 3523 4-SCANFN - Canyon Scan for SNM**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Scans will be conducted before and after SNM removal in Canyons. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a Canyon area, a scan of the canyon area will be conducted to confirm SNM hold-up removal has been completed. There are three canyon areas that will be scanned for SNM hold-up. The three areas include: Rooms 3521, 3523, and 3531. Glovebox scan for SNM is not included in this activity. Estimate assumes building supplied air is functional. Cost is increased if portable trailer unit is used. Cost of Supplied Breathing Air Suits for this effort is included in this activity.

Breakdown of Cost Data:  
 Item - Scan Canyon area for SNM hold-up.  
 Units - 2 scans per canyon. One scan will be conducted prior to SNM hold-up removal, second scan will be conducted after SNM hold-up removal.  
 Unit Cost - 168 hrs/scan \$2,000 Supply Costs  
 Unit Cost Adjustment factor - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	16.00	Hours
Factors	8 hrs/scan		1 EA	2 scans/canyon			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
Factors	4 hrs/scan		2 scans/canyon				
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	64.00	Hours
Factors	8 hrs/scan		1 EA	2 scans/canyon	4 process specialists (includes 3 on the		
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	64.00	Hours
Factors	2 scans/canyon		1 EA	4 RCTs (includes 2 on the inside, 2 on	8 hrs/scan		
750	STRAIGHT TIME BASE	T060	D&D HAZ REDUC TECH / RISK RED	KA70H 371 Facility Disposition Steelworkers	Linear	16.00	Hours
Factors	8 hours per canyon		1 EA	1 technician	2 Scans, one prior to removal, second		
A5C	SUPPLIES	0000	NONE	K218S Financial Services	Linear	2,030.00	Dollars
Factors	2 Scans/Canyon		500 \$/suit	1.015 -- FY00 Escalation --	2 SBA Suits/Scan		

**Line Item 3523 5-FR - Fluorination Reactor in Canyon 3523**

**BOE**  
 Estimators Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.

Experience Item Desc - Dismantle as necessary Fluorination Reactors and remove the SNM hold-up. The material will be placed in an approved container and properly stored. This estimate does not include processing of SNM hold-up through PuSPS. Complete dismantlement and removal of equipment is not included in this estimate. Dismantlement and removal is included in Decommissioning. Estimate assumes building supplied air is functional. Cost is increased if portable trailer unit is used. Cost of Supplied Breathing Air Suits is included here. Calorimetry cost is not included here.

Breakdown of Cost Data:  
 Item - Dismantle as necessary and remove SNM hold-up.  
 Units - per 2 fluorination reactors (Quantity is 2 days to remove all 4 reactors)  
 Unit Cost - 86 hrs to remove 2 reactors \$2700 - Supply Cost  
 Unit Cost Adjustment factor - N/A

Resources		Cost Element	Skill	Department	Curve	Quantity	Units
750	STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H 371/374 Facility Maint Steelworkers	Linear	16.00	Hours
Factors	1 EA		8 hrs for 2 reactors	2 pipefitters			
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	4.00	Hours
Factors	1 EA		4 hrs for 2 reactors				
750	STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
Factors	1 EA		8 hrs for 2 reactors				
750	STRAIGHT TIME BASE	P140	SAFEGUARDS AND OTHER SECURI	SA01S SSOC 371 Closure Project	Linear	10.00	Hours
Factors	1 EA		10 hrs support of SNM removal				
750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	32.00	Hours
Factors	1 EA		8 hrs for 2 reactors	4 process specialists (includes 3 on the			
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	16.00	Hours
Factors	2 RCTs (includes 1 on the inside, 1 on			8 hrs for 2 reactors			
A5C	SUPPLIES	0000	NONE	K218S Financial Services	Linear	2,000.00	Dollars
Factors	1 EA		500 \$/suit	4 Supplied Breathing Air Suits/dav			

WBS No: 1AAC  
 Activity ID: 1AQ31ST06A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	700.00	Dollars
<i>Factors</i>	1 EA		4 cans	175	supply cost/can			

**Line Item 3523 6-FFCC - Fog/Filter Change in a Canyon**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - Prep of canyon for SNM hold-up removal. Activity is completed in supplied breathing air. Estimate assumes building supplied air is functional. Cost is increased if portable trailer unit is used. This estimate does include cost of supplied breathing air suits to replace filters. Three canyons will require procedure: 3521, 3523, and 3531. Cost of fogging each canyon is based on the process not on square footage of canyon.  
 Breakdown of Cost Data:  
 Item - Fog and Filter change in a canyon  
 Units - Cost/Canyon  
 Unit Cost - 48 hours \$35,000 Subcontractor Costs \$2,100 Supply Costs  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	4.00	Hours
<i>Factors</i>	4 hrs		1 EA					
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	4.00	Hours
<i>Factors</i>	1 EA		4 hrs					
	750 STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR /	KA70H	371 Facility Disposition Steelworkers	Linear	24.00	Hours
<i>Factors</i>	3 Process Specialists (includes 2 on		1 EA	8	hrs to replace 4 filters/canyon			
	750 STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	16.00	Hours
<i>Factors</i>	2 RCTs (includes 1 on the inside. 1 on		8	hrs to replace 4 filters/canyon				
	A5C SUPPLIES	0000	NONE	K218S	Financial Services	Linear	1,500.00	Dollars
<i>Factors</i>	1 ea		3 Supplied Breathing Air Suits to	1	EA	500 \$/suit		
	A5C SUPPLIES	0000	NONE	K218S	Financial Services	Linear	600.00	Dollars
<i>Factors</i>	1 ea		4 filters/canyon	1	EA	150 supply dollars/filter includes prorated		
	A5H SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	35,000.00	Dollars
<i>Factors</i>	35000 Encapsulation Technology							

