JUL 13 1999

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

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RPP Computer Automated Surveillance System (CASS) to Tank Monitor and Control System (TMACS) Transfer Project Plan

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Lockheed Martin Hanford Company
Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

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Abstract: Management plan to ensure the orderly, systematic transfer of alarms from the retired Computer Automated Surveillance System (CASS) to the Tank Monitor and Control System (TMACS).

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**River Protection Project
Computer Automated Surveillance System (CASS)
To
Tank Monitor and Control System (TMACS)
Transfer Project Plan**

RPP-4789

Approval Designator: NA

**Rev. 0
July 2, 1999**

Prepared By: D. K. Douka / J. J. Shaffer III

**Approved By: C E Shipler Date: 7/2/99
C. E. Shipler, Manager, RPP Operational Configuration Management**

**Lockheed Martin Hanford Company
Richland, Washington**

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1.0 BACKGROUND

There are two primary monitoring and control systems used within the River Protection Project (RPP) to monitor facilities. The systems are Computer Automated Surveillance System (CASS), and Tank Monitor and Control System (TMACS). CASS was officially retired on February 25, 1999. Both systems are described in the Basis For Interim Operation (BIO), Appendix B, Facility and Process Description. The BIO states that TMACS shall eventually replace CASS. There have been several proposals submitted over the past few years recommending CASS be decommissioned and all its functionality be moved to the TMACS platform.

CASS, as described in the BIO Section B2.4.11.1, was designed to provide central, computerized surveillance of the waste storage tanks and their associated facilities. CASS consisted of six remote computers that monitored alarms, raw water usage, leak detectors, CAMs, Stacks, microcomputer, pressures, and liquid levels. The remote computers communicated with the Central Surveillance Computer (CSC) located in Building 2750E in the 200E Area. CASS provided no controls, interlocks, or automatic action based on the signals it received. An operator at the central CASS/TMACS Facility, manned on a 24-hour basis, monitored the system and advised field operators of any alarm conditions. The CASS was developed in a closed architecture that was a costly, proprietary dependency for RPP. The system was maintained beyond its life expectancy causing the hardware and software to become old and obsolete technology. This made it very difficult and costly to maintain, in some cases, forcing RPP to raid old computer graveyards to keep it running. Additionally, the CASS Data General computers were not Y2K compliant. An Unreviewed Safety Question (USQ) Screening and Determination determined that CASS could be removed from service since alternative monitoring means (manual monitoring and data entry) were available to meet surveillance requirements. A safety question raised following retirement of the system resulted in the creation and development of a PC-based system to support the interim monitoring of CASS alarm points until the migration to TMACS can be accomplished.

TMACS, first installed in portions of BY Farm in 1991, was designed for continuous monitoring of tank temperature. It was subsequently expanded to monitor additional tank farm temperatures, hydrogen, level, and pressure signals. TMACS is designed in an open-ended architecture software (G2) that makes it very capable of supporting the additional alarms migrated from CASS and versatile enough to handle any future interfaces that RPP may require for upcoming projects.

This plan provides a methodology for transitioning "essential" CASS monitored functions to TMACS and deactivating "non-essential" alarms in accordance with the RPP Alarm Management Plan.

Additional information is supplied in the following supporting documents:

- 1) Engineering Data Transmittal No. 621464, HNF-SD-WM-WP-344, Computer Automated Surveillance System (CASS) Retirement Plan, May 15, 1997
- 2) Unreviewed Safety Question Tracking No. TF-98-0829 Rev. 0, Remove Computer Automated Surveillance System (CASS) from Operation

2.0 PURPOSE

The RPP CASS to TMACS Transfer Project Plan establishes the systematic control process required for managing and maintaining the safe, efficient, and environmentally sound operation of alarms considered essential. This plan defines a rigorous verification and evaluation of the existing system configuration. The plan then provides for corrective actions, where required, to restore system functionality for integration with other tank farm alarm activities. This plan is designed to improve operator awareness and response to those alarms that are determined to be "essential" by using the RPP Alarm Management Plan in conjunction with RPP CASS to TMACS Transfer Project.

3.0 SCOPE

The project shall provide a baseline status and analysis of all existing CASS alarms; the development of a controlled process for the resolution of CASS alarm issues; and the integration of existing operational system alarm requirements with future projects.

The project shall identify and assure the functionality of essential CASS alarms and deactivate non-essential alarms. This objective will be accomplished through a series of field verifications, review of system history documents, engineering evaluations, and the generation and execution of work documents to transfer essential alarms from CASS to TMACS. One central and thirteen (13) substation monitoring locations are involved in the transfer of CASS alarms.

Additionally, software and hardware will be designed to replace the outdated CASS equipment with equipment compatible with TMACS. The former CASS alarm points will be incorporated into TMACS and maintained as part of that system.

