Title 40 CFR Part 191
Compliance Certification
Application
for the
Waste Isolation Pilot Plant

Appendix IRES

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United States Department of Energy
Waste Isolation Pilot Plant

Carlsbad Area Office
Carlsbad, New Mexico

Intermediate Results

CONTENTS

FIGURES

TABLES

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ACRONYMS

DRZ	disturbed rock zone
EPA	U.S. Environmental Protection Agency
FMT	fracture matrix transport
WIPP	Waste Isolation Pilot Plant
LHS	Latin hypercube sample

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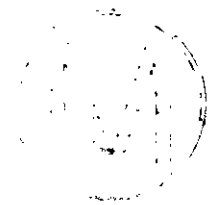

APPENDIX IRES

IRES.1 Latin Hypercube Sample Sampled Values and Ranks

Table IRES-1 shows the 57 parameters that were sampled in Latin hypercube sample (LHS). Tables IRES-2, IRES-3, and IRES-4 show the 100 values sampled by LHS for the 57 parameters that were varied in the 1996 performance assessment calculations, replicates #1, #2, and #3, respectively. Tables IRES-5, IRES-6, and IRES-7 show the ranks of the 100 values sampled, replicates #1, #2, and #3, respectively.

Table IRES-1. Parameters Sampled in LHS Code

LHS #	Id #	Material	Material Description	Parameter	Parameter Description	Distribution Type	Units	Mean	Median	Low	High	Standard Deviation
1	2907	STEEL	Generic steel in waste	CORRMCO2	Inundated corrosion rate for steel without CO2 present	UNIFORM	m/s	7.9370E-15	7.9370E-15	0	1.5870E-14	0
2	2823	WAS_AREA	Waste emplacement area and waste	PROBDEG	Prob. of plastics&rubber biodegradation in event of significant microbial gas generation	DELTA	NONE	2.0000E+00	2.0000E+00	0	2.0000E+00	0
3	657	WAS_AREA	Waste emplacement area and waste	GRATMICI	Biodegradation rate, inundated conditions	UNIFORM	mol/kg*s	4.9150E-09	4.9150E-09	3.1710E-10	9.5129E-09	0
4	656	WAS_AREA	Waste emplacement area and waste	GRATMICH	Biodegradation rate, humid conditions relative to inundated rate	UNIFORM	mol/kg*s	6.3420E-10	6.3420E-10	0	1.2684E-09	0
5	2994	CELLULS	Cellulose	FBETA	Factor beta for microbial reaction rates	UNIFORM	NONE	5.0000E-01	5.0000E-01	0	1.0000E+00	0.29
6	671	WAS_AREA	Waste emplacement area and waste	SAT_RGAS	Residual Gas Saturation	UNIFORM	NONE	7.5000E-02	7.5000E-02	0	1.5000E-01	0.04
7	670	WAS_AREA	Waste emplacement area and waste	SAT_RBRN	Residual Brine Saturation	UNIFORM	NONE	2.7600E-01	2.7600E-01	0	5.5200E-01	0.16
8	2231	WAS_AREA	Waste emplacement area and waste	SAT_WICK	Index for computing wicking	UNIFORM		5.0000E-01	5.0000E-01	0	1.0000E+00	0.29
9	2334	CL_L_T1	Lower Salado clay: 0 to 10 years	PRMX_LOG	Log of intrinsic permeability, X-direction	TRIANGULAR	log(m^2)	-1.8867E+01	-1.8301E+01	-2.1000E+01	-1.7301E+01	0.78
10	2470	CONC_T1	Concrete column: 0 to 400 years	PRMX_LOG	Log of intrinsic permeability, X-direction	TRIANGULAR	log(m^2)	-1.8816E+01	-1.8750E+01	-2.0699E+01	-1.7000E+01	0.76
11	2283	ASPHALT	Asphalt column	PRMX_LOG	Log of intrinsic permeability, X-direction	TRIANGULAR	log(m^2)	-1.9667E+01	-2.0000E+01	-2.1000E+01	-1.8000E+01	0.62
12	3133	SHFT_DRZ	Shaft disturbed Rock Zone	PRMX_LOG	Log of intrinsic permeability, X-direction	TRIANGULAR	log(m^2)	-1.5333E+01	-1.5000E+01	-1.7000E+01	-1.4000E+01	0.62
13	2939	SALT_T1	Shaft salt column compacted: time 0 to 10 years	CUMPROB	Cumulative Probability	UNIFORM	NONE	5.0000E-01	5.0000E-01	0	1.0000E+00	0.29
14	2529	SALT_T1	Shaft salt column compacted: time 0 to 10 years	SAT_RGAS	Residual Gas Saturation	UNIFORM	NONE	2.0000E-01	2.0000E-01	0	4.0000E-01	0.12
15	2528	SALT_T1	Shaft salt column compacted: time 0 to 10 years	SAT_RBRN	Residual Brine Saturation	CUMULATIVE	NONE	2.5000E-01	2.0000E-01	0	6.0000E-01	0.18

Table IRES-1. Parameters Sampled in LHS Code (Continued)

LHS #	Id #	Material	Material Description	Parameter	Parameter Description	Distribution Type	Units	Mean	Median	Low	High	Standard Deviation
16	2516	SALT_T1	Shaft salt column compacted: time 0 to 10 years	PORE_DIS	Brooks-Corey pore distribution parameter	CUMULATIVE	NONE	2.5200E+00	9.4000E-01	1.1000E-01	8.1000E+00	2.48
17	544	S_HALITE	Salado halite, intact	POROSITY	Effective porosity	CUMULATIVE	NONE	1.2800E-02	1.0000E-02	1.0000E-03	3.0000E-02	0.01
18	547	S_HALITE	Salado halite, intact	PRMX_LOG	Log of intrinsic *permeability, X-direction*	UNIFORM	log(m^2)	-2.2500E+01	-2.2500E+01	-2.4000E+01	-2.1000E+01	0.87
19	541	S_HALITE	Salado halite, intact	COMP_RCK	Bulk Compressibility	UNIFORM	Pa^-1	9.7500E-11	9.7500E-11	2.9400E-12	1.9200E-10	0.00
20	591	S_MB139	Salado marker bed 139, intact and fractured	PRMX_LOG	Log of intrinsic permeability, X-direction	STUDENT	log(m^2)	-1.8890E+01	-1.8890E+01	-2.1000E+01	-1.7100E+01	1.20
21	580	S_MB139	Salado marker bed 139, intact and fractured	COMP_RCK	Bulk Compressibility	STUDENT	Pa^-1	8.2630E-11	8.2630E-11	1.0900E-11	2.7500E-10	0.00
22	596	S_MB139	Salado marker bed 139, intact and fractured	RELP_MOD	Model number, relative permeability model	DELTA	NONE	4.0000E+00	4.0000E+00	1.0000E+00	4.0000E+00	0.00
23	598	S_MB139	Salado marker bed 139, intact and fractured	SAT_RBRN	Residual Brine Saturation	STUDENT	NONE	8.3630E-02	8.3630E-02	7.8460E-03	1.7400E-01	0.05
24	599	S_MB139	Salado marker bed 139, intact and fractured	SAT_RGAS	Residual Gas Saturation	STUDENT	NONE	7.7110E-02	7.7110E-02	1.3980E-02	1.9719E-01	0.06
25	587	S_MB139	Salado marker bed 139, intact and fractured	PORE_DIS	Brooks-Corey pore distribution parameter	STUDENT	NONE	6.4360E-01	6.4360E-01	4.9053E-01	8.4178E-01	0.11
26	546	S_HALITE	Salado halite, intact	PRESSURE	Brine far-field pore pressure	UNIFORM	Pa	1.2470E+07	1.2470E+07	1.1040E+07	1.3890E+07	823000.00
27	66	CASTILER	Castile Brine Reservoir	PRESSURE	Brine far-field pore pressure	TRIANGULAR	Pa	1.3600E+07	1.2700E+07	1.1100E+07	1.7000E+07	1245700.00
28	67	CASTILER	Castile Brine Reservoir	PRMX_LOG	Log of intrinsic permeability, X-direction	TRIANGULAR	log(m^2)	-1.2100E+01	-1.1800E+01	-1.4700E+01	-9.8000E+00	1.01
29	61	CASTILER	Castile Brine Reservoir	COMP_RCK	Bulk Compressibility	TRIANGULAR	log(Pa^-1)	-9.8000E+00	-1.0000E+01	-1.1300E+01	-8.0000E+00	0.68
30	3184	BH_SAND	Borehole filled with silty sand	PRMX_LOG	Log of intrinsic permeability, X-direction	UNIFORM	log(m^2)	-1.2500E+01	-1.2500E+01	-1.4000E+01	-1.1000E+01	0.87
31	3194	CASTILER	Castile Brine Reservoir	GRIDFLO	Index for selecting a Brine Pocket	DELTA	NONE	1.6000E+01	1.6000E+01	1.0000E+00	3.2000E+01	0.00
32	3246	BLOWOUT	BRAGFLO Direct Brine Releases	PARTDIA	Logarithm of waste particle diameter in *CUTTINGS model*	LOGUNIFORM	m	2.3500E-02	2.8000E-03	4.0000E-05	2.0000E-01	0.04
33	2254	BOREHOLE	Borehole and Fill	TAUFAIL	Effective shear strength for erosion (rfail)	UNIFORM	Pa	5.0300E+00	5.0300E+00	5.0000E-02	1.0000E+01	2.90

Table IRES-1. Parameters Sampled in LHS Code (Continued)

LHS #	Id #	Material	Material Description	Parameter	Parameter Description	Distribution Type	Units	Mean	Median	Low	High	Standard Deviation
34	3419	CULEBRA	Culebra member of the Rustler formation	MINP_FAC	Mining Transmissivity Multiplier	UNIFORM	NONE	5.0050E+02	5.0050E+02	1.0000E+00	1.0000E+03	288.40
35	225	GLOBAL	Information that applies globally	TRANSIDX	Index for selecting realizations of the Transmissivity Field	UNIFORM	NONE	5.0000E-01	5.0000E-01	0.0000E+00	1.0000E+00	0.29
36	3262	SOLAM3	Solubility of Americium in oxidation state III	SOLSIM	Solubility in Salado brine, inorganic chemistry controlled by the Mg(OH)2-MgCO3	CUMULATIVE	NONE	1.8000E-01	-9.0000E-02	-2.0000E+00	1.4000E+00	0.37
37	3263	SOLAM3	Solubility of Americium in oxidation state III	SOLCIM	Solubility in Castile brine inorganic with chemistry controlled by Mg(OH)2-MgCO3	CUMULATIVE	NONE	1.8000E-01	-9.0000E-02	-2.0000E+00	1.4000E+00	0.37
38	3265	SOLPU3	Solubility of Plutonium in oxidation state III	SOLSIM	Solubility in Salado brine, inorganic chemistry controlled by the Mg(OH)2-MgCO3	CUMULATIVE	NONE	1.8000E-01	-9.0000E-02	-2.0000E+00	1.4000E+00	0.37
39	3264	SOLPU3	Solubility of Plutonium in oxidation state III	SOLCIM	Solubility in Castile brine inorganic with chemistry controlled by Mg(OH)2-MgCO3	CUMULATIVE	NONE	1.8000E-01	-9.0000E-02	-2.0000E+00	1.4000E+00	0.37
40	3266	SOLPU4	Solubility of Plutonium in oxidation state IV	SOLSIM	Solubility in Salado brine, inorganic chemistry controlled by the Mg(OH)2-MgCO3	CUMULATIVE	NONE	1.8000E-01	-9.0000E-02	-2.0000E+00	1.4000E+00	0.37
41	3389	SOLPU4	Solubility of Plutonium in oxidation state IV	SOLCIM	Solubility in Castile brine inorganic with chemistry controlled by Mg(OH)2-MgCO3	CUMULATIVE	NONE	1.8000E-01	-9.0000E-02	-2.0000E+00	1.4000E+00	0.37
42	3390	SOLU4	Solubility of Uranium in oxidation state IV	SOLSIM	Solubility in Salado brine, inorganic chemistry controlled by the Mg(OH)2-MgCO3	CUMULATIVE	NONE	1.8000E-01	-9.0000E-02	-2.0000E+00	1.4000E+00	0.37
43	3391	SOLU6	Solubility of Uranium in oxidation state VI	SOLSIM	Solubility in Salado brine, inorganic chemistry controlled by the Mg(OH)2-MgCO3	CUMULATIVE	NONE	1.8000E-01	-9.0000E-02	-2.0000E+00	1.4000E+00	0.37

Table IRES-1. Parameters Sampled in LHS Code (Continued)

LHS #	Id #	Material	Material Description	Parameter	Parameter Description	Distribution Type	Units	Mean	Median	Low	High	Standard Deviation
44	3392	SOLU6	Solubility of Uranium in oxidation state VI	SOLCIM	Solubility in Castile brine inorganic with chemistry controlled by Mg(OH)2-MgCO3	CUMULATIVE	NONE	1.8000E-01	-9.0000E-02	-2.0000E+00	1.4000E+00	0.37
45	3393	SOLTH4	Solubility of Thorium in oxidation state IV	SOLSIM	Solubility in Salado brine, inorganic chemistry controlled by the Mg(OH)2-MgCO3	CUMULATIVE	NONE	1.8000E-01	-9.0000E-02	-2.0000E+00	1.4000E+00	0.37
46	3429	PHUMOX3	Proportionality constant with humic colloids for actinide in oxidation state III	PHUMCIM	Proportionality constant of actinides in Castile brine w/ humic colloids, inorgan	CUMULATIVE	moles/liter	1.1000E+00	1.3700E+00	6.5000E-02	1.6000E+00	0.47
47	3417	GLOBAL	Information that applies globally	OXSTAT	Index for Oxidation Solubilities	UNIFORM	NONE	5.0000E-01	5.0000E-01	0.0000E+00	1.0000E+00	0.29
48	223	GLOBAL	Information that applies globally	CLIMTIDX	Climate Index	CUMULATIVE	NONE	1.3100E+00	1.1700E+00	1.0000E+00	2.2500E+00	0.35
49	3485	CULEBRA	Culebra member of the Rustler formation	HMBLKLT	Culebra Half Matrix-Block Length	UNIFORM	m	2.7500E-01	2.7500E-01	5.0000E-02	5.0000E-01	0.13
50	3487	CULEBRA	Culebra member of the Rustler formation	APOROS	Culebra Advective Porosity	LOGUNIFORM	NONE	2.1000E-03	1.0000E-03	1.0000E-04	1.0000E-02	0.00
51	3486	CULEBRA	Culebra member of the Rustler formation	DPOROS	Diffusive Porosity for Culebra Dolomite	CUMULATIVE	NONE	1.6000E-01	1.6000E-01	1.0000E-01	2.5000E-01	0.04
52	3475	U+6	Uranium VI	MKD_U	Matrix Distribution Coefficient for Uranium	UNIFORM	m^3/kg	1.5000E-02	1.5000E-02	3.0000E-05	3.0000E-02	0.01
53	3479	U+4	Uranium IV	MKD_U	Matrix Distribution Coefficient for Uranium	UNIFORM	m^3/kg	1.0000E+01	1.0000E+01	9.0000E-01	2.0000E+01	5.50
54	3480	PU+3	Plutonium III	MKD_PU	Matrix Distribution Coefficient for Plutonium	UNIFORM	m^3/kg	2.6000E-01	2.6000E-01	2.0000E-02	5.0000E-01	0.14
55	3481	PU+4	Plutonium IV	MKD_PU	Matrix Distribution Coefficient for Plutonium	UNIFORM	m^3/kg	1.0000E+01	1.0000E+01	9.0000E-01	2.0000E+01	5.50
56	3478	TH+4	Thorium IV	MKD_TH	Matrix Distribution Coefficient for Thorium	UNIFORM	m^3/kg	1.0000E+01	1.0000E+01	9.0000E-01	2.0000E+01	5.50
57	3482	AM+3	Americium III	MKD_AM	Matrix Distribution Coefficient for Americium	UNIFORM	m^3/kg	2.6000E-01	2.6000E-01	2.0000E-02	5.0000E-01	0.14

Table IRES-2. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 1

LHS#	Material	Parameter	1	2	3	4
1	STEEL	CORRMCO2	2.297E-15	6.448E-15	1.106E-14	1.249E-14
2	WAS_AREA	PROBDEG	2	0	1	0
3	WAS_AREA	GRATMICI	7.81E-09	9.2E-09	7.863E-09	7.367E-10
4	WAS_AREA	GRATMICH	4.714E-10	8.844E-10	5.903E-10	9.714E-10
5	CELLULS	FBETA	0.6023	0.2903	0.2791	0.7284
6	WAS_AREA	SAT_RGAS	0.001259	0.1096	0.1166	0.06413
7	WAS_AREA	SAT_RBRN	0.4607	0.2286	0.442	0.1831
8	WAS_AREA	SAT_WICK	0.9356	0.4746	0.6929	0.6383
9	CL_L_T1	PRMX_LOG	-17.96	-18.18	-18.23	-17.48
10	CONC_T1	PRMX_LOG	-19.84	-19.64	-19.58	-18.97
11	ASPHALT	PRMX_LOG	-20.35	-19.58	-18.72	-20.14
12	SHFT_DRZ	PRMX_LOG	-15.54	-16.23	-14.69	-14.78
13	SALT_T1	CUMPROB	0.1668	0.1596	0.4195	0.3575
14	SALT_T1	SAT_RGAS	0.0979	0.3888	0.2526	0.2727
15	SALT_T1	SAT_RBRN	0.26	0.2406	0.3225	0.1807
16	SALT_T1	PORE_DIS	0.4861	0.9551	0.6866	6.23
17	S_HALITE	POROSITY	0.01081	0.004985	0.02148	0.01941
18	S_HALITE	PRMX_LOG	-23.4	-21.64	-23.52	-22.12
19	S_HALITE	COMP_RCK	1.514E-10	4.765E-11	1.603E-10	7.344E-11
20	S_MB139	PRMX_LOG	-18.88	-18.83	-19.21	-18.42
21	S_MB139	COMP_RCK	7.67E-11	6.285E-11	1.071E-10	1.09E-11
22	S_MB139	RELP_MOD	1	1	1	1
23	S_MB139	SAT_RBRN	0.09324	0.08087	0.1366	0.06827
24	S_MB139	SAT_RGAS	0.01398	0.04879	0.1072	0.07723
25	S_MB139	PORE_DIS	0.6133	0.6096	0.6832	0.6797
26	S_HALITE	PRESSURE	12010000	12270000	11310000	12960000
27	CASTILER	PRESSURE	14900000	12340000	12380000	11910000
28	CASTILER	PRMX_LOG	-11.02	-11.98	-13.26	-12.42
29	CASTILER	COMP_RCK	-10.82	-10.4	-9.054	-9.112
30	BH_SAND	PRMX_LOG	-12.71	-12.04	-13.15	-13.2
31	CASTILER	GRIDFLO	29	32	9	21
32	BLOWOUT	PARTDIA	0.06034	0.002024	0.1585	0.0001861
33	BOREHOLE	TAUFAIL	0.9258	2.753	3.828	3.421
34	CULEBRA	MINP_FAC	397.7	891.1	955.5	530.7
35	GLOBAL	TRANSIDX	0.357	0.01873	0.8568	0.6144
36	SOLAM3	SOLSIM	-0.1976	-0.3821	-0.8902	0.9657
37	SOLAM3	SOLCIM	-0.391	-0.1461	-0.09575	-1.842
38	SOLPU3	SOLSIM	-0.4834	0.6853	-0.1384	-0.2147
39	SOLPU3	SOLCIM	0.1014	-0.4374	0.8697	-0.05452
40	SOLPU4	SOLSIM	-0.2832	-0.06566	-0.196	-1.09
41	SOLPU4	SOLCIM	-0.08138	0.2441	-1.586	0.606
42	SOLU4	SOLSIM	-0.457	-0.2272	-0.1713	-0.8627
43	SOLU6	SOLSIM	-0.2324	0.03276	0.08097	-0.3385
44	SOLU6	SOLCIM	-0.0111	-0.07551	0.6432	-0.177
45	SOLTH4	SOLSIM	0.5522	-0.4155	-0.199	-0.3565
46	PHUMOX3	PHUMCIM	0.1283	1.429	1.575	0.5214
47	GLOBAL	OXSTAT	0.9977	0.06733	0.9432	0.6761
48	GLOBAL	CLIMTIDX	1.214	2.191	1.973	1.137
49	CULEBRA	HMBLKLT	0.4234	0.06395	0.3044	0.4767
50	CULEBRA	APOROS	0.0001301	0.008438	0.0001923	0.0004559
51	CULEBRA	DPOROS	0.125	0.1049	0.235	0.1069
52	U+6	MKD_U	0.002671	0.0117	0.01405	0.004525
53	U+4	MKD_U	4.848	6.674	2.815	19.37
54	PU+3	MKD_PU	0.3181	0.1667	0.3738	0.3569
55	PU+4	MKD_PU	12.38	8.944	10.04	17.7
56	TH+4	MKD_TH	4.403	8.097	1.814	12.8
57	AM+3	MKD_AM	0.1197	0.3153	0.0739	0.1911

Table IRES-2. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 1 (Continued)

LHS#	5	6	7	8	9	10
1	7.105E-15	9.142E-15	4.761E-15	4.911E-15	1.557E-14	6.568E-15
2	0	0	0	0	1	0
3	1.656E-09	4.389E-09	5.458E-09	5.584E-09	8.129E-09	6.15E-09
4	6.908E-10	6.401E-10	1.125E-10	1.08E-09	1.2E-09	7.519E-11
5	0.3117	0.5607	0.3226	0.5085	0.656	0.5722
6	0.07166	0.1151	0.0393	0.08188	0.006144	0.1363
7	0.09151	0.3899	0.06708	0.4254	0.1806	0.3419
8	0.08241	0.9487	0.6274	0.1544	0.5396	0.8526
9	-20.19	-18.46	-17.6	-17.84	-18.9	-18.51
10	-18	-18.37	-18.33	-19.42	-18.74	-19.29
11	-19.23	-20.01	-20.29	-18.77	-20.44	-19.15
12	-16.66	-16.34	-16.1	-15.38	-15.31	-15.29
13	0.5338	0.7245	0.6629	0.226	0.1812	0.8326
14	0.2706	0.2875	0.2813	0.06421	0.04299	0.1361
15	0.4858	0.1529	0.1242	0.08617	0.1782	0.1143
16	4.046	0.1192	0.6726	6.193	6.548	0.6585
17	0.02417	0.005869	0.02923	0.001218	0.02889	0.009058
18	-21.67	-22.39	-22.72	-21.85	-22.65	-22.88
19	3.553E-11	8.828E-11	1.242E-10	6.165E-11	1.035E-10	1.207E-10
20	-19.18	-19.3	-19.61	-19.4	-19.44	-19.1
21	1.425E-10	1.457E-10	2.01E-10	1.308E-10	1.702E-10	1.093E-10
22	4	4	4	1	4	1
23	0.08703	0.1123	0.06434	0.1256	0.1011	0.03109
24	0.05233	0.07564	0.04548	0.08072	0.08845	0.07537
25	0.709	0.656	0.6404	0.7547	0.6197	0.7863
26	11100000	13000000	12570000	13280000	12230000	11150000
27	12890000	11300000	12560000	11840000	15570000	12160000
28	-12.91	-12.45	-11.26	-11.8	-13.09	-10.88
29	-9.171	-9.714	-9.921	-9.778	-8.874	-10.01
30	-13.86	-12.29	-11.12	-12.32	-11.54	-13.38
31	17	10	14	25	16	17
32	0.001435	0.00006769	0.003107	0.00004855	0.0003968	0.0002952
33	7.828	4.904	4.763	6.32	3.079	1.204
34	324.4	622.6	798.1	118.6	250.3	194.1
35	0.7098	0.5359	0.05519	0.983	0.7561	0.4057
36	0.1593	-0.2835	-0.2347	0.06037	-0.6301	-0.08894
37	-0.3508	-0.131	0.3866	-0.2962	0.2448	-0.002704
38	1.29	-0.2447	-0.1994	0.1444	0.01939	-0.7773
39	-0.01913	0.1141	0.6295	0.05688	-0.06534	0.07417
40	0.8918	-0.4392	-0.2575	-0.2034	0.02398	-0.01516
41	-0.1313	0.1431	0.1403	-0.3727	-0.4151	-0.3906
42	-0.6831	0.08368	-0.3469	0.04341	0.002013	0.1255
43	-0.1239	-0.1353	0.1331	-0.2376	-0.1577	-0.2628
44	-0.1886	-1.078	-0.08139	0.8535	-0.6759	0.1178
45	-0.07243	0.1607	-0.1473	0.3523	-0.01643	-0.0298
46	0.4879	0.182	1.404	0.09101	0.281	1.597
47	0.5603	0.2142	0.2202	0.4481	0.8715	0.9708
48	1.147	2.235	1.019	1.172	1.092	1.806
49	0.2846	0.1536	0.3261	0.101	0.1762	0.1324
50	0.0006328	0.0001228	0.002639	0.003002	0.007133	0.0004813
51	0.1244	0.1299	0.1488	0.1899	0.1118	0.1099
52	0.005594	0.01283	0.007649	0.007031	0.02767	0.003107
53	9.599	2.236	10.36	11.44	7.685	4.919
54	0.3121	0.4509	0.05285	0.02125	0.2665	0.1455
55	16.11	3.196	13.31	13.94	17.47	18.59
56	3.811	16.1	7.056	10.1	16.26	2.796
57	0.4692	0.2336	0.4605	0.4812	0.4626	0.4733

Table IRES-2. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 1 (Continued)

LHS#	11	12	13	14	15	16
1	1.451E-15	1.233E-14	8.047E-16	1.207E-14	9.029E-15	6.126E-15
2	1	1	0	2	2	0
3	2.751E-09	4.199E-09	8.468E-09	5.27E-09	6.627E-09	4.597E-09
4	4.117E-11	1.784E-10	5.062E-10	1.214E-09	7.186E-10	1.231E-09
5	0.8893	0.6985	0.4824	0.8424	0.03712	0.9962
6	0.1205	0.07298	0.1301	0.02233	0.08592	0.1028
7	0.4939	0.1463	0.3824	0.169	0.418	0.2714
8	0.2108	0.7754	0.3892	0.909	0.01272	0.6131
9	-18.12	-17.98	-18.44	-19.1	-19.61	-19.12
10	-18.35	-17.39	-18.84	-19.35	-17.88	-19.38
11	-19.71	-20.05	-19.25	-18.83	-20.69	-19.14
12	-15.49	-14.89	-15.78	-16.14	-14.75	-15.14
13	0.6091	0.4515	0.2538	0.8103	0.764	0.3022
14	0.2576	0.1689	0.1004	0.02677	0.247	0.08531
15	0.5705	0.1911	0.2312	0.3737	0.1984	0.1479
16	0.5205	0.2174	0.3639	0.1359	1.587	0.8442
17	0.007804	0.001774	0.001712	0.01702	0.007113	0.02453
18	-23.84	-22.52	-23.32	-22.17	-21.57	-23.92
19	1.867E-10	9.312E-11	1.541E-10	9.129E-11	3.152E-11	1.894E-10
20	-19.72	-20.11	-19.33	-18.74	-20.28	-18.6
21	1.91E-10	2.75E-10	1.382E-10	4.912E-11	2.418E-10	6.496E-11
22	4	1	1	1	1	1
23	0.138	0.05271	0.06205	0.07412	0.06536	0.04497
24	0.09171	0.07997	0.1144	0.08922	0.1031	0.08424
25	0.6127	0.5611	0.6876	0.7328	0.7141	0.6594
26	13640000	13540000	12790000	11480000	13330000	13700000
27	13460000	11480000	13820000	14100000	12970000	12750000
28	-12.02	-12.66	-13.63	-12.85	-11.92	-12.61
29	-9.753	-9.258	-8.783	-8.724	-10.47	-10.24
30	-12.67	-12.07	-12.82	-12.22	-11.69	-12.84
31	24	28	13	7	6	15
32	0.0007068	0.008348	0.07205	0.01918	0.0001514	0.0038
33	5.23	7.325	9.509	7.024	3.552	6.705
34	5.103	693.7	822.9	284.6	238.1	163.5
35	0.4501	0.4335	0.135	0.2505	0.7455	0.4818
36	-0.0115	-0.1457	-0.3107	-0.2181	-0.02046	0.3333
37	-1.604	-1.489	-0.1542	0.03388	-0.1698	0.7343
38	-0.4233	0.1723	0.504	-0.02029	-0.0983	-0.1759
39	-0.004312	-0.5491	-0.07601	-0.3476	-0.3373	-0.1457
40	-0.8019	1.292	0.1657	-0.03913	-0.06178	0.1405
41	-0.1618	-0.3304	0.258	-0.05741	0.6666	1.287
42	-0.2542	0.3222	-0.1034	-0.6092	-0.9822	0.9713
43	-0.2461	0.9485	-0.09874	0.8764	0.5624	-0.9554
44	-0.4822	-0.2143	0.2257	-0.3144	0.1528	0.2438
45	0.7954	-0.04355	-0.283	0.7317	-0.009254	-0.05335
46	1.434	0.8562	0.6901	0.3261	1.382	1.392
47	0.3461	0.9828	0.8982	0.3243	0.8223	0.7699
48	1.635	1.037	1.005	1.071	1.611	1.205
49	0.3675	0.2574	0.1259	0.2429	0.1931	0.2494
50	0.008813	0.002013	0.00159	0.004476	0.002206	0.000141
51	0.1379	0.1874	0.1688	0.1782	0.1161	0.1159
52	0.02607	0.02524	0.004146	0.01475	0.008279	0.02837
53	7.367	19.89	1.369	18.13	5.338	14.98
54	0.3783	0.2251	0.4363	0.4069	0.1613	0.478
55	19.17	10.37	7.478	6.213	2.427	11.3
56	3.761	8.952	15.63	4.053	9.768	11.11
57	0.2168	0.08853	0.2306	0.3948	0.1377	0.3545

Table IRES-2. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 1 (Continued)

LHS#	17	18	19	20	21	22
1	3.615E-15	6.729E-15	7.422E-15	1.158E-14	1.516E-14	2.906E-16
2	2	1	1	2	0	0
3	7.173E-09	1.11E-09	1.201E-09	5.835E-09	9.411E-09	1.264E-09
4	1.029E-09	3.254E-10	4.123E-10	9.918E-10	8.049E-10	9.777E-10
5	0.4964	0.4701	0.6156	0.1783	0.1346	0.8789
6	0.0921	0.00162	0.1069	0.1254	0.03353	0.0362
7	0.5143	0.1081	0.2845	0.4575	0.1638	0.4008
8	0.2483	0.1217	0.9507	0.2532	0.896	0.1453
9	-18.21	-18.92	-19.52	-18.34	-18.61	-19.79
10	-17.98	-19.47	-17.73	-19.53	-17.62	-17.65
11	-19.42	-19.94	-19.3	-20.64	-19.02	-18.92
12	-14.94	-16.91	-16.02	-14.97	-14.52	-15.32
13	0.4432	0.7109	0.5679	0.5047	0.5989	0.5893
14	0.2655	0.3705	0.09099	0.1757	0.279	0.006904
15	0.5424	0.1392	0.5082	0.031	0.3537	0.4271
16	0.2861	6.989	8.383	3.317	0.7036	5.956
17	0.01145	0.008216	0.02341	0.006488	0.02705	0.02838
18	-21.52	-21.17	-22.94	-21.6	-22.54	-23.11
19	4.888E-11	7.978E-12	1.018E-10	6.152E-11	9.878E-11	1.353E-10
20	-18.63	-18.79	-18.87	-17.94	-19.16	-18.33
21	4.154E-11	6.866E-11	8.052E-11	1.09E-11	1.18E-10	1.09E-11
22	4	4	4	1	1	1
23	0.01922	0.06786	0.06211	0.05082	0.09205	0.1037
24	0.09669	0.1525	0.01398	0.04724	0.1155	0.1177
25	0.5991	0.6278	0.6613	0.6769	0.6058	0.6292
26	11610000	12080000	11380000	11870000	11860000	11570000
27	14430000	12000000	12920000	13430000	13260000	12490000
28	-10.39	-11.22	-12.68	-11.69	-12.18	-12.16
29	-10.36	-10.72	-9.224	-8.892	-10.85	-9.7
30	-11.92	-13.93	-11.08	-13.85	-12.16	-13.18
31	10	22	12	22	31	7
32	0.1989	0.001108	0.0347	0.002436	0.00005323	0.006954
33	1.007	9.272	7.201	1.338	5.053	9.632
34	45.06	217.5	37.43	159	139.8	465.6
35	0.9436	0.782	0.3402	0.2217	0.838	0.2187
36	0.4178	-0.4858	0.01766	0.0008687	0.6779	-0.1514
37	0.1554	0.6574	-0.2538	0.178	0.00804	0.4661
38	0.2078	-1.847	-0.15	0.76	0.7395	-0.1076
39	0.2418	-0.2709	-0.1929	0.8324	0.3545	-0.101
40	0.8414	-0.07628	-0.6662	-0.3454	-0.0805	0.3194
41	-0.1349	-0.227	-0.2313	0.8818	-0.489	-0.02563
42	0.03041	0.0752	-0.05337	-1.66	-0.05717	-0.2989
43	0.155	0.09074	0.3881	0.249	-0.0933	-0.6864
44	-0.1597	0.0777	0.4936	-0.05947	-0.1119	0.03686
45	-0.1308	-0.2069	0.5296	-0.8945	0.8469	-0.1811
46	0.6394	1.424	1.565	1.444	1.147	1.419
47	0.5544	0.9155	0.2374	0.8802	0.07913	0.7796
48	1.188	1.559	2.122	2.072	1.182	2.176
49	0.1211	0.2751	0.4005	0.3148	0.3706	0.07018
50	0.0008503	0.00509	0.006843	0.0001731	0.0003843	0.0004626
51	0.1759	0.174	0.1834	0.1951	0.1553	0.1653
52	0.02478	0.0215	0.01431	0.02971	0.013	0.02378
53	9.922	11.29	13.03	17.4	16.44	13.68
54	0.0445	0.2593	0.2319	0.4033	0.3386	0.0819
55	17.8	6.334	16.2	10.48	12.56	8.808
56	7.58	19.44	17.62	14.88	16.73	7.703
57	0.1478	0.311	0.3896	0.4246	0.2781	0.04295

Table IRES-2. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 1 (Continued)

LHS#	23	24	25	26	27	28
1	4.041E-16	1.376E-14	7.749E-16	1.436E-14	1.415E-14	1.084E-14
2	0	0	0	1	0	0
3	7.446E-09	4.01E-09	3.773E-09	6.503E-09	2.089E-09	3.191E-09
4	3.02E-10	8.486E-10	2.78E-10	9.036E-10	1.22E-09	1.099E-09
5	0.1585	0.5212	0.2855	0.3968	0.1208	0.8542
6	0.1195	0.1472	0.01669	0.1273	0.1452	0.01561
7	0.1576	0.008916	0.2006	0.0624	0.1884	0.1982
8	0.06674	0.2774	0.5431	0.3503	0.1631	0.5634
9	-19.23	-19.91	-18.43	-18.39	-17.9	-18.68
10	-18.38	-19.46	-19.67	-18.17	-18.03	-19.04
11	-20.39	-20.37	-18.19	-18.45	-18.26	-19.57
12	-14.38	-16.29	-15.1	-14.26	-15.77	-15.11
13	0.6176	0.6742	0.4869	0.3274	0.4384	0.1417
14	0.03946	0.07058	0.1412	0.1507	0.2242	0.2293
15	0.1342	0.46	0.08192	0.07746	0.09435	0.1294
16	1.202	0.1941	3.539	0.7198	0.302	1.807
17	0.0101	0.006359	0.01491	0.02645	0.002929	0.00688
18	-23.16	-22.36	-21.21	-21.09	-22.18	-21.72
19	1.41E-10	7.909E-11	1.732E-11	1.387E-11	8.053E-11	4.422E-11
20	-17.12	-18.92	-18.47	-19	-18.15	-18.93
21	1.09E-11	7.861E-11	3.962E-11	8.459E-11	1.728E-11	9.553E-11
22	4	4	1	4	4	4
23	0.1017	0.08259	0.09494	0.1003	0.09399	0.1218
24	0.07789	0.09575	0.01733	0.05644	0.03488	0.08541
25	0.5205	0.7239	0.6745	0.6997	0.6107	0.6582
26	13050000	13830000	13360000	12840000	12300000	13860000
27	11720000	12620000	14530000	14180000	13080000	13610000
28	-12.4	-12.53	-12.48	-12.98	-12.24	-12.05
29	-10.2	-9.992	-9.303	-9.449	-9.538	-9.814
30	-11.39	-12.96	-11.31	-13.62	-11.76	-11.45
31	15	8	5	11	27	16
32	0.08983	0.07022	0.0004595	0.0006004	0.02435	0.003391
33	0.7151	0.5259	4.006	4.298	8.398	6.105
34	369.9	634.2	78.07	929.7	303.7	186.6
35	0.9137	0.3743	0.4907	0.2856	0.8725	0.6254
36	-0.0607	0.7541	0.1729	0.8431	-0.2148	0.2283
37	-0.03141	-0.6808	-0.2793	0.3099	0.05543	-0.07211
38	-0.5774	-0.2311	0.02512	-0.4307	-0.8807	-0.2422
39	0.06717	-0.1375	-0.4207	-0.1511	0.7146	-0.8765
40	0.01149	-0.2424	0.06837	-0.3683	0.1133	0.3893
41	0.1125	-0.3107	0.1222	-0.01294	-0.2401	-0.08663
42	-0.09245	-0.9391	0.2422	-0.01204	-0.2313	-1.438
43	0.4395	-0.3394	-0.8716	-0.1851	-0.2013	0.5339
44	-0.1987	0.7385	-0.8136	-0.2039	-0.4575	1.29
45	-0.1043	-0.08892	-0.8414	0.2386	-0.8209	-1.201
46	0.6075	1.308	0.3213	1.571	1.52	0.9421
47	0.7374	0.03426	0.4807	0.9247	0.4144	0.6187
48	1.177	1.123	1.068	1.176	1.1	1.111
49	0.4718	0.1944	0.1421	0.3004	0.4519	0.4321
50	0.009447	0.00285	0.000694	0.006449	0.001162	0.0008286
51	0.1102	0.1225	0.1891	0.1809	0.1014	0.2446
52	0.02121	0.02872	0.007833	0.001859	0.0008295	0.005178
53	9.427	13.81	2.666	15.67	17.25	5.874
54	0.138	0.1423	0.2791	0.3819	0.07629	0.3529
55	6.838	9.707	16.46	2.704	12.03	16.63
56	6.804	3.092	9.961	10.61	13.45	5.606
57	0.3854	0.2121	0.02192	0.3411	0.1829	0.289

Table IRES-2. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 1 (Continued)

LHS#	29	30	31	32	33	34
1	5.243E-15	1.985E-15	9.926E-15	5.591E-15	5.9E-15	8.443E-15
2	2	2	0	0	0	2
3	5.68E-09	2.414E-09	7.36E-09	3.162E-09	7.986E-09	6.396E-09
4	6.582E-10	3.887E-10	8.127E-10	6.718E-10	4.86E-10	4.688E-10
5	0.06116	0.4001	0.08247	0.7515	0.4389	0.9899
6	0.1175	0.03141	0.09551	0.02858	0.05487	0.06004
7	0.2704	0.04703	0.01245	0.02577	0.2406	0.05246
8	0.8876	0.3745	0.6715	0.4259	0.0006692	0.1909
9	-18.82	-18.09	-19.97	-18.62	-19.19	-20.05
10	-18.22	-18.44	-20.09	-17.21	-18.56	-18.66
11	-19.77	-19.01	-19.3	-20.48	-20.28	-19.6
12	-15.81	-15.16	-14.53	-15.42	-16.36	-15.88
13	0.5475	0.02871	0.9828	0.941	0.4772	0.8625
14	0.3945	0.3609	0.2175	0.3789	0.1447	0.1678
15	0.393	0.2999	0.05253	0.00145	0.3135	0.1647
16	0.5649	5.575	4.78	5.43	2.666	2.964
17	0.02492	0.005312	0.002528	0.01434	0.01991	0.0106
18	-21.4	-23.56	-23.98	-23.51	-22.78	-23.45
19	3.029E-11	1.589E-10	1.92E-10	1.625E-10	1.4E-10	1.67E-10
20	-19.02	-18.3	-18.69	-18.85	-18.02	-19.46
21	1.011E-10	1.09E-11	5.917E-11	7.544E-11	1.09E-11	1.643E-10
22	1	4	4	1	4	1
23	0.1099	0.09857	0.1089	0.05879	0.174	0.08358
24	0.137	0.1082	0.04514	0.06287	0.06092	0.08292
25	0.6185	0.6392	0.5409	0.6177	0.6433	0.637
26	13110000	12400000	12130000	12360000	11960000	13380000
27	13320000	12720000	13490000	14140000	12540000	15030000
28	-11.47	-12.35	-11.66	-11.75	-12.76	-11.56
29	-10.12	-10.26	-9.74	-9.541	-9.504	-9.427
30	-11.74	-12.44	-11.99	-13.27	-12.99	-13.07
31	12	21	1	5	23	32
32	0.02216	0.009177	0.004564	0.01255	0.000141	0.005281
33	6.995	6.269	8.001	9.447	6.524	4.694
34	108.3	757.9	585.5	812.3	25.73	914.8
35	0.1407	0.3905	0.08647	0.5695	0.3274	0.479
36	-0.684	0.5815	0.04501	0.1933	-0.3951	0.8817
37	1.172	0.01786	0.1007	-0.735	-0.4024	0.1915
38	0.06449	0.3771	0.09101	0.1824	-0.2038	-0.2281
39	-0.6638	0.1757	-0.3021	0.2794	0.6998	-0.02619
40	-0.1893	-1.643	-0.05292	-0.1677	-0.1417	0.01614
41	-0.2084	-0.902	-0.4706	-0.2837	-0.1514	-0.1793
42	-0.2153	-0.2447	-1.931	0.4023	-0.13	0.6518
43	-1.738	-0.445	0.6736	-1.373	0.1682	-0.006549
44	0.6578	-0.5252	-0.5648	-0.03729	0.08342	0.1871
45	-0.7726	0.03082	0.2156	-0.1706	-0.03935	-0.5386
46	0.2507	1.341	0.7264	1.168	1.593	0.8
47	0.7284	0.5434	0.8603	0.5284	0.9543	0.2028
48	1.116	1.076	2.007	1.199	1.015	1.202
49	0.3105	0.1463	0.165	0.2144	0.1694	0.1073
50	0.0002683	0.0002833	0.0002459	0.001402	0.0006117	0.0002345
51	0.1199	0.1853	0.1445	0.1573	0.1831	0.127
52	0.02499	0.02815	0.02287	0.005044	0.0145	0.01802
53	12.79	12.72	6.563	6.971	10.84	9.093
54	0.1328	0.2801	0.1918	0.09007	0.4964	0.06028
55	15.93	3.65	17.29	7.8	3.095	11.47
56	11.23	1.939	14.61	1.319	15.51	15.88
57	0.4283	0.3839	0.1645	0.1073	0.1134	0.03309

Table IRES-2. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 1 (Continued)

LHS#	35	36	37	38	39	40
1	3.479E-15	1.553E-14	6.861E-15	1.326E-14	1.316E-14	1.198E-14
2	2	1	2	0	0	1
3	6.98E-09	3.467E-09	6.88E-09	8.686E-09	2.442E-09	4.835E-09
4	5.271E-10	1.077E-09	8.956E-10	9.909E-11	4.04E-10	9.336E-10
5	0.31	0.8911	0.4245	0.9232	0.1119	0.04598
6	0.1492	0.1321	0.06286	0.1458	0.1335	0.01337
7	0.5213	0.4362	0.1405	0.05545	0.3202	0.449
8	0.9939	0.58	0.7522	0.1027	0.5243	0.09056
9	-20.16	-20.27	-17.7	-18.28	-17.57	-19.06
10	-18.61	-18.14	-19.23	-19.61	-19.75	-18.63
11	-19.11	-20.56	-19.18	-19.41	-20.25	-19.68
12	-16.07	-15.2	-15.46	-15.83	-14.95	-14.39
13	0.7066	0.3987	0.2967	0.04036	0.8224	0.6565
14	0.3124	0.03544	0.1041	0.1199	0.2502	0.1542
15	0.02183	0.4127	0.256	0.02656	0.5197	0.4472
16	8.094	7.969	7.836	2.524	3.684	7.213
17	0.02044	0.002242	0.01187	0.02587	0.009223	0.02874
18	-23.66	-21.36	-21.59	-21.87	-23.68	-23.47
19	1.733E-10	2.527E-11	4.224E-11	5.17E-11	1.677E-10	1.495E-10
20	-18.75	-19.04	-18.53	-19.47	-17.1	-19.68
21	6.824E-11	9.223E-11	4.952E-11	1.575E-10	1.09E-11	1.768E-10
22	4	4	1	4	4	4
23	0.09074	0.09814	0.1247	0.06946	0.06994	0.0546
24	0.1117	0.06402	0.08191	0.04183	0.166	0.06234
25	0.6335	0.5095	0.6646	0.5822	0.6382	0.7461
26	13150000	11390000	13750000	12630000	12740000	13240000
27	13110000	13860000	15130000	14430000	15250000	13630000
28	-13.18	-13.42	-10.78	-12.09	-11.28	-13.59
29	-9.334	-9.469	-9.487	-10.3	-10.17	-8.443
30	-12.4	-13.48	-13.36	-13.58	-12.19	-12.63
31	14	21	24	14	26	27
32	0.01732	0.00006158	0.01063	0.01176	0.00008466	0.01338
33	5.397	1.97	4.607	9.071	2.171	8.691
34	141.8	515.4	871.5	412.2	900.2	271.4
35	0.2697	0.0007058	0.8672	0.8098	0.2006	0.5256
36	0.4919	-0.1935	-0.7312	-0.09108	0.639	-0.8085
37	-0.0127	-0.1022	-0.07984	-0.06834	-0.1328	-0.5586
38	-0.3166	-0.0008317	-0.4789	-0.08773	-0.02401	0.1399
39	-0.2226	0.216	-0.2101	-0.2351	-0.05952	0.5071
40	-0.3326	0.1472	-0.2354	0.4393	0.451	-0.1475
41	0.07348	-0.0429	0.5861	0.1975	-0.8776	-0.1222
42	0.6281	0.1662	-0.2075	-0.3924	0.925	0.1882
43	0.9808	-0.465	0.325	-0.1622	0.06336	0.2247
44	-0.1873	-0.1679	-0.6314	-0.932	-0.1085	-0.1517
45	-0.3648	-0.1138	0.9941	0.1796	0.1997	-0.1657
46	0.5378	0.3995	1.224	0.9794	0.1444	0.4366
47	0.2707	0.8592	0.4213	0.5155	0.8392	0.1155
48	1.05	1.036	1.211	1.244	1.224	1.685
49	0.3561	0.1624	0.09395	0.1999	0.05319	0.3351
50	0.00111	0.0002242	0.0004285	0.000106	0.003215	0.0003074
51	0.133	0.1766	0.1074	0.1464	0.1746	0.1138
52	0.0003253	0.01061	0.02336	0.02275	0.00692	0.0156
53	17.71	8.006	11.64	12.52	8.165	2.281
54	0.4946	0.08471	0.1231	0.4845	0.3659	0.3642
55	13.5	10.21	4.378	19.3	11.17	4.037
56	15.35	1.097	2.898	16.47	18.69	11
57	0.288	0.4154	0.1009	0.2015	0.4414	0.06713

Table IRES-2. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 1 (Continued)

