Davis-Besse Lessons Learned Task Force Meeting *(8/5-8/2002)*

NRC PreDecisional

Art Howell
Ron Lloyd
Ed Hackett
Joe Donoghue
Bob Haag
Tom Koshy
Pat Castleman
Joelle Starefos
Ronnie Bucci (Office of Inspector General)

Using modified IAEA approach: Fact Level; Conclusion Level; Root Cause. Conclusions are in bold and underlined; supporting facts are assigned beneath the conclusion. Other individual facts that require fact verification are shown as bold. Root Causes are designated by *rc* with associated conclusions mapped to each root cause.

			WHY: NRC and industry failed to understand operating experience relevant to nozzle cracking and boric acid corrosion
		rc1	*The NRC and Industry failed to assess operating experience relevant to Alloy 600 nozzle cracking and boric acid corrosion of carbon steel*
	b	RC1	**The NRC failed to adequately follow-up on relevant Generic Communications**
59	B	RC1	62001 not used for DB (precursor events)
61	B	RC1	62001 used 15 reactors (all RIV PWRs)
62	B	RC1	No insp followup of GL97-01
66	B	RC1	NRC followup for 88-05 audited 10 plants; DB acceptable
84	B	RC1	RIII factored BU2001-01 commitments as part of Baseline prog.
129	B	RC1	TI on BU2001-01 didn't address BA issues
132	B	RC1	2515 IP do not look at BA/GC followup
133	B	RC1	The old inspection program (9000 series) looked at OE issues
154	B	RC1	# of Generic Comm (NRC) not corrected with # of events
156	B	RC1	MD8.5 can't be followed because it hasn't been updated

H-65

160	B	RC1	No NRC programmatic guidance for effectiveness review of generic comm.
161	B	RC1	Sample/shotgun method for verification of generic comm implementation
164	B	RC1	IP62001 deleted w/o considering why it existed
165	B	RC1	NRC generated 17 boric acid generic communication
187	B	RC1	11/93 SER recommended inspection (visual) or leak detection system
189	B	RC1	11/93 SER recognized circumferential cracking, but didn't make recommendations
201	B	RC1	GL97-01 closeout for DB based on generic info
202	B	RC1	DB was the only B&W licensee that didn't do inspections (ref GL97-01) NRC
232	B	RC1	1972 requested enhanced ISI for BA corrosion
304	B	RC1	1991 Action Plan - no evidence that it was done
310	B	RC1	50.71e and Reg Guide changes to BA analysis not required in FSAR update
	ci	**RC1**	**The NRC failed to implement adequate programs and guidance to address implications of Alloy 600 nozzle cracking and boric acid corrosion**
14	CI	RC1	Licensee stated that NRR knew about BA on head
15	CI	RC1	SRI saw CR on BA on head
28	CI	RC1	BA CRs not selected for PIR
29	CI	RC1	Abbreviated version (issue) of BA CRs not represented
33	CI	RC1	No apparent NRC followup of 96, 98 PCAQs
42	CI	RC1	Aware of BA on RPV head and didn't inspect
43	CI	RC1	SRI knew of flange leaks
49	CI	RC1	DRP BC and former SRI (only) knew of flange leaks

50	CI	RC1	Flange leaks not pursued
65	CI	RC1	1992 precursor insp no perf issues/no F/U of BA control prog
95	CI	RC1	RIII saw RC-2 as a material control problem -vs- boric acid prog prob
116	CI	RC1	BC/SRI/RI didn't observe RPV head videos
128	CI	RC1	RI reviewed CR/equivalent in some manner
130a	CI	RC1	BA buildup not a safety issue by NRC
169	CI	RC1	NRC 1993 SER addressed RVH nozzle cracks as not immed. safety issue
222	CI	RC1	NRC staff believed dry boric acid not corrosive
227	CI	RC1	Industry and NRC were managing BA issue by leakage
229	CI	RC1	NUMARC 1993 and NEI 1995 letters - GL88-05 will let the industry locate leaks before a real problem is identified
233	CI	RC1	1993 2.206 Greenpeace response - cracking issues
295	**CI**	**RC1**	**Licensee asserted that NRC questioned how the licensee was able to do a visual insp. given that boron was left on the head, but never followed up**
	cp	**RC1**	**The NRC failed to establish adequate procedures and guidance to address the implications of Alloy 600 nozzle cracking and boric acid corrosion**
45	CP	RC1	Neither of Residents received training on BA
105	CP	RC1	NRC doesn't review owner's group input
155	CP	RC1	NUREG 6245 (CRDM crack) NRC not aware of B&W content
226	CP	RC1	Postulated breech of RPV not considered
228	CP	RC1	NRC doesn't review all of the industry guidance on BA
167	F	RC1	AEOD had 80+ FTE; now 2.5 FTE for OE (RES)
	h	**RC1**	**The NRC failed to identify and integrate relevant operating experience**

