PROPELLANT EFFICIENCIES:

The following list of propellant efficiency information contains data useable with predictive muzzle velocity techniques. The information is a result of the initial acceptance test of the specific propellant lot fired at the time the entire lot of propellant was purchased by the government. The first two numbers (i.e. 68 in RAD-68899) generally indicate the year the propellant lot was produced. Some lots are quite old and storage location and conditions over time may have reduced the accuracy of the propellant efficiency as a predictive measure.

Nonetheless, the propellant efficiencies are a valuable tool to the FDO in improving the accuracy of his unit when calibration information is not yet available for a particular propellant lot. This information is not intended to be a substitute for calibrating a "new" lot of propellant that your unit receives, rather it should be used only until you can calibrate one gun with the "new" lot and eventually establish a baseline with that lot as time and the tactical situation permit. (This is in accordance with the order of preference for calibration or muzzle velocity variation information listed on page 4-4 of the FM 6-40/MCWP3-1.6.19 dtd 23 APR 96).

Propellant efficiencies will prove extremely valuable in a situation where you receive a new lot of propellant that you have not previously calibrated your howitzers with. In this situation, if you will not have the opportunity to calibrate the new lot prior to firing it for its intended use, you should use the column labeled "Propellant Efficiency", with the charge closest to the one you will fire, in the following equation:

MUZZLE VELOCITY VARIATION = SHOOTING STRENGTH + PROPELLANT EFFICIENCY

MVV = *SS* + *PE*

Note that shooting strength is obtained by determining the most recent pullover gauge (POG) reading from the weapon's 2408-4 (Weapon Record Data or The Gun Book) and converting that to a loss in Muzzle Velocity by entering the appropriate TFT for the weapon system and projectile family. (Ensure you use the appropriate TFT for your weapon system and projectile family with the most recent change--A listing of the most recent firing tables is published annually in the *FA Journal* and the *Eagle Globe and Blockhouse*). If the howitzer has fired since the last POG reading, you must first convert the POG reading to effective full charges (EFCs) and then add the EFCs for those rounds fired since the last POG reading before converting that total number of predicted EFCs to a predicted loss in Muzzle Velocity (Note: Shooting Strength will always be negative). For a complete discussion of predictive muzzle velocity techniques refer to page 4-12 of the FM 6-40/MCWP3-1.6.19 dtd 23 APR 96.

If you have any questions regarding this information or if you have information on propellant efficiencies that can be added to this site, contact the Fire Direction Branch or the Gunnery Department, USAFAS, Ft Sill at DSN 639-4973/6379/2622/5409.

PROPELLANT LOT	PROPELLANT TYPE	CHARGE	PROPELLANT EFFICIENCY	DATE DISTRIBUTED
105MM PROPELLANTS:				
IND89A311-004	M67	3	0.6	920801
		7	0.9	920801
IND-9-6	M67	3	1.5	920801
		5	1.5	920801
		6	3.0	920801
		7	2.5	920801
RAD-68899	M67	3	1.5	920801
		5	1.5	920801
		6	3.0	920801
		7	2.5	920801
RAD-69037	M67	3	-0.0	920801
		5	0.3	920801
		6	0.9	920801
		7	1.2	920801
RAD-69211	M67	3	-0.6	920801
RAD-69218	M67	3	-0.6	920801
RAD-69222	M67	3	-1.2	920801
RAD88F-071033	M67	3	3.3	920801
		7	0.3	920801
RAD88H-071034	M67	3	-1.2	920801
		7	0.3	920801
RAD89K-071309	M67	3	-0.0	920801
		7	-0.3	920801
RAD90K-071523	M67	3	0.9	920801
		7	1.2	920801
155MM PROPELLANTS:				
BAJ 67785	M3A1	1	-1.0	921101
		5	-0.9	921101
IND78A-069206	M3A1	1	-1.0	930901
		5	0.6	930901
IND82C-069298	M3A1	1	-0.3	920801
		5	0.9	920801
IND83E-069206	M3A1	1	-0.6	940501
		5	-0.6	940501
IND83G-069303	M3A1	1	0.9	920801
		5	4.3	920801
IND84A-069309	M3A1	5	4.0	921101
IND84A-69670	M3A1	5	-5.2	920801
IND84B-070398	M3A1	1	-5.5	920801
		5	-4.6	920801
IND84C-070399	M3A1	1	1.5	920801
		5	0.3	920801
IND84D-070400	M3A1	1	-5.8	920801
		5	-5.2	920801
IND85G-069297	M3A1	5	-3.3	920801