LHS#	41	42	43	44	45	46
1	1.614E-15	9.497E-15	1.06E-14	2.124E-15	3.19E-15	5.059E-15
2	0	0	0	0	0	2
3	8.346E-09	9.305E-09	4.663E-09	4.544E-10	6.098E-09	9.771E-10
4	1.178E-09	2.43E-10	6.231E-10	5.188E-10	7.95E-10	7.739E-10
5	0.1895	0.906	0.7612	0.2022	0.78	0.6243
6	0.1382	0.05111	0.1129	0.09357	0.04579	0.09002
7	0.3144	0.3306	0.4331	0.3965	0.4053	0.002974
8	0.3383	0.9675	0.5807	0.413	0.7195	0.4569
9	-19.15	-18.06	-18.87	-19.72	-19.27	-18.4
10	-18.06	-18.86	-18.83	-17.88	-19.94	-19.13
11	-20.23	-20.61	-19.22	-19.38	-20.32	-19.98
12	-14.83	-14.61	-16.45	-15.26	-15.52	-14.93
13	0.2786	0.4229	0.4061	0.133	0.6997	0.7838
14	0.2234	0.08105	0.1967	0.06145	0.3099	0.2078
15	0.1414	0.4551	0.337	0.5545	0.1714	0.2702
16	0.1649	6.494	8.262	0.9238	3.939	0.7921
17	0.02745	0.004443	0.004858	0.0209	0.02292	0.02622
18	-21.82	-22.68	-21.07	-22.76	-23.87	-23.37
19	4.475E-11	1.097E-10	1.229E-11	1.153E-10	1.843E-10	1.562E-10
20	-19.03	-18.66	-18.77	-18.97	-19.25	-17.6
21	9.442E-11	4.568E-11	7.24E-11	9.123E-11	1.134E-10	1.09E-11
22	4	1	1	1	4	1
23	0.09143	0.09977	0.06639	0.05604	0.08868	0.07864
24	0.1126	0.05848	0.0541	0.02654	0.08373	0.08671
25	0.6327	0.6777	0.6685	0.6239	0.7651	0.622
26	12820000	12110000	12890000	11670000	13770000	12250000
27	16250000	11930000	15830000	12180000	12460000	14940000
28	-10.98	-11.63	-12.2	-11.19	-11.08	-10.57
29	-9.649	-10.19	-9.978	-10.6	-10.69	-11.07
30	-12.78	-12.53	-11.43	-12.36	-12.92	-13.96
31	28	9	19	29	12	19
32	0.00007838	0.01602	0.1267	0.006231	0.0006447	0.0008589
33	8.123	9.856	0.227	5.757	5.922	2.252
34	783.4	700.9	659.9	973.8	685.7	294
35	0.07073	0.2989	0.6644	0.4112	0.9572	0.8136
36	-0.8702	-0.1356	-0.2951	0.1471	-0.1722	-1.859
37	-0.896	0.2913	-0.1415	0.9957	0.9175	-1.107
38	0.3294	-0.05209	0.8781	-0.06399	0.8153	0.2505
39	-0.2676	0.3431	-0.1619	-0.1778	0.0401	-1.022
40	-0.6903	-0.1815	0.2821	-0.3148	-0.00644	-0.02937
41	-0.1836	0.9004	-0.7935	0.1015	-0.3402	-0.06853
42	0.2291	0.2201	0.196	-0.7494	-0.1365	-0.04485
43	-0.4158	-0.1414	-0.05778	-0.6189	0.1029	-0.08648
44	0.1396	-0.9833	-0.3279	-0.04426	-1.916	-0.06325
45	-0.4602	-0.1751	0.000152	0.1231	-0.4032	-1.82
46	1.288	1.543	1.529	0.2244	1.508	1.512
47	0.9672	0.1265	0.6274	0.6022	0.7801	0.0442
48	1.875	1.133	2.14	1.124	1.04	1.109
49	0.4781	0.3762	0.4661	0.2634	0.3548	0.4615
50	0.0002005	0.002545	0.0003587	0.005885	0.0003259	0.0005747
51	0.1597	0.2413	0.1866	0.1643	0.1189	0.1814
52	0.008437	0.0089	0.002387	0.001822	0.01947	0.005736
53	18.75	19.17	14.6	16.91	18.94	8.696
54	0.1787	0.02543	0.1074	0.3477	0.06666	0.2864
55	12.77	8.071	2.877	11.84	5.926	13.54
56	18.47	14.11	17.89	17.27	3.243	9.247
57		0.1764	0.1634		0.184	0.4187

Table IRES-2. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 1 (Continued)

LHS#	47	48	49	50	51	52
1	3.028E-15	1.171E-14	4.022E-15	1.527E-14	6.254E-15	5.092E-15
2	0	0	0	2	0	0
3	4.309E-09	3.234E-10	4.922E-09	8.24E-09	6.826E-09	2.99E-09
4	1.262E-09	4.561E-10	6.038E-10	1.06E-09	7.572E-10	5.513E-10
5	0.2639	0.7994	0.7111	0.5551	0.9341	0.3313
6	0.004339	0.1084	0.01387	0.0442	0.1233	0.09775
7	0.3745	0.5047	0.1188	0.4637	0.2188	0.03451
8	0.7476	0.8075	0.6089	0.05461	0.323	0.9145
9	-18.34	-18.81	-18.25	-19.85	-19.44	-19.89
10	-18.12	-19.41	-18.22	-19.07	-20.18	-18.62
11	-18.67	-20.53	-19.62	-19.48	-19.82	-19.06
12	-14.9	-14.63	-14.33	-15.63	-15	-15.09
13	0.6401	0.894	0.2439	0.4963	0.689	0.1739
14	0.1264	0.2012	0.3997	0.2101	0.3826	0.2915
15	0.2079	0.163	0.5226	0.1168	0.5797	0.3347
16	0.2728	1.566	7.319	0.5287	1.395	7.657
17	0.003301	0.008084	0.002273	0.02786	0.004286	0.01915
18	-22.25	-23.14	-22.27	-23.22	-23.08	-22.47
19	9.454E-11	1.475E-10	6.84E-11	1.355E-10	1.279E-10	1.069E-10
20	-19.22	-19.77	-18.5	-19.32	-19.18	-19.37
21	1.344E-10	2.088E-10	3.145E-11	1.344E-10	1.21E-10	1.448E-10
22	4	1	4	1	4	1
23	0.07627	0.07659	0.08789	0.09715	0.08762	0.007846
24	0.06608	0.1046	0.073	0.08134	0.1098	0.1343
25	0.7007	0.5774	0.5966	0.5969	0.6702	0.6887
26	12040000	12330000	12540000	11500000	11040000	13470000
27	13980000	13770000	12690000	12650000	11620000	14660000
28	-11.83	-13.98	-13.49	-12.57	-10.5	-12.85
29	-10.38	-8.497	-8.196	-8.65	-10.04	-9.006
30	-13.76	-13.65	-13.9	-11.1	-11.71	-11.79
31	23	30	6	2	4	24
32	0.06324	0.1344	0.001823	0.002004	0.0005293	0.0007283
33	3.215	4.452	0.05556	1.057	3.692	1.601
34	386.5	125.4	648.6	942.2	773.6	881.3
35	0.09761	0.8282	0.2416	0.6757	0.7326	0.6984
36	-0.03597	-0.5956	-0.1598	0.02706	-0.05126	-1.612
37	-0.1751	-0.02446	0.8083	0.08081	-0.2224	-0.181
38	-0.1268	-0.03579	0.4409	-0.3231	-0.9157	-0.5216
39	-0.4088	-0.6944	-0.0907	-0.2046	0.007828	0.228
40	-0.301	-0.2281	0.08164	0.2219	0.6407	-0.489
41	-0.1026	-0.1143	0.7552	0.0893	-0.01607	0.1895
42	0.2068	-0.6504	-0.0249	-0.01581	-0.07455	-0.03443
43	-0.3031	-0.1166	-0.04534	-1.119	-0.2161	-0.051
44	-0.01514	-0.1037	0.8006	-0.02643	-0.412	-0.1196
45	0.6048	0.2326	0.6945	-0.06694	-0.7154	-0.1355
46	1.54	1.498	1.557	1.494	0.3596	1.093
47	0.4543	0.264	0.3799	0.3153	0.2446	0.9394
48	1.044	1.161	1.023	1.079	1.165	1.228
49	0.4439	0.2305	0.2215	0.2946	0.4828	0.2284
50	0.0001363	0.0005197	0.00569	0.003049	0.0001812	0.00499
51	0.112	0.1141	0.111	0.104	0.1825	0.1732
52	0.02945	0.02216	0.01329	0.006517	0.01864	0.02697
53	8.446	9.223	3.111	4.217	18	7.818
54	0.1016	0.05724	0.442	0.1272	0.4443	0.3433
55	14.27	11.71	18.22	9.229	10.75	10.91
56	5.304	19.8	16.95	13.65	8.909	2.26
57	0.3674	0.1299	0.08201	0.3211	0.2362	0.4516

Table IRES-2. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 1 (Continued)

LHS#	53	54	55	56	57	58
1	1.501E-14	1.113E-14	8.137E-15	1.031E-14	1.759E-15	2.46E-15
2	2	2	1	1	1	1
3	5.775E-09	1.953E-09	3.679E-09	1.579E-09	2.26E-09	3.613E-09
4	7.632E-10	1.244E-10	2.857E-10	3.651E-10	1.113E-09	7.43E-10
5	0.9673	0.1918	0.3861	0.1633	0.7073	0.01942
6	0.0116	0.04127	0.1051	0.02749	0.1044	0.04661
7	0.2479	0.5276	0.5083	0.4857	0.2799	0.345
8	0.5573	0.4653	0.7044	0.4408	0.229	0.846
9	-20.07	-18.77	-20.37	-19.18	-18.95	-20.75
10	-19.31	-19.99	-20.28	-18.71	-18.5	-18.52
11	-18.37	-19.45	-19.84	-20.42	-20.12	-19.93
12	-15.03	-14.88	-14.99	-15.57	-15.34	-15.28
13	0.3703	0.807	0.01727	0.1198	0.9362	0.09485
14	0.1626	0.2964	0.3642	0.04669	0.1143	0.01144
15	0.4179	0.3516	0.005785	0.2934	0.09983	0.2833
16	0.2106	0.4333	0.8051	0.1477	5.193	0.9029
17	0.00579	0.02175	0.0185	0.005412	0.003706	0.005607
18	-23.35	-22.03	-21.22	-23.28	-22.99	-22.61
19	1.559E-10	6.361E-11	1.573E-11	1.316E-10	1.134E-10	1.169E-10
20	-19.06	-18.18	-18.89	-20.01	-21	-18.11
21	9.912E-11	1.09E-11	1.117E-10	2.242E-10	2.75E-10	1.09E-11
22	4	1	1	1	1	4
23	0.04826	0.1029	0.08232	0.08157	0.1203	0.1137
24	0.1019	0.01398	0.09265	0.06501	0.09036	0.09498
25	0.5284	0.6574	0.6735	0.6233	0.6929	0.7048
26	13220000	12510000	13200000	12670000	11240000	11930000
27	12840000	13060000	14280000	13000000	16520000	13800000
28	-10.15	-11.51	-11.87	-11.76	-10.31	-11.45
29	-10.27	-9.794	-9.889	-9.668	-10.9	-9.969
30	-13.3	-11.58	-13.79	-13.98	-12.87	-13.31
31	32	16	8	6	15	25
32	0.00009677	0.0004769	0.02615	0.01436	0.04309	0.03324
33	6.205	8.516	9.801	5.151	1.531	8.419
34	485	833.2	502.3	747.1	867.2	848
35	0.6512	0.1932	0.1665	0.5722	0.4439	0.3128
36	-0.4142	-0.1256	-0.5516	0.5345	0.1795	0.2482
37	0.5212	-0.2167	-0.6367	-0.1225	0.5675	-0.4755
38	-0.04357	0.1604	0.2215	-0.05598	-0.09029	-0.3404
39	-0.1073	-1.425	0.5853	-0.2442	-0.1225	-0.1164
40	-0.2111	0.7045	-0.425	0.106	-1.905	0.1869
41	-0.5324	0.2171	-0.2005	-0.4089	-0.2438	-0.2066
42	-0.3177	1.251	-0.0669	-0.002082	0.06574	0.7748
43	-0.06923	-0.1513	-0.07117	0.007373	0.04834	0.119
44	-0.2391	0.9794	-0.2918	-1.367	0.3086	-0.2704
45	-0.1248	0.1333	0.3392	-0.562	0.1714	-0.2391
46	1.551	1.469	1.486	1.416	0.9772	1.443
47	0.4948	0.805	0.4309	0.9017	0.3561	0.09834
48	1.565	1.167	1.02	1.195	1.143	1.249
49	0.3847	0.3319	0.0816	0.2462	0.2528	0.4115
50	0.00407	0.00121	0.006091	0.007732	0.0007403	0.003591
51	0.1702	0.1089	0.129	0.148	0.1362	0.135
52	0.001118	0.02713	0.007357	0.00616	0.00378	0.029
53	4.432	19.79	17.61	8.842	18.63	10.15
54	0.305	0.3887	0.03176	0.4541	0.4708	0.2616
55	8.474	1.173	18.71	15.75	6.572	8.168
56	14.29	6.008	7.33	8.514	11.68	18.11
57	0.3275	0.4534	0.3258	0.4077	0.3018	0.151

Table IRES-2. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 1 (Continued)

LHS#	59	60	61	62	63	64
1	1.042E-14	1.398E-14	1.261E-14	4.575E-15	9.77E-15	3.838E-15
2	1	0	0	1	0	2
3	9.452E-09	1.714E-09	5.558E-10	4.09E-09	2.544E-09	6.344E-09
4	2.572E-10	1.964E-10	2.22E-10	1.003E-09	1.182E-09	6.791E-10
5	0.02093	0.3758	0.005953	0.8655	0.3561	0.8161
6	0.08051	0.07854	0.007902	0.03835	0.03483	0.1011
7	0.02821	0.2074	0.3009	0.3514	0.1261	0.1336
8	0.9893	0.267	0.8668	0.6419	0.3676	0.02259
9	-18.76	-19.55	-18.52	-19.32	-18.17	-18.54
10	-18.53	-19.1	-19.12	-17.34	-20.51	-19.02
11	-20.22	-20.05	-18.59	-20.11	-20.18	-19.79
12	-15.25	-14	-16.04	-14.85	-16.54	-15.37
13	0.5719	0.969	0.9992	0.1078	0.07862	0.8792
14	0.3079	0.1101	0.02853	0.3585	0.2369	0.003149
15	0.1759	0.4002	0.05706	0.15	0.05007	0.01509
16	5.83	0.5875	4.684	0.8703	2.226	0.7488
17	0.01542	0.004197	0.007514	0.02367	0.002745	0.01822
18	-22.62	-22.85	-22.21	-22.07	-22.8	-21.93
19	9.684E-11	1.009E-10	8.644E-11	7.739E-11	1.311E-10	5.531E-11
20	-18.56	-18.4	-19.56	-17.7	-19.12	-17.89
21	6.36E-11	3.739E-11	1.592E-10	1.09E-11	1.185E-10	1.09E-11
22	1	1	4	4	4	4
23	0.07823	0.04987	0.1155	0.08389	0.09649	0.05677
24	0.09856	0.03703	0.0575	0.05058	0.1296	0.07175
25	0.7157	0.6856	0.5684	0.6506	0.5918	0.604
26	11240000	12650000	12770000	13820000	12470000	12710000
27	12770000	14530000	12240000	12090000	13560000	12260000
28	-13.38	-10.7	-11.34	-11.4	-11.14	-11.93
29	-8.556	-10.63	-10.14	-10.34	-9.879	-8.836
30	-13.59	-11.2	-13.43	-11.85	-11.27	-11.55
31	32	29	18	14	25	27
32	0.03936	0.001562	0.0009411	0.0957	0.07942	0.0002072
33	4.359	9.991	0.4086	7.702	8.911	3.433
34	93.77	82.95	670.2	996.4	540.7	726.2
35	0.1549	0.1768	0.602	0.5937	0.182	0.1007
36	-0.06599	-0.2421	-0.1059	0.05945	0.2139	-0.2597
37	-0.1981	0.7574	-0.3596	-0.4584	-0.05411	-0.04087
38	-1.726	0.1203	0.1138	0.04935	0.6113	-0.07942
39	-0.3701	0.9622	0.08407	0.1488	-0.1838	-1.956
40	0.9825	-0.5153	0.04192	0.1192	-0.1767	-0.9646
41	-0.5895	0.03709	0.318	-0.6982	-0.03415	-1.49
42	-0.4927	-0.1954	0.1491	-0.2104	-0.2414	-0.08116
43	-0.7623	-0.107	-0.924	1.114	-0.454	-0.02523
44	0.1985	-0.08603	-0.2457	0.1732	-0.09665	-0.1652
45	-0.09248	-0.3795	-1.458	-0.486	0.4141	0.2042
46	0.4066	0.7672	1.464	0.7733	1.524	0.8243
47	0.1832	0.3698	0.2814	0.3349	0.3081	0.3913
48	1.104	1.085	1.087	1.73	1.207	1.062
49	0.3878	0.1511	0.09819	0.1889	0.4403	0.4184
50	0.000996	0.0007894	0.0003671	0.0001635	0.008047	0.002371
51	0.1396	0.1667	0.1611	0.1151	0.169	0.1788
52	0.01678	0.01843	0.02403	0.009753	0.01636	0.02457
53	13.31	1.549	6.322	1.172	3.494	5.589
54	0.2499	0.4095	0.331	0.3365	0.4658	0.2001
55	4.815	9.638	16.8	18	3.779	13.05
56	5.738	4.61	13.92	13.72	11.81	9.546
57	0.05053	0.2815	0.3334	0.4983	0.2964	0.1339

Table IRES-2. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 1 (Continued)

LHS#	65	66	67	68	69	70
1	1.289E-14	8.303E-15	7.658E-15	9.64E-15	8.001E-15	5.832E-15
2	1	2	0	1	2	2
3	6.685E-09	7.249E-09	7.678E-09	5.338E-09	2.965E-09	5.086E-09
4	8.251E-10	1.05E-09	9.636E-10	2.076E-10	1.165E-09	2.847E-11
5	0.9762	0.4528	0.342	0.45	0.7499	0.8066
6	0.05066	0.06923	0.08718	0.08308	0.05765	0.02583
7	0.1544	0.5359	0.3613	0.3561	0.2645	0.2529
8	0.4377	0.3493	0.8294	0.04857	0.1703	0.2045
9	-18.49	-17.66	-18.96	-18.68	-19.37	-20.49
10	-19.51	-19.07	-18.8	-18.99	-20.42	-18.77
11	-19.08	-20	-19.86	-19.35	-19.54	-19.5
12	-15.88	-15.95	-16.61	-15.07	-14.45	-15.72
13	0.2358	0.7938	0.8406	0.5298	0.8587	0.05784
14	0.2406	0.1834	0.09409	0.1327	0.3309	0.3402
15	0.562	0.4987	0.2115	0.3621	0.03895	0.4646
16	1.106	4.317	3.167	6.791	0.7785	0.4076
17	0.009627	0.003471	0.01675	0.007893	0.01794	0.001422
18	-23.05	-21.99	-21.49	-23.8	-21.29	-21.98
19	1.265E-10	5.83E-11	3.438E-11	1.8E-10	2.015E-11	6.694E-11
20	-18.37	-18.78	-18.27	-18.68	-19.28	-18
21	1.569E-11	8.81E-11	1.09E-11	5.978E-11	1.288E-10	1.09E-11
22	4	1	1	1	1	1
23	0.06658	0.06359	0.0441	0.0959	0.02601	0.08479
24	0.07015	0.06623	0.0936	0.1059	0.07253	0.05502
25	0.6906	0.7381	0.5482	0.6634	0.5818	0.6654
26	11160000	12930000	13020000	13170000	13080000	13560000
27	14700000	15320000	13370000	13170000	12420000	13530000
28	-12.34	-13.04	-10.06	-13.22	-13.79	-12.96
29	-10.66	-9.858	-11.14	-9.367	-8.964	-8.264
30	-11.66	-13.02	-13.69	-12.12	-11.89	-13.49
31	20	23	4	4	9	26
32	0.0004253	0.0002619	0.05121	0.0001769	0.03021	0.0003556
33	6.46	9.144	6.909	7.511	3.305	2.923
34	264.6	988.9	553.2	498.7	358.7	223
35	0.3321	0.3065	0.6835	0.04069	0.6419	0.5073
36	-0.07775	0.7498	0.1128	-0.4772	-0.1165	0.07574
37	-0.9746	0.1143	-0.4881	-0.1612	-0.522	0.1535
38	-0.1198	-0.7943	-0.1408	-0.3572	-0.1927	-0.2735
39	-0.03885	-0.9203	0.9311	-0.1256	0.7972	0.2026
40	-0.109	-0.0133	0.1785	0.5775	-0.02722	-0.2459
41	0.2302	0.1579	0.4062	0.03509	-0.431	-0.2219
42	-0.146	-0.1761	-0.08577	0.1106	0.8822	0.02375
43	0.1896	0.232	-0.03151	-0.5364	-0.269	0.01462
44	-0.3671	-0.1433	0.2341	-0.3953	-0.001774	0.07081
45	-1.591	-0.2177	1.367	0.1528	0.4919	0.06227
46	1.125	1.548	1.047	1.257	1.066	1.025
47	0.8493	0.257	0.6457	0.6583	0.02529	0.1311
48	1.064	1.771	1.011	1.15	2.038	1.127
49	0.2067	0.4337	0.4917	0.498	0.3471	0.3638
50	0.009767	0.001986	0.001459	0.0004042	0.003918	0.0001009
51	0.103	0.1717	0.1544	0.1619	0.2025	0.121
52	0.01381	0.02231	0.01242	0.01022	0.01596	0.009456
53	7.069	2.579	1.976	3.737	14.34	10.81
54	0.2029	0.1145	0.2902	0.03463	0.4194	0.1587
55	1.682	19.85	4.559	18.45	8.573	1.364
56	4.837	11.45	15.06	18.54	4.184	16.82
57	0.07266	0.2585	0.1731	0.4912	0.2708	0.4372

Table IRES-2. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 1 (Continued)

LHS#	71	72	73	74	75	76
1	1.008E-14	1.295E-15	1.333E-14	1.069E-14	3.754E-15	1.283E-14
2	1	0	0	2	1	2
3	1.794E-09	8.186E-09	8.674E-09	4.797E-09	2.853E-09	9.061E-09
4	3.801E-10	1.316E-10	8.499E-10	1.116E-09	4.282E-10	1.73E-10
5	0.8365	0.9115	0.5435	0.7303	0.2141	0.3614
6	0.1125	0.07677	0.05252	0.1002	0.1405	0.04936
7	0.2351	0.08638	0.4983	0.4206	0.09569	0.2919
8	0.6601	0.7601	0.2917	0.4097	0.7294	0.7936
9	-18.3	-19.34	-19.66	-18.84	-19.04	-18.71
10	-19.88	-18.57	-18.4	-17.71	-19.73	-17.51
11	-19.53	-19.72	-19.47	-19.96	-19.74	-18.53
12	-15.57	-14.68	-15.12	-15.17	-15.47	-16.22
13	0.3696	0.3115	0.6232	0.348	0.7717	0.9203
14	0.2342	0.1945	0.3359	0.3398	0.2937	0.02394
15	0.3048	0.1202	0.1027	0.06486	0.1868	0.4334
16	0.2586	5.768	2.84	4.531	0.8553	4.191
17	0.01237	0.003525	0.001038	0.007336	0.0202	0.002025
18	-22.33	-21.78	-23.21	-23.6	-23.73	-21.32
19	8.459E-11	5.266E-11	1.432E-10	1.642E-10	1.809E-10	1.968E-11
20	-18.55	-19.54	-17.75	-19.65	-18.81	-18.99
21	4.426E-11	1.526E-10	1.09E-11	1.877E-10	8.183E-11	1.058E-10
22	4	1	1	1	4	4
23	0.08604	0.07989	0.09005	0.08029	0.07531	0.0606
24	0.02705	0.01398	0.0671	0.05566	0.03208	0.1235
25	0.6663	0.654	0.5866	0.8418	0.6721	0.631
26	11190000	12180000	11420000	12440000	13300000	13590000
27	14290000	15440000	14370000	12040000	13910000	13740000
28	-14.12	-10.64	-12.29	-11.61	-11.97	-10.92
29	-9.341	-10.76	-9.825	-10.32	-10.15	-10.1
30	-12.61	-11.03	-13.24	-11.3	-13.46	-11.5
31	7	11	8	24	11	1
32	0.01009	0.00009082	0.0002299	0.004268	0.00004178	0.002666
33	2.49	7.557	5.823	0.2882	3.93	5.51
34	937.6	447	207.7	718.9	373.9	450.6
35	0.7627	0.4628	0.9788	0.5535	0.778	0.713
36	-0.3599	-0.021	-0.4417	-0.9475	0.0912	-0.4577
37	-0.05682	-0.8484	-0.08482	-0.1155	0.4272	-0.2481
38	-0.2582	-0.1539	0.04129	0.1054	0.9449	0.2454
39	0.4422	-0.008715	-0.7403	-0.3804	-0.8307	-0.1955
40	-0.9219	0.6961	-1.423	-0.3867	0.5392	-0.8398
41	-1.245	-1.831	-0.0959	-0.0372	-0.3002	0.002755
42	-0.1166	-0.4713	0.5662	0.0593	-0.1559	-0.1638
43	-0.01922	-0.1679	0.1488	-0.3147	-0.007305	-0.1761
44	0.3616	0.1598	0.1277	-0.3787	0.2797	0.02012
45	-0.3204	-0.1018	-0.2352	-0.2878	0.9055	-0.3229
46	0.1094	1.588	0.6948	1.459	1.479	1.372
47	0.6382	0.3896	0.5736	0.4796	0.5877	0.7062
48	1.031	1.096	1.223	1.002	1.103	1.119
49	0.2207	0.138	0.2364	0.2725	0.4075	0.2082
50	0.00215	0.001079	0.004777	0.0009432	0.001842	0.0001847
51	0.1725	0.1005	0.1053	0.1844	0.1657	0.1427
52	0.02934	0.0274	0.01174	0.02184	0.009058	0.02084
53	10.53	15.24	16.66	5.736	3.364	14.22
54	0.06843	0.4603	0.3915	0.4177	0.1206	0.428
55	16.95	15.29	19.01	4.238	5.806	9.339
56	19.92	18.87	1.057	19.3	9.347	12.21
57	0.1434	0.3747	0.06309	0.1581	0.03622	0.3616

Table IRES-2. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 1 (Continued)

LHS#	77	78	79	80	81	82
1	4.214E-15	4.943E-16	1.185E-14	2.845E-15	8.848E-15	7.895E-15
2	2	2	2	1	0	1
3	8.466E-10	7.664E-09	4.512E-09	3.944E-09	5.977E-09	9.258E-10
4	1.148E-09	9.147E-10	3.392E-10	3.509E-10	1.402E-11	5.824E-10
5	0.9474	0.228	0.4606	0.4165	0.5936	0.09411
6	0.06774	0.06551	0.04329	0.131	0.009867	0.1216
7	0.5346	0.4093	0.3345	0.2964	0.3088	0.2244
8	0.9794	0.4834	0.07311	0.6547	0.03048	0.8336
9	-18	-18.58	-18.31	-18.56	-18.16	-20.57
10	-17.47	-18.9	-18.11	-18.92	-18.46	-19.19
11	-20.1	-19.87	-18.89	-18.96	-19.89	-19.63
12	-15.98	-14.46	-14.77	-15.43	-15.41	-14.66
13	0.4691	0.7384	0.2079	0.1916	0.9757	0.06192
14	0.3268	0.07709	0.1851	0.07484	0.3204	0.346
15	0.008922	0.1561	0.07292	0.11	0.4898	0.5877
16	0.3997	4.885	6.968	0.8945	0.4585	0.5553
17	0.01469	0.003013	0.008579	0.01265	0.009751	0.008888
18	-23.75	-21.44	-23.62	-22.31	-21.71	-21.93
19	1.705E-10	3.902E-11	1.781E-10	7.199E-11	5.722E-11	7.097E-11
20	-18.36	-18.7	-19.51	-19.9	-18.96	-19.13
21	1.09E-11	7.044E-11	1.755E-10	2.669E-10	8.352E-11	1.141E-10
22	4	4	1	4	4	4
23	0.106	0.05904	0.03762	0.09237	0.1117	0.07295
24	0.07935	0.04282	0.09695	0.03945	0.08784	0.06812
25	0.6483	0.6444	0.6158	0.5553	0.7082	0.6468
26	11550000	13410000	11460000	13690000	11740000	12910000
27	15410000	12850000	14610000	15670000	15960000	15730000
28	-12.56	-13.53	-12.27	-11.59	-13.12	-12.14
29	-9.062	-9.565	-10.56	-10.08	-9.195	-9.642
30	-11.36	-12.56	-13.11	-13.76	-12.27	-11.16
31	17	21	9	12	20	18
32	0.00004528	0.02162	0.001244	0.00006117	0.04512	0.0002544
33	5.579	7.716	2.663	1.919	7.276	5.668
34	428.2	524.3	802.6	617.5	964.4	606.8
35	0.5897	0.905	0.0347	0.2737	0.5429	0.9205
36	-0.1242	-0.1595	-0.2041	-1.285	-0.2489	0.1336
37	-0.2313	0.6256	-0.4295	0.8837	0.204	-0.1078
38	0.0762	-0.02925	-1.25	-0.693	0.5973	-0.9585
39	0.4517	0.132	-0.2212	1.183	-0.0881	-1.668
40	0.9268	0.2427	-0.08719	0.7636	0.086	-0.1172
41	0.1668	-0.9625	0.0707	-0.001956	0.05863	0.3967
42	-0.7807	-0.4376	-0.4217	-0.1442	-0.1235	-0.3268
43	-0.08267	-1.967	-0.1903	0.7658	-0.0385	-0.3774
44	0.05658	-0.2188	0.2041	0.7767	-0.1337	-0.7676
45	0.0737	-0.2495	-0.000452	-0.6457	0.2692	0.1063
46	1.475	1.377	1.208	0.1963	0.6309	1.453
47	0.5977	0.6836	0.1665	0.01882	0.08302	0.7424
48	1.912	1.745	2.048	1.191	1.666	1.141
49	0.3418	0.3187	0.1728	0.4576	0.4886	0.2815
50	0.004361	0.005398	0.0001539	0.007403	0.001005	0.0002556
51	0.1798	0.132	0.2159	0.1712	0.1673	0.1853
52	0.02644	0.01141	0.01515	0.02555	0.01013	0.01775
53	11.09	16.14	14.75	15.49	19.61	5.143
54	0.2124	0.4733	0.2205	0.3227	0.4897	0.2517
55	7.596	5.467	5.013	5.268	19.54	13.88
56	10.41	14.7	7.863	2.112	3.567	6.091
57	0.2443	0.3766	0.2235	0.1937	0.4007	0.2465

Table IRES-2. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 1 (Continued)

LHS#	83	84	85	86	87	88
1	1.459E-14	7.261E-15	1.134E-14	1.396E-14	9.26E-15	2.655E-15
2	0	0	0	0	0	0
3	6.284E-09	8.807E-09	7.092E-09	8.52E-09	1.501E-09	8.984E-09
4	1.015E-09	3.161E-10	2.307E-10	1.634E-10	4.432E-10	6.191E-10
5	0.6333	0.6818	0.5147	0.6457	0.07191	0.2453
6	0.09727	0.02068	0.004889	0.07372	0.05891	0.08424
7	0.1017	0.3647	0.4732	0.5509	0.5452	0.1312
8	0.8761	0.7305	0.5108	0.4925	0.5098	0.1168
9	-19.74	-19.69	-20.34	-18.73	-19.54	-19.29
10	-17.82	-19.8	-18.95	-18.48	-19.26	-18.25
11	-19.97	-18.86	-20.45	-19.67	-19.32	-18.61
12	-14.84	-14.73	-15.05	-15.19	-15.74	-16.17
13	0.5596	0.9197	0.2143	0.52	0.2852	0.6308
14	0.2635	0.3853	0.1598	0.1883	0.1221	0.3004
15	0.2222	0.09052	0.03535	0.5344	0.01936	0.07162
16	0.6277	0.4941	0.8281	5.169	2.157	0.3506
17	0.01333	0.01733	0.01619	0.02248	0.006061	0.014
18	-21.03	-22.91	-22.49	-23.76	-22.43	-23.88
19	5.972E-12	1.078E-10	1.122E-10	1.72E-10	8.35E-11	1.767E-10
20	-18.9	-19.83	-18.09	-18.22	-18.29	-18.72
21	1.032E-10	2.118E-10	1.09E-11	2.816E-11	1.09E-11	5.283E-11
22	1	4	4	4	1	1
23	0.1184	0.1044	0.07917	0.08546	0.07106	0.07213
24	0.05189	0.08632	0.07655	0.06138	0.1972	0.02232
25	0.6525	0.607	0.6951	0.5642	0.5876	0.573
26	11650000	11900000	11820000	13630000	11330000	11770000
27	11710000	15100000	12580000	14780000	12810000	13020000
28	-11.52	-11.37	-10.51	-11.83	-12.8	-13.78
29	-10.46	-10.03	-10.97	-9.613	-9.847	-9.128
30	-13.52	-12.51	-11.97	-13.73	-11.01	-12.68
31	3	26	13	3	30	31
32	0.0001226	0.1181	0.002903	0.004933	0.0001181	0.04954
33	6.757	5.008	4.09	1.749	2.129	2.561
34	565	51.22	671.9	763.7	854.4	334.8
35	0.5164	0.1188	0.8409	0.7948	0.3824	0.7204
36	0.1041	1.264	-1.235	0.2976	-0.003798	-0.09791
37	0.1289	-0.2396	-0.3367	-0.3168	0.06612	-0.04304
38	-0.173	0.01095	-0.4526	-0.009456	0.1926	-0.07451
39	-0.1735	-0.0346	-0.4975	-0.603	0.1958	-0.47
40	-0.6013	-0.1647	-0.04606	-0.4048	0.2126	-0.4662
41	-0.05304	0.2045	0.5323	-0.7434	-0.1534	0.8008
42	0.3991	-0.1873	-0.3732	-1.116	-0.405	0.1682
43	0.2033	-0.2109	-0.5757	-0.4866	0.1915	0.6124
44	-0.1306	0.1017	0.5182	-0.231	-0.2244	-0.4687
45	-0.1565	-0.9473	0.8884	-0.4688	-0.05961	0.09158
46	1.388	0.8866	0.4821	1.354	1.579	1.407
47	0.4035	0.6993	0.1595	0.178	0.05301	0.6626
48	1.232	1.235	1.157	1.139	1.009	1.185
49	0.4255	0.3795	0.05979	0.2896	0.4022	0.1307
50	0.001278	0.003697	0.001779	0.003384	0.0001135	0.0006862
51	0.2092	0.1868	0.1881	0.1774	0.1607	0.2315
52	0.02632	0.01585	0.002855	0.01746	0.02029	0.02042
53	0.9321	7.449	18.34	9.724	11.93	13.99
54	0.2291	0.04174	0.2726	0.1974	0.2954	0.09315
55	14.76	2.05	15.09	0.9814	14.53	12.35
56	10.82	17.93	13	8.723	1.589	8.271
57	0.1057	0.3594	0.2548	0.4456	0.08624	0.4902

Table IRES-2. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 1 (Continued)

LHS#	89	90	91	92	93	94
1	1.576E-14	8.671E-15	7.552E-15	1.361E-14	5.481E-15	2.949E-15
2	1	1	1	2	0	0
3	1.334E-09	5.536E-09	3.291E-09	2.619E-09	1.973E-09	8.938E-09
4	8.661E-10	5.334E-10	1.246E-09	5.321E-11	7.024E-10	5.644E-10
5	0.2381	0.1402	0.05512	0.6758	0.6616	0.5361
6	0.05636	0.03154	0.08885	0.1432	0.02519	0.06688
7	0.07442	0.1735	0.3201	0.01702	0.1138	0.4769
8	0.3158	0.3928	0.2308	0.6861	0.7809	0.1801
9	-18.03	-19.46	-17.8	-19.4	-18.98	-18.65
10	-18.28	-18.8	-20.1	-19.24	-18.72	-19.16
11	-20.08	-20.88	-20.03	-20.16	-20.77	-20.2
12	-14.81	-15.91	-15.64	-15.23	-16.48	-15.67
13	0.03942	0.2698	0.1286	0.3881	0.9077	0.7482
14	0.05818	0.178	0.3181	0.05067	0.3485	0.2151
15	0.1935	0.06197	0.5964	0.3869	0.2761	0.5452
16	0.4507	1.922	7.557	2.327	0.3832	0.6126
17	0.006585	0.009427	0.02209	0.007214	0.004639	0.02988
18	-23.96	-22.95	-22.57	-22.1	-21.27	-21.13
19	1.851E-10	1.222E-10	1.189E-10	7.486E-11	2.348E-11	9.763E-12
20	-18.44	-19.24	-20.35	-18.95	-18.57	-18.61
21	2.183E-11	1.263E-10	2.75E-10	9.797E-11	3.075E-11	5.426E-11
22	4	4	1	4	1	1
23	0.1063	0.09424	0.07727	0.1474	0.07353	0.08902
24	0.07347	0.05951	0.03364	0.09928	0.07469	0.09082
25	0.7204	0.6533	0.4905	0.6354	0.6416	0.6451
26	13500000	11600000	12040000	12590000	13780000	13440000
27	13950000	16320000	12320000	13150000	14810000	13290000
28	-10.94	-12.72	-11.13	-11.89	-14.22	-11.72
29	-10.53	-9.399	-10.07	-9.928	-9.273	-9.953
30	-12.26	-11.61	-11.82	-11.21	-11.39	-12.75
31	3	28	4	30	2	20
32	0.1462	0.001345	0.002351	0.1716	0.007684	0.0003147
33	1.714	4.206	9.358	2.979	1.36	0.5979
34	13.76	571	318.3	598	178.2	343
35	0.02599	0.9995	0.421	0.9371	0.06998	0.1291
36	-0.328	0.9028	-0.07617	-0.18	-0.2271	0.2148
37	0.221	0.1879	-0.1897	-0.2049	0.1384	-0.2133
38	-0.29	-1.265	-0.2201	0.963	-0.4014	-0.186
39	-0.1588	-0.04709	-0.237	-0.08011	0.03117	0.1618
40	0.2352	-0.1028	-0.4591	-0.1353	-0.1531	-0.1223
41	-0.1904	-0.07373	-0.4597	0.9713	-0.6214	-0.1675
42	0.291	0.8492	0.4707	0.5044	0.1351	-0.03986
43	0.037	0.1221	0.7399	-0.8216	-0.2067	-0.2251
44	-0.02886	0.02778	0.4026	0.59	-0.8688	-0.3433
45	-0.08275	-0.2664	-0.1438	0.04009	0.0137	-0.2087
46	1.535	1.513	1.395	1.437	1.399	1.582
47	0.1024	0.8106	0.5093	0.7152	0.7985	0.1931
48	1.241	1.219	1.082	1.929	1.851	1.058
49	0.0795	0.2696	0.1829	0.3964	0.346	0.05532
50	0.0005933	0.0003008	0.0001197	0.001734	0.0002148	0.002458
51	0.1629	0.1804	0.141	0.1523	0.1519	0.1978
52	0.00125	0.01702	0.01228	0.01089	0.003569	0.01735
53	15.1	4.569	17.03	6.124	15.91	12.02
54	0.3016	0.2389	0.1781	0.1707	0.2412	0.3959
55	15.5	15.01	7.21	14.1	5.501	19.77
56	12.42	5.224	6.334	6.913	4.976	12.58
57	0.2034	0.3457	0.2692	0.2108	0.1242	0.04813

Table IRES-2. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 1 (Continued)

LHS#	95	96	97	98	99	100
1	4.441E-15	1.254E-15	1.486E-14	1.469E-14	9.806E-16	1.097E-16
2	1	0	0	0	0	2
3	3.862E-09	2.24E-09	6.038E-10	5.186E-09	7.499E-09	3.358E-09
4	1.131E-09	8.343E-11	1.423E-10	1.066E-11	7.355E-10	9.434E-10
5	0.1006	0.5822	0.9593	0.2514	0.8278	0.7885
6	0.1278	0.07529	0.1425	0.02273	0.1378	0.01874
7	0.08212	0.2137	0.4866	0.2562	0.3789	0.04031
8	0.3024	0.1398	0.2806	0.5977	0.925	0.8128
9	-18.36	-18.1	-17.93	-17.75	-17.86	-19.01
10	-17.8	-18.68	-17.92	-18.75	-18.91	-19.97
11	-19.8	-19.91	-18.78	-19.76	-20.74	-19.65
12	-15.61	-14.57	-14.6	-15.7	-15.02	-14.22
13	0.7547	0.008287	0.9594	0.08757	0.3333	0.8896
14	0.3748	0.1288	0.3547	0.0529	0.0121	0.01677
15	0.3781	0.04215	0.04482	0.1046	0.2352	0.4721
16	0.2467	0.73	3.489	0.329	0.9366	0.602
17	0.003983	0.00838	0.02545	0.009985	0.01581	0.01306
18	-23.27	-21.38	-21.03	-23.03	-21.79	-21.45
19	1.458E-10	2.83E-11	3.353E-12	1.379E-10	3.701E-11	2.595E-11
20	-18.82	-19.39	-18.65	-18.48	-19.08	-19.09
21	5.565E-11	1.495E-10	3.435E-11	2.378E-11	8.634E-11	1.24E-10
22	1	1	4	1	4	4
23	0.08499	0.0713	0.1292	0.0403	0.0745	0.1075
24	0.07079	0.1195	0.1009	0.126	0.06904	0.1462
25	0.6255	0.6814	0.6488	0.6297	0.6023	0.5928
26	11720000	11080000	12430000	12200000	11290000	11810000
27	16060000	13340000	14050000	14230000	13230000	13690000
28	-12.06	-10.8	-11.31	-13.89	-13.3	-14.46
29	-9.594	-10.52	-10.43	-8.766	-8.611	-8.959
30	-12.9	-12.48	-12.46	-12.08	-13.07	-11.96
31	5	2	27	1	19	18
32	0.001132	0.0008014	0.105	0.0001587	0.006006	0.0001085
33	8.242	0.8188	8.067	8.726	8.841	2.343
34	480.5	67.35	406.2	431.9	258.6	735.7
35	0.9649	0.2315	0.3695	0.8981	0.8898	0.6322
36	-0.3503	0.126	-0.02964	0.3523	-0.1871	-0.04512
37	-0.4213	0.04593	-0.01926	0.0863	0.227	-0.817
38	-0.3877	0.4947	-0.6482	0.238	-0.1606	-0.1126
39	0.1791	-0.4502	-0.3193	0.0212	-0.9811	0.1201
40	0.192	-0.09245	0.04924	-0.746	-0.1281	-0.2153
41	0.7379	-0.1394	-0.107	0.02279	-0.2622	0.4722
42	-0.1933	0.7471	-0.2736	-0.1045	0.09932	-0.5502
43	-0.3698	0.4534	0.2777	-0.1267	-0.3983	0.8417
44	-0.4352	-1.625	-0.2609	0.9484	0.008929	-0.05308
45	0.1098	-0.02363	0.0553	-0.4424	-0.2232	-0.1918
46	1.451	0.5794	0.926	1.484	1.503	1.56
47	0.1422	0.297	0.7575	0.5378	0.006549	0.4603
48	1.053	1.513	1.028	1.238	1.055	1.157
49	0.07646	0.4496	0.1149	0.3204	0.1121	0.08905
50	0.001331	0.001538	0.000344	0.0008874	0.000526	0.0001482
51	0.2227	0.1173	0.1182	0.1174	0.1634	0.1129
52	0.01897	0.02005	0.02359	0.0197	0.004721	0.0005612
53	12.21	3.797	4.125	13.45	1.735	16.19
54	0.1845	0.208	0.3135	0.1499	0.4322	0.1033
55	3.564	1.593	1.866	7.154	2.591	6.707
56	19.08	13.15	6.542	12.11	2.581	17.47
57	0.3505	0.3072	0.2633	0.05751	0.4772	0.4135

Table IRES-3. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 2

LHS#	Material	Parameter	1	2	3	4
1	STEEL	CORRMCO2	2.681E-15	4.002E-15	7.336E-15	1.319E-14
2	WAS_AREA	PROBDEG	2	2	1	2
3	WAS_AREA	GRATMICI	6.003E-09	9.277E-09	3.402E-09	5.008E-09
4	WAS_AREA	GRATMICH	1.214E-09	8.389E-10	1.101E-09	3.64E-11
5	CELLULS	FBETA	0.3166	0.7173	0.4054	0.2284
6	WAS_AREA	SAT_RGAS	0.1032	0.146	0.03963	0.004825
7	WAS_AREA	SAT_RBRN	0.2165	0.4386	0.1844	0.07472
8	WAS_AREA	SAT_WICK	0.8136	0.9899	0.5983	0.2636
9	CL_L_T1	PRMX_LOG	-19.59	-18.01	-19.17	-18.22
10	CONC_T1	PRMX_LOG	-18.39	-18.99	-18.58	-17.42
11	ASPHALT	PRMX_LOG	-19.24	-19.73	-18.91	-20.2
12	SHFT_DRZ	PRMX_LOG	-14.55	-14.6	-14.65	-15.04
13	SALT_T1	CUMPROB	0.1256	0.2631	0.4918	0.2529
14	SALT_T1	SAT_RGAS	0.1999	0.3875	0.3221	0.3948
15	SALT_T1	SAT_RBRN	0.1036	0.3129	0.3967	0.3399
16	SALT_T1	PORE_DIS	0.7288	1.568	4.752	6.721
17	S_HALITE	POROSITY	0.002122	0.0157	0.0232	0.00635
18	S_HALITE	PRMX_LOG	-21.11	-21.37	-21.52	-22.1
19	S_HALITE	COMP_RCK	7.472E-12	2.72E-11	4.081E-11	8.106E-11
20	S_MB139	PRMX_LOG	-19.01	-18.89	-19.1	-19.1
21	S_MB139	COMP_RCK	1.156E-10	6.39E-11	1.073E-10	8.07E-11
22	S_MB139	RELP_MOD	1	4	1	1
23	S_MB139	SAT_RBRN	0.09029	0.09525	0.01177	0.0776
24	S_MB139	SAT_RGAS	0.08968	0.05632	0.06345	0.02071
25	S_MB139	PORE_DIS	0.6701	0.6089	0.652	0.7005
26	S_HALITE	PRESSURE	12490000	11320000	11220000	12090000
27	CASTILER	PRESSURE	13400000	12310000	16590000	12470000
28	CASTILER	PRMX_LOG	-12	-12.18	-10.59	-11.85
29	CASTILER	COMP_RCK	-10.38	-9.459	-11.16	-8.743
30	BH_SAND	PRMX_LOG	-13.17	-11.18	-11.39	-12.65
31	CASTILER	GRIDFLO	19	23	6	17
32	BLOWOUT	PARTDIA	0.01663	0.0383	0.0013	0.00009838
33	BOREHOLE	TAUFAIL	2.715	9.718	6.384	8.999
34	CULEBRA	MINP_FAC	359.6	406.1	793.2	280.2
35	GLOBAL	TRANSIDX	0.6583	0.9762	0.4418	0.1064
36	SOLAM3	SOLSIM	-0.4552	0.01046	0.1076	0.9686
37	SOLAM3	SOLCIM	0.7633	-0.1296	-0.9505	0.02868
38	SOLPU3	SOLSIM	-0.04413	-0.1357	-1.379	-0.1927
39	SOLPU3	SOLCIM	-0.4943	0.2926	0.2395	-0.4617
40	SOLPU4	SOLSIM	1.128	-0.295	0.1322	-0.1586
41	SOLPU4	SOLCIM	0.4518	-0.06731	0.254	-0.09627
42	SOLU4	SOLSIM	-0.3395	-0.3239	-0.144	-0.1593
43	SOLU6	SOLSIM	-1.269	-0.09545	-0.142	-0.1908
44	SOLU6	SOLCIM	0.9115	-0.2874	-0.004202	-0.3898
45	SOLTH4	SOLSIM	-0.3427	-0.7559	0.07263	0.2125
46	PHUMOX3	PHUMCIM	0.494	0.3204	1.406	0.2232
47	GLOBAL	OXSTAT	0.8608	0.3213	0.3082	0.8164
48	GLOBAL	CLIMTIDX	1.046	1.112	1.135	1.152
49	CULEBRA	HMBLKLT	0.4556	0.2946	0.3728	0.4047
50	CULEBRA	APOROS	0.001935	0.0005074	0.0003785	0.0007499
51	CULEBRA	DPOROS	0.1755	0.1342	0.137	0.1299
52	U+6	MKD_U	0.02921	0.006248	0.01165	0.007491
53	U+4	MKD_U	8.524	12.52	6.349	2.666
54	PU+3	MKD_PU	0.4322	0.3538	0.3913	0.1632
55	PU+4	MKD_PU	18.8	2.767	14.42	13.7
56	TH+4	MKD_TH	17.67	12.52	6.236	17.73
57	AM+3	MKD_AM	0.1603	0.4972	0.09537	0.365

