

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total		
1	05					X-RAY TRANSPORT & DIAGNOSTICS SYSTEMS						49,848	6,084,477	8,196,762	6,922,060	15,118,822		4,203,258
1	05	01				System Management & Integration						7,758	170,131	1,434,296	198,655	1,632,951		277,602
1	05	01	01			Management						7,758	170,131	1,434,296	198,655	1,632,951		277,602
1	05	01	01	01		XTOD Management - Technical						6,407	156,751	1,251,137	183,376	1,434,513		243,867
1	05	01	01	01		Management & Oversight - Jul-Sep06	3-Jul-06	29-Sep-06	C	LL_SEE1	Hrs	72		12,708		12,708	17%	2,160
1	05	01	01	01		Management & Oversight - Jul-Sep06	3-Jul-06	29-Sep-06	C	LL_PHSS	Hrs	144		29,988		29,988	17%	5,098
1	05	01	01	01		Management & Oversight - Jul-Sep06	3-Jul-06	29-Sep-06	C	LL_MSTR	\$\$		1,585		1,886	17%	321	
1	05	01	01	01		Management & Oversight - Jul-Sep06	3-Jul-06	29-Sep-06	C	LL_ME1	Hrs	144		25,415		25,415	17%	4,321
1	05	01	01	01		Management & Oversight - FY07	2-Oct-06	28-Sep-07	C	LL_SEE1	Hrs	871		157,813		157,813	17%	26,828
1	05	01	01	01		Management & Oversight - FY07	2-Oct-06	28-Sep-07	C	LL_PHSS	Hrs	1,742		372,410		372,410	17%	63,310
1	05	01	01	01		Management & Oversight - FY07	2-Oct-06	28-Sep-07	C	LL_MSTR	\$\$		30,000		36,628	17%	6,227	
1	05	01	01	01		Management & Oversight - FY07	2-Oct-06	28-Sep-07	C	LL_ME1	Hrs	1,742		315,625		315,625	17%	53,656
1	05	01	01	01		Management & Oversight - FY08	1-Oct-07	29-Feb-08	C	LL_SEE1	Hrs	338		62,833		62,833	17%	10,682
1	05	01	01	01		Management & Oversight - FY08	1-Oct-07	29-Feb-08	C	LL_PHSS	Hrs	677		148,494		148,494	17%	25,244
1	05	01	01	01		Management & Oversight - FY08	1-Oct-07	29-Feb-08	C	LL_MSTR	\$\$		15,000		18,790	17%	3,194	
1	05	01	01	01		Management & Oversight - FY08	1-Oct-07	29-Feb-08	C	LL_ME1	Hrs	677		125,852		125,852	17%	21,395
1	05	01	01	01		Facility Usage Charge	3-Jul-06	30-Apr-08	C	LL_MSE	(\$)		110,166		126,071	17%	21,432	
1	05	01	01	02		LLNL Project Support						1,281	13,380	176,793	15,279	192,073		32,652
1	05	01	01	02		Administrative/Database Support	3-Jul-06	29-Feb-08	C	LL_ADMI	Hrs	1,281		176,793		176,793	17%	30,055
1	05	01	01	02		Teleconference/Comp	3-Jul-06	29-Feb-08	C	LL_MSP	\$\$		4,460		5,093	17%	866	
1	05	01	01	02		Project Support M&S	3-Jul-06	29-Feb-08	C	LL_MSC	\$\$		8,920		10,186	17%	1,732	
1	05	01	01	03		Commissioning Coordinator						70	-	6,365	-	6,365		1,082
1	05	01	01	03		Management - Commission Coordinator - FY-06	3-Jul-06	29-Sep-06	C	SL_EE1	Hrs	70		6,365		6,365	17%	1,082
1	05	02				Controls						1,733	850,000	318,577	928,530	1,247,107		249,421
1	05	03				Mechanical & Vacuum Subsystem						4,894	1,352,260	812,911	1,541,577	2,354,488		515,583
1	05	03	01			Vacuum Systems Engineering						1,084	17,260	163,862	19,558	183,419		34,850
1	05	03	01			Configuration Drawing Mgt	3-Jul-06	28-Sep-07	C	LL_MDD	Hrs	542		89,638		89,638	19%	17,031
1	05	03	01			Material Mgt	3-Jul-06	28-Sep-07	C	LL_ADMI	Hrs	542		74,224		74,224	19%	14,102
1	05	03	01			Mech/Vac Supplies	3-Jul-06	28-Sep-07	C	LL_MSC	\$\$		17,260		19,558	19%	3,716	
1	05	03	02			Mech/Vac Front End						1,220	296,000	209,868	337,103	546,970		136,743
1	05	03	02			Prepare Physics Specification - FEE Mech/Vac	11-Sep-06	31-Oct-06	C	LL_ME1	Hrs	54		9,685		9,685	25%	2,421
1	05	03	02			PRD Review - FEE Mech/Vac	1-Nov-06	7-Nov-06	C	LL_PHS1	Hrs	10		1,936		1,936	25%	484
1	05	03	02			PRD Review - FEE Mech/Vac	1-Nov-06	7-Nov-06	C	LL_ME1	Hrs	10		1,812		1,812	25%	453
1	05	03	02			Conceptual Engr/Design - FEE Mech/Vac	8-Nov-06	9-Jan-07	C	LL_ME1	Hrs	96		17,394		17,394	25%	4,348
1	05	03	02			Conceptual Engr/Design - FEE Mech/Vac	8-Nov-06	9-Jan-07	C	LL_MDD	Hrs	96		15,957		15,957	25%	3,989
1	05	03	02			Conceptual Engr/Design - FEE Mech/Vac	8-Nov-06	9-Jan-07	C	LL_EE1	Hrs	16		2,899		2,899	25%	725
1	05	03	02			Conceptual Design Review - FEE Mech/Vac	10-Jan-07	24-Jan-07	C	LL_ME1	Hrs	20		3,624		3,624	25%	906
1	05	03	02			Conceptual Design Review - FEE Mech/Vac	10-Jan-07	24-Jan-07	C	LL_MDD	Hrs	20		3,324		3,324	25%	831
1	05	03	02			Prepare ESD - FEE Mech/Vac	25-Jan-07	22-Feb-07	C	LL_ME1	Hrs	16		2,899		2,899	25%	725
1	05	03	02			Preliminary Engineering/Design - FEE Mech/Vac	25-Jan-07	26-Feb-07	C	LL_ME1	Hrs	88		15,944		15,944	25%	3,986
1	05	03	02			Preliminary Engineering/Design - FEE Mech/Vac	25-Jan-07	26-Feb-07	C	LL_MDD	Hrs	88		14,628		14,628	25%	3,657
1	05	03	02			Preliminary Engineering/Design - FEE Mech/Vac	25-Jan-07	26-Feb-07	C	LL_EE1	Hrs	18		3,261		3,261	25%	815
1	05	03	02			Preliminary Design Review - FEE Mech/Vac	27-Feb-07	12-Mar-07	C	LL_ME1	Hrs	40		7,247		7,247	25%	1,812
1	05	03	02			Preliminary Design Review - FEE Mech/Vac	27-Feb-07	12-Mar-07	C	LL_MDD	Hrs	40		6,649		6,649	25%	1,662
1	05	03	02			Preliminary Design Review - FEE Mech/Vac	27-Feb-07	12-Mar-07	C	LL_EE1	Hrs	10		1,812		1,812	25%	453
1	05	03	02			Prepare documentation - FEE Mech/Vac	8-Dec-06	9-Apr-07	C	LL_ME1	Hrs	60		10,871		10,871	25%	2,718
1	05	03	02			Prepare documentation - FEE Mech/Vac	8-Dec-06	9-Apr-07	C	LL_EE1	Hrs	10		1,812		1,812	25%	453
1	05	03	02			Final Engineering/Design - FEE Mech/Vac	27-Feb-07	9-Apr-07	C	LL_ME1	Hrs	40		7,247		7,247	25%	1,812
1	05	03	02			Final Engineering/Design - FEE Mech/Vac	27-Feb-07	9-Apr-07	C	LL_MDD	Hrs	120		19,947		19,947	25%	4,987
1	05	03	02			Final Engineering/Design - FEE Mech/Vac	27-Feb-07	9-Apr-07	C	LL_EE1	Hrs	10		1,812		1,812	25%	453
1	05	03	02			Final Design Review - FEE Mech/Vac	10-Apr-07	23-Apr-07	C	LL_ME1	Hrs	20		3,624		3,624	25%	906
1	05	03	02			Final Design Review - FEE Mech/Vac	10-Apr-07	23-Apr-07	C	LL_MDD	Hrs	40		6,649		6,649	25%	1,662

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1	2	3	4	5	6							Hours	\$	Labor	M&S	Total			
1	05	03	02			Final Design Review - FEE Mech/Vac	10-Apr-07	23-Apr-07	C	LL_EE1	Hrs	20		3,624		3,624	25%	906	
1	05	03	02			Bid Prep/RFP/Award - FEE Mech/Vac	10-Apr-07	6-Jun-07	C	LL_ME1	Hrs	33		5,979		5,979	25%	1,495	
1	05	03	02			Bid Prep/RFP/Award - FEE Mech/Vac	10-Apr-07	6-Jun-07	C	LL_EE1	Hrs	10		1,812		1,812	25%	453	
1	05	03	02			Bid Prep/RFP/Award - FEE Mech/Vac	10-Apr-07	6-Jun-07	C	LL_ADM	Hrs	33		4,542		4,542	25%	1,136	
1	05	03	02			Fab/Deliver - FEE Mech/Vac	8-Jun-07	24-Sep-07	C	LL_MSE(\$\$			296,000		337,103		337,103	25%	84,276
1	05	03	02			Fab/Deliver - FEE Mech/Vac	8-Jun-07	24-Sep-07	C	LL_ME1	Hrs	30		5,436		5,436	25%	1,359	
1	05	03	02			Fab/Deliver - FEE Mech/Vac	8-Jun-07	24-Sep-07	C	LL_MDD	Hrs	10		1,662		1,662	25%	416	
1	05	03	02			Fab/Deliver - FEE Mech/Vac	8-Jun-07	24-Sep-07	C	LL_ADM	Hrs	20		2,753		2,753	25%	688	
1	05	03	02			Test @ LLNL - FEE Mech/Vac	25-Sep-07	8-Oct-07	C	LL_MFA	Hrs	40		5,710		5,710	25%	1,428	
1	05	03	02			Test @ LLNL - FEE Mech/Vac	25-Sep-07	8-Oct-07	C	LL_ME1	Hrs	20		3,674		3,674	25%	919	
1	05	03	02			Readiness Review - FEE Mech/Vac	9-Oct-07	22-Oct-07	C	LL_MFA	Hrs	10		1,444		1,444	25%	361	
1	05	03	02			Readiness Review - FEE Mech/Vac	9-Oct-07	22-Oct-07	C	LL_ME1	Hrs	40		7,436		7,436	25%	1,859	
1	05	03	02			Ship to SLAC - FEE Mech/Vac	4-Feb-08	15-Feb-08	C	LL_MFA	Hrs	20		2,889		2,889	25%	722	
1	05	03	02			Ship to SLAC - FEE Mech/Vac	4-Feb-08	15-Feb-08	C	LL_ME1	Hrs	4		744		744	25%	186	
1	05	03	02			Ship to SLAC - FEE Mech/Vac	4-Feb-08	15-Feb-08	C	LL_ADM	Hrs	8		1,130		1,130	25%	282	
1	05	03	03			Mech/Vac Near Hall						847	209,000	143,162	238,424	381,586		99,212	
1	05	03	03	01		Mech/Vac Near Hall						847	209,000	143,162	238,424	381,586		99,212	
1	05	03	03	01		Prepare Physics Specification - NEH Mech/Vac	11-Sep-06	31-Oct-06	C	LL_ME1	Hrs	27		4,842		4,842	26%	1,259	
1	05	03	03	01		PRD Review - NEH Mech/Vac	1-Nov-06	7-Nov-06	C	LL_ME1	Hrs	10		1,812		1,812	26%	471	
1	05	03	03	01		Conceptual Engr/Design - NEH Mech/Vac	8-Nov-06	9-Jan-07	C	LL_ME1	Hrs	64		11,596		11,596	26%	3,015	
1	05	03	03	01		Conceptual Engr/Design - NEH Mech/Vac	8-Nov-06	9-Jan-07	C	LL_MDD	Hrs	64		10,638		10,638	26%	2,766	
1	05	03	03	01		Conceptual Design Review - NEH Mech/Vac	10-Jan-07	24-Jan-07	C	LL_ME1	Hrs	10		1,812		1,812	26%	471	
1	05	03	03	01		Conceptual Design Review - NEH Mech/Vac	10-Jan-07	24-Jan-07	C	LL_MDD	Hrs	10		1,662		1,662	26%	432	
1	05	03	03	01		Prepare ESD - NEH Mech/Vac	25-Jan-07	22-Feb-07	C	LL_ME1	Hrs	16		2,899		2,899	26%	754	
1	05	03	03	01		Preliminary Engineering/Design - NEH Mech/Vac	25-Jan-07	26-Feb-07	C	LL_ME1	Hrs	44		7,972		7,972	26%	2,073	
1	05	03	03	01		Preliminary Engineering/Design - NEH Mech/Vac	25-Jan-07	26-Feb-07	C	LL_MDD	Hrs	88		14,628		14,628	26%	3,803	
1	05	03	03	01		Preliminary Design Review - NEH Mech/Vac	27-Feb-07	12-Mar-07	C	LL_ME1	Hrs	20		3,624		3,624	26%	942	
1	05	03	03	01		Preliminary Design Review - NEH Mech/Vac	27-Feb-07	12-Mar-07	C	LL_MDD	Hrs	20		3,324		3,324	26%	864	
1	05	03	03	01		Prepare documentation - NEH Mech/Vac	8-Feb-07	9-Apr-07	C	LL_ME1	Hrs	42		7,610		7,610	26%	1,979	
1	05	03	03	01		Prepare documentation - NEH Mech/Vac	8-Feb-07	9-Apr-07	C	LL_MDD	Hrs	20		3,324		3,324	26%	864	
1	05	03	03	01		Final Engineering/Design - NEH Mech/Vac	27-Feb-07	9-Apr-07	C	LL_ME1	Hrs	30		5,436		5,436	26%	1,413	
1	05	03	03	01		Final Engineering/Design - NEH Mech/Vac	27-Feb-07	9-Apr-07	C	LL_MDD	Hrs	60		9,973		9,973	26%	2,593	
1	05	03	03	01		Final Design Review - NEH Mech/Vac	10-Apr-07	23-Apr-07	C	LL_ME1	Hrs	20		3,624		3,624	26%	942	
1	05	03	03	01		Final Design Review - NEH Mech/Vac	10-Apr-07	23-Apr-07	C	LL_MDD	Hrs	20		3,324		3,324	26%	864	
1	05	03	03	01		Bid Prep/RFP/Award - NEH Mech/Vac	10-Apr-07	6-Jun-07	C	LL_ME1	Hrs	16		2,899		2,899	26%	754	
1	05	03	03	01		Bid Prep/RFP/Award - NEH Mech/Vac	10-Apr-07	6-Jun-07	C	LL_MDD	Hrs	16		2,660		2,660	26%	691	
1	05	03	03	01		Bid Prep/RFP/Award - NEH Mech/Vac	10-Apr-07	6-Jun-07	C	LL_ADM	Hrs	40		5,506		5,506	26%	1,431	
1	05	03	03	01		Fab/Deliver - NEH Mech/Vac	8-Jun-07	9-Oct-07	C	LL_MSE(\$\$			209,000		238,424		238,424	26%	61,990
1	05	03	03	01		Fab/Deliver - NEH Mech/Vac	8-Jun-07	9-Oct-07	C	LL_ME1	Hrs	34		6,171		6,171	26%	1,604	
1	05	03	03	01		Fab/Deliver - NEH Mech/Vac	8-Jun-07	9-Oct-07	C	LL_ADM	Hrs	34		4,688		4,688	26%	1,219	
1	05	03	03	01		Test @ LLNL - NEH Mech/Vac	10-Oct-07	23-Oct-07	C	LL_MFA	Hrs	40		5,778		5,778	26%	1,502	
1	05	03	03	01		Test @ LLNL - NEH Mech/Vac	10-Oct-07	23-Oct-07	C	LL_ME1	Hrs	20		3,718		3,718	26%	967	
1	05	03	03	01		Readiness Review - NEH Mech/Vac	24-Oct-07	6-Nov-07	C	LL_MFA	Hrs	10		1,444		1,444	26%	376	
1	05	03	03	01		Readiness Review - NEH Mech/Vac	24-Oct-07	6-Nov-07	C	LL_ME1	Hrs	40		7,436		7,436	26%	1,933	
1	05	03	03	01		Ship to SLAC - NEH Mech/Vac	4-Feb-08	15-Feb-08	C	LL_MFA	Hrs	20		2,889		2,889	26%	751	
1	05	03	03	01		Ship to SLAC - NEH Mech/Vac	4-Feb-08	15-Feb-08	C	LL_ME1	Hrs	4		744		744	26%	193	
1	05	03	03	01		Ship to SLAC - NEH Mech/Vac	4-Feb-08	15-Feb-08	C	LL_ADM	Hrs	8		1,130		1,130	26%	294	
1	05	03	03	02		NEH Hutch 2													
1	05	03	03	03		NEH Hutch 3													
1	05	03	04			Mech/Vac Tunnel						1,251	750,000	213,111	855,384	1,068,495		203,014	
1	05	03	04			Prepare acceptance test plan/proced - Tunnel Mec	1-Jun-07	10-Aug-07	C	LL_ME1	Hrs	100		18,119		18,119	19%	3,443	
1	05	03	04			Prepare acceptance test plan/proced - Tunnel Mec	1-Jun-07	10-Aug-07	C	LL_EE1	Hrs	100		18,119		18,119	19%	3,443	

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1	2	3	4	5	6							Hours	\$	Labor	M&S	Total			
1	05	03	04			Prepare oper/maint proced - Tunnel Mech/Vac	1-Jun-07	10-Aug-07	C	LL_ME1	Hrs	100		18,119		18,119	19%	3,443	
1	05	03	04			Prepare oper/maint proced - Tunnel Mech/Vac	1-Jun-07	10-Aug-07	C	LL_EE1	Hrs	100		18,119		18,119	19%	3,443	
1	05	03	04			Final Engineering/Design - Tunnel Mech/Vac	3-Jul-06	16-Oct-06	C	LL_ME1	Hrs	43		7,622		7,622	19%	1,448	
1	05	03	04			Final Engineering/Design - Tunnel Mech/Vac	3-Jul-06	16-Oct-06	C	LL_MDD	Hrs	172		27,969		27,969	19%	5,314	
1	05	03	04			Final Engineering/Design - Tunnel Mech/Vac	3-Jul-06	16-Oct-06	C	LL_EE1	Hrs	43		7,622		7,622	19%	1,448	
1	05	03	04			Final Design Review - Tunnel Mech/Vac	17-Oct-06	30-Oct-06	C	LL_ME1	Hrs	20		3,624		3,624	19%	689	
1	05	03	04			Final Design Review - Tunnel Mech/Vac	17-Oct-06	30-Oct-06	C	LL_MDD	Hrs	120		19,947		19,947	19%	3,790	
1	05	03	04			Final Design Review - Tunnel Mech/Vac	17-Oct-06	30-Oct-06	C	LL_EE1	Hrs	20		3,624		3,624	19%	689	
1	05	03	04			Bid Prep/RFP/Award - Tunnel Mech/Vac	31-Oct-06	2-Feb-07	C	LL_ME1	Hrs	40		7,247		7,247	19%	1,377	
1	05	03	04			Bid Prep/RFP/Award - Tunnel Mech/Vac	31-Oct-06	2-Feb-07	C	LL_MDD	Hrs	22		3,657		3,657	19%	695	
1	05	03	04			Bid Prep/RFP/Award - Tunnel Mech/Vac	31-Oct-06	2-Feb-07	C	LL_EE1	Hrs	40		7,247		7,247	19%	1,377	
1	05	03	04			Bid Prep/RFP/Award - Tunnel Mech/Vac	31-Oct-06	2-Feb-07	C	LL_ADMI	Hrs	110		15,140		15,140	19%	2,877	
1	05	03	04			Fab/Deliver - Tunnel Mech/Vac	6-Feb-07	15-Oct-07	C	LL_MSE(\$\$			750,000		855,384		855,384	19%	162,523
1	05	03	04			Fab/Deliver - Tunnel Mech/Vac	6-Feb-07	15-Oct-07	C	LL_ME1	Hrs	40		7,258		7,258	19%	1,379	
1	05	03	04			Fab/Deliver - Tunnel Mech/Vac	6-Feb-07	15-Oct-07	C	LL_ADMI	Hrs	40		5,514		5,514	19%	1,048	
1	05	03	04			Readiness Review - Tunnel Mech/Vac	27-Jul-07	9-Aug-07	C	LL_MFA1	Hrs	10		1,408		1,408	19%	267	
1	05	03	04			Readiness Review - Tunnel Mech/Vac	27-Jul-07	9-Aug-07	C	LL_ME1	Hrs	40		7,247		7,247	19%	1,377	
1	05	03	04			Readiness Review - Tunnel Mech/Vac	27-Jul-07	9-Aug-07	C	LL_MDD	Hrs	10		1,662		1,662	19%	316	
1	05	03	04			Readiness Review - Tunnel Mech/Vac	27-Jul-07	9-Aug-07	C	LL_EE1	Hrs	40		7,247		7,247	19%	1,377	
1	05	03	04			Ship to SLAC - Tunnel Mech/Vac	4-Feb-08	21-Mar-08	C	LL_MFA1	Hrs	14		2,022		2,022	19%	384	
1	05	03	04			Ship to SLAC - Tunnel Mech/Vac	4-Feb-08	21-Mar-08	C	LL_ME1	Hrs	14		2,603		2,603	19%	494	
1	05	03	04			Ship to SLAC - Tunnel Mech/Vac	4-Feb-08	21-Mar-08	C	LL_ADMI	Hrs	14		1,977		1,977	19%	376	
1	05	03	05			Mech/Vac Far Hall						492	80,000	82,908	91,109	174,017		41,764	
1	05	03	05			Prepare Physics Specification - FEH Mech/Vac	11-Sep-06	31-Oct-06	C	LL_ME1	Hrs	14		2,511		2,511	24%	603	
1	05	03	05			PRD Review - FEH Mech/Vac	1-Nov-06	7-Nov-06	C	LL_ME1	Hrs	10		1,812		1,812	24%	435	
1	05	03	05			Conceptual Engr/Design - FEH Mech/Vac	8-Nov-06	9-Jan-07	C	LL_ME1	Hrs	20		3,624		3,624	24%	870	
1	05	03	05			Conceptual Engr/Design - FEH Mech/Vac	8-Nov-06	9-Jan-07	C	LL_MDD	Hrs	40		6,649		6,649	24%	1,596	
1	05	03	05			Conceptual Design Review - FEH Mech/Vac	10-Jan-07	24-Jan-07	C	LL_ME1	Hrs	10		1,812		1,812	24%	435	
1	05	03	05			Conceptual Design Review - FEH Mech/Vac	10-Jan-07	24-Jan-07	C	LL_MDD	Hrs	20		3,324		3,324	24%	798	
1	05	03	05			Prepare ESD - FEH Mech/Vac	25-Jan-07	22-Feb-07	C	LL_ME1	Hrs	16		2,899		2,899	24%	696	
1	05	03	05			Preliminary Engineering/Design - FEH Mech/Vac	25-Jan-07	26-Feb-07	C	LL_ME1	Hrs	20		3,624		3,624	24%	870	
1	05	03	05			Preliminary Engineering/Design - FEH Mech/Vac	25-Jan-07	26-Feb-07	C	LL_MDD	Hrs	40		6,649		6,649	24%	1,596	
1	05	03	05			Preliminary Design Review - FEH Mech/Vac	27-Feb-07	12-Mar-07	C	LL_ME1	Hrs	10		1,812		1,812	24%	435	
1	05	03	05			Preliminary Design Review - FEH Mech/Vac	27-Feb-07	12-Mar-07	C	LL_MDD	Hrs	20		3,324		3,324	24%	798	
1	05	03	05			Prepare documentation - FEH Mech/Vac	8-Feb-07	9-Apr-07	C	LL_ME1	Hrs	20		3,624		3,624	24%	870	
1	05	03	05			Prepare documentation - FEH Mech/Vac	8-Feb-07	9-Apr-07	C	LL_MDD	Hrs	20		3,324		3,324	24%	798	
1	05	03	05			Final Engineering/Design - FEH Mech/Vac	27-Feb-07	9-Apr-07	C	LL_ME1	Hrs	30		5,436		5,436	24%	1,305	
1	05	03	05			Final Engineering/Design - FEH Mech/Vac	27-Feb-07	9-Apr-07	C	LL_MDD	Hrs	60		9,973		9,973	24%	2,394	
1	05	03	05			Final Design Review - FEH Mech/Vac	10-Apr-07	23-Apr-07	C	LL_ME1	Hrs	10		1,812		1,812	24%	435	
1	05	03	05			Final Design Review - FEH Mech/Vac	10-Apr-07	23-Apr-07	C	LL_MDD	Hrs	10		1,662		1,662	24%	399	
1	05	03	05			Bid Prep/RFP/Award - FEH Mech/Vac	13-Mar-07	8-May-07	C	LL_ME1	Hrs	10		1,812		1,812	24%	435	
1	05	03	05			Bid Prep/RFP/Award - FEH Mech/Vac	13-Mar-07	8-May-07	C	LL_MDD	Hrs	10		1,662		1,662	24%	399	
1	05	03	05			Bid Prep/RFP/Award - FEH Mech/Vac	13-Mar-07	8-May-07	C	LL_ADMI	Hrs	15		2,065		2,065	24%	495	
1	05	03	05			Fab/Deliver - FEH Mech/Vac	10-May-07	11-Sep-07	C	LL_MSE(\$\$			80,000		91,109		91,109	24%	21,866
1	05	03	05			Fab/Deliver - FEH Mech/Vac	10-May-07	11-Sep-07	C	LL_ME1	Hrs	10		1,812		1,812	24%	435	
1	05	03	05			Fab/Deliver - FEH Mech/Vac	10-May-07	11-Sep-07	C	LL_ADMI	Hrs	10		1,376		1,376	24%	330	
1	05	03	05			Test @ LLNL - FEH Mech/Vac	12-Sep-07	25-Sep-07	C	LL_MFA1	Hrs	20		2,816		2,816	24%	676	
1	05	03	05			Test @ LLNL - FEH Mech/Vac	12-Sep-07	25-Sep-07	C	LL_ME1	Hrs	5		906		906	24%	217	
1	05	03	05			Readiness Review - FEH Mech/Vac	26-Sep-07	9-Oct-07	C	LL_MFA1	Hrs	10		1,430		1,430	24%	343	
1	05	03	05			Readiness Review - FEH Mech/Vac	26-Sep-07	9-Oct-07	C	LL_ME1	Hrs	10		1,841		1,841	24%	442	
1	05	03	05			Ship to SLAC - FEH Mech/Vac	4-Feb-08	15-Feb-08	C	LL_MFA1	Hrs	10		1,444		1,444	24%	347	
1	05	03	05			Ship to SLAC - FEH Mech/Vac	4-Feb-08	15-Feb-08	C	LL_ME1	Hrs	4		744		744	24%	178	