The project assumes that all essential alarms will be transferred from CASS to TMACS. It should be noted that concurrent and future projects, such as the Master Pump Shutdown and Waste Feed Delivery Systems, might want to utilize these alarms. These projects shall be given the opportunity to review the alarms being transferred. The project needs and comments will be tracked on the Master Alarm Status (MAS) sheets as part of the RPP Alarm Management Plan.

4.0 SCHEDULE AND MILESTONES

Detailed schedule objectives for the project are shown in Attachment 1, RPP CASS to TMACS Transfer Project Schedule. Based on the defined scope of one central and thirteen (13) substation monitoring locations, the project as scheduled in Attachment 1 will result in achievement of the following established project milestones:

• 2750E Software Design	01/31/2000
• 2750E software Installation	04/21/2000
• Substation C essential alarms transferred to TMACS	04/28/2000
• Substation A essential alarms transferred to TMACS	08/31/2000
• Substation B & S essential alarms transferred to TMACS	01/31/2001
• Substation T & U essential alarms transferred to TMACS	03/30/2001

Assumption(s):

- The determination of whether an alarm is essential or non-essential is conducted in accordance with the RPP Alarm Management Program. It assumes that the determination of essential and non-essential alarms is completed within 20 working days of submittal. Historically, based on the RPP Alarm Management Plan experience, Operations and Engineering reviews are taking considerable time (>30 working days). If these reviews are not completed in a timely manner, the schedule will be seriously impacted.
- Software design has been estimated to require only four (4) weeks. The CASS alarm additions to TMACS require more up-front programming to maintain an open flexible architecture. New "object oriented" programming will be required to allow the integration of both systems. Software design delays will seriously impact the schedule.
- U.S. West will be able to supply all necessary communications equipment and service as required to support project installations.

5.0 COST ESTIMATES

The retirement and transition project has an estimated cost of \$1,258,300 encompassing all phases of the project. The project and cost is distributed over two (2) fiscal years as follows:

Fiscal year 2000 - \$857,270

Fiscal year 2001 - \$401,030

A detailed cost breakdown is provided as Attachment 2, CASS to TMACS Transfer Project Cost Loading Report.

Assumption(s):

- The cost estimate does not take into account the repair or replacement of non-functioning sensors or detectors. These costs will be determined following the determination of the essential alarms to be transferred and verification of the functionality of these alarms.
- The cost estimate is based on HNF-SD-WM-WP-344, CASS Retirement Plan, May 15, 1997. This addendum revised the costs to reflect 1999 labor cost codes and equipment costs. Based on the 1997 plan, it is estimated that 466 (out of 675) alarms shall be transferred. The cost estimate for equipment may vary depending upon the final number of alarms determined to be essential by OCM, Operations, and Engineering.
- The cost of U.S. West telephone service and equipment has not been included in the cost estimate. Currently, U.S. West charges \$66.90 per service installation (provided lines are available) and \$26.25 per month for each additional line. The number of additional circuits required will be determined during the detailed design phase, following identification of the essential alarms.

- Determination of equipment (i.e. Acromag boards) or alarms as safety significant may impact the schedule. Cost estimates are based upon reaching a non-safety significant determination.
- The cost estimate is based upon a design for Acromag conversion, which is a known product. The Panalarm equipment is of an unknown design and may impact schedule in terms of re-design of the Acromag conversion.

6.0 PROJECT DESCRIPTION

The project shall evaluate existing CASS alarms; perform field alarm verification; identify essential and non-essential alarms; repair essential alarm sensors or detectors as required; modify and update panels and equipment; and deactivate the non-essential alarms at the following facilities/locations in the RPP complex:

Substation	Building	Alarms To Evaluate
CASS/TMACS	2750	N/A
A	241-A-271 242-A 204-AR 241-AW-271 241-AP-271	340
B	241-BY-254	22
C	241-CR-271 241-AN-271	109
S	241-SX-271 242-S 241-SY-271	121
T	242-T	41
U	241-U-271	35
Total		675

Software must be developed in parallel with the hardware design to allow for the incorporation of human factor elements into the display and control system.

6.1 Essential/Non-Essential Alarm Determination

OCM, Operations, and Engineering shall determine essential and non-essential CASS alarms that shall either be transferred to TMACS or disabled. This review will be accomplished in conjunction with RPP Alarm Management Plan (TWRS-3763), Unreviewed Safety Question Tracking No. TF-98-0829, and documented on the MAS sheets.

6.2 Non-Essential Alarm Disposition

OCM shall perform or ensure performance of the following steps for non-essential alarm disposition.