157	H	RC1	OE review in NRC not performed by independent or long review
163	H	RC1	NRR is reactive for short-term/current event
166	H	RC1	NRC generic issue program takes too long/too hard...use bulletins instead
170	H	RC1	Foreign OE was reviewed by NRC
171	H	RC1	70 LERs about Boric Acid leaks
172	H	RC1	Axial cracks known from early 1970s , Circumferential from 1980s
173	H	RC1	LIC-503 references some wrong procedures in RES
183	H	RC1	No clear process for using foreign experience
184	H	RC1	French corrective actions were documented but never used
185	H	RC1	Mind set that French CA was an over reaction from NRC perspective; aggressive inspection was reponse
186	H	RC1	NRC never asked the French why they were replacing their RPV heads
188	H	RC1	Swedish, Spanish, Japanese, French have replaced heads
193	H	RC1	NRR staff not aware BA leakage OE
196	H	RC1	Conclusion in the EPRI guidebook not supported
209	H	RC1	RES procedure 2i not used/not known by staff
210	H	RC1	Cracking/BA corrosion not considered by either NRR or RES to be a GI (MD 6.4)
221	H	RC1	License Renewal report (GALL) addresses acceptability of GL88-05 for aging management to be updated to reflect lessons learned
230	H	RC1	GI program relies on user needs before taking action
231	H	RC1	Preferred process flow for OE: nothing; IN; BU; GL; GI (all else fails)
242a	H	RC1	MNSA and roll expansion- repair of joints, boric acid issues NRC
303	H	RC1	NRR did not review the French experience

312	H	RC1	NUREG 5576 events RE: TP4 & Salem 2 not known within NRC
313	H	RC1	Circumferential cracks not picked up by GIP screening program
314	H	RC1	All B&W plants experienced circ cracks (except 1)
315	H	RC1	Tracking of foreign experience cost
316	H	RC1	NUREG 6245 CRDM experience not known within NRC/Industry
	j	**RC1**	**The Licensee failed to understand implications of boric acid corrosion.**
32	J	RC1	BA on head was a "routine" CR
36	J	RC1	1996 CR on BA stayed open for ~2 years
130	J	RC1	BA buildup not a safety issue by DB
155a	J	RC1	NUREG 6245 (CRDM crack) Industry not aware of B&W content
178	J	RC1	BACC person also had many other duties as a system engineer
194	J	RC1	BWOG rep didn't know the significance of Brown/red tinted BA buildup
197	J	RC1	Risk significance of BA on RPV head is low LIC
217	J	RC1	BA procedure not "QA" until 5/02
234	J	RC1	Mod on service structure delays
239	J	RC1	Ombudsman & cleaning statements
274	J	RC1	PRG staff didn't viewed head tapes
275	J	RC1	Former VP viewed as-found, not after tape until Fall2001
282	J	RC1	Only staff involved in head cleaning
296	J	RC1	PCAQ 96-0551 was one of ten oldest CRs before it was resolved
298	J	RC1	Multiple people involved in head cleaning w/o raising issues
302	J	RC1	ISI summary only included outside CRDMs
325	J	RC1	1993 topical report is same issue as Davis-Besse