Table IRES-3. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 2 (Continued)

LHS#	5	6	7	8	9	10
1	1.107E-14	9.976E-15	1.268E-14	7.488E-15	1.575E-14	8.349E-15
2	1	0	2	1	1	0
3	5.485E-09	6.306E-09	8.961E-09	5.244E-09	9.139E-10	9.382E-09
4	7.784E-10	2.695E-10	1.138E-09	4.255E-10	7.168E-10	3.193E-10
5	0.1087	0.0855	0.8149	0.5794	0.4612	0.1991
6	0.1343	0.1437	0.145	0.007197	0.01856	0.06399
7	0.4596	0.244	0.1539	0.1925	0.2852	0.328
8	0.05398	0.08016	0.6061	0.9429	0.7987	0.4
9	-17.56	-17.98	-18.51	-18.33	-19.01	-20.1
10	-17.51	-18.48	-19.17	-18.12	-18.71	-18.98
11	-19.71	-18.74	-20.31	-19.79	-19.98	-19.83
12	-14.19	-15.82	-16.23	-14.54	-15.61	-14.95
13	0.7196	0.8728	0.9458	0.994	0.172	0.1451
14	0.02619	0.2746	0.1373	0.2512	0.2453	0.07411
15	0.4544	0.1665	0.07884	0.08017	0.4176	0.4689
16	0.7958	0.9632	4.979	0.6085	0.3829	4.442
17	0.008702	0.01739	0.01442	0.005963	0.001135	0.02153
18	-23.57	-23.5	-23.72	-22.7	-23.41	-21.43
19	1.667E-10	1.644E-10	1.716E-10	1.037E-10	1.514E-10	3.355E-11
20	-18.32	-18.16	-18.84	-19.72	-19.3	-19.35
21	1.09E-11	1.09E-11	9.389E-11	2.359E-10	1.323E-10	1.463E-10
22	4	4	1	1	4	4
23	0.0913	0.09863	0.05355	0.1615	0.08117	0.1412
24	0.05461	0.01398	0.08694	0.05846	0.09316	0.09171
25	0.5965	0.6005	0.7266	0.647	0.6541	0.6873
26	12530000	13690000	13710000	12180000	12740000	11440000
27	12790000	13650000	13730000	16130000	12510000	13450000
28	-12.67	-10.23	-11.06	-14.51	-10.79	-12.5
29	-9.694	-10.77	-10.63	-8.165	-9.771	-9.137
30	-12.31	-13.15	-12.95	-12.92	-11.26	-11.62
31	1	3	7	9	8	18
32	0.1245	0.02004	0.00005137	0.0002972	0.0002031	0.006999
33	1.864	3.659	2.207	1.537	0.8694	6.245
34	120	921.1	873.9	286.3	326	452
35	0.3056	0.6326	0.7926	0.3656	0.004732	0.8115
36	0.3318	-0.5231	0.01195	0.03257	-1.452	0.2355
37	-0.4121	-0.3397	-0.2057	0.5368	-0.2783	0.221
38	-0.3202	0.234	-0.3485	-0.03599	-0.02195	0.02997
39	0.1111	-1.702	0.8036	0.1626	-0.1268	-0.05529
40	0.2333	-0.4493	0.3789	0.2185	0.01605	-0.2217
41	-0.4234	0.6659	0.7834	0.8841	-0.5403	0.5865
42	-0.03597	0.05831	-0.2374	0.8365	-0.04351	0.1981
43	-1.696	-0.0983	-0.197	0.2261	-0.2787	-0.9528
44	0.04695	0.6979	-0.05753	0.2286	-0.1222	0.7087
45	0.0209	-0.2358	-0.7807	0.8508	-1.123	-0.8664
46	1.408	1.486	1.336	1.566	1.395	1.371
47	0.5185	0.5685	0.2028	0.4228	0.1625	0.01177
48	1.233	1.072	1.237	1.184	1.064	2.154
49	0.09784	0.2085	0.08498	0.4275	0.2446	0.2571
50	0.004442	0.005319	0.002283	0.0004301	0.0003001	0.006426
51	0.1612	0.1211	0.1052	0.1843	0.1661	0.1137
52	0.009632	0.02864	0.000195	0.01899	0.0007683	0.009021
53	3.126	13.79	10.93	11.18	19.47	5.364
54	0.385	0.04495	0.05336	0.1992	0.3414	0.4188
55	15.91	5.436	7.985	7.453	9.009	11.9
56	19.47	6.69	15.99	13.26	5.458	7.94
57	0.03809	0.231	0.4195	0.2599	0.1383	0.05839

Table IRES-3. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 2 (Continued)

LHS#	11	12	13	14	15	16
1	1.477E-14	1.12E-14	1.084E-14	8.242E-15	1.453E-14	7.781E-15
2	1	0	0	0	0	1
3	6.516E-09	9.492E-09	8.605E-09	7.6E-09	6.897E-09	3.728E-09
4	9.48E-10	1.258E-10	5.642E-10	1.046E-09	2.612E-10	1.473E-10
5	0.1233	0.01151	0.3444	0.4547	0.1858	0.803
6	0.117	0.1263	0.07997	0.02562	0.009961	0.1019
7	0.3257	0.3399	0.2721	0.1706	0.3166	0.156
8	0.5596	0.1855	0.9606	0.5603	0.1704	0.9386
9	-18.37	-19.09	-19.31	-17.68	-19.64	-20.45
10	-20.24	-17.69	-17.79	-19.64	-18.86	-19.02
11	-20.6	-20.16	-19.09	-19.26	-20.43	-20.04
12	-16.06	-15.57	-15.77	-15.35	-14.79	-14.31
13	0.8801	0.3088	0.6232	0.802	0.3842	0.3425
14	0.1411	0.2191	0.2243	0.3453	0.1153	0.2868
15	0.2155	0.2069	0.4786	0.3321	0.02723	0.0515
16	5.253	0.6444	0.7037	0.4682	0.5736	6.142
17	0.009996	0.002494	0.001929	0.007957	0.002262	0.02659
18	-21.67	-22.16	-21.42	-21.28	-22.8	-23.96
19	5.761E-11	6.766E-11	3.282E-11	2.314E-11	1.146E-10	1.894E-10
20	-18.18	-19.18	-18.48	-18.73	-18.76	-18.35
21	1.09E-11	1.269E-10	2.696E-11	7.091E-11	6.844E-11	2.179E-11
22	4	1	4	4	1	1
23	0.06459	0.0504	0.06162	0.0873	0.123	0.05938
24	0.07561	0.06523	0.08826	0.07812	0.07899	0.06412
25	0.4905	0.6104	0.6242	0.7173	0.5656	0.6609
26	13520000	13460000	13070000	11360000	12340000	11570000
27	15150000	14230000	13360000	13740000	13690000	12900000
28	-13.51	-12.66	-11.61	-10.69	-11.34	-12.81
29	-8.397	-9.221	-10.27	-9.784	-10.8	-9.259
30	-11.23	-12.67	-12.35	-12.55	-13.04	-11.58
31	30	9	17	2	32	2
32	0.001487	0.0001188	0.1638	0.0001647	0.0009615	0.0004592
33	8.14	4.205	2.119	7.312	6.832	7.737
34	494	58.72	597.8	862.1	476.9	751.8
35	0.322	0.2499	0.8839	0.3163	0.7282	0.7183
36	-1.931	-0.2012	-1.077	-0.0165	0.2142	-0.9263
37	0.8504	-0.05875	-0.4595	-0.1148	-0.2303	-0.809
38	-0.8552	-1.886	0.417	-0.099	-0.07513	-0.03203
39	-0.1666	0.1394	-0.04817	-0.2549	-0.0293	-0.01193
40	0.9936	-0.491	-1.842	-0.009069	0.6931	0.5933
41	-0.02683	0.07568	0.6276	0.03768	-0.6726	-0.1261
42	-0.1511	-0.3911	0.9301	-0.08065	-0.2157	0.8772
43	-0.04246	-0.0807	-0.2667	0.1384	0.7323	0.5675
44	-0.2631	-0.9179	-0.05336	-0.02142	0.6034	0.7759
45	-0.3663	-0.2377	0.02679	0.2765	-0.5096	0.1828
46	1.017	0.399	1.468	0.2938	1.543	0.8124
47	0.4521	0.6164	0.9344	0.1837	0.4069	0.9517
48	1.094	1.002	1.236	2.186	1.157	1.122
49	0.1961	0.2307	0.4323	0.07941	0.1149	0.3087
50	0.002317	0.003715	0.0002251	0.0007607	0.0004006	0.0001909
51	0.1807	0.1797	0.1804	0.1096	0.163	0.1719
52	0.0111	0.02752	0.005064	0.02904	0.02538	0.01833
53	5.042	17.1	17.45	13.36	4.307	3.423
54	0.4867	0.0787	0.4796	0.3625	0.2393	0.2996
55	17.13	3.124	8.561	11.63	2.296	3.738
56	8.074	16.77	13.94	1.721	13.08	19.39
57	0.07465	0.1349	0.2663	0.3751	0.4863	0.15

Table IRES-3. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 2 (Continued)

LHS#	17	18	19	20	21	22
1	1.685E-15	1.214E-14	1.395E-14	4.483E-15	3.527E-15	1.365E-15
2	0	0	1	0	1	2
3	7.326E-09	8.471E-09	4.175E-09	7.01E-09	9.195E-09	4.428E-09
4	1.624E-10	1.062E-09	1.246E-09	8.816E-10	5.39E-10	9.195E-10
5	0.4358	0.7441	0.03722	0.5899	0.8592	0.78
6	0.03477	0.1421	0.1068	0.09098	0.07262	0.09478
7	0.2408	0.0622	0.1969	0.1093	0.3457	0.01712
8	0.2149	0.5898	0.0706	0.6687	0.8001	0.7389
9	-18.31	-19.51	-19.52	-18.63	-20.28	-20.14
10	-19.54	-18.59	-19.51	-17.23	-18.09	-19.92
11	-19.9	-20.02	-19.58	-20.3	-19.92	-20.67
12	-16	-16.65	-14.95	-15.37	-15.07	-15.96
13	0.5233	0.6543	0.4449	0.9227	0.1873	0.7005
14	0.2948	0.3134	0.05092	0.1532	0.2076	0.365
15	0.05425	0.03276	0.1323	0.4986	0.186	0.5646
16	6.273	3.29	0.2984	0.5805	0.7326	1.583
17	0.007477	0.02117	0.0244	0.003708	0.01623	0.01272
18	-21.59	-21.89	-22.23	-23.18	-23.33	-23.85
19	5.259E-11	4.77E-11	9.138E-11	1.437E-10	1.584E-10	1.809E-10
20	-18.43	-19.22	-19.07	-18.66	-17.79	-19.24
21	5.684E-11	1.099E-10	1.164E-10	5.907E-11	1.09E-11	1.362E-10
22	4	4	4	4	1	1
23	0.05205	0.09598	0.09267	0.06986	0.1292	0.1059
24	0.1018	0.07778	0.1223	0.09743	0.08104	0.04525
25	0.6917	0.667	0.7051	0.5762	0.7087	0.5804
26	12510000	13280000	13420000	11050000	12770000	11820000
27	12160000	11690000	15820000	11950000	15200000	12070000
28	-11.91	-11.22	-12.43	-13.68	-11.18	-13.06
29	-9.371	-9.61	-9.714	-9.064	-9.923	-9.163
30	-12.86	-12.37	-13.3	-13.12	-12.07	-13.54
31	11	15	27	1	19	7
32	0.02673	0.01083	0.0002534	0.0005508	0.003791	0.1084
33	2.245	2.601	8.502	3.798	0.519	6.718
34	968.6	33.14	44.65	665.8	448.1	379.6
35	0.4909	0.3927	0.3426	0.6637	0.02125	0.3702
36	-0.07251	0.5015	-0.08383	-0.4884	-0.9644	-0.4803
37	-1.436	-0.06528	-0.8999	-0.08694	1.279	-0.1451
38	0.261	-0.228	-0.01955	-0.4142	-0.1678	0.5949
39	0.2068	-0.09913	-0.8334	-0.1562	-0.2231	-1.072
40	-0.7472	-0.02447	-0.9388	-0.307	0.1904	-0.234
41	-0.1861	-0.3646	-0.05696	-0.4082	0.2186	-0.2549
42	-0.06391	-0.2024	0.216	-0.3021	-1.777	0.1673
43	0.02593	-0.2942	-0.03269	-0.1105	-0.2413	-0.5563
44	-0.07009	0.03495	-0.1012	0.544	-0.1522	-0.184
45	-0.1066	0.165	-0.1836	-0.2448	-0.1492	-0.06292
46	1.474	1.559	1.444	1.174	1.529	1.54
47	0.06576	0.2852	0.3345	0.2435	0.7994	0.4965
48	1.013	1.857	1.084	1.033	1.77	1.982
49	0.2047	0.3845	0.4228	0.4954	0.1178	0.1492
50	0.0003521	0.005218	0.00111	0.001193	0.0009415	0.0008293
51	0.189	0.1676	0.1749	0.1649	0.1433	0.2052
52	0.02056	0.01693	0.02359	0.01386	0.0112	0.01526
53	2.362	18.1	11.89	7.859	4.551	8.551
54	0.4104	0.433	0.3978	0.4608	0.1233	0.06405
55	16.42	1.192	4.372	10.98	11.33	19.41
56	12.92	17.42	8.614	2.355	4.116	8.991
57	0.06043	0.08748	0.3482	0.4508	0.2751	0.1876

Table IRES-3. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 2 (Continued)

LHS#	23	24	25	26	27	28
1	3.897E-15	6.528E-15	6.924E-15	6.266E-15	5.399E-15	4.122E-17
2	2	0	1	2	1	1
3	8.253E-09	2.878E-09	7.738E-09	6.458E-09	3.551E-09	5.831E-09
4	6.818E-10	5.322E-12	4.515E-10	5.927E-10	7.366E-10	9.123E-10
5	0.6664	0.07061	0.9846	0.0008046	0.8204	0.5203
6	0.08155	0.08508	0.02187	0.1124	0.1286	0.1257
7	0.5468	0.09426	0.4776	0.4729	0.4985	0.02866
8	0.46	0.3959	0.4995	0.6127	0.8463	0.2025
9	-19.38	-19.89	-18.84	-18.35	-19.71	-18.95
10	-19.21	-18.51	-18.49	-19.49	-19.29	-18.39
11	-20.24	-19.81	-19.32	-19.1	-18.56	-18.88
12	-16.47	-15.29	-15.94	-15.44	-14.86	-15.72
13	0.04911	0.5794	0.9307	0.6796	0.9176	0.4242
14	0.3073	0.1247	0.1769	0.1232	0.004699	0.3901
15	0.09943	0.3725	0.1275	0.4254	0.1763	0.3879
16	0.6889	3.472	0.2628	8.362	3.047	2.271
17	0.02067	0.007268	0.02035	0.02693	0.004745	0.005727
18	-21.7	-23.09	-23.04	-23.69	-21.93	-21.96
19	5.459E-11	1.314E-10	1.356E-10	1.558E-10	6.632E-11	6.338E-11
20	-18.39	-17.1	-17.86	-18.64	-18.02	-17.15
21	1.339E-11	1.09E-11	1.09E-11	4.758E-11	1.09E-11	1.09E-11
22	4	4	4	1	4	1
23	0.09917	0.07309	0.08223	0.04187	0.1048	0.09791
24	0.1181	0.03054	0.07546	0.1366	0.08049	0.09645
25	0.5728	0.6504	0.6404	0.7721	0.6818	0.5263
26	11970000	13300000	12120000	12200000	13220000	11870000
27	14830000	14490000	14160000	14700000	11790000	16020000
28	-11.4	-11.71	-13.41	-12.46	-12.16	-13.58
29	-10.24	-10.35	-9.031	-9.109	-9.638	-8.27
30	-13.47	-11.83	-11.52	-11.98	-12.87	-12.21
31	1	12	17	11	13	28
32	0.07547	0.00004225	0.0003748	0.0001353	0.0006317	0.00006322
33	2.445	0.1299	6.434	6.001	9.493	9.62
34	313.8	136.9	834.5	827.1	527.4	269.6
35	0.4797	0.8016	0.406	0.9812	0.5701	0.644
36	0.5781	0.447	-0.001601	-0.1034	1.08	-0.1695
37	-0.2466	0.1526	-0.2275	0.05624	-0.1706	-0.2151
38	0.03883	0.8924	-0.1172	-0.175	-0.6602	0.6938
39	-0.4137	0.3129	-0.2902	-0.4396	-0.09505	0.5536
40	0.7012	0.1995	-0.04458	-0.1743	-0.2229	-0.4324
41	0.08682	-0.1979	-0.3168	-0.8685	-1.233	-0.2174
42	-0.1388	-0.5003	-0.6869	-0.03085	-0.8481	-0.6588
43	0.7785	-0.0127	-0.7171	0.8555	-0.2191	0.6309
44	0.06382	0.09633	-0.6152	-0.3463	0.1938	0.1646
45	0.84	-0.1965	-0.1934	-0.4251	0.1205	0.4005
46	1.302	1.401	0.06894	1.554	1.455	1.514
47	0.5813	0.8394	0.156	0.6531	0.9706	0.08368
48	1.083	1.567	1.2	1.205	1.125	1.214
49	0.4897	0.4493	0.3347	0.2689	0.4186	0.1592
50	0.009141	0.0006175	0.0002009	0.008175	0.0001491	0.0002544
51	0.1409	0.1833	0.1706	0.2407	0.1639	0.1694
52	0.00436	0.01572	0.02637	0.02249	0.004785	0.002482
53	6.599	17.94	13.95	9.897	19.04	17.53
54	0.1389	0.4991	0.1488	0.2079	0.03748	0.05496
55	5.1	11.42	8.793	14.57	19.64	9.14
56	2.134	4.509	14.47	11.37	14.74	3.688
57	0.2185	0.3791	0.2638	0.233	0.2439	0.1468

Table IRES-3. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 2 (Continued)

LHS#	29	30	31	32	33	34
1	9.358E-15	1.475E-14	8.625E-15	1.246E-14	1.136E-14	4.413E-15
2	2	1	0	1	0	0
3	2.988E-09	1.103E-09	8.112E-09	1.272E-09	7.134E-09	8.384E-09
4	5.267E-10	4.055E-10	4.686E-10	5.183E-10	2.311E-10	4.965E-10
5	0.4466	0.4867	0.6588	0.4206	0.3514	0.1465
6	0.1482	0.1049	0.03061	0.1334	0.04095	0.06264
7	0.1335	0.07867	0.4332	0.5072	0.2064	0.4037
8	0.349	0.7463	0.3577	0.7176	0.9753	0.02291
9	-18.87	-18.17	-18.59	-18.56	-18.38	-18.65
10	-19.57	-20.01	-18.55	-17.31	-19.36	-17.58
11	-18.8	-19.69	-18.68	-20.03	-19.19	-19.85
12	-14.89	-16.32	-15.91	-14.73	-15.05	-15.23
13	0.3694	0.1938	0.5194	0.99	0.08869	0.6812
14	0.09951	0.2383	0.1486	0.1166	0.03594	0.3114
15	0.1532	0.1952	0.1756	0.02044	0.5391	0.06267
16	0.2754	2.469	0.5156	3.539	1.754	4.081
17	0.006188	0.01694	0.008029	0.009766	0.02431	0.009304
18	-22.29	-22.18	-23.99	-23.01	-21.54	-22.75
19	7.676E-11	8.781E-11	1.916E-10	1.334E-10	3.029E-11	1.252E-10
20	-18.86	-17.62	-19.02	-18.79	-17.57	-19.84
21	9.171E-11	1.09E-11	1.016E-10	6.037E-11	1.09E-11	2.188E-10
22	4	1	1	4	1	1
23	0.1028	0.101	0.06861	0.0559	0.09317	0.09
24	0.03654	0.0522	0.03992	0.07431	0.08204	0.09861
25	0.6287	0.6056	0.5913	0.6235	0.6359	0.6206
26	11190000	13370000	11540000	12420000	11480000	13550000
27	12200000	12560000	13570000	11870000	12670000	14930000
28	-12.38	-14.01	-12.77	-11.16	-10.36	-14.27
29	-9.828	-9.428	-8.918	-9.914	-10.75	-8.998
30	-13.79	-11.51	-13.1	-13.74	-13.99	-13.56
31	32	28	24	32	8	9
32	0.0001847	0.001863	0.05851	0.002207	0.003058	0.1708
33	0.1757	7.61	9.868	6.167	5.434	6.099
34	846	468.1	770.9	858.2	190.6	226.9
35	0.5854	0.1894	0.2919	0.8417	0.7525	0.2351
36	-0.2501	0.8743	0.1668	0.06907	-0.03376	0.6861
37	0.02055	-0.1499	-0.4803	0.5519	0.1022	0.03637
38	0.1	-0.8199	0.3269	0.08807	-0.3838	-0.1827
39	-0.0376	-0.3238	0.175	-0.1101	0.4343	-0.004585
40	0.5491	-0.3495	0.2618	0.006549	-0.2498	-0.1302
41	-0.945	0.9436	0.03461	-0.04269	-0.1482	-0.2884
42	0.5973	0.4078	0.5393	0.02587	0.9984	0.4883
43	0.144	-0.1236	-0.385	0.1651	-1.785	0.2057
44	-0.2491	0.1408	-0.4968	-0.0901	-0.1987	-0.03213
45	0.672	0.6151	-0.9376	0.239	0.2145	-0.03186
46	0.687	1.502	0.563	0.3556	0.4239	0.119
47	0.6948	0.7626	0.9898	0.3404	0.14	0.6227
48	1.72	1.106	1.188	1.193	1.061	1.514
49	0.1643	0.0708	0.3117	0.2905	0.1359	0.4107
50	0.003427	0.002619	0.002725	0.0001832	0.002896	0.0018
51	0.1848	0.1226	0.2273	0.111	0.1895	0.1189
52	0.005193	0.02077	0.0167	0.01345	0.01926	0.001408
53	15.78	9.608	15.18	5.782	3.608	19.7
54	0.3114	0.3741	0.2941	0.274	0.07004	0.3226
55	6.211	19.51	8.287	2.855	12.14	19.05
56	19.14	9.135	3.078	0.9197	3.369	6.831
57	0.4334	0.4568	0.09758	0.1049	0.1285	0.484

Table IRES-3. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 2 (Continued)

LHS#	35	36	37	38	39	40
1	3.069E-15	1.536E-14	9.613E-15	4.795E-15	1.306E-14	6.713E-15
2	0	0	0	0	2	0
3	8.918E-09	1.711E-09	5.867E-09	5.573E-09	1.412E-09	8.137E-09
4	1.228E-09	1.113E-09	5.494E-10	1.01E-09	1.665E-10	9.856E-10
5	0.3323	0.3274	0.7232	0.6283	0.7081	0.7777
6	0.01455	0.07423	0.1108	0.1398	0.05947	0.03736
7	0.1012	0.1631	0.2317	0.482	0.3668	0.05337
8	0.2274	0.8797	0.6361	0.1133	0.3204	0.2434
9	-18.44	-19.43	-18.51	-17.76	-18.61	-19.92
10	-19.89	-17.88	-18.15	-18.92	-18.04	-18.18
11	-20.48	-19.34	-18.35	-20.82	-20.15	-19.03
12	-14.71	-14.41	-15.43	-14.49	-15.51	-14.74
13	0.6447	0.01637	0.7747	0.4684	0.106	0.008147
14	0.08688	0.1331	0.3426	0.2558	0.378	0.09593
15	0.2468	0.01927	0.05686	0.5284	0.2933	0.3094
16	5.421	5.695	5.622	2.569	5.062	7.229
17	0.008282	0.01212	0.02858	0.001439	0.00846	0.01932
18	-21.36	-22.63	-22.61	-22.25	-23.81	-23.47
19	1.717E-11	1.286E-10	9.697E-11	6.422E-11	1.792E-10	1.489E-10
20	-19.21	-18.98	-20.73	-18.51	-18.87	-19.12
21	1.237E-10	1.003E-10	2.75E-10	2.916E-11	8.994E-11	9.604E-11
22	4	1	1	1	4	4
23	0.1127	0.06605	0.02648	0.08883	0.1148	0.06917
24	0.05531	0.09496	0.0706	0.04198	0.06114	0.09516
25	0.6319	0.6842	0.5825	0.7303	0.7121	0.7064
26	11730000	12680000	12050000	12030000	13730000	11640000
27	12270000	13280000	13230000	16440000	14650000	12820000
28	-12.51	-13.48	-12.08	-12.02	-10.65	-11.67
29	-8.493	-8.645	-10.29	-10.44	-10.6	-10.46
30	-12.8	-13.88	-13.58	-12.61	-12.19	-11.72
31	29	9	24	20	26	10
32	0.00007512	0.03399	0.00004522	0.004145	0.007622	0.00005839
33	0.7131	7.044	4.281	9.556	5.326	8.876
34	907.4	652.8	588	486.3	728.5	3.153
35	0.6171	0.8299	0.08732	0.1696	0.6752	0.2856
36	-0.07889	-0.4354	-0.2166	-0.1565	-0.3829	-0.3166
37	-0.3036	0.008955	-0.5319	-0.1879	-0.1213	-0.0132
38	0.05972	0.2155	-0.0103	0.8084	-0.2364	0.2024
39	-0.1679	0.09128	-0.9581	-0.3647	0.6976	-0.1201
40	-0.95	0.1539	-0.08544	-0.03608	-0.2627	-0.01551
41	0.1675	-0.00939	-0.4895	-0.1572	0.4294	0.3058
42	-0.166	-0.9617	-0.7447	0.01957	-0.1843	0.3709
43	-0.1612	-0.0277	-1.025	-0.7557	-0.3216	0.484
44	0.1772	-0.1786	0.4142	-0.04167	-0.1724	-0.2067
45	0.04558	-0.07238	-0.1136	-0.1721	0.08457	-0.04558
46	0.6931	1.393	0.8826	1.547	1.431	0.6536
47	0.8987	0.7874	0.2771	0.756	0.1443	0.4482
48	1.028	2.094	2.029	1.208	1.911	1.099
49	0.2755	0.0867	0.4335	0.3928	0.4964	0.2432
50	0.004828	0.001035	0.0006861	0.000113	0.004031	0.000958
51	0.1873	0.1254	0.1733	0.1473	0.2142	0.1407
52	0.001596	0.01492	0.006953	0.01244	0.003743	0.01362
53	12.95	14.78	6.874	3.299	5.922	18.76
54	0.2444	0.06071	0.4021	0.2155	0.03427	0.1414
55	9.318	7.039	17.42	1.807	16.03	16.89
56	9.611	7.077	11.65	19.72	11.15	2.846
57	0.2942	0.0407	0.4311	0.3424	0.285	0.2472

Table IRES-3. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 2 (Continued)

LHS#	41	42	43	44	45	46
1	7.853E-16	5.855E-15	6.132E-15	1.334E-14	9.467E-15	1.194E-14
2	1	0	0	1	0	1
3	2.904E-09	3.913E-09	1.944E-09	7.9E-10	1.567E-09	8.006E-09
4	4.724E-10	1.176E-09	1.121E-09	8.2E-10	5.796E-10	1.35E-10
5	0.2308	0.5396	0.06401	0.8895	0.9301	0.9971
6	0.05604	0.003661	0.07694	0.1497	0.07037	0.01711
7	0.0369	0.5165	0.3626	0.172	0.5218	0.3542
8	0.2882	0.5437	0.9584	0.1516	0.3358	0.3142
9	-17.7	-17.41	-19.35	-18.99	-20.04	-18.54
10	-18.81	-19.12	-18.83	-18.44	-18.96	-19.81
11	-19.35	-19	-19.78	-19.13	-20.62	-19.73
12	-14.99	-15.11	-15.26	-15.01	-14.69	-15.09
13	0.05062	0.2905	0.6002	0.38	0.5902	0.3275
14	0.11	0.3567	0.3554	0.319	0.2406	0.2771
15	0.008974	0.1582	0.1962	0.06553	0.5966	0.04452
16	0.3308	2.813	4.371	7.464	0.5384	1.324
17	0.01505	0.003886	0.006858	0.02531	0.02513	0.02273
18	-22.8	-21.06	-23.43	-22.86	-22.85	-21.23
19	1.078E-10	9.721E-12	1.57E-10	1.183E-10	1.123E-10	1.397E-11
20	-17.99	-19.27	-18.59	-18.72	-19.55	-18.62
21	1.09E-11	1.497E-10	4.009E-11	7.481E-11	2.096E-10	3.702E-11
22	4	1	4	1	4	4
23	0.06798	0.06491	0.1218	0.1003	0.06656	0.1081
24	0.1248	0.0734	0.09288	0.1161	0.07991	0.07708
25	0.6278	0.6412	0.6477	0.6175	0.6591	0.6606
26	12820000	12970000	12880000	12310000	13650000	13540000
27	12230000	12750000	13850000	13100000	13200000	12930000
28	-11.69	-12.22	-11.44	-13.33	-11.27	-13.76
29	-10.35	-10.11	-9.846	-8.964	-9.73	-10.03
30	-11.02	-11.05	-11.67	-13.03	-11.17	-13.88
31	21	21	2	5	23	7
32	0.08714	0.0002367	0.001693	0.0006728	0.05097	0.000762
33	3.906	1.162	3.151	1.551	5.027	6.707
34	886.6	74.35	788.8	178.7	543.3	365.6
35	0.09558	0.5424	0.4259	0.1538	0.7698	0.6884
36	-0.1132	-0.3445	0.9412	-0.1185	0.14	-0.3999
37	0.8316	0.1281	-0.0919	-0.1111	-0.2396	-0.4036
38	-0.713	-0.1632	0.3794	-0.4438	-0.05379	0.4551
39	-0.14	-0.18	-0.2336	-0.7878	0.1478	-0.06659
40	-0.1937	0.05813	0.6105	-0.064	0.1661	-0.07262
41	-0.1935	-1.468	-0.3391	0.7281	0.5372	-0.4606
42	0.2309	-0.02241	0.6853	-0.0009286	-0.5863	0.001039
43	-0.1478	-0.06498	-0.205	-0.1758	0.5116	-0.4914
44	-0.2696	0.1807	-0.2166	-0.4745	0.0519	-0.5725
45	0.194	-0.02054	-0.4772	-0.2604	0.5353	-0.2943
46	0.5981	1.576	0.8562	1.379	1.353	1.497
47	0.2175	0.8553	0.006882	0.6033	0.681	0.7036
48	1.18	1.24	1.069	1.02	1.018	1.103
49	0.3186	0.3253	0.214	0.329	0.1101	0.4076
50	0.0001602	0.004347	0.0001266	0.0002462	0.0002102	0.0003387
51	0.2466	0.1874	0.1496	0.1186	0.1855	0.1583
52	0.007925	0.003155	0.02967	0.02009	0.00676	0.02506
53	16.77	9.08	18.64	10.66	16.62	9.223
54	0.2663	0.0203	0.1502	0.2357	0.4164	0.3683
55	5.135	7.74	10.77	8.395	17.92	3.382
56	3.828	6.356	18.48	4.85	8.778	4.602
57	0.2722	0.3585	0.404	0.3883	0.3053	0.1945

Table IRES-3. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 2 (Continued)

LHS#	47	48	49	50	51	52
1	1.236E-14	3.554E-16	4.216E-15	2.738E-15	1.298E-14	9.128E-15
2	0	2	0	1	1	0
3	6.201E-10	3.165E-09	2.423E-09	1.998E-09	1.234E-09	2.262E-09
4	1.077E-09	3.321E-10	2.222E-10	4.428E-10	7.673E-10	1.108E-10
5	0.05104	0.4901	0.472	0.6092	0.3864	0.02198
6	0.04724	0.05132	0.000557	0.1083	0.1005	0.007851
7	0.4152	0.2939	0.3057	0.5342	0.05689	0.1808
8	0.765	0.7521	0.7874	0.8902	0.4408	0.1647
9	-18.2	-18.08	-18.25	-18.79	-19.05	-19.23
10	-18.01	-18.42	-19.73	-18.9	-18.79	-18.89
11	-20.41	-20.13	-19.37	-19.64	-20.09	-19.62
12	-15.01	-14.97	-16.8	-15.15	-14.88	-15.38
13	0.4717	0.1157	0.9559	0.5071	0.7481	0.7251
14	0.2039	0.2237	0.07983	0.08207	0.03974	0.1568
15	0.2178	0.573	0.4081	0.5072	0.5839	0.04092
16	4.125	0.3008	0.8937	0.5027	0.2059	0.7764
17	0.02289	0.01414	0.005122	0.01881	0.0222	0.01806
18	-21.76	-22.97	-21.19	-21.87	-22.06	-21.81
19	4.592E-11	1.167E-10	1.959E-11	4.939E-11	7.973E-11	5.172E-11
20	-18.29	-18.55	-18.91	-20.27	-19.52	-19.31
21	1.09E-11	3.44E-11	9.712E-11	2.621E-10	1.699E-10	1.426E-10
22	1	4	4	1	4	4
23	0.1173	0.07218	0.05653	0.08003	0.06218	0.08274
24	0.08613	0.1104	0.07274	0.1196	0.03697	0.06701
25	0.6573	0.6137	0.6654	0.6182	0.6533	0.6069
26	13200000	12360000	12260000	12460000	12590000	11090000
27	13310000	13950000	12370000	15110000	14560000	13610000
28	-13.8	-12.96	-13.37	-12.11	-11.63	-12.54
29	-8.71	-8.957	-9.808	-10.53	-10.06	-9.503
30	-12.16	-13.38	-13.66	-11.88	-13.93	-11.15
31	22	30	11	5	16	6
32	0.005218	0.0001272	0.006338	0.008628	0.02355	0.03254
33	9.392	0.4413	7.627	6.928	4.566	5.804
34	341.8	503.1	170.7	420.9	914.9	627.5
35	0.5224	0.5589	0.4196	0.1948	0.01215	0.7845
36	-0.6791	-0.2286	-0.11	0.08277	0.2597	0.08889
37	-1.905	-0.6981	-0.0347	0.2612	0.1425	0.1602
38	0.9519	-0.7591	0.1817	0.1539	0.9431	-0.4677
39	0.09656	-0.62	0.0005594	-0.1387	0.1909	-0.7727
40	0.07311	0.1732	0.9192	-0.332	-0.02939	-0.6899
41	-0.1192	-0.02792	0.3501	0.1632	-0.1756	0.137
42	-0.2654	0.09558	-0.1939	-0.171	-0.4245	-0.4819
43	0.1039	-0.4585	0.3582	-0.3113	0.119	0.2354
44	0.2936	-0.7059	-0.4577	-0.07904	-0.2346	-0.2246
45	-0.174	-0.08624	-0.9821	0.9879	-0.225	0.1148
46	1.063	1.526	1.215	1.429	0.9048	1.467
47	0.1224	0.8865	0.5018	0.5904	0.07717	0.3992
48	1.211	2.065	1.169	1.196	1.163	1.147
49	0.274	0.1352	0.4511	0.06517	0.347	0.1796
50	0.002493	0.0004398	0.00218	0.001094	0.009114	0.001399
51	0.1682	0.1002	0.1122	0.199	0.1861	0.1037
52	0.008194	0.01969	0.005784	0.01306	0.01284	0.002936
53	6.245	10.58	15.37	19.88	7.622	3.865
54	0.221	0.2474	0.04221	0.2524	0.2596	0.1583
55	13.46	12.43	9.605	0.9991	14.95	4.808
56	7.384	1.861	14.95	14.45	1.217	15.23
57	0.2518	0.208	0.05176	0.1752	0.4468	0.3286

Table IRES-3. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 2 (Continued)

LHS#	53	54	55	56	57	58
1	8.808E-15	9.717E-15	8.999E-15	1.545E-14	1.355E-14	3.462E-15
2	0	0	2	2	0	2
3	5.678E-09	4.892E-09	4.055E-09	5.101E-09	5.465E-09	4.275E-09
4	8.718E-10	6.266E-10	1.897E-10	2.505E-10	1.187E-09	2.022E-10
5	0.2605	0.2756	0.3781	0.1185	0.8485	0.6938
6	0.05542	0.1142	0.06538	0.06798	0.02006	0.02533
7	0.2516	0.2789	0.001879	0.3914	0.08617	0.04539
8	0.102	0.4786	0.6293	0.6963	0.7078	0.9048
9	-20.54	-20.7	-19.41	-18.97	-19.15	-17.95
10	-20.09	-17.96	-19.2	-19.96	-18.33	-18.54
11	-18.7	-19.97	-19.48	-19.59	-19.46	-18.65
12	-14.43	-15.14	-15.2	-14.61	-15.59	-14.76
13	0.4368	0.218	0.842	0.8267	0.3931	0.8982
14	0.3988	0.09101	0.06057	0.2714	0.3313	0.2614
15	0.2582	0.1487	0.2496	0.1376	0.1281	0.5545
16	0.1956	0.2141	7.938	0.4233	7.837	0.4454
17	0.01766	0.003044	0.00179	0.003182	0.00356	0.006971
18	-22.71	-21.79	-22.57	-21.07	-22.39	-22.66
19	1.221E-10	4.406E-11	9.418E-11	4.849E-12	9.36E-11	1.053E-10
20	-18.27	-18.96	-19.03	-19.56	-18.7	-19.68
21	1.09E-11	1.027E-10	1.1E-10	1.88E-10	6.285E-11	1.73E-10
22	1	1	4	1	4	4
23	0.07389	0.04665	0.08617	0.07363	0.112	0.08491
24	0.08947	0.03259	0.1283	0.09135	0.08314	0.1312
25	0.6861	0.5868	0.5449	0.6209	0.6555	0.6756
26	13820000	13460000	12940000	12860000	12780000	13790000
27	12760000	12940000	14780000	14080000	12670000	14250000
28	-14.15	-13.03	-10.07	-11.73	-10.88	-12.73
29	-8.612	-9.521	-10.91	-9.576	-10.65	-9.48
30	-12.41	-11.09	-13.23	-12.74	-12.13	-13.51
31	27	3	6	3	19	14
32	0.0008651	0.05183	0.01432	0.00241	0.02029	0.001396
33	2.989	8.694	9.935	5.168	2.929	0.7694
34	933.3	645.4	631.2	765.3	735.8	110.4
35	0.1769	0.6932	0.04818	0.9257	0.2005	0.6094
36	0.05518	-0.0933	-0.2487	-0.02767	-0.05007	-0.03923
37	0.1093	0.06521	0.3083	-0.334	-0.661	-0.1553
38	0.731	-0.1393	-0.1239	0.008252	-0.2003	-0.08387
39	0.7587	-0.2407	0.06458	0.04044	0.9601	0.07307
40	-0.5943	-0.388	-0.4101	-0.1083	-0.2397	-0.6289
41	-0.2119	-1.84	-0.4765	1.203	-0.01557	-0.5659
42	-0.2814	0.3367	-0.2305	0.1833	-0.09774	-0.4896
43	-0.4066	-0.06214	-0.2491	-0.172	0.6636	0.0637
44	-0.01526	-0.3291	0.3366	0.09098	-1.164	-0.1566
45	0.3761	0.153	-0.05882	-0.3072	0.004451	-0.3287
46	0.476	1.555	1.492	1.42	1.518	1.44
47	0.8027	0.04419	0.9676	0.913	0.5764	0.2926
48	1.017	2.205	1.08	1.217	1.691	1.244
49	0.2811	0.09305	0.375	0.09979	0.1899	0.05371
50	0.003607	0.004681	0.001364	0.0001413	0.009551	0.0003124
51	0.1087	0.1163	0.117	0.1782	0.1819	0.1378
52	0.01442	0.01755	0.00212	0.01772	0.02651	0.02399
53	7.154	4.431	2.203	19.07	14.55	0.9982
54	0.128	0.1066	0.4406	0.1131	0.4906	0.4754
55	2.07	12.81	4.542	18.47	11.13	9.917
56	16.63	9.395	8.414	1.298	15.5	17.3
57	0.02577	0.2222	0.4136	0.4242	0.4717	0.159

Table IRES-3. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 2 (Continued)

LHS#	59	60	61	62	63	64
1	1.48E-15	2.42E-16	9.056E-16	3.219E-15	1.401E-14	1.565E-14
2	0	1	0	0	0	1
3	4.637E-09	8.723E-09	5.583E-10	7.523E-09	5.291E-09	3.532E-09
4	2.959E-10	1.232E-09	9.7E-10	9.191E-11	8.08E-10	3.896E-10
5	0.2565	0.2044	0.3044	0.752	0.6728	0.9167
6	0.1307	0.05098	0.06724	0.1355	0.0126	0.02959
7	0.4219	0.3832	0.544	0.2114	0.3145	0.443
8	0.9953	0.4507	0.6485	0.1493	0.2908	0.5172
9	-19.12	-18.11	-19.21	-19.83	-18.15	-18.12
10	-19.03	-19.68	-19.11	-18.86	-18.68	-18.27
11	-18.42	-19.88	-19.07	-19.83	-19.15	-19.96
12	-14.84	-15.54	-16.04	-15.23	-15.85	-15.41
13	0.4119	0.02437	0.3568	0.9044	0.2873	0.455
14	0.1814	0.06537	0.03	0.1938	0.07027	0.1636
15	0.02835	0.4836	0.07253	0.4392	0.1073	0.2724
16	0.2379	0.5479	8.22	0.8009	0.3502	0.6688
17	0.01557	0.007743	0.001254	0.001606	0.02891	0.01854
18	-21.72	-23.9	-23.4	-21.63	-21.91	-23.2
19	3.9E-11	1.865E-10	1.536E-10	3.882E-11	5.996E-11	1.388E-10
20	-19.25	-19.41	-19.38	-18.85	-18.06	-18.57
21	1.378E-10	1.404E-10	1.302E-10	7.612E-11	1.09E-11	5.302E-11
22	4	1	4	1	1	4
23	0.1038	0.07176	0.04836	0.07833	0.08377	0.119
24	0.06955	0.02589	0.04584	0.113	0.08321	0.05934
25	0.699	0.65	0.561	0.7442	0.6359	0.4905
26	13860000	13400000	11680000	12230000	12890000	12130000
27	13490000	12340000	13430000	11540000	13050000	12100000
28	-11.3	-11.54	-13.2	-11.8	-11.95	-10.55
29	-10.09	-9.982	-9.194	-10.22	-8.852	-10.99
30	-12.46	-13.96	-13.43	-11.39	-11.95	-12.75
31	23	10	14	29	2	21
32	0.002052	0.0002614	0.0001035	0.004349	0.01197	0.00008655
33	8.592	8.763	3.042	9.054	9.158	5.837
34	577.2	953.3	818.9	603.7	977.9	68.95
35	0.05485	0.03305	0.5668	0.07101	0.4806	0.623
36	-0.2788	-0.1772	-0.2295	-0.01228	0.1903	-0.1392
37	0.2396	-0.04025	-0.01636	-1.603	0.6647	0.1783
38	-0.1488	-1.593	0.1192	0.1702	0.07333	-0.09374
39	-0.2031	0.9467	-0.2846	-1.258	-0.6001	-0.5371
40	-0.529	-0.09373	-0.2043	0.7501	0.413	-1.725
41	-0.04079	-0.1035	0.9755	0.2349	-0.07454	0.05367
42	0.2458	0.06726	-0.4006	-0.09289	-0.819	-0.1122
43	0.9371	0.9914	-0.5147	-0.1277	-0.4359	0.3157
44	-0.06592	0.3981	0.01364	0.003433	-0.7271	0.8652
45	-0.6264	-0.1591	1.079	0.9387	-0.09087	-0.3945
46	0.254	1.569	1.439	1.251	1.584	0.7286
47	0.1732	0.648	0.03857	0.193	0.8211	0.5547
48	1.183	1.131	1.114	1.172	1.248	1.117
49	0.4768	0.3493	0.2494	0.223	0.3689	0.1059
50	0.001224	0.0001697	0.00583	0.007602	0.0001792	0.0003206
51	0.1526	0.1021	0.1698	0.113	0.1829	0.1445
52	0.01012	0.01886	0.02431	0.006541	0.01423	0.009332
53	1.51	12.12	6.682	12.62	11.46	12.19
54	0.197	0.3177	0.1804	0.4426	0.4551	0.07459
55	18.87	1.648	7.941	6.016	7.321	6.653
56	13.64	8.263	18.03	3.441	12.02	10.73
57	0.1886	0.2892	0.3526	0.08509	0.4587	0.06752

Table IRES-3. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 2 (Continued)