1. Prepare the following documents
 - a. Engineering Change Notices to deactivate non-essential alarm inputs.
 - b. Unreviewed Safety Question Screenings for ECNs per HNF-IP-0842.
 - c. Procedure Change Authorization for each affected procedure.
2. Develop a Work Package for deactivating non-essential alarms.
3. Label non-essential alarms as inactive.
4. Update affected procedures.
5. Deactivate non-essential alarms.

6.3 Essential Alarm Hardware Design/Installation

Design of hardware and software to interface existing CASS sensor and detector equipment with TMACS should be performed in parallel.

Hardware design/installation includes the following:

1. Prepare Field Verification Package.
 2. Perform Field Verification and Functional checks.
 3. Prepare the following documents.
 - a. Engineering Change Notices to capture configuration changes.
 - b. Unreviewed Safety Question Screenings for ECNs per HNF-IP-0842.
 - c. Procedure Change Authorization for each affected procedure.
 4. Procure required hardware.
 5. Develop Work Package to install hardware.
 6. Install Hardware.
 7. Develop ATP to test affected equipment.
 8. After software OTP is performed, perform end to end ATP/OTP on affected equipment.
-

6.4 Essential Alarm Software Design/Installation

Design of hardware and software to interface existing CASS sensor and detector equipment with TMACS should be performed in parallel.

Software design/installation includes the following:

1. Develop TMACS software.
2. Develop Tank Constructor software.
3. Prepare ECN/USQ/PCA.
4. Perform ATP on Development Server.
5. Develop Work Package.
6. Install software on Production Server.
7. Perform OTP on Production Server to verify system changes have not affected system operation.
8. Update/Generate Taglist.

Note: The Taglist is a hardware-to-software address database that links discrete computer data points to specific sensors and detectors. It ensures sensor information is properly routed between the software operating and database systems and the sensor.

9. Update affected procedures.

6.5 Closeout Requirements

1. Close Work Packages
2. Incorporate ECN information and update MAS sheets to reflect current status.
3. Release system to operational status.
4. Operations update Log Book.
5. Perform operator training, as required.

7.0 REQUIREMENTS

- A CASS to TMACS transfer project plan shall be developed to provide tools and processes for the field verification, design and installation of equipment and software, and the transfer of CASS alarms to TMACS.
- Provide human factors engineered software that meets Conduct of Operations requirements. Develop additional screen displays that are consistent with the current tank-oriented displays but reflect alarms that are substation or location specific. It is important to note that these additions to TMACS require more up-front programming to maintain an open flexible architecture.

8.0 RESPONSIBILITIES

Project responsibilities shall be in accordance with the RPP Alarm Management Plan, TWRS-3763, Section 8.0.

9.0 REPORTING REQUIREMENTS

Project reporting requirements shall be in accordance with the RPP Alarm Management Plan, TWRS-3763, Section 9.0.

10.0 ATTACHMENTS

Attachment 1, RPP CASS to TMACS Transfer Project Schedule
Attachment 2, RPP CASS to TMACS Transfer Project Cost Loading Report
Attachment 3, RPP CASS to TMACS Transfer Project Process Flowchart

ATTACHMENT 1

Activity ID	Activity Description	Budgeted Cost	1999												2000												2001											
			O	N	D	J	A	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D								
Transfer CASS Alarms to TMACS																																						
Subtotal																																						
19CASG1		Develop/Install/ATP/OTP Revised CASS Software	56																																			
19CASG2		2750E - Dev ECN for Hardware Modifications	60																																			
19CASG3		2750E-Procure Hardware/Sys Modems/Misc Sys Equip	34																																			
19CASG4		2750E - Install Hardware	28																																			
19CASG5		FY00 - Modify Procedures & Data Sheets	64																																			
19CASG6		FY01 - Modify Procedures & Data Sheets	76																																			
CR-271																																						
Subtotal																																						
19CASC1		CR-271-Dev ECN to Mod Hardware (CASS/TMACS Xfer)	34																																			
19CASC2		CR-271 -Procure Mt/Plan Pkg (CASS/TMACS Xfer)	40																																			
19CASC3		CR-271 -Install Hardware/OTP (CASS/TMACS Xfer)	30																																			
19CASC4		CR-271 -Dev ECN Deact Non-Ess CASS Alarms	92																																			
19CASC5		CR-271 -Plan Pkg/Label Deact Non-Ess CASS Alarms	10																																			
19CASC6		CR-271 - Deactivate Non-Ess CASS Alarms	00																																			

Project Start

10/1/99

Project Finish

03/30/01

Class Date

10/1/99

Run Date

10/2/99

Current Select Bar

Progress Bar

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RPP CASS TO TMACS TRANSFER PROJECT