339	**J**	**RC1**	**DB banking on another 5-years beyond Oconee cracking experience**
342	J	RC1	DB and ANO late in implementing service structure port mod
347	J	RC1	Former VP didn't see BA on head as important
	m	**RC1**	**The Licensee failed to learned from internal and external operating experience**
68	M	RC1	DB's BACC didn't include Rx head/instr until 5/02
151	M	RC1	Oconee OE not evaluated at DB until 5/2002
152	M	RC1	OE in US...Boric acid leaks. #1 area was CRDM, DB considered not significant
153	M	RC1	100% B&W units had RCS PB leakage
162	M	RC1	DB OE procedure doesn't require NRC LER review
168	M	RC1	100% CE had RCS pressure boundary leakage
174	M	RC1	45% of Oconee cracking (CRDM) appears in the same quadrant as DB leakage problems
175	M	RC1	CE plants dominated RCS instrumentation nozzle leakage (10 of 13 leaks)
176	M	RC1	Average # of operating years prior to CRDM leakage ~22 years
179	M	RC1	Foreign experience would indicate that the "crack" model is flawed
191	M	RC1	NUREG/CR 6245 recommended enhanced online leakage detection systems (NRC?)
192	M	RC1	Calvert Cliffs LER indicated wet boron vs dry
198	M	RC1	Annealing nozzle temps were different than required
200	M	RC1	3 LERS involved pzr material wastage
242	M	RC1	MNSA and roll expansion- repair of joints, boric acid issues LIC
276	M	RC1	Two precursor BA events...RC2, SG line
308	M	RC1	1998 DB had a resin intrusion

314	M	RC1	All B&W plants experienced circ cracks (except 1)
316	M	RC1	NUREG 6245 CRDM experience not known within NRC/Industry
327	M	RC1	D-B should have been industry leader following the RC-2 event
345	M	RC1	Many CRs on BAC but no evidence of tracking
346	M	RC1	RCS system engineer not aware of 1996 PCAQ

		rc2	*The Licensee failed to ensure that the source of previously identified boric acid deposits on the reactor pressure vessel head was promptly identified and corrected*
	i	**RC2**	**The Licensee failed adequately implement owners group and other industry guidance**
202a	I	RC2	DB was the only B&W licensee that didn't do inspections (ref GL97-01) LIC
236	I	RC2	No BWOG verification for implementation of GL97-01
237	I	RC2	No BWOG verification for implementation of GL88-05
247	I	RC2	No tracking system to ensure that industry guidance was included in site guidance/ processes.
261	I	RC2	93 B&W report flange leaks need to be eval first
289	I	RC2	BA corr handbook shows CAC/RM as evidence of RCS leak
322	I	RC2	Former RCS system engineer not aware of 1993 B&W guidance
329	I	RC2	Licensee did not view enhanced visual inspection to be commitment
341	I	RC2	B&W topical assumed that BA leakage was found and repaired
	k	**RC2**	**The Licensee failed to adequately address long-standing reactor coolant system leaks**
24	K	RC2	Routine CAC cleaning
108	K	RC2	CAC/RM fouling may have been the impetus for TS change in #107
109	K	RC2	HEPA filter for RM may defeat the purpose of the RM workarounds -vs- fix the problem
119	K	RC2	Licensee not rigorous in finding RCS leaks
120	K	RC2	Licensee deleted Mode 3 walkdown for BA
235	K	RC2	CAC fouling and ALARA
244	K	RC2	DB entered a 6-hour shutdown TS situation because of RM Problems with BA

248	K	RC2	Ability to differentiate between flange leakage/ head penetration leakage
255	K	RC2	Until RFO13 lic had flange leaks
262	K	RC2	Heavy boron buildup on CACs
268	K	RC2	No systematic leak search for 12RFO
269	K	RC2	Deleted mode 3 walkdown
273	K	RC2	Long history of thermowell leaks
280	K	RC2	Triage plan for flange leak / didn't fix all flange leaks
287	K	RC2	100% NDE 5.7Rem estimate <past head cleaning
300	K	RC2	Relief valve mod masking other leaks in 1998-99 time frame
330	K	RC2	Containment >120F on several occasions
331	K	RC2	CAC cleanings occurred as early as 1997
332	K	RC2	Lic root cause didn't identify CAC cleaning in 1997
334	K	RC2	CAC cleaning being tracked as a high dose job
335	K	RC2	CAC/RM not identified as a workaround
338	K	RC2	SV temp mod failed to assess leakage
343	K	RC2	Ops lack of ownership of plant material problems
344	K	RC2	BACC program manager couldn't find all components in BACC program
	I	**RC2**	**The Licensee failed to develop and implement an adequate boric acid corrosion control program.**
34	L	RC2	1996 CR explicit on the BA concern
35	L	RC2	~50% of RPV head cleaned in 1996
70	L	RC2	BAC checklists not kept/tracked/trended
123	L	RC2	None of the RPV head cleanings were 100%
124	L	RC2	Lost control of video tapes