PROPELLANT LOT	PROPELLANT TYPE	CHARGE	PROPELLANT EFFICIENCY	DATE DISTRIBUTED
IND85H-0700400	M3A1	5	-4.3	921101
IND85K-070461	M3A1	1	-1.3	950101
		5	-4.6	950101
IND86A-070649	M3A1	1	-3.1	920801
		5	-1.5	920801
IND86L-070655	M3A1	1	-1.3	920801
		5	0.3	920801
IND87C-070750	M3A1	5	-4.6	921101
IND87D-070752	M3A1	1	-2.2	920801
		5	-0.6	920801
IND87G-070799	M3A1	1	0.6	920801
		5	0.6	920801
IND87J-070800	M3A1	1	0.3	920801
		5	-3.7	920801
IND87L-070801	M3A1	1	-6.7	920801
		5	-4.6	920801
IND87L-070802	M3A1	5	-4.0	921101
IND87M-070803	M3A1	1	-4.0	920801
		5	-1.5	920801
IND88C-070806	M3A1	1	-0.6	921101
		5	-4.0	921101
IND88D-070883	M3A1	1	-3.4	920801
		5	-3.3	920801
IND88E-070884	M3A1	5	-3.7	920801
IND88F-070885	M3A1	1	-4.9	920801
		5	-4.3	920801
IND88G-070974	M3A1	1	-0.6	920801
		5	-3.7	920801
IND90G-G70977	M3A1	1	0.9	920801
		5	-3.7	920801
IND90K-070976	M3A1	1	0.6	921101
		5	-3.3	921101
IND90L-071471	M3A1	1	0.3	921101
		5	-4.0	921101
IND90L-071472	M3A1	1	0.3	920801
		5	-3.3	920801
IND91A-071473	M3A1	1	2.4	920801
		5	-4.0	920801
IND91B-071515	M3A1	1	-0.6	920801
		5	-4.0	920801
IND91D-071517	M3A1	1	-0.6	920801
		5	-5.2	920801
IND91K-071516	M3A1	1	0.9	920801
		5	-4.0	920801
IND91K-071519	M3A1	5	-2.4	920801
IND91L-071520	M3A1	1	-0.6	920801
		5	-4.6	920801
IND92A-071595	M3A1	1	2.7	920801
		5	-0.9	920801
IND92C-071663	M3A1	1	-1.0	920801

PROPELLANT LOT	PROPELLANT TYPE	CHARGE	PROPELLANT EFFICIENCY	DATE DISTRIBUTED
		5	-4.3	920801
IND92D-071664	M3A1	1	0.3	921101
		5	-2.7	921101
RAD-65259	M3A1	1	-1.0	921101
		5	-0.3	921101
RAD-65261	M3A1	1	2.1	920801
		5	-0.3	920801
RAD-66047	M3A1	5	-0.9	920801
RAD-66054	M3A1	1	1.2	971215
		5	0.6	971215
RAD-66590	M3A1	1	-1.0	920801
		5	0.3	920801
RAD-66596	M3A1	1	-0.0	920801
		5	-0.3	920801
RAD-66597	M3A1	1	0.9	920801
		5	0.0	920801
RAD-67240	M3A1	5	1.8	971215
RAD-67621	M3A1	5	-1.5	920801
RAD-67622	M3A1	1	-1.0	920801
		5	0.3	920801
RAD-67627	M3A1	1	2.1	920801
		5	2.1	920801
RAD-67629	M3A1	1	-1.3	920801
		5	-0.3	920801
RAD-67630	M3A1	5	0.3	920801
RAD-67631	M3A1	1	-1.6	920801
		5	-0.3	920801
RAD-68012	M3A1	1	-0.0	920801
		5	-1.2	920801
RAD-68016	M3A1	1	0.3	921101
		5	0.3	921101
RAD-68017	M3A1	5	-0.3	920801
RAD-68274	M3A1	1	-0.0	971215
		5	-0.3	971215
RAD-68443	M3A1	5	-1.5	920801
RAD-68444	M3A1	1	-0.0	920801
		5	-0.9	920801
RAD-68446	M3A1	1	-1.0	920801
		5	1.2	920801
RAD-68860	M3A1	5	3.4	920801
RAD-68861	M3A1	5	1.8	921101
RAD-68947	M3A1	5	2.7	920801
RAD-69152	M3A1	5	-0.3	920801
RAD-69154	M3A1	5	-0.9	921101
RAD-69156	M3A1	5	-1.5	920801
RAD-69158	M3A1	5	-1.5	921101
RAD-69159	M3A1	5	-1.2	921101
RAD-69191	M3A1	5	-0.3	920801
RAD-69192	M3A1	5	-1.2	920801