LHS#	65	66	67	68	69	70
1	9.71E-16	2.42E-15	7.621E-15	6.246E-16	1.021E-14	1.374E-14
2	0	0	0	2	2	2
3	1.504E-09	3.824E-09	2.533E-09	2.158E-09	4.731E-09	4.777E-09
4	6.152E-10	3.723E-10	8.542E-10	4.627E-11	7.931E-10	5.726E-11
5	0.9674	0.8386	0.1614	0.568	0.511	0.5457
6	0.1216	0.09845	0.07178	0.09671	0.138	0.09417
7	0.1428	0.3932	0.2556	0.3505	0.5373	0.3354
8	0.2558	0.7275	0.8891	0.3708	0.4201	0.5092
9	-18.06	-19.25	-17.91	-17.91	-18.27	-18.28
10	-17.63	-18.76	-19.84	-18.21	-19.38	-18.63
11	-20.51	-19.21	-20.11	-20.06	-19.42	-19.67
12	-15.47	-15.3	-15.17	-14.39	-16.3	-15.62
13	0.7373	0.2463	0.2317	0.4805	0.6637	0.1562
14	0.2351	0.2981	0.1656	0.2644	0.3723	0.1072
15	0.09484	0.1882	0.1437	0.08586	0.1101	0.2647
16	0.8165	0.8806	7.098	0.902	1.993	0.9493
17	0.02979	0.01187	0.006511	0.009034	0.02616	0.02596
18	-21.13	-22.28	-22.41	-21.46	-22.35	-22.55
19	1.211E-11	8.456E-11	9.796E-11	2.881E-11	7.516E-11	1.013E-10
20	-19.07	-18.94	-18.52	-18.44	-20.14	-19.14
21	8.466E-11	8.207E-11	4.999E-11	3.095E-11	2.75E-10	1.276E-10
22	4	4	1	1	1	4
23	0.08138	0.08466	0.08799	0.04041	0.1068	0.05832
24	0.06542	0.01398	0.1417	0.06825	0.06203	0.15
25	0.615	0.6387	0.5566	0.6947	0.5462	0.593
26	13030000	12280000	13340000	13120000	11900000	11180000
27	14320000	14470000	14600000	11780000	13530000	14410000
28	-11.96	-13.18	-12.13	-10.28	-11.12	-11.81
29	-9.544	-9.343	-9.305	-10.57	-10.15	-10.17
30	-12.01	-11.86	-13.77	-13.37	-11.91	-11.29
31	5	8	24	25	12	26
32	0.003547	0.0001503	0.02568	0.06092	0.001735	0.0001976
33	2.368	4.954	2.754	6.597	4.63	4.809
34	569.4	702.6	539.5	26.81	234.6	897.1
35	0.2543	0.2151	0.1292	0.2719	0.06111	0.1145
36	0.04527	-0.1492	0.7799	-0.2134	-0.322	0.1457
37	-0.07629	0.08577	-0.4864	-0.2514	0.6375	-0.04295
38	-0.2449	-0.06017	-0.1043	0.1126	0.2479	1.287
39	0.1233	-0.2179	-0.3969	-0.08143	1.26	0.2271
40	0.1009	-0.06231	-0.1245	0.839	-0.873	-0.1346
41	-0.345	-0.1641	0.1016	0.1885	-0.167	-0.2471
42	0.1123	1.301	-0.1955	-0.2143	-0.1787	-0.02034
43	0.8376	-0.04933	-0.1161	0.05587	0.09118	-0.4748
44	1.384	-0.788	-0.1079	-0.8665	-0.3097	0.1129
45	-0.6975	-1.259	-0.1317	-0.009073	0.139	-0.164
46	0.5261	1.192	0.2199	1.578	1.461	1.506
47	0.9444	0.5366	0.7178	0.1015	0.2261	0.6369
48	1.668	1.056	1.923	1.006	1.13	1.109
49	0.07362	0.05499	0.3391	0.1687	0.3618	0.3597
50	0.0068	0.006232	0.0008322	0.00166	0.0001258	0.007133
51	0.2232	0.1176	0.1539	0.1885	0.1158	0.1018
52	0.02205	0.0006231	0.008693	0.02325	0.02601	0.02564
53	10.36	9.77	9.433	7.585	5.647	17.14
54	0.1324	0.3765	0.3591	0.171	0.4846	0.09052
55	6.569	14.25	6.418	10.32	15.27	13.23
56	10.58	18.12	16.49	10.07	10.36	18.77
57	0.111	0.491	0.3377	0.4709	0.04664	0.3973

Table IRES-3. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 2 (Continued)

LHS#	71	72	73	74	75	76
1	2.307E-15	2.035E-15	1.174E-14	1.274E-14	1.041E-14	7.243E-15
2	1	0	0	0	2	2
3	1.606E-09	4.482E-10	3.173E-09	4.477E-09	2.124E-09	3.629E-09
4	2.068E-10	9.273E-10	6.376E-10	6.02E-10	8.963E-10	7.313E-10
5	0.09795	0.6155	0.8703	0.9009	0.8672	0.5535
6	0.1053	0.06045	0.1157	0.1292	0.05305	0.05757
7	0.1272	0.409	0.2921	0.007353	0.2249	0.4525
8	0.5261	0.8234	0.4308	0.04902	0.03875	0.09121
9	-18.71	-20.17	-19.47	-18.89	-18.03	-20.6
10	-20.19	-18.61	-18.35	-19.24	-18.7	-18.24
11	-19.93	-20.36	-20.28	-19.53	-19.76	-20.21
12	-15.13	-15.67	-16.44	-15.78	-16.09	-16.54
13	0.7565	0.5493	0.2232	0.5518	0.8645	0.1386
14	0.2111	0.3369	0.3639	0.2289	0.04538	0.003778
15	0.4948	0.359	0.1478	0.1225	0.2349	0.2288
16	0.6394	1.012	0.1353	0.844	0.8622	2.68
17	0.01996	0.006671	0.002665	0.005495	0.01345	0.008755
18	-23.34	-22.01	-22.12	-21.27	-21.48	-21.02
19	1.62E-10	7.304E-11	6.948E-11	2.138E-11	5.807E-11	4.574E-12
20	-19.44	-18.82	-17.95	-19.92	-18.33	-18.69
21	1.555E-10	7.772E-11	1.09E-11	1.605E-10	1.09E-11	5.36E-11
22	1	4	4	4	1	4
23	0.1363	0.07618	0.03028	0.07048	0.07576	0.1095
24	0.02862	0.04709	0.1046	0.1148	0.05043	0.0494
25	0.5898	0.6797	0.6127	0.6645	0.8418	0.6339
26	12990000	13260000	11150000	11410000	13180000	12400000
27	14350000	13150000	15620000	15340000	13990000	15890000
28	-10.81	-12.98	-10.95	-12.36	-12.23	-11.05
29	-10.47	-9.656	-9.951	-8.836	-9.971	-10.18
30	-11.7	-13.32	-13.69	-13.64	-12.69	-13.72
31	18	19	25	26	7	14
32	0.0005007	0.00114	0.003181	0.1187	0.0005873	0.00008217
33	5.319	8.372	4.033	7.164	8.094	3.515
34	211.4	332.3	256.5	397.6	244.8	741.8
35	0.8657	0.9345	0.8739	0.5931	0.918	0.3599
36	-0.3587	0.8199	0.6085	-0.8875	-1.526	-0.1816
37	-1.168	0.2283	0.4115	-0.1741	0.9679	-0.863
38	-0.9452	-0.8955	-0.1259	-0.5484	0.1419	-0.3707
39	-0.1931	0.02755	-0.15	0.2202	-0.3058	0.05473
40	0.2469	-1.137	-0.1132	0.2029	-0.7906	-0.1868
41	-0.4302	-0.04942	0.2487	-0.8123	-0.1355	-0.2231
42	-0.1213	-1.59	0.7437	-0.0861	0.08884	-0.1283
43	-0.2247	-0.8683	0.2979	-0.3395	0.0002952	-0.004864
44	-0.1614	-0.1148	-0.1385	0.2204	0.244	-0.9601
45	0.2312	-0.5937	-0.03752	-0.09768	0.7688	0.09712
46	0.1644	1.099	1.036	1.279	0.1911	0.3304
47	0.2372	0.7289	0.3128	0.5434	0.3739	0.355
48	1.769	1.04	1.625	1.034	1.227	1.229
49	0.4793	0.1535	0.2988	0.1282	0.2648	0.2177
50	0.0005639	0.005749	0.000382	0.0002787	0.002779	0.0001019
51	0.159	0.1769	0.1513	0.1561	0.1196	0.1791
52	0.02428	0.0299	0.01643	0.02765	0.01727	0.008925
53	19.38	8.796	5.125	11.23	14.39	8.154
54	0.167	0.4255	0.4073	0.02577	0.4661	0.2902
55	5.591	3.456	15.2	16.21	10.54	16.69
56	5.74	1.544	13.74	14.26	15.8	18.33
57	0.1235	0.4034	0.18	0.4123	0.4651	0.1171

Table IRES-3. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 2 (Continued)

LHS#	77	78	79	80	81	82
1	1.156E-14	1E-14	2.16E-15	2.91E-15	1.057E-14	1.067E-14
2	0	1	0	0	2	0
3	1.84E-09	3.266E-09	6.173E-09	6.279E-09	6.022E-09	7.052E-09
4	1.033E-09	1.079E-09	6.881E-11	8.654E-11	4.094E-10	3.132E-10
5	0.7968	0.6882	0.5075	0.8936	0.9578	0.3633
6	0.12	0.07633	0.04246	0.08271	0.002721	0.1232
7	0.4016	0.1267	0.5082	0.2691	0.2031	0.1128
8	0.1218	0.3036	0.06503	0.133	0.8665	0.777
9	-18.46	-18.42	-19.28	-17.84	-18.8	-18.4
10	-18.29	-17.92	-19.05	-17.74	-19.44	-19.74
11	-18.14	-19.88	-19.63	-18.94	-20	-18.5
12	-15.73	-15.27	-15.08	-15.65	-14.8	-16.21
13	0.5684	0.09619	0.2032	0.2752	0.4079	0.1624
14	0.1018	0.1736	0.1905	0.216	0.01266	0.2563
15	0.4569	0.3674	0.003914	0.5446	0.3516	0.405
16	0.168	0.9328	0.6094	3.945	7.645	3.794
17	0.009147	0.02182	0.01154	0.003361	0.0293	0.01085
18	-23.75	-21.17	-22.95	-23.53	-23.15	-22.03
19	1.784E-10	1.48E-11	1.345E-10	1.475E-10	1.207E-10	8.289E-11
20	-19.77	-18.78	-19.48	-19.04	-18.75	-19.63
21	1.992E-10	6.647E-11	1.541E-10	1.046E-10	6.886E-11	1.919E-10
22	1	1	1	1	1	4
23	0.09453	0.06376	0.08711	0.1167	0.0383	0.08957
24	0.08467	0.06769	0.0576	0.1787	0.01927	0.01398
25	0.6961	0.6295	0.6424	0.5711	0.5982	0.6253
26	11940000	13760000	12570000	13600000	13610000	13120000
27	13830000	11450000	12490000	15020000	15480000	15560000
28	-12.83	-12.88	-12.29	-11.9	-12.9	-10.99
29	-8.536	-9.321	-9.441	-10.4	-8.786	-10.13
30	-12.09	-12.99	-12.59	-12.52	-12.03	-11.55
31	28	12	15	29	31	13
32	0.0008554	0.0003277	0.001057	0.009489	0.1377	0.01728
33	5.658	1.418	7.358	8.003	4.835	1.708
34	129.8	696.2	415	986.9	195.7	292.3
35	0.9556	0.9428	0.8361	0.9663	0.4552	0.9908
36	0.09949	0.2456	-0.7978	-0.5826	-0.2396	0.1658
37	-0.002864	-0.1946	-0.4423	0.08207	-0.186	-0.05502
38	-0.2353	-0.1577	-0.3368	-0.279	-0.4611	0.6234
39	-0.01489	-0.2449	0.5027	-0.07335	0.01565	-0.08543
40	-0.07654	0.03059	-0.09725	0.1133	-0.001618	0.8736
41	0.1509	-0.2015	0.1169	0.2133	-0.1416	-1.674
42	0.6333	0.07799	-0.3162	-0.06125	0.1303	-0.364
43	-0.2103	0.07911	-0.9352	-0.08901	-0.6507	-0.07014
44	-0.5344	-0.01195	0.8179	-0.19	0.552	-0.2113
45	-0.08144	-0.2177	-0.2717	-0.1443	0.301	0.5868
46	1.589	1.6	1.535	0.9815	0.8306	1.141
47	0.5278	0.4339	0.09736	0.7383	0.0205	0.8739
48	1.05	1.093	2.119	1.176	1.14	1.025
49	0.4699	0.4635	0.2559	0.2286	0.3988	0.1999
50	0.001559	0.0001321	0.0004781	0.003125	0.001999	0.001734
51	0.1766	0.1104	0.1356	0.1237	0.1119	0.1075
52	0.004168	0.0103	0.02112	0.01827	0.02153	0.01067
53	1.357	14.85	15.8	12.9	15.58	3.996
54	0.2798	0.3822	0.4703	0.3365	0.313	0.2745
55	3.79	18.19	17.56	17.71	1.855	6.9
56	7.537	12.7	6.606	15.81	16.35	2.586
57	0.2402	0.08094	0.4389	0.1735	0.3923	0.3253

Table IRES-3. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 2 (Continued)

LHS#	83	84	85	86	87	88
1	1.426E-14	1.497E-14	3.705E-15	1.511E-14	6.395E-15	5.074E-15
2	0	2	2	0	0	0
3	6.681E-09	6.758E-09	1.039E-09	7.922E-09	4.212E-09	2.675E-09
4	1.322E-11	9.591E-10	9.9E-10	8.247E-10	7.025E-10	2.883E-10
5	0.5901	0.924	0.9405	0.4123	0.04815	0.6377
6	0.1384	0.1128	0.01506	0.03339	0.03215	0.1195
7	0.2607	0.49	0.2351	0.4539	0.1447	0.1187
8	0.6728	0.2324	0.01595	0.8525	0.3889	0.8343
9	-18.81	-18.76	-19.6	-19.77	-19.98	-17.63
10	-20.13	-18.76	-19.44	-19.27	-17.46	-19.32
11	-20.73	-18.82	-18.43	-19.28	-20.38	-19.53
12	-15.46	-14.52	-14.27	-14.64	-15.22	-14.9
13	0.6314	0.6987	0.7913	0.9726	0.8313	0.5359
14	0.1472	0.04121	0.2828	0.3834	0.3704	0.008084
15	0.3003	0.5191	0.3253	0.4406	0.3818	0.007497
16	2.046	5.949	5.86	0.7628	8.063	4.63
17	0.005571	0.005299	0.004842	0.01369	0.02804	0.004315
18	-22.32	-21.61	-22.52	-23.59	-21.32	-23.31
19	8.953E-11	3.638E-11	1.011E-10	1.615E-10	2.445E-11	1.401E-10
20	-19.61	-18.23	-18.56	-18.13	-19.46	-19.15
21	1.813E-10	1.09E-11	2.409E-11	1.09E-11	1.636E-10	1.205E-10
22	4	1	1	4	1	4
23	0.09198	0.09375	0.1018	0.07684	0.1101	0.1267
24	0.08534	0.1079	0.0509	0.08717	0.06868	0.01398
25	0.7586	0.6029	0.6379	0.6629	0.6781	0.7212
26	11790000	11250000	11720000	11750000	11630000	11130000
27	12580000	12430000	14140000	12700000	13120000	15690000
28	-13.9	-13.14	-10.48	-11.25	-11.87	-12.59
29	-9.248	-9.396	-10.51	-10.11	-10.84	-9.855
30	-11.47	-11.43	-11.8	-13.84	-13.43	-12.24
31	12	15	21	20	31	16
32	0.0003383	0.02998	0.002709	0.06967	0.04463	0.09646
33	1.291	0.6181	5.569	7.454	4.363	3.419
34	947.7	713	805.4	97.86	992.8	201.9
35	0.1446	0.2606	0.3839	0.4687	0.7461	0.5334
36	-0.05621	-0.1598	0.4673	-0.7605	-0.2976	-0.1271
37	0.1805	-0.3599	0.3834	-0.1662	0.7134	-0.379
38	-0.5943	-0.2922	-0.4852	-1.083	-0.4067	-0.06584
39	0.1845	0.7353	-0.1812	-0.719	-0.3867	-0.2005
40	-0.1677	-0.2109	0.0637	-0.04881	0.1242	-0.4148
41	-0.0824	-0.1058	-0.08876	-0.2311	-0.2715	0.0001973
42	0.1327	-0.2268	0.2037	-0.2485	0.1499	-1.5
43	0.12	0.4401	0.04004	1.081	-0.1858	0.188
44	-0.1271	-0.4102	0.1492	-0.412	-1.429	-1.615
45	0.4862	-0.4404	-1.688	0.7407	-0.2146	-0.2033
46	1.421	0.7785	1.512	1.449	1.48	1.412
47	0.9203	0.05173	0.4807	0.4674	0.2635	0.6763
48	1.865	1.55	1.198	1.223	1.074	1.058
49	0.4678	0.4428	0.3886	0.3545	0.1812	0.1259
50	0.0002734	0.00145	0.007295	0.003953	0.0002386	0.0009119
51	0.1737	0.1621	0.1601	0.1149	0.1644	0.1267
52	0.0282	0.0231	0.02472	0.02039	0.005428	0.007702
53	4.802	2.837	16.02	18.31	17.71	16.26
54	0.09563	0.1008	0.2625	0.3061	0.1887	0.4503
55	9.723	4.311	14.8	12.98	1.426	15.66
56	2.776	4.15	13.45	18.9	9.849	6.023
57	0.1663	0.4783	0.02374	0.2128	0.1406	0.03374

Table IRES-3. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 2 (Continued)

LHS#	89	90	91	92	93	94
1	5.292E-15	1.168E-14	1.846E-15	5.121E-15	1.134E-15	6.01E-15
2	0	2	2	0	0	0
3	2.472E-09	7.465E-09	7.627E-10	4.995E-09	6.623E-09	3.532E-10
4	4.821E-10	1.263E-09	1.165E-09	1.196E-09	3.566E-10	6.581E-10
5	0.7389	0.2476	0.21	0.3943	0.1734	0.2982
6	0.09225	0.04855	0.03796	0.04364	0.08951	0.02289
7	0.01409	0.04381	0.4287	0.3772	0.4683	0.3711
8	0.5331	0.9247	0.4118	0.006044	0.6543	0.5749
9	-18.74	-17.87	-19.81	-18.49	-19.67	-18.67
10	-20.35	-18.07	-17.91	-20.44	-18.65	-19.14
11	-20.26	-20.08	-19.55	-20.5	-20.35	-20.56
12	-14.93	-15.86	-16.7	-14.13	-15.68	-16.35
13	0.3356	0.7892	0.6163	0.7671	0.9647	0.3118
14	0.1688	0.3262	0.1289	0.3324	0.0556	0.3025
15	0.09024	0.01584	0.1805	0.1188	0.1709	0.06904
16	0.4067	0.1159	6.497	3.151	6.529	0.357
17	0.00955	0.01066	0.00762	0.01291	0.02746	0.01032
18	-22.91	-23.24	-22.47	-23.64	-22.48	-23.93
19	1.097E-10	1.419E-10	7.145E-11	1.693E-10	1.141E-10	1.859E-10
20	-18.41	-18.61	-18.81	-18.94	-18.46	-18.68
21	1.888E-11	4.681E-11	7.33E-11	8.363E-11	4.337E-11	4.235E-11
22	1	4	1	4	1	1
23	0.007846	0.07458	0.07909	0.061	0.07806	0.146
24	0.0607	0.0713	0.07254	0.1062	0.1027	0.1735
25	0.6449	0.674	0.6893	0.5156	0.6723	0.7848
26	11990000	11600000	12700000	12660000	11280000	11380000
27	15260000	14050000	12630000	12000000	12980000	13170000
28	-12.06	-11.46	-11.37	-10.9	-11.5	-12.26
29	-9.992	-11.05	-9.871	-10.71	-9.742	-9.591
30	-12.28	-11.76	-11.07	-12.82	-12.48	-12.95
31	22	30	25	4	31	4
32	0.195	0.0000724	0.07864	0.000407	0.004975	0.01323
33	0.9618	9.267	3.593	4.526	3.236	3.981
34	388.1	440.5	158.9	88.94	11.13	611.1
35	0.737	0.4323	0.3376	0.8983	0.1357	0.8577
36	0.1958	0.3515	-0.204	-0.191	-0.06511	-0.4153
37	-0.07758	-0.2942	-0.7368	0.9443	0.1909	-0.02608
38	-0.08194	-0.2138	0.05316	0.7755	-0.005759	-0.2197
39	-0.3563	0.6197	-0.02195	0.3859	0.4819	0.8998
40	-1.37	0.04134	-0.3602	-0.1395	-0.2749	0.0844
41	0.1193	-0.001362	-0.1174	0.06063	-0.2395	-0.9299
42	-0.4347	0.04526	0.1574	-0.04886	0.7877	-0.07046
43	-0.03689	-0.8196	-0.1537	-0.3668	-0.236	-0.4114
44	-0.03989	-0.0918	-0.2421	-1.828	0.07154	0.473
45	-1.785	0.177	-0.4482	-0.0001462	-0.4976	-0.02662
46	1.382	1.482	0.09205	0.4383	1.591	0.5455
47	0.2531	0.7793	0.996	0.8498	0.741	0.3854
48	1.593	1.164	2.244	1.814	1.141	1.009
49	0.484	0.2365	0.2876	0.3222	0.1872	0.3028
50	0.0004996	0.001864	0.0006385	0.0005813	0.0005269	0.003304
51	0.1471	0.1909	0.107	0.1295	0.1325	0.1045
52	0.003606	0.01558	0.02833	0.01231	0.0161	0.002417
53	11.61	7.238	1.805	8.223	13.64	14.2
54	0.1201	0.2038	0.1874	0.2258	0.1761	0.3456
55	5.723	13.94	4.136	18.58	15.59	12.64
56	15.15	10.01	5.526	12.2	10.92	11.81
57	0.2022	0.1136	0.3347	0.3016	0.3674	0.3198

Table IRES-3. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 2 (Continued)

LHS#	95	96	97	98	99	100
1	5.668E-15	8.447E-15	7.038E-15	4.747E-15	8.08E-15	1.442E-14
2	1	1	2	0	1	2
3	9.14E-09	7.269E-09	8.79E-09	7.853E-09	2.767E-09	8.537E-09
4	1.015E-09	6.671E-10	7.542E-10	1.146E-09	3.433E-10	6.868E-10
5	0.7607	0.9738	0.6401	0.1545	0.1361	0.2897
6	0.02797	0.08844	0.01064	0.045	0.07861	0.08683
7	0.02409	0.3023	0.5267	0.06927	0.08954	0.4943
8	0.4891	0.918	0.2782	0.6898	0.1984	0.364
9	-18.91	-18.21	-20.3	-18.69	-19.06	-17.78
10	-18.32	-18.74	-19.39	-17.84	-19.6	-19.07
11	-19.44	-20.86	-19.49	-20.18	-18.97	-19.4
12	-15.89	-14.81	-15.33	-15.51	-16.17	-16.13
13	0.8595	0.06296	0.8198	0.5895	0.07099	0.03891
14	0.01654	0.05717	0.2911	0.02377	0.1867	0.351
15	0.1623	0.1132	0.03609	0.2831	0.5913	0.5202
16	6.893	1.194	0.3854	0.1487	0.4798	7.297
17	0.002805	0.004163	0.01647	0.02798	0.02374	0.004507
18	-23.82	-23.25	-23.67	-22.99	-23.1	-23.77
19	1.831E-10	1.682E-10	1.762E-10	1.264E-10	1.454E-10	1.738E-10
20	-19.36	-20.38	-18.98	-19.19	-20	-18.91
21	1.184E-10	2.75E-10	8.91E-11	1.129E-10	2.263E-10	8.702E-11
22	1	1	1	4	1	4
23	0.08565	0.08341	0.08038	0.09652	0.09703	0.05394
24	0.1007	0.1089	0.09957	0.0533	0.1058	0.04255
25	0.644	0.6329	0.6732	0.6036	0.6689	0.7351
26	13840000	13060000	12630000	11840000	11510000	11350000
27	12860000	13900000	14880000	13020000	11360000	13800000
28	-12.32	-11.76	-11.57	-11.59	-12.62	-13.26
29	-10.05	-9.894	-10.32	-10.25	-10.02	-9.666
30	-11.3	-11.65	-13.2	-11.34	-12.42	-13.27
31	16	15	23	26	18	28
32	0.01267	0.00005427	0.007948	0.04077	0.005764	0.1531
33	1.941	8.285	0.3082	1.047	7.888	1.804
34	304.5	670.5	513.8	687.6	143.6	553.8
35	0.7766	0.9058	0.5158	0.5006	0.7015	0.227
36	0.7253	0.2249	-0.1371	-0.6189	-0.04559	0.1239
37	0.2133	-0.09973	-0.5969	-0.2219	-0.1359	0.4714
38	0.2058	0.1582	-0.2536	0.5169	-0.2017	0.01342
39	-0.2118	-1.828	-0.9071	-0.05893	-0.1137	-0.4736
40	0.3153	-0.4723	-0.2013	-0.1494	0.4851	-0.1598
41	0.02334	-0.7293	-0.3833	0.1972	0.8014	-0.6193
42	0.253	-0.1069	-0.008576	-1.065	-0.9023	-0.4622
43	-0.01742	0.1751	-0.1327	0.2003	0.2442	0.02251
44	-0.14	-0.4409	0.1199	-0.3686	0.2093	0.9789
45	0.06085	-0.1249	-0.05171	0.05569	-0.38	-0.1387
46	0.6343	1.135	0.9599	1.385	0.7464	0.9273
47	0.1139	0.4155	0.6652	0.9001	0.4793	0.3611
48	1.088	1.145	1.041	1.049	1.956	1.157
49	0.1474	0.3799	0.06196	0.438	0.1429	0.1716
50	0.000106	0.008498	0.0007012	0.001308	0.0001583	0.000118
51	0.1668	0.1721	0.2137	0.1144	0.2341	0.1823
52	0.02265	0.02682	0.001108	0.02726	0.0119	0.02189
53	2.58	13.23	1.16	10.17	1.907	16.45
54	0.1036	0.2848	0.2269	0.08443	0.3317	0.3487
55	10.2	13.68	12.33	19.89	2.537	17.17
56	5.244	11.52	4.966	16.98	19.83	7.665
57	0.2831	0.07116	0.316	0.384	0.3093	0.2036

Table IRES-4. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 3

LHS#	Material	Parameter	1	2	3	4
1	STEEL	CORRMCO2	7.953E-15	9.879E-15	2.743E-15	6.456E-16
2	WAS_AREA	PROBDEG	0	0	2	2
3	WAS_AREA	GRATMICI	6.519E-09	6.091E-09	3.098E-09	2.999E-09
4	WAS_AREA	GRATMICH	3.241E-10	1.325E-10	7.98E-10	1.457E-10
5	CELLULS	FBETA	0.01927	0.9557	0.8943	0.8093
6	WAS_AREA	SAT_RGAS	0.1283	0.07608	0.1423	0.001877
7	WAS_AREA	SAT_RBRN	0.3501	0.05385	0.3636	0.1118
8	WAS_AREA	SAT_WICK	0.6216	0.9441	0.5362	0.6699
9	CL_L_T1	PRMX_LOG	-20.52	-18.93	-20.2	-18.27
10	CONC_T1	PRMX_LOG	-18.94	-18.18	-18.33	-17.36
11	ASPHALT	PRMX_LOG	-19.32	-19.68	-19.1	-19.83
12	SHFT_DRZ	PRMX_LOG	-14.42	-15.74	-15.42	-15.72
13	SALT_T1	CUMPROB	0.7266	0.2696	0.9293	0.8559
14	SALT_T1	SAT_RGAS	0.2551	0.1385	0.1437	0.08484
15	SALT_T1	SAT_RBRN	0.07056	0.1157	0.5544	0.1847
16	SALT_T1	PORE_DIS	3.015	0.1688	5.662	2.688
17	S_HALITE	POROSITY	0.01484	0.02972	0.01203	0.007851
18	S_HALITE	PRMX_LOG	-22.13	-22.25	-21.94	-23.52
19	S_HALITE	COMP_RCK	7.384E-11	8.516E-11	6.157E-11	1.647E-10
20	S_MB139	PRMX_LOG	-19.1	-17.74	-17.71	-18.47
21	S_MB139	COMP_RCK	1.199E-10	1.09E-11	1.09E-11	1.09E-11
22	S_MB139	RELP_MOD	1	4	1	4
23	S_MB139	SAT_RBRN	0.09602	0.07762	0.06919	0.09706
24	S_MB139	SAT_RGAS	0.0956	0.01741	0.09916	0.09088
25	S_MB139	PORE_DIS	0.7087	0.6092	0.7132	0.5838
26	S_HALITE	PRESSURE	12360000	13600000	12140000	13760000
27	CASTILER	PRESSURE	12130000	14650000	13260000	12560000
28	CASTILER	PRMX_LOG	-12.42	-12.82	-11.37	-13.96
29	CASTILER	COMP_RCK	-10.26	-9.739	-10.31	-8.219
30	BH_SAND	PRMX_LOG	-12.26	-12.13	-12.61	-12.88
31	CASTILER	GRIDFLO	16	19	10	8
32	BLOWOUT	PARTDIA	0.0005864	0.00008167	0.00004835	0.003406
33	BOREHOLE	TAUFAIL	2.732	5.04	1.276	5.441
34	CULEBRA	MINP_FAC	179.7	297.5	494.2	566.6
35	GLOBAL	TRANSIDX	0.9698	0.9147	0.1598	0.8505
36	SOLAM3	SOLSIM	-0.1842	0.08728	0.1006	0.5719
37	SOLAM3	SOLCIM	-0.9465	0.9542	0.4419	0.5122
38	SOLPU3	SOLSIM	0.2175	-0.06066	-0.377	-0.3226
39	SOLPU3	SOLCIM	-0.09942	0.1129	-0.1234	-0.1885
40	SOLPU4	SOLSIM	-0.276	-0.1661	-0.03985	-0.1444
41	SOLPU4	SOLCIM	-0.4476	-0.2044	0.4379	-0.07879
42	SOLU4	SOLSIM	0.3904	0.9371	-1.914	-0.1297
43	SOLU6	SOLSIM	0.4311	-0.3542	-0.1524	-0.5921
44	SOLU6	SOLCIM	0.1536	-0.3176	0.3893	-0.6575
45	SOLTH4	SOLSIM	-0.2302	0.8965	0.1811	-0.06395
46	PHUMOX3	PHUMCIM	1.389	1.581	1.422	1.066
47	GLOBAL	OXSTAT	0.9994	0.9725	0.664	0.05909
48	GLOBAL	CLIMTIDX	1.096	1.093	1.073	1.773
49	CULEBRA	HMBLKLT	0.1704	0.156	0.3472	0.2044
50	CULEBRA	APOROS	0.0002278	0.004572	0.001054	0.0003685
51	CULEBRA	DPOROS	0.1471	0.1702	0.1615	0.1694
52	U+6	MKD_U	0.003078	0.01602	0.02467	0.01009
53	U+4	MKD_U	1.905	3.234	5.17	8.202
54	PU+3	MKD_PU	0.06481	0.3157	0.2455	0.2353
55	PU+4	MKD_PU	3.663	11.43	2.632	4.362
56	TH+4	MKD_TH	6.971	12.8	1.931	18.07
57	AM+3	MKD_AM	0.07562	0.4603	0.3306	0.09583

Table IRES-4. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 3 (Continued)

LHS#	5	6	7	8	9	10
1	1.143E-14	1.574E-14	4.538E-15	8.159E-15	3.155E-15	1.812E-15
2	2	2	0	2	0	0
3	9.476E-09	8.551E-10	2.254E-09	6.986E-09	1.203E-09	1.842E-09
4	4.494E-10	6.968E-10	4.434E-10	4.829E-10	1.094E-09	7.496E-10
5	0.3064	0.6226	0.8885	0.6828	0.475	0.0921
6	0.06837	0.003986	0.08643	0.145	0.0589	0.109
7	0.07943	0.3654	0.4655	0.08395	0.2714	0.02613
8	0.02684	0.3273	0.8747	0.9851	0.3036	0.4179
9	-17.88	-19.95	-19.29	-19.49	-19.14	-20.41
10	-19.15	-18.5	-17.93	-18.59	-18.53	-18.86
11	-19.26	-19.58	-20.08	-19.78	-18.37	-19.59
12	-15.03	-14.68	-14.77	-15.69	-15.53	-15.23
13	0.354	0.9893	0.4975	0.1119	0.4521	0.1943
14	0.05211	0.2625	0.2827	0.03521	0.2749	0.3998
15	0.5963	0.287	0.3433	0.007012	0.07204	0.5044
16	0.7831	2.245	0.642	7.607	0.1486	0.2831
17	0.004336	0.01779	0.02458	0.002689	0.02232	0.004121
18	-23.57	-21.42	-22.61	-22.54	-21.9	-23.25
19	1.688E-10	3.04E-11	1.12E-10	1.005E-10	5.054E-11	1.355E-10
20	-19.42	-19.47	-19.75	-19.32	-18.51	-19.17
21	1.502E-10	1.705E-10	1.719E-10	1.227E-10	4.432E-11	1.107E-10
22	1	4	4	1	1	1
23	0.1155	0.08817	0.02223	0.1619	0.06991	0.1004
24	0.05583	0.07025	0.09387	0.05427	0.04163	0.05636
25	0.6345	0.6816	0.8418	0.6501	0.6607	0.5785
26	13420000	12650000	12210000	12930000	13680000	13150000
27	13980000	15850000	13120000	13720000	12700000	15210000
28	-12.86	-13.58	-12.95	-12.32	-11.64	-10.64
29	-9.214	-8.729	-9.181	-9.89	-10.24	-10.12
30	-12.77	-13.86	-12.42	-13.02	-13.69	-13.54
31	8	21	9	2	22	1
32	0.00007748	0.0001242	0.0938	0.02295	0.08675	0.01601
33	7.179	4.129	1.552	2.223	6.5	5.978
34	736	420.8	664.6	431.3	78.67	335.9
35	0.1869	0.2643	0.1075	0.471	0.515	0.2535
36	0.2229	0.4776	-0.03154	-0.8366	-0.2155	0.1604
37	0.02996	-0.09647	-1.784	0.1647	0.2347	0.3811
38	0.07572	-0.4501	-0.4374	0.1793	-0.239	0.1745
39	-0.1148	0.7351	-0.4933	-0.4349	-0.9389	0.7537
40	1.327	0.05781	0.5228	0.03651	-0.2073	-0.3148
41	-0.02902	-0.0533	-0.3927	0.1191	0.1047	0.1136
42	0.1862	0.2486	-0.2103	-0.1089	0.501	-0.4471
43	-0.1122	-0.2363	0.1666	-0.2439	-0.3244	-0.1692
44	0.4739	-0.1558	-0.2476	-0.1391	0.2346	-0.1
45	-0.06097	0.05749	-0.4249	0.6611	-0.1797	0.1325
46	1.462	1.427	1.206	0.1575	1.417	1.312
47	0.4448	0.6507	0.3905	0.3309	0.3277	0.7714
48	1.209	1.244	1.099	2.178	1.131	1.107
49	0.4009	0.3314	0.3771	0.2083	0.2553	0.05831
50	0.0002063	0.0012	0.002606	0.001514	0.0004681	0.0007821
51	0.115	0.1523	0.1359	0.12	0.1829	0.1507
52	0.006597	0.007028	0.01652	0.01347	0.02709	0.01897
53	7.889	19.57	13.62	15.03	15.92	13.32
54	0.1626	0.07262	0.3889	0.4167	0.1691	0.1901
55	2.617	14.13	17.6	14.79	6.022	12.92
56	14.01	2.593	15.28	9.871	18.76	14.84
57	0.4618	0.1635	0.373	0.05109	0.1691	0.09057

Table IRES-4. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 3 (Continued)

LHS#	I1	I2	I3	I4	I5	I6
1	5.913E-15	1.027E-14	1.068E-14	4.804E-15	3.78E-15	1.214E-14
2	0	2	0	2	0	1
3	6.342E-09	4.354E-09	6.423E-09	3.664E-09	6.783E-09	1.02E-09
4	1.013E-09	4.11E-10	9.007E-10	8.547E-10	1.658E-10	9.008E-11
5	0.1172	0.1469	0.7424	0.901	0.4484	0.7355
6	0.1324	0.1495	0.04304	0.01354	0.0195	0.1292
7	0.2436	0.1701	0.1302	0.4325	0.4431	0.2072
8	0.3145	0.1116	0.7012	0.6942	0.439	0.2411
9	-19.25	-18.52	-19.88	-19.6	-18.64	-19.54
10	-18.97	-19.24	-18.74	-20.23	-19.87	-17.54
11	-20.19	-20.3	-19.07	-20.68	-19.98	-20.04
12	-15.06	-15.51	-15.32	-14.73	-15.39	-15.18
13	0.6798	0.3337	0.634	0.2886	0.09413	0.9673
14	0.3274	0.1199	0.3178	0.2788	0.05617	0.212
15	0.208	0.5316	0.2992	0.1524	0.5148	0.4973
16	7.206	0.2309	0.3907	0.8868	0.3592	3.454
17	0.005557	0.005739	0.01716	0.006074	0.008186	0.007474
18	-21.98	-23.48	-23.59	-22.94	-23.65	-22.86
19	8.988E-11	1.585E-10	1.671E-10	1.282E-10	1.72E-10	1.095E-10
20	-18.99	-18.97	-19.14	-18.4	-19.89	-18.32
21	1.028E-10	9.141E-11	1.311E-10	2.906E-11	1.961E-10	1.09E-11
22	4	1	1	4	4	4
23	0.08257	0.1323	0.09407	0.1188	0.1146	0.03428
24	0.01398	0.08353	0.1711	0.06097	0.06845	0.08555
25	0.6011	0.7236	0.684	0.5984	0.6188	0.6589
26	11990000	11820000	13040000	12950000	11270000	12560000
27	15420000	12050000	12080000	11860000	12500000	13580000
28	-10.55	-12.4	-12.45	-13.57	-14.09	-11.88
29	-10.84	-9.446	-9.475	-9.646	-8.934	-10.05
30	-11.9	-13.65	-12.35	-12.06	-11.61	-11.93
31	30	15	20	29	9	9
32	0.005223	0.000247	0.0003206	0.006205	0.005617	0.03091
33	7.061	9.01	3.467	0.2756	0.05838	6.312
34	653.8	16.83	616.3	549.1	274.5	103
35	0.1336	0.5306	0.9906	0.1773	0.882	0.6857
36	0.1923	0.07107	0.2407	-0.4754	-0.312	-0.16
37	-0.04756	-0.4631	-0.1836	-0.1162	-0.2472	-0.1626
38	-0.8233	-0.1481	-0.9547	-0.7367	-0.5965	0.09985
39	-0.2637	0.03161	0.07049	-0.3556	0.1794	0.2355
40	-0.7769	0.9704	0.3253	0.2156	-0.7174	-0.1975
41	-0.07636	-0.1326	-0.1791	-0.6007	1.287	-0.08762
42	1.085	-0.1486	-0.7589	-0.04144	0.783	0.1155
43	-0.2927	0.154	-0.8426	0.3443	-0.3936	1.105
44	-0.04326	-0.191	-0.8343	0.05702	0.1651	-0.7563
45	-0.7856	-0.2466	-0.1671	-0.09331	0.01352	-0.07216
46	0.5655	1.448	0.4593	1.456	0.9822	0.5995
47	0.6452	0.5012	0.8038	0.6888	0.9571	0.2993
48	1.126	1.626	1.114	1.157	1.024	1.052
49	0.4165	0.2219	0.1639	0.2664	0.4908	0.4669
50	0.009054	0.006472	0.00159	0.000124	0.0006491	0.0001709
51	0.1419	0.2471	0.2178	0.1298	0.1176	0.1014
52	0.01238	0.02901	0.0007269	0.02741	0.02039	0.02269
53	11.59	13.91	7.102	2.592	16.66	4.066
54	0.2636	0.4301	0.4746	0.2753	0.1063	0.2572
55	7.542	12.1	6.544	10.46	16.1	11.63
56	11.3	5.077	5.643	1.073	11.09	19.52
57	0.1304	0.2021	0.1655	0.1848	0.3357	0.1804

Table IRES-4. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 3 (Continued)

LHS#	17	18	19	20	21	22
1	8.494E-15	9.411E-15	1.613E-16	3.408E-16	1.21E-15	1.914E-15
2	0	0	0	0	0	0
3	7.764E-09	8.372E-09	2.19E-09	5.308E-09	4.845E-09	8.261E-09
4	3.59E-10	5.041E-10	8.628E-10	1.05E-09	4.725E-10	5.279E-10
5	0.08729	0.1879	0.7159	0.1606	0.6937	0.2542
6	0.1114	0.01833	0.02527	0.01556	0.03819	0.14
7	0.2409	0.1452	0.3193	0.4402	0.2373	0.4805
8	0.1792	0.3978	0.6526	0.6112	0.8082	0.2326
9	-19.35	-19.85	-18.12	-17.56	-18.75	-19.81
10	-19.49	-17.91	-18.63	-18.25	-19.36	-19.32
11	-20.47	-20.28	-19.39	-20.39	-20.81	-18.77
12	-15.13	-15.57	-14.74	-14.17	-15.9	-16.07
13	0.3763	0.8842	0.8756	0.7854	0.3667	0.666
14	0.01725	0.2085	0.1053	0.1792	0.1441	0.006578
15	0.5381	0.1255	0.1605	0.225	0.482	0.4325
16	3.533	0.9207	6.318	1.011	5.544	0.4465
17	0.01659	0.00281	0.005174	0.02539	0.02799	0.02304
18	-23.16	-22.43	-21.55	-23.4	-21.38	-23.09
19	1.423E-10	8.71E-11	4.254E-11	1.521E-10	1.849E-11	1.443E-10
20	-18.68	-19.35	-19.5	-18.73	-18.77	-18.18
21	6.706E-11	1.439E-10	2.62E-10	5.413E-11	7.004E-11	1.09E-11
22	4	4	4	1	1	1
23	0.0594	0.0689	0.11	0.07587	0.07793	0.1483
24	0.02075	0.09869	0.1094	0.01398	0.07571	0.06771
25	0.6531	0.6158	0.5813	0.6697	0.5374	0.6766
26	13890000	13360000	12710000	13240000	11440000	11090000
27	14540000	13180000	12020000	12840000	12420000	13960000
28	-12.71	-13.5	-10.43	-10.72	-14.18	-13
29	-8.811	-9.871	-10.28	-10.42	-9.161	-8.976
30	-11.8	-12.29	-12.4	-12.69	-12	-13.14
31	12	15	25	8	8	28
32	0.1136	0.001969	0.001061	0.0001411	0.01029	0.0007653
33	3.429	8.154	6.047	2.282	4.846	0.8481
34	484.8	986.8	729.2	396.9	248.2	854.6
35	0.7784	0.05731	0.568	0.3244	0.02932	0.4893
36	0.9254	-0.9949	-0.1774	-0.2581	-0.09243	-0.645
37	0.4751	0.2515	0.1072	-0.08805	-0.06214	0.8556
38	0.06022	-0.1585	-0.4973	-0.112	0.1631	-0.0192
39	-0.4553	-0.1945	-0.3335	0.8528	0.1049	0.054
40	0.9041	0.0348	0.424	-0.03288	-0.01663	0.1083
41	-0.02507	-0.1199	-0.1178	-0.2262	-0.9232	-0.239
42	-0.239	-0.1921	0.193	-0.01583	0.4535	0.9883
43	-0.03954	-0.2282	0.8587	0.5386	0.09131	0.03813
44	-0.8015	-0.2281	-0.453	-0.2068	-0.1741	-0.07838
45	-0.03952	-0.283	0.213	1.29	-0.01878	-0.1141
46	0.1984	1.593	0.2796	1.463	1.16	1.53
47	0.8967	0.6082	0.9615	0.4026	0.3716	0.01315
48	1.112	1.594	1.504	1.565	1.006	1.808
49	0.311	0.09374	0.1146	0.3463	0.1273	0.2951
50	0.000853	0.001137	0.001501	0.0006965	0.003276	0.001035
51	0.1407	0.1142	0.1768	0.1678	0.1893	0.1747
52	0.01402	0.01047	0.00273	0.01714	0.00137	0.02098
53	3.901	14.84	14.16	8.638	16.14	7.469
54	0.09155	0.3066	0.3108	0.04952	0.1334	0.3277
55	5.336	4.626	19.91	17.06	2.834	8.016
56	14.99	3.257	13.88	1.603	11.69	16.42
57	0.2861	0.04303	0.06402	0.3063	0.2229	0.114

Table IRES-4. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 3 (Continued)

LHS#	23	24	25	26	27	28
1	1.28E-14	1.47E-14	9.739E-16	3.537E-15	1.043E-14	4.746E-15
2	0	2	0	0	0	0
3	8.033E-09	5.976E-10	3.359E-10	3.249E-09	8.055E-09	8.41E-09
4	7.683E-10	1.195E-09	1.034E-09	9.331E-10	1.146E-09	6.661E-11
5	0.04544	0.4377	0.2002	0.1318	0.195	0.0009603
6	0.04183	0.07012	0.06456	0.1109	0.1432	0.09474
7	0.2981	0.4193	0.3743	0.009806	0.4133	0.5482
8	0.42	0.3655	0.04916	0.967	0.9015	0.2778
9	-20.26	-18.1	-19.05	-19.22	-18.89	-18.79
10	-19.62	-19.06	-18.84	-18.13	-19.91	-18.38
11	-18.69	-20.72	-19.04	-20.44	-19.8	-19.91
12	-16.05	-15.83	-15.33	-14.32	-15.57	-15.21
13	0.1543	0.8278	0.0699	0.6949	0.2026	0.0593
14	0.1953	0.2456	0.1875	0.3404	0.3729	0.3712
15	0.1316	0.4317	0.4474	0.2452	0.05262	0.1359
16	0.6911	0.2636	6.68	0.3018	5.27	3.863
17	0.01541	0.0011	0.02241	0.002129	0.01948	0.005869
18	-22.2	-23.67	-23.1	-22.65	-22.57	-22.36
19	9.93E-11	1.636E-10	1.2E-10	1.134E-10	1.016E-10	9.345E-11
20	-18.84	-18.81	-19.46	-19.2	-19.25	-17.96
21	7.444E-11	8.647E-11	1.664E-10	1.26E-10	1.32E-10	1.09E-11
22	1	4	1	1	1	4
23	0.0489	0.09507	0.1061	0.07475	0.05264	0.1094
24	0.1309	0.1136	0.0728	0.04452	0.08307	0.13
25	0.5891	0.6057	0.6266	0.6258	0.5652	0.5256
26	12440000	13290000	13390000	11610000	11800000	11700000
27	12750000	12600000	12670000	12190000	11630000	15320000
28	-11.97	-11.95	-13.2	-11.13	-13.43	-11.7
29	-10.3	-10.14	-8.258	-9.826	-9.074	-9.513
30	-13.07	-11.29	-13.4	-11.55	-11.86	-11.1
31	1	20	31	20	27	26
32	0.00006185	0.0001746	0.0003687	0.007873	0.004867	0.01
33	1.831	2.989	9.437	3.093	5.223	7.514
34	788.9	962	240.1	847.6	98.28	714.1
35	0.6333	0.4433	0.3636	0.896	0.6238	0.7311
36	0.6628	-0.2065	-0.1576	-0.1196	0.9685	0.6254
37	-0.1266	-0.1946	-0.7861	0.1197	0.06382	-0.1323
38	-0.01247	0.7825	0.1504	0.1272	0.01526	-0.168
39	-0.5573	-0.3581	-0.3823	-0.09014	0.6233	-0.1625
40	-0.2314	-0.02154	-0.2406	-0.191	0.2423	-0.1069
41	-0.7983	0.1751	-0.1656	-0.193	0.2025	-0.3547
42	-0.1394	-0.2936	-0.1554	0.2071	-0.3922	-0.2748
43	0.9118	0.6538	-0.2032	0.2794	0.0503	-0.2558
44	0.01367	0.1159	-0.572	0.009311	0.06694	-0.3373
45	-0.1927	-0.02643	-0.04429	-0.3657	0.9673	-0.3373
46	0.9511	1.563	1.474	1.544	1.577	0.3646
47	0.275	0.5332	0.4269	0.1214	0.8213	0.3404
48	1.173	1.011	1.188	1.202	2.245	1.063
49	0.4794	0.4086	0.3164	0.2824	0.2874	0.3857
50	0.000292	0.00857	0.0004409	0.001316	0.0003984	0.0003338
51	0.1266	0.1835	0.1171	0.1053	0.1293	0.1858
52	0.01544	0.005119	0.02822	0.011	0.0256	0.02289
53	12.36	8.362	17.97	12.87	9.945	17.58
54	0.4796	0.3462	0.2805	0.3237	0.1787	0.1354
55	16.63	12.94	19.68	11.07	10.78	6.892
56	17.73	18.88	9.465	10.58	15.08	1.276
57	0.2351	0.2281	0.4491	0.4975	0.3225	0.05729

Table IRES-4. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 3 (Continued)