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total		
1	05	03	05			Ship to SLAC - FEH Mech/Vac	4-Feb-08	15-Feb-08	C	LL_ADMI	Hrs	8		1,130		1,130	24%	271
1	05	03	05	01		FEH Hutch 1												
1	05	03	05	02		FEH Hutch 2												
1	05	03	05	03		FEH Hutch 3												
1	05	04				Optical Subsystem						10,572	2,582,000	1,838,670	2,954,696	4,793,365		1,663,257
1	05	04	01			Optical Systems Engineering												
1	05	04	02			Facility Optics						10,572	2,582,000	1,838,670	2,954,696	4,793,365		1,663,257
1	05	04	02	01		Fast Valve						439	25,000	72,249	28,472	100,721		17,123
1	05	04	02	01		Preliminary Engineering/Design - Fast Valve	16-Oct-06	10-Nov-06	C	LL_ME1	Hrs	16		2,899		2,899	17%	493
1	05	04	02	01		Preliminary Engineering/Design - Fast Valve	16-Oct-06	10-Nov-06	C	LL_MDD	Hrs	40		6,649		6,649	17%	1,130
1	05	04	02	01		Prepare ESD - Fast Valve	30-Oct-06	10-Nov-06	C	LL_MDD	Hrs	4		665		665	17%	113
1	05	04	02	01		Preliminary Design Review - Fast Valve	13-Nov-06	28-Nov-06	C	LL_ME1	Hrs	15		2,718		2,718	17%	462
1	05	04	02	01		Preliminary Design Review - Fast Valve	13-Nov-06	28-Nov-06	C	LL_MDD	Hrs	20		3,324		3,324	17%	565
1	05	04	02	01		Final Engineering/Design - Fast Valve	13-Nov-06	10-Jan-07	C	LL_ME1	Hrs	24		4,348		4,348	17%	739
1	05	04	02	01		Final Engineering/Design - Fast Valve	13-Nov-06	10-Jan-07	C	LL_MDD	Hrs	80		13,298		13,298	17%	2,261
1	05	04	02	01		Prepare seismic note - Fast Valve	13-Nov-06	12-Dec-06	C	LL_ME1	Hrs	20		3,624		3,624	17%	616
1	05	04	02	01		Prepare acceptance test plan/proced - Fast Valve	13-Nov-06	28-Nov-06	C	LL_ME1	Hrs	10		1,812		1,812	17%	308
1	05	04	02	01		Prepare oper/maint proced - Fast Valve	13-Nov-06	28-Nov-06	C	LL_ME1	Hrs	10		1,812		1,812	17%	308
1	05	04	02	01		Final Design Review - Fast Valve	17-Jan-07	30-Jan-07	C	LL_ME1	Hrs	8		1,449		1,449	17%	246
1	05	04	02	01		Final Design Review - Fast Valve	17-Jan-07	30-Jan-07	C	LL_MDD	Hrs	20		3,324		3,324	17%	565
1	05	04	02	01		Bid Prep/RFP/Award - Fast Valve	31-Jan-07	28-Feb-07	C	LL_ME1	Hrs	8		1,449		1,449	17%	246
1	05	04	02	01		Bid Prep/RFP/Award - Fast Valve	31-Jan-07	28-Feb-07	C	LL_MDD	Hrs	8		1,330		1,330	17%	226
1	05	04	02	01		Bid Prep/RFP/Award - Fast Valve	31-Jan-07	28-Feb-07	C	LL_ADMI	Hrs	16		2,202		2,202	17%	374
1	05	04	02	01		Fab/Deliver - Fast Valve	2-Mar-07	26-Apr-07	C	LL_MSE(\$\$			25,000		28,472	28,472	17%	4,840
1	05	04	02	01		Fab/Deliver - Fast Valve	2-Mar-07	26-Apr-07	C	LL_MDD	Hrs	8		1,330		1,330	17%	226
1	05	04	02	01		Fab/Deliver - Fast Valve	2-Mar-07	26-Apr-07	C	LL_ADMI	Hrs	16		2,202		2,202	17%	374
1	05	04	02	01		Testing @ LLNL - Fast Valve	27-Apr-07	24-May-07	C	LL_MFA	Hrs	40		5,631		5,631	17%	957
1	05	04	02	01		Testing @ LLNL - Fast Valve	27-Apr-07	24-May-07	C	LL_MDD	Hrs	20		3,324		3,324	17%	565
1	05	04	02	01		Readiness Review - Fast Valve	18-Jun-07	29-Jun-07	C	LL_ME1	Hrs	10		1,812		1,812	17%	308
1	05	04	02	01		Readiness Review - Fast Valve	18-Jun-07	29-Jun-07	C	LL_MDD	Hrs	10		1,662		1,662	17%	283
1	05	04	02	01		Ship to SLAC - Fast Valve	4-Feb-08	15-Feb-08	C	LL_MFA	Hrs	20		2,889		2,889	17%	491
1	05	04	02	01		Ship to SLAC - Fast Valve	4-Feb-08	15-Feb-08	C	LL_MDD	Hrs	8		1,364		1,364	17%	232
1	05	04	02	01		Ship to SLAC - Fast Valve	4-Feb-08	15-Feb-08	C	LL_ADMI	Hrs	8		1,130		1,130	17%	192
1	05	04	02	02		Fixed Mask						486	32,000	78,933	36,444	115,376		21,921
1	05	04	02	02		Preliminary Engineering/Design - Fixed Mask	3-Jul-06	31-Jul-06	C	LL_ME1	Hrs	-		-		-	19%	-
1	05	04	02	02		Preliminary Engineering/Design - Fixed Mask	3-Jul-06	31-Jul-06	C	LL_MDD	Hrs	-		-		-	19%	-
1	05	04	02	02		Prepare ESD - Fixed Mask	17-Jul-06	31-Jul-06	C	LL_MDD	Hrs	-		-		-	19%	-
1	05	04	02	02		Preliminary Design Review - Fixed Mask	1-Aug-06	14-Aug-06	C	LL_ME1	Hrs	-		-		-	19%	-
1	05	04	02	02		Preliminary Design Review - Fixed Mask	1-Aug-06	14-Aug-06	C	LL_MDD	Hrs	-		-		-	19%	-
1	05	04	02	02		Final Engineering/Design - Fixed Mask	1-Aug-06	31-Oct-06	C	LL_ME1	Hrs	26		4,631		4,631	19%	880
1	05	04	02	02		Final Engineering/Design - Fixed Mask	1-Aug-06	31-Oct-06	C	LL_MDD	Hrs	102		16,667		16,667	19%	3,167
1	05	04	02	02		Prepare seismic note - Fixed Mask	1-Aug-06	31-Oct-06	C	LL_ME1	Hrs	28		4,987		4,987	19%	948
1	05	04	02	02		Prepare acceptance test plan/proced - Fixed Mask	1-Sep-06	13-Oct-06	C	LL_MDD	Hrs	40		6,529		6,529	19%	1,240
1	05	04	02	02		Prepare oper/maint proced - Fixed Mask	1-Sep-06	13-Oct-06	C	LL_MDD	Hrs	40		6,529		6,529	19%	1,240
1	05	04	02	02		Final Design Review - Fixed Mask	1-Nov-06	14-Nov-06	C	LL_ME1	Hrs	10		1,812		1,812	19%	344
1	05	04	02	02		Final Design Review - Fixed Mask	1-Nov-06	14-Nov-06	C	LL_MDD	Hrs	20		3,324		3,324	19%	632
1	05	04	02	02		Bid Prep/RFP/Award - Fixed Mask	15-Nov-06	14-Dec-06	C	LL_ME1	Hrs	8		1,449		1,449	19%	275
1	05	04	02	02		Bid Prep/RFP/Award - Fixed Mask	15-Nov-06	14-Dec-06	C	LL_MDD	Hrs	8		1,330		1,330	19%	253
1	05	04	02	02		Bid Prep/RFP/Award - Fixed Mask	15-Nov-06	14-Dec-06	C	LL_ADMI	Hrs	16		2,202		2,202	19%	418
1	05	04	02	02		Fab/Deliver - Fixed Mask	2-Jan-07	28-Feb-07	C	LL_MSE(\$\$			32,000		36,444	36,444	19%	6,924
1	05	04	02	02		Fab/Deliver - Fixed Mask	2-Jan-07	28-Feb-07	C	LL_MDD	Hrs	16		2,660		2,660	19%	505
1	05	04	02	02		Fab/Deliver - Fixed Mask	2-Jan-07	28-Feb-07	C	LL_ADMI	Hrs	16		2,202		2,202	19%	418

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$	
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total			
1	05	04	02	02		Testing @ LLNL - Fixed Mask	1-Mar-07	28-Mar-07	C	LL_MFA	Hrs	40		5,631		5,631	19%	1,070	
1	05	04	02	02		Testing @ LLNL - Fixed Mask	1-Mar-07	28-Mar-07	C	LL_MDD	Hrs	40		6,649		6,649	19%	1,263	
1	05	04	02	02		Readiness Review - Fixed Mask	18-Jun-07	29-Jun-07	C	LL_ME1	Hrs	20		3,624		3,624	19%	689	
1	05	04	02	02		Readiness Review - Fixed Mask	18-Jun-07	29-Jun-07	C	LL_MDD	Hrs	20		3,324		3,324	19%	632	
1	05	04	02	02		Ship to SLAC - Fixed Mask	4-Feb-08	15-Feb-08	C	LL_MFA	Hrs	20		2,889		2,889	19%	549	
1	05	04	02	02		Ship to SLAC - Fixed Mask	4-Feb-08	15-Feb-08	C	LL_MDD	Hrs	8		1,364		1,364	19%	259	
1	05	04	02	02		Ship to SLAC - Fixed Mask	4-Feb-08	15-Feb-08	C	LL_ADM	Hrs	8		1,130		1,130	19%	215	
1	05	04	02	03		Slit/Collimators						1,221	180,000	203,606	204,995	408,601		106,236	
1	05	04	02	03		Preliminary Engineering/Design - Slit	3-Jul-06	31-Jul-06	C	LL_ME1	Hrs	-		-		-	26%	-	
1	05	04	02	03		Preliminary Engineering/Design - Slit	3-Jul-06	31-Jul-06	C	LL_MDD	Hrs	-		-		-	26%	-	
1	05	04	02	03		Prepare ESD - Slit	17-Jul-06	15-Sep-06	C	LL_ME1	Hrs	1		212		212	26%	55	
1	05	04	02	03		Preliminary Design Review - Slit	1-Aug-06	14-Aug-06	C	LL_ME1	Hrs	-		-		-	26%	-	
1	05	04	02	03		Preliminary Design Review - Slit	1-Aug-06	14-Aug-06	C	LL_MDD	Hrs	-		-		-	26%	-	
1	05	04	02	03		Final Engineering/Design - Slit	1-Aug-06	17-Oct-06	C	LL_ME1	Hrs	187		33,202		33,202	26%	8,632	
1	05	04	02	03		Final Engineering/Design - Slit	1-Aug-06	17-Oct-06	C	LL_MDD	Hrs	281		45,608		45,608	26%	11,858	
1	05	04	02	03		Prepare seismic note - Slit	3-Jul-06	30-Nov-06	C	LL_ME1	Hrs	60		10,706		10,706	26%	2,784	
1	05	04	02	03		Prepare acceptance test plan/proced - Slit	1-Sep-06	13-Oct-06	C	LL_ME1	Hrs	40		7,116		7,116	26%	1,850	
1	05	04	02	03		Prepare oper/maint proced - Slit	1-Sep-06	13-Oct-06	C	LL_ME1	Hrs	40		7,116		7,116	26%	1,850	
1	05	04	02	03		Final Design Review - Slit	1-Dec-06	14-Dec-06	C	LL_ME1	Hrs	40		7,247		7,247	26%	1,884	
1	05	04	02	03		Final Design Review - Slit	1-Dec-06	14-Dec-06	C	LL_MDD	Hrs	40		6,649		6,649	26%	1,729	
1	05	04	02	03		Bid Prep/RFP/Award - Slit	1-Dec-06	29-Jan-07	C	LL_ME1	Hrs	24		4,348		4,348	26%	1,131	
1	05	04	02	03		Bid Prep/RFP/Award - Slit	1-Dec-06	29-Jan-07	C	LL_MDD	Hrs	12		1,995		1,995	26%	519	
1	05	04	02	03		Bid Prep/RFP/Award - Slit	1-Dec-06	29-Jan-07	C	LL_ADM	Hrs	40		5,506		5,506	26%	1,431	
1	05	04	02	03		Fab/Deliver - Slit	31-Jan-07	27-Apr-07	C	LL_MSE(\$\$			180,000		204,995		204,995	26%	53,299
1	05	04	02	03		Fab/Deliver - Slit	31-Jan-07	27-Apr-07	C	LL_ME1	Hrs	25		4,530		4,530	26%	1,178	
1	05	04	02	03		Fab/Deliver - Slit	31-Jan-07	27-Apr-07	C	LL_ADM	Hrs	25		3,441		3,441	26%	895	
1	05	04	02	03		Testing @ LLNL - Slit	30-Apr-07	16-Jul-07	C	LL_MFA	Hrs	160		22,526		22,526	26%	5,857	
1	05	04	02	03		Testing @ LLNL - Slit	30-Apr-07	16-Jul-07	C	LL_ME1	Hrs	160		28,990		28,990	26%	7,537	
1	05	04	02	03		Readiness Review - Slit	17-Jul-07	30-Jul-07	C	LL_ME1	Hrs	40		7,247		7,247	26%	1,884	
1	05	04	02	03		Readiness Review - Slit	17-Jul-07	30-Jul-07	C	LL_MDD	Hrs	10		1,662		1,662	26%	432	
1	05	04	02	03		Ship to SLAC - Slit	4-Feb-08	15-Feb-08	C	LL_MFA	Hrs	20		2,889		2,889	26%	751	
1	05	04	02	03		Ship to SLAC - Slit	4-Feb-08	15-Feb-08	C	LL_ME1	Hrs	8		1,487		1,487	26%	387	
1	05	04	02	03		Ship to SLAC - Slit	4-Feb-08	15-Feb-08	C	LL_ADM	Hrs	8		1,130		1,130	26%	294	
1	05	04	02	04		Flipper Mirror													
1	05	04	02	05		Gas/Solid Attenuator						2,362	1,295,000	403,867	1,474,583	1,878,450		525,966	
1	05	04	02	05		Prototype Testing - Gas/Solid Attenuator	3-Jul-06	31-Aug-06	C	LL_PHS1	Hrs	-		-		-	28%	-	
1	05	04	02	05		Prototype Testing - Gas/Solid Attenuator	3-Jul-06	31-Aug-06	C	LL_MFA	Hrs	-		-		-	28%	-	
1	05	04	02	05		Prototype Testing - Gas/Solid Attenuator	3-Jul-06	31-Aug-06	C	LL_ME1	Hrs	-		-		-	28%	-	
1	05	04	02	05		Prototype Testing - Gas/Solid Attenuator	3-Jul-06	31-Aug-06	C	LL_EE1	Hrs	-		-		-	28%	-	
1	05	04	02	05		Prototype Vacuum Testing	1-Sep-06	30-Nov-06	C	LL_MSE(\$\$			25,000		28,231		28,231	28%	7,905
1	05	04	02	05		Prototype Vacuum Testing	1-Sep-06	30-Nov-06	C	LL_MFA	Hrs	50		6,980		6,980	28%	1,954	
1	05	04	02	05		Prototype Vacuum Testing	1-Sep-06	30-Nov-06	C	LL_ME1	Hrs	124		22,277		22,277	28%	6,238	
1	05	04	02	05		Prototype Vacuum Testing	1-Sep-06	30-Nov-06	C	LL_EE1	Hrs	124		22,277		22,277	28%	6,238	
1	05	04	02	05		Prepare ESD - Gas/Solid Attenuator	3-Jul-06	31-Oct-06	C	LL_ME1	Hrs	21		3,733		3,733	28%	1,045	
1	05	04	02	05		Preliminary Engineering/Design-Gas/Solid Attenua	3-Jul-06	15-Nov-06	C	LL_PHS1	Hrs	21		3,997		3,997	28%	1,119	
1	05	04	02	05		Preliminary Engineering/Design-Gas/Solid Attenua	3-Jul-06	15-Nov-06	C	LL_ME1	Hrs	53		9,441		9,441	28%	2,643	
1	05	04	02	05		Preliminary Engineering/Design-Gas/Solid Attenua	3-Jul-06	15-Nov-06	C	LL_MDD	Hrs	212		34,644		34,644	28%	9,700	
1	05	04	02	05		Preliminary Engineering/Design-Gas/Solid Attenua	3-Jul-06	15-Nov-06	C	LL_EE1	Hrs	53		9,441		9,441	28%	2,643	
1	05	04	02	05		Preliminary Design Review - Gas/Solid Attenuator	16-Nov-06	1-Dec-06	C	LL_ME1	Hrs	40		7,247		7,247	28%	2,029	
1	05	04	02	05		Preliminary Design Review - Gas/Solid Attenuator	16-Nov-06	1-Dec-06	C	LL_MDD	Hrs	10		1,662		1,662	28%	465	
1	05	04	02	05		Prepare seismic note - Gas/Solid Attenuator	1-Sep-06	31-Oct-06	C	LL_ME1	Hrs	40		7,156		7,156	28%	2,004	
1	05	04	02	05		Prepare acceptance test plan/proced -Gas/Solid A	16-Nov-06	16-Jan-07	C	LL_PHS1	Hrs	24		4,646		4,646	28%	1,301	