PROPELLANT LOT	PROPELLANT TYPE	CHARGE	PROPELLANT EFFICIENCY	DATE DISTRIBUTED
RAD-69194	M3A1	5	-0.9	920801
RAD-69206	M3A1	5	0.0	940501
RAD-69303	M3A1	5	-1.5	920801
RAD-69305	M3A1	5	0.0	971215
RAD-69670	M3A1	5	-1.8	920801
RAD85C-070631	M3A1	5	0.0	921101
RAD85L-070655	M3A1	5	-0.6	920801
RAD86F-070750	M3A1	5	-0.6	921101
RAD86M-070799	M3A1	5	-2.7	920801
RAD88A-070884	M3A1	1	-2.2	920801
		2	-2.1	920801
		3	-1.8	920801
		4	-2.1	920801
		5	-2.7	920801
RAD88D-070974	M3A1	1	-2.5	920801
		2	-1.8	920801
		3	-1.5	920801
		4	-2.1	920801
		5	-2.1	920801
RAD88K-G70977	M3A1	5	0.0	920801
RAD90K-071515	M3A1	1	-0.6	920801
		2	-0.0	920801
		3	-0.6	920801
		4	-0.3	920801
		5	0.3	920801
RAD90K-071516	M3A1	1	-0.3	920801
		2	0.9	920801
		3	0.6	920801
		4	-0.0	920801
		5	0.6	920801
RAD90L-071517	M3A1	5	0.0	920801
RAD90M-071518	M3A1	5	-0.3	920801
RAD91B-071519	M3A1	5	0.0	920801
RAD91B-071520	M3A1	5	0.0	920801
RAD92A-071663	M3A1	5	0.6	920801
BAJ-66827	M4A2	3	-3.6	920801
		7	-1.5	920801
BAJ-66829	M4A2	7	-3.7	920801
BAJ-66830	M4A2	3	-0.6	920801
		7	-0.3	920801
BAJ-66833	M4A2	3	1.2	920801
		7	-0.0	920801
BAJ-66834	M4A2	7	-1.8	920801
BAJ-66841	M4A2	3	-3.6	921101
		7	-1.2	921101
BAJ-66854	M4A2	7	1.8	921101
BAJ-66855	M4A2	3	-0.9	971215
		7	-0.9	971215
BAJ-66869	M4A2	3	-0.3	920801

PROPELLANT LOT	PROPELLANT TYPE	CHARGE	PROPELLANT EFFICIENCY	DATE DISTRIBUTED
		7	-0.0	920801
BAJ-66870	M4A2	3	0.3	920801
		7	1.5	920801
BAJ-66871	M4A2	3	-0.9	920801
		7	-0.0	920801
BAJ-66948	M4A2	7	0.3	920801
BAJ-66965	M4A2	7	0.3	920801
BAJ-66966	M4A2	7	-0.9	920801
BAJ-67436	M4A2	3	-1.5	971215
		7	-0.3	971215
BAJ-67443	M4A2	3	-4.2	920801
		7	-0.0	920801
BAJ-67444	M4A2	3	2.8	920801
		5	3.1	920801
		6	2.4	920801
		7	2.7	920801
BAJ-67454	M4A2	7	4.6	920801
BAJ-67465	M4A2	3	0.3	920801
		7	1.2	920801
BAJ-67471	M4A2	7	-0.6	971215
BAJ-67472	M4A2	3	0.6	920801
		7	-0.3	920801
BAJ-67473	M4A2	3	-1.5	920801
		7	-1.8	920801
BAJ-67477	M4A2	3	-1.5	971215
		7	-3.1	971215
BAJ-67478	M4A2	3	-2.1	920801
		7	-0.6	920801
BAJ-68570	M4A2	7	0.3	971215
BAJ-68579	M4A2	7	-1.2	920801
BAJ-68583	M4A2	7	-1.8	921101
BAJ-68814	M4A2	7	-2.8	921101
BAJ-68815	M4A2	7	-0.0	921101
BAJ-68828	M4A2	3	-1.5	971215
		7	2.1	971215
CIL-66799	M4A2	3	-0.9	921101
		7	1.8	921101
CIL-67343	M4A2	3	0.6	920801
		7	0.6	920801
IND-B67277	M4A2	3	2.2	921101
		7	-0.3	921101
IND-66975	M4A2	7	1.5	921101
IND-66988	M4A2	7	-0.9	920801
IND-66998	M4A2	7	0.3	920801
IND-67016	M4A2	3	-5.5	971215
		7	-2.8	971215
IND-67020	M4A2	7	-3.4	971215
IND-69442	M4A2	3	0.6	920801

PROPELLANT LOT	PROPELLANT TYPE	CHARGE	PROPELLANT EFFICIENCY	DATE DISTRIBUTED
		7	-0.6	920801
IND80J-069944	M4A2	7	-0.3	921101
IND84E-069446	M4A2	7	1.8	920801
IND84H-069450	M4A2	7	0.9	920801
IND84K-069452	M4A2	7	1.8	921101
IND84L-069486	M4A2	7	-0.9	921101
IND84L-069490	M4A2	7	0.3	921101
IND84M-069491	M4A2	7	2.4	920801
IND85K-069441	M4A2	7	-4.6	920801
IND85K-069553	M4A2	7	-0.0	920801
IND86A-069557	M4A2	7	0.6	921101
IND86B-069937	M4A2	7	-3.1	920801
IND86C-069559	M4A2	7	-1.8	920801
IND86E-069487	M4A2	7	-3.7	920801
IND86E-069561	M4A2	7	-1.5	921101
IND86H-069488	M4A2	7	-4.3	920801
IND86L-069485	M4A2	7	-2.2	920801
IND86M-069512	M4A2	7	1.8	921101
IND87C-070755	M4A2	7	-3.1	920801
IND87D-070756	M4A2	7	2.4	920801
IND87D-070757	M4A2	7	-0.0	921101
IND87E-070834	M4A2	7	-0.0	920801
IND87F-070836	M4A2	7	-4.9	920801
IND87H-070837	M4A2	7	0.3	920801
IND87H-070871	M4A2	7	-3.4	920801
IND87L-070874	M4A2	7	-1.5	920801
IND87M-070875	M4A2	7	-4.6	920801
IND88C-G70838	M4A2	7	-0.6	920801
IND88K-070939	M4A2	7	-2.2	920801
IND88L-070938	M4A2	7	-0.9	920801
IND88M-071052	M4A2	7	0.6	920801
IND89A-071053	M4A2	7	-0.6	920801
IND90C-071055	M4A2	7	-1.2	920801
IND90D-071308	M4A2	7	-0.6	920801
RAD 60549	M4A2	3	1.2	921101
		7	-1.2	921101
RAD-69125	M4A2	7	-0.6	921101
RAD-69280	M4A2	7	2.1	920801
RAD 69337	M4A2	3	0.6	921101
		7	0.3	921101
RAD 69338	M4A2	3	-1.2	921101
		7	0.3	921101
RAD-69439	M4A2	7	0.9	940501
RAD-69442	M4A2	7	0.6	920801
RAD-69451	M4A2	7	1.8	921101
RAD-69554	M4A2	7	-0.3	921101
RAD-69556	M4A2	7	-0.0	921101
RAD-69559	M4A2	7	0.3	920801
RAD79A-069941	M4A2	7	-3.1	920801