**Line Item 3531 4-PCP - SNM Hold-Up on Equipment in a Canyon**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the WAD Manager's Office.  
 Experience Item Desc - SNM Removal from Precipitators, Calcining Furnace, Induction Furnace, and Load Cells in an SBA/Canyon. This estimate assumes tanks were previously drained during a separate activity; therefore, cost to drain tanks is not captured in this activity. Cost included is to dismantle as necessary and remove the SNM hold-up. The material will be placed in an approved container and properly stored. This estimate does not include processing of SNM hold-up through PuSPS. Calorimetry cost is not included here. Estimate is based on location of SNM determined when scan reading was conducted with high background. Initial deactivation scan could result in a variance depending on location of SNM. Cost of deactivation scan is covered in a separate line item. Complete dismantlement and removal of equipment is not included in this estimate. Dismantlement and removal is included in Decommissioning. Estimate assumes building supplied air is functional. Cost is increased if portable trailer unit is used. Cost of Supplied Breathing Air Suits is not included in this estimate.  
 Breakdown of Cost Data:  
 Item - Dismantle as necessary and remove SNM hold-up.  
 Units - per piece of equipment  
 Unit Cost - 87 hours/piece of equipment \$350 - Supply Costs  
 Unit Cost Adjustment factor - N/A

Resources	Cost Element		Skill		Department	Curve	Quantity	Units
	750 STRAIGHT TIME BASE	C080	PLUMBERS AND PIPEFITTERS	KA20H	371/374 Facility Mamt Steelworkers	Linear	16.00	Hours
<i>Factors</i>	1 EA		8 hrs/dav per piece of equipment	2	pipefitters			
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	8.00	Hours
<i>Factors</i>	1 EA		1 dav per piece of equipment	1	RCT supervisor	8 hours per dav		
	750 STRAIGHT TIME BASE	M010	FOREMEN / TEAM LEADS / GROUP	SA01S	SSOC 371 Closure Project	Linear	4.00	Hours
<i>Factors</i>	1 EA		4 hrs/dav/piece of equipment					
	750 STRAIGHT TIME BASE	P140	SAFEGUARDS AND OTHER SECURI	SA01S	SSOC 371 Closure Project	Linear	15.00	Hours
<i>Factors</i>	1 EA		15 hrs support of SNM removal					

WBS No: 1AAC  
 Activity ID: 1AQ31ST06A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \* Starts In FY \*

750	STRAIGHT TIME BASE	R010	CHEMICAL SYSTEMS OPERATOR (	KA70H	371 Facility Disposition Steelworkers	Linear	24.00	Hours
Factors	1 EA		8 hours per day		1 day per piece of equipment	3 process specialists (includes 2 on the		
750	STRAIGHT TIME BASE	T050	RADIATION CONTROL TECHNOLOGI	KA10H	371 Complex Steelworkers	Linear	16.00	Hours
Factors	1 EA		8 per day		1 days per piece of equipment	2 RCTs (includes 1 on the inside. 1 on		
A5C	SUPPLIES	0000	NONE	KA70S	B371 Facility Disposition	Linear	355.25	Dollars
Factors	1 EA		2 cans		1.015 -- FY00 Escalation --	175 \$/can (includes 8801, 8802. baags.		

**Line Item 3531 4-SCANFN - Canyon Scan for SNM**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the CA Manager's Office.

Experience Item Desc - Scans will be conducted before and after SNM removal in Canyons. Initial scan will be conducted to confirm actual location of SNM hold-up. After the SNM hold-up has been removed from a Canyon area, a scan of the canyon area will be conducted to confirm SNM hold-up removal has been completed. There are three canyon areas that will be scanned for SNM hold-up. The three areas include: Rooms 3521, 3523, and 3531. Glovebox scan for SNM is not included in this activity. Estimate assumes building supplied air is functional. Cost is increased if portable trailer unit is used. Cost of Supplied Breathing Air Suits for this effort is included in this activity.