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$	
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total			
1	05	04	02	05		Prepare acceptance test plan/proced -Gas/Solid A	16-Nov-06	16-Jan-07	C	LL_ME1	Hrs	30		5,436		5,436	28%	1,522	
1	05	04	02	05		Prepare acceptance test plan/proced -Gas/Solid A	16-Nov-06	16-Jan-07	C	LL_EE1	Hrs	30		5,436		5,436	28%	1,522	
1	05	04	02	05		Prepare oper/maint proced - Gas/Solid Attenuator	16-Nov-06	16-Jan-07	C	LL_PHS1	Hrs	24		4,646		4,646	28%	1,301	
1	05	04	02	05		Prepare oper/maint proced - Gas/Solid Attenuator	16-Nov-06	16-Jan-07	C	LL_ME1	Hrs	30		5,436		5,436	28%	1,522	
1	05	04	02	05		Prepare oper/maint proced - Gas/Solid Attenuator	16-Nov-06	16-Jan-07	C	LL_EE1	Hrs	30		5,436		5,436	28%	1,522	
1	05	04	02	05		Final Sci/Engr/Design - Gas/Solid Attenuator	16-Nov-06	15-Feb-07	C	LL_ME1	Hrs	104		18,843		18,843	28%	5,276	
1	05	04	02	05		Final Sci/Engr/Design - Gas/Solid Attenuator	16-Nov-06	15-Feb-07	C	LL_MDD	Hrs	416		69,149		69,149	28%	19,362	
1	05	04	02	05		Final Design Review - Gas/Solid Attenuator	16-Feb-07	2-Mar-07	C	LL_PHS1	Hrs	8		1,549		1,549	28%	434	
1	05	04	02	05		Final Design Review - Gas/Solid Attenuator	16-Feb-07	2-Mar-07	C	LL_ME1	Hrs	40		7,247		7,247	28%	2,029	
1	05	04	02	05		Final Design Review - Gas/Solid Attenuator	16-Feb-07	2-Mar-07	C	LL_EE1	Hrs	20		3,624		3,624	28%	1,015	
1	05	04	02	05		Bid Prep/RFP/Award - Gas/Solid Attenuator	16-Feb-07	2-Apr-07	C	LL_ME1	Hrs	20		3,624		3,624	28%	1,015	
1	05	04	02	05		Bid Prep/RFP/Award - Gas/Solid Attenuator	16-Feb-07	2-Apr-07	C	LL_EE1	Hrs	20		3,624		3,624	28%	1,015	
1	05	04	02	05		Bid Prep/RFP/Award - Gas/Solid Attenuator	16-Feb-07	2-Apr-07	C	LL_ADMI	Hrs	80		11,011		11,011	28%	3,083	
1	05	04	02	05		Fab/Deliver - Gas/Solid Attenuator	4-Apr-07	29-Jun-07	C	LL_MSE(\$	\$)		1,270,000		1,446,352		1,446,352	28%	404,979
1	05	04	02	05		Fab/Deliver - Gas/Solid Attenuator	4-Apr-07	29-Jun-07	C	LL_ME1	Hrs	25		4,530		4,530	28%	1,268	
1	05	04	02	05		Fab/Deliver - Gas/Solid Attenuator	4-Apr-07	29-Jun-07	C	LL_EE1	Hrs	25		4,530		4,530	28%	1,268	
1	05	04	02	05		Fab/Deliver - Gas/Solid Attenuator	4-Apr-07	29-Jun-07	C	LL_ADMI	Hrs	24		3,303		3,303	28%	925	
1	05	04	02	05		Assembly/Test @ LLNL - Gas/Solid Attenuator	2-Jul-07	17-Sep-07	C	LL_MFA1	Hrs	158		22,244		22,244	28%	6,228	
1	05	04	02	05		Assembly/Test @ LLNL - Gas/Solid Attenuator	2-Jul-07	17-Sep-07	C	LL_ME1	Hrs	216		39,136		39,136	28%	10,958	
1	05	04	02	05		Assembly/Test @ LLNL - Gas/Solid Attenuator	2-Jul-07	17-Sep-07	C	LL_EE1	Hrs	216		39,136		39,136	28%	10,958	
1	05	04	02	05		Readiness Review - Gas/Solid Attenuator	18-Sep-07	1-Oct-07	C	LL_ME1	Hrs	20		3,624		3,624	28%	1,015	
1	05	04	02	05		Readiness Review - Gas/Solid Attenuator	18-Sep-07	1-Oct-07	C	LL_EE1	Hrs	10		1,812		1,812	28%	507	
1	05	04	02	05		Ship to SLAC - Gas/Solid Attenuator	4-Feb-08	15-Feb-08	C	LL_MFA1	Hrs	20		2,889		2,889	28%	809	
1	05	04	02	05		Ship to SLAC - Gas/Solid Attenuator	4-Feb-08	15-Feb-08	C	LL_ME1	Hrs	8		1,487		1,487	28%	416	
1	05	04	02	05		Ship to SLAC - Gas/Solid Attenuator	4-Feb-08	15-Feb-08	C	LL_EE1	Hrs	8		1,487		1,487	28%	416	
1	05	04	02	05		Ship to SLAC - Gas/Solid Attenuator	4-Feb-08	15-Feb-08	C	LL_ADMI	Hrs	8		1,130		1,130	28%	316	
1	05	04	02	06		TTF Damage Experiment						696	12,000	133,760	14,651	148,411		28,198	
1	05	04	02	06		Procurement - TTF Damage Exp.	1-Aug-06	31-Aug-06	C	LL_MSE(\$	\$)		-		-		19%	-	
1	05	04	02	06		Fabrication - TTF Damage Exp.	1-Aug-06	15-Sep-06	C	LL_EE1	Hrs	6		1,060		1,060	19%	201	
1	05	04	02	06		Experiment Prep. - TTF Damage Exp.	1-Aug-06	15-Sep-06	C	LL_PHS1	Hrs	60		11,322		11,322	19%	2,151	
1	05	04	02	06		Experiment @ TTF - TTF Damage Exp.	18-Sep-06	29-Sep-06	C	LL_PHS1	Hrs	120		22,643		22,643	19%	4,302	
1	05	04	02	06		Travel Expense - TTF Damage Exp.	2-Oct-06	2-Oct-06	C	LL_MSTF	\$		12,000		14,651		14,651	19%	2,784
1	05	04	02	06		Analysis - TTF Damage Exp.	3-Oct-06	5-Feb-07	C	LL_PHS1	Hrs	510		98,736		98,736	19%	18,760	
1	05	04	02	07		FEL Offset Mirrors						5,369	1,038,000	946,254	1,195,551	2,141,806		963,813	
1	05	04	02	07	01	Low Energy Mirrors						2,500	523,000	438,559	596,445	1,035,004		465,752	
1	05	04	02	07	01	Prepare Physics Specification - LE Mirror	3-Jul-06	16-Oct-06	C	LL_PHS1	Hrs	103		19,508		19,508	45%	8,778	
1	05	04	02	07	01	PRD Review - LE Mirror	17-Oct-06	30-Oct-06	C	LL_PHS1	Hrs	30		5,808		5,808	45%	2,614	
1	05	04	02	07	01	Conceptual Engr/Design - LE Mirror	1-Sep-06	8-Nov-06	C	LL_ME1	Hrs	66		11,825		11,825	45%	5,321	
1	05	04	02	07	01	Conceptual Engr/Design - LE Mirror	1-Sep-06	8-Nov-06	C	LL_MDD	Hrs	99		16,272		16,272	45%	7,322	
1	05	04	02	07	01	Conceptual Design Review - LE Mirror	9-Nov-06	22-Nov-06	C	LL_PHS1	Hrs	20		3,872		3,872	45%	1,742	
1	05	04	02	07	01	Conceptual Design Review - LE Mirror	9-Nov-06	22-Nov-06	C	LL_ME1	Hrs	20		3,624		3,624	45%	1,631	
1	05	04	02	07	01	Conceptual Design Review - LE Mirror	9-Nov-06	22-Nov-06	C	LL_MDD	Hrs	20		3,324		3,324	45%	1,496	
1	05	04	02	07	01	Prepare ESD - LE Mirror	27-Nov-06	8-Jan-07	C	LL_PHS1	Hrs	16		3,098		3,098	45%	1,394	
1	05	04	02	07	01	Prepare ESD - LE Mirror	27-Nov-06	8-Jan-07	C	LL_ME1	Hrs	16		2,899		2,899	45%	1,305	
1	05	04	02	07	01	Preliminary Engineering/Design - LE Mirror	9-Nov-06	23-Jan-07	C	LL_PHS1	Hrs	80		15,488		15,488	45%	6,970	
1	05	04	02	07	01	Preliminary Engineering/Design - LE Mirror	9-Nov-06	23-Jan-07	C	LL_ME1	Hrs	120		21,742		21,742	45%	9,784	
1	05	04	02	07	01	Preliminary Engineering/Design - LE Mirror	9-Nov-06	23-Jan-07	C	LL_MDD	Hrs	160		26,596		26,596	45%	11,968	
1	05	04	02	07	01	Preliminary Engineering/Design - LE Mirror	9-Nov-06	23-Jan-07	C	LL_EE1	Hrs	40		7,247		7,247	45%	3,261	
1	05	04	02	07	01	Preliminary Design Review - LE Mirror	24-Jan-07	6-Feb-07	C	LL_PHS1	Hrs	20		3,872		3,872	45%	1,742	
1	05	04	02	07	01	Preliminary Design Review - LE Mirror	24-Jan-07	6-Feb-07	C	LL_ME1	Hrs	30		5,436		5,436	45%	2,446	
1	05	04	02	07	01	Preliminary Design Review - LE Mirror	24-Jan-07	6-Feb-07	C	LL_MDD	Hrs	30		4,987		4,987	45%	2,244	
1	05	04	02	07	01	Prepare seismic note - LE Mirror	27-Nov-06	8-Jan-07	C	LL_ME1	Hrs	40		7,247		7,247	45%	3,261	

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$	
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total			
1	05	04	02	07	01	Prepare acceptance test plan/proced -LE Mirror	27-Nov-06	8-Dec-06	C	LL_PHS1	Hrs	8		1,549		1,549	45%	697	
1	05	04	02	07	01	Prepare acceptance test plan/proced -LE Mirror	27-Nov-06	8-Dec-06	C	LL_ME1	Hrs	8		1,449		1,449	45%	652	
1	05	04	02	07	01	Prepare acceptance test plan/proced -LE Mirror	27-Nov-06	8-Dec-06	C	LL_EE1	Hrs	4		725		725	45%	326	
1	05	04	02	07	01	Prepare oper/maint proced - LE Mirror	27-Nov-06	8-Dec-06	C	LL_PHS1	Hrs	8		1,549		1,549	45%	697	
1	05	04	02	07	01	Prepare oper/maint proced - LE Mirror	27-Nov-06	8-Dec-06	C	LL_ME1	Hrs	8		1,449		1,449	45%	652	
1	05	04	02	07	01	Prepare oper/maint proced - LE Mirror	27-Nov-06	8-Dec-06	C	LL_EE1	Hrs	4		725		725	45%	326	
1	05	04	02	07	01	Final Engineering/Design - LE Mirror	24-Jan-07	9-Apr-07	C	LL_PHS1	Hrs	106		20,522		20,522	45%	9,235	
1	05	04	02	07	01	Final Engineering/Design - LE Mirror	24-Jan-07	9-Apr-07	C	LL_ME1	Hrs	159		28,809		28,809	45%	12,964	
1	05	04	02	07	01	Final Engineering/Design - LE Mirror	24-Jan-07	9-Apr-07	C	LL_MDD	Hrs	424		70,478		70,478	45%	31,715	
1	05	04	02	07	01	Final Engineering/Design - LE Mirror	24-Jan-07	9-Apr-07	C	LL_EE1	Hrs	25		4,530		4,530	45%	2,038	
1	05	04	02	07	01	Final Design Review - LE Mirror	10-Apr-07	23-Apr-07	C	LL_PHS1	Hrs	20		3,872		3,872	45%	1,742	
1	05	04	02	07	01	Final Design Review - LE Mirror	10-Apr-07	23-Apr-07	C	LL_ME1	Hrs	40		7,247		7,247	45%	3,261	
1	05	04	02	07	01	Final Design Review - LE Mirror	10-Apr-07	23-Apr-07	C	LL_MDD	Hrs	40		6,649		6,649	45%	2,992	
1	05	04	02	07	01	Bid Prep/RFP/Award - LE Mirror Substrate	22-Feb-07	21-Mar-07	C	LL_PHS1	Hrs	8		1,549		1,549	45%	697	
1	05	04	02	07	01	Bid Prep/RFP/Award - LE Mirror Substrate	22-Feb-07	21-Mar-07	C	LL_MDD	Hrs	16		2,660		2,660	45%	1,197	
1	05	04	02	07	01	Bid Prep/RFP/Award - LE Mirror Substrate	22-Feb-07	21-Mar-07	C	LL_ADMI	Hrs	16		2,202		2,202	45%	991	
1	05	04	02	07	01	Fab/Deliver - LE Mirror Substrate	23-Mar-07	13-Aug-07	C	LL_PHS1	Hrs	40		7,744		7,744	45%	3,485	
1	05	04	02	07	01	Fab/Deliver - LE Mirror Substrate	23-Mar-07	13-Aug-07	C	LL_MSTF	\$\$		5,000		6,105		6,105	45%	2,747
1	05	04	02	07	01	Fab/Deliver - LE Mirror Substrate	23-Mar-07	13-Aug-07	C	LL_MSE	(\$\$)		210,000		239,161		239,161	45%	107,622
1	05	04	02	07	01	Fab/Deliver - LE Mirror Substrate	23-Mar-07	13-Aug-07	C	LL_ADMI	Hrs	16		2,202		2,202	45%	991	
1	05	04	02	07	01	Deposit Coating - LE Mirror	14-Aug-07	25-Sep-07	C	LL_PHS1	Hrs	90		17,424		17,424	45%	7,841	
1	05	04	02	07	01	Deposit Coating - LE Mirror	14-Aug-07	25-Sep-07	C	LL_MFA1	Hrs	60		8,447		8,447	45%	3,801	
1	05	04	02	07	01	Bid Prep/RFP/Award - LE Mirror Mount/Tank System	24-Apr-07	21-May-07	C	LL_PHS1	Hrs	8		1,549		1,549	45%	697	
1	05	04	02	07	01	Bid Prep/RFP/Award - LE Mirror Mount/Tank System	24-Apr-07	21-May-07	C	LL_ME1	Hrs	32		5,798		5,798	45%	2,609	
1	05	04	02	07	01	Bid Prep/RFP/Award - LE Mirror Mount/Tank System	24-Apr-07	21-May-07	C	LL_MDD	Hrs	16		2,660		2,660	45%	1,197	
1	05	04	02	07	01	Bid Prep/RFP/Award - LE Mirror Mount/Tank System	24-Apr-07	21-May-07	C	LL_EE1	Hrs	8		1,449		1,449	45%	652	
1	05	04	02	07	01	Bid Prep/RFP/Award - LE Mirror Mount/Tank System	24-Apr-07	21-May-07	C	LL_ADMI	Hrs	16		2,202		2,202	45%	991	
1	05	04	02	07	01	Fab/Deliver Mount & Tank System - LE Mirror	23-May-07	19-Jul-07	C	LL_MSTF	\$\$		5,000		6,105		6,105	45%	2,747
1	05	04	02	07	01	Fab/Deliver Mount & Tank System - LE Mirror	23-May-07	19-Jul-07	C	LL_MSE	(\$\$)		303,000		345,075		345,075	45%	155,284
1	05	04	02	07	01	Fab/Deliver Mount & Tank System - LE Mirror	23-May-07	19-Jul-07	C	LL_ME1	Hrs	32		5,798		5,798	45%	2,609	
1	05	04	02	07	01	Test Mount @ LLNL - LE Mirror	20-Jul-07	14-Sep-07	C	LL_PHS1	Hrs	80		15,488		15,488	45%	6,970	
1	05	04	02	07	01	Test Mount @ LLNL - LE Mirror	20-Jul-07	14-Sep-07	C	LL_MFA1	Hrs	100		14,079		14,079	45%	6,335	
1	05	04	02	07	01	Test Mount @ LLNL - LE Mirror	20-Jul-07	14-Sep-07	C	LL_ME1	Hrs	80		14,495		14,495	45%	6,523	
1	05	04	02	07	01	Test Mount @ LLNL - LE Mirror	20-Jul-07	14-Sep-07	C	LL_EE1	Hrs	16		2,899		2,899	45%	1,305	
1	05	04	02	07	01	Readiness Review - LE Mirror	26-Sep-07	9-Oct-07	C	LL_PHS1	Hrs	20		3,934		3,934	45%	1,770	
1	05	04	02	07	01	Readiness Review - LE Mirror	26-Sep-07	9-Oct-07	C	LL_MFA1	Hrs	10		1,430		1,430	45%	644	
1	05	04	02	07	01	Readiness Review - LE Mirror	26-Sep-07	9-Oct-07	C	LL_ME1	Hrs	20		3,682		3,682	45%	1,657	
1	05	04	02	07	01	Readiness Review - LE Mirror	26-Sep-07	9-Oct-07	C	LL_EE1	Hrs	4		736		736	45%	331	
1	05	04	02	07	01	Ship to SLAC - LE Mirror	4-Feb-08	15-Feb-08	C	LL_MFA1	Hrs	20		2,889		2,889	45%	1,300	
1	05	04	02	07	01	Ship to SLAC - LE Mirror	4-Feb-08	15-Feb-08	C	LL_ME1	Hrs	20		3,718		3,718	45%	1,673	
1	05	04	02	07	01	Ship to SLAC - LE Mirror	4-Feb-08	15-Feb-08	C	LL_ADMI	Hrs	8		1,130		1,130	45%	508	
1	05	04	02	07	02	High Energy Mirrors						2,869	515,000	507,695	599,107	1,106,802		498,061	
1	05	04	02	07	02	Prepare Physics Specification - HE Mirror	2-Oct-06	30-Nov-06	C	LL_PHS1	Hrs	106		20,522		20,522	45%	9,235	
1	05	04	02	07	02	PRD Review - HE Mirror	1-Dec-06	14-Dec-06	C	LL_PHS1	Hrs	40		7,744		7,744	45%	3,485	
1	05	04	02	07	02	Conceptual Engr/Design - HE Mirror	13-Nov-06	12-Jan-07	C	LL_ME1	Hrs	64		11,596		11,596	45%	5,218	
1	05	04	02	07	02	Conceptual Engr/Design - HE Mirror	13-Nov-06	12-Jan-07	C	LL_MDD	Hrs	96		15,957		15,957	45%	7,181	
1	05	04	02	07	02	Conceptual Design Review - HE Mirror	16-Jan-07	29-Jan-07	C	LL_PHS1	Hrs	40		7,744		7,744	45%	3,485	
1	05	04	02	07	02	Conceptual Design Review - HE Mirror	16-Jan-07	29-Jan-07	C	LL_ME1	Hrs	20		3,624		3,624	45%	1,631	
1	05	04	02	07	02	Conceptual Design Review - HE Mirror	16-Jan-07	29-Jan-07	C	LL_MDD	Hrs	20		3,324		3,324	45%	1,496	
1	05	04	02	07	02	Prepare ESD - HE Mirror	30-Jan-07	27-Feb-07	C	LL_PHS1	Hrs	16		3,098		3,098	45%	1,394	
1	05	04	02	07	02	Prepare ESD - HE Mirror	30-Jan-07	27-Feb-07	C	LL_ME1	Hrs	16		2,899		2,899	45%	1,305	
1	05	04	02	07	02	Preliminary Engineering/Design - HE Mirror	16-Jan-07	2-Apr-07	C	LL_PHS1	Hrs	108		20,909		20,909	45%	9,409	

