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NATIONAL TRANSPORTATION SAFETY BOARD WASHINGTON, D.C.

FAA'S REVIEW AND CORRECTIVE ACTIONS CONCERNING NATIONAL MSAW PROGRAM

(10 pages)

MSAW Parameter Review Team

A joint team of experts from AOS and AT who will examine the thousands of safety critical data elements and ensure that each of them is set to its optimal value.

Chronology

- •10/3/97 AOS and AT group meet to discuss MSAW adaptation parameters.
- •10/14/97 AOS and AT meet to develop method and propose timetable to ensure integrity of MSAW adaptation parameters.
- •11/3/97 FAA invests AOS with exclusive authority for MSAW adaptation parameters. AOS sets several teams to work examining MSAW.

ARTS 11A Process

- •Sites deliver their current operational program to the Team. Program is dumped for evaluation.
- •Rough screen to find priority sites to do first.
- •Team member spends approximately two days working through safety critical parameters, line by line, and optimizing each one.
- Program is patched, then re-dumped and sent back to step one. Cycle is repeated until program comes through without errors.

ARTS 11A Process (Con't)

- Site specific MSAW/Conflict Alert functionality test scenario is created to help site personnel to ensure that the program is operating as designed.
- Safety critical parameters are sent from AOS-600 to AOS-400 for final quality review. If changes are made, program is re-dumped and sent back to step one.
- Enhanced program is sent back to site to be brought online within 15 days.

Standards and Tools

- The Team spent several weeks establishing standards and guidelines for each safety critical parameter, which had never before existed for ARTS 11A.
- Three PC programs form the backbone of the parameter evaluation effort. Two of these program were written from scratch by AOS, and the other was modified to our specifications.
- The team believes that if these standards and tools had existed in the field, much of our current work would be unnecessary.

Scope of Work

- There are 130 ARTS 11A sites. Each of these sites covers more than one airport and most airports have more than one approach.
- •As of 1/28/9X, the Team has evaluated 38 sites including 178 airports and 427 approach capture boxes.

Recommendations

- •Ensure that every future ATC automation system is delivered with independently validated standards and guidelines for site adaptation.
- Ensure that every future ATC automation system is delivered with graphical tools to help the adaptation specialist visualize each parameter and ensure that it is optimally adapted.