6/23/99 Baseline

Sheet 1 of 7

Date	Revision	Checked	Approved

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ATTACHMENT 1

Activity ID	Activity Description	Budgeted Cost	1999	2000	2001
			O	N	D
			J	F	M
			A	M	J
			A	S	O
			N	D	
Subtotal		78,691.43	10/18/99	04/28/00	
19CASN1	AN-271-Dev ECN to Mod Hardware (CASS/TMACS Xfer)	24,326.07	10/18/99	03/03/00	
19CASN2	AN-271 -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)	4,643.40		03/08/00	
				03/31/00	
19CASN3	AN-271 -Install Hardware/OTP (CASS/TMACS Xfer)	22,346.54		04/03/00	
				04/28/00	
19CASN4	AN-271 -Dev ECN Deact Non-Ess CASS Alarms	8,746.92		02/01/00	
				03/03/00	
19CASN5	AN-271 -Plan Pkg/Label Deact Non-Ess CASS Alarms	4,890.10		03/08/00	
				03/31/00	
19CASN6	AN-271 - Deactivate Non-Ess CASS Alarms	13,638.40		04/03/00	
				04/28/00	
Subtotal		80,466.38	11/01/00	03/31/00	
19CASA1	A-271 -Dev ECN to Mod Hardware (CASS/TMACS Xfer)	17,786.88	11/01/00	03/31/00	
19CASA2	A-271 -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)	3,430.00		04/03/00	
				04/28/00	
19CASA3	A-271 -Install Hardware/OTP (CASS/TMACS Xfer)	12,019.08		05/01/00	
				05/31/00	
19CASA4	A-271 -Dev ECN Deact Non-Ess CASS Alarms	8,746.92		03/08/00	
				03/31/00	
19CASA5	A-271 -Plan Pkg/Label Deact Non-Ess CASS Alarms	4,866.10		04/03/00	
				04/28/00	
19CASA6	A-271 - Deactivate Non-Ess CASS Alarms	13,638.40		05/01/00	
				05/31/00	

Project Start

09/30/01

10/01/98

08/24/98

Current Sched Bar

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RPP CASS TO TMACS TRANSFER PROJECT

6/23/99 Baseline

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RPP-4789, Rev. 0
ATTACHMENT 1

Activity ID	Activity Description	Budgeted Cost	1999	2000	2001
			O N D J A F M A M J J A S O N D	O N D J A F M A M J J A S O N D	O N D J A F M A M J J A S O N D
Subtotal		83,686.22			
19CASP1	AP-271-Dev ECN to Mod Hardware (CASS/TMACS Xfer)	27,016.60			
19CASP2	AP-271 -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)	4,614.00			
19CASP3	AP-271 -Install Hardware/OTP (CASS/TMACS Xfer)	24,061.34			
19CASP4	AP-271 -Dev ECN Deact Non-Ess CASS Alarms	9,398.88			
19CASP5	AP-271 -Plan Pkg/Label Deact Non-Ess CASS Alarms	4,866.10			
19CASP6	AP-271 - Deactivate Non-Ess CASS Alarms	13,638.40			
Subtotal		78,570.84			
19CASW1	AW-271-Dev ECN to Mod Hardware (CASS/TMACS Xfer)	22,139.34			
19CASW2	AW-271 -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)	4,614.00			
19CASW3	AW-271 -Install Hardware/OTP (CASS/TMACS Xfer)	23,914.12			
19CASW4	AW-271 -Dev ECN Deact Non-Ess CASS Alarms	9,398.88			
19CASW5	AW-271 -Plan Pkg/Label Deact Non-Ess CASS Alarms	4,866.10			
19CASW6	AW-271 - Deactivate Non-Ess CASS Alarms	13,638.40			

Project Start: 10/1/99
 Project Finish: 03/30/01
 Date Date: 10/1/99
 Run Date: 08/24/99

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RPP CASS TO TMACS TRANSFER PROJECT