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$	
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total			
1	05	04	02	07	02	Preliminary Engineering/Design - HE Mirror	16-Jan-07	2-Apr-07	C	LL_ME1	Hrs	162		29,352		29,352	45%	13,208	
1	05	04	02	07	02	Preliminary Engineering/Design - HE Mirror	16-Jan-07	2-Apr-07	C	LL_MDD	Hrs	216		35,904		35,904	45%	16,157	
1	05	04	02	07	02	Preliminary Engineering/Design - HE Mirror	16-Jan-07	2-Apr-07	C	LL_EE1	Hrs	54		9,784		9,784	45%	4,403	
1	05	04	02	07	02	Preliminary Design Review - HE Mirror	3-Apr-07	16-Apr-07	C	LL_PHS1	Hrs	30		5,808		5,808	45%	2,614	
1	05	04	02	07	02	Preliminary Design Review - HE Mirror	3-Apr-07	16-Apr-07	C	LL_ME1	Hrs	30		5,436		5,436	45%	2,446	
1	05	04	02	07	02	Preliminary Design Review - HE Mirror	3-Apr-07	16-Apr-07	C	LL_MDD	Hrs	30		4,987		4,987	45%	2,244	
1	05	04	02	07	02	Prepare seismic note - HE Mirror	3-Apr-07	30-May-07	C	LL_ME1	Hrs	82		14,857		14,857	45%	6,686	
1	05	04	02	07	02	Prepare acceptance test plan/proced - HE Mirror	1-May-07	31-May-07	C	LL_PHS1	Hrs	22		4,259		4,259	45%	1,917	
1	05	04	02	07	02	Prepare acceptance test plan/proced - HE Mirror	1-May-07	31-May-07	C	LL_EE1	Hrs	9		1,631		1,631	45%	734	
1	05	04	02	07	02	Prepare oper/maint proced - HE Mirror	1-May-07	31-May-07	C	LL_PHS1	Hrs	22		4,259		4,259	45%	1,917	
1	05	04	02	07	02	Prepare oper/maint proced - HE Mirror	1-May-07	31-May-07	C	LL_EE1	Hrs	9		1,631		1,631	45%	734	
1	05	04	02	07	02	Final Engineering/Design - HE Mirror	3-Apr-07	9-Aug-07	C	LL_PHS1	Hrs	106		20,522		20,522	45%	9,235	
1	05	04	02	07	02	Final Engineering/Design - HE Mirror	3-Apr-07	9-Aug-07	C	LL_ME1	Hrs	180		32,613		32,613	45%	14,676	
1	05	04	02	07	02	Final Engineering/Design - HE Mirror	3-Apr-07	9-Aug-07	C	LL_MDD	Hrs	500		83,111		83,111	45%	37,400	
1	05	04	02	07	02	Final Engineering/Design - HE Mirror	3-Apr-07	9-Aug-07	C	LL_EE1	Hrs	25		4,530		4,530	45%	2,038	
1	05	04	02	07	02	Final Design Review - HE Mirror	10-Aug-07	23-Aug-07	C	LL_PHS1	Hrs	40		7,744		7,744	45%	3,485	
1	05	04	02	07	02	Final Design Review - HE Mirror	10-Aug-07	23-Aug-07	C	LL_ME1	Hrs	40		7,247		7,247	45%	3,261	
1	05	04	02	07	02	Final Design Review - HE Mirror	10-Aug-07	23-Aug-07	C	LL_MDD	Hrs	40		6,649		6,649	45%	2,992	
1	05	04	02	07	02	Bid Prep/RFP/Award - HE Mirror Substrate	17-Apr-07	14-May-07	C	LL_PHS1	Hrs	16		3,098		3,098	45%	1,394	
1	05	04	02	07	02	Bid Prep/RFP/Award - HE Mirror Substrate	17-Apr-07	14-May-07	C	LL_ME1	Hrs	8		1,449		1,449	45%	652	
1	05	04	02	07	02	Bid Prep/RFP/Award - HE Mirror Substrate	17-Apr-07	14-May-07	C	LL_MDD	Hrs	16		2,660		2,660	45%	1,197	
1	05	04	02	07	02	Bid Prep/RFP/Award - HE Mirror Substrate	17-Apr-07	14-May-07	C	LL_ADMI	Hrs	16		2,202		2,202	45%	991	
1	05	04	02	07	02	Fab/Deliver - HE Mirror Substrate	16-May-07	13-May-08	C	LL_PHS1	Hrs	60		11,803		11,803	45%	5,311	
1	05	04	02	07	02	Fab/Deliver - HE Mirror Substrate	16-May-07	13-May-08	C	LL_MSTF	\$\$		10,000		12,406		12,406	45%	5,583
1	05	04	02	07	02	Fab/Deliver - HE Mirror Substrate	16-May-07	13-May-08	C	LL_MSE	(\$\$)		300,000		347,164		347,164	45%	156,224
1	05	04	02	07	02	Bid Prep/RFP/Award - HE Mirror Mount/Tank System	24-Aug-07	5-Oct-07	C	LL_PHS1	Hrs	12		2,329		2,329	45%	1,048	
1	05	04	02	07	02	Bid Prep/RFP/Award - HE Mirror Mount/Tank System	24-Aug-07	5-Oct-07	C	LL_ME1	Hrs	48		8,718		8,718	45%	3,923	
1	05	04	02	07	02	Bid Prep/RFP/Award - HE Mirror Mount/Tank System	24-Aug-07	5-Oct-07	C	LL_MDD	Hrs	24		3,999		3,999	45%	1,800	
1	05	04	02	07	02	Bid Prep/RFP/Award - HE Mirror Mount/Tank System	24-Aug-07	5-Oct-07	C	LL_EE1	Hrs	12		2,180		2,180	45%	981	
1	05	04	02	07	02	Bid Prep/RFP/Award - HE Mirror Mount/Tank System	24-Aug-07	5-Oct-07	C	LL_ADMI	Hrs	24		3,312		3,312	45%	1,490	
1	05	04	02	07	02	Fab/Deliver Mount & Tank System - HE Mirror	9-Oct-07	18-Mar-08	C	LL_MSE	(\$\$)		205,000		239,536		239,536	45%	107,791
1	05	04	02	07	02	Fab/Deliver Mount & Tank System - HE Mirror	9-Oct-07	18-Mar-08	C	LL_ME1	Hrs	80		14,872		14,872	45%	6,692	
1	05	04	02	07	02	Test Mount @ LLNL - HE Mirror	19-Mar-08	13-May-08	C	LL_PHS1	Hrs	80		15,891		15,891	45%	7,151	
1	05	04	02	07	02	Test Mount @ LLNL - HE Mirror	19-Mar-08	13-May-08	C	LL_MFA	Hrs	160		23,111		23,111	45%	10,400	
1	05	04	02	07	02	Test Mount @ LLNL - HE Mirror	19-Mar-08	13-May-08	C	LL_ME1	Hrs	80		14,872		14,872	45%	6,692	
1	05	04	02	07	02	Test Mount @ LLNL - HE Mirror	19-Mar-08	13-May-08	C	LL_EE1	Hrs	16		2,974		2,974	45%	1,338	
1	05	04	02	07	02	Readiness Review - HE Mirror	14-May-08	28-May-08	C	LL_PHS1	Hrs	20		3,973		3,973	45%	1,788	
1	05	04	02	07	02	Readiness Review - HE Mirror	14-May-08	28-May-08	C	LL_MFA	Hrs	10		1,444		1,444	45%	650	
1	05	04	02	07	02	Readiness Review - HE Mirror	14-May-08	28-May-08	C	LL_ME1	Hrs	20		3,718		3,718	45%	1,673	
1	05	04	02	07	02	Readiness Review - HE Mirror	14-May-08	28-May-08	C	LL_EE1	Hrs	4		744		744	45%	335	
1	05	04	02	07	02	Ship to SLAC - HE Mirror	29-May-08	11-Jun-08	C	LL_MFA	Hrs	20		2,889		2,889	45%	1,300	
1	05	04	02	07	02	Ship to SLAC - HE Mirror	29-May-08	11-Jun-08	C	LL_ME1	Hrs	20		3,718		3,718	45%	1,673	
1	05	04	02	08		Solid Attenuator													
1	05	04	02	09		Low Energy Mirror System													
1	05	04	03			End Station Optics													
1	05	04	03	01		End Station Optics Engineering													
1	05	04	03	02		Optics Tank - Near Hall													
1	05	04	03	03		Optics Tank - Far Hall													
1	05	04	03	04		K-B Focusing System													
1	05	04	03	05		Refractive Focusing System													
1	05	04	04			Crystals & Gratings													
1	05	04	04	01		Crystals & Gratings Engineering													

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total		
1	05	04	04	02		System Monochrometer												
1	05	04	04	03		Pulse Split & Delay												
1	05	05				Diagnostics Subsystem						16,772	1,130,086	2,908,660	1,298,602	4,207,262	1,276,483	
1	05	05	01			Diagnostic Systems Engineering												
1	05	05	01	01		Diagnostic Systems Engineering												
1	05	05	02			Modeling & Simulation						288	-	54,576	-	54,576	6,549	
1	05	05	02	01		Wave Model						144	-	27,288	-	27,288	3,275	
1	05	05	02	01		Wave Modeling - FY-06	3-Jul-06	29-Sep-06	C	LL_CP1	Hrs	144		27,288		27,288	12%	3,275
1	05	05	02	02		Monte Carlo Model						144	-	27,288	-	27,288	3,275	
1	05	05	02	02		Monte Carlo Modeling - FY-06	3-Jul-06	29-Sep-06	C	LL_CP1	Hrs	144		27,288		27,288	12%	3,275
1	05	05	02	03		Beam Simulation												
1	05	05	03			Facility Diagnostics						7,435	498,450	1,295,251	572,978	1,868,229	569,732	
1	05	05	03	01		Direct Imager						2,032	197,000	351,526	224,355	575,881	143,970	
1	05	05	03	01		Prepare Physics Specification - Direct Imager	14-Jul-06	29-Sep-06	C	LL_PHS1	Hrs	23		4,340		4,340	25%	1,085
1	05	05	03	01		Prepare Physics Specification - Direct Imager	14-Jul-06	29-Sep-06	C	LL_EE1	Hrs	23		4,062		4,062	25%	1,015
1	05	05	03	01		PRD Review - Direct Imager	2-Oct-06	13-Oct-06	C	LL_PHS1	Hrs	20		3,872		3,872	25%	968
1	05	05	03	01		PRD Review - Direct Imager	2-Oct-06	13-Oct-06	C	LL_EE1	Hrs	20		3,624		3,624	25%	906
1	05	05	03	01		Conceptual Engr/Design - Direct Imager	2-Oct-06	13-Oct-06	C	LL_ME1	Hrs	20		3,624		3,624	25%	906
1	05	05	03	01		Conceptual Engr/Design - Direct Imager	2-Oct-06	13-Oct-06	C	LL_MDD	Hrs	40		6,649		6,649	25%	1,662
1	05	05	03	01		Conceptual Engr/Design - Direct Imager	2-Oct-06	13-Oct-06	C	LL_EE1	Hrs	40		7,247		7,247	25%	1,812
1	05	05	03	01		Conceptual Design Review - Direct Imager	16-Oct-06	27-Oct-06	C	LL_ME1	Hrs	20		3,624		3,624	25%	906
1	05	05	03	01		Conceptual Design Review - Direct Imager	16-Oct-06	27-Oct-06	C	LL_MDD	Hrs	20		3,324		3,324	25%	831
1	05	05	03	01		Conceptual Design Review - Direct Imager	16-Oct-06	27-Oct-06	C	LL_EE1	Hrs	20		3,624		3,624	25%	906
1	05	05	03	01		Prepare ESD - Direct Imager	30-Oct-06	28-Nov-06	C	LL_ME1	Hrs	16		2,899		2,899	25%	725
1	05	05	03	01		Prepare ESD - Direct Imager	30-Oct-06	28-Nov-06	C	LL_EE1	Hrs	16		2,899		2,899	25%	725
1	05	05	03	01		Preliminary Engineering/Design - Direct Imager	30-Oct-06	15-Dec-06	C	LL_ME1	Hrs	99		17,937		17,937	25%	4,484
1	05	05	03	01		Preliminary Engineering/Design - Direct Imager	30-Oct-06	15-Dec-06	C	LL_MDD	Hrs	132		21,941		21,941	25%	5,485
1	05	05	03	01		Preliminary Engineering/Design - Direct Imager	30-Oct-06	15-Dec-06	C	LL_EE1	Hrs	132		23,917		23,917	25%	5,979
1	05	05	03	01		Preliminary Design Review - Direct Imager	2-Jan-07	12-Jan-07	C	LL_ME1	Hrs	36		6,523		6,523	25%	1,631
1	05	05	03	01		Preliminary Design Review - Direct Imager	2-Jan-07	12-Jan-07	C	LL_MDD	Hrs	18		2,992		2,992	25%	748
1	05	05	03	01		Preliminary Design Review - Direct Imager	2-Jan-07	12-Jan-07	C	LL_EE1	Hrs	36		6,523		6,523	25%	1,631
1	05	05	03	01		Prepare seismic note - Direct Imager	16-Jan-07	1-Mar-07	C	LL_ME1	Hrs	26		4,711		4,711	25%	1,178
1	05	05	03	01		Prepare acceptance test plan/proced - Direct Ima	2-Jan-07	13-Feb-07	C	LL_ME1	Hrs	24		4,348		4,348	25%	1,087
1	05	05	03	01		Prepare acceptance test plan/proced - Direct Ima	2-Jan-07	13-Feb-07	C	LL_EE1	Hrs	24		4,348		4,348	25%	1,087
1	05	05	03	01		Prepare oper/maint proced - Direct Imager	2-Jan-07	13-Feb-07	C	LL_ME1	Hrs	24		4,348		4,348	25%	1,087
1	05	05	03	01		Prepare oper/maint proced - Direct Imager	2-Jan-07	13-Feb-07	C	LL_EE1	Hrs	24		4,348		4,348	25%	1,087
1	05	05	03	01		Final Engineering/Design - Direct Imager	2-Jan-07	1-Mar-07	C	LL_ME1	Hrs	123		22,286		22,286	25%	5,571
1	05	05	03	01		Final Engineering/Design - Direct Imager	2-Jan-07	1-Mar-07	C	LL_MDD	Hrs	246		40,891		40,891	25%	10,223
1	05	05	03	01		Final Engineering/Design - Direct Imager	2-Jan-07	1-Mar-07	C	LL_EE1	Hrs	123		22,286		22,286	25%	5,571
1	05	05	03	01		Final Design Review - Direct Imager	2-Mar-07	15-Mar-07	C	LL_ME1	Hrs	40		7,247		7,247	25%	1,812
1	05	05	03	01		Final Design Review - Direct Imager	2-Mar-07	15-Mar-07	C	LL_MDD	Hrs	20		3,324		3,324	25%	831
1	05	05	03	01		Final Design Review - Direct Imager	2-Mar-07	15-Mar-07	C	LL_EE1	Hrs	40		7,247		7,247	25%	1,812
1	05	05	03	01		Bid Prep/RFP/Award - Direct Imager	2-Mar-07	11-Apr-07	C	LL_ME1	Hrs	23		4,167		4,167	25%	1,042
1	05	05	03	01		Bid Prep/RFP/Award - Direct Imager	2-Mar-07	11-Apr-07	C	LL_EE1	Hrs	23		4,167		4,167	25%	1,042
1	05	05	03	01		Bid Prep/RFP/Award - Direct Imager	2-Mar-07	11-Apr-07	C	LL_ADMI	Hrs	46		6,331		6,331	25%	1,583
1	05	05	03	01		Fab/Deliver - Direct Imager	13-Apr-07	16-Jul-07	C	LL_MSE(\$\$				197,000	224,355	224,355	25%	56,089
1	05	05	03	01		Fab/Deliver - Direct Imager	13-Apr-07	16-Jul-07	C	LL_ME1	Hrs	26		4,711		4,711	25%	1,178
1	05	05	03	01		Fab/Deliver - Direct Imager	13-Apr-07	16-Jul-07	C	LL_MDD	Hrs	26		4,322		4,322	25%	1,080
1	05	05	03	01		Fab/Deliver - Direct Imager	13-Apr-07	16-Jul-07	C	LL_EE1	Hrs	26		4,711		4,711	25%	1,178
1	05	05	03	01		Fab/Deliver - Direct Imager	13-Apr-07	16-Jul-07	C	LL_ADMI	Hrs	26		3,579		3,579	25%	895
1	05	05	03	01		Test @ LLNL - Direct Imager	17-Jul-07	16-Oct-07	C	LL_MFA1	Hrs	130		18,381		18,381	25%	4,595
1	05	05	03	01		Test @ LLNL - Direct Imager	17-Jul-07	16-Oct-07	C	LL_ME1	Hrs	65		11,828		11,828	25%	2,957

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$	
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total			
1	05	05	03	01		Test @ LLNL - Direct Imager	17-Jul-07	16-Oct-07	C	LL_EE1	Hrs	130		23,655		23,655	25%	5,914	
1	05	05	03	01		Readiness Review - Direct Imager	17-Oct-07	30-Oct-07	C	LL_MFA1	Hrs	10		1,444		1,444	25%	361	
1	05	05	03	01		Readiness Review - Direct Imager	17-Oct-07	30-Oct-07	C	LL_ME1	Hrs	10		1,859		1,859	25%	465	
1	05	05	03	01		Readiness Review - Direct Imager	17-Oct-07	30-Oct-07	C	LL_EE1	Hrs	10		1,859		1,859	25%	465	
1	05	05	03	01		Ship to SLAC - Direct Imager	4-Feb-08	15-Feb-08	C	LL_MFA1	Hrs	20		2,889		2,889	25%	722	
1	05	05	03	01		Ship to SLAC - Direct Imager	4-Feb-08	15-Feb-08	C	LL_ME1	Hrs	4		744		744	25%	186	
1	05	05	03	01		Ship to SLAC - Direct Imager	4-Feb-08	15-Feb-08	C	LL_EE1	Hrs	4		744		744	25%	186	
1	05	05	03	01		Ship to SLAC - Direct Imager	4-Feb-08	15-Feb-08	C	LL_ADMI	Hrs	8		1,130		1,130	25%	282	
1	05	05	03	02		Indirect Imager						-	-	-	-	-		-	
1	05	05	03	02		Closeout - Indirect Imager	3-Jul-06	31-Aug-06	C	LL_PHS1	Hrs	-		-		-	0%	-	
1	05	05	03	02		Closeout - Indirect Imager	3-Jul-06	31-Aug-06	C	LL_MDD	Hrs	-		-		-	0%	-	
1	05	05	03	03		Pulsed Ion Chamber													
1	05	05	03	04		Gas Mixing System													
1	05	05	03	05		FEE Diagnostic Tank													
1	05	05	03	06		Gas Detector						2,507	114,250	440,532	129,885	570,417		245,279	
1	05	05	03	06		Prototype Procurements - Gas Detector	3-Jul-06	29-Sep-06	C	LL_MSE(\$\$			1,250		1,388		1,388	43%	597
1	05	05	03	06		Prototype Surface Testing - Gas Detector	1-Aug-06	31-Oct-06	C	LL_PHS1	Hrs	17		3,235		3,235	43%	1,391	
1	05	05	03	06		Prototype Surface Testing - Gas Detector	1-Aug-06	31-Oct-06	C	LL_MFA1	Hrs	35		4,705		4,705	43%	2,023	
1	05	05	03	06		Prototype Surface Testing - Gas Detector	1-Aug-06	31-Oct-06	C	LL_EE1	Hrs	35		6,056		6,056	43%	2,604	
1	05	05	03	06		Prepare ESD (Instr Sci) - Gas Detector	3-Jul-06	30-Oct-06	C	LL_PHS1	Hrs	15		2,848		2,848	43%	1,225	
1	05	05	03	06		Prepare ESD (Instr Sci) - Gas Detector	3-Jul-06	30-Oct-06	C	LL_ME1	Hrs	15		2,666		2,666	43%	1,146	
1	05	05	03	06		Prepare ESD (Instr Sci) - Gas Detector	3-Jul-06	30-Oct-06	C	LL_EE1	Hrs	15		2,666		2,666	43%	1,146	
1	05	05	03	06		Preliminary Science/Engrng/Design - Gas Detector	3-Jul-06	13-Oct-06	C	LL_PHS1	Hrs	85		16,088		16,088	43%	6,918	
1	05	05	03	06		Preliminary Science/Engrng/Design - Gas Detector	3-Jul-06	13-Oct-06	C	LL_ME1	Hrs	42		7,440		7,440	43%	3,199	
1	05	05	03	06		Preliminary Science/Engrng/Design - Gas Detector	3-Jul-06	13-Oct-06	C	LL_MDD	Hrs	42		6,825		6,825	43%	2,935	
1	05	05	03	06		Preliminary Science/Engrng/Design - Gas Detector	3-Jul-06	13-Oct-06	C	LL_EE1	Hrs	42		7,440		7,440	43%	3,199	
1	05	05	03	06		Preliminary Design Review - Gas Detector	16-Oct-06	27-Oct-06	C	LL_PHS1	Hrs	10		1,936		1,936	43%	832	
1	05	05	03	06		Preliminary Design Review - Gas Detector	16-Oct-06	27-Oct-06	C	LL_ME1	Hrs	10		1,812		1,812	43%	779	
1	05	05	03	06		Preliminary Design Review - Gas Detector	16-Oct-06	27-Oct-06	C	LL_EE1	Hrs	20		3,624		3,624	43%	1,558	
1	05	05	03	06		Design - Detector Calibration @ SSRL	1-Aug-06	31-Oct-06	C	LL_PHS1	Hrs	82		15,605		15,605	43%	6,710	
1	05	05	03	06		Design - Detector Calibration @ SSRL	1-Aug-06	31-Oct-06	C	LL_MFA1	Hrs	82		11,348		11,348	43%	4,880	
1	05	05	03	06		Design - Detector Calibration @ SSRL	1-Aug-06	31-Oct-06	C	LL_ME1	Hrs	32		5,699		5,699	43%	2,451	
1	05	05	03	06		Design - Detector Calibration @ SSRL	1-Aug-06	31-Oct-06	C	LL_EE1	Hrs	32		5,699		5,699	43%	2,451	
1	05	05	03	06		Procure Hrdwr - Detector Calibration @ SSRL	20-Sep-06	31-Oct-06	C	LL_MSE(\$\$			25,000		28,278		28,278	43%	12,160
1	05	05	03	06		Assemble - Detector Calibration @ SSRL	16-Oct-06	10-Nov-06	C	LL_MFA1	Hrs	40		5,631		5,631	43%	2,422	
1	05	05	03	06		Assemble - Detector Calibration @ SSRL	16-Oct-06	10-Nov-06	C	LL_ME1	Hrs	16		2,899		2,899	43%	1,247	
1	05	05	03	06		Assemble - Detector Calibration @ SSRL	16-Oct-06	10-Nov-06	C	LL_EE1	Hrs	20		3,624		3,624	43%	1,558	
1	05	05	03	06		Testing - Detector Calibration @ SSRL	13-Nov-06	28-Nov-06	C	LL_PHS1	Hrs	20		3,872		3,872	43%	1,665	
1	05	05	03	06		Testing - Detector Calibration @ SSRL	13-Nov-06	28-Nov-06	C	LL_MFA1	Hrs	10		1,408		1,408	43%	605	
1	05	05	03	06		Testing - Detector Calibration @ SSRL	13-Nov-06	28-Nov-06	C	LL_ME1	Hrs	8		1,449		1,449	43%	623	
1	05	05	03	06		Testing - Detector Calibration @ SSRL	13-Nov-06	28-Nov-06	C	LL_EE1	Hrs	20		3,624		3,624	43%	1,558	
1	05	05	03	06		Analysis - Detector Calibration @ SSRL	13-Nov-06	12-Dec-06	C	LL_PHS1	Hrs	40		7,744		7,744	43%	3,330	
1	05	05	03	06		Analysis - Detector Calibration @ SSRL	13-Nov-06	12-Dec-06	C	LL_EE1	Hrs	40		7,247		7,247	43%	3,116	
1	05	05	03	06		Prepare Preliminary IWS - Gas Detector	3-Jul-06	30-Oct-06	C	LL_PHS1	Hrs	12		2,279		2,279	43%	980	
1	05	05	03	06		Prepare Preliminary IWS - Gas Detector	3-Jul-06	30-Oct-06	C	LL_EE1	Hrs	12		2,133		2,133	43%	917	
1	05	05	03	06		Prepare Final IWS - Gas Detector	31-Oct-06	29-Nov-06	C	LL_PHS1	Hrs	8		1,549		1,549	43%	666	
1	05	05	03	06		Prepare Final IWS - Gas Detector	31-Oct-06	29-Nov-06	C	LL_EE1	Hrs	8		1,449		1,449	43%	623	
1	05	05	03	06		Prepare acceptance test plan/proced - Gas Detect	1-Nov-06	15-Dec-06	C	LL_PHS1	Hrs	20		3,872		3,872	43%	1,665	
1	05	05	03	06		Prepare acceptance test plan/proced - Gas Detect	1-Nov-06	15-Dec-06	C	LL_ME1	Hrs	20		3,624		3,624	43%	1,558	
1	05	05	03	06		Prepare acceptance test plan/proced - Gas Detect	1-Nov-06	15-Dec-06	C	LL_EE1	Hrs	20		3,624		3,624	43%	1,558	
1	05	05	03	06		Prepare oper/maint proced - Gas Detector	1-Nov-06	15-Dec-06	C	LL_PHS1	Hrs	20		3,872		3,872	43%	1,665	
1	05	05	03	06		Prepare oper/maint proced - Gas Detector	1-Nov-06	15-Dec-06	C	LL_ME1	Hrs	20		3,624		3,624	43%	1,558	