PROPELLANT LOT	PROPELLANT TYPE	CHARGE	PROPELLANT EFFICIENCY	DATE DISTRIBUTED
RAD79K-69944	M4A2	7	-1.8	921101
RAD87B-070757	M4A2	7	-0.6	920801
RAD88C-070936	M4A2	3	-3.9	920801
		5	-5.5	920801
		6	-4.0	920801
		7	-4.9	920801
RAD91C-071558	M4A2	7	-1.2	920801
RAD91D-071589	M4A2	7	-0.3	921101
RAD91J-071640	M4A2	7	1.5	920801
RAD91K-071641	M4A2	7	-1.8	920801
RAD92B-071642	M4A2	7	-2.2	920801
RAD92F-071774	M4A2	7	-0.6	921101
RAD92G-071775	M4A2	7	1.5	921101
IND79A-069896	M119A1	8	-2.2	920801
IND79E-069897	M119A1	8	-2.8	920801
IND79M-069950	M119A1	8	-0.9	971215
RAD78H-069897	M119A1	8	1.2	971215
IAB 39727	M119A2	7R	-0.2	921101
IND80J-070007	M119A2	7R	-3.6	971215
IND80M-M70009	M119A2	7R	-1.4	921101
IND81B-070013	M119A2	7R	4.7	920801
IND81D-070020	M119A2	7R	-2.0	971215
IND81G-070025	M119A2	7R	4.0	920801
IND81K-070071	M119A2	7R	1.5	920801
IND81L-070074	M119A2	7R	-0.9	920801
IND81LH-070074	M119A2	7R	-2.1	920801
IND81L-070112	M119A2	7R	-2.1	920801
IND82A-070102	M119A2	7R	1.8	920801
IND82D-070112	M119A2	7R	-4.3	920801
IND82E-070111	M119A2	7R	-0.3	920801
IND82F-070161	M119A2	7R	-2.7	920801
IND82F-070162	M119A2	7R	-3.0	920801
IND82H-070167	M119A2	7R	-1.8	920801
IND82J-070170	M119A2	7R	-2.1	920801
IND82J-070171	M119A2	7R	-1.2	971215
IND83C-070234	M119A2	7R	-3.3	920801
IND83D-070272	M119A2	7R	-0.2	921101
IND83L-070321	M119A2	7R	2.1	920801
IND84C-070329	M119A2	7R	3.4	920801
IND84E-070431	M119A2	7R	1.2	920801
IND85A-070504	M119A2	7R	2.1	920801
IND85C-070513	M119A2	7R	0.6	971215
IND85D-070517	M119A2	7R	3.7	920801
IND85E-070584	M119A2	7R	-4.3	920801
IND85L-070584	M119A2	7R	-2.3	921101
IND86M-070673	M119A2	7R	0.6	920801