6/23/99 Baseline

Sheet 3 of 7

Date	Revision	Checked	Approved

RPP-4789, Rev. 0
ATTACHMENT 1

Activity ID	Activity Description	Budgeted Cost	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764	2765	2766	2767	2768	2769	2770	2771	2772	2773	2774	2775	2776	2777	2778	2779	2780	2781	2782	2783	2784	2785	2786	2787	2788	2789	2790	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2803	2804	2805	2806	2807	2808	2809	2810	2811	2812	2813	2814	2815	2816	2817	2818	2819	2820	2821	2822	2823	2824	2825	2826	2827	2828	2829	2830	2831	2832	2833	2834	2835	2836	2837	2838	2839	2840	2841	2842	2843	2844	2845	2846	2847	2848	2849	2850	2851	2852	2853	2854	2855	2856	2857	2858	2859	2860	2861	2862	2863	2864	2865	2866	2867	2868	2869	2870	2871	2872	2873	2874	2875	2876	2877	2878	2879	2880	2881	2882	2883	2884	2885	2886	2887	2888	2889	2890	2891	2892	2893	2894	2895	2896	2897	2898	2899	2900	2901	2902	2903	2904	2905	2906	2907	2908	2909	2910	2911	2912	2913	2914	2915	2916	2917	2918	2919	2920	2921	2922	2923	2924	2925	2926	2927	2928	2929	2930	2931	2932	2933	2934	2935	2936	2937	2938	2939	2940	2941	2942	2943	2944	2945	2946	2947	2948	2949	2950	2951	2952	2953	2954	2955	2956	2957	2958	2959	2960	2961	2962	2963	2964	2965	2966	2967	2968	2969	2970	2971	2972	2973	2974	2975	2976	2977	2978	2979	2980	2981	2982	2983	2984	2985	2986	2987	2988	2989	2990	2991	2992	2993	2994	2995	2996	2997	2998	2999	3000	3001	3002	3003	3004	3005	3006	3007	3008	3009	3010	3011	3012	3013	3014	3015	3016	3017	3018	3019	3020	3021	3022	3023	3024	3025	3026	3027	3028	3029	3030	3031	3032	3033	3034	3035	3036	3037	3038	3039	3040	3041	3042	3043	3044	3045	3046	3047	3048	3049	3050	3051	3052	3053	3054	3055	3056	3057	3058	3059	3060	3061	3062	3063	3064	3065	3066	3067	3068	3069	3070	3071	3072	3073	3074	3075	3076	3077	3078	3079	3080	3081	3082	3083	3084	3085	3086	3087	3088	3089	3090	3091	3092	3093	3094	3095	3096	3097	3098	3099	3100	3101	3102	3103	3104	3105	3106	3107	3108	3109	3110	3111	3112	3113	3114	3115	3116	3117	3118	3119	3120	3121	3122	3123	3124	3125	3126	3127	3128	3129	3130	3131	3132	3133	3134	3135	3136	3137	3138	3139	3140	3141	3142	3143	3144	3145	3146	3147	3148	3149	3150	3151	3152	3153	3154	3155	3156	3157	3158	3159	3160	3161	3162	3163	3164	3165	3166	3167	3168	3169	3170	3171	3172	3173	3174	3175	3176	3177	3178	3179	3180	3181	3182	3183	3184	3185	3186	3187	3188	3189	3190	3191	3192	3193	3194	3195	3196	3197	3198	3199	3200	3201	3202	3203	3204	3205	3206	3207	3208	3209	3210	3211	3212	3213	3214	3215	3216	3217	3218	3219	3220	3221	3222	3223	3224	3225	3226	3227	3228	3229	3230	3231	3232	3233	3234	3235	3236	3237	3238	3239	3240	3241	3242	3243	3244	3245	3246	3247	3248	3249	3250	3251	3252	3253	3254	3255	3256	3257	3258	3259	3260	3261	3262	3263	3264	3265	3266	3267	3268	3269	3270	3271	3272	3273	3274	3275	3276	3277	3278	3279	3280	3281	3282	3283	3284	3285	3286	3287	3288	3289	3290	3291	3292	3293	3294	3295	3296	3297	3298	3299	3300	3301	3302	3303	3304	3305	3306	3307	3308	3309	3310	3311	3312	3313	3314	3315	3316	3317	3318	3319	3320	3321	3322	3323	3324	3325	3326	3327	3328	3329	3330	3331	3332	3333	3334	3335	3336	3337	3338	3339	3340	3341	3342	3343	3344	3345	3346	3347	3348	3349	3350	3351	3352	3353	3354	3355	3356	3357	3358	3359	3360	3361	3362	3363	3364	3365	3366	3367	3368	3369	3370	3371
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ATTACHMENT 1

Activity ID	Activity Description	Budgeted Cost	1999	2000	2001
			O N D J F M A M J J A S O N D	O N D J F M A M J J A S O N D	O N D J F M A M J J A S O N D
Subtotal		93,113.22			
19CASB1	BY-254-Dev ECN to Mod Hardware (CASS/TMACS Xfer)	32,067.20			
19CASB2	BY-254 -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)	5,676.00			
19CASB3	BY-254 -Install Hardware/OTP (CASS/TMACS Xfer)	27,466.64			
19CASB4	BY-254 -Dev ECN Deact Non-Ess CASS Alarms	9,398.88			
19CASB5	BY-254 -Plan Pkg/Label Deact Non-Ess CASS Alarms	4,866.10			
19CASB6	BY-254 - Deactivate Non-Ess CASS Alarms	13,638.40			
Subtotal		80,196.89			
19CASS1	SX-271-Dev ECN to Mod Hardware (CASS/TMACS Xfer)	24,326.07			
19CASS2	SX-271 -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)	4,614.00			
19CASS3	SX-271 -Install Hardware/OTP (CASS/TMACS Xfer)	23,365.44			
19CASS4	SX-271 -Dev ECN Deact Non-Ess CASS Alarms	9,398.88			
19CASS5	SX-271 -Plan Pkg/Label Deact Non-Ess CASS Alarms	4,866.10			
19CASS6	SX-271 - Deactivate Non-Ess CASS Alarms	13,638.40			