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$	
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total			
1	05	05	03	06		Prepare oper/maint proced - Gas Detector	1-Nov-06	15-Dec-06	C	LL_EE1	Hrs	20		3,624		3,624	43%	1,558	
1	05	05	03	06		Final Science/Engrng/Design - Gas Detector	16-Oct-06	12-Jan-07	C	LL_PHS1	Hrs	104		20,134		20,134	43%	8,658	
1	05	05	03	06		Final Science/Engrng/Design - Gas Detector	16-Oct-06	12-Jan-07	C	LL_ME1	Hrs	156		28,265		28,265	43%	12,154	
1	05	05	03	06		Final Science/Engrng/Design - Gas Detector	16-Oct-06	12-Jan-07	C	LL_MDD	Hrs	416		69,149		69,149	43%	29,734	
1	05	05	03	06		Final Science/Engrng/Design - Gas Detector	16-Oct-06	12-Jan-07	C	LL_EE1	Hrs	156		28,265		28,265	43%	12,154	
1	05	05	03	06		Final Design Review - Gas Detector	16-Jan-07	29-Jan-07	C	LL_PHS1	Hrs	30		5,808		5,808	43%	2,497	
1	05	05	03	06		Final Design Review - Gas Detector	16-Jan-07	29-Jan-07	C	LL_ME1	Hrs	20		3,624		3,624	43%	1,558	
1	05	05	03	06		Final Design Review - Gas Detector	16-Jan-07	29-Jan-07	C	LL_MDD	Hrs	20		3,324		3,324	43%	1,430	
1	05	05	03	06		Final Design Review - Gas Detector	16-Jan-07	29-Jan-07	C	LL_EE1	Hrs	30		5,436		5,436	43%	2,337	
1	05	05	03	06		Bid Prep/RFP/Award - Gas Detector	30-Jan-07	13-Mar-07	C	LL_PHS1	Hrs	12		2,323		2,323	43%	999	
1	05	05	03	06		Bid Prep/RFP/Award - Gas Detector	30-Jan-07	13-Mar-07	C	LL_ME1	Hrs	24		4,348		4,348	43%	1,870	
1	05	05	03	06		Bid Prep/RFP/Award - Gas Detector	30-Jan-07	13-Mar-07	C	LL_MDD	Hrs	16		2,660		2,660	43%	1,144	
1	05	05	03	06		Bid Prep/RFP/Award - Gas Detector	30-Jan-07	13-Mar-07	C	LL_EE1	Hrs	24		4,348		4,348	43%	1,870	
1	05	05	03	06		Bid Prep/RFP/Award - Gas Detector	30-Jan-07	13-Mar-07	C	LL_ADMI	Hrs	16		2,202		2,202	43%	947	
1	05	05	03	06		Fab/Deliver - Gas Detector	15-Mar-07	21-Jun-07	C	LL_MSE(\$	\$		88,000		100,220		100,220	43%	43,094
1	05	05	03	06		Fab/Deliver - Gas Detector	15-Mar-07	21-Jun-07	C	LL_ME1	Hrs	20		3,624		3,624	43%	1,558	
1	05	05	03	06		Fab/Deliver - Gas Detector	15-Mar-07	21-Jun-07	C	LL_MDD	Hrs	20		3,324		3,324	43%	1,430	
1	05	05	03	06		Fab/Deliver - Gas Detector	15-Mar-07	21-Jun-07	C	LL_EE1	Hrs	20		3,624		3,624	43%	1,558	
1	05	05	03	06		Fab/Deliver - Gas Detector	15-Mar-07	21-Jun-07	C	LL_ADMI	Hrs	10		1,376		1,376	43%	592	
1	05	05	03	06		Test @ LLNL - Gas Detector	22-Jun-07	17-Sep-07	C	LL_PHS1	Hrs	120		23,232		23,232	43%	9,990	
1	05	05	03	06		Test @ LLNL - Gas Detector	22-Jun-07	17-Sep-07	C	LL_MFA1	Hrs	48		6,758		6,758	43%	2,906	
1	05	05	03	06		Test @ LLNL - Gas Detector	22-Jun-07	17-Sep-07	C	LL_ME1	Hrs	60		10,871		10,871	43%	4,675	
1	05	05	03	06		Test @ LLNL - Gas Detector	22-Jun-07	17-Sep-07	C	LL_EE1	Hrs	120		21,742		21,742	43%	9,349	
1	05	05	03	06		Readiness Review - Gas Detector	18-Sep-07	1-Oct-07	C	LL_PHS1	Hrs	8		1,549		1,549	43%	666	
1	05	05	03	06		Readiness Review - Gas Detector	18-Sep-07	1-Oct-07	C	LL_MFA1	Hrs	8		1,126		1,126	43%	484	
1	05	05	03	06		Readiness Review - Gas Detector	18-Sep-07	1-Oct-07	C	LL_ME1	Hrs	8		1,449		1,449	43%	623	
1	05	05	03	06		Readiness Review - Gas Detector	18-Sep-07	1-Oct-07	C	LL_EE1	Hrs	20		3,624		3,624	43%	1,558	
1	05	05	03	06		Ship to SLAC - Gas Detector	4-Feb-08	15-Feb-08	C	LL_MFA1	Hrs	20		2,889		2,889	43%	1,242	
1	05	05	03	06		Ship to SLAC - Gas Detector	4-Feb-08	15-Feb-08	C	LL_EE1	Hrs	8		1,487		1,487	43%	639	
1	05	05	03	06		Ship to SLAC - Gas Detector	4-Feb-08	15-Feb-08	C	LL_ADMI	Hrs	8		1,130		1,130	43%	486	
1	05	05	03	07		NEH Imager						1,684	93,600	293,538	109,369	402,907		100,727	
1	05	05	03	07		Prepare Physics Specification - NEH Imager	15-Dec-06	29-Jan-07	C	LL_PHS1	Hrs	40		7,744		7,744	25%	1,936	
1	05	05	03	07		Prepare Physics Specification - NEH Imager	15-Dec-06	29-Jan-07	C	LL_EE1	Hrs	40		7,247		7,247	25%	1,812	
1	05	05	03	07		PRD Review - NEH Imager	30-Jan-07	5-Feb-07	C	LL_PHS1	Hrs	10		1,936		1,936	25%	484	
1	05	05	03	07		PRD Review - NEH Imager	30-Jan-07	5-Feb-07	C	LL_EE1	Hrs	10		1,812		1,812	25%	453	
1	05	05	03	07		Conceptual Engr/Design - NEH Imager	30-Jan-07	13-Mar-07	C	LL_ME1	Hrs	40		7,247		7,247	25%	1,812	
1	05	05	03	07		Conceptual Engr/Design - NEH Imager	30-Jan-07	13-Mar-07	C	LL_MDD	Hrs	90		14,960		14,960	25%	3,740	
1	05	05	03	07		Conceptual Engr/Design - NEH Imager	30-Jan-07	13-Mar-07	C	LL_EE1	Hrs	40		7,247		7,247	25%	1,812	
1	05	05	03	07		Conceptual Design Review - NEH Imager	14-Mar-07	27-Mar-07	C	LL_ME1	Hrs	10		1,812		1,812	25%	453	
1	05	05	03	07		Conceptual Design Review - NEH Imager	14-Mar-07	27-Mar-07	C	LL_MDD	Hrs	20		3,324		3,324	25%	831	
1	05	05	03	07		Conceptual Design Review - NEH Imager	14-Mar-07	27-Mar-07	C	LL_EE1	Hrs	20		3,624		3,624	25%	906	
1	05	05	03	07		Prepare ESD - NEH Imager	28-Mar-07	24-Apr-07	C	LL_ME1	Hrs	16		2,899		2,899	25%	725	
1	05	05	03	07		Prepare ESD - NEH Imager	28-Mar-07	24-Apr-07	C	LL_EE1	Hrs	16		2,899		2,899	25%	725	
1	05	05	03	07		Preliminary Engineering/Design - NEH Imager	14-Mar-07	8-May-07	C	LL_ME1	Hrs	80		14,495		14,495	25%	3,624	
1	05	05	03	07		Preliminary Engineering/Design - NEH Imager	14-Mar-07	8-May-07	C	LL_MDD	Hrs	160		26,596		26,596	25%	6,649	
1	05	05	03	07		Preliminary Engineering/Design - NEH Imager	14-Mar-07	8-May-07	C	LL_EE1	Hrs	80		14,495		14,495	25%	3,624	
1	05	05	03	07		Preliminary Design Review - NEH Imager	9-May-07	22-May-07	C	LL_ME1	Hrs	20		3,624		3,624	25%	906	
1	05	05	03	07		Preliminary Design Review - NEH Imager	9-May-07	22-May-07	C	LL_MDD	Hrs	20		3,324		3,324	25%	831	
1	05	05	03	07		Preliminary Design Review - NEH Imager	9-May-07	22-May-07	C	LL_EE1	Hrs	40		7,247		7,247	25%	1,812	
1	05	05	03	07		Prepare seismic note - NEH Imager	16-Apr-07	11-Jun-07	C	LL_ME1	Hrs	32		5,798		5,798	25%	1,449	
1	05	05	03	07		Prepare acceptance test plan/proced - NEH Imager	9-May-07	20-Jun-07	C	LL_ME1	Hrs	24		4,348		4,348	25%	1,087	
1	05	05	03	07		Prepare acceptance test plan/proced - NEH Imager	9-May-07	20-Jun-07	C	LL_EE1	Hrs	24		4,348		4,348	25%	1,087	

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$	
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total			
1	05	05	03	07		Prepare oper/maint proced - NEH Imager	9-May-07	20-Jun-07	C	LL_ME1	Hrs	24		4,348		4,348	25%	1,087	
1	05	05	03	07		Prepare oper/maint proced - NEH Imager	9-May-07	20-Jun-07	C	LL_EE1	Hrs	24		4,348		4,348	25%	1,087	
1	05	05	03	07		Final Engineering/Design - NEH Imager	23-May-07	27-Jul-07	C	LL_ME1	Hrs	92		16,669		16,669	25%	4,167	
1	05	05	03	07		Final Engineering/Design - NEH Imager	23-May-07	27-Jul-07	C	LL_MDD	Hrs	184		30,585		30,585	25%	7,646	
1	05	05	03	07		Final Engineering/Design - NEH Imager	23-May-07	27-Jul-07	C	LL_EE1	Hrs	92		16,669		16,669	25%	4,167	
1	05	05	03	07		Final Design Review - NEH Imager	30-Jul-07	10-Aug-07	C	LL_ME1	Hrs	30		5,436		5,436	25%	1,359	
1	05	05	03	07		Final Design Review - NEH Imager	30-Jul-07	10-Aug-07	C	LL_MDD	Hrs	20		3,324		3,324	25%	831	
1	05	05	03	07		Final Design Review - NEH Imager	30-Jul-07	10-Aug-07	C	LL_EE1	Hrs	30		5,436		5,436	25%	1,359	
1	05	05	03	07		Bid Prep/RFP/Award - NEH Imager	13-Aug-07	30-Oct-07	C	LL_ME1	Hrs	20		3,659		3,659	25%	915	
1	05	05	03	07		Bid Prep/RFP/Award - NEH Imager	13-Aug-07	30-Oct-07	C	LL_EE1	Hrs	30		5,488		5,488	25%	1,372	
1	05	05	03	07		Bid Prep/RFP/Award - NEH Imager	13-Aug-07	30-Oct-07	C	LL_ADMI	Hrs	40		5,559		5,559	25%	1,390	
1	05	05	03	07		Fab/Deliver - NEH Imager	1-Nov-07	31-Jan-08	C	LL_MSE	(\$)		93,600		109,369		109,369	25%	27,342
1	05	05	03	07		Fab/Deliver - NEH Imager	1-Nov-07	31-Jan-08	C	LL_ME1	Hrs	20		3,718		3,718	25%	929	
1	05	05	03	07		Fab/Deliver - NEH Imager	1-Nov-07	31-Jan-08	C	LL_MDD	Hrs	20		3,411		3,411	25%	853	
1	05	05	03	07		Fab/Deliver - NEH Imager	1-Nov-07	31-Jan-08	C	LL_EE1	Hrs	20		3,718		3,718	25%	929	
1	05	05	03	07		Fab/Deliver - NEH Imager	1-Nov-07	31-Jan-08	C	LL_ADMI	Hrs	20		2,824		2,824	25%	706	
1	05	05	03	07		Test @ LLNL - NEH Imager	1-Feb-08	29-Feb-08	C	LL_MFA	Hrs	40		5,778		5,778	25%	1,444	
1	05	05	03	07		Test @ LLNL - NEH Imager	1-Feb-08	29-Feb-08	C	LL_ME1	Hrs	20		3,718		3,718	25%	929	
1	05	05	03	07		Test @ LLNL - NEH Imager	1-Feb-08	29-Feb-08	C	LL_EE1	Hrs	60		11,154		11,154	25%	2,788	
1	05	05	03	07		Readiness Review - NEH Imager	3-Mar-08	14-Mar-08	C	LL_MFA	Hrs	10		1,444		1,444	25%	361	
1	05	05	03	07		Readiness Review - NEH Imager	3-Mar-08	14-Mar-08	C	LL_ME1	Hrs	10		1,859		1,859	25%	465	
1	05	05	03	07		Readiness Review - NEH Imager	3-Mar-08	14-Mar-08	C	LL_EE1	Hrs	10		1,859		1,859	25%	465	
1	05	05	03	07		Ship to SLAC - NEH Imager	17-Mar-08	28-Mar-08	C	LL_MFA	Hrs	20		2,889		2,889	25%	722	
1	05	05	03	07		Ship to SLAC - NEH Imager	17-Mar-08	28-Mar-08	C	LL_ME1	Hrs	4		744		744	25%	186	
1	05	05	03	07		Ship to SLAC - NEH Imager	17-Mar-08	28-Mar-08	C	LL_EE1	Hrs	4		744		744	25%	186	
1	05	05	03	07		Ship to SLAC - NEH Imager	17-Mar-08	28-Mar-08	C	LL_ADMI	Hrs	8		1,130		1,130	25%	282	
1	05	05	03	08		FEH Imager						1,212	93,600	209,656	109,369	319,024		79,756	
1	05	05	03	08		Prepare Physics Specification - FEH Imager	16-Jan-07	12-Feb-07	C	LL_PHS	Hrs	20		3,872		3,872	25%	968	
1	05	05	03	08		Prepare Physics Specification - FEH Imager	16-Jan-07	12-Feb-07	C	LL_EE1	Hrs	20		3,624		3,624	25%	906	
1	05	05	03	08		PRD Review - FEH Imager	13-Feb-07	20-Feb-07	C	LL_PHS	Hrs	5		968		968	25%	242	
1	05	05	03	08		PRD Review - FEH Imager	13-Feb-07	20-Feb-07	C	LL_EE1	Hrs	5		906		906	25%	226	
1	05	05	03	08		Conceptual Engr/Design - FEH Imager	13-Feb-07	27-Mar-07	C	LL_ME1	Hrs	30		5,436		5,436	25%	1,359	
1	05	05	03	08		Conceptual Engr/Design - FEH Imager	13-Feb-07	27-Mar-07	C	LL_MDD	Hrs	60		9,973		9,973	25%	2,493	
1	05	05	03	08		Conceptual Engr/Design - FEH Imager	13-Feb-07	27-Mar-07	C	LL_EE1	Hrs	30		5,436		5,436	25%	1,359	
1	05	05	03	08		Conceptual Design Review - FEH Imager	28-Mar-07	10-Apr-07	C	LL_ME1	Hrs	10		1,812		1,812	25%	453	
1	05	05	03	08		Conceptual Design Review - FEH Imager	28-Mar-07	10-Apr-07	C	LL_MDD	Hrs	10		1,662		1,662	25%	416	
1	05	05	03	08		Conceptual Design Review - FEH Imager	28-Mar-07	10-Apr-07	C	LL_EE1	Hrs	10		1,812		1,812	25%	453	
1	05	05	03	08		Prepare ESD - FEH Imager	11-Apr-07	8-May-07	C	LL_ME1	Hrs	16		2,899		2,899	25%	725	
1	05	05	03	08		Prepare ESD - FEH Imager	11-Apr-07	8-May-07	C	LL_EE1	Hrs	16		2,899		2,899	25%	725	
1	05	05	03	08		Preliminary Engineering/Design - FEH Imager	28-Mar-07	22-May-07	C	LL_ME1	Hrs	40		7,247		7,247	25%	1,812	
1	05	05	03	08		Preliminary Engineering/Design - FEH Imager	28-Mar-07	22-May-07	C	LL_MDD	Hrs	160		26,596		26,596	25%	6,649	
1	05	05	03	08		Preliminary Engineering/Design - FEH Imager	28-Mar-07	22-May-07	C	LL_EE1	Hrs	40		7,247		7,247	25%	1,812	
1	05	05	03	08		Preliminary Design Review - FEH Imager	23-May-07	6-Jun-07	C	LL_ME1	Hrs	10		1,812		1,812	25%	453	
1	05	05	03	08		Preliminary Design Review - FEH Imager	23-May-07	6-Jun-07	C	LL_MDD	Hrs	10		1,662		1,662	25%	416	
1	05	05	03	08		Preliminary Design Review - FEH Imager	23-May-07	6-Jun-07	C	LL_EE1	Hrs	20		3,624		3,624	25%	906	
1	05	05	03	08		Prepare Seismic Note - FEH Imager	23-May-07	19-Jul-07	C	LL_ME1	Hrs	32		5,798		5,798	25%	1,449	
1	05	05	03	08		Prepare acceptance test plan/proced - FEH Imager	23-May-07	20-Jun-07	C	LL_ME1	Hrs	16		2,899		2,899	25%	725	
1	05	05	03	08		Prepare acceptance test plan/proced - FEH Imager	23-May-07	20-Jun-07	C	LL_EE1	Hrs	16		2,899		2,899	25%	725	
1	05	05	03	08		Prepare oper/maint proced - FEH Imager	23-May-07	20-Jun-07	C	LL_ME1	Hrs	16		2,899		2,899	25%	725	
1	05	05	03	08		Prepare oper/maint proced - FEH Imager	23-May-07	20-Jun-07	C	LL_EE1	Hrs	16		2,899		2,899	25%	725	
1	05	05	03	08		Final Engineering/Design - FEH Imager	23-May-07	27-Jul-07	C	LL_ME1	Hrs	40		7,247		7,247	25%	1,812	
1	05	05	03	08		Final Engineering/Design - FEH Imager	23-May-07	27-Jul-07	C	LL_MDD	Hrs	138		22,939		22,939	25%	5,735	