PROPELLANT LOT	PROPELLANT TYPE	CHARGE	PROPELLANT EFFICIENCY	DATE DISTRIBUTED
IND87G-070722	M119A2	7R	-0.9	920801
IND87J-070850	M119A2	7R	2.4	920801
IND87K-070851	M119A2	7R	2.1	920801
IND87M-070889	M119A2	7R	-6.6	920801
IND88E-070895	M119A2	7R	-0.5	920801
IND88F-070964	M119A2	7R	-2.9	920801
IND88L-070992	M119A2	7R	6.2	920801
IND88M-070993	M119A2	7R	5.9	920801
IND88M-070994	M119A2	7R	5.6	920801
IND89A-070995	M119A2	7R	4.4	920801
IND89C-070967	M119A2	7R	-1.1	920801
RAD80J-070020	M119A2	7R	4.7	971215
RAD80D-070007	M119A2	7R	0.7	971215
RAD81C-070074	M119A2	7R	2.7	920801
RAD81E-070102	M119A2	7R	2.1	920801
RAD81G-070111	M119A2	7R	-1.5	920801
RAD81G-070112	M119A2	7R	1.5	920801
RAD81M-070167	M119A2	7R	2.7	920801
RAD81L-070162	M119A2	7R	5.2	920801
RAD82A-070171	M119A2	7R	0.9	971215
RAD83F-070318	M119A2	7R	-0.9	920801
RAD83L-070329	M119A2	7R	-4.9	920801
RAD85J-070673	M119A2	7R	1.5	920801
RAD87D-070722	M119A2	7R	-1.8	920801
RAD87F-070851	M119A2	7R	-0.3	920801
RAD87K-070892	M119A2	7R	0.9	920801
RAD87L-070963	M119A2	7R	6.5	920801
RAD89A-071046	M119A2	7R	2.5	920801
ICG95C-071815	M203A1	8S	-3.3	971216
ICG95C-071819	M203A1	8S	1.2	971216
ICG95D-071820	M203A1	8S	4.0	971216
ICG95D-071821	M203A1	8S	1.2	951101
ICG95D-071823	M203A1	8S	0.9	951101
ICG95E-071771	M203A1	8S	25.0	951101
ICG95E-071822	M203A1	8S	0.9	951101
ICG95E-071824	M203A1	8S	2.8	951101
ICG95F-071825	M203A1	8S	0.6	951101
ICG95E-071826	M203A1	8S	1.5	951101
ICG95E-071829	M203A1	8S	2.1	951101
ICG95E-S71196	M203A1	8S	28.7	951101
IND81K-070119	M203	8S	-31.4	920801
IND81M-070054	M203	8S	-2.4	920801
IND81M-070120	M203	8S	0.9	920801
IND81M-070120	M203	8S	-2.1	920801
IND83H-070194	M203	8S	-0.3	920801
IND83J-070316	M203	8S	-0.6	920801
IND84K-070316	M203	8S	-7.6	920801

PROPELLANT LOT	PROPELLANT TYPE	CHARGE	PROPELLANT EFFICIENCY	DATE DISTRIBUTED
IND88H-070911	M203	8S	-6.4	920801
RAD81F-070119	M203	8S	2.1	920801
RAD81F-070120	M203	8S	1.5	920801
RAD83E-070316	M203	8S	-0.6	920801
IND87E-070791	M203A1	8S	-4.3	920801
IND87F-070792	M203A1	8S	-9.1	920801
IND88D-070897	M203A1	8S	1.5	920801
IND88F-070909	M203A1	8S	0.3	921101
IND88H-070951	M203A1	8S	-6.1	920801
IND88H-070953	M203A1	8S	-6.1	920801
IND88J-070986	M203A1	8S	-6.7	920801
IND89L-G71020	M203A1	8S	-2.1	920801
IND89L-071242	M203A1	8S	2.4	920801
IND89L-071243	M203A1	8S	2.1	920801
IND90E-071284	M203A1	8S	0.6	920801
IND90J-071343	M203A1	8S	0.9	921101
IND90K-071597	M203A1	8S	1.2	921101
IND91B-071506	M203A1	8S	0.6	920801
IND91B-071507	M203A1	8S	0.3	920801
IND91B-071508	M203A1	8S	0.0	920801
IND91B-071340	M203A1	8S	2.1	920801
IND91C-071509	M203A1	8S	0.6	920801
IND91C-071532	M203A1	8S	0.6	920801
IND91C-071534	M203A1	8S	2.1	920801
IND91C-071537	M203A1	8S	1.8	920801
IND91D-071539	M203A1	8S	0.9	920801
IND91D-071540	M203A1	8S	2.1	920801
IND91D-071541	M203A1	8S	0.9	920801
IND91F-071555	M203A1	8S	0.9	920801
IND91F-071556	M203A1	8S	2.1	920801
IND91F-071557	M203A1	8S	1.2	920801
IND91G-071560	M203A1	8S	0.0	920801
IND91G-071561	M203A1	8S	0.6	920801
IND91H-071562	M203A1	8S	0.6	920801
IND91H-071563	M203A1	8S	0.6	920801
IND91H-071564	M203A1	8S	0.0	920801
IND91H-071565	M203A1	8S	2.1	920801
IND91H-071566	M203A1	8S	2.1	920801
IND91H-071567	M203A1	8S	0.3	920801
IND91J-071568	M203A1	8S	0.9	920801
IND91J-071569	M203A1	8S	0.3	920801
IND91J-071570	M203A1	8S	1.5	920801
IND91K-071597	M203A1	8S	1.2	920801
IND91L-071599	M203A1	8S	4.6	920801
IND91L-071600	M203A1	8S	1.2	920801
IND91M-071601	M203A1	8S	1.8	920801
IND91M-071602	M203A1	8S	2.4	920801
IND91M-071603	M203A1	8S	0.9	920801