LHS#	29	30	31	32	33	34
1	1.4E-14	1.124E-14	7.869E-15	1.382E-14	1.289E-14	9.281E-15
2	2	0	0	0	0	2
3	1.995E-09	2.9E-09	6.214E-09	6.913E-09	3.721E-09	1.953E-09
4	1.984E-10	2.984E-10	3.722E-10	8.201E-10	6.474E-10	3.371E-10
5	0.2387	0.5838	0.9347	0.9686	0.7529	0.3557
6	0.04542	0.1357	0.1274	0.004693	0.07781	0.05624
7	0.1389	0.2773	0.2495	0.3427	0.1719	0.2258
8	0.9319	0.9992	0.508	0.7578	0.07798	0.5555
9	-17.83	-18.03	-18.8	-18.73	-18.33	-18.36
10	-18.02	17.39	-18.47	-19.04	-18.75	-19.78
11	-18.67	19.64	-19.79	-20.33	-19.36	-18.43
12	-15.02	-15.98	-14.45	-14.83	-14.96	-15.49
13	0.607	0.6537	0.622	0.1389	0.02826	0.2144
14	0.2346	0.1993	0.3349	0.1234	0.3509	0.3207
15	0.5901	0.39	0.1381	0.2116	0.2511	0.01285
16	0.5571	0.5177	0.4249	3.272	0.8365	0.1218
17	0.01737	0.01475	0.02113	0.003655	0.02894	0.00773
18	-22.8	-23.13	-22.06	-21.69	-22.2	-23.35
19	1.086E-10	1.402E-10	6.154E-11	4.05E-11	7.069E-11	1.489E-10
20	-18.58	-18.76	-18.67	-18.27	-18.7	-18.21
21	5.553E-11	6.372E-11	4.508E-11	2.287E-11	5.919E-11	3.198E-11
22	1	1	1	1	1	1
23	0.1211	0.07193	0.1064	0.1274	0.09974	0.07953
24	0.08023	0.0387	0.02632	0.1203	0.1064	0.02749
25	0.6561	0.4905	0.6323	0.6964	0.5922	0.6107
26	12250000	13080000	13800000	12020000	11750000	12890000
27	15370000	14220000	13270000	12920000	14510000	12660000
28	-13.03	-11.77	-13.33	-11.71	-12.66	-10.28
29	-8.648	-10.08	-9.558	-9.009	-9.789	-11.21
30	-13.25	-11.52	-12.1	-13.81	-12.62	-11.76
31	23	22	7	4	3	11
32	0.02466	0.003216	0.002173	0.0004526	0.05703	0.0009102
33	6.747	0.8429	7.976	0.6667	8.388	3.85
34	253.2	575.5	795.5	682.2	941.2	645.8
35	0.558	0.6928	0.8051	0.004764	0.1442	0.01901
36	-0.4311	-0.07745	0.04471	0.1441	-0.1319	0.2593
37	-0.4186	-1.325	-0.4935	0.2083	-0.06952	-0.004443
38	-0.07874	-0.5277	-0.07578	-0.002764	-0.1792	-0.1335
39	-0.2181	0.3989	-0.9677	0.2404	-1.984	-0.04522
40	-0.1209	-0.178	0.01401	-0.354	-0.2874	-0.04553
41	-0.1544	-0.5333	0.143	-0.2982	-0.3668	-0.0612
42	0.3145	-0.247	-1.256	-0.9338	0.1462	0.2685
43	0.602	0.2361	-0.1219	0.3834	-0.0284	-0.1872
44	-0.1611	0.8618	-0.002737	0.2115	1.134	-0.4241
45	-0.1206	-0.2627	-0.9019	-0.4918	0.7946	-0.1411
46	1.374	1.387	1.57	1.108	1.436	0.6445
47	0.9169	0.7567	0.3119	0.7688	0.7006	0.549
48	1.213	1.22	1.103	1.118	2.132	1.022
49	0.1076	0.1586	0.32	0.1984	0.3605	0.2513
50	0.0001087	0.001357	0.0001785	0.0002422	0.005481	0.0001645
51	0.1111	0.2032	0.1652	0.1043	0.1641	0.1628
52	0.01525	0.02204	0.009762	0.02861	0.00003962	0.01376
53	9.604	9.762	14.92	12.07	6.787	18.88
54	0.4909	0.2019	0.09935	0.06055	0.3906	0.2698
55	13.38	9.699	18.05	4.953	14.94	18.25
56	10.31	8.986	5.882	12.29	13.1	2.419
57	0.4672	0.3696	0.07958	0.2157	0.1541	0.3844

Table IRES-4. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 3 (Continued)

LHS#	35	36	37	38	39	40
1	7.334E-15	8.263E-15	9.755E-15	1.357E-14	1.324E-14	1.422E-14
2	1	1	2	0	1	2
3	5.538E-09	1.401E-09	7.146E-09	2.409E-09	2.858E-09	1.676E-09
4	6.466E-10	2.515E-10	2.376E-10	1.141E-09	6.075E-10	1.067E-09
5	0.532	0.03561	0.8707	0.8551	0.6511	0.3804
6	0.08952	0.009479	0.09825	0.1458	0.124	0.0399
7	0.523	0.4502	0.4778	0.1629	0.3859	0.01685
8	0.1046	0.2697	0.5159	0.1374	0.8192	0.584
9	-19.47	-18.53	-17.72	-18.61	-18.48	-18.67
10	-18.9	-18	-17.59	-18.37	-20.51	-19.27
11	-19.65	-20.58	-19.28	-20.84	-20.01	-18.64
12	-15.27	-16.25	-15.27	-15.64	-14.83	-15
13	0.898	0.4003	0.1706	0.5835	0.8442	0.5386
14	0.04698	0.2863	0.2404	0.1109	0.0931	0.1634
15	0.0005285	0.05774	0.4943	0.01128	0.2568	0.5227
16	0.138	4.514	0.7262	2.605	0.6618	0.7007
17	0.01832	0.01329	0.01636	0.01136	0.008758	0.02047
18	-21.46	-21.73	-21.8	-23.88	-21.3	-21.15
19	3.475E-11	6.644E-11	5.883E-11	1.827E-10	1.431E-11	1.275E-11
20	-18.13	-18.65	-18.97	-18.94	-18.55	-19.97
21	1.09E-11	4.79E-11	9.347E-11	8.151E-11	1.675E-11	2.75E-10
22	1	1	4	1	4	1
23	0.0865	0.09077	0.09296	0.04644	0.05193	0.09786
24	0.04354	0.03475	0.06441	0.1351	0.07965	0.07889
25	0.6923	0.6574	0.6985	0.5271	0.6137	0.5691
26	13550000	12920000	11630000	12380000	12830000	13020000
27	13850000	11950000	12350000	13660000	11640000	14370000
28	-10.75	-13.78	-10.19	-11.66	-11.5	-12.04
29	-9.719	-8.504	-10.62	-8.833	-9.592	-9.845
30	-11.46	-11.17	-11.37	-12.83	-13.84	-11.03
31	18	11	19	15	10	11
32	0.0002045	0.00724	0.03351	0.00005364	0.001228	0.01122
33	2.352	1.477	1.395	6.169	9.799	0.644
34	635.9	415.8	869.3	461.5	745.1	590.5
35	0.6776	0.4236	0.3148	0.3964	0.453	0.6696
36	-0.2726	0.206	0.7031	-0.2863	-0.02572	-0.8209
37	-1.241	-0.1903	-0.2403	-0.1444	0.6671	-0.1208
38	0.8422	0.631	-0.2694	-0.2309	-0.06578	0.2032
39	-0.02767	-0.1522	-1.193	-1.648	0.004941	0.8414
40	-0.1842	0.1713	-0.2247	-0.1341	0.1528	0.1071
41	0.6647	-0.6554	0.1909	0.9775	-0.4772	0.09075
42	-0.4886	-0.05817	-0.05222	0.8574	0.2271	-0.08665
43	-0.2198	-1.11	-0.1399	0.1836	-0.3847	-0.4332
44	-0.2893	-0.1336	-0.01907	-0.01139	-0.1266	-1.276
45	0.7471	-0.2079	0.4838	0.9047	-0.7604	-0.3767
46	0.5364	1.507	1.551	1.408	0.7545	0.8533
47	0.9378	0.1924	0.02972	0.574	0.9298	0.006197
48	1.543	1.178	1.058	1	1.206	1.167
49	0.2256	0.3039	0.172	0.1839	0.1776	0.4227
50	0.0008304	0.004023	0.0002705	0.0006881	0.0002327	0.002262
51	0.1155	0.1718	0.1489	0.1737	0.2261	0.1557
52	0.002131	0.02008	0.01118	0.02422	0.02808	0.02785
53	17.47	9.286	4.943	4.884	2.155	0.932
54	0.2367	0.444	0.265	0.3832	0.2151	0.04333
55	6.066	19.42	13.77	5.778	12.64	13.51
56	13.47	14.16	6.52	6.13	9.675	4.751
57	0.3464	0.3134	0.07128	0.1467	0.1963	0.04814

Table IRES-4. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 3 (Continued)

LHS#	41	42	43	44	45	46
1	9.094E-15	1.446E-14	1.475E-15	1.558E-14	1.525E-14	3.92E-15
2	0	0	1	0	2	1
3	8.675E-09	6.195E-09	4.737E-09	5.262E-09	7.783E-09	7.608E-09
4	8.416E-10	4.291E-10	1.192E-09	2.092E-10	5.55E-10	5.771E-10
5	0.06931	0.1264	0.3122	0.4971	0.3406	0.4638
6	0.02937	0.0003789	0.09201	0.1149	0.0933	0.04802
7	0.3272	0.013	0.3214	0.4974	0.1947	0.5436
8	0.2216	0.9788	0.6061	0.526	0.8571	0.6734
9	-19.18	-19.59	-20.73	-17.88	-20.1	-18.41
10	-18.2	-20.17	-18.91	-18.94	-17.17	-18.09
11	-20.37	-19.85	-18.91	-19.17	-20.25	-20.05
12	-16.02	-15.61	-14.85	-16.53	-14.54	-15.15
13	0.3193	0.6443	0.2791	0.8004	0.9196	0.7452
14	0.2491	0.08327	0.09114	0.3019	0.2017	0.3152
15	0.03572	0.1943	0.4501	0.3279	0.1485	0.02761
16	1.8	0.9074	2.913	4.781	0.8289	0.8788
17	0.007	0.02692	0.01076	0.001617	0.02194	0.002516
18	-22.73	-22.81	-22.52	-22.34	-23.31	-21.09
19	1.066E-10	1.18E-10	9.64E-11	7.884E-11	1.575E-10	8.186E-12
20	-18.07	-18.43	-18.86	-20.38	-19.78	-19.02
21	1.09E-11	1.09E-11	8.047E-11	2.75E-10	2.2E-10	1.181E-10
22	4	4	4	4	4	1
23	0.09643	0.06603	0.06046	0.08995	0.1042	0.05808
24	0.09305	0.1475	0.08448	0.03211	0.08743	0.09219
25	0.5071	0.6435	0.629	0.6878	0.6079	0.6296
26	12670000	11670000	11520000	13520000	11190000	11570000
27	14770000	12850000	13880000	13140000	13460000	15590000
28	-12.1	-10.03	-12.77	-10.87	-12.36	-11.92
29	-9.996	-10.68	-9.033	-10.52	-9.681	-9.12
30	-13.77	-12.03	-11.41	-13.28	-11.14	-13.62
31	14	24	3	2	28	5
32	0.001752	0.01514	0.0001078	0.002303	0.01853	0.002665
33	7.422	7.743	4.709	2	6.904	0.9768
34	132.4	40.83	155.1	5.237	68.79	25.27
35	0.1689	0.292	0.1233	0.1935	0.03888	0.9039
36	-0.5893	-0.3266	-0.009351	0.08199	-0.708	-1.513
37	-0.9042	-0.2796	-0.8736	-0.2355	0.7645	0.5676
38	-0.9023	0.3339	-1.419	-1.943	-0.166	0.04882
39	1.243	-0.4266	-0.05499	-0.1874	-0.619	-0.6772
40	-0.1173	0.5721	-0.09708	0.2321	0.1573	0.1359
41	0.8648	-0.01637	-0.1319	0.03492	0.7934	-0.7363
42	-0.2309	0.7049	-0.0797	0.001767	-0.7042	-0.1987
43	0.07454	-0.1297	-0.9515	0.0008706	-0.004225	-1.452
44	-0.08891	0.1248	-0.3789	-0.07292	-0.05204	-0.222
45	0.02998	-0.2119	-0.11	0.3378	-0.2392	0.4319
46	0.8233	1.537	1.523	0.7105	0.2398	1.535
47	0.285	0.1048	0.3699	0.03701	0.6272	0.1718
48	1.123	1.724	2.011	1.243	1.229	1.064
49	0.2122	0.3801	0.2596	0.2002	0.1233	0.3521
50	0.0003101	0.0001884	0.002957	0.002475	0.003585	0.0001326
51	0.1105	0.1795	0.1009	0.184	0.1681	0.1806
52	0.01062	0.006313	0.004558	0.001578	0.01634	0.02327
53	1.389	15.37	4.389	12.66	16.95	10.5
54	0.2174	0.1238	0.4978	0.1433	0.07812	0.2878
55	19.51	10.84	3.792	15.32	12.21	5.516
56	15.77	12.53	3.974	3.665	16.22	15.93
57	0.2617	0.2204	0.4784	0.4411	0.4222	0.4054

Table IRES-4. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 3 (Continued)

LHS#	47	48	49	50	51	52
1	1.137E-14	1.261E-14	1.479E-14	6.484E-15	8.718E-16	2.439E-15
2	0	2	0	0	2	1
3	4.085E-09	4.377E-09	5.598E-09	4.649E-09	5.925E-09	9.351E-09
4	1.057E-09	9.796E-10	5.919E-10	6.735E-10	8.063E-10	9.438E-10
5	0.2189	0.0711	0.8183	0.6638	0.5285	0.7688
6	0.09138	0.08841	0.01336	0.04721	0.07897	0.1131
7	0.03475	0.4864	0.2676	0.06701	0.4621	0.04339
8	0.452	0.7208	0.3371	0.06347	0.6812	0.4659
9	-18.63	-19.07	-20.57	-19.64	-18.25	-18.31
10	-18.51	-17.8	-17.65	-19.2	-18.63	-17.87
11	-20.63	-19.51	-19.44	-19.72	-19.45	-18.97
12	-15.17	-14.11	-14.95	-16.11	-15.66	-14.91
13	0.2526	0.01141	0.3867	0.8348	0.2318	0.5474
14	0.3662	0.1656	0.1143	0.1893	0.2672	0.2908
15	0.1746	0.3056	0.3935	0.1791	0.5512	0.4644
16	0.9387	6.171	6.882	3.189	6.008	0.4932
17	0.007245	0.005455	0.02834	0.001807	0.02438	0.003471
18	-21.93	-21.01	-23.41	-21.06	-22.64	-22.68
19	5.429E-11	3.185E-12	1.551E-10	5.995E-12	9.47E-11	1.222E-10
20	-19.08	-18.87	-18.92	-19.33	-18.6	-17.85
21	1.222E-10	7.345E-11	8.351E-11	1.381E-10	3.515E-11	1.09E-11
22	4	1	1	4	4	4
23	0.1114	0.03466	0.08537	0.08675	0.07312	0.06452
24	0.05331	0.07499	0.01398	0.08568	0.04689	0.05856
25	0.6723	0.622	0.5545	0.5872	0.6035	0.6451
26	12620000	13840000	11140000	11980000	12810000	11770000
27	12620000	13040000	11470000	16160000	14920000	12230000
28	-11.27	-13.94	-11.46	-13.77	-11.6	-12.54
29	-10.09	-9.275	-9.477	-9.243	-9.413	-8.926
30	-14	-13.16	-12.16	-13.61	-13.51	-13.01
31	17	13	7	23	32	14
32	0.0001862	0.0002643	0.05061	0.1329	0.000819	0.001546
33	5.558	8.643	8.718	4.554	5.251	3.171
34	451.8	938.8	887.2	478.9	312.8	284.8
35	0.9776	0.7181	0.8346	0.924	0.7078	0.04559
36	-0.1991	-0.3689	-0.3861	0.03166	-0.776	-0.1408
37	0.2456	-0.03728	-0.1755	-0.3263	-0.5322	-0.7476
38	0.1129	-0.4114	0.2484	-0.02432	0.8896	-0.3197
39	-0.5503	-0.009923	0.1333	-0.8826	-0.1437	-0.823
40	-0.9101	0.07396	-0.4788	-0.2491	0.6009	-0.4397
41	0.2283	0.3652	-0.1985	-0.1471	0.6108	0.5951
42	0.1031	0.08676	-1.201	-0.2051	-0.3412	0.1341
43	-0.01929	0.8411	-0.2301	0.1345	-0.06267	-0.5325
44	-0.2748	-0.3581	0.581	0.6109	0.317	-0.8997
45	-0.5448	0.1151	0.5198	-0.2203	-1.159	-0.356
46	1.34	1.401	0.4903	1.487	1.014	1.51
47	0.09318	0.3883	0.4321	0.8105	0.748	0.7974
48	1.167	1.181	1.15	1.237	1.142	1.149
49	0.4851	0.2617	0.4108	0.1334	0.3739	0.3067
50	0.0009815	0.0004931	0.001219	0.0003629	0.0005076	0.0005953
51	0.119	0.196	0.2402	0.1895	0.1638	0.1817
52	0.00576	0.004077	0.02455	0.02043	0.001085	0.01805
53	10.81	11.71	19.42	8.798	6.907	12.99
54	0.1084	0.3691	0.1877	0.08425	0.2244	0.4257
55	2.143	7.912	9.273	9.419	4.336	4.755
56	1.397	12.12	4.262	7.665	5.474	7.94
57	0.4458	0.3495	0.3616	0.4937	0.1577	0.03756

Table IRES-4. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 3 (Continued)

LHS#	53	54	55	56	57	58
1	1.225E-14	2.105E-15	3.265E-15	1.166E-14	5.514E-15	5.254E-15
2	0	1	0	1	2	0
3	5.379E-09	9.033E-09	6.706E-09	8.521E-09	5.185E-09	3.366E-09
4	1.843E-10	3.83E-10	2.262E-10	9.951E-10	4.039E-10	7.803E-10
5	0.2728	0.9948	0.5787	0.3216	0.8672	0.4216
6	0.07473	0.02821	0.04972	0.03335	0.1048	0.07983
7	0.429	0.4232	0.2118	0.2542	0.3361	0.1535
8	0.562	0.6396	0.8466	0.1521	0.01269	0.3486
9	-17.91	-20.3	-18.7	-17.45	-18.92	-18.5
10	-19.29	-19.44	-18.15	-20.15	-17.47	-19.97
11	-18.32	-19.23	-19.94	-19.48	-19.54	-20.54
12	-15.44	-15.1	-14.5	-15.78	-16.4	-15.11
13	0.4863	0.7394	0.7692	0.9981	0.2264	0.4184
14	0.3376	0.3914	0.3842	0.206	0.02189	0.1309
15	0.4185	0.4597	0.1995	0.1416	0.08777	0.1704
16	0.8584	5.091	4.685	1.162	0.5976	0.3193
17	0.004587	0.004951	0.01986	0.02953	0.01861	0.02003
18	-22.97	-22.76	-21.87	-21.44	-22.1	-22.29
19	1.321E-10	1.154E-10	5.713E-11	2.692E-11	6.841E-11	7.1E-11
20	-19.25	-19.65	-18.34	-19.67	-19.39	-18.62
21	1.133E-10	1.54E-10	2.13E-11	1.927E-10	1.464E-10	5.05E-11
22	4	1	1	1	1	1
23	0.06691	0.07687	0.1406	0.0433	0.06536	0.05667
24	0.09772	0.06669	0.1972	0.06613	0.09026	0.1022
25	0.641	0.5595	0.7048	0.5957	0.6637	0.6677
26	11400000	11410000	13720000	13120000	12520000	11310000
27	15080000	13600000	16330000	13390000	13900000	16610000
28	-12.57	-11.35	-11.07	-12.26	-11.75	-13.07
29	-9.106	-11.05	-10.68	-8.586	-10.17	-9.952
30	-11.98	-13.72	-11.68	-11.43	-12.93	-13.42
31	14	30	19	12	25	5
32	0.0002855	0.001145	0.1058	0.03848	0.1558	0.07388
33	4.389	1.863	5.868	2.45	2.835	1.698
34	892.3	217.2	605.9	191.5	365.5	918
35	0.5016	0.7649	0.3898	0.7291	0.8703	0.7909
36	-0.4017	0.3416	0.05751	-0.1004	-0.1512	-0.00309
37	0.6083	-0.0344	-0.3106	0.7103	0.1835	-0.4724
38	1.157	0.2765	0.3527	-0.2488	0.0244	-0.3009
39	0.2744	-0.1551	-0.2144	-0.1291	0.1969	-0.3117
40	-0.3894	0.7811	0.2509	-0.2095	0.08886	-0.0715
41	0.2904	0.05915	0.9062	-0.06426	0.01232	0.8349
42	-0.2515	-0.1005	0.166	-0.8122	0.1249	-0.4179
43	0.2251	0.09568	-0.4629	-0.06064	0.712	0.06808
44	-0.4945	-0.4648	0.5098	0.184	0.9627	-1.593
45	0.2192	0.1927	0.2779	-0.3118	-0.4423	-0.0004511
46	0.8108	0.8776	1.161	1.451	1.38	0.7957
47	0.4508	0.1627	0.8825	0.5821	0.3074	0.04352
48	1.081	1.044	1.676	1.191	1.086	1.225
49	0.07773	0.3398	0.4713	0.3917	0.1883	0.2201
50	0.0006069	0.002837	0.005744	0.005834	0.0001198	0.005015
51	0.1882	0.1385	0.1721	0.1029	0.1619	0.2137
52	0.008013	0.008153	0.02988	0.01747	0.007351	0.02942
53	5.543	7.285	8.113	18.2	4.191	17.24
54	0.4705	0.3638	0.3327	0.4192	0.1294	0.2308
55	10.22	13.93	11.28	9.676	15.73	16.36
56	1.809	19.25	10.16	2.05	3.832	13.23
57	0.4251	0.2964	0.4354	0.1418	0.1391	0.206

Table IRES-4. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 3 (Continued)

LHS#	59	60	61	62	63	64
1	7.243E-15	1.239E-14	4.343E-15	1.176E-14	5.815E-15	1.31E-14
2	0	0	1	1	1	2
3	1.465E-09	5.061E-09	4.602E-09	1.717E-09	2.119E-09	9.313E-09
4	7.357E-10	6.26E-10	1.234E-09	1.127E-10	1.23E-09	1.085E-09
5	0.2629	0.8404	0.9752	0.9182	0.2977	0.7003
6	0.006547	0.1018	0.08259	0.1345	0.03528	0.0221
7	0.3132	0.1901	0.06487	0.09067	0.4566	0.108
8	0.776	0.009421	0.8627	0.7659	0.578	0.1656
9	-18.24	-19.42	-18.58	-18.85	-18.87	-18.2
10	-19.17	-18.3	-19.57	-19.73	-17.96	-19.08
11	-19.42	-19.97	-20.14	-19.75	-19.93	-19.87
12	-14.62	-14.92	-16.32	-15.46	-15.15	-15.77
13	0.186	0.04272	0.9399	0.1224	0.4388	0.684
14	0.2289	0.2223	0.1555	0.3948	0.07204	0.3567
15	0.1072	0.07874	0.3771	0.09357	0.3583	0.05071
16	6.646	0.4607	7.867	8.068	0.6204	5.464
17	0.01892	0.02587	0.006642	0.009999	0.006886	0.02639
18	-23.84	-21.29	-23	-21.1	-23.31	-23.98
19	1.856E-10	1.665E-11	1.301E-10	1.14E-11	1.614E-10	1.907E-10
20	-18.81	-17.11	-18.54	-19.05	-18.68	-18.16
21	7.682E-11	1.09E-11	3.943E-11	1.094E-10	6.128E-11	1.09E-11
22	1	4	1	1	4	4
23	0.08475	0.08124	0.1126	0.08129	0.08336	0.09255
24	0.06935	0.1164	0.101	0.0468	0.06231	0.05975
25	0.6311	0.6224	0.6519	0.6546	0.639	0.7004
26	12290000	12170000	13000000	11850000	11360000	13480000
27	16010000	12980000	13640000	14160000	12800000	13000000
28	-10.99	-10.49	-12.16	-12.23	-11.24	-12.08
29	-10.16	-10.57	-9.759	-9.338	-10.89	-10.01
30	-13.26	-12.2	-11.49	-12.36	-13.56	-13.89
31	25	25	11	16	3	27
32	0.00004708	0.02618	0.0459	0.0000685	0.1698	0.1486
33	2.089	0.4896	9.384	3.76	9.806	3.712
34	117.9	443.4	535	812.1	581.4	501
35	0.64	0.6157	0.9351	0.9845	0.4348	0.6586
36	-0.116	-0.1044	0.8772	-1.303	-0.04792	-0.464
37	0.3066	0.1708	-0.2168	-0.4295	-0.07717	-0.05475
38	-0.1872	-1.727	-1.008	-0.866	0.002	-0.2585
39	-0.0311	0.3268	-0.01806	0.9733	0.902	0.5714
40	-0.588	0.3968	-1.589	0.8847	0.7471	-0.08613
41	-0.008851	0.1405	0.06964	-0.2833	0.2212	-0.2313
42	-0.9887	-0.00516	0.07124	0.4182	-0.4032	-0.1824
43	0.1939	0.2462	-0.3077	-0.7463	-1.573	0.7961
44	0.1919	-0.4434	0.1335	0.2848	0.0301	-0.3492
45	-1.474	-1.839	-0.03095	-0.2012	0.06639	-0.2244
46	1.559	0.7283	0.1177	1.345	1.514	1.288
47	0.5517	0.1556	0.1858	0.6303	0.4118	0.7824
48	1.918	2.201	1.223	1.008	1.03	1.037
49	0.3955	0.08715	0.4524	0.2304	0.1201	0.2977
50	0.003654	0.0009528	0.0001007	0.003842	0.0003825	0.009659
51	0.2232	0.1368	0.1586	0.1114	0.1203	0.1579
52	0.005328	0.004516	0.00354	0.02515	0.01167	0.02639
53	2.701	13.76	14.36	18.4	6.333	10.84
54	0.4051	0.3598	0.2975	0.3946	0.3996	0.4831
55	13.27	8.62	15.08	7.707	5.13	10.37
56	18.57	10.67	6.407	14.57	14.44	8.649
57	0.02035	0.4756	0.319	0.06136	0.2669	0.4325

Table IRES-4. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 3 (Continued)

LHS#	65	66	67	68	69	70
1	1.438E-14	4.815E-16	3.411E-15	2.239E-15	7.643E-15	1.192E-14
2	0	2	0	0	2	1
3	7.908E-09	8.225E-09	4.201E-09	3.538E-09	7.094E-09	2.766E-09
4	7.24E-10	5.578E-11	6.718E-10	7.001E-10	9.259E-10	5.856E-12
5	0.9464	0.6186	0.5928	0.7956	0.1559	0.6427
6	0.1474	0.06737	0.05126	0.03613	0.01149	0.03023
7	0.4068	0.2969	0.003514	0.1375	0.5152	0.05865
8	0.4499	0.4869	0.2097	0.08634	0.8304	0.03236
9	-18.22	-18.99	-18.96	-19.41	-19.01	-18
10	-18.69	-20	-18.45	-19.01	-18.71	-18.28
11	-18.57	-20.02	-19.86	-19.06	-18.51	-20.13
12	-14.47	-16.51	-16.16	-15.62	-16.68	-14.69
13	0.5525	0.7067	0.7125	0.7954	0.8157	0.106
14	0.09602	0.3541	0.06892	0.2279	0.3792	0.1016
15	0.1654	0.1169	0.1583	0.04022	0.3465	0.03637
16	1.643	8.312	0.5318	0.7453	0.478	7.453
17	0.003907	0.009426	0.002053	0.002303	0.008436	0.009204
18	-23.92	-22.87	-21.2	-22.91	-23.9	-23.78
19	1.865E-10	1.268E-10	2.326E-11	1.205E-10	1.771E-10	1.712E-10
20	-18.48	-18.71	-18.9	-18.63	-18.28	-19.58
21	5.168E-11	6.525E-11	9.844E-11	4.273E-11	1.09E-11	1.627E-10
22	4	1	4	1	4	1
23	0.07084	0.07332	0.007846	0.08736	0.05484	0.07112
24	0.05788	0.05272	0.0365	0.0717	0.06513	0.03928
25	0.5519	0.789	0.694	0.6784	0.6729	0.7383
26	12320000	13640000	11490000	13150000	11220000	11050000
27	14060000	13740000	13430000	12310000	15000000	14810000
28	-13.14	-12.01	-13.69	-11.84	-12.9	-12
29	-9.366	-9.606	-8.698	-10.07	-9.298	-9.973
30	-11.59	-11.07	-12.73	-11.64	-12.75	-11.95
31	24	20	24	24	2	6
32	0.0002227	0.0003488	0.006954	0.0001639	0.0005447	0.004398
33	7.873	9.995	2.633	8.42	9.214	8.852
34	350.3	803.9	557.6	908.1	994.1	528
35	0.33	0.2227	0.08236	0.4167	0.8458	0.582
36	-0.2351	-0.4839	0.1816	-0.5508	-0.4253	0.01981
37	-0.2259	-0.02748	-0.3441	-0.3716	-0.1703	-0.2074
38	-0.09045	-0.2247	0.6758	-0.03269	-0.4652	-0.1954
39	-0.06797	0.149	0.2114	0.03675	-0.7627	-0.1051
40	-0.1522	-0.055	0.005222	0.8042	0.1865	-0.4172
41	-1.317	0.5158	0.3069	-0.22	-0.4094	-0.9903
42	-0.3721	-0.1323	-0.06612	-0.2218	0.5813	-0.09152
43	-0.213	0.9996	0.1076	-0.7946	0.5849	-0.01099
44	-0.1994	-0.1474	0.776	0.841	-0.2102	-0.2565
45	-0.7078	-0.3033	-0.05137	0.1296	0.04148	0.1653
46	0.6783	1.586	0.1944	0.9091	0.6181	1.219
47	0.2325	0.06108	0.8738	0.1342	0.8666	0.7366
48	1.214	1.186	2.074	1.237	1.77	1.196
49	0.3346	0.06624	0.4571	0.4322	0.2909	0.2355
50	0.001694	0.0001539	0.0005371	0.009309	0.004923	0.001435
51	0.1485	0.1728	0.1822	0.1657	0.1094	0.154
52	0.02238	0.0171	0.02342	0.008711	0.02697	0.01876
53	13.31	18.78	6.076	1.212	5.452	1.782
54	0.0251	0.2909	0.4648	0.09349	0.02262	0.3531
55	15.95	8.188	16.82	14.42	8.927	3.492
56	19.85	16.07	9.296	2.894	4.481	8.112
57	0.2545	0.3576	0.02916	0.4104	0.1905	0.2837

Table IRES-4. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 3 (Continued)

LHS#	71	72	73	74	75	76
1	7.589E-15	1.01E-14	1.553E-14	1.499E-14	2.651E-15	8.875E-15
2	2	0	0	1	0	2
3	9.426E-10	3.985E-09	2.493E-09	7.402E-09	4.696E-10	1.267E-09
4	3.519E-10	1.162E-09	2.841E-10	1.257E-09	5.6E-10	1.634E-10
5	0.4518	0.3345	0.4882	0.1063	0.02834	0.6778
6	0.1372	0.03208	0.05278	0.1218	0.1073	0.1196
7	0.1263	0.4741	0.5094	0.3551	0.07414	0.5403
8	0.3825	0.2194	0.1825	0.7811	0.6477	0.5936
9	-18.29	-17.79	-18.17	-18.43	-18.38	-20.11
10	-18.68	-18.25	-19.1	-17.84	-17.72	-19.64
11	-20.33	-19.73	-20.42	-18.98	-19.22	-20.49
12	-16.12	-15.36	-15.96	-15.3	-15.91	-14.64
13	0.3938	0.3471	0.7501	0.5116	0.5977	0.4268
14	0.1708	0.3467	0.1494	0.06342	0.3085	0.3823
15	0.267	0.5699	0.3615	0.2881	0.02153	0.3158
16	1.376	3.791	4.988	8.406	6.524	0.5585
17	0.00832	0.02137	0.007505	0.01259	0.02864	0.004726
18	-23.74	-21.69	-23.22	-22.39	-22.31	-23.72
19	1.82E-10	4.749E-11	1.455E-10	8.062E-11	9.053E-11	1.735E-10
20	-18.89	-18.37	-19	-17.94	-19.19	-18.53
21	7.858E-11	1.501E-11	9.23E-11	1.09E-11	1.281E-10	3.817E-11
22	4	1	1	4	4	1
23	0.08584	0.08063	0.07544	0.09119	0.1044	0.05543
24	0.0869	0.06339	0.07225	0.06183	0.1077	0.1058
25	0.5929	0.7252	0.6655	0.6447	0.7065	0.6897
26	12590000	12470000	11540000	12530000	11900000	13500000
27	14390000	11760000	12890000	13510000	12510000	13800000
28	-10.9	-12.68	-10.96	-12.78	-12.48	-13.15
29	-10.78	-10.34	-10.61	-9.627	-9.578	-8.412
30	-13.92	-12.45	-12.65	-13.73	-12.52	-12.98
31	29	10	31	29	21	23
32	0.0132	0.002426	0.0007121	0.01755	0.00006046	0.1882
33	0.2168	4.814	4.986	1.126	4.138	3.565
34	970.9	42.46	950.2	828.1	836.3	270.7
35	0.5266	0.86	0.4628	0.3503	0.07995	0.09798
36	0.006817	-0.1898	-0.2447	0.2287	0.1295	0.1163
37	-0.3026	-0.009628	-0.151	0.09237	0.1966	0.8208
38	0.5251	0.4637	-0.3454	0.1352	-0.2219	0.09266
39	0.08936	-0.2997	-0.2261	-0.1723	0.1691	0.51
40	0.2083	-0.25	-0.159	-0.06482	-0.00439	-1.982
41	-1.97	0.2493	0.4708	-0.4249	0.1566	-0.1029
42	-0.3253	0.0782	0.05351	0.0204	-0.02469	0.8337
43	-0.1628	-0.1086	-1.835	-0.6549	-0.07248	-0.4912
44	-1.226	0.04471	-0.5304	0.7156	-0.065	0.09595
45	0.3634	0.1479	-0.4554	0.006903	-0.1356	-0.1563
46	1.439	0.4393	1.499	1.04	0.08294	0.9531
47	0.8393	0.4671	0.982	0.1125	0.2151	0.2401
48	2.129	1.96	2.046	1.033	1.07	1.921
49	0.4412	0.06266	0.1481	0.2706	0.442	0.4256
50	0.0002181	0.006952	0.0001429	0.00184	0.0001488	0.007899
51	0.1033	0.1072	0.1252	0.1442	0.1848	0.1879
52	0.005552	0.02189	0.01486	0.0193	0.01775	0.0006021
53	19.85	16.93	3.538	11.81	9.01	3.138
54	0.2059	0.2474	0.2519	0.4092	0.1524	0.1173
55	1.277	1.585	17.47	18.43	1.075	9.902
56	6.804	17.48	19.8	8.74	19.17	5.83
57	0.1018	0.0305	0.3114	0.4522	0.4883	0.2361

Table IRES-4. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 3 (Continued)

LHS#	77	78	79	80	81	82
1	5.684E-15	2.902E-15	7.134E-15	6.143E-15	1.377E-14	1.281E-15
2	0	1	1	0	0	2
3	7.569E-09	8.779E-09	8.731E-09	2.554E-09	3.345E-09	4.958E-09
4	1.105E-09	1.255E-09	8.285E-10	3.698E-11	1.179E-09	2.073E-11
5	0.3976	0.3746	0.9885	0.05919	0.7841	0.5081
6	0.06422	0.1307	0.02683	0.1176	0.06163	0.07147
7	0.04497	0.117	0.2019	0.1032	0.5299	0.1558
8	0.2902	0.4759	0.128	0.09569	0.9253	0.5433
9	-18.35	-18.15	-18.56	-18.68	-19.19	-19.96
10	-19.35	-17.69	-18.83	-18.77	-19.5	-19.53
11	-19.12	-20.55	-19.99	-19.71	-20.09	-20.2
12	-14.28	-16.81	-15.08	-14.99	-16.59	-16.27
13	0.0313	0.3058	0.078	0.864	0.1664	0.3292
14	0.1811	0.3318	0.1738	0.05082	0.0115	0.3077
15	0.1803	0.3701	0.2755	0.5806	0.1893	0.4763
16	7.094	0.579	0.6455	1.904	0.9697	0.2171
17	0.009569	0.02506	0.01302	0.003008	0.01173	0.0264
18	-23.51	-22.45	-21.64	-21.59	-22.16	-21.99
19	1.385E-10	1.037E-10	5.342E-11	3.708E-11	7.809E-11	6.348E-11
20	-20.74	-19.84	-19.07	-17.43	-18.93	-19.28
21	2.75E-10	1.841E-10	1.05E-10	1.09E-11	9.65E-11	1.418E-10
22	4	1	4	4	1	1
23	0.04099	0.07386	0.07889	0.08945	0.118	0.09192
24	0.07364	0.1412	0.1035	0.1132	0.04971	0.04893
25	0.6795	0.7313	0.6353	0.6596	0.6691	0.6177
26	13440000	12070000	13620000	12330000	12730000	12850000
27	14130000	14880000	14690000	13530000	14100000	12960000
28	-11.55	-11.33	-12.19	-12.52	-11.58	-11.21
29	-10.73	-10.19	-9.937	-10.38	-10.35	-9.867
30	-11.19	-11.35	-12.48	-11.24	-11.26	-12.92
31	31	5	6	18	13	28
32	0.05571	0.0006356	0.00004025	0.00009562	0.02862	0.002941
33	1.227	4.451	6.519	7.005	9.144	5.33
34	767.3	184.4	360.1	89.63	306.3	384.1
35	0.2451	0.285	0.2352	0.7548	0.5907	0.3006
36	-0.03893	-0.1339	-0.1677	-0.8944	-1.115	-0.07485
37	0.2224	-0.01986	-0.5833	1.342	-0.06384	0.0541
38	-0.03669	-0.0542	0.951	-0.6971	0.2285	-0.205
39	-0.2429	0.1276	-0.09037	-0.05567	-0.2484	-1.273
40	-0.2192	0.06696	-0.1266	-0.6136	-0.4024	-0.5088
41	0.07404	-1.73	-0.2129	-0.3095	-0.04816	-0.4954
42	-0.1709	-0.1229	0.6324	-0.8483	-0.225	-1.569
43	-0.6866	-0.8958	-0.3676	-0.1767	0.1692	-0.02392
44	-0.05582	-0.1081	-0.1117	0.2188	-0.9497	0.4448
45	0.09033	-0.6321	-0.3954	0.07701	-0.569	0.1036
46	1.375	1.134	0.2697	1.477	0.3836	0.3008
47	0.7195	0.9452	0.4903	0.8439	0.5103	0.2589
48	1.162	1.056	1.146	1.079	1.156	1.199
49	0.06979	0.1504	0.278	0.4352	0.2462	0.1377
50	0.0001941	0.000287	0.004518	0.004249	0.0008993	0.006131
51	0.1867	0.1711	0.1668	0.1185	0.1234	0.1065
52	0.02544	0.006797	0.01215	0.01414	0.01177	0.01974
53	6.521	10.24	18.53	19.7	4.59	1.562
54	0.2081	0.07637	0.148	0.4352	0.4877	0.3196
55	6.69	18.64	15.48	18.9	1.938	11.86
56	11.48	8.522	12.71	7.338	3.031	17.27
57	0.3916	0.2088	0.4841	0.2995	0.243	0.3966

Table IRES-4. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 3 (Continued)

LHS#	83	84	85	86	87	88
1	4.983E-15	6.652E-15	9.666E-15	8.618E-15	6.195E-15	5.164E-15
2	1	0	2	1	1	1
3	5.958E-09	8.957E-09	7.214E-09	4.545E-09	5.674E-10	7.323E-09
4	6.102E-10	8.926E-10	1.024E-09	4.472E-11	1.208E-09	4.596E-10
5	0.2468	0.2878	0.7211	0.1795	0.9242	0.6399
6	0.126	0.07295	0.06105	0.01657	0.1055	0.04492
7	0.184	0.09499	0.2823	0.2199	0.4001	0.1775
8	0.829	0.3746	0.8949	0.4006	0.05233	0.4918
9	-17.64	-17.94	-18.47	-18.06	-17.75	-19.08
10	-19.71	-19.46	-18.44	-18.99	-19.38	-18.56
11	-19.69	-19.88	-19.61	-20.11	-19.19	-18.79
12	-14.57	-14.36	-16.44	-14.94	-14.88	-16.21
13	0.9755	0.9074	0.08239	0.5207	0.4784	0.4684
14	0.2931	0.07971	0.2363	0.02564	0.3627	0.06523
15	0.02951	0.08381	0.4157	0.2352	0.06652	0.1205
16	0.2096	0.7793	1.57	4.315	0.341	2.146
17	0.02375	0.008678	0.001474	0.003768	0.005077	0.006472
18	-21.75	-21.33	-21.13	-21.27	-22.02	-21.51
19	4.923E-11	2.129E-11	9.179E-12	2.471E-11	7.608E-11	2.754E-11
20	-19.03	-18.38	-18.03	-18.45	-18.75	-19.3
21	9.978E-11	2.638E-11	1.09E-11	1.09E-11	6.071E-11	1.364E-10
22	4	1	4	1	4	1
23	0.09893	0.1241	0.06277	0.08367	0.1073	0.07832
24	0.07792	0.06983	0.0882	0.09596	0.1034	0.07472
25	0.6858	0.6242	0.7706	0.6129	0.5993	0.638
26	11350000	12420000	11930000	11670000	11100000	12050000
27	13220000	15710000	13310000	11840000	13090000	12400000
28	-14.62	-11.79	-12.21	-10.62	-13.39	-11.53
29	-8.564	-9.775	-9.526	-10.97	-9.31	-10.55
30	-13.97	-11.73	-11.3	-13.13	-11.01	-13.32
31	31	22	30	17	13	32
32	0.000424	0.06209	0.00134	0.0001182	0.01237	0.004004
33	6.658	8.071	5.716	4.312	7.296	5.728
34	774.4	228.3	694.9	323.8	146.3	200.9
35	0.2065	0.2714	0.8257	0.9598	0.7817	0.1154
36	0.1361	0.413	0.3644	0.8496	-0.01625	-0.3505
37	0.009855	-1.509	-0.2098	-0.6813	0.1339	-0.1588
38	0.1917	-0.1391	0.4437	-0.1269	-0.09921	-0.3585
39	-0.134	0.2221	0.4926	-0.4724	0.07346	-0.06979
40	-0.46	-0.1039	-0.964	-0.3287	0.1907	-1.251
41	-0.03688	-0.8551	-0.0001582	-0.1713	-0.2567	-0.3291
42	-0.6039	-0.02841	0.03962	0.03107	-0.3212	-0.4433
43	-0.4156	-0.05333	0.1261	-0.2785	0.2054	0.01666
44	-0.1206	-0.2376	-0.2359	0.08151	-0.02839	-1.99
45	-0.1619	0.5574	-0.1031	-0.1487	-0.01072	0.2455
46	0.0952	1.494	1.52	0.5287	1.467	1.545
47	0.2672	0.2279	0.5276	0.3504	0.6122	0.8542
48	1.074	1.035	1.992	1.134	1.852	1.174
49	0.09681	0.3599	0.07389	0.05154	0.3686	0.4963
50	0.0003186	0.001742	0.003335	0.007463	0.0002514	0.002345
51	0.1162	0.1785	0.1754	0.1227	0.1428	0.2366
52	0.002448	0.008882	0.01316	0.0267	0.01284	0.0092
53	5.832	7.683	14.65	2.986	11.1	11.28
54	0.3019	0.3717	0.1551	0.1958	0.1753	0.04766
55	16.41	2.279	17.76	3.249	1.401	3.96
56	10.01	17.09	13.52	8.223	15.43	7.518
57	0.2791	0.1174	0.3799	0.3558	0.3883	0.3382

Table IRES-4. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 3 (Continued)

LHS#	89	90	91	92	93	94
1	9.021E-15	4.058E-15	1.34E-14	4.278E-15	1.059E-14	1.52E-14
2	1	0	0	0	0	1
3	5.746E-09	3.835E-09	9.083E-09	1.1E-09	4.12E-09	6.629E-09
4	2.79E-10	9.566E-10	2.627E-10	1.237E-10	7.71E-11	8.83E-10
5	0.7725	0.4155	0.5471	0.839	0.6006	0.3602
6	0.09708	0.02399	0.08224	0.1213	0.09947	0.008478
7	0.3774	0.3044	0.3864	0.5044	0.03292	0.3952
8	0.356	0.9171	0.1435	0.9563	0.7412	0.7984
9	-19.13	-18.44	-19.76	-17.6	-18.09	-19.73
10	-18.06	-18.66	-18.61	-19.11	-19.69	-18.8
11	-18.82	-19.33	-18.86	-19.49	-18.95	-20.21
12	-15.49	-14.78	-15.05	-15.88	-14.81	-15.4
13	0.7746	0.007888	0.5702	0.2433	0.1415	0.2993
14	0.2979	0.0134	0.2561	0.1256	0.159	0.2701
15	0.01829	0.09126	0.2169	0.3302	0.06129	0.1452
16	4.244	0.1953	0.4152	0.758	7.976	0.2653
17	0.01026	0.001194	0.009027	0.016	0.009755	0.006309
18	-23.95	-23.62	-21.61	-21.24	-23.05	-21.81
19	1.892E-10	1.768E-10	3.61E-11	3.265E-11	1.351E-10	4.577E-11
20	-19.54	-19.12	-20.26	-20.12	-17.1	-19.15
21	1.77E-10	1.063E-10	2.422E-10	2.251E-10	1.09E-11	8.842E-11
22	4	4	4	4	1	4
23	0.09442	0.06154	0.1009	0.06381	0.04669	0.1025
24	0.1111	0.1177	0.1273	0.1242	0.0764	0.01398
25	0.6361	0.7609	0.6464	0.5745	0.6745	0.7489
26	13830000	13190000	13270000	13720000	11300000	12110000
27	12770000	14600000	11240000	14270000	12460000	15570000
28	-13.25	-12.62	-11.09	-11.43	-11.9	-11.82
29	-9.7	-8.874	-9.916	-10.47	-9.989	-10.21
30	-12.56	-12.25	-13.05	-13.37	-13.45	-11.83
31	4	32	27	17	6	18
32	0.0005114	0.009184	0.07056	0.04295	0.07961	0.0001555
33	3.242	7.612	9.592	9.646	8.525	8.212
34	60.47	166.9	873.3	674.1	129.3	377.9
35	0.3774	0.8143	0.3499	0.06003	0.4958	0.5463
36	0.1668	-0.2429	-0.05537	-0.06674	-0.0888	0.5031
37	-0.254	0.1487	-0.1057	-0.1002	0.0979	0.02091
38	0.9431	-0.6123	-0.04627	-0.1082	0.703	-0.4083
39	-0.07745	-0.03769	0.6738	-0.004034	-0.4063	-0.2037
40	-1.1	-0.05978	-0.3718	-0.009883	0.6589	0.129
41	-0.1437	-1.152	-0.2439	0.04418	0.1887	-0.1831
42	0.2254	-0.06964	0.1722	-0.18	-0.6223	-0.4731
43	-0.1552	-0.09479	-0.04306	-0.1895	-0.2008	-0.1321
44	-0.182	0.6711	-0.09479	-0.04011	-0.3974	0.09043
45	-0.9908	0.2324	0.1769	-0.08896	-0.1856	-0.1251
46	1.556	0.4157	1.416	1.406	1.492	1.265
47	0.2082	0.1421	0.4826	0.4735	0.5977	0.6762
48	1.692	1.047	1.018	1.231	1.04	1.137
49	0.1904	0.3266	0.4048	0.474	0.4473	0.4922
50	0.0004289	0.002664	0.002072	0.003089	0.0007502	0.0001314
51	0.1601	0.1134	0.1081	0.1323	0.1123	0.1977
52	0.02938	0.02143	0.02397	0.02594	0.00188	0.01575
53	5.975	16.21	15.63	3.575	9.325	10.3
54	0.3492	0.1158	0.3786	0.4415	0.05709	0.4583
55	8.902	12.44	7.315	3.172	18.78	6.302
56	3.551	10.86	16.82	7.113	4.611	17.58
57	0.1761	0.1011	0.08265	0.2932	0.2496	0.1238