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$	
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total			
1	05	05	03	08		Final Engineering/Design - FEH Imager	23-May-07	27-Jul-07	C	LL_EE1	Hrs	40		7,247		7,247	25%	1,812	
1	05	05	03	08		Final Design Review - FEH Imager	30-Jul-07	10-Aug-07	C	LL_ME1	Hrs	20		3,624		3,624	25%	906	
1	05	05	03	08		Final Design Review - FEH Imager	30-Jul-07	10-Aug-07	C	LL_MDD	Hrs	20		3,324		3,324	25%	831	
1	05	05	03	08		Final Design Review - FEH Imager	30-Jul-07	10-Aug-07	C	LL_EE1	Hrs	20		3,624		3,624	25%	906	
1	05	05	03	08		Bid Prep/RFP/Award - FEH Imager	13-Aug-07	30-Oct-07	C	LL_ME1	Hrs	20		3,659		3,659	25%	915	
1	05	05	03	08		Bid Prep/RFP/Award - FEH Imager	13-Aug-07	30-Oct-07	C	LL_EE1	Hrs	20		3,659		3,659	25%	915	
1	05	05	03	08		Bid Prep/RFP/Award - FEH Imager	13-Aug-07	30-Oct-07	C	LL_ADM	Hrs	30		4,169		4,169	25%	1,042	
1	05	05	03	08		Fab/Deliver - FEH Imager	1-Nov-07	31-Jan-08	C	LL_MSE(\$			93,600		109,369		109,369	25%	27,342
1	05	05	03	08		Fab/Deliver - FEH Imager	1-Nov-07	31-Jan-08	C	LL_ME1	Hrs	20		3,718		3,718	25%	929	
1	05	05	03	08		Fab/Deliver - FEH Imager	1-Nov-07	31-Jan-08	C	LL_MDD	Hrs	10		1,705		1,705	25%	426	
1	05	05	03	08		Fab/Deliver - FEH Imager	1-Nov-07	31-Jan-08	C	LL_EE1	Hrs	20		3,718		3,718	25%	929	
1	05	05	03	08		Fab/Deliver - FEH Imager	1-Nov-07	31-Jan-08	C	LL_ADM	Hrs	20		2,824		2,824	25%	706	
1	05	05	03	08		Test @ LLNL - FEH Imager	1-Feb-08	29-Feb-08	C	LL_MFA	Hrs	40		5,778		5,778	25%	1,444	
1	05	05	03	08		Test @ LLNL - FEH Imager	1-Feb-08	29-Feb-08	C	LL_ME1	Hrs	20		3,718		3,718	25%	929	
1	05	05	03	08		Test @ LLNL - FEH Imager	1-Feb-08	29-Feb-08	C	LL_EE1	Hrs	60		11,154		11,154	25%	2,788	
1	05	05	03	08		Readiness Review - FEH Imager	3-Mar-08	14-Mar-08	C	LL_MFA	Hrs	10		1,444		1,444	25%	361	
1	05	05	03	08		Readiness Review - FEH Imager	3-Mar-08	14-Mar-08	C	LL_ME1	Hrs	10		1,859		1,859	25%	465	
1	05	05	03	08		Readiness Review - FEH Imager	3-Mar-08	14-Mar-08	C	LL_EE1	Hrs	10		1,859		1,859	25%	465	
1	05	05	03	08		Ship to SLAC - FEH Imager	17-Mar-08	28-Mar-08	C	LL_MFA	Hrs	20		2,889		2,889	25%	722	
1	05	05	03	08		Ship to SLAC - FEH Imager	17-Mar-08	28-Mar-08	C	LL_ME1	Hrs	4		744		744	25%	186	
1	05	05	03	08		Ship to SLAC - FEH Imager	17-Mar-08	28-Mar-08	C	LL_EE1	Hrs	4		744		744	25%	186	
1	05	05	03	08		Ship to SLAC - FEH Imager	17-Mar-08	28-Mar-08	C	LL_ADM	Hrs	8		1,130		1,130	25%	282	
1	05	05	04			Commissioning Diagnostics						9,049	631,636	1,558,832	725,624	2,284,457		700,201	
1	05	05	04	01		Commission Diagnostic Tanks													
1	05	05	04	02		Total Energy Measurement						3,104	212,636	513,844	241,797	755,642		249,362	
1	05	05	04	02		Towson Univ. Ph2 - Total Energy Measurement	3-Jul-06	29-Sep-06	C	LL_MSE(\$			12,636		14,025		14,025	33%	4,628
1	05	05	04	02		Prototype Assembly - Total Energy Measurement	3-Jul-06	29-Sep-06	C	LL_PHS	Hrs	57		10,699		10,699	33%	3,531	
1	05	05	04	02		Prototype Assembly - Total Energy Measurement	3-Jul-06	29-Sep-06	C	LL_MFA	Hrs	57		7,780		7,780	33%	2,567	
1	05	05	04	02		Signal Modeling - Total Energy Measurement	3-Jul-06	29-Sep-06	C	LL_PHS	Hrs	20		3,774		3,774	33%	1,245	
1	05	05	04	02		Signal Modeling - Total Energy Measurement	3-Jul-06	29-Sep-06	C	LL_MFA	Hrs	126		17,289		17,289	33%	5,706	
1	05	05	04	02		New Preamp Development - Total Energy Measuremen	3-Jul-06	31-Oct-06	C	LL_EE1	Hrs	136		24,173		24,173	33%	7,977	
1	05	05	04	02		Prototype revision - Total Energy Measurement	1-Sep-06	30-Nov-06	C	LL_PHS	Hrs	124		23,804		23,804	33%	7,855	
1	05	05	04	02		Prototype Testing w/ old preamp - TEM	2-Oct-06	15-Dec-06	C	LL_PHS	Hrs	106		20,522		20,522	33%	6,772	
1	05	05	04	02		Prototype Testing w/ old preamp - TEM	2-Oct-06	15-Dec-06	C	LL_MFA	Hrs	212		29,847		29,847	33%	9,849	
1	05	05	04	02		Model refinement - Total Energy Measurement	2-Oct-06	15-Dec-06	C	LL_PHS	Hrs	42		8,131		8,131	33%	2,683	
1	05	05	04	02		Model refinement - Total Energy Measurement	2-Oct-06	15-Dec-06	C	LL_MFA	Hrs	106		14,923		14,923	33%	4,925	
1	05	05	04	02		Prepare ESD - Total Energy Measurement	30-Aug-06	27-Sep-06	C	LL_PHS	Hrs	14		2,717		2,717	33%	897	
1	05	05	04	02		Prepare ESD - Total Energy Measurement	30-Aug-06	27-Sep-06	C	LL_ME1	Hrs	14		2,543		2,543	33%	839	
1	05	05	04	02		Preliminary Engineering/Design - Total Energy Me	30-Aug-06	25-Oct-06	C	LL_ME1	Hrs	80		14,285		14,285	33%	4,714	
1	05	05	04	02		Preliminary Engineering/Design - Total Energy Me	30-Aug-06	25-Oct-06	C	LL_MDD	Hrs	160		26,211		26,211	33%	8,649	
1	05	05	04	02		Preliminary Engineering/Design - Total Energy Me	30-Aug-06	25-Oct-06	C	LL_EE1	Hrs	40		7,142		7,142	33%	2,357	
1	05	05	04	02		Preliminary Design Review - Total Energy Measure	26-Oct-06	8-Nov-06	C	LL_PHS	Hrs	30		5,808		5,808	33%	1,917	
1	05	05	04	02		Preliminary Design Review - Total Energy Measure	26-Oct-06	8-Nov-06	C	LL_MFA	Hrs	20		2,816		2,816	33%	929	
1	05	05	04	02		Preliminary Design Review - Total Energy Measure	26-Oct-06	8-Nov-06	C	LL_ME1	Hrs	30		5,436		5,436	33%	1,794	
1	05	05	04	02		Preliminary Design Review - Total Energy Measure	26-Oct-06	8-Nov-06	C	LL_EE1	Hrs	8		1,449		1,449	33%	478	
1	05	05	04	02		Prepare seismic note - Total Energy Measurement	26-Oct-06	22-Nov-06	C	LL_ME1	Hrs	20		3,624		3,624	33%	1,196	
1	05	05	04	02		Prepare IWS - Total Energy Measurement	1-Aug-06	12-Jan-07	C	LL_PHS	Hrs	4		767		767	33%	253	
1	05	05	04	02		Prepare acceptance test plan/proced - Total Ener	26-Oct-06	22-Nov-06	C	LL_PHS	Hrs	40		7,744		7,744	33%	2,556	
1	05	05	04	02		Prepare oper/maint proced - Total Energy Measure	26-Oct-06	22-Nov-06	C	LL_PHS	Hrs	40		7,744		7,744	33%	2,556	
1	05	05	04	02		Fab Sensor Film on Si - Total Energy Measurement	2-Oct-06	15-Dec-06	C	LL_MSE(\$			20,000		22,777		22,777	33%	7,516
1	05	05	04	02		Fab Sensor Arrays on Si - Total Energy Measureme	2-Jan-07	28-Feb-07	C	LL_MFA	Hrs	160		22,526		22,526	33%	7,433	
1	05	05	04	02		Develop Films on Al2O3 - Total Energy Measuremen	2-Oct-06	30-Apr-07	C	LL_MSE(\$			10,000		11,389		11,389	33%	3,758

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$	
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total			
1	05	05	04	02		Fab Sensor Arrays on Al2O3 - Total Energy Measu	1-May-07	29-Jun-07	C	LL_MFA	Hrs	129		18,161		18,161	33%	5,993	
1	05	05	04	02		Final Engineering/Design - Total Energy Measurem	9-Nov-06	23-Jan-07	C	LL_ME1	Hrs	120		21,742		21,742	33%	7,175	
1	05	05	04	02		Final Engineering/Design - Total Energy Measurem	9-Nov-06	23-Jan-07	C	LL_MDD	Hrs	240		39,893		39,893	33%	13,165	
1	05	05	04	02		Final Engineering/Design - Total Energy Measurem	9-Nov-06	23-Jan-07	C	LL_EE1	Hrs	40		7,247		7,247	33%	2,392	
1	05	05	04	02		Final Design Review - Total Energy Measurement	24-Jan-07	6-Feb-07	C	LL_PHS1	Hrs	30		5,808		5,808	33%	1,917	
1	05	05	04	02		Final Design Review - Total Energy Measurement	24-Jan-07	6-Feb-07	C	LL_MFA	Hrs	20		2,816		2,816	33%	929	
1	05	05	04	02		Final Design Review - Total Energy Measurement	24-Jan-07	6-Feb-07	C	LL_ME1	Hrs	30		5,436		5,436	33%	1,794	
1	05	05	04	02		Final Design Review - Total Energy Measurement	24-Jan-07	6-Feb-07	C	LL_EE1	Hrs	10		1,812		1,812	33%	598	
1	05	05	04	02		Bid Prep/RFP/Award - Total Energy Measurement	2-Jan-07	13-Feb-07	C	LL_PHS1	Hrs	24		4,646		4,646	33%	1,533	
1	05	05	04	02		Bid Prep/RFP/Award - Total Energy Measurement	2-Jan-07	13-Feb-07	C	LL_ME1	Hrs	24		4,348		4,348	33%	1,435	
1	05	05	04	02		Bid Prep/RFP/Award - Total Energy Measurement	2-Jan-07	13-Feb-07	C	LL_EE1	Hrs	24		4,348		4,348	33%	1,435	
1	05	05	04	02		Bid Prep/RFP/Award - Total Energy Measurement	2-Jan-07	13-Feb-07	C	LL_ADMI	Hrs	40		5,506		5,506	33%	1,817	
1	05	05	04	02		Fab/Deliver - Total Energy Measurement	15-Feb-07	26-Apr-07	C	LL_PHS1	Hrs	20		3,872		3,872	33%	1,278	
1	05	05	04	02		Fab/Deliver - Total Energy Measurement	15-Feb-07	26-Apr-07	C	LL_MSE(\$\$			170,000		193,606		193,606	33%	63,890
1	05	05	04	02		Fab/Deliver - Total Energy Measurement	15-Feb-07	26-Apr-07	C	LL_ADMI	Hrs	20		2,753		2,753	33%	908	
1	05	05	04	02		Assembly @ LLNL - Total Energy Measurement	27-Apr-07	17-May-07	C	LL_PHS1	Hrs	45		8,712		8,712	33%	2,875	
1	05	05	04	02		Assembly @ LLNL - Total Energy Measurement	27-Apr-07	17-May-07	C	LL_MFA	Hrs	75		10,559		10,559	33%	3,484	
1	05	05	04	02		Assembly @ LLNL - Total Energy Measurement	27-Apr-07	17-May-07	C	LL_EE1	Hrs	15		2,718		2,718	33%	897	
1	05	05	04	02		Test @ LLNL - Total Energy Measurement	4-Jun-07	27-Aug-07	C	LL_PHS1	Hrs	180		34,848		34,848	33%	11,500	
1	05	05	04	02		Test @ LLNL - Total Energy Measurement	4-Jun-07	27-Aug-07	C	LL_MFA	Hrs	240		33,789		33,789	33%	11,150	
1	05	05	04	02		Test @ LLNL - Total Energy Measurement	4-Jun-07	27-Aug-07	C	LL_EE1	Hrs	40		7,247		7,247	33%	2,392	
1	05	05	04	02		Readiness Review - Total Energy Measurement	28-Aug-07	11-Sep-07	C	LL_PHS1	Hrs	20		3,872		3,872	33%	1,278	
1	05	05	04	02		Readiness Review - Total Energy Measurement	28-Aug-07	11-Sep-07	C	LL_ME1	Hrs	20		3,624		3,624	33%	1,196	
1	05	05	04	02		Readiness Review - Total Energy Measurement	28-Aug-07	11-Sep-07	C	LL_EE1	Hrs	8		1,449		1,449	33%	478	
1	05	05	04	02		Ship to SLAC - Total Energy Measurement	4-Feb-08	15-Feb-08	C	LL_PHS1	Hrs	10		1,986		1,986	33%	655	
1	05	05	04	02		Ship to SLAC - Total Energy Measurement	4-Feb-08	15-Feb-08	C	LL_MFA	Hrs	30		4,333		4,333	33%	1,430	
1	05	05	04	02		Ship to SLAC - Total Energy Measurement	4-Feb-08	15-Feb-08	C	LL_ADMI	Hrs	4		565		565	33%	186	
1	05	05	04	03		Pulse Length Measurement													
1	05	05	04	04		Low Energy Spectral Measurement System						2,254	150,000	391,999	170,829	562,828		174,477	
1	05	05	04	04		Prepare Physics Specification - Low Energy Spect	25-Sep-06	20-Oct-06	C	LL_PHS1	Hrs	40		7,697		7,697	31%	2,386	
1	05	05	04	04		Prepare Physics Specification - Low Energy Spect	25-Sep-06	20-Oct-06	C	LL_EE1	Hrs	40		7,203		7,203	31%	2,233	
1	05	05	04	04		PRD Review - Low Energy Spectrometer	23-Oct-06	3-Nov-06	C	LL_PHS1	Hrs	20		3,872		3,872	31%	1,200	
1	05	05	04	04		PRD Review - Low Energy Spectrometer	23-Oct-06	3-Nov-06	C	LL_EE1	Hrs	20		3,624		3,624	31%	1,123	
1	05	05	04	04		Conceptual Engr/Design - Low Energy Spectrometer	23-Oct-06	14-Nov-06	C	LL_ME1	Hrs	34		6,160		6,160	31%	1,910	
1	05	05	04	04		Conceptual Engr/Design - Low Energy Spectrometer	23-Oct-06	14-Nov-06	C	LL_MDD	Hrs	68		11,303		11,303	31%	3,504	
1	05	05	04	04		Conceptual Engr/Design - Low Energy Spectrometer	23-Oct-06	14-Nov-06	C	LL_EE1	Hrs	68		12,321		12,321	31%	3,819	
1	05	05	04	04		Conceptual Design Review - Low Energy Spectromet	15-Nov-06	21-Nov-06	C	LL_ME1	Hrs	10		1,812		1,812	31%	562	
1	05	05	04	04		Conceptual Design Review - Low Energy Spectromet	15-Nov-06	21-Nov-06	C	LL_MDD	Hrs	10		1,662		1,662	31%	515	
1	05	05	04	04		Conceptual Design Review - Low Energy Spectromet	15-Nov-06	21-Nov-06	C	LL_EE1	Hrs	10		1,812		1,812	31%	562	
1	05	05	04	04		Prepare ESD - Low Energy Spectrometer	22-Nov-06	5-Jan-07	C	LL_PHS1	Hrs	16		3,098		3,098	31%	960	
1	05	05	04	04		Prepare ESD - Low Energy Spectrometer	22-Nov-06	5-Jan-07	C	LL_ME1	Hrs	16		2,899		2,899	31%	899	
1	05	05	04	04		Preliminary Engineering/Design - Low Energy Spec	15-Nov-06	8-Jan-07	C	LL_ME1	Hrs	104		18,843		18,843	31%	5,841	
1	05	05	04	04		Preliminary Engineering/Design - Low Energy Spec	15-Nov-06	8-Jan-07	C	LL_MDD	Hrs	208		34,574		34,574	31%	10,718	
1	05	05	04	04		Preliminary Engineering/Design - Low Energy Spec	15-Nov-06	8-Jan-07	C	LL_EE1	Hrs	104		18,843		18,843	31%	5,841	
1	05	05	04	04		Preliminary Design Review - Low Energy Spectrome	9-Jan-07	23-Jan-07	C	LL_ME1	Hrs	40		7,247		7,247	31%	2,247	
1	05	05	04	04		Preliminary Design Review - Low Energy Spectrome	9-Jan-07	23-Jan-07	C	LL_MDD	Hrs	20		3,324		3,324	31%	1,031	
1	05	05	04	04		Preliminary Design Review - Low Energy Spectrome	9-Jan-07	23-Jan-07	C	LL_EE1	Hrs	40		7,247		7,247	31%	2,247	
1	05	05	04	04		Prepare seismic note - Low Energy Spectrometer	9-Jan-07	22-Feb-07	C	LL_ME1	Hrs	25		4,530		4,530	31%	1,404	
1	05	05	04	04		Prepare acceptance test plan/proced - Low Energy	9-Jan-07	23-Feb-07	C	LL_ME1	Hrs	26		4,711		4,711	31%	1,460	
1	05	05	04	04		Prepare acceptance test plan/proced - Low Energy	9-Jan-07	23-Feb-07	C	LL_EE1	Hrs	26		4,711		4,711	31%	1,460	
1	05	05	04	04		Prepare oper/maint proced - Low Energy Spectrome	9-Jan-07	23-Feb-07	C	LL_ME1	Hrs	26		4,711		4,711	31%	1,460	
1	05	05	04	04		Prepare oper/maint proced - Low Energy Spectrome	9-Jan-07	23-Feb-07	C	LL_EE1	Hrs	26		4,711		4,711	31%	1,460	

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$	
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total			
1	05	05	04	04		Final Engineering/Design - Low Energy Spectromet	9-Jan-07	7-Mar-07	C	LL_ME1	Hrs	160		28,990		28,990	31%	8,987	
1	05	05	04	04		Final Engineering/Design - Low Energy Spectromet	9-Jan-07	7-Mar-07	C	LL_MDD	Hrs	320		53,191		53,191	31%	16,489	
1	05	05	04	04		Final Engineering/Design - Low Energy Spectromet	9-Jan-07	7-Mar-07	C	LL_EE1	Hrs	160		28,990		28,990	31%	8,987	
1	05	05	04	04		Final Design Review - Low Energy Spectrometer	8-Mar-07	21-Mar-07	C	LL_ME1	Hrs	40		7,247		7,247	31%	2,247	
1	05	05	04	04		Final Design Review - Low Energy Spectrometer	8-Mar-07	21-Mar-07	C	LL_MDD	Hrs	20		3,324		3,324	31%	1,031	
1	05	05	04	04		Final Design Review - Low Energy Spectrometer	8-Mar-07	21-Mar-07	C	LL_EE1	Hrs	40		7,247		7,247	31%	2,247	
1	05	05	04	04		Bid Prep/RFP/Award - Low Energy Spectrometer	8-Mar-07	18-May-07	C	LL_ME1	Hrs	42		7,610		7,610	31%	2,359	
1	05	05	04	04		Bid Prep/RFP/Award - Low Energy Spectrometer	8-Mar-07	18-May-07	C	LL_EE1	Hrs	42		7,610		7,610	31%	2,359	
1	05	05	04	04		Bid Prep/RFP/Award - Low Energy Spectrometer	8-Mar-07	18-May-07	C	LL_ADMI	Hrs	83		11,424		11,424	31%	3,541	
1	05	05	04	04		Fab/Deliver - Low Energy Spectrometer	22-May-07	22-Aug-07	C	LL_MSE(\$\$			150,000		170,829		170,829	31%	52,957
1	05	05	04	04		Fab/Deliver - Low Energy Spectrometer	22-May-07	22-Aug-07	C	LL_ME1	Hrs	26		4,711		4,711	31%	1,460	
1	05	05	04	04		Fab/Deliver - Low Energy Spectrometer	22-May-07	22-Aug-07	C	LL_MDD	Hrs	26		4,322		4,322	31%	1,340	
1	05	05	04	04		Fab/Deliver - Low Energy Spectrometer	22-May-07	22-Aug-07	C	LL_EE1	Hrs	26		4,711		4,711	31%	1,460	
1	05	05	04	04		Fab/Deliver - Low Energy Spectrometer	22-May-07	22-Aug-07	C	LL_ADMI	Hrs	26		3,579		3,579	31%	1,109	
1	05	05	04	04		Test @ LLNL - Low Energy Spectrometer	23-Aug-07	4-Oct-07	C	LL_MFA1	Hrs	30		4,231		4,231	31%	1,312	
1	05	05	04	04		Test @ LLNL - Low Energy Spectrometer	23-Aug-07	4-Oct-07	C	LL_ME1	Hrs	30		5,446		5,446	31%	1,688	
1	05	05	04	04		Test @ LLNL - Low Energy Spectrometer	23-Aug-07	4-Oct-07	C	LL_EE1	Hrs	120		21,783		21,783	31%	6,753	
1	05	05	04	04		Readiness Review - Low Energy Spectrometer	5-Oct-07	18-Oct-07	C	LL_MFA1	Hrs	10		1,444		1,444	31%	448	
1	05	05	04	04		Readiness Review - Low Energy Spectrometer	5-Oct-07	18-Oct-07	C	LL_ME1	Hrs	10		1,859		1,859	31%	576	
1	05	05	04	04		Readiness Review - Low Energy Spectrometer	5-Oct-07	18-Oct-07	C	LL_EE1	Hrs	10		1,859		1,859	31%	576	
1	05	05	04	04		Ship to SLAC - Low Energy Spectrometer	4-Feb-08	15-Feb-08	C	LL_MFA1	Hrs	20		2,889		2,889	31%	896	
1	05	05	04	04		Ship to SLAC - Low Energy Spectrometer	4-Feb-08	15-Feb-08	C	LL_ME1	Hrs	4		744		744	31%	231	
1	05	05	04	04		Ship to SLAC - Low Energy Spectrometer	4-Feb-08	15-Feb-08	C	LL_EE1	Hrs	4		744		744	31%	231	
1	05	05	04	04		Ship to SLAC - Low Energy Spectrometer	4-Feb-08	15-Feb-08	C	LL_ADMI	Hrs	8		1,130		1,130	31%	350	
1	05	05	04	05		Popup Cameras						1,912	49,000	327,791	57,096	384,888		96,222	
1	05	05	04	05		Prepare Physics Specification - Popup Cameras	27-Nov-06	16-Jan-07	C	LL_PHS1	Hrs	50		9,680		9,680	25%	2,420	
1	05	05	04	05		Prepare Physics Specification - Popup Cameras	27-Nov-06	16-Jan-07	C	LL_EE1	Hrs	50		9,059		9,059	25%	2,265	
1	05	05	04	05		PRD Review - Popup Cameras	17-Jan-07	23-Jan-07	C	LL_PHS1	Hrs	10		1,936		1,936	25%	484	
1	05	05	04	05		PRD Review - Popup Cameras	17-Jan-07	23-Jan-07	C	LL_EE1	Hrs	10		1,812		1,812	25%	453	
1	05	05	04	05		Conceptual Engr/Design - Popup Cameras	9-Jan-07	13-Feb-07	C	LL_ME1	Hrs	25		4,530		4,530	25%	1,132	
1	05	05	04	05		Conceptual Engr/Design - Popup Cameras	9-Jan-07	13-Feb-07	C	LL_MDD	Hrs	100		16,622		16,622	25%	4,156	
1	05	05	04	05		Conceptual Engr/Design - Popup Cameras	9-Jan-07	13-Feb-07	C	LL_EE1	Hrs	25		4,530		4,530	25%	1,132	
1	05	05	04	05		Conceptual Design Review - Popup Cameras	14-Feb-07	28-Feb-07	C	LL_ME1	Hrs	10		1,812		1,812	25%	453	
1	05	05	04	05		Conceptual Design Review - Popup Cameras	14-Feb-07	28-Feb-07	C	LL_MDD	Hrs	20		3,324		3,324	25%	831	
1	05	05	04	05		Conceptual Design Review - Popup Cameras	14-Feb-07	28-Feb-07	C	LL_EE1	Hrs	10		1,812		1,812	25%	453	
1	05	05	04	05		Prepare ESD - Popup Cameras	1-Mar-07	28-Mar-07	C	LL_PHS1	Hrs	16		3,098		3,098	25%	774	
1	05	05	04	05		Prepare ESD - Popup Cameras	1-Mar-07	28-Mar-07	C	LL_ME1	Hrs	16		2,899		2,899	25%	725	
1	05	05	04	05		Preliminary Engineering/Design - Popup Cameras	1-Mar-07	2-May-07	C	LL_ME1	Hrs	45		8,153		8,153	25%	2,038	
1	05	05	04	05		Preliminary Engineering/Design - Popup Cameras	1-Mar-07	2-May-07	C	LL_MDD	Hrs	180		29,920		29,920	25%	7,480	
1	05	05	04	05		Preliminary Engineering/Design - Popup Cameras	1-Mar-07	2-May-07	C	LL_EE1	Hrs	45		8,153		8,153	25%	2,038	
1	05	05	04	05		Preliminary Design Review - Popup Cameras	3-May-07	16-May-07	C	LL_ME1	Hrs	10		1,812		1,812	25%	453	
1	05	05	04	05		Preliminary Design Review - Popup Cameras	3-May-07	16-May-07	C	LL_MDD	Hrs	20		3,324		3,324	25%	831	
1	05	05	04	05		Preliminary Design Review - Popup Cameras	3-May-07	16-May-07	C	LL_EE1	Hrs	10		1,812		1,812	25%	453	
1	05	05	04	05		Prepare seismic note - Popup Cameras	3-May-07	28-Jun-07	C	LL_ME1	Hrs	32		5,798		5,798	25%	1,449	
1	05	05	04	05		Prepare acceptance test plan/proced - Popup Came	3-May-07	14-Jun-07	C	LL_ME1	Hrs	24		4,348		4,348	25%	1,087	
1	05	05	04	05		Prepare acceptance test plan/proced - Popup Came	3-May-07	14-Jun-07	C	LL_EE1	Hrs	24		4,348		4,348	25%	1,087	
1	05	05	04	05		Prepare oper/maint proced - Popup Cameras	3-May-07	14-Jun-07	C	LL_ME1	Hrs	24		4,348		4,348	25%	1,087	
1	05	05	04	05		Prepare oper/maint proced - Popup Cameras	3-May-07	14-Jun-07	C	LL_EE1	Hrs	24		4,348		4,348	25%	1,087	
1	05	05	04	05		Final Engineering/Design - Popup Cameras	17-May-07	26-Jul-07	C	LL_ME1	Hrs	98		17,756		17,756	25%	4,439	
1	05	05	04	05		Final Engineering/Design - Popup Cameras	17-May-07	26-Jul-07	C	LL_MDD	Hrs	392		65,159		65,159	25%	16,290	
1	05	05	04	05		Final Engineering/Design - Popup Cameras	17-May-07	26-Jul-07	C	LL_EE1	Hrs	98		17,756		17,756	25%	4,439	
1	05	05	04	05		Final Design Review - Popup Cameras	27-Jul-07	9-Aug-07	C	LL_ME1	Hrs	20		3,624		3,624	25%	906	