PROPELLANT LOT	PROPELLANT TYPE	CHARGE	PROPELLANT EFFICIENCY	DATE DISTRIBUTED
IND91M-071604	M203A1	8S	1.5	920801
IND92A-071605	M203A1	8S	0.9	920801
IND92A-071607	M203A1	8S	1.2	920801
IND92A-071608	M203A1	8S	-0.6	920801
IND92A-071609	M203A1	8S	-0.3	920801
IND92A-071610	M203A1	8S	0.9	920801
IND92A-071611	M203A1	8S	0.3	920801
IND92B-071612	M203A1	8S	2.8	920801
IND92B-071614	M203A1	8S	1.8	920801
IND92B-071615	M203A1	8S	0.6	920801
IND92B-071616	M203A1	8S	-0.6	920801
IND92B-071617	M203A1	8S	2.8	920801
IND92B-071618	M203A1	8S	0.6	920801
IND92C-071619	M203A1	8S	2.8	920801
IND92C-071620	M203A1	8S	0.9	921101
IND92C-071621	M203A1	8S	0.3	920801
IND92C-071622	M203A1	8S	0.3	920801
IND92C-071623	M203A1	8S	0.3	920801
IND92C-071624	M203A1	8S	0.9	920801
IND92C-071625	M203A1	8S	2.1	920801
IND92C-071626	M203A1	8S	1.8	920801
IND92D-G71019	M203A1	8S	1.2	920801
IND92D-G71023	M203A1	8S	0.9	920801
IND92D-G71179	M203A1	8S	-1.2	920801
IND92D-G71334	M203A1	8S	0.3	920801
IND92D-G71544	M203A1	8S	0.3	920801
IND92D-071628	M203A1	8S	-0.6	920801
IND92E-071629	M203A1	8S	0.9	920801
IND92E-071630	M203A1	8S	0.9	920801
IND92E-071631	M203A1	8S	-1.2	921101
IND92E-071632	M203A1	8S	0.0	920801
IND92E-071633	M203A1	8S	1.2	920801
IND92E-071634	M203A1	8S	1.8	921101
IND92E-071635	M203A1	8S	1.2	921101
IND92F-071636	M203A1	8S	2.4	921101
IND92F-071643	M203A1	8S	-0.3	921101
IND92F-071644	M203A1	8S	2.1	921101
IND92F-071645	M203A1	8S	2.1	921101
IND92G-071646	M203A1	8S	-0.3	921101
IND92G-071647	M203A1	8S	-0.6	921101
IND92G-071648	M203A1	8S	0.9	921101
IND92G-071649	M203A1	8S	-1.2	921101
IND92H-071606	M203A1	8S	1.5	921101
IND92H-071660	M203A1	8S	3.1	921101
IND92H-071675	M203A1	8S	1.2	921101
IND92H-071676	M203A1	8S	1.2	921101
IND92J-071650	M203A1	8S	0.9	921101
IND92J-071651	M203A1	8S	-1.2	921101
IND92J-071652	M203A1	8S	0.0	921101
IND92J-071653	M203A1	8S	0.0	921101

PROPELLANT LOT	PROPELLANT TYPE	CHARGE	PROPELLANT EFFICIENCY	DATE DISTRIBUTED
IND92J-071654	M203A1	8S	-0.9	921101
IND92J-071655	M203A1	8S	1.2	921101
IND92J-071656	M203A1	8S	0.0	921101
IND92K-071657	M203A1	8S	1.8	921101
IND92K-071658	M203A1	8S	1.8	921101
QAI-5321	M203A1	8S	-1.5	921101
RAD87F-070862	M203A1	8S	0.3	921101
RAD87K-070911	M203A1	8S	-6.4	920801
RAD88B-070961	M203A1	8S	0.0	920801
RAD88JS-71196	M203A1	8S	36.3	950601
RAD88L-071185	M203A1	8S	-3.6	920801
RAD89F-071243	M203A1	8S	0.6	920801
RAD89M-071285	M203A1	8S	0.6	921101
RAD90A-071293	M203A1	8S	0.9	921101
RAD90A-071294	M203A1	8S	1.2	921101
RAD90A-071295	M203A1	8S	1.2	921101
RAD90A-071324	M203A1	8S	0.3	921101
RAD90A-071325	M203A1	8S	-4.0	921101
RAD90C-071335	M203A1	8S	2.1	921101
RAD90C-071336	M203A1	8S	-2.4	921101
RAD90C-071337	M203A1	8S	0.0	921101
RAD90D-071341	M203A1	8S	-0.6	921101
RAD90D-071342	M203A1	8S	-1.5	921101
RAD90D-071343	M203A1	8S	-2.4	921101
RAD90E-G71290	M203A1	8S	1.2	921101
RAD90E-071345	M203A1	8S	-2.7	921101
RAD90E-071346	M203A1	8S	1.2	921101
RAD90E-071347	M203A1	8S	-0.6	921101
RAD90E-071348	M203A1	8S	-1.8	921101
RAD90E-071349	M203A1	8S	0.0	921101
RAD90H-071499	M203A1	8S	-0.9	920801
RAD90J-071508	M203A1	8S	1.2	920801
RAD90K-071509	M203A1	8S	-2.4	920801
RAD90K-071510	M203A1	8S	-2.7	920801
RAD90K-071532	M203A1	8S	0.0	920801
RAD90K-071533	M203A1	8S	0.3	920801
RAD90K-071534	M203A1	8S	-0.3	920801
RAD90K-071535	M203A1	8S	0.6	920801
RAD90K-071536	M203A1	8S	-1.2	920801
RAD90L-071537	M203A1	8S	-3.0	920801
RAD90L-071542	M203A1	8S	0.9	920801
RAD90L-071543	M203A1	8S	-0.9	920801
RAD90M-071544	M203A1	8S	0.0	920801
RAD90M-071546	M203A1	8S	-0.6	920801
RAD90M-071547	M203A1	8S	0.3	920801
RAD91A-071548	M203A1	8S	2.4	920801
RAD91A-071549	M203A1	8S	1.2	920801
RAD91A-G71550	M203A1	8S	0.9	920801