Project Start 10/1/99

Project Finish 09/30/01

Data Date 10/01/99

Run Date 06/24/99

Lockheed Martin Hanford Company

RPP CASS TO TMACS TRANSFER PROJECT

6/23/99 Baseline

Sheet 3 of 7

Date	Revision	Checked	Approved

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ATTACHMENT 1

Activity ID	Activity Description	Budgeted Cost	1999	2000	2001
Subtotal		84,365.32			
19CASE1	242-S - Eval Alarms/Dev USQ (CASS/TMACS Xfer)	9,018.96			
19CASE1A	242-S -Dev ECN to Mod Hardware (CASS/TMACS Xfer)	23,048.24			
19CASE2	242-S -Procure Mt/Plan Pkg (CASS/TMACS Xfer)	3,430.00			
19CASE3	242-S -Install Hardware/OTP (CASS/TMACS Xfer)	20,954.74			
19CASE4	242-S -Dev ECN Deact Non-Ess CASS Alarms	9,398.88			
19CASE5	242-S -Plan Pkg/Label Deact Non-Ess CASS Alarms	4,866.10			
19CASE6	242-S - Deactivate Non-Ess CASS Alarms	13,638.40			
Subtotal		82,606.29			
19CASY1	SY-271- Evaluate Alarms (CASS/TMACS Xfer)	6,271.20			
19CASY1A	SY-271-Dev ECN to Mod Hardware (CASS/TMACS Xfer)	19,054.87			
19CASY2	SY-271 -Procure Mt/Plan Pkg (CASS/TMACS Xfer)	4,614.00			
19CASY3	SY-271 -Install Hardware/OTP (CASS/TMACS Xfer)	25,761.84			
19CASY4	SY-271 -Dev ECN Deact Non-Ess CASS Alarms	9,398.88			
19CASY5	SY-271 -Plan Pkg/Label Deact Non-Ess CASS Alarms	4,866.10			
19CASY6	SY-271 - Deactivate Non-Ess CASS Alarms	13,638.40			

Project Start: 10/1/96
Project Finish: 09/30/01
Date Data: 10/1/96
Run Date: 09/24/98

Lockheed Martin Hanford Company
RPP CASS TO TMACS TRANSFER PROJECT
6/23/99 Baseline

Sheet 6 of 7

Date	Revision	Checked	Approved

RPP-4789, Rev. 0
ATTACHMENT 1

RPP-4789, Rev. 0
ATTACHMENT 2

Lockheed Martin Hanford Company

PRIMAVERA PROJECT PLANNER

RPP CASS ALARM TRANSFER PROJECT

REPORT DATE 24JUN99 RUN NO. 303

COST LOADING REPORT

PAGE NO. 1

RPP CASS to TMACS Transfer Project (Baseline)