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$	
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total			
1	05	05	04	05		Final Design Review - Popup Cameras	27-Jul-07	9-Aug-07	C	LL_MDD	Hrs	20		3,324		3,324	25%	831	
1	05	05	04	05		Final Design Review - Popup Cameras	27-Jul-07	9-Aug-07	C	LL_EE1	Hrs	20		3,624		3,624	25%	906	
1	05	05	04	05		Bid Prep/RFP/Award - Popup Cameras	27-Jul-07	7-Sep-07	C	LL_ME1	Hrs	24		4,348		4,348	25%	1,087	
1	05	05	04	05		Bid Prep/RFP/Award - Popup Cameras	27-Jul-07	7-Sep-07	C	LL_EE1	Hrs	24		4,348		4,348	25%	1,087	
1	05	05	04	05		Bid Prep/RFP/Award - Popup Cameras	27-Jul-07	7-Sep-07	C	LL_ADM	Hrs	48		6,607		6,607	25%	1,652	
1	05	05	04	05		Fab/Deliver - Popup Cameras	11-Sep-07	12-Mar-08	C	LL_MSE(\$\$			49,000		57,096		57,096	25%	14,274
1	05	05	04	05		Fab/Deliver - Popup Cameras	11-Sep-07	12-Mar-08	C	LL_ME1	Hrs	46		8,528		8,528	25%	2,132	
1	05	05	04	05		Fab/Deliver - Popup Cameras	11-Sep-07	12-Mar-08	C	LL_EE1	Hrs	46		8,528		8,528	25%	2,132	
1	05	05	04	05		Fab/Deliver - Popup Cameras	11-Sep-07	12-Mar-08	C	LL_ADM	Hrs	46		6,478		6,478	25%	1,619	
1	05	05	04	05		Test @ LLNL - Popup Cameras	13-Dec-07	19-Mar-08	C	LL_MFA	Hrs	112		16,178		16,178	25%	4,044	
1	05	05	04	05		Test @ LLNL - Popup Cameras	13-Dec-07	19-Mar-08	C	LL_ME1	Hrs	22		4,090		4,090	25%	1,022	
1	05	05	04	05		Test @ LLNL - Popup Cameras	13-Dec-07	19-Mar-08	C	LL_EE1	Hrs	56		10,410		10,410	25%	2,603	
1	05	05	04	05		Readiness Review - Popup Cameras	20-Mar-08	2-Apr-08	C	LL_MFA	Hrs	10		1,444		1,444	25%	361	
1	05	05	04	05		Readiness Review - Popup Cameras	20-Mar-08	2-Apr-08	C	LL_ME1	Hrs	4		744		744	25%	186	
1	05	05	04	05		Readiness Review - Popup Cameras	20-Mar-08	2-Apr-08	C	LL_EE1	Hrs	10		1,859		1,859	25%	465	
1	05	05	04	05		Ship to SLAC - Popup Cameras	3-Apr-08	16-Apr-08	C	LL_MFA	Hrs	20		2,889		2,889	25%	722	
1	05	05	04	05		Ship to SLAC - Popup Cameras	3-Apr-08	16-Apr-08	C	LL_ME1	Hrs	4		744		744	25%	186	
1	05	05	04	05		Ship to SLAC - Popup Cameras	3-Apr-08	16-Apr-08	C	LL_EE1	Hrs	4		744		744	25%	186	
1	05	05	04	05		Ship to SLAC - Popup Cameras	3-Apr-08	16-Apr-08	C	LL_ADM	Hrs	8		1,130		1,130	25%	282	
1	05	05	04	06		K Measurement System						1,779	220,000	325,198	255,901	581,099		180,141	
1	05	05	04	06		Prepare Specification - K Measurement	1-Nov-06	30-Nov-06	C	LL_PHS	Hrs	80		15,488		15,488	31%	4,801	
1	05	05	04	06		Conceptual Design - K Meas.	1-Dec-06	29-Dec-06	C	LL_PHS	Hrs	40		7,744		7,744	31%	2,401	
1	05	05	04	06		Conceptual Design - K Meas.	1-Dec-06	29-Dec-06	C	LL_ME1	Hrs	40		7,247		7,247	31%	2,247	
1	05	05	04	06		Conceptual Design - K Meas.	1-Dec-06	29-Dec-06	C	LL_MDD	Hrs	40		6,649		6,649	31%	2,061	
1	05	05	04	06		Conceptual Design Review - K Meas.	2-Jan-07	30-Jan-07	C	LL_PHS	Hrs	40		7,744		7,744	31%	2,401	
1	05	05	04	06		Conceptual Design Review - K Meas.	2-Jan-07	30-Jan-07	C	LL_ME1	Hrs	16		2,899		2,899	31%	899	
1	05	05	04	06		Conceptual Design Review - K Meas.	2-Jan-07	30-Jan-07	C	LL_MDD	Hrs	40		6,649		6,649	31%	2,061	
1	05	05	04	06		Prepare ESD - K Measurement	31-Jan-07	28-Feb-07	C	LL_PHS	Hrs	16		3,098		3,098	31%	960	
1	05	05	04	06		Prepare ESD - K Measurement	31-Jan-07	28-Feb-07	C	LL_ME1	Hrs	16		2,899		2,899	31%	899	
1	05	05	04	06		Preliminary Design - K Meas.	31-Jan-07	28-Mar-07	C	LL_PHS	Hrs	40		7,744		7,744	31%	2,401	
1	05	05	04	06		Preliminary Design - K Meas.	31-Jan-07	28-Mar-07	C	LL_ME1	Hrs	80		14,495		14,495	31%	4,493	
1	05	05	04	06		Preliminary Design - K Meas.	31-Jan-07	28-Mar-07	C	LL_MDD	Hrs	80		13,298		13,298	31%	4,122	
1	05	05	04	06		Preliminary Design Review - K Meas.	29-Mar-07	25-Apr-07	C	LL_PHS	Hrs	40		7,744		7,744	31%	2,401	
1	05	05	04	06		Preliminary Design Review - K Meas.	29-Mar-07	25-Apr-07	C	LL_ME1	Hrs	16		2,899		2,899	31%	899	
1	05	05	04	06		Preliminary Design Review - K Meas.	29-Mar-07	25-Apr-07	C	LL_MDD	Hrs	40		6,649		6,649	31%	2,061	
1	05	05	04	06		Final Design - K Meas.	26-Apr-07	21-Jun-07	C	LL_PHS	Hrs	40		7,744		7,744	31%	2,401	
1	05	05	04	06		Final Design - K Meas.	26-Apr-07	21-Jun-07	C	LL_ME1	Hrs	80		14,495		14,495	31%	4,493	
1	05	05	04	06		Final Design - K Meas.	26-Apr-07	21-Jun-07	C	LL_MDD	Hrs	120		19,947		19,947	31%	6,183	
1	05	05	04	06		Final Design Review - K Meas.	22-Jun-07	20-Jul-07	C	LL_PHS	Hrs	40		7,744		7,744	31%	2,401	
1	05	05	04	06		Final Design Review - K Meas.	22-Jun-07	20-Jul-07	C	LL_ME1	Hrs	16		2,899		2,899	31%	899	
1	05	05	04	06		Final Design Review - K Meas.	22-Jun-07	20-Jul-07	C	LL_MDD	Hrs	40		6,649		6,649	31%	2,061	
1	05	05	04	06		Prepare Bid Docs - Goniometer	23-Jul-07	3-Aug-07	C	LL_PHS	Hrs	10		1,936		1,936	31%	600	
1	05	05	04	06		Bid and Award - Goniometer (3)	6-Aug-07	17-Sep-07	C	LL_PHS	Hrs	30		5,808		5,808	31%	1,800	
1	05	05	04	06		Fab and Deliver - Goniometer (3)	19-Sep-07	13-Dec-07	C	LL_MSE(\$\$			45,000		52,393		52,393	31%	16,242
1	05	05	04	06		Prepare Bid Docs - Vac. Tank (1)	23-Jul-07	3-Aug-07	C	LL_PHS	Hrs	10		1,936		1,936	31%	600	
1	05	05	04	06		Bid and Award - Vac. Tank (1)	6-Aug-07	17-Sep-07	C	LL_PHS	Hrs	30		5,808		5,808	31%	1,800	
1	05	05	04	06		Fab and Deliver - Vac. Tank (1)	19-Sep-07	13-Dec-07	C	LL_MSE(\$\$			40,000		46,572		46,572	31%	14,437
1	05	05	04	06		Prepare Bid Docs - Detector & Electronics	23-Jul-07	3-Aug-07	C	LL_PHS	Hrs	10		1,936		1,936	31%	600	
1	05	05	04	06		Bid and Award - Detector & Electronics	6-Aug-07	17-Sep-07	C	LL_PHS	Hrs	30		5,808		5,808	31%	1,800	
1	05	05	04	06		Fab and Deliver - Detector & Electronics	19-Sep-07	13-Dec-07	C	LL_MSE(\$\$			50,000		58,215		58,215	31%	18,046
1	05	05	04	06		Prepare Bid Docs - Stand & misc.	23-Jul-07	3-Aug-07	C	LL_PHS	Hrs	10		1,936		1,936	31%	600	
1	05	05	04	06		Bid and Award - Stand & misc.	6-Aug-07	17-Sep-07	C	LL_PHS	Hrs	30		5,808		5,808	31%	1,800	

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total		
1	05	05	04	06		Fab and Deliver - Stand & misc.	19-Sep-07	13-Dec-07	C	LL_MSE	(\$\$)		40,000		46,572	46,572	31%	14,437
1	05	05	04	06		Prepare Bid Docs - Pumps & Valves	23-Jul-07	3-Aug-07	C	LL_PHS	Hrs	10		1,936		1,936	31%	600
1	05	05	04	06		Bid and Award - Pumps & Valves	6-Aug-07	17-Sep-07	C	LL_PHS	Hrs	30		5,808		5,808	31%	1,800
1	05	05	04	06		Fab and Deliver - Pumps & Valves	19-Sep-07	13-Dec-07	C	LL_MSE	(\$\$)		25,000		29,107	29,107	31%	9,023
1	05	05	04	06		Prepare Bid Docs - Electronics & Software	23-Jul-07	3-Aug-07	C	LL_PHS	Hrs	10		1,936		1,936	31%	600
1	05	05	04	06		Prepare Bid Docs - Multilayers	26-Apr-07	9-May-07	C	LL_PHS	Hrs	10		1,936		1,936	31%	600
1	05	05	04	06		Bid and Award - Multilayers	10-May-07	21-Jun-07	C	LL_PHS	Hrs	30		5,808		5,808	31%	1,800
1	05	05	04	06		Fab and Deliver - Multilayers	25-Jun-07	20-Dec-07	C	LL_MSE	(\$\$)		20,000		23,043	23,043	31%	7,143
1	05	05	04	06		Fab and Deliver - Multilayers	25-Jun-07	20-Dec-07	C	LL_ME	Hrs	409		74,971		74,971	31%	23,241
1	05	05	04	06		Assemble and Test - K Meas.	21-Dec-07	24-Jan-08	C	LL_PHS	Hrs	80		15,891		15,891	31%	4,926
1	05	05	04	06		Assemble and Test - K Meas.	21-Dec-07	24-Jan-08	C	LL_MFA	Hrs	40		5,778		5,778	31%	1,791
1	05	05	04	06		Assemble and Test - K Meas.	21-Dec-07	24-Jan-08	C	LL_ME	Hrs	40		7,436		7,436	31%	2,305
1	05	05	04	07		Divergence Measurement												
1	05	06				X-Ray Transport System Installation & Alignment						8,118	-	883,649	-	883,649		220,912
1	05	06	01			Front End Enclosure Install						3,710	-	428,638	-	428,638		107,159
1	05	06	01			Establish monuments	8-Nov-07	15-Nov-07	C	SL_MES	Hrs	144		11,863		11,863	25%	2,966
1	05	06	01			Mark floor for drilling	16-Nov-07	26-Nov-07	C	SL_MES	Hrs	120		9,886		9,886	25%	2,471
1	05	06	01			Install floor anchors	27-Nov-07	3-Dec-07	C	SL_TMU	Hrs	80		7,548		7,548	25%	1,887
1	05	06	01			Install FEE cable tray stubs	27-Nov-07	29-Nov-07	C	SL_TMU	Hrs	48		4,529		4,529	25%	1,132
1	05	06	01			Install FEE racks	27-Nov-07	3-Dec-07	C	SL_TMU	Hrs	80		7,548		7,548	25%	1,887
1	05	06	01			Install PLC	4-Dec-07	4-Dec-07	C	SL_TMU	Hrs	16		1,510		1,510	25%	377
1	05	06	01			Install ion pump controllers	4-Dec-07	4-Dec-07	C	SL_TMU	Hrs	16		1,510		1,510	25%	377
1	05	06	01			Install fast valve controller	19-Feb-08	19-Feb-08	C	SL_TMU	Hrs	16		1,510		1,510	25%	377
1	05	06	01			Install ion gauge controllers	4-Dec-07	4-Dec-07	C	SL_TMU	Hrs	16		1,510		1,510	25%	377
1	05	06	01			Install vacuum cable plant	20-Feb-08	22-Feb-08	C	SL_TMU	Hrs	48		4,529		4,529	25%	1,132
1	05	06	01			Install controls cable plant	4-Dec-07	4-Jan-08	C	SL_TMU	Hrs	320		30,192		30,192	25%	7,548
1	05	06	01			Install controls cable plant	4-Dec-07	4-Jan-08	C	LL_CE	Hrs	32		5,949		5,949	25%	1,487
1	05	06	01			Install supports	19-Feb-08	25-Feb-08	C	SL_TMU	Hrs	80		7,548		7,548	25%	1,887
1	05	06	01			Install diagnostic screens	26-Feb-08	27-Feb-08	C	SL_MFA	Hrs	32		2,830		2,830	25%	707
1	05	06	01			Install slit/fixed mask package	26-Feb-08	27-Feb-08	C	SL_MFA	Hrs	32		2,830		2,830	25%	707
1	05	06	01			Install slit/fixed mask package	26-Feb-08	27-Feb-08	C	LL_ME	Hrs	16		2,974		2,974	25%	744
1	05	06	01			Align slit/fixed mask package	28-Feb-08	29-Feb-08	C	SL_MES	Hrs	32		2,636		2,636	25%	659
1	05	06	01			Align slit/fixed mask package	28-Feb-08	29-Feb-08	C	LL_ME	Hrs	8		1,487		1,487	25%	372
1	05	06	01			Install gas/solid attenuator/gas detector	28-Feb-08	5-Mar-08	C	SL_MFA	Hrs	80		7,074		7,074	25%	1,768
1	05	06	01			Install gas/solid attenuator/gas detector	28-Feb-08	5-Mar-08	C	LL_ME	Hrs	40		7,436		7,436	25%	1,859
1	05	06	01			Align gas/solid attenuator/gas detector	6-Mar-08	7-Mar-08	C	SL_MES	Hrs	32		2,636		2,636	25%	659
1	05	06	01			Align gas/solid attenuator/gas detector	6-Mar-08	7-Mar-08	C	LL_ME	Hrs	8		1,487		1,487	25%	372
1	05	06	01			Install direct imager/calorimeter	6-Mar-08	11-Mar-08	C	SL_MFA	Hrs	64		5,659		5,659	25%	1,415
1	05	06	01			Install direct imager/calorimeter	6-Mar-08	11-Mar-08	C	LL_ME	Hrs	32		5,949		5,949	25%	1,487
1	05	06	01			Align direct imager/calorimeter	12-Mar-08	13-Mar-08	C	SL_MES	Hrs	32		2,636		2,636	25%	659
1	05	06	01			Align direct imager/calorimeter	12-Mar-08	13-Mar-08	C	LL_ME	Hrs	8		1,487		1,487	25%	372
1	05	06	01			Install FEE N2 lines	10-Mar-08	11-Mar-08	C	SL_MFA	Hrs	32		2,830		2,830	25%	707
1	05	06	01			Install undulator-K spectrometer	12-Mar-08	14-Mar-08	C	SL_MFA	Hrs	48		4,244		4,244	25%	1,061
1	05	06	01			Install undulator-K spectrometer	12-Mar-08	14-Mar-08	C	LL_ME	Hrs	24		4,462		4,462	25%	1,115
1	05	06	01			Align undulator-K spectrometer	17-Mar-08	18-Mar-08	C	SL_MES	Hrs	32		2,636		2,636	25%	659
1	05	06	01			Align undulator-K spectrometer	17-Mar-08	18-Mar-08	C	LL_ME	Hrs	8		1,487		1,487	25%	372
1	05	06	01			Test undulator-K spectrometer	19-Mar-08	25-Mar-08	C	SL_MFA	Hrs	40		3,537		3,537	25%	884
1	05	06	01			Test undulator-K spectrometer	19-Mar-08	25-Mar-08	C	LL_ME	Hrs	40		7,436		7,436	25%	1,859
1	05	06	01			Install SXR offset mirrors	17-Mar-08	20-Mar-08	C	SL_MFA	Hrs	64		5,659		5,659	25%	1,415
1	05	06	01			Install SXR offset mirrors	17-Mar-08	20-Mar-08	C	LL_ME	Hrs	32		5,949		5,949	25%	1,487
1	05	06	01			Align SXR offset mirrors	21-Mar-08	24-Mar-08	C	SL_MES	Hrs	32		2,636		2,636	25%	659
1	05	06	01			Align SXR offset mirrors	21-Mar-08	24-Mar-08	C	LL_ME	Hrs	8		1,487		1,487	25%	372