PROPELLANT LOT	PROPELLANT TYPE	CHARGE	PROPELLANT EFFICIENCY	DATE DISTRIBUTED
RAD91A-071551	M203A1	8S	-0.9	920801
RAD91A-071552	M203A1	8S	2.4	920801
RAD91B-071553	M203A1	8S	1.8	920801
RAD91B-071554	M203A1	8S	-1.5	920801
RAD91B-071555	M203A1	8S	-1.5	920801
RAD91B-071556	M203A1	8S	-1.5	920801
RAD91B-071557	M203A1	8S	-2.4	920801
RAD91B-071558	M203A1	8S	-1.2	920801
RAD91B-071559	M203A1	8S	-1.2	920801
RAD91C-071560	M203A1	8S	-1.2	920801
RAD91C-071561	M203A1	8S	-0.6	920801
RAD91C-071562	M203A1	8S	0.3	920801
RAD91C-071563	M203A1	8S	-2.7	920801
RAD91C-071564	M203A1	8S	1.5	920801
RAD91C-071565	M203A1	8S	-3.0	920801
RAD91D-071566	M203A1	8S	-2.4	920801
RAD91D-071567	M203A1	8S	0.6	920801
RAD91D-071568	M203A1	8S	-2.1	920801
RAD91D-071569	M203A1	8S	0.0	920801
RAD91D-071570	M203A1	8S	-1.5	920801
RAD91D-071597	M203A1	8S	-1.2	920801
RAD91D-071598	M203A1	8S	-3.6	920801
RAD91E-071599	M203A1	8S	1.8	920801
RAD91E-071600	M203A1	8S	0.3	920801
RAD91E-071601	M203A1	8S	2.8	920801
RAD91E-071602	M203A1	8S	0.6	920801
RAD91E-071603	M203A1	8S	1.8	920801
RAD91E-071604	M203A1	8S	0.0	920801
RAD91E-071605	M203A1	8S	0.6	920801
RAD91F-071606	M203A1	8S	1.2	920801
RAD91F-071607	M203A1	8S	0.0	920801
RAD91F-071608	M203A1	8S	-0.6	920801
RAD91F-071609	M203A1	8S	-0.9	920801
RAD91F-071610	M203A1	8S	-0.6	920801
RAD91F-071611	M203A1	8S	1.5	920801
RAD91G-071612	M203A1	8S	0.0	920801
RAD91G-071613	M203A1	8S	-1.8	920801
RAD91G-071618	M203A1	8S	-0.9	920801
RAD91H-G71019	M203A1	8S	0.0	920801
RAD91H-G71023	M203A1	8S	1.2	920801
RAD91H-071619	M203A1	8S	-0.3	920801
RAD91H-071620	M203A1	8S	-0.3	920801
RAD91H-071621	M203A1	8S	0.0	920801
RAD91H-071622	M203A1	8S	-0.3	920801
RAD91H-071623	M203A1	8S	1.2	920801
RAD91H-071624	M203A1	8S	-2.4	920801
RAD91H-071625	M203A1	8S	-0.6	920801
RAD91H-071626	M203A1	8S	0.6	920801
RAD91H-071627	M203A1	8S	4.6	920801
RAD91J-G71179	M203A1	8S	1.5	920801