	Date Ops Da	ate	1	nitial	Date	Date	Date Ops	Date	Q/A	Final	Final DTM	Date:		
	Tase NO	DAA II	n ballisbi E	Evaluation I lead					Completed			Pankaro		
IIE ID Facility Name		sk Redia /						Generated			Completed		Peripherial (Notes Readinghold Evaluation)	ID Fixit, Name
83 FMH		10/31/97	12/3/97	12/9/97	12/12/97	1/7/98	1/7/98		1/7/98	1/15/98	1/21/98		Needs clean up bad	FMH
2 ABE		11/9/97	12/3/97	12/9/97 xxx 11/17/97 xxx	1/13/98	1/14/98	1/15/98		1/15/98	1/16/98	1/21/98 1/26/98		large volume inhibit to SW Large volume inhibit areas, 19 bins off NOAA 12/97 data	ABE AGS
16 ICT		1/11/97	11/17/97	11/17/97 xxx	12/9/97	12/10/97	1/6/98		1/6/98	1/14/98	1/22/98		4 Bins less than NOAA, APM's 4 mi's wide	ICT
27 HSV		12/2/97	12/2/97	12/3/97 xxx	1/13/98	1/15/98	1/15/98		1/16/98	17 1-47 80	1722/90	01/2//00	45 Bins lower than NOAA (12/97) Large volume inhibits	HSV
34 MLI		1/20/97	12/3/97	12/9/97 xxx	12/9/97	12/10/97	12/10/98		12/11/97		12/12/97	12/12/97	Huge GTM inhibit area, many Volume inhibit areas	MLI
36 LIT		1/13/97	12/9/97	12/9/97 xxx	1/14/98	1/15/98	1/16/98		1/20/98	· 			Two Large volume inhibit areas, NQAA 11/97 data used	LIT
42 GSO	11/12/97 1	1/12/97	11/13/97	11/17/97 xxx	1/13/98	1/15/98	1/16/98	1/20/98	1/19/98	•			14 Bins less than NOAA	GSO
44 GPT	11/11/97	12/2/97	11/11/97	12/9/97 xxx	1/14/98	1/15/98	1/19/98	1/20/98	1/20/98				27 Bins lower than NOAA	GPT
45 SJT		12/2/97	11/11/97	12/9/97 xxx	1/13/98	1/13/98	1/13/98	1/14/98	1/13/98	1/28/98			20 mile wide APM, cutoff area inhibits most of the airport	SJT
49 CAE			11/18/97	12/10/97 xxx	1/19/98	1/20/98	1/21/98	1/21/98	1/21/98	1/23/98	1/23/98	01/23/98	Dep. Inhibit area way too big, 26 Bins Lower than NOAA 12/	
51 CHO		1/13/97	11/17/97	11/17/97 xxx	1/7/98	1/8/98	1/8/98	1/8/98	1/8/98				ca mismatch	CHO
56 RME		11/3/97	11/7/97	11/14/97 xxx	1/14/98 12/8/97	1/15/98 12/8/97	1/15/98 12/9/97	1/20/98	1/16/98	1/22/98	1/22/98 12/12/97		7 Bins Less than NOAA, Overlapping APM's	RME AVL
57 AVL 60 ELM		1/10/97 12/2/97	11/11/97	11/14/97 xxx 12/8/97 xxx	1/12/98	1/14/98	1/21/98	12/9/97 1/21/98	1/21/98	1/27/98	1/27/98	12/12/9/	Large GTM/Volume inhibit areas 16 Bins less than NOAA	ELM
61 TLH	1/8/98	1/8/98	1/8/98	1/9/96 xxx	1/9/98	1/13/98	1/13/98	1/13/98	1/13/98	1/15/98	1/15/98	01/20/08	DO NOT SHIP. Will be sent as new build by Ron Wimp.	TLH
64 SAV		1/11/97	11/12/97	11/14/97 xxx	1/21/98	1/23/98	1/23/98	1/23/98	1/23/98	1710400	111000	01120100	10+ bins lower than NOAA; GTM inhibit large	SAV
65 RIC			11/17/97	11/18/97 xxx	12/4/97	12/5/97	12/8/97	12/8/97	12/11/97	1/7/98	1/8/98	12/12/97	CA Mismatch, System Parameter, Large GTM	RIC
71 COU			11/17/97	11/17/97 xxx	1/21/98	1/22/98	1/22/98	1/22/98	1/22/98				No .STO file	cou
72 FAR	11/20/97 1	1/20/97	12/3/97	12/9/97 xxx	1/12/98	1/12/98	1/12/98	1/12/98	1/12/98	1/15/98	1/21/98	01/22/98	29 Bins lower than NOAA	FAR
73 BGM			11/17/97	11/18/97 xxx	1/7/98	1/9/98	1/9/98	1/9/98	1/9/98	1/13/98	1/15/98		ZMI's = 0 at 2 mi, Several Volume Inhibit Areas	BGM
82 CKB			11/19/97	11/21/97 xxx	1/12/98	1/14/98	1/14/98	1/14/98	1/14/98	1/15/98	1/21/98	01/22/98	22 bins lower than NOAA, TWRAAA less than IFRAAA, Nev	