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total		
1	05	06	01			Install HXR offset mirrors	12-Jun-08	17-Jun-08	C	SL_MFA	Hrs	64		5,659		5,659	25%	1,415
1	05	06	01			Install HXR offset mirrors	12-Jun-08	17-Jun-08	C	LL_ME1	Hrs	32		5,949		5,949	25%	1,487
1	05	06	01			Align HXR offset mirrors	18-Jun-08	19-Jun-08	C	SL_MES	Hrs	32		2,636		2,636	25%	659
1	05	06	01			Align HXR offset mirrors	18-Jun-08	19-Jun-08	C	LL_ME1	Hrs	8		1,487		1,487	25%	372
1	05	06	01			Install collimators C1-C3	18-Jun-08	20-Jun-08	C	SL_MFA	Hrs	48		4,244		4,244	25%	1,061
1	05	06	01			Install collimators C1-C3	18-Jun-08	20-Jun-08	C	LL_ME1	Hrs	12		2,231		2,231	25%	558
1	05	06	01			Align collimators C1-C3	23-Jun-08	25-Jun-08	C	SL_MES	Hrs	48		3,954		3,954	25%	989
1	05	06	01			Align collimators C1-C3	23-Jun-08	25-Jun-08	C	LL_ME1	Hrs	12		2,231		2,231	25%	558
1	05	06	01			Fix collimator positions per RP	26-Jun-08	27-Jun-08	C	SL_MFA	Hrs	16		1,415		1,415	25%	354
1	05	06	01			Fix collimator positions per RP	26-Jun-08	27-Jun-08	C	LL_ME1	Hrs	8		1,487		1,487	25%	372
1	05	06	01			Install ion gauges	8-Jul-08	8-Jul-08	C	SL_MFA	Hrs	8		707		707	25%	177
1	05	06	01			Install isolation valves	9-Jul-08	10-Jul-08	C	SL_MFA	Hrs	32		2,830		2,830	25%	707
1	05	06	01			Align isolation valves	11-Jul-08	11-Jul-08	C	SL_MVE	Hrs	4		436		436	25%	109
1	05	06	01			Align isolation valves	11-Jul-08	11-Jul-08	C	SL_MES	Hrs	16		1,318		1,318	25%	330
1	05	06	01			Install vacuum piping	11-Jul-08	14-Jul-08	C	SL_MFA	Hrs	32		2,830		2,830	25%	707
1	05	06	01			Install ion pumps	15-Jul-08	17-Jul-08	C	SL_MFA	Hrs	48		4,244		4,244	25%	1,061
1	05	06	01			Install penetration tubes (3)	23-Jun-08	24-Jun-08	C	SL_MFA	Hrs	32		2,830		2,830	25%	707
1	05	06	01			Align penetration tubes (3)	14-Jul-08	15-Jul-08	C	SL_MES	Hrs	32		2,636		2,636	25%	659
1	05	06	01			Install FEE house air stubs	14-Jul-08	17-Jul-08	C	SL_TMU	Hrs	64		6,038		6,038	25%	1,510
1	05	06	01			Install FEE cooling water stubs	20-Jun-08	23-Jun-08	C	SL_MFA	Hrs	32		2,830		2,830	25%	707
1	05	06	01			Test Instrument Controls	18-Jun-08	30-Jul-08	C	SL_MFA	Hrs	240		21,222		21,222	25%	5,305
1	05	06	01			LNLL Support/checkout	13-May-08	24-Jun-08	C	LL_PHS1	Hrs	120		23,836		23,836	25%	5,959
1	05	06	01			LNLL Support/checkout	13-May-08	24-Jun-08	C	LL_ME1	Hrs	60		11,154		11,154	25%	2,788
1	05	06	01			LNLL Support/checkout	13-May-08	24-Jun-08	C	LL_CE1	Hrs	120		22,308		22,308	25%	5,577
1	05	06	01			Test Vacuum Controls	18-Jul-08	7-Aug-08	C	SL_MVE	Hrs	120		13,074		13,074	25%	3,268
1	05	06	01			Test Vacuum Controls	18-Jul-08	7-Aug-08	C	SL_MFA	Hrs	120		10,611		10,611	25%	2,653
1	05	06	01			FEE Vacuum Pumpdown	8-Aug-08	21-Aug-08	C	SL_MVE	Hrs	80		8,716		8,716	25%	2,179
1	05	06	01			FEE Vacuum Pumpdown	8-Aug-08	21-Aug-08	C	SL_MFA	Hrs	160		14,148		14,148	25%	3,537
1	05	06	01			LNLL Support/checkout	28-Feb-08	12-May-08	C	LL_PHS1	Hrs	106		21,055		21,055	25%	5,264
1	05	06	01			LNLL Support/checkout	28-Feb-08	12-May-08	C	LL_ME1	Hrs	53		9,853		9,853	25%	2,463
1	05	06	01			LNLL Support/checkout	28-Feb-08	12-May-08	C	LL_EE1	Hrs	53		9,853		9,853	25%	2,463
1	05	06	01			LNLL Support/checkout	28-Feb-08	12-May-08	C	LL_CE1	Hrs	106		19,705		19,705	25%	4,926
1	05	06	02			Near Hall Install						1,436	-	140,142	-	140,142		35,035
1	05	06	02			Establish monuments	27-Nov-07	4-Dec-07	C	SL_MES	Hrs	144		11,863		11,863	25%	2,966
1	05	06	02			Mark floor for drilling	5-Dec-07	10-Dec-07	C	SL_MES	Hrs	96		7,908		7,908	25%	1,977
1	05	06	02			Install floor anchors	11-Dec-07	14-Dec-07	C	SL_TMU	Hrs	64		6,038		6,038	25%	1,510
1	05	06	02			Install vacuum tank supports	31-Mar-08	3-Apr-08	C	SL_TMU	Hrs	64		6,038		6,038	25%	1,510
1	05	06	02			Install ion pump controllers	18-Dec-07	18-Dec-07	C	SL_TMU	Hrs	16		1,510		1,510	25%	377
1	05	06	02			Install ion gauge controllers	18-Dec-07	18-Dec-07	C	SL_TMU	Hrs	16		1,510		1,510	25%	377
1	05	06	02			Install PLC's	18-Dec-07	19-Dec-07	C	SL_TMU	Hrs	32		3,019		3,019	25%	755
1	05	06	02			Install vacuum cable plant	12-Dec-07	18-Dec-07	C	SL_TMU	Hrs	80		7,548		7,548	25%	1,887
1	05	06	02			Install Diagnostic Screens	18-Apr-08	22-Apr-08	C	SL_MFA	Hrs	48		4,244		4,244	25%	1,061
1	05	06	02			Install Diagnostic Screens	18-Apr-08	22-Apr-08	C	LL_ME1	Hrs	12		2,231		2,231	25%	558
1	05	06	02			Install Diagnostic Screen cables	23-Apr-08	25-Apr-08	C	SL_MFA	Hrs	48		4,244		4,244	25%	1,061
1	05	06	02			Test Diagnostic controls	28-Apr-08	2-May-08	C	SL_MFA	Hrs	40		3,537		3,537	25%	884
1	05	06	02			Test vacuum controls	22-Jul-08	28-Jul-08	C	SL_MVE	Hrs	40		4,358		4,358	25%	1,089
1	05	06	02			Test vacuum controls	22-Jul-08	28-Jul-08	C	SL_MFA	Hrs	40		3,537		3,537	25%	884
1	05	06	02			Install NEH vacuum tanks	4-Apr-08	17-Apr-08	C	SL_MFA	Hrs	160		14,148		14,148	25%	3,537
1	05	06	02			Install NEH vacuum tanks	4-Apr-08	17-Apr-08	C	LL_PHS1	Hrs	20		3,973		3,973	25%	993
1	05	06	02			Install NEH vacuum tanks	4-Apr-08	17-Apr-08	C	LL_ME1	Hrs	40		7,436		7,436	25%	1,859
1	05	06	02			Install isolation valves	18-Apr-08	18-Apr-08	C	SL_MFA	Hrs	16		1,415		1,415	25%	354
1	05	06	02			Install house air stubs	23-Apr-08	23-Apr-08	C	SL_TMU	Hrs	16		1,510		1,510	25%	377

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total		
1	05	06	02			Align NEH vacuum tanks	18-Apr-08	21-Apr-08	C	SL_MES	Hrs	32		2,636		2,636	25%	659
1	05	06	02			Align NEH vacuum tanks	18-Apr-08	21-Apr-08	C	LL_ME1	Hrs	8		1,487		1,487	25%	372
1	05	06	02			Install vacuum piping	21-Apr-08	22-Apr-08	C	SL_MFA	Hrs	32		2,830		2,830	25%	707
1	05	06	02			Install ion gauges	23-Apr-08	23-Apr-08	C	SL_MFA	Hrs	8		707		707	25%	177
1	05	06	02			Install NEH cable tray stubs	11-Dec-07	11-Dec-07	C	SL_TMU	Hrs	16		1,510		1,510	25%	377
1	05	06	02			Install collimators C4 (SXR & HXR)	25-Jun-08	27-Jun-08	C	SL_MFA	Hrs	48		4,244		4,244	25%	1,061
1	05	06	02			Install collimators C4 (SXR & HXR)	25-Jun-08	27-Jun-08	C	LL_ME1	Hrs	12		2,231		2,231	25%	558
1	05	06	02			Install collimators C5 and C6 (HXR)	30-Jun-08	1-Jul-08	C	SL_MFA	Hrs	32		2,830		2,830	25%	707
1	05	06	02			Install collimators C5 and C6 (HXR)	30-Jun-08	1-Jul-08	C	LL_ME1	Hrs	8		1,487		1,487	25%	372
1	05	06	02			Align collimators C4 (SXR & HXR)	16-Jul-08	17-Jul-08	C	SL_MES	Hrs	32		2,636		2,636	25%	659
1	05	06	02			Align collimators C4 (SXR & HXR)	16-Jul-08	17-Jul-08	C	LL_ME1	Hrs	8		1,487		1,487	25%	372
1	05	06	02			Align collimators C5 & C6	18-Jul-08	21-Jul-08	C	SL_MES	Hrs	32		2,636		2,636	25%	659
1	05	06	02			Align collimators C5 & C6	18-Jul-08	21-Jul-08	C	LL_ME1	Hrs	8		1,487		1,487	25%	372
1	05	06	02			Shield collimator C4	31-Jul-08	4-Aug-08	C	SL_MFA	Hrs	48		4,244		4,244	25%	1,061
1	05	06	02			Shield collimators C5 & C6	5-Aug-08	6-Aug-08	C	SL_MFA	Hrs	32		2,830		2,830	25%	707
1	05	06	02			NEH Vacuum Pumpdown	29-Jul-08	30-Jul-08	C	SL_MVE	Hrs	16		1,743		1,743	25%	436
1	05	06	02			NEH Vacuum Pumpdown	29-Jul-08	30-Jul-08	C	SL_MFA	Hrs	32		2,830		2,830	25%	707
1	05	06	02			Install Penetration tube (NH-TN)	8-Feb-08	8-Feb-08	C	SL_MFA	Hrs	16		1,415		1,415	25%	354
1	05	06	02			Install Penetration tube (NH-TN)	8-Feb-08	8-Feb-08	C	LL_ME1	Hrs	4		744		744	25%	186
1	05	06	02			Align penetration tube (NH-TN)	11-Feb-08	11-Feb-08	C	SL_MES	Hrs	16		1,318		1,318	25%	330
1	05	06	02			Align penetration tube (NH-TN)	11-Feb-08	11-Feb-08	C	LL_ME1	Hrs	4		744		744	25%	186
1	05	06	03			Tunnel Install						1,720	-	183,175	-	183,175		45,794
1	05	06	03			Establish monuments	11-Dec-07	18-Dec-07	C	SL_MES	Hrs	144		11,863		11,863	25%	2,966
1	05	06	03			Mark floor for drilling	19-Dec-07	27-Dec-07	C	SL_MES	Hrs	144		11,863		11,863	25%	2,966
1	05	06	03			Check hole locations for rebar	2-Jan-08	2-Jan-08	C	SL_MFA	Hrs	8		707		707	25%	177
1	05	06	03			Install floor anchors	3-Jan-08	7-Jan-08	C	SL_TMU	Hrs	48		4,529		4,529	25%	1,132
1	05	06	03			Install vacuum cable plant	18-Jan-08	30-Jan-08	C	SL_TMU	Hrs	128		12,077		12,077	25%	3,019
1	05	06	03			Install electronics racks/AC conduit	8-Jan-08	17-Jan-08	C	SL_TMU	Hrs	128		12,077		12,077	25%	3,019
1	05	06	03			Install electronics racks/AC conduit	8-Jan-08	17-Jan-08	C	SL_TMU	Hrs	64		6,305		6,305	25%	1,576
1	05	06	03			Test vacuum controls	31-Jan-08	13-Feb-08	C	SL_MFA	Hrs	80		7,074		7,074	25%	1,768
1	05	06	03			Test vacuum controls	31-Jan-08	13-Feb-08	C	LL_ME1	Hrs	80		14,872		14,872	25%	3,718
1	05	06	03			Test vacuum controls	31-Jan-08	13-Feb-08	C	LL_EE1	Hrs	40		7,436		7,436	25%	1,859
1	05	06	03			Test vacuum controls	31-Jan-08	13-Feb-08	C	LL_CE1	Hrs	80		14,872		14,872	25%	3,718
1	05	06	03			Install vacuum tank supports	24-Mar-08	27-Mar-08	C	SL_TMU	Hrs	64		6,038		6,038	25%	1,510
1	05	06	03			Install vacuum tank supports	24-Mar-08	27-Mar-08	C	LL_ME1	Hrs	32		5,949		5,949	25%	1,487
1	05	06	03			Install other Tunnel spools (LUSI)	28-Mar-08	4-Apr-08	C	SL_MFA	Hrs	96		8,489		8,489	25%	2,122
1	05	06	03			Install Diagnostic Screens	28-Mar-08	2-Apr-08	C	SL_MFA	Hrs	64		5,659		5,659	25%	1,415
1	05	06	03			Test Diagnostic Controls	3-Apr-08	10-Apr-08	C	SL_MFA	Hrs	48		4,244		4,244	25%	1,061
1	05	06	03			Install isolation valves	7-Apr-08	8-Apr-08	C	SL_MFA	Hrs	32		2,830		2,830	25%	707
1	05	06	03			Install spools	7-Apr-08	10-Apr-08	C	SL_TMU	Hrs	64		6,038		6,038	25%	1,510
1	05	06	03			Align tunnel components	11-Apr-08	16-Apr-08	C	SL_MES	Hrs	64		5,272		5,272	25%	1,318
1	05	06	03			Align tunnel components	11-Apr-08	16-Apr-08	C	LL_ME1	Hrs	16		2,974		2,974	25%	744
1	05	06	03			Install penetration drift tube	17-Apr-08	17-Apr-08	C	SL_MFA	Hrs	16		1,415		1,415	25%	354
1	05	06	03			Install ion gauges	9-Apr-08	9-Apr-08	C	SL_MFA	Hrs	8		707		707	25%	177
1	05	06	03			Install Tunnel cable tray stubs	2-Jan-08	4-Jan-08	C	SL_TMU	Hrs	48		4,529		4,529	25%	1,132
1	05	06	03			Install Tunnel house air stubs	9-Apr-08	11-Apr-08	C	SL_TMU	Hrs	48		4,529		4,529	25%	1,132
1	05	06	03			Install stopper collimator	2-Apr-08	3-Apr-08	C	SL_MFA	Hrs	32		2,830		2,830	25%	707
1	05	06	03			Align stopper collimator	4-Apr-08	7-Apr-08	C	SL_MES	Hrs	32		2,636		2,636	25%	659
1	05	06	03			Align stopper collimator	4-Apr-08	7-Apr-08	C	LL_ME1	Hrs	8		1,487		1,487	25%	372
1	05	06	03			Shield stopper collimator	8-Apr-08	10-Apr-08	C	SL_MFA	Hrs	24		2,122		2,122	25%	531
1	05	06	03			Tunnel Vacuum Pumpdown	14-Apr-08	15-Apr-08	C	SL_MFA	Hrs	32		2,830		2,830	25%	707
1	05	06	03			Tunnel Vacuum Pumpdown	14-Apr-08	15-Apr-08	C	LL_ME1	Hrs	16		2,974		2,974	25%	744

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total		
1	05	06	03			Tunnel Vacuum Pumpdown	14-Apr-08	15-Apr-08	C	LL_EE1	Hrs	16		2,974		2,974	25%	744
1	05	06	03			Tunnel Vacuum Pumpdown	14-Apr-08	15-Apr-08	C	LL_CE1	Hrs	16		2,974		2,974	25%	744
1	05	06	04			Far Hall Install						1,124	-	118,395	-	118,395		29,599
1	05	06	04			Establish monuments	2-Jan-08	9-Jan-08	C	SL_MES	Hrs	144		11,863		11,863	25%	2,966
1	05	06	04			Mark floor for drilling	10-Jan-08	15-Jan-08	C	SL_MES	Hrs	96		7,908		7,908	25%	1,977
1	05	06	04			Install floor anchors	16-Jan-08	22-Jan-08	C	SL_TMU	Hrs	64		6,038		6,038	25%	1,510
1	05	06	04			Install vacuum cable plant	17-Jan-08	24-Jan-08	C	SL_TMU	Hrs	80		7,548		7,548	25%	1,887
1	05	06	04			Install ion pump controllers	22-Jan-08	22-Jan-08	C	SL_TMU	Hrs	16		1,510		1,510	25%	377
1	05	06	04			Install ion gauge controllers	22-Jan-08	22-Jan-08	C	SL_TMU	Hrs	16		1,510		1,510	25%	377
1	05	06	04			Install PLC's	22-Jan-08	23-Jan-08	C	SL_TMU	Hrs	32		3,019		3,019	25%	755
1	05	06	04			Test vacuum controls	21-Apr-08	2-May-08	C	SL_MFA	Hrs	20		1,768		1,768	25%	442
1	05	06	04			Test vacuum controls	21-Apr-08	2-May-08	C	LL_ME1	Hrs	20		3,718		3,718	25%	929
1	05	06	04			Test vacuum controls	21-Apr-08	2-May-08	C	LL_CE1	Hrs	20		3,718		3,718	25%	929
1	05	06	04			Install vacuum tank supports	31-Mar-08	1-Apr-08	C	SL_TMU	Hrs	32		3,019		3,019	25%	755
1	05	06	04			Install FEH vacuum tanks	2-Apr-08	15-Apr-08	C	SL_MFA	Hrs	160		14,148		14,148	25%	3,537
1	05	06	04			Install FEH vacuum tanks	2-Apr-08	15-Apr-08	C	LL_ME1	Hrs	40		7,436		7,436	25%	1,859
1	05	06	04			Install isolation valves	16-Apr-08	16-Apr-08	C	SL_MFA	Hrs	16		1,415		1,415	25%	354
1	05	06	04			Install spools	17-Apr-08	18-Apr-08	C	SL_MFA	Hrs	32		2,830		2,830	25%	707
1	05	06	04			Align FEH vacuum tanks	16-Apr-08	18-Apr-08	C	SL_MES	Hrs	48		3,954		3,954	25%	989
1	05	06	04			Align FEH vacuum tanks	16-Apr-08	18-Apr-08	C	LL_ME1	Hrs	24		4,462		4,462	25%	1,115
1	05	06	04			Install ion gauges	21-Apr-08	21-Apr-08	C	SL_MFA	Hrs	8		707		707	25%	177
1	05	06	04			Install FEH cable tray stubs	16-Jan-08	16-Jan-08	C	SL_TMU	Hrs	16		1,510		1,510	25%	377
1	05	06	04			Install FEH house air stubs	17-Apr-08	18-Apr-08	C	SL_TMU	Hrs	32		3,019		3,019	25%	755
1	05	06	04			Install FEH racks	16-Jan-08	18-Jan-08	C	SL_TMU	Hrs	48		4,529		4,529	25%	1,132
1	05	06	04			Vacuum system pumpdown	18-Jul-08	31-Jul-08	C	SL_MVE	Hrs	40		4,358		4,358	25%	1,089
1	05	06	04			Vacuum system pumpdown	18-Jul-08	31-Jul-08	C	SL_MFA	Hrs	40		3,537		3,537	25%	884
1	05	06	04			Vacuum system pumpdown	18-Jul-08	31-Jul-08	C	LL_ME1	Hrs	40		7,436		7,436	25%	1,859
1	05	06	04			Vacuum system pumpdown	18-Jul-08	31-Jul-08	C	LL_CE1	Hrs	40		7,436		7,436	25%	1,859
1	05	06	05			Electron Dump Enclosure Install						128	-	13,299	-	13,299		3,325
1	05	06	05			Install Controls cable (fast valve cables)	9-Nov-07	12-Nov-07	C	SL_TMU	Hrs	32		3,019		3,019	25%	755
1	05	06	05			Install penetration drift tube/ground plate	6-Feb-08	6-Feb-08	C	SL_MFA	Hrs	16		1,415		1,415	25%	354
1	05	06	05			Align penetration tube (EDE-FEE)	7-Feb-08	7-Feb-08	C	SL_MES	Hrs	16		1,318		1,318	25%	330
1	05	06	05			Install penetration shielding	8-Feb-08	11-Feb-08	C	SL_MFA	Hrs	32		2,830		2,830	25%	707
1	05	06	05			Test fast valve	13-Feb-08	14-Feb-08	C	SL_MVE	Hrs	16		1,743		1,743	25%	436
1	05	06	05			Test fast valve	13-Feb-08	14-Feb-08	C	LL_CE1	Hrs	16		2,974		2,974	25%	744
2	05					X-RAY TRANSPORT & DIAGNOSTICS SYSTEMS (OPC)						16,379	955,000	2,973,637	1,081,483	4,055,119		-
2	05	01				System Management & Integration						11,290	-	1,975,027	-	1,975,027		-
2	05	01	01			Management						11,290	-	1,975,027	-	1,975,027		-
2	05	01	01			Management & Oversight - FY-08	3-Mar-08	30-Sep-08	X	LL_SEE1	Hrs	536		99,641		99,641		
2	05	01	01			Management & Oversight - FY-08	3-Mar-08	30-Sep-08	X	LL_PHSS	Hrs	1,073		235,353		235,353		
2	05	01	01			Management & Oversight - FY-08	3-Mar-08	30-Sep-08	X	LL_ME1	Hrs	1,073		199,467		199,467		
2	05	01	01			Management & Oversight - FY-09	1-Oct-08	31-Mar-09	X	LL_SEE1	Hrs	428		81,632		81,632		
2	05	01	01			Management & Oversight - FY-09	1-Oct-08	31-Mar-09	X	LL_PHSS	Hrs	857		192,863		192,863		
2	05	01	01			Management & Oversight - FY-09	1-Oct-08	31-Mar-09	X	LL_ME1	Hrs	857		163,455		163,455		
2	05	01	01			LLNL - Commissioning Team	1-Apr-08	30-Sep-08	X	LL_PHS1	Hrs	896		177,975		177,975		
2	05	01	01			LLNL - Commissioning Team	1-Apr-08	30-Sep-08	X	LL_MFA1	Hrs	448		64,712		64,712		
2	05	01	01			LLNL - Commissioning Team	1-Apr-08	30-Sep-08	X	LL_ME1	Hrs	896		166,563		166,563		
2	05	01	01			LLNL - Commissioning Team	1-Apr-08	30-Sep-08	X	LL_EE1	Hrs	768		142,769		142,769		
2	05	01	01			LLNL - Commissioning Team	1-Apr-08	30-Sep-08	X	LL_CP1	Hrs	896		178,838		178,838		
2	05	01	01			XTOD Pre-Operations	4-Apr-08	31-Mar-09	X	SL_PHS	Hrs	854		74,657		74,657		
2	05	01	01			XTOD Pre-Operations	4-Apr-08	31-Mar-09	X	SL_ME1	Hrs	854		101,944		101,944		
2	05	01	01			XTOD Pre-Operations	4-Apr-08	31-Mar-09	X	SL_EE1	Hrs	854		95,157		95,157		

Detailed Cost Estimate
X-RAY TRANSPORT DIAGNOSTICS SYSTEMS

WBS Level						LCLA DCE Aug-2006 Description	Early Start	Early Finish	Fund Type	Res Code	Units	Work Rem. Bud. Qty		Work Rem. Full Burd and Escltd Cost			Contngcy %	Contingency \$
1	2	3	4	5	6							Hours	\$	Labor	M&S	Total		
2	05	02				Controls												
2	05	02	01			Controls - EPICS												
2	05	02	02			Controls - System												
2	05	03				Mechanical & Vacuum Subsystem												
2	05	03	01			Vacuum Systems Engineering												
2	05	03	02			Mech/Vac Front End												
2	05	03	03			Mech/Vac Near Hall												
2	05	03	04			Mech/Vac Tunnel												
2	05	03	05			Mech/Vac Far Hall												
2	05	04				Optical Subsystem						-	905,000	-	1,024,540	1,024,540	-	
2	05	04	01			Optical Systems Engineering												
2	05	04	02			Facility Optics						-	905,000	-	1,024,540	1,024,540	-	
2	05	04	02			Procure Spares - Part 2	1-Oct-08	7-Jan-09	S	LL_MSX	\$\$		405,000		437,418	437,418		
2	05	04	02			Procure Spares - Part 2	1-Oct-08	7-Jan-09	S	LL_MSC	\$\$		95,000		113,891	113,891		
2	05	04	02			Procure Spares - Part 1	1-Apr-08	24-Jun-08	S	LL_MSC	\$\$		405,000		473,230	473,230		
2	05	04	03			End Station Optics												
2	05	04	04			Crystals & Gratings												
2	05	05				Diagnostics Subsystem						5,089	50,000	998,610	56,943	1,055,553	-	
2	05	05	01			Diagnostic Systems Engineering												
2	05	05	02			Modeling & Simulation						5,089	-	998,610	-	998,610	-	
2	05	05	02			Modeling & Simulation - FY-07	2-Oct-06	28-Sep-07	X	LL_CP1	Hrs	3,388		659,096		659,096		
2	05	05	02			Modeling & Simulation - FY-08	1-Oct-07	30-Sep-08	X	LL_CP1	Hrs	1,701		339,514		339,514		
2	05	05	03			Facility Diagnostics							50,000	-	56,943	56,943	-	
2	05	05	03			Procure Spares - Direct Imager	3-Oct-06	11-Jan-07	S	LL_MSC	\$\$		50,000		56,943	56,943		
2	05	05	04			Commissioning Diagnostics												
2	05	06				X-Ray Transport & Diag. System Commissioning												
2	05	06	01			X-Ray Transport & Diag. System Commissioning												