Table IRES-4. 100 Values Sampled by LHS for 57 Parameters That Were Varied in the 1996 Performance Assessment Calculations, Replicate 3 (Continued)

LHS#	95	96	97	98	99	100
1	1.692E-15	5.358E-17	6.899E-15	1.103E-14	1.083E-14	6.684E-15
2	1	2	1	0	1	2
3	1.558E-09	9.208E-09	5.686E-09	3.469E-09	2.706E-09	7.537E-10
4	9.648E-10	5.414E-10	5.156E-10	3.142E-10	1.121E-09	7.225E-10
5	0.8223	0.4013	0.51	0.5698	0.5564	0.2252
6	0.05467	0.1164	0.08533	0.1032	0.1381	0.05708
7	0.5286	0.4913	0.3377	0.2899	0.2603	0.2287
8	0.2555	0.711	0.1903	0.8849	0.2891	0.7382
9	-20.01	-17.98	-19.36	-19.3	-19.68	-18.82
10	-18.39	-18.81	-20.35	-19.23	-20.1	-19.85
11	-19.38	-20.17	-19.96	-20.23	-19.57	-18.2
12	-14.89	-14.6	-14.65	-15.24	-15.35	-15.82
13	0.9504	0.6114	0.943	0.442	0.5031	0.5672
14	0.03725	0.02845	0.2175	0.0006224	0.1347	0.04174
15	0.1116	0.1021	0.5613	0.09796	0.4051	0.04532
16	3.999	0.805	2.449	0.3778	5.926	7.392
17	0.01086	0.01362	0.0142	0.02726	0.02329	0.003174
18	-23.45	-22.49	-23.8	-23.25	-21.5	-23.03
19	1.474E-10	8.411E-11	1.796E-10	1.523E-10	4.414E-11	1.244E-10
20	-19.22	-19.6	-18.8	-19.4	-19.09	-18.85
21	1.159E-10	2.03E-10	8.492E-11	1.559E-10	1.009E-10	7.117E-11
22	4	4	4	4	4	1
23	0.08897	0.08211	0.01187	0.06797	0.1341	0.1018
24	0.05152	0.07774	0.08234	0.0942	0.08131	0.08926
25	0.6202	0.6494	0.6485	0.6632	0.7166	0.6412
26	11170000	11890000	13220000	12180000	12780000	13340000
27	15890000	12280000	14310000	15160000	14440000	13350000
28	-10.8	-11.01	-11.19	-12.3	-11.43	-12.13
29	-10.48	-10.42	-10.8	-10.03	-9.804	-9.398
30	-11.69	-13.47	-12.83	-13.2	-12.58	-12.2
31	16	1	13	26	4	4
32	0.001571	0.0211	0.0009522	0.00008888	0.003756	0.127
33	7.368	6.355	2.882	8.916	3.97	0.4135
34	407.4	920.8	512	704.6	756.5	630.3
35	0.6076	0.9494	0.5754	0.7405	0.4036	0.2191
36	1.184	-0.2124	-1.977	0.7768	-0.2271	-0.05822
37	0.9451	0.07435	-0.643	-0.3993	0.04691	-0.3914
38	0.5912	-0.1245	0.04215	-0.1922	-0.08493	-0.2141
39	-0.1775	0.4416	0.01427	0.164	-0.2333	-0.2714
40	0.4984	-0.822	-0.4888	-0.1726	-0.8857	-0.08076
41	-0.1062	-0.09064	-0.7188	0.7046	-0.4451	0.001216
42	0.6941	-0.04813	-0.01328	-0.5224	-0.1602	-0.117
43	0.4853	-0.07916	-0.4814	-0.1018	0.02445	-0.08376
44	-0.1729	-0.02291	0.9481	0.1684	-0.6903	0.2395
45	-0.4652	-1.714	0.6183	-0.0791	0.8485	-0.8468
46	1.394	1.433	0.3386	1.599	1.585	1.482
47	0.6961	0.7262	0.07831	0.08721	0.5625	0.9068
48	1.105	1.884	1.249	1.13	1.089	1.016
49	0.1418	0.4639	0.08157	0.1026	0.2435	0.1093
50	0.002146	0.001952	0.0001126	0.006697	0.0005747	0.008105
51	0.1338	0.1783	0.1866	0.1129	0.1766	0.1813
52	0.0212	0.01448	0.01852	0.00772	0.00934	0.003802
53	15.48	12.55	19.21	17.84	2.273	16.4
54	0.4555	0.3388	0.4473	0.03914	0.0332	0.1678
55	17.29	14.56	7.142	8.458	19.11	1.679
56	2.732	18.09	11.86	5.244	16.73	18.44
57	0.2719	0.418	0.2557	0.1079	0.1264	0.4027

Table IRES-5. Ranks of 100 Values Sampled, Replicate 1

LHS#	Material	Parameter	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	STEEL	CORRMC	15	41	70	79	45	58	30	31	99	42	10	78	6	77	57	39	23	43	47	73
2	WAS_AREA	PROBDEG	88	26	63	26	26	26	26	26	63	26	63	63	26	88	88	26	88	63	63	88
3	WAS_AREA	GRATMICI	82	97	83	5	15	45	56	58	85	64	27	43	89	54	69	47	75	9	10	61
4	WAS_AREA	GRATMIC	38	70	47	77	55	51	9	86	95	6	4	15	40	96	57	98	82	26	33	79
5	CELLULS	FBETA	61	30	28	73	32	57	33	51	66	58	89	70	49	85	4	10	50	48	62	18
6	WAS_AREA	SAT_RGA	1	74	78	43	48	77	27	55	5	91	81	49	87	15	58	69	62	2	72	84
7	WAS_AREA	SAT_RBR	84	42	81	34	17	71	13	78	33	62	90	27	70	31	76	50	94	20	52	83
8	WAS_AREA	SAT_WIC	94	48	70	64	9	95	63	16	54	86	22	78	39	91	2	62	25	13	96	26
9	CL_I_T1	PRMX_LO	89	79	77	100	7	65	98	93	45	63	82	88	66	37	20	36	78	44	23	72
10	CONC_T1	PRMX_LO	11	16	18	42	85	74	73	23	54	28	72	98	48	26	89	25	86	21	92	19
11	ASPHALT	PRMX_LO	15	59	92	25	75	33	17	91	11	78	52	30	74	89	4	79	67	38	73	5
12	SHFT_DRZ	PRMX_LO	36	10	84	80	2	8	14	44	48	49	38	74	25	13	82	58	71	1	17	69
13	SALT_T1	CUMPRO	17	16	42	36	54	73	67	23	19	84	61	46	26	82	77	31	45	72	57	51
14	SALT_T1	SAT_RGA	25	98	64	69	68	72	71	17	11	35	65	43	26	7	62	22	67	93	23	44
15	SALT_T1	SAT_RBR	58	56	66	46	86	39	32	22	45	29	97	48	54	72	50	37	93	35	89	8
16	SALT_T1	PORE_DIS	22	50	34	86	71	1	33	85	88	32	24	7	15	2	55	43	11	91	10	66
17	S_HALITE	POROSIT	53	23	79	74	86	28	99	2	98	45	38	5	4	68	34	87	54	41	84	31
18	S_HALITE	PRMX_LO	20	79	16	63	78	54	43	72	45	38	6	50	23	62	82	3	83	95	36	80
19	S_HALITE	COMP_RC	79	24	84	38	18	46	65	32	54	63	98	48	80	47	16	99	25	3	53	31
20	S_MB139	PRMX_LO	51	54	29	79	30	24	12	19	18	35	9	4	22	61	3	70	68	57	52	94
21	S_MB139	COMP_RC	47	39	64	10	79	81	92	75	87	65	91	99	78	32	96	41	29	43	49	10
22	S_MB139	RELP_MO	26	26	26	26	76	76	76	26	76	26	76	26	26	26	26	26	76	76	76	26
23	S_MB139	SAT_RBR	66	46	97	27	56	88	22	95	77	4	98	12	19	35	23	8	2	26	20	11
24	S_MB139	SAT_RGA	3	19	83	51	22	49	17	55	65	48	69	54	88	66	80	60	74	98	3	18
25	S_MB139	PORE_DIS	29	26	78	76	89	60	48	97	33	99	28	8	80	94	90	63	21	38	64	74
26	S_HALITE	PRESSUR	34	44	10	68	3	69	54	79	42	4	92	88	62	16	81	94	21	37	12	30
27	CASTILER	PRESSUR	83	17	18	7	34	1	23	6	92	12	51	2	61	67	36	29	75	9	35	50
28	CASTILER	PRMX_LO	85	52	15	37	23	36	79	60	19	89	51	30	8	24	55	31	97	80	29	64
29	CASTILER	COMP_RC	6	19	84	82	80	56	45	53	89	39	54	77	91	93	16	27	21	8	78	88
30	BH_SAND	PRMX_LO	43	66	29	27	5	57	96	56	83	21	45	65	40	60	78	39	70	3	98	6
31	CASTILER	GRIDFLO	90	99	28	65	52	31	43	77	49	52	74	87	40	21	18	46	31	68	37	68
32	BLOWOUT	PARTDIA	86	47	98	19	43	7	52	3	27	24	34	63	89	73	16	54	100	39	80	49
33	BOREHOLE	TAUFAIL	9	28	38	34	79	49	48	64	31	12	53	74	96	71	36	67	10	93	72	13
34	CULEBRA	MINP_FA	40	90	96	54	33	63	80	12	25	20	1	70	83	29	24	17	5	22	4	16
35	GLOBAL	TRANSID	36	2	86	62	71	54	6	99	76	41	46	44	14	26	75	49	95	79	35	23
36	SOLAM3	SOLSIM	35	20	6	99	77	26	30	69	11	51	62	43	24	32	61	86	88	14	65	64
37	SOLAM3	SOLCIM	20	42	50	1	22	45	87	25	84	63	2	3	41	66	39	94	77	93	27	78
38	SOLPU3	SOLSIM	14	93	44	33	100	28	35	76	65	9	18	78	90	61	49	38	81	1	42	95
39	SOLPU3	SOLCIM	72	17	97	56	61	73	92	68	54	70	63	13	53	22	23	43	84	26	36	96
40	SOLPU4	SOLSIM	26	54	35	4	97	17	27	34	66	61	8	100	77	58	55	75	96	53	11	22
41	SOLPU4	SOLCIM	52	84	2	92	45	76	75	21	18	20	40	23	85	55	93	10	44	31	30	97
42	SOLU4	SOLSIM	16	31	39	7	10	71	22	67	64	74	27	86	49	12	5	99	66	70	56	2
43	SOLU6	SOLSIM	30	66	70	23	46	44	75	29	41	27	28	98	49	97	91	5	77	71	87	84
44	SOLU6	SOLCIM	62	53	92	38	36	4	52	97	10	73	14	33	82	24	76	84	41	70	89	55
45	SOLTH4	SOLSIM	91	18	35	22	53	77	42	87	61	59	95	57	26	94	62	56	45	34	90	6
46	PHUMOX3	PHUMCIM	3	63	95	18	17	5	58	1	9	100	64	31	24	11	53	55	23	62	93	67
47	GLOBAL	OXSTAT	100	7	95	68	57	22	23	45	88	98	35	99	90	33	83	77	56	92	24	89
48	GLOBAL	CLIMTIDX	65	99	91	41	45	100	6	52	28	86	80	12	2	22	79	62	57	77	96	95
49	CULEBRA	HMBLKLT	83	4	57	95	53	24	62	12	29	19	71	47	17	43	32	45	16	51	78	59
50	CULEBRA	APOROS	6	97	15	33	41	5	72	74	93	35	98	66	61	83	68	8	47	86	92	12
51	CULEBRA	DPOROS	29	5	98	7	28	32	44	90	13	10	37	87	61	73	20	19	70	68	81	91
52	U+6	MKD_U	9	39	47	15	19	43	26	24	93	11	87	85	14	50	28	95	83	72	48	100
53	U+4	MKD_U	21	31	11	97	46	7	50	56	36	22	34	100	3	91	24	74	48	55	64	87
54	PU+3	MKD_PU	63	31	74	71	61	90	7	1	52	27	75	43	87	81	30	96	6	50	45	80
55	PU+4	MKD_PU	61	43	48	88	80	13	65	69	87	93	96	50	35	28	8	55	89	29	81	51
56	TH+4	MKD_TH	19	38	5	63	16	80	33	49	81	10	15	43	78	17	47	54	35	98	88	74
57	AM+3	MKD_AM	21	62	12	36	94	45	92	97	93	95	42	15	44	79	25	70	27	61	78	85

Table IRES-5. Ranks of 100 Values Sampled, Replicate 1 (Continued)

LHS#	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1	96	2	3	87	5	91	90	69	34	13	63	36	38	54	22	98	44	84	83	76	11	60	67	14	21	32	20	74	26
2	26	26	26	26	26	63	26	26	88	88	26	26	26	88	88	63	88	26	26	63	26	26	26	26	26	88	26	26	26
3	99	11	78	41	38	68	20	32	59	23	77	31	84	67	73	35	72	92	24	50	88	98	48	2	63	8	44	1	51
4	64	78	24	67	22	72	97	87	52	31	65	53	39	37	42	85	71	8	32	74	93	20	50	41	63	62	100	36	48
5	14	88	16	53	29	40	13	86	7	41	9	76	44	99	31	90	43	93	12	5	19	91	77	21	78	63	27	80	72
6	23	25	80	99	12	85	97	11	79	21	64	20	37	41	100	89	42	98	90	9	93	35	76	63	31	61	3	73	10
7	30	73	29	2	37	12	35	36	49	9	3	5	44	10	95	80	26	11	59	82	57	60	79	72	74	1	68	92	22
8	90	15	7	28	55	36	17	57	89	38	68	43	1	20	100	58	76	11	53	10	34	97	59	42	72	46	75	81	61
9	58	15	32	12	67	69	91	55	48	84	11	57	33	10	8	6	96	75	99	38	35	85	46	17	31	68	71	49	76
10	95	94	71	22	15	79	84	39	78	69	6	100	63	58	61	80	31	17	13	59	83	47	49	88	9	34	81	24	77
11	83	86	13	14	100	97	99	60	48	84	72	9	18	58	80	7	77	68	19	53	20	6	76	69	16	35	93	8	57
12	92	47	96	9	61	98	26	60	24	57	91	42	7	22	15	54	40	23	70	95	78	88	6	51	37	72	73	87	97
13	60	59	62	68	49	33	44	15	55	3	99	95	48	87	71	40	30	5	83	66	28	43	41	14	70	79	65	90	25
14	70	2	10	18	36	38	57	58	99	91	55	95	37	42	79	9	27	30	63	39	56	21	50	16	78	52	32	51	100
15	70	79	34	83	21	20	24	33	75	63	14	1	65	42	6	77	57	7	90	81	36	82	68	95	43	59	51	41	91
16	35	84	52	5	68	36	12	56	27	81	76	80	62	64	98	97	96	61	69	92	4	87	99	48	70	40	10	54	93
17	93	96	51	30	63	92	11	33	88	24	9	61	75	52	77	7	55	90	46	97	94	20	22	78	83	91	13	40	8
18	49	30	28	55	94	97	61	76	87	15	1	17	41	19	12	89	81	71	11	18	73	44	98	42	5	21	59	29	58
19	51	70	74	41	8	6	42	22	15	83	100	85	73	87	91	12	21	26	88	78	23	57	5	60	96	82	49	77	35
20	32	83	99	48	77	42	89	47	41	84	64	53	92	17	60	39	74	16	100	10	40	66	59	44	26	98	28	8	75
21	69	10	10	48	28	52	20	58	61	10	37	46	10	86	42	56	33	84	10	89	57	31	45	55	67	10	76	93	25
22	26	26	76	76	26	76	76	76	26	76	76	26	76	26	76	76	26	76	76	76	76	26	26	26	76	26	76	26	76
23	64	80	78	49	69	76	67	93	86	74	85	16	100	50	62	73	94	28	29	13	63	75	24	14	59	42	38	39	58
24	89	90	52	73	5	26	11	61	96	84	16	33	30	58	86	34	57	14	99	32	87	28	23	7	59	63	36	81	45
25	24	39	3	93	73	85	27	62	32	47	5	31	50	45	43	2	66	14	46	96	42	75	69	36	98	34	86	12	19
26	29	19	71	99	82	64	45	100	73	48	39	47	33	83	74	13	95	56	60	78	63	38	65	23	96	43	36	46	53
27	45	21	5	25	77	69	40	55	47	28	52	68	22	85	41	62	87	74	88	56	98	8	95	13	20	84	65	59	27
28	45	46	38	34	35	21	43	50	72	39	65	62	27	69	17	12	91	48	78	9	86	66	44	81	84	94	58	4	11
29	5	57	28	40	75	69	65	51	33	26	55	64	66	70	74	68	67	24	30	98	59	29	41	12	9	2	20	97	100
30	62	28	87	35	90	13	75	85	76	53	67	25	34	31	54	18	22	15	61	46	41	49	86	55	36	2	8	12	4
31	96	21	46	24	15	33	84	49	37	65	2	15	70	99	43	65	74	43	80	84	87	28	58	90	37	58	70	93	18
32	4	61	91	88	29	32	76	53	75	64	56	68	15	58	72	6	66	67	9	69	8	71	95	60	33	37	87	96	45
33	51	97	7	5	40	43	84	61	70	63	80	95	66	47	54	20	46	91	22	87	82	99	2	58	60	23	32	45	1
34	14	47	37	64	8	93	31	19	11	76	59	82	3	92	15	52	88	42	91	28	79	71	66	98	69	30	39	13	65
35	84	22	92	38	50	29	88	63	15	40	9	57	33	48	27	1	87	81	21	53	8	30	67	42	96	82	10	83	25
36	93	42	55	95	78	96	33	83	10	91	67	80	19	97	89	36	9	50	92	8	7	44	25	76	39	1	58	12	40
37	64	89	59	10	26	86	68	53	100	65	72	9	19	80	62	49	52	54	44	12	6	85	43	99	98	4	38	60	96
38	94	48	12	30	66	17	7	29	69	87	71	79	34	31	24	63	15	51	60	75	86	56	97	54	96	85	45	58	88
39	87	49	69	44	18	42	94	7	11	78	25	85	93	60	31	82	33	30	55	90	27	86	40	38	67	4	19	10	50
40	52	86	64	29	69	21	73	87	36	2	56	39	43	65	23	76	30	88	89	42	10	37	85	24	63	59	25	31	70
41	14	60	73	24	74	62	29	51	33	6	15	26	42	38	70	57	91	80	7	46	37	98	8	72	22	54	49	47	95
42	55	25	50	6	84	62	30	3	32	28	1	88	45	93	92	77	34	20	98	79	83	82	80	9	44	57	81	11	60
43	50	10	88	22	7	37	35	90	2	17	93	3	78	63	99	15	86	40	69	82	18	43	55	11	72	51	25	47	57
44	47	67	35	94	8	34	16	100	93	13	12	58	71	79	37	39	11	6	48	42	75	5	23	57	1	54	61	49	96
45	96	37	48	51	7	84	8	4	9	66	82	39	58	13	21	47	99	79	80	40	16	38	64	74	19	1	92	83	93
46	42	61	21	48	10	94	83	34	8	49	26	43	99	29	19	13	45	36	4	15	47	88	85	7	80	81	87	78	91
47	8	78	74	4	49	93	42	62	73	55	87	53	96	21	28	86	43	52	84	12	97	13	63	61	79	5	46	27	38
48	55	98	54	37	21	53	30	34	35	23	92	60	5	61	15	11	64	74	68	82	88	40	97	38	13	33	14	49	8
49	72	5	94	33	21	56	90	85	58	22	26	37	27	13	69	25	10	34	1	64	96	73	93	48	68	92	88	41	39
50	30	34	99	73	43	91	54	46	22	23	20	58	40	19	53	18	32	2	76	25	16	71	28	89	26	38	7	36	88
51	48	57	11	27	89	77	2	100	25	83	41	49	80	30	34	71	8	42	69	16	50	99	85	56	24	78	14	17	12
52	44	80	71	96	27	7	3	18	84	94	77	17	49	61	1	36	78	76	23	52	29	30	8	6	65	20	99	74	45
53	82	67	45	68	10	78	86	27	63	62	30	32	53	43	89	38	57	61	39	8	94	96	72	84	95	41	40	44	12
54	67	13	25	26	54	76	12	70	24	55	36	15	100	9	99	14	22	97	73	72	34	2	19	69	10	56	17	8	88
55	62	42	32	47	82	10	59	83	79	15	86	37	12	56	66	49	19	97	54	17	63	38	11	58	27	67	71	57	91
56	83	36	31	12	48	51	66	25	55	6	72	3	77	79	76	2	11	82	94	53	92	70	89	86	13	44	24	99	85
57	54	5	77	41	1	67	34	57	86	76	31	19	20	3	56	83	17	38	88	10	16	33	30	2	35	84	73	23	13

Table IRES-5. Ranks of 100 Values Sampled, Replicate 1 (Continued)

LHS#	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
1	97	40	33	95	71	52	65	12	16	66	89	80	29	62	25	82	53	49	61	51	37	64	9	85	68	24	81	27	4	75	18
2	88	26	26	88	88	63	63	63	63	63	26	26	63	26	88	63	88	26	63	88	88	63	26	26	88	63	88	88	88	88	63
3	87	71	30	60	18	37	14	22	36	10	16	3	42	25	66	70	76	81	55	29	52	17	86	91	49	28	96	6	80	46	40
4	84	60	44	61	10	23	29	88	59	21	16	18	80	94	54	66	83	76	17	92	3	30	11	68	89	34	14	91	73	27	28
5	56	94	34	97	20	39	17	71	2	3	38	1	87	36	82	98	46	35	45	75	81	84	92	55	74	22	37	95	23	47	42
6	30	83	66	8	28	71	19	70	32	54	53	6	26	24	68	34	47	59	56	39	18	75	52	36	67	94	33	46	44	29	88
7	85	40	7	45	96	93	88	51	63	6	38	55	64	23	25	28	98	66	65	48	46	43	16	91	77	18	53	97	75	61	54
8	6	33	92	56	47	71	45	23	85	99	27	87	65	37	3	44	35	83	5	18	21	67	77	30	41	73	80	98	49	8	66
9	14	25	13	9	50	4	34	43	1	51	21	62	29	80	61	64	97	42	54	27	3	74	28	19	47	39	53	87	59	73	60
10	38	4	60	27	7	3	56	66	65	64	36	35	99	1	40	20	37	50	41	2	52	10	62	70	93	14	96	97	46	82	44
11	64	45	82	98	66	44	12	26	39	21	31	95	27	23	47	81	34	43	70	61	63	62	51	65	37	50	96	28	42	87	85
12	32	67	62	65	75	68	34	46	50	52	10	16	76	4	45	21	19	3	63	94	28	35	85	59	56	39	11	18	93	81	41
13	50	69	18	38	81	2	12	94	10	58	97	10	11	8	88	24	80	85	53	86	6	37	32	63	35	78	93	47	74	21	20
14	53	96	73	41	75	92	12	29	3	77	28	8	90	60	1	61	46	24	34	83	86	59	49	84	85	74	6	82	20	47	19
15	30	98	67	78	69	2	62	25	61	44	76	15	38	13	4	96	88	52	71	10	84	64	31	26	17	47	80	3	40	19	28
16	25	53	95	6	19	41	3	79	47	83	28	75	45	59	38	51	73	65	89	39	18	9	82	63	74	44	72	17	77	90	46
17	95	19	73	27	80	72	25	16	26	64	18	37	85	10	71	48	14	67	39	70	3	56	15	1	36	76	6	62	12	43	57
18	26	31	52	22	66	93	24	34	47	46	39	60	65	40	69	32	67	84	7	91	68	56	75	27	14	10	90	9	86	13	57
19	71	67	55	81	33	7	69	59	61	50	52	45	40	68	28	66	30	17	94	10	34	44	27	75	86	95	9	89	20	93	37
20	23	31	21	38	88	50	5	1	90	72	80	13	97	34	95	81	58	86	65	25	93	73	14	96	11	56	43	82	63	15	6
21	77	71	80	60	10	66	95	99	10	40	27	85	10	70	10	19	54	10	38	74	10	30	83	10	90	50	63	10	44	88	97
22	26	76	26	76	26	26	26	26	76	26	26	76	76	76	76	76	26	26	26	26	26	76	26	26	26	76	76	76	76	26	76
23	72	57	1	9	79	48	47	92	89	41	10	90	51	71	15	25	21	7	70	3	52	55	44	61	45	37	18	82	17	5	65
24	56	85	95	79	3	70	35	67	72	76	12	27	20	94	43	41	37	71	82	44	24	8	3	38	25	9	92	53	15	75	13
25	20	70	81	4	61	72	35	83	87	91	79	10	56	17	23	82	95	6	65	13	67	68	59	15	10	71	41	54	51	30	7
26	17	1	86	77	52	76	58	8	32	7	57	61	98	51	59	5	67	70	75	72	89	6	40	14	50	80	90	18	84	15	93
27	26	3	79	32	39	71	37	100	60	30	76	14	11	54	15	80	89	49	43	19	53	72	91	73	10	63	58	90	33	78	93
28	32	96	25	99	71	57	61	98	73	13	92	76	74	82	54	40	20	100	16	6	22	3	93	41	67	53	88	33	10	42	68
29	94	37	85	25	52	46	58	4	42	96	11	32	22	47	90	10	48	1	72	86	99	73	7	50	23	31	34	83	63	13	35
30	97	77	74	24	81	7	1	38	23	14	94	20	72	92	82	79	33	11	63	71	17	47	99	26	91	19	84	89	48	30	9
31	5	12	74	99	49	24	18	46	77	99	90	55	43	77	84	61	70	12	12	28	80	21	33	24	74	33	2	52	65	28	37
32	46	31	35	11	30	77	70	82	79	81	44	38	92	90	20	28	23	85	18	78	26	65	10	21	55	1	50	2	74	41	5
33	11	37	16	62	86	98	52	15	85	44	10	4	77	90	35	65	92	69	75	33	29	25	76	59	3	39	55	56	78	27	19
34	95	78	89	49	84	51	75	87	85	10	9	67	100	55	73	27	99	56	50	36	23	94	45	21	72	38	46	43	53	81	62
35	68	74	70	66	20	17	58	45	32	16	18	61	60	19	11	34	31	69	5	65	51	77	47	98	56	78	72	59	91	4	28
36	66	56	2	18	45	13	90	79	84	54	29	48	68	81	27	52	94	73	15	47	70	21	60	17	5	71	16	46	41	34	3
37	70	31	37	90	32	11	46	91	15	35	95	21	16	56	58	5	73	14	40	13	76	55	7	51	47	88	28	30	92	17	97
38	23	6	13	57	77	82	55	50	22	2	74	73	68	92	52	46	8	43	21	36	26	27	41	67	72	98	84	70	59	4	10
39	34	64	83	48	3	91	28	46	47	21	99	71	76	37	1	58	6	98	45	95	81	88	62	9	20	8	35	89	75	32	100
40	82	92	14	33	94	18	72	1	79	99	13	67	74	38	5	48	62	78	91	60	28	6	93	3	20	90	7	98	84	51	95
41	71	61	79	13	82	35	19	28	34	12	67	86	10	59	3	83	77	88	66	17	32	4	1	50	58	25	64	78	5	69	63
42	61	53	59	24	100	54	63	69	95	14	35	76	33	29	52	42	38	51	73	97	65	47	15	91	68	41	40	8	17	18	43
43	4	32	56	54	42	53	64	68	73	9	48	6	100	16	60	79	83	59	13	26	65	61	39	76	24	62	38	52	1	36	95
44	60	18	46	29	99	25	3	86	26	80	51	28	78	50	40	21	43	83	19	63	69	87	77	74	20	85	65	68	32	81	95
45	54	10	44	46	75	86	12	78	29	50	20	3	14	88	81	2	32	100	76	89	69	24	49	30	25	98	23	70	28	63	11
46	77	12	40	90	72	76	60	35	66	14	27	71	28	84	30	41	89	38	46	39	37	2	98	25	70	74	51	73	52	44	6
47	32	25	94	50	81	44	91	36	10	19	37	29	34	31	40	85	26	65	66	3	14	64	39	58	48	59	71	60	69	17	2
48	24	50	69	78	51	7	59	44	75	32	26	27	83	63	19	20	85	4	46	93	39	10	29	67	1	31	36	89	84	94	58
49	55	97	40	75	63	8	44	46	81	76	23	11	31	87	82	35	86	99	100	67	70	38	20	42	50	80	36	65	60	28	91
50	75	13	85	81	55	90	95	44	78	50	45	29	11	96	69	100	65	59	31	80	1	67	52	84	49	64	14	82	87	10	94
51	4	79	67	63	9	31	43	36	35	38	59	52	18	62	74	3	65	47	53	93	26	66	1	6	82	58	40	75	33	95	64
52	22	63	90	4	91	25	21	13	97	56	62	81	33	55	82	46	75	42	35	54	32	98	92	40	73	31	70	89	38	51	86
53	18	90	37	19	99	88	42	93	49	65	4	29	2	14	25	33	9	6	15	71	52	51	76	83	26	13	70	54	80	73	77
54	23	89	68	60	77	3	91	94	51	48	82	65	66	93	38	39	20	57	4	84	29	11	92	78	83	21	85	41	95	42	64
55	44	52	53	40	2	94	78	30	39	21	46	84	90	16	64	5	100	20	92	41	3	85	76	95	18	26	45	36	24	22	23
56	67	42	8	71	27	34	40	57	91	26	20	69	68	58	46	21	56	75	93	18	84	100	95	1	97	45	60	50	73	37	7
57	63	46	90	65	91	64	81	59	28	7	55	66	100	58	24	11	50	32	99	53	87	26	74	9	29	4	72	47	75	43	37

Table IRES-5. Ranks of 100 Values Sampled, Replicate 1 (Continued)

LHS#	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	56	50	92	46	72	88	59	17	100	55	48	86	35	19	28	8	94	93	7	1
2	26	63	26	26	26	26	26	26	63	63	63	88	26	26	63	26	26	26	26	88
3	62	7	65	93	74	90	13	95	12	57	33	26	19	94	39	21	4	53	79	34
4	2	46	81	25	19	13	35	49	69	43	99	5	56	45	90	7	12	1	58	75
5	60	10	64	69	52	65	8	25	24	15	6	68	67	54	11	59	96	26	83	79
6	7	82	65	14	4	50	40	57	38	22	60	96	17	45	86	51	95	16	92	13
7	56	41	19	67	86	100	99	24	14	32	58	4	21	87	15	39	89	47	69	8
8	4	84	88	74	52	50	51	12	32	40	24	69	79	19	31	14	29	60	93	82
9	81	2	16	18	5	52	22	30	86	24	94	26	41	56	70	83	90	95	92	40
10	68	32	90	12	43	67	29	76	75	51	5	30	55	33	91	57	87	53	45	8
11	41	56	36	88	10	54	71	94	29	1	32	24	2	22	46	40	90	49	3	55
12	43	86	77	83	64	55	27	12	79	20	31	53	5	30	33	90	89	29	66	99
13	98	7	56	92	22	52	29	64	4	27	13	39	91	75	76	1	96	9	34	89
14	81	87	66	97	40	48	31	76	15	45	80	13	88	54	94	33	89	14	4	5
15	87	99	53	23	9	92	5	18	49	16	100	74	60	94	73	11	12	27	55	85
16	21	26	31	23	42	78	58	14	20	57	94	60	16	30	8	37	67	13	49	29
17	49	44	59	69	66	82	29	60	32	47	81	35	21	100	17	42	89	50	65	58
18	77	70	100	37	51	8	53	4	2	35	48	64	92	96	25	88	99	33	74	85
19	29	36	2	56	58	90	43	92	97	64	62	39	11	4	76	14	1	72	19	13
20	45	33	49	7	91	87	85	62	78	27	2	46	71	69	55	20	67	76	37	36
21	51	68	62	94	10	23	10	34	21	73	99	59	24	35	36	82	26	22	53	72
22	76	76	26	76	76	76	26	26	76	76	26	76	26	26	26	26	76	26	76	76
23	87	33	91	81	43	54	30	32	83	68	40	99	34	60	53	31	96	6	36	84
24	64	39	21	62	50	31	100	6	46	29	10	77	47	68	42	91	78	93	40	97
25	88	53	57	25	84	9	16	11	92	58	1	44	49	52	37	77	55	40	22	18
26	25	66	22	31	28	91	11	26	87	20	35	55	97	85	24	2	49	41	9	27
27	96	94	4	86	24	81	31	38	64	99	16	42	82	46	97	48	66	70	44	57
28	18	47	70	75	95	59	26	7	87	28	83	56	2	63	49	90	77	5	14	1
29	79	60	17	38	3	61	49	81	14	71	36	44	76	43	62	15	18	92	95	87
30	58	95	16	50	68	10	100	44	59	80	73	93	88	42	37	51	52	64	32	69
31	61	55	8	80	40	8	93	96	8	87	12	93	5	61	15	5	84	2	58	55
32	83	22	14	94	51	57	13	84	97	42	48	99	62	25	40	36	93	17	59	12
33	73	57	68	50	41	18	21	26	17	42	94	30	14	6	83	8	81	88	89	24
34	97	61	57	6	68	77	86	34	2	58	32	60	18	35	48	7	41	44	26	74
35	55	93	52	12	85	80	39	73	3	100	43	94	7	13	97	24	37	90	89	64
36	28	75	72	100	4	85	63	49	23	98	53	38	31	82	22	74	59	87	37	57
37	81	48	74	29	23	24	69	57	82	79	36	34	75	33	18	67	61	71	83	8
38	91	5	39	64	16	62	80	53	25	3	32	99	19	37	20	89	11	83	40	47
39	51	2	39	59	14	12	80	15	41	57	29	52	66	77	79	16	24	65	5	74
40	71	47	12	40	57	19	81	15	83	49	16	44	41	46	80	50	68	9	45	32
41	68	87	56	81	90	9	41	96	36	53	16	99	11	39	94	43	48	65	27	89
42	46	23	87	37	21	4	19	78	85	96	89	90	75	58	36	94	26	48	72	13
43	58	20	81	33	12	14	80	92	67	74	94	8	34	31	21	89	85	45	19	96
44	44	9	45	72	90	30	31	15	59	66	88	91	7	22	17	2	27	98	64	56
45	85	72	41	5	97	15	55	71	52	27	43	67	65	33	73	60	68	17	31	36
46	22	69	54	32	16	50	96	59	86	82	56	65	57	97	68	20	33	75	79	92
47	9	75	41	70	16	18	6	67	11	82	51	72	80	20	15	30	76	54	1	47
48	81	43	70	71	48	42	3	56	73	66	25	90	87	18	16	76	9	72	17	47
49	98	52	84	74	3	54	79	18	7	49	30	77	66	2	6	89	15	61	14	9
50	51	21	56	79	63	77	3	42	39	24	4	62	17	70	57	60	27	48	37	9
51	60	84	94	86	88	72	51	97	54	76	39	46	45	92	96	21	23	22	55	15
52	34	60	88	53	10	59	68	69	5	57	41	37	12	58	64	67	79	66	16	2
53	98	23	1	35	92	47	58	69	75	20	85	28	79	59	60	16	17	66	5	81
54	98	49	44	5	53	37	58	16	59	46	33	32	47	79	35	40	62	28	86	18
55	98	68	73	7	75	1	72	60	77	74	34	70	25	99	14	4	6	33	9	31
56	14	28	52	90	64	41	4	39	61	23	29	32	22	62	96	65	30	59	9	87
57	80	48	18	71	49	89	14	98	39	68	52	40	22	6	69	60	51	8	96	82

Table IRES-6. Ranks of 100 Values Sampled, Replicate 2

LHS#	R#	Mat	Par	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	2	STEEL	CORRMC	17	26	47	84	70	63	80	48	100	53	94	71	69	52	92	50	11	77	88	29
2	2	WAS_AREA	PROBDEG	88	88	63	88	63	26	88	63	63	26	63	26	26	26	26	63	26	26	63	26
3	2	WAS_AREA	GRATMICI	62	98	34	52	57	66	95	54	7	99	68	100	91	80	72	38	77	89	42	73
4	2	WAS_AREA	GRATMIC	96	67	87	3	62	22	90	34	57	26	75	10	45	83	21	12	13	84	99	70
5	2	CELLULS	FBETA	32	72	41	23	11	9	82	58	47	20	13	2	35	46	19	81	44	75	4	59
6	2	WAS_AREA	SAT_RGA	69	98	27	4	90	96	97	5	13	43	79	85	54	18	7	68	24	95	72	61
7	2	WAS_AREA	SAT_RBR	40	80	34	14	84	45	28	35	52	60	59	62	50	31	58	29	44	12	36	20
8	2	WAS_AREA	SAT_WIC	82	99	60	27	6	9	61	95	80	41	56	19	97	57	18	94	22	59	8	67
9	2	CL_I_T1	PRMX_LO	21	87	34	77	99	88	62	72	40	9	70	37	29	97	19	4	73	23	22	57
10	2	CONC_T1	PRMX_LO	70	41	62	98	96	67	33	81	55	42	3	93	91	16	47	40	19	61	20	100
11	2	ASPHALT	PRMX_LO	75	50	87	22	52	91	16	47	35	44	6	24	81	74	11	31	40	33	59	17
12	2	SHFT_DRZ	PRMX_LO	90	89	86	65	99	24	10	91	33	71	15	35	26	46	80	97	17	3	70	45
13	2	SALT_T1	CUMPROB	13	27	50	26	72	88	95	100	18	15	89	31	63	81	39	35	53	66	45	93
14	2	SALT_T1	SAT_RGA	50	97	81	99	7	69	35	63	62	19	36	55	57	87	29	72	74	79	13	39
15	2	SALT_T1	SAT_RBR	26	65	75	68	82	42	20	21	78	84	52	51	85	67	7	13	14	9	34	88
16	2	SALT_T1	PORE_DIS	36	54	76	89	40	50	77	29	16	74	79	32	35	21	27	85	86	66	11	28
17	2	S_HALITE	POROSITY	7	65	84	30	43	69	62	28	1	79	50	9	6	39	8	92	36	78	87	16
18	2	S_HALITE	PRMX_LO	97	88	83	64	15	17	10	44	20	86	78	62	87	91	40	2	81	71	60	28
19	2	S_HALITE	COMP_RC	3	13	21	42	87	86	90	54	79	17	29	35	16	11	60	99	27	24	47	75
20	2	S_MB139	PRMX_LO	42	50	35	36	84	89	54	9	24	22	88	31	76	61	59	82	79	28	38	66
21	2	S_MB139	COMP_RC	68	40	64	49	10	10	57	96	76	81	10	73	23	44	42	21	36	65	69	37
22	2	S_MB139	RELP_MO	26	76	26	26	76	76	26	26	76	76	76	26	76	76	26	26	76	76	76	76
23	2	S_MB139	SAT_RBR	62	69	2	40	63	74	12	100	46	98	22	10	19	57	94	17	11	70	65	29
24	2	S_MB139	SAT_RGA	67	26	33	6	24	3	63	28	71	69	49	35	65	52	53	34	79	51	92	75
25	2	S_MB139	PORE_DIS	70	26	57	86	19	21	93	53	59	80	2	27	36	91	9	64	82	68	87	12
26	2	S_HALITE	PRESSURE	51	10	7	37	53	93	94	40	60	15	87	85	72	12	46	19	52	79	84	1
27	2	CASTILER	PRESSURE	49	16	100	20	31	56	58	98	22	51	87	70	48	59	57	34	12	4	95	8
28	2	CASTILER	PRMX_LO	52	45	94	58	29	99	84	1	91	35	10	30	67	92	76	26	55	80	37	8
29	2	CASTILER	COMP_RC	20	68	1	92	57	7	11	100	53	81	98	78	25	52	6	76	72	61	56	83
30	2	BH_SAND	PRMX_LO	28	94	87	46	57	29	35	37	92	80	93	45	56	49	32	81	39	55	24	30
31	2	CASTILER	GRIDFLO	59	71	17	52	2	9	21	28	24	55	93	28	52	6	99	6	33	46	84	2
32	2	BLOWOUT	PARTDIA	71	81	41	11	95	73	3	24	20	61	43	13	98	17	38	29	77	66	22	31
33	2	BOREHOLE	TAUFAIL	27	98	64	90	19	37	22	15	9	63	82	42	21	73	69	78	23	26	85	38
34	2	CULEBRA	MINP_FAC	36	41	80	28	12	93	88	29	33	46	50	6	60	87	48	76	97	4	5	67
35	2	GLOBAL	TRANSID	66	98	45	11	31	64	80	37	1	82	33	25	89	32	73	72	50	40	35	67
36	2	SOLAM3	SOLSIM	16	64	73	99	86	13	65	66	3	83	1	35	4	61	81	6	53	90	51	14
37	2	SOLAM3	SOLCIM	95	45	5	66	18	22	34	90	26	82	97	55	16	47	30	8	3	54	6	51
38	2	SOLPU3	SOLSIM	57	44	3	36	24	83	22	58	60	66	7	1	88	49	53	59	85	31	61	18
39	2	SOLPU3	SOLCIM	14	85	84	16	73	2	96	77	45	56	40	75	57	27	59	62	81	49	7	41
40	2	SOLPU4	SOLSIM	100	25	75	41	83	16	87	82	65	32	99	14	1	62	93	91	9	60	6	24
41	2	SOLPU4	SOLCIM	89	54	85	50	18	93	95	97	13	91	60	70	92	67	10	45	37	21	55	19
42	2	SOLU4	SOLSIM	22	23	43	41	58	68	29	96	57	80	42	20	98	52	32	97	54	34	82	25
43	2	SOLU6	SOLSIM	3	50	43	36	2	49	35	82	26	5	57	52	27	75	94	91	66	25	59	48
44	2	SOLU6	SOLCIM	98	25	63	20	67	93	55	83	46	94	27	6	56	60	92	95	53	66	49	90
45	2	SOLTH4	SOLSIM	22	9	70	81	65	30	8	97	4	7	21	29	66	85	13	79	48	77	37	28
46	2	PHUMOX3	PHUMCIM	17	10	58	7	59	76	49	93	56	51	37	13	72	9	88	29	73	92	67	43
47	2	GLOBAL	OXSTAT	87	33	31	82	52	57	21	43	17	2	46	62	94	19	41	96	7	29	34	25
48	2	GLOBAL	CLIMTIDX	14	34	41	46	70	22	72	56	20	97	29	1	71	98	48	37	4	87	26	10
49	2	CULEBRA	HMBLKLT	91	55	72	79	11	36	8	84	44	47	33	41	85	7	15	58	35	75	83	99
50	2	CULEBRA	APOROS	65	36	29	44	83	87	68	32	24	91	69	79	18	45	31	15	28	86	53	54
51	2	CULEBRA	DPOROS	70	34	36	32	52	26	6	82	58	16	77	75	76	10	54	65	89	60	69	57
52	2	U+6	MKD_U	98	21	39	25	33	96	1	64	3	31	37	92	17	97	85	62	69	57	79	47
53	2	U+4	MKD_U	40	61	29	10	12	68	53	54	98	24	22	85	87	66	18	14	8	91	58	37
54	2	PU+3	MKD_PU	86	70	78	30	77	6	7	38	67	84	98	13	96	72	46	59	82	87	79	92
55	2	PU+4	MKD_PU	94	10	71	68	79	24	38	35	43	58	85	12	41	57	8	15	82	2	19	53
56	2	TH+4	MKD_TH	88	61	28	89	98	31	80	65	24	37	38	84	69	5	64	97	63	87	41	8
57	2	AM+3	MKD_AM	30	100	16	72	4	44	84	50	25	8	12	24	52	74	98	28	9	15	69	90

Table IRES-6. Ranks of 100 Values Sampled, Replicate 2 (Continued)