Breakdown of Cost Data:  
 Item - Scan Canyon area for SNM hold-up.  
 Units - 2 scans per canyon. One scan will be conducted prior to SNM hold-up removal, second scan will be conducted after SNM hold-up removal.  
 Unit Cost - 168 hrs/scan \$2,000 Supply Costs  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
Factors 2 scans/canyon	4 hrs/scan				
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	8.00	Hours
Factors 4 hrs/scan	2 scans/canyon				
750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	64.00	Hours
Factors 8 hrs/scan	2 scans/canyon	4 process specialists (includes 3 on the			
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	64.00	Hours
Factors 4 RCTs (includes 2 on the inside. 2 on	8 hrs/scan	2 scans/canyon			
750 STRAIGHT TIME BASE	T060 D&D HAZ REDUC TECH / RISK RED	KA70H 371 Facility Disposition Steelworkers	Linear	16.00	Hours
Factors 1 technician	2 Scans, one prior to removal, second	8 hours per canyon			
A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	2,000.00	Dollars
Factors 500 \$/suit	2 SBA Suits/Scan	2 Scans/Canyon			

**Line Item 3531 6-FFC - Fog/Filter Change in a Canyon**

**BOE**  
 Estimator Experience - A complete breakdown of costs are in the B371 Deactivation Model located in the CA Manager's Office.

Experience Item Desc - Prep of canyon for SNM hold-up removal. Activity is completed in supplied breathing air. Estimate assumes building supplied air is functional. Cost is increased if portable trailer unit is used. This estimate does include cost of supplied breathing air suits to replace filters. Three canyons will require procedure: 3521, 3523, and 3531. Cost of fogging each canyon is based on the process not on square footage of canyon.

Breakdown of Cost Data:  
 Item - Fog and Filter change in a canyon  
 Units - Cost/Canyon  
 Unit Cost - 48 hours \$35,000 Subcontractor Costs \$2,100 Supply Costs  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element	Skill	Department	Curve	Quantity	Units
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	4.00	Hours
Factors 1 EA	4 hrs				
750 STRAIGHT TIME BASE	M010 FOREMEN / TEAM LEADS / GROUP	SA01S SSOC 371 Closure Project	Linear	4.00	Hours
Factors 4 hrs	1 EA				
750 STRAIGHT TIME BASE	R010 CHEMICAL SYSTEMS OPERATOR (	KA70H 371 Facility Disposition Steelworkers	Linear	24.00	Hours
Factors 3 Process Specialists (includes 2 on	8 hrs to replace 4 filters/canyon				
750 STRAIGHT TIME BASE	T050 RADIATION CONTROL TECHNOLOGI	KA10H 371 Complex Steelworkers	Linear	16.00	Hours
Factors 2 RCTs (includes 1 on the inside. 1 on	8 hours to replace 4 filters/canyon				
A5C SUPPLIES	0000 NONE	K218S Financial Services	Linear	1,500.00	Dollars
Factors 500 \$/suit	3 Supplied Breathing Air Suits to				

WBS No: 1AAC  
 Activity ID: 1AQ31ST06A

**Rockv Flats Closure Project**  
**Baseline Cost and Basis of Estimate**

Project Baseline Devl  
 WBS Filter 1AAC  
 Activity Filter \*

Starts In FY \*

A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	600.00	Dollars
<i>Factors</i> 4 filters/canyon		150	supply dollors/filter					
A5H	SUBCONTRACTED SRVS	0000	NONE	KA70S	B371 Facility Disposition	Linear	35,000.00	Dollars
<i>Factors</i> 35000 Encapsulation Technology								

**Line Item 3531 6-SBA - SBA Entries**

**BOE**  
 Estimator Experience - A complete Breakdown of costs are in the B371 Deactivation Model located in the CA Manager's Office.  
 Experience Item Desc - Supplied Breathing Air (SBA) Suits for entry into a Canyon for SNM Hold-up Removal on Equipment  
 Breakdown of Cost Data:  
 Item - SBA Suits/Canyon for entry to remove SNM Hold-up on Equipment  
 Units - SBA Suits  
 Unit Cost - \$20,000  
 Unit Cost Adjustment factor - N/A

**Resources**

Cost Element		Skill		Department		Curve	Quantity	Units
A5C	SUPPLIES	0000	NONE	K218S	Financial Services	Linear	20,300.00	Dollars
<i>Factors</i> 500 PER SUIT		8	entries/canyon	1.015	FY00 Escalation	5	suits/entry	

**Line Item SYS - Contingency And Escalation**

**BOE**

**Resources**

Cost Element		Skill		Department		Curve	Quantity	Units
CON	CONTINGENCY	0000	NONE	ZDEPT	No Department	Linear	778.15	Dollars
<i>Factors</i> 778.15 Dollars								
ESC	ESCALATION	0000	NONE	ZDEPT	No Department	Linear	503.69	Dollars
<i>Factors</i> 503.69 Dollars								

**Report Totals:**

Labor Hours Total	Labor Cost Total	Materials/ Sub Cost	Contingency & Escalation	Total Prime Cost	Burden Cost	Total Cost
428,948	10,365,715	5,764,668	2,914,948	19,045,331	4,085,133	23,130,464