TOTAL USAGE FOR YEAR

ACT ID	DESC	FY 2000	FY 2001	TOTAL
2750 BUILDING				
19CASC1	Develop/Install/ATP/OTP Revised CASS Software	87.21		87.21
19CASC2	2750E - Dev ECN for Hardware Modifications	5.60		5.60
19CASC3	2750E-Procure Hardware/Sys Modems/Misc Sys Equip	95.52		95.52
19CASC4	2750E - Install Hardware	2.48		2.48
19CASC5	FY00 - Modify Procedures & Data Sheets	20.78		20.78
19CASC6	FY01 - Modify Procedures & Data Sheets		17.62	17.62
TOTAL	GG	211.60	17.62	229.22
C FARM				
19CASC1	CR-271-Dev ECN to Mod Hardware (CASS/TMACS Xfer)	22.14		22.14
19CASC2	CR-271 -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)	4.64		4.64
19CASC3	CR-271 -Install Hardware/OTP (CASS/TMACS Xfer)	19.03		19.03
19CASC4	CR-271 -Dev ECN Deact Non-Ess CASS Alarms	8.75		8.75
19CASC5	CR-271 -Plan Pkg/Label Deact Non-Ess CASS Alarms	4.89		4.89
19CASC6	CR-271 - Deactivate Non-Ess CASS Alarms	13.72		13.72
TOTAL	CC	73.17		73.17
AN FARM				
19CASN1	AN-271-Dev ECN to Mod Hardware (CASS/TMACS Xfer)	24.33		24.33
19CASN2	AN-271 -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)	4.64		4.64
19CASN3	AN-271 -Install Hardware/OTP (CASS/TMACS Xfer)	22.35		22.35
19CASN4	AN-271 -Dev ECN Deact Non-Ess CASS Alarms	8.75		8.75
19CASN5	AN-271 -Plan Pkg/Label Deact Non-Ess CASS Alarms	4.89		4.89
19CASN6	AN-271 - Deactivate Non-Ess CASS Alarms	13.64		13.64
TOTAL	AN	78.59		78.59
A FARM				
19CASA1	A-271 -Dev ECN to Mod Hardware (CASS/TMACS Xfer)	17.77		17.77
19CASA2	A-271 -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)	3.43		3.43
19CASA3	A-271 -Install Hardware/OTP (CASS/TMACS Xfer)	12.02		12.02
19CASA4	A-271 -Dev ECN Deact Non-Ess CASS Alarms	8.75		8.75
19CASA5	A-271 -Plan Pkg/Label Deact Non-Ess CASS Alarms	4.87		4.87
19CASA6	A-271 - Deactivate Non-Ess CASS Alarms	13.64		13.64
TOTAL	AA	60.47		60.47
AP FARM				
19CASP1	AP-271-Dev ECN to Mod Hardware (CASS/TMACS Xfer)	27.02		27.02
19CASP2	AP-271 -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)	4.61		4.61
19CASP3	AP-271 -Install Hardware/OTP (CASS/TMACS Xfer)	24.05		24.05
19CASP4	AP-271 -Dev ECN Deact Non-Ess CASS Alarms	9.40		9.40
19CASP5	AP-271 -Plan Pkg/Label Deact Non-Ess CASS Alarms	4.87		4.87
19CASP6	AP-271 - Deactivate Non-Ess CASS Alarms	13.64		13.64
TOTAL	AP	83.59		83.59
AW FARM				
19CASW1	AW-271-Dev ECN to Mod Hardware (CASS/TMACS Xfer)	22.14		22.14
19CASW2	AW-271 -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)	4.61		4.61
19CASW3	AW-271 -Install Hardware/OTP (CASS/TMACS Xfer)	23.91		23.91
19CASW4	AW-271 -Dev ECN Deact Non-Ess CASS Alarms	9.40		9.40
19CASW5	AW-271 -Plan Pkg/Label Deact Non-Ess CASS Alarms	4.87		4.87
19CASW6	AW-271 - Deactivate Non-Ess CASS Alarms	13.64		13.64
TOTAL	AW	78.67		78.67

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ATTACHMENT 2

Lockheed Martin Hanford Company

PRIMAVERA PROJECT PLANNER

RPP CASS ALARM TRANSFER PROJECT

REPORT DATE 24JUN99 RUN NO. 303

COST LOADING REPORT

PAGE NO. 2

RPP CASS to TMACS Transfer Project (Baseline)