84 MOB			11/13/97	11/14/97 xxx	1/19/98	1/19/98	1/20/98	1/21/98	1/20/98				Very Unique	MOB
90 MGM	11/3/97 1/8/98		11/10/97	11/14/97 xxx	1/22/98	1/26/98	1/14/98	44053	1/14/98	1/15/98	1/16/98	04.00.00	Large Inhibit Area, 24 Bins lower than NOAA 12/97 data	MGM
92 MCN 93 FLO		1/8/98 0/31/97	11/5/96	1/8/98 xxx 11/17/97 xxx	1/8/98	1/12/98 1/28/98	1/28/98	1/19/97 1/28/98	1/28/98	1/15/98	1/10/96	U1/2U/90	ship prior to xmass break 91 Bins less than NOAA, NOAA 12/97 data used	MCN FLO
95 YNG		1/20/97	12/3/97	12/9/97 xxx	1/21/98	1/20/98	1/21/98	1/21/98	1/22/98				36 bins lower than NOAA	YNG
96 GSP			11/12/97	11/17/97 ;xxx	1/26/97	1/28/98	1/28/98	1/28/98	112230				25 Bins less than NOAA, NOAA 12/97 data used	GSP
100 MWH		11/3/97	11/7/97	11/21/97 xxx	1/29/98								5 small volume inhibit areas?????	MVVH
103 ALO 33	10/31/97 1	0/31/97	11/6/97	11/17/97 xxx	1/29/98		· · · · · · · ·						Bad .STO file, Large GTM Inhibit Area	ALO
105 ERI 1		0/31/97	11/6/97	12/9/97 xxx	1/29/98								GTM Big and odd	ERI
107 MFD		1/20/97	12/3/97	12/9/97 xxx						i			Bad .STO file, 56 bins lower than NOAA	MFD
112 FYV		1/13/97	1/12/98	1/12/98 xxx							i		lg gtm inhibit, several bins lower than nosa	FYV
113 SBN		1/14/97	1/28/98	1/28/98 xxx			· · · · · · · · · · · · · · · · · · ·		-				Large PDR, several Volume Inhibits (found on old tape.)	SBN
117 NMM 119 MBS			11/12/97	11/19/97 xxx 12/9/97 xxx	1/12/98	1/14/98	1/19/98	1/21/98	1/21/98		·		7 bins lower than NOAA Bad STO File, 14 Bins less than	MBS
126 MYR			11/17/97	11/18/97 XXX	1/12/90	1714/90	1119/90	1/21/90	112 1190	•			Large GTM inhibit areas, NOAA 12/97 data used	MYR
127 FSI			11/20/97	11/20/97 xxx	11/20/97	11/20/97	12/8/97	12/8/97	12/11/97	1/15/98	1/16/98	01/20/98	Longo OTH REMOTE BOOK 12007 GREE GOOD	FSI
129 FWA		1/20/97	12/2/97	12/3/97 xxx									34 DTM Bins Lower than NOAA	FWA
900 GUM	11/20/97 1	1/20/97	12/3/97	12/9/97 xxx	1/27/98	1/29/98		-	•				15NM GTM inhibit area, DTM bin 1800 low	GUM
1 PPP		1/12/97	11/13/97	11/13/97									Check all ZMI's and primary departure area	PPP
3 MSN		1/20/97	12/3/97	12/9/97										MSN
4 RDG		11/3/97	1/6/98										Complete CA mismatch Ops/Lib	RDG
5 MKG			11/17/97	11/17/97						-			Bad .STO file	MKG
6 BPT 7 BTR		0/31/97 0/31/97	11/5/97	11/14/97 11/17/97	<u> </u>						-		CHECK ALL ZMI'S AND SATELLITE AIRPORT AREAS Bed .STO file	BPT BTR
8 ROA			11/19/97	11/19/97		-	<u>i</u>	-			 		BBQ .STO THE	ROA
9 AMA		0/31/97	11/6/97	11/17/97	+	+		- i	-	-	-			AMA
11 ASE		1/20/97	12/2/97	12/3/97	+		+	+	-	-			MSAW Inhibited via Waiver.	ASE
12 ADW	1/6/98	1/6/98	1/6/98	1/6/98		-			+		-		PROPERTY IN HERICAL FIRE TERROR.	ADW
14 RNO			11/18/97	12/9/97			+		į		—— <u> </u>			RNO
15 EUG		1/20/97	12/3/97	12/9/97		i			<u> </u>	- :				EUG
17 BFL	11/14/97	12/2/97	11/18/97	12/9/97						-				BFL
18 LNK			11/11/97	11/17/97										LNK
19 BOI 14		1/20/97	12/3/97	12/8/97										BOI
20 SCK (1977) 5 12 5 1			11/19/97	11/20/97	\Box								Bad STO file	SCK
21 MHT (1.5%)	11/3/97	11/3/97	11/17 /9 7	11/17/97	11/19/97	11/20/97	12/2/97	12/3/97	12/11/97	1/8/98	1/8/98	12/12/97		MHT