144	L	RC2	BAC procedure wasn't followed
251	L	RC2	Appropriate cleaning methods for RPV head (water-vs-vacuum)
254	L	RC2	#4, 5 nozzles still had boron on them following cleaning
260	L	RC2	Couldn't complete head cleaning due to schedule pressure
263	L	RC2	Potential CRDM G9 leak was crack, not dispositioned
266	L	RC2	RCS sys engr: scaffold was removed without permission
267	L	RC2	RP considered head cleaning as decon, so no procedure
279	L	RC2	No deviations from RFO12 WO to clean RPV head
281	L	RC2	RCS sys engineer upset that they head wouldn't be totally cleaned
283	L	RC2	Index of head tapes incomplete
284	L	RC2	4/17/00 head mislabeled as as-left
285	L	RC2	Head inspection tape not documented as to what was actually inspected - QA zip
301	L	RC2	Molpus slides show that licensee understood BAC in 1999 [RC-2 event]
	n	**RC2**	**The Licensee failed to provide adequate oversight and resources to ensure that significant conditions are promptly identified and corrected**
159	N	RC2	40-50% DB staff decrease over 10 years
238	N	RC2	O&M/capital budget and actuals have decreased over last 10-years
246	N	RC2	Multiple job assignments depending on cycle (outage, ops, EP)
256	**N**	**RC2**	**VP - No NDE tools by 12/31**
277	N	RC2	Lack of system engineer continuity
317	N	RC2	Region I few resources/staff with materials backgrounds (NRC/DB)
333	N	RC2	Inflation adjusted O&M decreased over period 1991-2001

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~~NRC PreDecisional~~

	q	RC2	**The NRC failed to provide and implement licensing process guidance**
31	Q	RC2	We rely on lic to give NRC correct info
115	Q	RC2	NRR PM limited visits to DB
182	Q	RC2	After the RPV head videos were shown to the NRC, a vote was taken: 3 for shutdown; remaining (10-13) voted to allow continued operation
204	Q	RC2	No process for verifying licensee info for continued operation
207	Q	RC2	Some PM haven't visited plants
208	Q	RC2	PM didn't review commitment change reports
211	Q	RC2	NRR not implementing procedures
212	Q	RC2	LA/SE for RM for RCS leakage didn't consider DB OE
213	Q	RC2	NRR perception was that DB was a good performer
297	Q	RC2	No NRC review of submittals/reports (ISI)

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~~NRC~~ PreDecisiondl

		rc3	*The NRC failed to accurately assess the safety performance of the Davis-Besse Nuclear Power Station*
	a	**RC3**	**The NRC failed to adequately assess the symptoms of reactor coolant system leakage**
12	A	RC3	CAC/Rad Monitor cleaning known by NRC through BC level
13	A	RC3	BA on head known by SRI during RFO12
16	A	RC3	RIII (Grant) knowledge of Rad Monitor
18	A	RC3	BCs logs on CAC/RMs & discussed in morning meetings
19	A	RC3	CAC cleaning observed by inspectors (DRS)
20	A	RC3	PM knew about CACs
22	A	RC3	DRP BC listed CAC cleaning (2001)
23	A	RC3	RIII didn't see CAC/RM cleaning as important
37	A	RC3	Long time to close out CRs
38	A	RC3	No one suggested NRC look at RCS leakage in containment during PIR
41	A	RC3	3 inspection reports discussing RMs without conclusions
52	A	RC3	RIII didn't view leakage as a problem
58	A	RC3	Multiple cleaning of CACs
76	A	RC3	No documentation of CAC evaluation inspection
77	A	RC3	No NRC doc of RM leak detection reliability insp.
83	A	RC3	No open items for CAC/RM or BA on head
87	A	RC3	Pzr safety valve mod increased leakage; NRC accepted without question
88	A	RC3	Assumed Pzr safety valve leakage was reason for CAC fouling
97	A	RC3	CR for CAC/RM not seen as safety-sig would be screened out
98	A	RC3	NRC Briefing package for Merrified didn't include BA problems