LHS#	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1	23	9	25	42	44	40	35	1	59	93	55	79	72	28	20	97	61	31	83	43	5	37	39	85	60	76	78	3	27
2	63	88	88	26	63	88	63	63	88	63	26	63	26	26	26	26	26	26	88	26	63	26	26	63	26	63	26	88	26
3	97	45	87	28	81	67	36	60	30	9	85	11	75	88	94	16	61	58	12	86	29	40	18	6	14	84	4	31	23
4	43	73	54	1	36	47	59	72	42	32	37	41	19	40	97	88	44	80	14	78	38	93	89	65	46	11	85	27	18
5	86	79	67	8	99	1	83	53	45	49	66	43	36	15	34	33	73	63	71	78	24	54	7	89	94	100	6	50	48
6	49	64	55	57	15	75	86	84	99	70	21	89	28	42	10	50	74	94	40	25	38	3	52	100	47	12	32	35	1
7	63	4	100	18	87	86	91	6	25	15	79	92	38	74	19	30	42	88	67	10	7	94	66	32	95	65	76	54	56
8	81	74	47	40	50	62	85	21	35	75	36	72	98	3	23	88	64	12	33	25	29	55	96	16	34	32	77	76	79
9	6	8	27	13	47	71	17	43	46	80	59	60	69	56	66	25	63	95	58	12	96	100	28	41	10	61	79	84	76
10	82	9	31	65	66	21	28	71	18	7	63	99	26	95	10	89	80	44	84	79	50	35	49	68	43	12	85	69	14
11	39	4	20	46	72	80	95	88	90	53	93	32	77	43	10	71	99	2	25	83	70	84	48	79	5	51	12	26	69
12	63	18	5	49	19	41	76	28	74	8	20	83	64	52	84	95	42	93	37	82	68	60	51	67	85	61	66	69	1
13	19	71	5	58	94	68	92	43	37	20	52	99	9	69	65	2	78	47	11	1	6	30	61	38	60	33	48	12	96
14	52	92	77	32	45	31	2	98	25	60	38	30	9	78	22	34	86	64	95	24	28	90	89	80	61	70	51	56	20
15	47	96	25	72	32	79	45	74	39	49	44	6	93	16	56	5	15	92	62	64	3	40	50	17	100	12	53	97	77
16	37	55	34	67	9	100	64	59	10	60	24	68	56	71	80	82	81	61	78	92	13	63	73	94	25	53	72	12	46
17	66	57	77	35	76	93	21	27	29	68	40	49	86	47	41	56	97	3	42	74	63	17	33	89	88	82	83	61	23
18	23	5	77	31	32	11	69	68	57	61	1	33	82	42	89	46	47	59	7	18	41	99	19	38	39	93	75	35	94
19	83	95	28	68	71	81	34	32	40	45	100	69	15	65	8	67	50	33	94	78	56	4	82	62	58	6	23	61	9
20	96	27	81	100	95	67	92	99	52	97	41	57	98	7	29	43	1	75	51	34	93	25	70	62	14	68	85	73	48
21	10	77	19	10	10	32	10	10	56	10	61	38	10	94	72	60	99	24	55	58	10	82	28	46	93	27	10	26	59
22	26	26	76	76	76	26	76	26	76	26	26	76	26	26	76	26	26	26	76	76	76	26	76	26	76	76	26	76	76
23	96	82	75	33	48	7	81	73	79	77	27	14	66	61	88	24	3	59	89	28	26	23	93	76	25	84	91	32	15
24	56	16	90	9	48	96	55	74	11	22	13	47	57	76	25	72	42	14	31	73	93	46	70	89	54	50	62	86	45
25	89	13	11	56	48	98	77	4	39	24	17	35	44	33	41	78	14	94	90	88	38	49	54	31	62	63	61	29	67
26	61	28	33	80	38	41	77	30	6	82	18	49	16	89	25	58	36	35	95	22	63	68	65	45	92	88	76	47	43
27	88	10	82	76	69	80	6	97	13	23	54	7	27	84	15	46	45	99	79	32	14	29	62	40	44	35	47	64	18
28	81	19	74	63	12	36	46	9	38	4	27	82	97	2	34	11	49	51	93	65	64	44	73	14	78	7	6	22	13
29	44	80	27	22	84	82	60	99	50	70	88	45	8	85	97	94	24	18	12	17	21	34	49	86	55	38	93	87	51
30	65	16	18	73	83	68	38	60	7	84	31	9	1	15	41	4	14	47	61	76	100	99	78	33	95	5	62	21	12
31	59	21	2	37	52	33	40	87	99	87	74	99	24	28	90	28	74	62	81	31	65	65	6	14	71	21	68	93	33
32	54	93	89	1	27	15	33	6	18	46	86	48	51	99	8	80	2	55	62	5	91	21	44	34	84	35	58	14	60
33	5	68	25	1	65	60	95	97	2	76	99	62	55	61	7	71	43	96	54	89	39	12	32	16	51	67	94	4	77
34	45	38	32	14	84	83	53	27	85	47	78	86	19	23	91	66	59	49	73	1	89	8	79	18	55	37	35	51	17
35	3	38	48	81	41	99	58	65	59	19	30	85	76	24	62	83	9	17	68	29	10	55	43	16	77	69	53	56	42
36	5	15	91	88	63	49	100	39	27	97	78	69	59	93	52	17	32	41	20	24	47	22	98	46	75	19	10	31	48
37	100	43	28	76	31	68	39	33	65	42	15	91	72	67	24	64	13	36	46	62	96	74	50	48	29	19	1	10	59
38	39	91	67	97	47	38	11	93	72	8	86	71	20	37	69	82	62	96	29	80	10	40	87	17	56	89	99	9	79
39	31	4	18	86	25	17	50	91	58	23	78	48	88	63	39	71	5	21	93	46	43	38	30	8	76	54	72	11	64
40	79	30	94	80	57	38	31	17	90	22	85	64	28	45	5	76	51	58	27	61	36	68	92	54	77	53	70	78	98
41	82	27	71	35	24	7	4	32	5	98	66	57	42	25	78	62	14	41	88	86	36	3	23	94	90	16	46	59	87
42	1	78	44	13	10	59	7	11	91	88	90	66	99	89	40	5	9	65	37	87	83	60	93	63	12	64	27	72	36
43	29	12	95	62	10	97	32	92	76	46	20	77	1	81	40	60	4	9	23	89	42	54	34	38	90	14	72	16	87
44	42	37	69	72	11	22	80	77	28	75	14	51	35	59	78	38	88	57	39	34	26	79	32	15	68	12	85	10	16
45	42	54	96	35	36	18	74	88	93	92	6	84	82	59	67	53	47	39	71	57	80	61	15	27	90	25	38	51	5
46	85	87	48	57	1	90	69	82	24	79	20	12	14	3	25	55	32	89	64	23	21	95	31	52	50	78	39	84	45
47	80	50	59	84	16	66	98	9	70	77	99	35	14	63	90	79	28	76	15	45	22	86	1	61	69	71	13	89	51
48	85	92	25	78	61	62	38	65	83	32	57	58	19	76	9	95	93	63	89	30	54	73	21	7	6	31	64	94	51
49	16	23	98	89	64	49	82	25	26	5	59	54	20	81	51	9	86	77	100	43	60	62	37	63	14	80	50	19	90
50	49	46	99	40	16	96	9	21	77	71	72	14	74	63	85	51	42	3	81	50	11	82	6	20	17	27	70	33	67
51	40	93	39	81	64	99	55	62	83	27	97	12	90	24	86	29	67	43	95	38	100	87	44	23	84	49	61	1	14
52	38	51	15	53	88	75	16	9	18	70	56	45	65	5	6	50	24	42	13	46	27	11	99	67	23	84	28	66	20
53	20	41	30	90	69	48	95	88	78	46	75	26	15	99	64	73	32	13	27	94	84	43	93	52	83	44	28	51	76
54	22	10	25	100	27	40	4	8	61	74	58	53	11	64	47	9	80	41	3	26	52	1	28	45	83	73	42	48	5
55	55	97	22	56	42	72	99	44	28	98	39	11	59	96	45	33	87	5	80	84	23	36	52	40	90	13	66	61	46
56	17	43	7	19	72	55	73	15	96	44	12	1	13	32	46	33	57	99	54	11	16	29	93	21	42	20	34	6	74
57	54	35	42	75	51	45	47	27	87	91	17	18	23	97	58	5	86	68	56	48	53	71	81	77	60	37	49	40	7

Table IRES-6. Ranks of 100 Values Sampled, Replicate 2 (Continued)

LHS#	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
1	18	82	58	56	62	57	98	86	22	10	2	6	21	89	99	7	16	49	4	65	87	15	13	75	81	66	46	73	64	14	19
2	63	63	26	26	26	88	88	26	88	26	63	26	26	26	63	26	26	26	88	88	88	63	26	26	26	88	88	26	63	26	26
3	19	10	22	59	50	41	53	56	44	47	92	3	79	55	35	13	39	25	21	48	49	15	2	32	46	20	37	17	33	64	65
4	35	61	9	69	50	15	20	94	16	24	98	77	8	64	31	49	30	68	4	63	5	17	74	51	48	71	58	82	86	6	7
5	61	39	3	27	28	38	12	85	70	26	21	31	76	68	92	97	84	17	57	52	55	10	62	88	91	87	56	80	69	51	90
6	73	67	6	37	77	44	46	14	17	88	34	45	91	9	20	82	66	48	65	92	63	71	41	78	87	36	39	81	51	29	56
7	97	11	33	46	51	1	71	16	9	77	70	99	39	57	81	26	72	47	64	98	61	24	75	53	2	41	82	73	23	93	49
8	90	45	17	11	48	63	70	71	91	10	46	65	15	30	52	26	73	89	38	43	51	53	83	44	5	4	10	13	31	7	14
9	50	39	32	3	1	26	42	35	89	36	83	33	14	81	82	85	31	90	91	75	74	53	7	24	45	86	2	65	67	30	93
10	45	51	46	6	86	32	8	73	64	39	15	36	48	57	76	94	52	11	78	25	59	4	60	72	30	56	77	75	87	38	92
11	55	28	57	92	36	64	58	65	94	98	41	82	45	78	37	8	76	27	30	67	54	38	14	18	61	49	21	100	42	56	86
12	57	75	44	94	58	55	88	34	81	77	36	16	53	23	43	39	48	56	96	9	32	59	30	6	25	14	4	27	50	62	31
13	51	75	73	44	22	85	83	40	90	42	3	36	91	29	46	74	25	24	49	67	16	76	55	23	56	87	14	57	10	21	28
14	21	10	40	100	23	16	68	83	66	46	17	8	49	18	41	59	75	42	67	94	27	53	85	91	58	12	1	26	44	48	54
15	89	98	11	58	38	57	35	33	95	8	86	19	80	27	60	24	48	36	22	28	59	87	70	37	31	55	54	83	71	1	94
16	23	6	39	5	7	97	19	96	20	8	26	99	41	14	33	42	45	91	47	57	49	31	51	2	43	44	62	4	48	30	70
17	73	81	71	70	12	5	13	15	34	64	38	2	4	98	72	100	55	31	45	91	90	75	32	10	25	59	44	46	80	54	14
18	72	65	73	43	74	48	98	54	45	76	4	21	79	70	27	96	58	53	85	55	49	22	67	63	92	84	100	9	95	36	16
19	25	41	26	64	22	49	2	48	55	20	98	80	19	31	72	5	44	51	14	39	53	85	38	36	10	30	1	93	7	70	77
20	3	15	23	86	45	40	13	63	10	26	19	20	53	91	71	37	46	74	78	4	33	18	55	94	6	83	64	8	58	16	39
21	97	87	80	10	62	66	90	39	88	78	79	75	47	10	34	52	50	33	25	99	74	84	48	10	85	10	35	92	41	83	63
22	26	76	76	26	26	76	26	76	76	76	26	76	26	26	76	76	76	26	26	26	76	26	76	76	76	26	76	26	26	26	26
23	44	20	49	35	8	55	34	87	53	80	31	9	42	51	92	47	52	58	6	83	16	97	38	4	30	37	85	68	21	56	90
24	91	12	37	66	10	94	68	58	95	41	7	17	87	59	29	36	3	97	39	32	98	8	18	81	88	20	19	60	38	27	100
25	32	58	25	79	15	5	34	60	74	85	55	8	96	45	2	30	47	7	83	6	18	16	76	28	66	100	43	84	40	50	10
26	50	55	2	98	86	67	64	62	97	10	83	23	42	66	39	70	44	81	73	31	5	69	78	4	14	75	48	32	96	54	90
27	86	77	55	30	36	81	67	26	71	52	17	50	3	39	11	72	75	78	5	53	74	73	42	93	90	65	96	61	2	21	85
28	48	66	33	3	20	100	62	89	28	77	70	16	60	54	95	53	17	47	98	83	59	90	21	87	39	43	85	25	24	41	56
29	14	36	66	95	65	4	63	10	67	35	41	79	28	89	3	64	73	75	13	31	30	16	59	43	90	42	29	96	74	69	19
30	71	3	96	54	97	26	43	63	17	52	2	20	88	69	42	67	72	8	22	70	91	77	23	11	13	44	10	64	34	48	50
31	14	49	17	84	9	17	9	59	42	71	31	42	90	6	65	14	24	74	77	37	81	55	59	77	81	21	42	87	37	46	90
32	64	75	79	37	85	70	49	74	42	47	23	12	56	67	10	53	16	76	87	45	19	30	40	52	94	32	9	36	25	39	65
33	70	46	58	30	87	100	52	29	8	86	88	31	91	92	59	24	50	28	66	47	48	53	84	41	72	81	35	57	14	74	80
34	43	92	63	94	65	64	77	74	11	58	96	82	61	98	7	57	71	54	3	24	90	22	34	26	40	25	75	13	70	42	99
35	20	2	79	18	70	5	93	21	61	6	4	57	8	49	63	26	22	13	28	7	12	87	94	88	60	92	36	96	95	84	97
36	70	85	71	68	50	28	60	56	58	26	38	30	62	79	43	67	42	95	33	23	76	21	96	92	7	2	37	72	84	8	12
37	85	75	77	73	69	86	23	11	41	84	58	61	2	93	78	53	71	14	27	92	57	4	83	88	38	99	7	63	35	17	70
38	76	98	15	94	43	46	64	35	51	42	2	74	78	70	50	28	55	48	73	84	100	5	6	45	13	75	21	30	41	23	26
39	44	80	9	95	29	69	67	99	70	34	98	26	3	12	13	74	32	19	52	100	83	36	66	42	82	24	68	61	28	90	53
40	23	59	10	12	20	19	48	29	11	13	50	34	95	88	2	72	55	46	96	7	44	84	4	47	81	8	37	52	66	49	73
41	77	38	75	33	1	15	100	61	12	58	49	99	83	53	68	22	40	72	79	39	28	17	56	84	8	44	31	76	34	73	81
42	39	18	15	26	86	30	79	49	14	84	69	19	50	8	47	73	100	35	33	38	61	46	2	94	51	71	45	92	70	24	55
43	24	73	83	19	55	28	39	93	69	98	99	13	45	17	86	96	56	47	68	71	15	31	7	85	22	64	63	33	70	6	51
44	52	30	31	61	23	86	71	4	41	54	87	65	64	9	97	100	8	48	7	24	73	40	47	44	82	84	5	13	62	96	36
45	99	31	73	87	76	55	24	64	23	11	41	10	98	50	19	10	3	45	62	75	40	83	12	58	49	95	72	52	32	26	43
46	63	33	71	16	91	77	61	83	66	8	94	65	46	97	26	18	44	6	96	70	80	4	40	38	47	5	11	98	100	86	36
47	60	8	40	81	5	97	92	58	30	18	65	4	20	83	56	95	54	72	11	23	64	24	73	32	55	38	36	53	44	10	74
48	59	49	45	5	99	24	66	82	74	55	40	35	52	75	36	81	17	90	2	39	33	84	12	80	11	68	69	16	28	96	53
49	4	66	29	52	10	73	12	32	1	95	67	45	39	71	13	6	2	65	27	70	69	96	24	56	18	48	38	94	92	46	40
50	52	98	58	78	84	57	8	100	25	55	12	89	95	13	26	92	90	47	61	5	93	38	88	30	23	73	1	60	7	34	75
51	92	85	4	9	20	21	73	78	37	46	3	63	15	80	41	96	22	47	88	19	2	50	72	45	48	25	74	71	11	35	28
52	44	43	10	49	59	7	60	89	80	34	63	82	22	48	32	74	2	29	78	87	86	81	100	55	93	58	30	14	35	71	61
53	100	36	16	33	19	7	96	72	1	4	59	31	62	56	60	50	47	45	35	25	86	97	42	23	55	71	38	3	74	79	63
54	49	50	29	23	19	88	20	99	95	37	63	34	89	91	12	24	75	71	32	97	15	31	85	81	2	93	57	55	76	94	66
55	1	74	21	7	63	20	92	54	48	95	4	37	27	34	31	30	70	29	50	76	65	25	14	75	81	51	83	16	91	88	89
56	71	2	76	83	45	40	3	77	86	67	39	90	14	59	52	51	91	82	49	50	94	26	4	68	70	78	92	35	62	30	79
57	33	89	65	2	43	83	85	95	29	36	57	70	14	92	10	19	99	67	94	6	79	22	80	34	82	93	21	46	13	88	32

Table IRES-6. Ranks of 100 Values Sampled, Replicate 2 (Continued)

LHS#	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	67	68	90	95	24	96	41	32	34	74	12	33	8	38	36	54	45	30	51	91
2	88	26	26	88	88	26	26	26	26	88	88	26	26	26	63	63	88	26	63	88
3	63	74	70	71	8	83	43	26	24	78	5	51	69	1	96	76	93	82	27	90
4	33	25	2	76	79	66	56	23	39	100	92	95	29	52	81	53	60	91	28	55
5	96	37	60	93	95	42	5	64	74	25	22	40	18	30	77	98	65	16	14	29
6	2	83	93	76	11	23	22	80	62	33	26	30	60	16	19	59	8	31	53	58
7	37	21	48	89	43	83	27	22	3	8	78	69	85	68	5	55	96	13	17	90
8	87	78	68	24	2	86	39	84	54	93	42	1	66	58	49	92	28	69	20	37
9	49	68	48	51	20	16	11	98	52	92	15	64	18	55	44	78	5	54	38	94
10	23	13	5	53	22	29	97	27	2	83	88	1	58	34	74	54	24	90	17	37
11	34	96	3	89	97	73	13	62	19	29	60	9	15	7	66	1	63	23	85	68
12	79	11	40	92	98	87	54	73	72	22	2	100	29	7	21	78	47	38	12	13
13	41	17	64	70	80	98	84	54	34	79	62	77	97	32	86	7	82	59	8	4
14	4	65	37	11	71	96	93	3	43	82	33	84	14	76	5	15	73	6	47	88
15	69	76	63	90	66	81	73	2	23	4	46	30	43	18	41	29	10	61	99	91
16	95	69	58	84	83	38	98	75	18	1	87	65	88	15	90	52	17	3	22	93
17	99	53	26	24	22	60	96	19	48	52	37	58	94	51	11	18	67	95	85	20
18	29	66	56	80	50	14	90	24	37	26	52	13	51	3	6	25	12	34	30	8
19	63	43	46	18	52	84	12	73	57	74	37	89	59	97	96	88	92	66	76	91
20	60	11	12	87	72	90	17	32	80	69	56	47	77	65	21	2	44	30	5	49
21	43	91	89	10	22	10	86	71	20	31	45	51	30	29	70	99	54	67	95	53
22	26	76	76	26	26	76	26	76	26	76	26	76	26	26	26	26	26	76	26	76
23	5	60	64	67	78	39	86	95	1	36	43	18	41	99	54	50	45	71	72	13
24	5	3	61	84	21	64	40	3	30	43	44	83	80	99	78	85	77	23	82	15
25	20	37	97	22	46	65	75	92	52	73	81	3	71	99	51	42	72	23	69	95
26	91	74	27	8	24	26	21	3	34	20	59	57	9	13	99	71	56	29	17	11
27	91	92	24	19	68	28	41	94	89	66	25	9	37	43	33	63	83	38	1	60
28	23	86	5	18	96	79	57	32	50	72	75	88	71	42	40	61	69	68	31	15
29	91	32	77	71	15	33	5	48	40	2	47	9	54	62	37	46	23	26	39	58
30	66	82	85	86	74	6	19	59	58	75	98	40	51	36	90	79	27	89	53	25
31	96	40	37	46	65	62	96	49	68	93	77	12	96	12	49	46	71	81	55	87
32	96	72	26	78	50	88	83	92	100	7	90	28	57	69	68	4	63	82	59	97
33	49	17	13	6	56	75	44	34	10	93	36	45	33	40	20	83	3	11	79	18
34	20	30	95	72	81	10	100	21	39	44	16	9	2	62	31	68	52	69	15	56
35	46	100	15	27	39	47	75	54	74	44	34	90	14	86	78	91	52	51	71	23
36	29	77	55	40	89	9	25	45	80	87	34	36	54	18	94	82	44	11	57	74
37	37	56	79	21	87	40	94	20	52	25	9	98	80	60	81	49	12	32	44	89
38	16	92	12	25	14	4	19	54	53	33	68	95	63	32	81	77	27	90	34	65
39	65	51	79	94	37	10	20	35	22	92	60	87	89	97	33	1	6	55	47	15
40	63	97	39	33	69	56	74	18	3	67	21	43	26	71	86	15	35	42	89	40
41	43	2	52	48	51	30	26	64	74	63	47	69	29	6	65	9	20	80	96	11
42	74	21	75	31	81	28	76	3	17	67	77	56	95	53	85	48	62	4	6	16
43	11	53	74	88	67	100	37	79	58	8	41	21	30	18	61	78	44	80	84	65
44	91	33	45	19	76	18	3	2	58	50	29	1	70	89	43	17	74	21	81	99
45	86	91	89	17	2	94	33	34	1	78	16	63	14	60	69	46	56	68	20	44
46	30	42	62	28	81	68	74	60	53	75	2	15	99	19	22	41	35	54	27	34
47	3	88	93	6	49	47	27	68	26	78	100	85	75	39	12	42	67	91	48	37
48	42	8	88	77	60	67	23	18	79	50	100	86	43	3	27	44	13	15	91	47
49	78	34	93	88	76	68	30	17	97	42	53	61	31	57	22	74	3	87	21	28
50	66	62	22	59	94	80	19	48	35	64	41	39	37	76	2	97	43	56	10	4
51	13	8	68	53	51	18	56	30	42	91	7	31	33	5	59	66	94	17	98	79
52	72	36	94	77	83	68	19	26	12	52	95	41	54	8	76	90	4	91	40	73
53	77	17	21	11	80	92	89	81	57	34	5	39	67	70	9	65	2	49	6	82
54	62	54	16	17	51	60	36	90	21	39	35	43	33	68	18	56	44	14	65	69
55	6	32	47	18	73	64	3	78	26	69	17	93	77	62	49	67	60	100	9	86
56	81	9	10	18	66	95	47	27	75	48	25	60	53	58	23	56	22	85	100	36
57	78	64	31	96	1	41	26	3	38	20	66	59	73	63	55	11	62	76	61	39

Table IRES-7. Ranks of 100 Values Sampled, Replicate 3

LHS#	R#	Mat	Par	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	3	STEEL	CORRMCO2	51	63	18	5	73	100	29	52	20	12	38	65	68	31	24	77	54	60	2	3
2	3	WAS_AREA	PROBDEG	26	26	88	88	88	88	26	88	26	26	26	88	26	88	26	63	26	26	26	26
3	3	WAS_AREA	GRATMICI	68	63	31	30	100	6	22	73	10	17	66	44	67	37	71	8	81	88	21	55
4	3	WAS_AREA	GRATMICH	26	11	63	12	36	55	35	39	87	60	80	33	72	68	14	8	29	40	69	83
5	3	CELLULS	FBETA	2	96	90	81	31	63	89	69	48	10	12	15	75	91	45	74	9	19	72	17
6	3	WAS_AREA	SAT_RGAS	86	51	95	2	46	3	58	97	40	73	89	100	29	10	14	87	75	13	17	11
7	3	WAS_AREA	SAT_RBRN	64	10	66	21	15	67	85	16	50	5	45	31	24	79	81	38	44	27	58	80
8	3	WAS_AREA	SAT_WICK	63	95	54	67	3	33	88	99	31	42	32	12	71	70	44	25	18	40	66	62
9	3	CL_I_T1	PRMX_LOG	3	43	7	75	91	12	30	23	35	4	31	62	13	20	56	22	28	14	82	99
10	3	CONC_T1	PRMX_LOG	44	79	73	99	34	66	87	62	64	47	42	30	54	3	10	96	21	88	60	76
11	3	ASPHALT	PRMX_LOG	72	54	80	45	74	59	29	48	98	58	23	17	81	4	35	31	10	18	68	13
12	3	SHFT_DRZ	PRMX_LOG	95	27	42	28	65	85	81	29	36	53	63	37	48	83	44	55	59	34	82	99
13	3	SALT_T1	CUMPROB	73	27	93	86	36	99	50	12	46	20	68	34	64	29	10	97	38	89	88	79
14	3	SALT_T1	SAT_RGAS	64	35	36	22	14	66	71	9	69	100	82	30	80	70	15	54	5	53	27	45
15	3	SALT_T1	SAT_RBRN	18	29	95	47	100	61	68	2	19	89	51	92	63	39	90	88	93	32	41	54
16	3	SALT_T1	PORE_DIS	64	4	82	62	40	59	31	95	3	11	92	8	17	46	15	67	68	48	86	51
17	3	S_HALITE	POROSITY	63	100	56	39	19	70	87	10	81	18	26	27	68	29	40	36	67	11	24	89
18	3	S_HALITE	PRMX_LOG	63	59	69	16	15	87	47	49	71	25	68	18	14	36	12	39	28	53	82	21
19	3	S_HALITE	COMP_RCK	38	44	32	86	88	15	58	52	26	71	46	83	87	67	90	57	74	45	21	79
20	3	S_MB139	PRMX_LOG	35	96	97	77	18	16	9	23	75	31	43	45	33	80	6	84	65	21	15	61
21	3	S_MB139	COMP_RCK	70	10	10	10	82	87	88	72	30	66	62	55	75	24	92	10	42	80	97	35
22	3	S_MB139	RELP_MOD	26	76	26	76	26	76	76	26	26	26	76	26	26	76	76	76	76	76	76	26
23	3	S_MB139	SAT_RBRN	70	40	28	72	90	58	3	100	29	76	49	96	67	92	89	4	17	27	86	38
24	3	S_MB139	SAT_RGAS	73	5	77	68	25	42	71	24	14	26	3	59	99	30	39	61	6	76	85	3
25	3	S_MB139	PORE_DIS	89	26	90	14	43	77	100	56	64	12	22	92	78	20	32	62	58	30	13	70
26	3	S_HALITE	PRESSURE	47	90	39	96	84	57	42	67	93	74	34	28	71	68	8	54	100	82	59	78
27	3	CASTILER	PRESSURE	12	79	45	23	65	95	41	58	28	88	91	10	11	7	21	54	77	43	9	32
28	3	CASTILER	PRMX_LOG	37	25	75	4	24	9	22	40	66	93	95	38	36	10	3	57	28	11	97	92
29	3	CASTILER	COMP_RCK	26	55	23	100	78	92	79	46	27	33	5	69	68	59	87	37	91	47	25	18
30	3	BH_SAND	PRMX_LOG	58	63	47	38	41	5	53	33	11	16	71	12	56	65	80	70	74	57	54	44
31	3	CASTILER	GRIDFLO	49	58	30	24	24	65	27	5	67	2	92	46	62	89	27	27	37	46	78	24
32	3	BLOWOUT	PARTDIA	32	9	3	53	8	14	92	75	91	71	58	22	25	60	59	79	94	46	39	15
33	3	BOREHOLE	TAUFAIL	27	51	13	55	72	41	16	22	65	60	71	91	35	3	1	63	34	82	61	23
34	3	CULEBRA	MINP_FAC	18	30	50	57	74	43	67	44	8	34	66	2	62	55	28	11	49	99	73	40
35	3	GLOBAL	TRANSIDX	97	92	16	86	19	27	11	48	52	26	14	54	100	18	89	69	78	6	57	33
36	3	SOLAM3	SOLSIM	37	71	72	91	82	89	59	7	32	77	80	69	84	15	24	40	98	5	38	27
37	3	SOLAM3	SOLCIM	5	99	88	90	66	50	1	77	83	87	57	16	37	47	28	40	89	85	73	51
38	3	SOLPU3	SOLSIM	82	55	20	23	70	16	17	79	29	78	8	42	5	9	12	72	69	41	14	47
39	3	SOLPU3	SOLCIM	49	73	46	36	47	94	14	17	6	95	27	66	69	22	79	83	16	35	23	97
40	3	SOLPU4	SOLSIM	26	40	58	43	100	68	90	67	34	24	9	99	86	82	10	35	98	66	88	59
41	3	SOLPU4	SOLCIM	16	34	88	52	59	56	20	74	72	73	53	44	38	12	100	51	60	46	47	31
42	3	SOLU4	SOLSIM	87	98	1	45	79	84	33	48	90	16	100	42	9	58	95	73	29	36	80	61
43	3	SOLU6	SOLSIM	88	22	42	12	47	29	77	28	23	39	25	76	7	86	19	100	58	31	97	90
44	3	SOLU6	SOLCIM	76	24	87	11	89	41	28	43	83	49	57	36	7	68	77	9	8	31	16	34
45	3	SOLTH4	SOLSIM	30	97	79	54	55	68	18	93	38	75	8	28	39	50	65	53	58	26	81	100
46	3	PHUMOX3	PHUMCIM	55	96	62	39	70	63	44	4	61	48	20	67	16	69	36	21	6	99	9	71
47	3	GLOBAL	OXSTAT	100	98	67	6	45	66	40	34	33	78	65	51	81	69	96	30	90	61	97	41
48	3	GLOBAL	CLIMTIDX	29	28	22	85	63	74	30	98	40	33	38	80	35	48	8	16	34	79	76	78
49	3	CULEBRA	HMBLKLT	27	24	67	35	78	63	73	36	46	2	82	39	26	49	98	93	59	10	15	66
50	3	CULEBRA	APOROS	18	84	52	29	16	54	71	60	34	45	98	91	61	5	41	12	47	53	59	43
51	3	CULEBRA	DPOROS	42	63	52	62	18	46	35	25	80	45	39	100	95	32	22	2	38	17	72	60
52	3	U+6	MKD_U	11	54	83	34	22	24	56	45	91	64	42	97	3	92	68	76	47	35	10	58
53	3	U+4	MKD_U	6	13	23	39	37	98	67	75	79	66	56	69	33	9	83	17	16	73	70	41
54	3	PU+3	MKD_PU	10	62	47	45	30	11	77	83	32	36	51	86	95	54	18	50	15	60	61	7
55	3	PU+4	MKD_PU	15	56	10	19	9	70	88	73	27	63	35	59	30	51	80	57	24	20	100	85
56	3	TH+4	MKD_TH	32	63	6	90	69	9	76	47	94	73	55	22	25	1	54	98	74	13	68	4
57	3	AM+3	MKD_AM	12	92	65	16	93	30	74	7	32	15	24	38	31	35	66	34	56	5	10	60

Table IRES-7. Ranks of 100 Values Sampled, Replicate 3 (Continued)

LHS#	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1	8	13	81	93	7	23	66	30	89	71	50	88	82	59	47	53	62	86	84	90	58	92	10	99	97	25	72	80	94
2	26	26	26	88	26	26	26	26	88	26	26	26	26	88	63	63	88	26	63	88	26	26	63	26	88	63	26	88	26
3	50	87	84	4	1	32	85	89	19	29	65	72	38	18	57	12	75	23	28	15	91	64	49	54	82	80	41	45	58
4	38	42	61	95	82	74	91	6	16	24	30	65	52	27	51	20	19	90	48	85	67	34	94	17	44	46	84	78	47
5	70	26	5	44	21	14	20	1	24	59	94	97	76	36	54	4	88	86	66	39	7	13	32	50	35	47	22	8	82
6	26	94	28	47	44	74	96	64	31	91	85	4	52	38	60	7	66	98	83	27	20	1	62	77	63	33	61	59	9
7	43	88	55	76	68	2	75	100	26	51	46	63	32	41	95	82	87	30	70	4	60	3	59	91	36	99	7	89	49
8	81	24	43	37	5	97	91	28	94	100	51	76	8	56	11	27	52	14	82	59	23	98	61	53	86	68	46	73	34
9	51	15	6	83	39	32	45	50	93	86	49	52	72	70	24	61	96	58	64	55	34	21	1	92	9	68	57	38	2
10	25	27	17	38	48	81	9	71	84	98	67	39	53	12	46	85	95	72	1	29	78	4	45	43	100	82	65	91	94
11	2	91	92	3	83	11	46	40	93	56	47	15	70	97	55	6	73	1	33	94	14	44	87	78	19	30	5	62	66
12	21	15	16	23	47	97	35	54	66	18	94	78	69	38	51	10	50	31	77	67	17	33	76	4	91	58	56	100	70
13	37	67	16	83	7	70	21	6	61	66	63	14	3	22	90	41	18	59	85	54	32	65	28	81	92	75	26	2	39
14	37	2	49	62	47	86	94	93	59	50	84	31	88	81	12	72	61	28	24	41	63	21	23	76	51	79	92	42	29
15	86	80	33	79	81	56	14	34	99	74	35	52	57	4	1	15	87	3	58	91	9	49	82	66	38	7	44	64	75
16	81	20	34	9	89	12	79	70	26	24	19	66	43	1	2	74	36	61	33	35	56	47	63	76	42	45	49	85	90
17	95	83	64	1	82	7	74	28	69	62	78	15	98	38	71	59	66	54	44	77	34	93	52	4	80	9	35	25	96
18	88	31	60	11	30	45	48	55	41	29	65	78	61	22	85	76	74	5	90	95	43	40	50	56	24	98	70	100	20
19	9	75	51	85	62	59	53	48	56	73	31	20	36	78	17	34	30	96	7	6	55	61	50	41	82	3	28	1	81
20	58	88	54	55	17	29	26	93	71	59	66	86	63	87	90	67	44	46	72	5	91	79	52	2	8	41	37	51	48
21	43	10	46	53	86	73	76	10	36	40	31	22	37	25	10	32	57	50	20	99	10	10	49	99	94	69	71	45	51
22	26	26	26	76	26	26	26	76	26	26	26	26	26	26	26	26	76	26	76	26	76	76	76	76	76	26	76	26	26
23	41	99	10	69	82	36	12	85	93	32	83	95	75	44	55	62	66	8	11	73	71	24	18	61	80	16	87	5	53
24	49	38	95	88	45	16	58	94	55	12	7	91	83	8	15	10	34	96	54	53	70	98	60	9	64	69	23	48	3
25	5	74	16	24	38	37	9	3	60	1	42	84	17	27	82	61	85	4	29	10	2	50	39	80	25	40	71	34	7
26	15	2	50	80	83	20	27	24	43	72	97	35	25	65	89	66	21	48	63	70	58	22	17	88	6	19	56	99	4
27	19	64	29	24	27	13	3	89	90	70	46	35	76	26	61	8	17	57	4	73	81	33	62	42	51	93	25	39	2
28	2	21	53	54	16	82	12	64	20	61	14	63	30	98	91	6	99	65	71	50	48	100	27	89	39	55	78	5	72
29	80	86	24	32	99	50	83	66	94	35	64	85	52	1	56	97	11	90	62	49	40	10	84	15	58	81	34	76	67
30	67	29	31	91	21	82	72	97	26	83	64	7	46	75	85	95	88	39	6	99	8	66	87	24	96	13	1	28	62
31	24	86	2	62	96	62	83	81	70	67	21	12	8	34	55	34	58	46	30	34	43	74	8	5	86	15	52	40	21
32	66	35	6	18	27	63	57	65	76	52	47	29	86	37	20	62	80	4	41	67	45	70	12	48	73	50	19	23	84
33	49	9	18	30	95	31	52	76	68	8	80	7	84	39	24	15	14	62	98	6	75	78	47	20	69	10	56	87	88
34	25	86	79	97	24	85	10	72	26	58	80	69	95	65	64	42	87	47	75	60	14	4	16	1	7	3	46	94	89
35	3	49	64	45	37	90	63	74	56	70	81	1	15	2	68	43	32	40	46	67	17	30	13	20	4	91	98	72	84
36	50	11	93	34	41	46	99	92	17	52	67	76	45	85	26	81	94	25	60	8	12	23	62	70	10	2	35	21	20
37	55	97	45	35	8	74	69	44	18	3	14	81	53	63	4	36	29	43	93	46	6	26	7	30	95	91	84	58	38
38	77	61	62	95	76	74	65	39	52	13	53	63	38	44	96	92	26	30	54	81	6	86	3	1	40	68	73	18	84
39	72	68	12	21	20	51	92	40	32	87	5	84	1	57	60	42	4	2	64	96	100	18	56	37	11	10	13	62	75
40	61	73	30	60	29	36	84	48	46	38	65	22	25	57	37	78	31	44	76	72	47	91	50	83	77	75	6	70	15
41	6	29	8	78	40	36	81	22	41	13	76	25	21	55	93	11	80	99	15	71	97	61	45	66	95	9	83	87	35
42	89	99	43	25	41	81	20	26	86	28	3	6	76	85	14	55	56	97	83	51	30	94	52	64	10	35	72	71	4
43	71	67	98	93	34	85	68	27	92	83	46	87	59	37	32	4	43	79	20	17	70	45	5	64	63	3	61	96	30
44	38	52	65	73	12	64	69	23	40	97	63	81	100	18	25	44	61	62	45	3	51	74	20	53	56	32	26	21	91
45	61	47	36	60	57	21	99	23	46	27	6	14	95	43	94	34	89	98	9	20	66	33	48	86	29	88	13	73	90
46	42	85	34	93	73	88	95	12	51	54	94	40	65	23	19	80	90	59	27	31	30	87	84	25	7	86	49	57	17
47	38	2	28	54	43	13	83	35	92	76	32	77	71	55	94	20	3	58	93	1	29	11	37	4	63	18	10	39	44
48	2	86	52	4	57	61	100	19	64	66	31	36	97	7	77	54	18	1	62	51	37	83	93	73	69	20	50	55	46
49	18	55	96	80	60	52	53	75	13	25	61	33	70	45	40	57	28	30	29	83	37	74	47	34	17	68	97	48	81
50	76	51	24	97	33	56	31	27	2	57	13	20	87	11	46	81	22	42	19	68	25	14	74	70	78	7	50	35	55
51	89	69	30	81	21	6	31	84	12	93	57	5	56	54	19	65	44	68	97	48	11	75	1	82	61	76	24	91	99
52	5	70	52	17	95	37	86	77	51	74	33	96	1	46	8	67	38	81	94	93	36	21	16	6	55	78	20	14	82
53	80	35	60	40	90	63	48	88	46	47	74	59	31	95	87	44	22	21	7	1	3	76	19	62	85	51	52	57	97
54	24	65	96	68	55	64	34	25	99	38	17	9	78	53	46	89	52	76	41	5	42	22	100	26	13	56	19	73	35
55	11	38	83	64	99	54	52	32	66	47	90	22	74	91	28	97	68	26	62	67	98	53	16	76	60	25	7	37	44
56	57	82	89	95	45	51	75	2	50	43	27	60	64	8	66	70	30	28	46	21	78	61	17	15	81	79	3	59	18
57	43	20	45	44	90	100	64	8	94	73	13	41	28	76	68	62	11	27	37	6	51	42	96	88	84	81	89	69	72

Table IRES-7. Ranks of 100 Values Sampled, Replicate 3 (Continued)

LHS#	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
1	41	6	16	78	14	21	74	35	34	46	79	28	75	37	83	91	4	22	15	49	76	48	64	98	95	17	56	36	19	45	39
2	26	88	63	26	63	26	63	88	26	26	26	63	63	63	88	26	88	26	26	88	63	88	26	26	63	26	88	26	63	63	26
3	48	61	99	56	95	70	90	53	34	13	52	47	16	20	98	83	86	43	36	74	27	7	40	24	78	2	11	79	93	92	25
4	54	64	75	15	31	18	79	32	62	59	50	98	9	97	86	58	5	53	56	73	1	28	92	23	10	45	13	88	99	66	3
5	67	53	77	28	100	58	33	87	43	27	85	98	92	30	71	95	62	60	80	16	65	46	34	49	11	3	68	40	38	99	6
6	32	53	76	50	19	34	23	70	54	5	68	56	90	24	15	99	45	35	25	8	21	92	22	36	82	72	80	43	88	18	79
7	13	84	8	78	77	39	47	61	28	57	35	12	17	83	20	74	54	1	25	94	11	23	86	93	65	14	98	9	22	37	19
8	7	69	47	57	64	85	16	2	35	78	1	87	77	58	17	45	49	21	9	84	4	39	22	19	79	65	60	30	48	13	10
9	19	76	73	90	5	53	100	44	63	77	25	59	47	46	79	78	41	42	26	40	87	74	94	80	67	69	8	71	81	60	54
10	32	59	89	28	23	80	5	97	8	33	74	18	13	86	37	56	7	68	40	55	75	57	77	36	90	92	16	26	93	49	52
11	51	65	85	99	75	38	64	61	8	67	36	25	49	39	42	95	32	43	82	96	26	16	50	12	84	76	9	79	7	34	52
12	14	30	73	41	61	92	25	7	60	88	72	8	40	57	26	93	5	12	32	2	84	13	45	19	49	20	87	98	1	62	68
13	84	24	55	49	74	77	100	23	42	19	5	94	13	44	69	56	71	72	80	82	11	40	35	76	52	60	43	4	31	8	87
14	48	67	73	85	98	97	52	6	33	58	56	39	99	19	90	25	89	18	57	95	26	43	87	38	16	78	96	46	83	44	13
15	45	94	84	78	83	50	36	22	43	27	20	73	24	70	13	42	30	40	11	69	10	59	97	71	62	6	65	46	72	60	98
16	65	84	23	44	78	75	52	29	13	88	21	96	98	30	80	55	99	25	37	22	94	53	69	77	10	87	27	91	28	32	57
17	5	86	14	20	22	75	99	72	76	73	90	32	50	33	91	17	47	6	8	42	46	41	79	37	57	97	21	48	88	58	12
18	99	46	44	35	42	72	86	64	58	6	91	34	97	23	1	3	38	94	37	4	8	9	77	27	54	57	10	17	52	79	81
19	2	49	64	69	60	29	13	35	37	97	8	68	5	84	100	98	66	11	63	93	89	95	24	76	42	47	91	72	54	27	19
20	22	70	95	27	11	83	10	20	69	56	99	73	39	64	89	76	62	49	68	85	13	50	82	42	94	30	74	1	7	38	98
21	78	26	10	67	83	21	91	81	33	47	10	28	65	39	10	34	41	59	29	10	85	48	19	56	10	74	27	99	90	63	10
22	76	76	76	76	26	26	26	26	26	26	76	26	26	76	76	76	26	76	26	76	26	76	26	26	76	76	26	76	26	76	76
23	56	33	22	25	39	98	7	23	15	52	46	88	47	50	65	30	34	1	57	13	31	54	45	37	63	81	14	6	35	43	60
24	62	18	28	75	37	100	36	67	79	40	89	78	17	32	29	27	22	11	43	35	13	63	33	44	31	84	82	46	97	81	87
25	15	23	52	48	8	87	19	66	68	41	35	57	59	47	86	6	99	83	75	72	95	18	93	67	51	88	81	76	94	44	63
26	33	62	26	13	14	95	73	52	10	44	40	69	29	12	86	45	92	16	75	7	1	55	51	18	53	31	87	85	37	91	46
27	98	84	14	86	55	99	49	63	100	97	37	56	69	31	38	66	59	50	16	85	82	74	5	34	52	22	60	68	83	80	53
28	7	67	33	32	76	84	42	62	19	86	96	46	43	79	49	18	51	8	58	23	52	88	29	87	26	35	17	69	77	45	34
29	77	70	88	82	2	9	95	30	43	31	13	54	73	4	39	72	61	93	36	75	42	7	22	12	60	63	98	8	29	44	20
30	14	17	34	68	10	78	86	36	20	25	60	84	55	15	4	81	98	43	79	42	69	3	52	45	9	50	35	94	89	51	93
31	70	99	43	43	92	58	37	78	15	78	78	34	49	8	83	74	62	74	74	5	18	89	30	96	89	65	70	96	15	18	55
32	96	36	43	24	40	93	81	98	89	2	77	83	7	99	97	21	26	61	17	31	56	69	49	34	72	5	100	85	33	1	11
33	46	53	32	44	19	59	25	28	17	21	5	94	38	99	37	79	100	26	85	93	89	2	48	50	11	42	36	12	45	66	70
34	48	32	29	90	22	61	20	37	92	12	45	54	82	59	51	35	81	56	91	100	53	98	5	96	83	84	27	77	19	36	9
35	93	71	5	51	77	39	73	88	80	65	62	94	99	44	66	34	23	9	42	85	59	53	87	47	36	8	10	25	29	24	76
36	66	9	43	19	86	68	49	42	63	47	48	97	3	57	16	30	14	79	13	18	65	64	36	28	83	74	73	58	44	39	6
37	23	13	9	92	59	24	94	79	15	86	78	32	17	52	56	31	60	22	21	39	34	25	62	42	71	80	96	82	61	12	100
38	60	97	24	100	85	87	28	66	25	37	2	4	7	64	27	50	31	93	59	15	35	90	89	22	75	32	71	58	56	99	10
39	7	43	8	85	41	33	45	80	24	59	86	61	99	98	91	54	76	81	67	9	48	71	25	31	39	78	90	29	74	50	55
40	28	92	17	20	95	85	33	71	53	12	87	2	97	94	51	42	56	64	96	79	18	81	27	41	54	63	1	32	69	45	11
41	42	92	91	85	68	98	54	65	96	62	75	69	26	82	30	3	90	86	32	19	5	1	84	89	18	77	49	70	2	33	24
42	34	22	75	27	49	77	8	74	18	5	63	69	88	19	37	21	44	54	32	91	50	23	70	68	65	60	96	39	46	92	7
43	75	54	13	82	72	16	55	94	69	80	84	24	9	2	95	33	99	73	8	91	62	40	48	1	11	53	14	10	6	21	38
44	92	86	6	14	15	90	79	99	2	80	17	75	85	66	22	35	42	95	96	33	27	4	67	13	94	54	72	55	48	47	82
45	32	4	22	82	80	85	24	17	63	3	1	59	35	69	31	10	25	56	74	67	77	87	76	16	64	44	41	71	11	19	70
46	76	37	81	29	32	43	68	53	28	92	26	3	50	82	47	24	98	5	33	22	45	66	15	79	38	1	35	52	41	8	74
47	82	75	80	46	17	89	59	31	5	56	16	19	64	42	79	24	7	88	14	87	74	84	47	99	12	22	25	72	95	50	85
48	71	43	45	25	14	81	58	26	68	89	99	67	3	9	12	65	56	95	72	84	59	96	91	94	10	21	90	49	17	44	24
49	19	72	58	7	65	94	76	31	38	77	9	90	41	16	56	64	4	91	85	54	42	87	3	22	50	88	84	5	23	51	86
50	28	36	39	40	73	88	89	4	86	79	49	1	80	30	100	62	10	37	99	85	58	17	93	8	64	9	95	15	23	83	82
51	90	55	78	88	37	66	3	53	94	96	36	50	13	26	49	43	67	79	58	10	47	4	8	29	41	83	87	86	64	59	23
52	69	4	61	27	28	100	59	25	99	18	15	12	84	39	88	75	57	79	29	90	63	19	73	50	65	60	2	85	23	41	48
53	42	32	64	25	34	38	91	18	86	10	68	71	92	29	53	65	94	28	2	24	5	100	84	14	58	43	12	30	49	93	99
54	14	43	85	94	72	66	84	23	44	81	71	58	79	80	97	2	57	93	16	1	70	39	48	49	82	28	21	40	12	27	87
55	45	18	21	49	69	55	46	78	81	65	41	75	36	23	50	79	39	84	71	43	14	2	4	87	92	1	48	31	93	77	95
56	36	24	37	5	97	49	7	16	65	93	52	29	72	71	41	100	80	44	11	19	38	31	87	99	42	96	26	56	40	62	34
57	99	29	4	85	58	87	26	25	39	1	95	63	9	52	86	49	71	2	82	36	55	18	3	61	91	98	46	78	40	97	59

Table IRES-7. Ranks of 100 Values Sampled, Replicate 3 (Continued)

LHS#	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	87	9	32	42	61	55	40	33	57	26	85	27	67	96	11	1	44	70	69	43
2	26	88	63	26	88	63	63	63	63	26	26	26	26	63	63	88	63	26	63	88
3	33	51	62	94	76	46	3	77	60	39	96	9	42	69	14	97	59	35	26	5
4	93	2	49	71	81	4	96	37	22	76	21	10	7	70	77	43	41	25	89	57
5	79	51	25	29	73	18	93	64	78	42	55	84	61	37	83	41	52	57	56	23
6	42	48	84	49	41	12	71	30	65	16	55	81	67	6	37	78	57	69	93	39
7	97	29	34	18	52	40	73	33	69	56	71	92	6	72	96	90	62	53	48	42
8	93	55	83	38	90	41	6	50	36	92	15	96	75	80	26	72	20	89	29	74
9	33	11	97	89	65	85	95	37	36	66	16	98	84	17	10	88	27	29	18	48
10	20	19	14	22	69	41	24	63	83	58	61	35	15	51	70	50	2	31	6	11
11	28	22	53	41	57	27	77	90	89	71	88	63	86	21	69	24	37	20	60	100
12	3	9	90	96	6	71	75	11	39	80	64	22	79	43	74	89	86	52	46	24
13	17	33	98	91	9	53	48	47	78	1	58	25	15	30	96	62	95	45	51	57
14	3	77	74	20	60	7	91	17	75	4	65	32	40	68	10	8	55	1	34	11
15	48	85	8	21	77	55	17	31	5	23	53	67	16	37	28	26	96	25	76	12
16	50	7	6	39	54	73	14	58	72	5	18	38	97	10	71	41	60	16	83	93
17	55	92	85	43	3	16	23	31	51	2	45	65	49	30	53	60	61	94	84	13
18	62	67	75	89	96	92	66	83	2	13	80	93	32	73	19	51	7	26	84	33
19	40	33	25	10	4	12	39	14	99	92	18	16	70	23	77	43	94	80	22	65
20	47	25	40	81	92	78	60	24	14	34	3	4	100	32	28	12	57	19	36	53
21	58	79	60	23	10	10	38	77	89	64	96	95	10	54	68	93	52	84	61	44
22	26	26	76	26	76	26	76	26	76	76	76	76	26	76	76	76	76	76	76	26
23	91	64	74	94	20	51	84	42	68	19	77	21	9	79	59	48	2	26	97	78
24	20	19	52	41	65	74	80	47	86	90	93	92	50	3	21	51	57	72	56	66
25	69	31	79	36	98	28	21	46	45	97	53	11	73	96	33	55	54	65	91	49
26	60	64	11	49	32	23	3	36	98	76	79	94	9	38	5	30	77	41	61	81
27	67	36	44	94	47	6	40	18	30	78	1	71	20	92	96	15	72	87	75	48
28	68	80	1	60	44	94	13	70	15	31	83	74	56	59	90	85	81	41	73	47
29	21	48	96	53	65	3	74	14	57	89	45	17	41	28	16	19	6	38	51	71
30	92	37	2	76	90	30	100	23	49	59	32	22	19	73	77	18	40	27	48	61
31	40	86	96	67	92	52	40	99	12	99	83	52	18	55	49	2	40	81	12	12
32	78	51	28	87	42	13	68	55	30	64	88	82	90	16	44	74	38	10	54	95
33	92	54	67	81	57	43	73	58	33	77	96	97	86	83	74	64	29	90	40	4
34	31	39	78	23	70	33	15	21	6	17	88	68	13	38	41	93	52	71	76	63
35	60	31	21	28	83	96	79	12	38	82	35	7	50	55	61	95	58	75	41	22
36	4	53	75	88	87	96	61	22	78	29	56	54	51	90	100	33	1	95	31	55
37	54	68	64	2	33	10	75	41	27	76	48	49	72	65	98	70	11	19	67	20
38	83	34	80	43	88	45	49	21	98	11	57	48	94	19	91	46	67	36	51	33
39	28	3	44	82	89	15	70	53	52	58	93	63	19	34	38	88	65	77	30	26
40	19	13	16	49	5	23	80	3	4	55	21	62	93	74	89	8	14	39	7	52
41	57	14	58	7	63	39	27	23	43	4	28	67	79	37	48	50	10	94	17	64
42	31	2	12	59	67	66	24	17	82	53	78	38	11	15	93	57	62	13	40	47
43	78	60	18	56	74	26	81	65	41	50	57	36	35	44	89	52	15	49	66	51
44	5	88	46	29	30	70	59	1	37	93	50	58	19	71	39	60	98	78	10	84
45	12	72	40	91	49	42	62	84	5	83	78	51	37	45	15	2	92	52	96	7
46	13	10	2	78	83	18	72	89	91	14	60	58	77	46	56	64	11	100	97	75
47	52	26	27	23	53	36	62	86	21	15	49	48	60	68	70	73	8	9	57	91
48	47	60	23	11	92	41	87	53	82	15	6	70	13	42	32	88	75	39	27	5
49	44	20	11	69	6	1	71	100	32	62	79	95	89	99	21	92	8	12	43	14
50	48	90	26	63	77	94	21	69	32	72	66	75	44	6	67	65	3	92	38	96
51	28	7	20	74	70	27	40	98	51	16	9	33	14	92	34	73	85	15	71	77
52	40	66	9	30	44	89	43	31	98	72	80	87	7	53	71	49	62	26	32	13
53	20	4	26	36	72	11	54	55	27	81	78	15	45	50	77	61	96	89	8	82
54	98	63	59	74	29	37	33	6	69	20	75	88	8	92	91	67	90	4	3	31
55	6	58	82	8	89	13	3	17	42	61	34	12	94	29	86	72	33	40	96	5
56	12	86	48	85	67	39	77	35	14	53	84	33	20	88	10	91	58	23	83	92
57	47	79	54	21	75	70	77	67	33	17	14	57	48	22	53	83	50	19	23	80

IRES.2 Shaft Seal Permeabilities

The calculated time-dependent shaft seal permeabilities are contained in Table IRES-8. In the performance assessment realization of the shaft seal system, a disturbed rock zone (DRZ) exists in the Salado formation adjacent to the asphalt, clay, and salt materials. The halite DRZ around the concrete is expected to be effectively healed by 25 years after closure; consequently no DRZ is assumed to exist adjacent the concrete columns. The DRZ is not explicitly represented in the BRAGFLO grid system. For the compliance certification application calculations, seal and DRZ permeabilities are combined into a seal composite permeability. Because the DRZ is transient, seal material permeability will also be transient for those seal components adjacent to a DRZ. The Rustler was not specified to have a DRZ.