												,	<u> </u>	100//
22 GRK		444007	444007	4000		-				+			<u> </u>	GRK
23 MER	11/19/97			12/9/97		-			· · · · · · · · ·		_	 	<u>-</u> -	MER
24 LCH	11/3/97		11/6/97 12/3/97	11/17/97		-			· } -			ļ	Description New One Trans	LCH PBI
25 PBI	12/2/97	11/12/97		11/19/97					· · · - · · · · · · · · · · · · · · · ·				Received New Ops Tape Bad STO, 4 Bins lower than NOAA's	ABI
28 SPI	11/9/97		12/2/97	12/3/97	‡							——	Dag STU, 4 Bins lower than NOAA's	SPI
	11/20/97		<u> </u>			- ·· ‡						·	-	
29 MLU	11/3/97			11/17/97		-							Ale NOAL Dist	MLU
30 CRW	10/31/97	10/31/97	11/6/97	11/1//9/		· 		;				<u>. </u>	New NOAA Disk	CRW
31 PIA	11/20/97	11/20/97	44000	444707								·	OPS tape won't load, replacement requested.	PIA
32 LFT	11/3/97	11/3/97		11/17/97	—- - i———	i	+						 	LFT
33 DLH	11/17/97			11/18/97		· · · · · · · · · · · · · · ·								DLH
35 GRR	11/4/97	11/4/97		11/7/97	11/7/97	11/12/97	12/9/97		Live update			11/13/9/	Needs package, working off of original TEST tape.	GRR
37 FAI	12/2/97	ļ	12/2/97				i	— —— - i					No NOAA Data Disk	FAI
38 FAY	11/12/97			11/13/97					 -				Bad STO file	FAY
39 AZO	10/31/97			11/11/97	11/11/97	11/12/97	12/8/97	12/8/97	1/20/98	1/20/98	1/20/98		<u> </u>	AZO
40 BTV	11/4/97			11/12/97	1/23/98	1/23/98	1/23/98	1/23/98	1/23/98			'	TEST SITE SENT HOME WITH MATT - REDOI!!!!!	BTV
41 BIL	11/20/97		12/2/97	12/2/97				<u>:</u>						BIL
43 MAF	11/3/97	11/3/97	11/5/97	11/17/97									<u></u>	MAF
46 CPR	11/20/97	11/20/97	12/2/97	12/3/97									:	CPR
47 MRY	11/14/97		11/18/97										Bad .STO file	MRY
48 ACY	10/31/97	10/31/97	11/6/97	11/19/97	1/15/98	1/16/98	1/16/98	1/16/98	1/16/98				Bad STO file, Large Volume inhibit area	ACY
50 PSP	11/13/97			11/17/97										PSP
52 LBB	11/3/97	11/3/97	11/6/97	11/17/97				-						LBB
53 FNT	11/4/97	11/4/97	11/7/97	11/7/97	11/7/97	11/11/97	12/8/97	12/3/97	12/11/97		12/12/97	12/12/97	New NOAA Data	FNT
54 TYS	11/13/97	11/13/97	12/3/97	12/9/97			i						No library tape	TYS
55 BIS	11/20/97	11/20/97	12/2/97	12/3/97		-	1						Bed STO file	BIS
58 ACK	11/9/97	11/9/97	11/11/97	11/13/97	11/13/97	11/20/97	12/5/97	12/3/97	12/11/97	1/12/98	1/13/98	01/20/98	Ready to Mail	ACK
59 MDT	11/11/97	11/11/97	11/12/97	11/20/97						i			No .STO file / 1 bin lower than NOAA	MDT
62 SBA	11/13/97	12/2/97		i			•						OPS tape won't load, replacement requested.	SBA
63 MFR	11/20/97	11/20/97	12/3/97	12/9/97						1		•		MFR
66 SGF	11/13/97	11/13/97	11/13/97	11/17/97					-					SGF
67 GEG	11/3/97	11/3/97	11/5/97	11/20/97						- :			Bed .STO file	GEG
68 CAK	11/20/97	11/20/97	12/2/97	12/3/97					-					CAK
69 CMI	11/20/97	11/20/97	12/3/97	12/9/97					-	- 1				CMI
70 RSW	11/3/97	11/3/97	11/6/97	11/14/97										RSW
74 AVP	11/11/97			11/17/97	1/7/98	1/13/98	1/13/98	1/13/98	1/13/98	1/27/98				AVP
75 RFD	11/20/97	12/2/97	12/3/97	12/8/97			+					-	Bed STO file, new NOAA	RFD
76 SUX	11/10/97		11/11/97	11/14/97		-				<u> </u>				SUX
77 AUS	11/4/97	11/4/97	11/5/97	11/12/97	11/12/97	11/13/97	12/8/97	12/8/97	Live update			11/13/97	TEST SITE - 11/13/97, needs package	AUS
78 DAB	11/13/97	11/13/97	11/17/97	11/17/97						-			5 1/4 nosa DISK	DAB
79 GTF	11/20/97	11/20/97	12/2/97	12/3/97	-	1							!	GTF
80 LEX	11/3/97	11/3/97	11/7/97	11/19/97									Bad ,STO file	LEX
81 CHS	11/13/97	12/2/97	11/13/97	11/13/97									New NOAA Disk	CHS
85 PWM	11/3/97	12/1/97	11/10/97	12/1/97	12/15/97	1/9/98	1/9/98	1/7/98	1/12/98				Bad STO file	PVM
86 HTS	11/3/97	11/3/97	11/18/97	11/18/97									 	HTS
87 EVV	11/20/97	11/20/97	12/2/97	12/3/97	-		· · · - - · · · · ·				. ———		1	EVV
88 PUB	11/20/97	11/20/97	12/2/97	12/3/97						+			Bad .STO file	PUB
89 HUF	11/20/97	11/20/97	12/3/97										Bad ,STO file, bad NOAA disk	HUF
91 ACT	11/9/97	11/9/97	11/10/97	11/17/97	1 1		 +							ACT
94 YKM	11/3/97	11/3/97	11/10/97	11/21/97	1	+								YKM
97 PSC	11/3/97	11/3/97	11/6/97	12/9/97									 	PSC
98 FSM	1/12/98	11/13/97	1/12/98	1/12/98	1	 								FSM
99 CRP	12/8/97	12/8/97	1/6/98		+ +			+	- :					CRP
101 CID	11/10/97	11/10/97	11/11/97	11/17/97	+ +	+							:	CID
102 TRI	11/13/97	11/13/97	11/18/97	11/18/97	+ +								i 	TRI
104 GGG	11/3/97	11/3/97	11/7/97	11/19/97	+	-							Bad STO file Satelite apport areas need adjusting	GGG
106 ANZ	12/09/97	,	12/09/97	. 12 1 64 67			+		+				no ops tape	ANZ
108 JAN	1/20/98	11/10/97	1/20/98		- 	+	+	·				-	NOAA 12/97 data used.	JAN
109 COS	1/20/98	11/20/97	1/20/98			+						_	1	cos
110 LAN	11/3/97	11/3/97	11/6/97	11/17/97	- 	1			<u>_</u>					LAN
111 ILM	11/12/97	11/12/97		11/13/97	+									ILM
	11/12/3/	,,,,,,,		110197						_ :			·	[15.747