107	A	RC3	TS requirements for CAC/RM were relaxed
118	A	RC3	BC didn't tell RI to pursue BA issues
125	A	RC3	RA knew of CAC issues
	eia	**RC3**	**The NRC failed to adequately integrate Davis-Besse Nuclear Power Station safety performance data**
1	EIA	RC3	Region viewed Davis-Besse as good performer.
21	EIA	RC3	One PPR summary listed CAC cleaning
46	EIA	RC3	Inspection on RM didn't provide any performance issues
54	**EIA**	**RC3**	**CCW event (10/98) resulted in Spec Insp**
55	EIA	RC3	NRC prompted Lic regarding RCS leak on MUIA described as positive in IR
56	EIA	RC3	DB PIR viewed as the best by RIII
121	EIA	RC3	NRC thought that the licensee was rigorous in their leak hunt
138	EIA	RC3	Range of opinions on whether an AIT/IIT/SI
	eii	**RC3**	**The NRC failed to adequately inspect the safety performance of the Davis-Besse Nuclear Power Station**
25	EII	RC3	PI&R/40500 did not review area
27	EII	RC3	Gap of 2 ½ years between CA inspections (missed events)
39	EII	RC3	Inspection reports don't list all docs reviewed (6 years of reports)
44	EII	RC3	RC-2 escalated enforcement didn't require closeout inspection
51	EII	RC3	Former SRI did not perform any followup on leak hunt plan RFO12
72	EII	RC3	Verbatim comp. W/insp procedures (not there/can't do)
78	EII	RC3	1997 NOP/NOT walkdown by NRC found no leaks
96	EII	RC3	RIII had differing views for RC-2 violation followup
122	EII	RC3	RI thought the RPV head was 100% cleaned
127	EII	RC3	ALARA insp didn't show that CAC cleaning was largest dose

181	EII	RC3	(Other than SRI) NRC not told about red/brown BA buildup until after the DB event
223	EII	RC3	Extending the inspection for DB was largely based on the belief that a "strong" VT-2 inspection was done at DB
270	EII	RC3	Kerosene burner not eval'd for ctmt
271	EII	RC3	No oper eval for the clogging of CACs
272	EII	RC3	Non-conservative assumption of LOCA steam clean CACs
278	EII	RC3	Lic didn't complete all RC2 CAs
290	EII	RC3	No doc'd eval of CAC clogging
294	EII	RC3	Inadequate temp mod safety eval on code safety seat leakage
309	EII	RC3	Region III 1998 ISI inspection reviewed flange bolts, housing but didn't indicate BA...corresponded with timing for BA on head and cleaning
340	EII	RC3	96, 98, 00 CRs indicate brown colored boron...no record of NRC review of two
	f	**RC3**	**The NRC failed to provide adequate resources to the oversight of the Davis-Besse Nuclear Power Station**
2	F	RC3	NRC staffing level not filled for all positions
3	F	RC3	One year period (1999), only one Resident on site.
4	F	RC3	Project Engineer - two 8-month gaps.
5	F	RC3	Resident inspectors not certified.
6	F	RC3	SRI position delayed in filling.
7	F	RC3	High Project Manager turnover rate (9 PMs in 10-years)
9	F	RC3	Limited commercial nuclear experience RI
10	F	RC3	Resident inspector had a materials background
11	F	RC3	SRI experience with only DB containment