TOTAL USAGE FOR YEAR

ACT ID	DESC	FY 2000	FY 2001	TOTAL
204/244 AR				
19CASR1	204-AR-Dev ECN to Mod Hardware (CASS/TMACS Xfer)	27.71		27.71
19CASR2	204-AR -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)	5.68		5.68
19CASR3	204-AR -Install Hardware/OTP (CASS/TMACS Xfer)	18.10		18.10
19CASR4	204-AR -Dev ECN Deact Non-Ess CASS Alarms	9.40		9.40
19CASR5	204-AR -Plan Pkg/Label Deact Non-Ess CASS Alarms	4.87		4.87
19CASR6	204-AR - Deactivate Non-Ess CASS Alarms	13.64		13.64
TOTAL	AR	79.39		79.39
242-A				
19CASF1	242-A -Dev ECN to Mod Hardware (CASS/TMACS Xfer)	22.14		22.14
19CASF2	242-A -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)	5.68		5.68
19CASF3	242-A -Install Hardware/OTP (CASS/TMACS Xfer)	25.62		25.62
19CASF4	242-A -Dev ECN Deact Non-Ess CASS Alarms	9.40		9.40
19CASF5	242-A -Plan Pkg/Label Deact Non-Ess CASS Alarms	4.87		4.87
19CASF6	242-S - Deactivate Non-Ess CASS Alarms	13.64		13.64
TOTAL	FF	81.34		81.34
BY FARM				
19CASB1	BY-254-Dev ECN to Mod Hardware (CASS/TMACS Xfer)	32.07		32.07
19CASB2	BY-254 -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)	5.68		5.68
19CASB3	BY-254 -Install Hardware/OTP (CASS/TMACS Xfer)		27.47	27.47
19CASB4	BY-254 -Dev ECN Deact Non-Ess CASS Alarms	9.40		9.40
19CASB5	BY-254 -Plan Pkg/Label Deact Non-Ess CASS Alarms	4.87		4.87
19CASB6	BY-254 - Deactivate Non-Ess CASS Alarms		13.64	13.64
TOTAL	BY	52.01	41.11	93.11
SX FARM				
19CASS1	SX-271-Dev ECN to Mod Hardware (CASS/TMACS Xfer)	24.33		24.33
19CASS2	SX-271 -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)		4.61	4.61
19CASS3	SX-271 -Install Hardware/OTP (CASS/TMACS Xfer)		23.36	23.36
19CASS4	SX-271 -Dev ECN Deact Non-Ess CASS Alarms	9.40		9.40
19CASS5	SX-271 -Plan Pkg/Label Deact Non-Ess CASS Alarms		4.87	4.87
19CASS6	SX-271 - Deactivate Non-Ess CASS Alarms		13.64	13.64
TOTAL	SX	33.72	46.47	80.20
242-S				
19CASE1	242-S - Eval Alarms/Dev USQ (CASS/TMACS Xfer)	9.02		9.02
19CASE1A	242-S -Dev ECN to Mod Hardware (CASS/TMACS Xfer)		23.05	23.05
19CASE2	242-S -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)		3.43	3.43
19CASE3	242-S -Install Hardware/OTP (CASS/TMACS Xfer)		20.95	20.95
19CASE4	242-S -Dev ECN Deact Non-Ess CASS Alarms		9.40	9.40
19CASE5	242-S -Plan Pkg/Label Deact Non-Ess CASS Alarms		4.87	4.87
19CASE6	242-S - Deactivate Non-Ess CASS Alarms		13.64	13.64
TOTAL	WS	9.02	75.34	84.36
SY FARM				
19CASY1	SY-271- Evaluate Alarms (CASS/TMACS Xfer)	5.27		5.27
19CASY1A	SY-271-Dev ECN to Mod Hardware (CASS/TMACS Xfer)		19.05	19.05
19CASY2	SY-271 -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)		4.61	4.61
19CASY3	SY-271 -Install Hardware/OTP (CASS/TMACS Xfer)		25.76	25.76
19CASY4	SY-271 -Dev ECN Deact Non-Ess CASS Alarms		9.40	9.40
19CASY5	SY-271 -Plan Pkg/Label Deact Non-Ess CASS Alarms		4.87	4.87
19CASY6	SY-271 - Deactivate Non-Ess CASS Alarms		13.64	13.64
TOTAL	SY	5.27	77.33	82.61

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PRIMAVERA PROJECT PLANNER

RPP CASS ALARM TRANSFER PROJECT

REPORT DATE 24JUN99 RUN NO. 303

COST LOADING REPORT

PAGE NO. 3

RPP CASS to TMACS Transfer Project (Baseline)

TOTAL USAGE FOR YEAR

ACT ID	DESC	FY 2000	FY 2001	TOTAL
T FARM				
19CAST1	242-T - Evaluate Alarms (CASS/TMACS Xfer)	5.27		5.27
19CAST1A	242-T -Dev ECN to Mod Hardware (CASS/TMACS Xfer)		16.87	16.87
19CAST2	242-T -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)		4.61	4.61
19CAST3	242-T -Install Hardware/OTP (CASS/TMACS Xfer)		25.27	25.27
19CAST4	242-T -Dev ECN Deact Non-Ess CASS Alarms		9.40	9.40
19CAST5	242-T -Plan Pkg/Label Deact Non-Ess CASS Alarms		4.87	4.87
19CAST6	242-T - Deactivate Non-Ess CASS Alarms		13.64	13.64
TOTAL	TT	5.27	74.66	79.93
U FARM				
19CASU1	U-271- Evaluate Alarms (CASS/TMACS Xfer)	5.27		5.27
19CASU1A	U-271-Dev ECN to Mod Hardware (CASS/TMACS Xfer)		16.87	16.87
19CASU2	U-271 -Procure Mtl/Plan Pkg (CASS/TMACS Xfer)		4.61	4.61
19CASU3	U-271 -Install Hardware/OTP (CASS/TMACS Xfer)		19.11	19.11
19CASU4	U-271 -Dev ECN Deact Non-Ess CASS Alarms		9.40	9.40
19CASU5	U-271 -Plan Pkg/Label Deact Non-Ess CASS Alarms		4.87	4.87
19CASU6	U-271 - Deactivate Non-Ess CASS Alarms		13.64	13.64
TOTAL	UU	5.27	68.60	73.77
REPORT TOTAL		857.27	401.03	1258.3

RPP CASS TO TMACS PROCESS

OCM *Operational
Configuration
Management*