The geometry of a DRZ region is assumed to be an annulus with inner radius equal to the effective radius of the shaft and outer radius the outer extent of the DRZ region. A log-linear model of permeability as a function of radial distance is reasonable based upon the field results. Assuming the only significant component of flow is parallel to the direction of the shaft, the effective permeability of a DRZ region is obtained by averaging the permeability in the direction of flow over the annular DRZ region as

$$k_{DRZ} = \frac{1}{A}\int\int_{A} k\,dA$$

where A is the area of the annulus and k is the permeability. Assuming that DRZ permeability varies log-linearly and satisfying $k = k_{in}$ at $r = r_{in}$ (inner radius) and $k = k_{out}$ at $r = r_{out}$ (outer radius) the effective permeability is

$$k_{DRZ} = \frac{2}{r_{out} + r_{in}}\left[k_{out}\left(\frac{r_{out}\ln\left(\frac{k_{out}}{k_{in}}\right) - \Delta r}{\ln^2\left(\frac{k_{out}}{k_{in}}\right)}\right) - k_{in}\left(\frac{r_{in}\ln\left(\frac{k_{out}}{k_{in}}\right) - \Delta r}{\ln^2\left(\frac{k_{out}}{k_{in}}\right)}\right)\right] \quad (1)$$

where Δr is equal to the outer DRZ radius minus the inner DRZ radius, $r_{out} - r_{in}$.

From the DRZ skin permeability, k_{in}, the intact Salado formation permeability, k_{out}, and an estimate of the extent of the DRZ radius, r_{out}, the DRZ effective permeability can be calculated for a given shaft with known r_{in}.

Because the DRZ is adjacent to each of the four shafts and the extent of the DRZ is dependent on each individual shaft radius, the effective DRZ permeability calculation from equation 1 must be performed for all four shafts. Denote this effective permeability as $k_{DRZ,i}$, where i denotes the shaft index. The effective DRZ permeability for the composite shaft system is an area weighted sum of the effective DRZ permeability of each individual shaft:

$$k_{DRZ}A_{DRZ} = \sum_{i=1}^{4} k_{DRZ,i}\, A_{DRZ,i}$$

where

$$A_{DRZ} = \sum_{i=1}^{4} A_{DRZ,i}$$

and the DRZ areas are the area of the annuli $\pi(r_{out}^2 - r_{in}^2)$ for each individual shaft.

If the DRZ were modeled explicitly within the BRAGFLO performance assessment grid, then the effective composite DRZ permeability would be k_{DRZ}. However, the BRAGFLO model further combines the effective DRZ permeabilities with the corresponding seal permeabilities into a composite model permeability. In this case, an approximate effective area-weighted permeability of the combined shaft and DRZ can be calculated as

$$k_{model} = \frac{k_s A_s + k_{DRZ} A_{DRZ}}{A_{model}}$$

where A_{model} is equal to the shaft area A_S

$$A_s = \sum_{i=1}^{4} A_{S,i},$$

which is approximately 1,023 square feet (95 square meters). The value of k_{model} is dependent on shaft material and can be transient in time. This permeability is assigned to the appropriate shaft grid over time for the performance assessment calculation.

The calculated time-dependent shaft seal permeabilities are contained in Table IRES-8.

Table IRES-8. Time-Dependent Shaft Seal Permeabilities Used in BRAGFLO

Shaft Material	Time Period (years)	Intrinsic Permeability (square meters)
Earthen fill	0-10,000	1.000000×10^{-14}
Rustler compacted clay	0-10,000	1.380382×10^{-18}
Asphalt column	0-10,000	8.017980×10^{-17}
Concrete, T1	0-400	1.230269×10^{-19}
Concrete, T2	400-10,000	1.000000×10^{-14}
Upper Salado compacted clay, T1	0-10	9.220170×10^{-17}
Upper Salado compacted clay, T2	10-25	6.057352×10^{-17}
Upper Salado compacted clay, T3	25-50	3.668447×10^{-17}
Upper Salado compacted clay, T4	50-100	1.458055×10^{-17}
Upper Salado compacted clay, T5	100-10,000	1.380382×10^{-18}
Lower Salado compacted clay, T1	0-10	1.122931×10^{-16}
Lower Salado compacted clay, T2	10-25	2.143571×10^{-17}
Lower Salado compacted clay, T3	25-50	1.625464×10^{-18}
Lower Salado compacted clay, T4	50-10,000	1.380382×10^{-18}
Compacted salt column, T1	0-10	6.737940×10^{-16}
Compacted salt column, T2	10-25	5.824235×10^{-16}
Compacted salt column, T3	25-50	5.688506×10^{-16}
Compacted salt column, T4	50-100	1.759959×10^{-19}
Compacted salt column, T5	100-200	1.296823×10^{-20}
Compacted salt column, T6	200-10,000	1.779326×10^{-21}
Bottom clay	0-10,000	1.380382×10^{-18}
Concrete monolith at shaft base	0-10,000	1.000000×10^{-14}

IRES.3 Actinide Solubility

For a complete discussion, please see Appendix SOTERM (Sections SOTERM.3, SOTERM.4, and SOTERM.7). Actinide solubility is modeled using fracture matrix transport (FMT) (See Appendix SOTERM, Section SOTERM.3). The modeled solubilities for each oxidation state are given in Table IRES-9, below:

Table IRES-9. Solubilities of the Oxidation State Analogs, in moles/liter, with MgO Backfill

	Oxidation States			
Brine	**+III**	**+IV**	**+V**	**+VI***
Salado	5.82×10^{-7}	4.4×10^{-6}	2.3×10^{-6}	8.7×10^{-6}
Castile	6.52×10^{-8}	6.0×10^{-9}	2.2×10^{-6}	8.8×10^{-6}

* Not calculated with the FMT model.

Uncertainty in these solubilities is incorporated by sampling a distribution around each solubility. The lower end of the distribution is 1 percent of the modeled solubility; the high end of the distribution is 2,500 percent of the solubility. The sample from the solubility distribution was then applied to the appropriate oxidation state.

An oxidation state analogy related the data for oxidation states to the actinides themselves. Because some actinides can exhibit more than one oxidation state under WIPP conditions, two oxidation state distributions are used in performance assessment, each for half of the realizations (III and IV), as shown in Tables IRES-10 and IRES-11.

Table IRES-10. Lower Oxidation States of the Actinides in the WIPP as used in Performance Assessment

Actinide Element	**Oxidation States**
thorium	IV
uranium	IV
neptunium	IV
plutonium	III
americium	III
curium	III

Table IRES-11. Higher Oxidation States of the Actinides in the WIPP as used in Performance Assessment

Actinide Element	Oxidation States			
thorium		IV		
uranium				VI
neptunium			V	
plutonium		IV		
americium	III			
curium	III			

Figure IRES-1 shows the resulting distribution of dissolved concentrations of americium and plutonium, for all performance assessment realizations. Isotopes of plutonium and americium dominate the U.S. Environmental Protection Agency (EPA) unit (Appendix WCA, Section WCA.3). By far the largest fraction of realizations yield concentrations of 10^{-7} to 10^{-6} M.

Figure IRES-1 shows dissolved concentrations only, without the contribution of colloidally sorbed actinides. The contribution of colloids was incorporated by using the proportionality constants given in Table IRES-12. Please see Appendix SOTERM (Section SOTERM.7) for a complete discussion.

Colloid concentration factors were combined with dissolved concentrations according to the following example:

Considering one realization in which Pu is present in Salado brine in the +IV state and has a sampled dissolved concentration of 2.8×10^{-6} M.

The colloidal proportionality constants from Table IRES-12 are:

- humic proportionality constant = 6.3
- microbe proportionality constant = 0.3
- humic cap = 1.1×10^{-5} M
- microbe cap = 2.1×10^{-3} M
- actinide concentration on mineral fragment = 2.6×10^{-8} M
- intrinsic colloid concentration = 1×10^{-9} M

The humic complexed plutonium would be:

Table IRES-12. Colloid Concentration Factors

Actinide Element	Concentration on Mineral Fragments*	Concentration as Intrinsic Colloid*	Proportion Sorbed on Microbes**	Maximum Sorbed on Microbes****	Proportion Sorbed on Humics**		Maximum Sorbed on Humics*
					Salado	Castile	
Th(IV)	2.6×10^{-8}	0.0	3.1	0.0019	6.3	6.3	1.1×10^{-5}
U(IV)	2.6×10^{-8}	0.0	0.0021	0.0021	6.3	6.3	1.1×10^{-5}
U(VI)	2.6×10^{-8}	0.0	0.0021	0.0023	0.12	0.51	1.1×10^{-5}
Np(IV)	2.6×10^{-8}	0.0	12.0	0.0027	6.3	6.3	1.1×10^{-5}
Np(V)	2.6×10^{-8}	0.0	12.0	0.0027	9.1×10^{-4}	7.4×10^{-3}	1.1×10^{-5}
Pu(III)	2.6×10^{-8}	0.0	0.3	6.8×10^{-5}	0.19	1.37***	1.1×10^{-5}
Pu(IV)	2.6×10^{-8}	1.0×10^{-9}	0.3	6.8×10^{-5}	6.3	6.3	1.1×10^{-5}
Am(III)	2.6×10^{-8}	0.0	3.6	NA	0.19	1.37***	1.1×10^{-5}

* In units of moles colloidal actinide per liter
** In units of moles colloidal actinide per mole dissolved actinide
*** A cumulative distribution from 0.065 to 1.60 with a mean value of 1.1 was used
**** In units of moles total mobile actinide per liter
NOTE: The colloidal source term is added to the dissolved source term to arrive at a total source term. Mineral fragments were provided with distributions, but the maximum was used as described in SOTERM 7.1.3. Humic proportionality constants for III, IV, and V were provided with distributions, but only the Castile Am(III) and Pu(III) were sampled.

$(2.8 \times 10^{-5}$ mole per liter$)(6.3$ moles bioaccumulated per mole$) = 1.8 \times 10^{-4}$ moles per liter

This value, however, exceeds the cap for humic-mobilized plutonium, 1.1×10^{-5} mole per liter. Therefore, in this case, the cap would be used for the humic mobilized actinide concentration.

The microbial mobilized plutonium would be:

$(2.8 \times 10^{-5}$ mole per liter$)(0.3$ moles adsorbed per mole per liter$) = 8.3 \times 10^{-6}$ moles

which is less than the cap.

The total plutonium concentration for this realization would then be the sum of the dissolved and colloidal actinides:

Dissolved + Humic + Microbe + Mineral + Intrinsic

$2.8 \times 10^{-5} + 1.1 \times 10^{-5} + 8.3 \times 10^{-6} + 2.6 \times 10^{-8} + 1.0 \times 10^{-9} = 4.7 \times 10^{-5}$ mole per liter

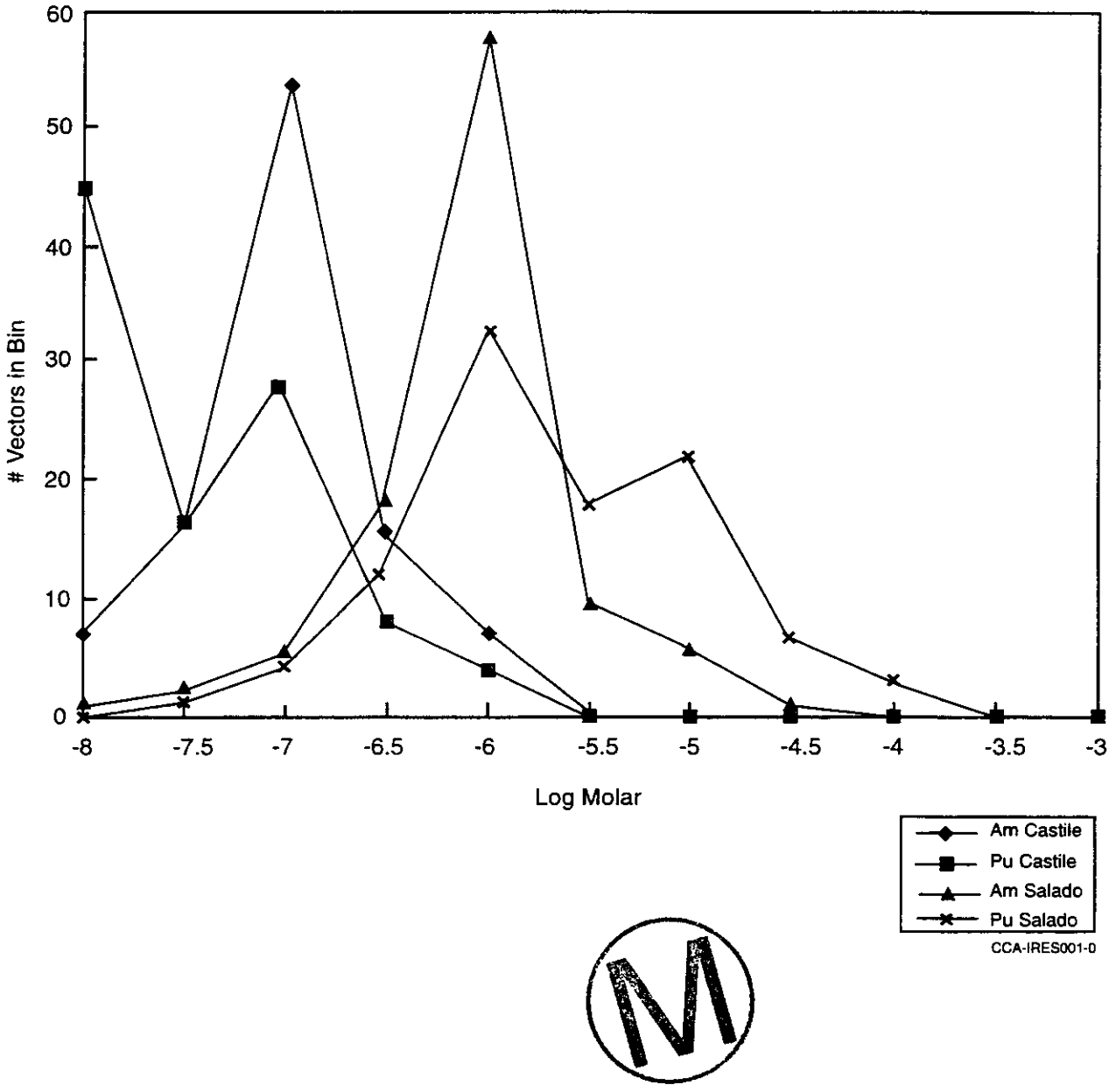

Figure IRES-1. Solubility Distributions, Dissolved Only

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Figure IRES-2 shows mobilized concentrations of Am and Pu that include colloidal sorption. The solubility curves for plutonium in both brines have shifted to higher solubilities, reflecting the proportionality constants in Table IRES-12.

Tables IRES-13 and IRES-14 show the dissolved actinide concentrations for the Castile and Salado, respectively. Tables IRES-15 and IRES-16 show the total (dissolved plus colloidal) actinide concentrations for the Castile for the higher and lower oxidation states, respectively.

Table IRES-13. Castile Dissolved Concentrations

Vector	Solubility, log (moles per liter)				
	AM	PU	U	TH	NP
1	-7.57675	-8.30323	-5.06662	-8.22185	-5.65758
2	-7.33185	-7.62315	-8.22185	-8.22185	-8.22185
3	-7.2815	-9.80785	-4.41232	-8.22185	-5.65758
4	-9.02775	-7.61585	-5.23252	-8.22185	-5.65758
5	-7.53655	-8.35315	-5.24412	-8.22185	-5.65758
6	-7.31675	-7.07165	-8.22185	-8.22185	-8.22185
7	-6.79915	-6.55625	-8.22185	-8.22185	-8.22185
8	-7.48195	-7.12887	-8.22185	-8.22185	-8.22185
9	-6.94095	-8.63695	-5.73142	-8.22185	-5.65758
10	-7.18846	-8.61245	-4.93772	-8.22185	-5.65758
11	-8.78975	-7.19006	-8.22185	-8.22185	-8.22185
12	-8.67475	-8.55225	-5.26982	-8.22185	-5.65758
13	-7.33995	-7.96385	-4.82982	-8.22185	-5.65758
14	-7.15187	-7.53335	-8.22185	-8.22185	-8.22185
15	-7.35555	-7.55525	-4.90272	-8.22185	-5.65758
16	-6.45145	-6.93485	-4.81172	-8.22185	-5.65758
17	-7.03035	-8.35675	-5.21522	-8.22185	-5.65758
18	-6.52835	-8.44885	-4.97782	-8.22185	-5.65758
19	-7.43955	-7.37865	-8.22185	-8.22185	-8.22185
20	-7.00775	-7.34005	-5.11499	-8.22185	-5.65758
21	-7.17771	-6.83125	-8.22185	-8.22185	-8.22185
22	-6.71965	-8.24748	-5.01866	-8.22185	-5.65758
23	-7.21716	-8.10935	-5.25422	-8.22185	-5.65758
24	-7.86655	-7.32325	-8.22185	-8.22185	-8.22185
25	-7.46505	-7.60645	-8.22185	-8.22185	-8.22185
26	-6.87585	-8.23479	-5.25942	-8.22185	-5.65758
27	-7.13032	-6.47115	-8.22185	-8.22185	-8.22185
28	-7.25786	-8.30848	-3.76552	-8.22185	-5.65758
29	-6.01375	-8.43025	-4.39772	-8.22185	-5.65758
30	-7.16789	-9.12385	-5.58072	-8.22185	-5.65758
31	-7.08505	-8.69245	-5.62032	-8.22185	-5.65758
32	-7.92075	-8.50555	-5.09281	-8.22185	-5.65758
33	-7.58815	-8.37325	-4.9721	-8.22185	-5.65758
34	-6.99425	-7.21194	-8.22185	-8.22185	-8.22185
35	-7.19845	-7.40835	-8.22185	-8.22185	-8.22185
36	-7.28795	-8.26475	-5.22342	-8.22185	-5.65758

Table IRES-13. Castile Dissolved Concentrations (Continued)

Vector	Solubility, log (moles per liter)				
	AM	PU	U	TH	NP
37	-7.26559	-7.39585	-8.22185	-8.22185	-8.22185
38	-7.25409	-8.02435	-5.98752	-8.22185	-5.65758
39	-7.31855	-9.09945	-5.16402	-8.22185	-5.65758
40	-7.74435	-6.67865	-8.22185	-8.22185	-8.22185
41	-8.08175	-8.40545	-4.91592	-8.22185	-5.65758
42	-6.89445	-6.84265	-8.22185	-8.22185	-8.22185
43	-7.32725	-9.01535	-5.38342	-8.22185	-5.65758
44	-6.19005	-8.12035	-5.09978	-8.22185	-5.65758
45	-6.26825	-8.56205	-6.97152	-8.22185	-5.65758
46	-8.29275	-8.20775	-8.22185	-8.22185	-8.22185
47	-7.36085	-7.59455	-8.22185	-8.22185	-8.22185
48	-7.21021	-7.88015	-8.22185	-8.22185	-8.22185
49	-6.37745	-7.27645	-8.22185	-8.22185	-8.22185
50	-7.10494	-7.39035	-8.22185	-8.22185	-8.22185
51	-7.40815	-7.17792	-8.22185	-8.22185	-8.22185
52	-7.36675	-8.03235	-5.17512	-8.22185	-5.65758
53	-6.66455	-7.29305	-8.22185	-8.22185	-8.22185
54	-7.40245	-8.00475	-4.07612	-8.22185	-5.65758
55	-7.82245	-6.60045	-8.22185	-8.22185	-8.22185
56	-7.30825	-8.63075	-6.42252	-8.22185	-5.65758
57	-6.61825	-7.30825	-8.22185	-8.22185	-8.22185
58	-7.66125	-7.30215	-8.22185	-8.22185	-8.22185
59	-7.38385	-7.55585	-8.22185	-8.22185	-8.22185
60	-6.42835	-6.22355	-8.22185	-8.22185	-8.22185
61	-7.54535	-7.10168	-8.22185	-8.22185	-8.22185
62	-7.64415	-7.03695	-8.22185	-8.22185	-8.22185
63	-7.23986	-7.36955	-8.22185	-8.22185	-8.22185
64	-7.22662	-9.14175	-8.22185	-8.22185	-8.22185
65	-8.16035	-7.99165	-5.42262	-8.22185	-5.65758
66	-7.07145	-8.10605	-8.22185	-8.22185	-8.22185
67	-7.67385	-7.81565	-4.82142	-8.22185	-5.65758
68	-7.34695	-8.18676	-5.45082	-8.22185	-5.65758
69	-7.70775	-6.38855	-8.22185	-8.22185	-8.22185
70	-7.03225	-6.98315	-8.22185	-8.22185	-8.22185
71	-7.24257	-9.46685	-4.69392	-8.22185	-5.65758

Table IRES-13. Castile Dissolved Concentrations (Continued)

Vector	Solubility, log (moles per liter)				
	AM	PU	U	TH	NP
72	-8.03415	-7.19447	-8.22185	-8.22185	-8.22185
73	-7.27057	-8.31775	-4.92782	-8.22185	-5.65758
74	-7.30125	-7.56615	-8.22185	-8.22185	-8.22185
75	-6.75855	-8.52205	-4.77582	-8.22185	-5.65758
76	-7.43385	-8.21909	-5.0354	-8.22185	-5.65758
77	-7.41705	-8.05505	-4.99894	-8.22185	-5.65758
78	-6.56015	-9.18435	-5.27432	-8.22185	-5.65758
79	-7.61525	-7.40695	-8.22185	-8.22185	-8.22185
80	-6.30205	-6.00275	-8.22185	-8.22185	-8.22185
81	-6.98175	-7.27385	-8.22185	-8.22185	-8.22185
82	-7.29355	-7.82515	-5.82312	-8.22185	-5.65758
83	-7.05685	-7.35925	-8.22185	-8.22185	-8.22185
84	-7.42535	-8.01735	-4.95382	-8.22185	-5.65758
85	-7.52245	-7.68325	-8.22185	-8.22185	-8.22185
86	-7.50255	-7.78875	-8.22185	-8.22185	-8.22185
87	-7.11963	-6.98995	-8.22185	-8.22185	-8.22185
88	-7.22879	-7.42105	-5.52422	-8.22185	-5.65758
89	-6.96475	-7.34455	-8.22185	-8.22185	-8.22185
90	-6.99785	-8.29558	-5.02774	-8.22185	-5.65758
91	-7.37545	-8.68155	-4.65292	-8.22185	-5.65758
92	-7.39065	-7.25055	-4.46552	-8.22185	-5.65758
93	-7.04735	-8.84325	-5.92432	-8.22185	-5.65758
94	-7.39905	-7.02395	-8.22185	-8.22185	-8.22185
95	-7.60705	-7.00665	-8.22185	-8.22185	-8.22185
96	-7.13982	-7.63595	-8.22185	-8.22185	-8.22185
97	-7.20501	-8.32885	-5.31642	-8.22185	-5.65758
98	-7.09945	-8.19906	-4.10712	-8.22185	-5.65758
99	-6.95875	-8.16685	-8.22185	-8.22185	-8.22185
100	-8.00275	-7.06565	-8.22185	-8.22185	-8.22185

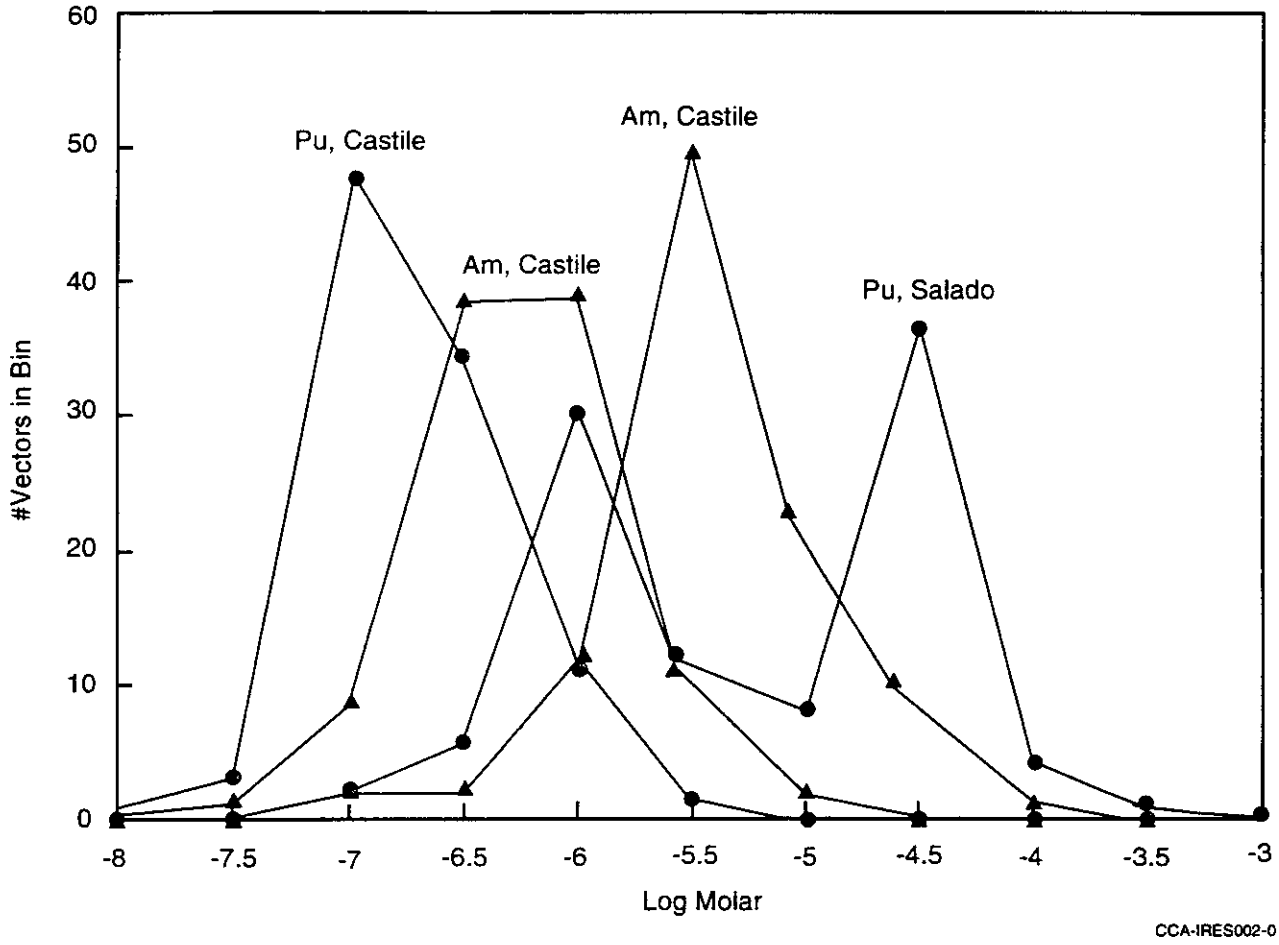

Figure IRES-2. Total Maximum Concentration (Dissolved and Colloidal)

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Table IRES-14. Salado Dissolved Concentrations

Vector	Solubility, log (moles per liter)				
	AM	PU	U	TH	NP
1	-6.43268	-5.63975	-5.29288	-4.80435	-5.63827
2	-6.61718	-5.54978	-5.58375	-5.77205	-5.35655
3	-7.12528	-5.55255	-4.97951	-5.55555	-5.63827
4	-5.26938	-6.44655	-5.39898	-5.71305	-5.63827
5	-6.07578	-4.46475	-5.18438	-5.42898	-5.63827
6	-6.51858	-6.47978	-5.27287	-5.19585	-5.35655
7	-6.46978	-6.43448	-5.70345	-5.50385	-5.35655
8	-6.17471	-6.09068	-5.31314	-5.00425	-5.35655
9	-6.86518	-5.33257	-5.21818	-5.37298	-5.63827
10	-6.32402	-5.37171	-5.32328	-5.38635	-5.63827
11	-6.24658	-6.65838	-5.61075	-4.56115	-5.35655
12	-6.38078	-4.06455	-4.11198	-5.4001	-5.63827
13	-6.54578	-5.19085	-5.15922	-5.63955	-5.63827
14	-6.45318	-6.25537	-5.96575	-4.62485	-5.35655
15	-6.25554	-5.41833	-4.49808	-5.3658	-5.63827
16	-5.90178	-5.21605	-6.01588	-5.4099	-5.63827
17	-5.81728	-4.51515	-4.90548	-5.48735	-5.63827
18	-6.72088	-5.43283	-4.96974	-5.56345	-5.63827
19	-6.21742	-6.38508	-5.40992	-4.82695	-5.35655
20	-6.23421	-5.70195	-4.81148	-6.25105	-5.63827
21	-5.55718	-5.49558	-5.41372	-4.50965	-5.35655
22	-6.38648	-5.03715	-5.74688	-5.53765	-5.63827
23	-6.29578	-5.34506	-4.62098	-5.46085	-5.63827
24	-5.48098	-6.46618	-6.29565	-5.44547	-5.35655
25	-6.06218	-6.20996	-5.11435	-6.19795	-5.35655
26	-5.39198	-5.72485	-5.24558	-5.11795	-5.63827
27	-6.44988	-7.11578	-5.58785	-6.17745	-5.35655
28	-6.00678	-4.96725	-4.52658	-6.55755	-5.63827
29	-6.91908	-5.54585	-6.79848	-6.12915	-5.63827
30	-5.65358	-6.99955	-5.50548	-5.32573	-5.63827
31	-6.19007	-5.40947	-4.38688	-5.14095	-5.63827
32	-6.04178	-5.52425	-6.43348	-5.52715	-5.63827
33	-6.63018	-5.49825	-4.89228	-5.3959	-5.63827
34	-5.35338	-6.46318	-4.70475	-5.89515	-5.35655
35	-5.74318	-6.55168	-4.72845	-5.72135	-5.35655
36	-6.42858	-5.20935	-5.52548	-5.47035	-5.63827
37	-6.96628	-6.71398	-5.56405	-4.36245	-5.35655

Table IRES-14. Salado Dissolved Concentrations (Continued)

Vector	Solubility, log (moles per liter)				
	AM	PU	U	TH	NP
38	-6.32616	-4.91725	-5.22268	-5.17695	-5.63827
39	-5.59608	-4.90555	-4.99712	-5.15685	-5.63827
40	-7.04358	-6.09518	-5.16835	-5.52225	-5.35655
41	-7.10528	-6.04685	-5.47628	-5.81675	-5.63827
42	-6.37068	-6.28717	-5.13645	-5.53165	-5.35655
43	-6.53018	-5.07445	-5.11826	-5.3564	-5.63827
44	-6.08798	-5.67135	-5.67938	-5.23345	-5.63827
45	-6.40728	-5.36299	-4.95758	-5.75975	-5.63827
46	-8.09408	-5.98458	-5.4014	-7.17655	-5.35655
47	-6.27105	-6.36188	-5.14975	-4.75175	-5.35655
48	-6.83068	-6.27087	-6.00695	-5.12395	-5.35655
49	-6.39488	-5.79418	-5.38145	-4.66205	-5.35655
50	-6.20802	-6.55818	-5.37236	-5.42349	-5.35655
51	-6.28634	-7.15078	-5.4311	-6.07195	-5.35655
52	-7.84708	-5.84555	-5.11148	-5.49205	-5.63827
53	-6.64928	-6.27865	-5.67425	-5.48135	-5.35655
54	-6.36068	-4.65205	-5.21178	-5.22325	-5.63827
55	-6.78668	-6.01358	-5.42345	-5.01735	-5.35655
56	-5.70058	-5.25055	-5.05311	-5.91855	-5.63827
57	-6.05558	-6.32537	-5.29081	-5.18515	-5.35655
58	-5.98688	-6.57548	-4.58175	-5.59565	-5.35655
59	-6.30107	-7.96108	-5.84925	-5.44903	-5.35655
60	-6.47718	-6.11478	-5.55195	-5.73605	-5.35655
61	-6.34098	-6.12128	-5.20745	-6.81455	-5.35655
62	-6.17563	-6.18573	-5.56695	-5.84255	-5.35655
63	-6.02118	-5.62378	-5.59795	-4.94245	-5.35655
64	-6.49478	-6.3145	-5.43771	-5.15235	-5.35655
65	-6.31283	-5.46555	-4.87088	-6.94755	-5.63827
66	-5.48528	-7.02938	-5.53265	-5.57425	-5.35655
67	-6.12228	-5.17805	-5.09199	-3.98955	-5.63827
68	-6.71228	-4.77905	-5.59688	-5.20375	-5.63827
69	-6.35158	-6.42778	-4.47435	-4.86465	-5.35655
70	-6.15934	-6.50858	-5.3328	-5.29428	-5.35655
71	-6.59498	-6.27845	-5.0797	-5.67695	-5.63827
72	-6.25608	-6.38898	-5.82785	-5.45835	-5.35655
73	-6.67678	-6.77955	-4.91168	-5.59175	-5.63827

Table IRES-14. Salado Dissolved Concentrations (Continued)

Vector	Solubility, log (moles per liter)				
	AM	PU	U	TH	NP
74	-7.18258	-6.12968	-5.29725	-5.64435	-5.35655
75	-6.14388	-4.81735	-5.06779	-4.45105	-5.63827
76	-6.69278	-6.19635	-5.23658	-5.67945	-5.63827
77	-6.35928	-4.42975	-5.14315	-5.28285	-5.63827
78	-6.39458	-5.11385	-7.02748	-5.60605	-5.63827
79	-6.43918	-7.48508	-5.77825	-5.357	-5.35655
80	-7.52008	-6.92808	-5.50075	-6.00225	-5.35655
81	-6.48398	-5.63778	-5.48005	-5.08735	-5.35655
82	-6.10148	-5.47375	-5.43788	-5.25025	-5.63827
83	-6.13098	-6.40808	-4.95745	-5.51305	-5.35655
84	-4.97108	-5.52125	-5.27138	-6.30385	-5.63827
85	-7.47008	-6.68768	-5.72975	-4.46815	-5.35655
86	-5.93748	-6.24453	-6.47255	-5.82535	-5.35655
87	-6.23887	-6.04248	-5.76155	-5.41616	-5.35655
88	-6.33299	-5.82275	-4.44808	-5.26497	-5.63827
89	-6.56308	-6.52508	-5.06555	-5.4393	-5.35655
90	-5.33228	-5.45935	-4.93838	-5.62295	-5.63827
91	-6.31125	-5.81565	-4.32058	-5.50035	-5.63827
92	-6.41508	-5.49185	-5.88208	-5.31646	-5.63827
93	-6.46218	-5.50965	-5.26718	-5.34285	-5.63827
94	-6.02028	-6.42108	-5.39641	-5.56525	-5.35655
95	-6.58538	-6.62278	-5.54985	-5.24675	-5.35655
96	-6.10908	-5.74038	-4.60945	-5.38018	-5.35655
97	-6.26472	-5.30731	-4.78278	-5.30125	-5.63827
98	-5.88278	-6.10255	-5.18718	-5.79895	-5.63827
99	-6.42218	-6.39568	-5.25723	-5.57975	-5.35655
100	-6.2802	-6.34768	-5.90675	-5.54835	-5.35655

Table IRES-15. Higher Oxidation State for the Castile (Dissolved plus Colloidal)

	Solubility, log (moles per liter)				
Vector	AM	PU	U	TH	oxstat
91	-6.55511	-7.36833	-4.47743	-7.05355	0.5093
38	-6.47261	-7.005	-5.80074	-7.05355	0.5155
32	-7.02124	-7.29475	-4.9123	-7.05355	0.5284
98	-6.29253	-7.12461	-4.04899	-7.05355	0.5378
30	-6.36692	-7.48526	-5.3983	-7.05355	0.5434
17	-6.28855	-7.21879	-5.03441	-7.05355	0.5544
5	-6.75969	-7.21679	-5.06323	-7.05355	0.5603
73	-6.50868	-7.19678	-4.7476	-7.05355	0.5736
75	-5.9642	-7.30239	-4.59579	-7.05355	0.5877
77	-6.58748	-7.02709	-4.81861	-7.05355	0.5977
44	-5.503	-7.0726	-4.91926	-7.05355	0.6022
28	-6.47878	-7.19143	-3.73761	-7.05355	0.6187
43	-6.50239	-7.46425	-5.20203	-7.05355	0.6274
71	-6.52959	-7.5288	-4.51397	-7.05355	0.6382
67	-6.83665	-6.84409	-4.64134	-7.05355	0.6457
68	-6.5384	-7.11669	-5.26913	-7.05355	0.6583
88	-6.41941	-6.50135	-5.34215	-7.05355	0.6626
4	-7.51139	-6.67559	-5.05166	-7.05355	0.6761
78	-5.77686	-7.49524	-5.09333	-7.05355	0.6836
84	-6.63444	-6.9999	-4.77357	-7.05355	0.6993
76	-6.6092	-7.13733	-4.85501	-7.05355	0.7062
92	-6.56612	-6.3431	-4.34358	-7.05355	0.7152
29	-5.32555	-7.2579	-4.29132	-7.05355	0.7284
23	-6.46618	-7.06508	-5.0733	-7.05355	0.7374
82	-6.47638	-6.85178	-5.6386	-7.05355	0.7424
97	-6.43102	-7.20313	-5.13529	-7.05355	0.7575
16	-5.66858	-6.04095	-4.63165	-7.05355	0.7699
22	-5.9304	-7.15498	-4.8383	-7.05355	0.7796
45	-5.47894	-7.32027	-6.72709	-7.05355	0.7801
93	-6.24877	-7.42132	-5.73851	-7.05355	0.7985
54	-6.57471	-6.99066	-4.0217	-7.05355	0.805
90	-6.1936	-7.18389	-4.84736	-7.05355	0.8106
15	-6.53788	-6.62229	-4.72254	-7.05355	0.8223
39	-6.59544	-7.4809	-4.98335	-7.05355	0.8392
65	-7.18326	-6.98099	-5.24107	-7.05355	0.8493
36	-6.54727	-7.16551	-5.04259	-7.05355	0.8592

Table IRES-15. Higher Oxidation State for the Castile (Dissolved plus Colloidal) (Continued)

Vector	Solubility, log (moles per liter)				
	AM	PU	U	TH	oxstat
31	-6.33357	-7.37233	-5.43763	-7.05355	0.8603
9	-6.23271	-7.35131	-5.54783	-7.05355	0.8715
20	-6.20781	-6.42672	-4.93443	-7.05355	0.8802
13	-6.57214	-6.9602	-4.64973	-7.05355	0.8982
56	-6.49236	-7.34886	-6.22362	-7.05355	0.9017
18	-5.74219	-7.26731	-4.79753	-7.05355	0.9155
26	-6.07196	-7.14715	-5.07848	-7.05355	0.9247
52	-6.56755	-7.0108	-4.99442	-7.05355	0.9394
3	-6.45724	-7.55001	-4.30273	-7.05355	0.9432
33	-6.73081	-7.22784	-4.79182	-7.05355	0.9543
41	-7.12623	-7.24505	-4.73572	-7.05355	0.9672
10	-6.36903	-7.3415	-4.75749	-7.05355	0.9708
12	-7.42553	-7.31597	-5.08885	-7.05355	0.9828
1	-6.82016	-7.18837	-4.88617	-7.05355	0.9977

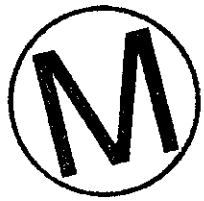

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Table IRES-16. Lower Oxidation State for the Castile (Dissolved plus Colloidal)

	Solubility, log (moles per liter)				
Vector	AM	PU	U	TH	oxstat
99	-6.1567	-7.33641	-7.15607	-7.05355	0.00655
80	-5.61645	-5.81992	-7.15607	-7.05355	0.01882
69	-6.86312	-6.00258	-7.15607	-7.05355	0.02529
24	-6.97334	-6.82132	-7.15607	-7.05355	0.03426
46	-7.243	-7.35234	-7.15607	-7.05355	0.0442
87	-6.30529	-6.49263	-7.15607	-7.05355	0.05301
2	-6.51315	-7.03626	-7.15607	-7.05355	0.06733
21	-6.38965	-6.41129	-7.15607	-7.05355	0.07913
81	-6.24296	-6.88679	-7.15607	-7.05355	0.08302
58	-6.80182	-6.7857	-7.15607	-7.05355	0.09834
89	-6.16029	-6.80902	-7.15607	-7.05355	0.1024
40	-6.93279	-6.40787	-7.15607	-7.05355	0.1155
42	-6.09189	-6.36108	-7.15607	-7.05355	0.1265
70	-6.26103	-6.57074	-7.15607	-7.05355	0.1311
95	-6.75561	-6.5259	-7.15607	-7.05355	0.1422
85	-6.74809	-7.19412	-7.15607	-7.05355	0.1595
79	-6.77766	-6.90219	-7.15607	-7.05355	0.1665
86	-6.67126	-7.15387	-7.15607	-7.05355	0.178
59	-6.63289	-7.12811	-7.15607	-7.05355	0.1832
94	-6.5644	-6.52326	-7.15607	-7.05355	0.1931
34	-6.2417	-6.80713	-7.15607	-7.05355	0.2028
6	-6.59075	-6.81628	-7.15607	-7.05355	0.2142
7	-6.00903	-6.10891	-7.15607	-7.05355	0.2202
19	-6.60194	-6.83326	-7.15607	-7.05355	0.2374
51	-6.65802	-6.86273	-7.15607	-7.05355	0.2446
66	-6.26159	-7.30707	-7.15607	-7.05355	0.257
48	-6.39597	-7.19469	-7.15607	-7.05355	0.264
35	-6.45428	-7.00537	-7.15607	-7.05355	0.2707
61	-6.7017	-6.60959	-7.15607	-7.05355	0.2814
96	-6.39646	-7.15207	-7.15607	-7.05355	0.297
63	-6.42192	-6.83094	-7.15607	-7.05355	0.3081
50	-6.29706	-6.85161	-7.15607	-7.05355	0.3153
14	-6.42801	-7.12714	-7.15607	-7.05355	0.3243
62	-6.82996	-6.6627	-7.15607	-7.05355	0.3349
11	-7.44622	-6.69144	-7.15607	-7.05355	0.3461
57	-5.86351	-6.85704	-7.15607	-7.05355	0.3561
60	-5.693	-5.89878	-7.15607	-7.05355	0.3698
49	-5.58373	-6.74917	-7.15607	-7.05355	0.3799
72	-7.07988	-6.67457	-7.15607	-7.05355	0.3896
64	-6.45855	-7.54466	-7.15607	-7.05355	0.3913
83	-6.25859	-6.84002	-7.15607	-7.05355	0.4035
27	-6.31935	-6.00877	-7.15607	-7.05355	0.4144

Table IRES-16. Lower Oxidation State for the Castile (Dissolved plus Colloidal) (Continued)

Vector	Solubility, log (moles per liter)				
	AM	PU	U	TH	oxstat
37	-6.46603	-6.89128	-7.15607	-7.05355	0.4213
55	-6.92961	-6.13901	-7.15607	-7.05355	0.4309
8	-6.74319	-6.88477	-7.15607	-7.05355	0.4481
47	-6.5324	-7.00332	-7.15607	-7.05355	0.4543
100	-7.05943	-6.56404	-7.15607	-7.05355	0.4603
74	-6.48308	-6.99174	-7.15607	-7.05355	0.4796
25	-6.71071	-7.17312	-7.15607	-7.05355	0.4807
53	-5.86721	-6.76399	-7.15607	-7.05355	0.4948

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