40	F	RC3	Low number of inspection hours compared to other RIII sites (½ in 1999)
53	F	RC3	1998 events diverted inspection efforts re:BA issues
57	F	RC3	Resident not aware of OOS logs
63	F	RC3	PE little time at DB (1997&1999)
92	F	RC3	Between PE coverage gaps, 8 months/3months coverage/8 months
93	F	RC3	BC had Clinton 0350 plant coincident w/DB
110	F	RC3	RIII resources decreasing
111	F	RC3	RIII insp contractor support poor
112	F	RC3	RIII too many competing priorities which detract from insp.
131	**F**	**RC3**	**No 1245 cert requirements for BA corrosion**
158	F	RC3	Contract support after '98 report dried up (staff decreased/# reports decreased)
215	F	RC3	No guidance for background training for PM
317	F	RC3	Region I few resources/staff with materials backgrounds (NRC/DB)
318	F	RC3	ASME Code knowledge/representation
	g	**RC3**	**The NRC failed to adequately communicate critical information regarding the safety performance of the Davis-Besse Nuclear Power Station**
17	G	RC3	Other than DD-DRP; limited recollection of CAC/RM issues by RIII SES managers
94	G	RC3	NRR inspection branch has no feedback form on Plant status time as addressed by RI interview
101	G	RC3	Procedure for RIII morning meeting isn't followed
102	G	RC3	RIII not conducive to info exchange
103	G	RC3	Senior RIII Managers not the audience for the morning meeting
117	G	RC3	RI not aware of FeO on CAC

126	G	RC3	RA didn't know about BA on head
136	G	RC3	IRO didn't participate to follow MD8.3 for AIT determination
137	G	RC3	NRR/RIII didn't follow MD8.3
180	G	RC3	Story differences between what DB told NRC -vs- what NRC thought they were told about BA by DB
203	G	RC3	Deferral of DB shutdown not well documented
216	G	RC3	Interviews indicate that NRR and RIII communications poor/nonexistent
291	G	RC3	Late arrival of calcs for crack propagation
	o	**RC3**	**The Licensee failed to effectively communicate**
150	O	RC3	Lic Response to BU2001-01 contained many inaccurate info /response
177	O	RC3	Many licensee (DB) staff thought that a whole head inspection/cleaning was done
180	O	RC3	Story differences between what DB told NRC -vs- what NRC thought they were told about BA by DB
181	O	RC3	(Other than SRI) NRC not told about red/brown BA buildup until after the DB event
240	O	RC3	BU2001-01 documentation responses by DB not accurate
241	O	RC3	12-16 people at DB reviewed DB response to BU2001-01
257	O	RC3	VP -Ops last know
264	O	RC3	Lic Managers / staff knew of head cleaning %, lower staff thought that head was 100% cleaned
265	O	RC3	Lic managers said they showed NRC the as-found video tapes of the head
321	O	RC3	Current VP said that engineering would know before Ops
326	O	RC3	E-mail makes D-B look bad for RPV head cleaning
328	O	RC3	Unclear as to who viewed the post cleaning video tape (DB)

336	O	RC3	12RFO QA audit of head cleaning was positive
337	O	RC3	Discrepancies with internal documents on whether head cleaned or not
348	O	RC3	Ops didn't view video tapes

		rc4	*The NRC and industry failed to establish adequate requirements and guidance for addressing Alloy 600 nozzle cracking and boric acid corrosion of carbon steel components*
	d	**RC4**	**The NRC failed to provide adequate requirements.**
139	D	RC4	Enforcement history doesn't equate with OE
140	D	RC4	Lack of enforcement for RCS leakage
141	D	RC4	Enforcement/NRR trying to figure out what should be done for RCS leakage
142	D	RC4	1997 SONGS nozzle cracking cited Maintenance Rule
143	D	RC4	NRC response (policy) not consistent - SONGS/Oconee
145	D	RC4	No ASME Code requirement (of inspections/RCS leakage)
146	D	RC4	Code didn't require insulation to be removed for inspections
147	D	RC4	VC Summer had RCS leakage and didn't report it
149	D	RC4	Enf discretion issued for VCSummer and Oconee; no enf discretion or enforcement on ANO
205	D	RC4	12/31/2001 was an arbitrary date for shutdown; basis question
219	D	RC4	Code did not require insulation removal (VT-2)
243	D	RC4	Enhanced visual meant for circ, not axial cracking (vol NDE)
245	D	RC4	ANO a through wall CRDM crack is a statistical certainty
253	D	RC4	Several CRDM nozzles cracked, some through wall NRC
305	D	RC4	Nov 2001, NRC indicated that they did not like ASME code (VT-2)
307	D	RC4	ASME code allows plant to start up from outage with known code class 1 flange leaks
319	D	RC4	Age related risk from passive components not captured in PRA
	ep	**RC4**	**The NRC failed to provide adequate Reactor Oversight Process guidance**
26	EP	RC4	PI&R samples began 1999 for 3/01 (gap issue)