PROPELLANT LOT	PROPELLANT TYPE	CHARGE	PROPELLANT EFFICIENCY	DATE DISTRIBUTED
RAD91J-G71334	M203A1	8S	-2.1	920801
RAD91J-G71544	M203A1	8S	-1.5	920801
RAD91J-071628	M203A1	8S	1.8	920801
RAD91J-071629	M203A1	8S	1.8	920801
RAD91K-071632	M203A1	8S	-2.1	920801
RAD91K-071633	M203A1	8S	0.6	920801
RAD91K-071634	M203A1	8S	-2.1	920801
RAD91K-071635	M203A1	8S	1.5	920801
RAD91K-071636	M203A1	8S	-0.3	920801
RAD91L-071643	M203A1	8S	-2.4	920801
RAD91L-071644	M203A1	8S	-2.1	920801
RAD91L-071645	M203A1	8S	-1.5	920801
RAD91M-071648	M203A1	8S	0.6	920801
RAD91M-071649	M203A1	8S	0.6	920801
RAD91M-071650	M203A1	8S	-4.0	920801
RAD92A-071651	M203A1	8S	0.6	920801
RAD92A-071652	M203A1	8S	-0.6	920801
RAD92A-071653	M203A1	8S	-0.9	920801
RAD92A-071654	M203A1	8S	0.6	920801
RAD92A-071656	M203A1	8S	0.6	920801
RAD92A-071657	M203A1	8S	1.8	920801
RAD92B-071659	M203A1	8S	-2.1	920801
RAD92B-071660	M203A1	8S	-0.3	920801
RAD92B-071661	M203A1	8S	-1.2	920801
RAD92B-071662	M203A1	8S	-2.4	920801
RAD92B-071672	M203A1	8S	2.1	920801
RAD92B-071673	M203A1	8S	1.8	920801
RAD92C-071674	M203A1	8S	3.1	920801
RAD92C-071675	M203A1	8S	-1.5	920801
RAD92C-071676	M203A1	8S	-0.6	920801
RAD92C-071677	M203A1	8S	-0.6	921101
RAD92C-071678	M203A1	8S	0.3	921101
RAD92D-071679	M203A1	8S	-0.3	921101
RAD92D-071680	M203A1	8S	4.0	921101
RAD92D-071681	M203A1	8S	-0.3	921101
RAD92D-071682	M203A1	8S	-0.6	921101
RAD92E-071683	M203A1	8S	-2.1	921101
RAD92E-071684	M203A1	8S	0.3	921101
RAD92E-071685	M203A1	8S	0.0	921101
RAD92E-071746	M203A1	8S	3.4	921101
RAD92F-071747	M203A1	8S	-0.6	930901
RAD92F-071748	M203A1	8S	-0.9	921101
RAD92F-071749	M203A1	8S	-0.6	921101
RAD92F-071750	M203A1	8S	0.0	921101
RAD92G-071751	M203A1	8S	-1.2	921101
RAD92G-071752	M203A1	8S	-1.2	921101
RAD92G-071753	M203A1	8S	1.2	921101
RAD92G-071754	M203A1	8S	0.0	921101
RAD92H-071755	M203A1	8S	0.3	921101
RAD92H-071756	M203A1	8S	-0.6	921101

PROPELLANT LOT	PROPELLANT TYPE	CHARGE	PROPELLANT EFFICIENCY	DATE DISTRIBUTED
RAD92J-071757	M203A1	8S	2.1	921101
RAD92J-071758	M203A1	8S	2.4	921101
RAD92J-071759	M203A1	8S	1.8	921101
RAD92K-071760	M203A1	8S	-2.7	921101
RAD92K-071761	M203A1	8S	-2.1	921101
RAD92L-071762	M203A1	8S	-0.6	921101
RAD92L-071763	M203A1	8S	0.6	921101
RAD92M-071764	M203A1	8S	-1.5	921101
RAD92M-071765	M203A1	8S	-0.3	921101
RAD92M-071766	M203A1	8S	-0.9	930901
RAD93A-071767	M203A1	8S	0.9	930901
RAD93A-071768	M203A1	8S	1.2	930901
RAD93B-071769	M203A1	8S	-1.2	930901
RAD93B-071770	M203A1	8S	-3.0	930901
RAD93C-071771	M203A1	8S	21.6	950601
RAD94C-071806	M203A1	8S	2.1	941001
RAD94D-071808	M203A1	8S	-2.1	941001
RAD94D-071809	M203A1	8S	-1.2	941001
RAD94F-071819	M203A1	8S	0.0	950101
RAD94F-071820	M203A1	8S	0.3	950101
RAD94G-071821	M203A1	8S	-0.3	950601
RAD94G-071822	M203A1	8S	2.1	950601
RAD94G-071823	M203A1	8S	2.1	950601
RAD94H-071824	M203A1	8S	-2.7	971216
RAD94H-071825	M203A1	8S	1.2	971216
RAD94H-071826	M203A1	8S	-0.3	950601
RAD94H-071828	M203A1	8S	-0.6	971216
RAD94J-071831	M203A1	8S	1.2	950314
RAD94J-071829	M203A1	8S	0.9	950601
RAD94K-071832	M203A1	8S	-2.1	951101
RAD94K-071833	M203A1	8S	-2.1	950901
RAD94K-071834	M203A1	8S	0.6	950901
RAD94K-071835	M203A1	8S	-0.9	950901
RAD94L-071836	M203A1	8S	-0.3	950901
RAD94L-071837	M203A1	8S	-0.3	951101
OL-93L-G71613	M203A1	8S	-1.2	950101
OL-93M-071759	M203A1	8S	-2.1	950101
OL-94A-071760	M203A1	8S	-0.6	940501
OL-94A-071761	M203A1	8S	0.0	940501
OL-94B-071763	M203A1	8S	-2.7	940501
OL-94B-071764	M203A1	8S	-1.2	940501
OL-94C-071765	M203A1	8S	-0.6	940501
OL-94C-071766	M203A1	8S	0.3	941001
OL-94D-071767	M203A1	8S	-1.8	941001
OL-94G-071806	M203A1	8S	0.6	950601
OL-94H-071809	M203A1	8S	2.1	950601
OL-94J-071811	M203A1	8S	-0.3	950601
OL-94J-071812	M203A1	8S	-2.4	950601
OL-94J-071813	M203A1	8S	1.2	950601
OL-94L-071814	M203A1	8S	-1.5	950601