MSA necklist

999	100%	98%	98%	92%	32%	36%	34%	32%	32%	31%	16%	17%	17%		
998	129	126	127	118	40	46	43	41	40	39	20	21	21		
130 HRL	12/8/97	12/8/97	12/9/97												
128 CSG	11/11/97	11/11/97	11/12/97	11/19/97										Bad .STO file : some long capture boxes adapted	CSG
125 TOL	11/20/97	11/20/97	12/3/97	12/8/97			i								TOL
124 FSD	11/20/97	11/20/97	12/3/97	12/8/97							<u>i</u>			bad sto file, msaw compare missing	FSD
123 BGR	11/5/97	11/5/97	11/5/97	11/11/97		11/11/97	11/12/97	12/8/97	12/8/97	12/11/97	1/20/98	1/20/98	01/20/98		BGR
122 FAT	11/13/97	11/13/97	11/17/97	11/17/97										NOAA disk phys bed, NOAA copied to L:\	FAT
121 GRB	11/20/97	11/20/97	12/3/97	12/8/97											GRB
120 ANC	12/2/97	12/2/97	12/2/97	12/3/97											ANC
118 ITO	11/14/97	11/14/97	11/18/97	11/19/97		1									ITO
116 RST	11/17/97	11/17/97	11/17/97	11/18/97											RST
115 CHA	11/11/97	11/11/97	11/12/97	12/10/97										NOAA 12/97 data used	CHA
114 MSO	11/3/97	11/3/97	11/5/97	11/19/97		11/20/97	11/20/97	12/8/97	12/6/97		1				MSO