60	EP	RC4	62001 cancelled in 10/01
64	EP	RC4	Limited entries into containment by NRC
67	EP	RC4	NRC audit (GL88-05) of BAC didn't include Rx head/instr
71	EP	RC4	Two people felt that there were not enough hours in ROP for (BA) inspections didn't allow some inspection
73	EP	RC4	Can't go outside of the baseline unless you have a >green finding
74	EP	RC4	Baseline inspection doesn't include structures or passive components
75	EP	RC4	Some good practices ceased following ROP implementation (ex. containment closeout insp)
82	**EP**	**RC4**	**ISI didn't have inspection guidance to look at A600 nozzles**
85	EP	RC4	RIII issued SL3 for RC-2; would be a green finding today
89	EP	RC4	RIII invoked MC0350 w/o DB having met criteria
90	EP	RC4	DB event risk not completed yet
91	EP	RC4	SDP has taken 5 months
106	EP	RC4	MC2515 AppD doesn't provide thorough guidance for review of CR
113	EP	RC4	Only 1 SES manager inside containment since 1996
114	EP	RC4	Limited senior manager visits to DB
134	EP	RC4	No NRC requirement to review employee concerns
225	EP	RC4	Over-reliance on a risk information -vs- deterministic
252	EP	RC4	62001 intended for 16 hours every other outage
293	EP	RC4	All PI's green prior to event
311	EP	RC4	Lessons learned weren't learned from previous lessons learned reviews (South Texas, Millstone, IP2)
	p	**RC4**	**The Industry failed to provide adequate guidance for detecting and correcting Alloy 600 nozzle cracking and boric acid corrosion**
196	P	RC4	Conclusion in the EPRI guidebook not supported

199	P	RC4	"Boric acid on the head is good."
214	P	RC4	INPO ratings declined from 1 to 2 within the last few years
218	P	RC4	B&W didn't recommend the service structure mod
220	P	RC4	DB experienced no insulation deflections caused by BA buildup on the head
259	P	RC4	Lic did not eval use of power washer on head
306	P	RC4	BWOG/Framatome indicated that they made no recommendations for service structure mods
323	P	RC4	INPO noted chronic RCS leaks, but not BA on head
324	P	RC4	INPO noted ALARA positive for CAC cleaning by power washer
350	P	RC4	Vendor testing not representative of actual installation

	w	RC6	**Awaiting additional review**
345	W	RC6	Many CRs on BAC but no evidence of tracking
	x	RC6	**Deleted**
8	X	RC6	PM inspection approach changing.
30	**X**	**RC6**	**CRs reviewed for PI&R ~7000**
47	X	RC6	Neither the old/new insp programs found/discussed RM issues
48	X	RC6	SSDI insp in 2000 indicated performance was worse than expected
69	X	RC6	40500 insp in '98 indicated that commitment tracking NG
79	X	RC6	SRI 97-98 no recollection of flange leaks
80	X	RC6	Former SRI works for FENOC
81	**X**	**RC6**	**1992 uptake event insp closeout, then 1998 uptake occurred**
86	X	RC6	RC-2 event would have not gone beyond baseline
99	X	RC6	PI&R doesn't allow independent look by inspectors
100	X	RC6	Some interviews indicated RI/SRI not as visible in ctmt and CR post ROP
104	X	RC6	PI&R team leader thought that the short form description of CR was adequate
135	X	RC6	RIII inspector was told that DB was SALP 1 didn't take findings seriously (arrogant)
138	X	RC6	Range of opinions on whether an AIT/IIT/SI
148	X	RC6	Nothing in allegation area was relevant to BA/cracking issues
190	X	RC6	Staff action plan GL97-01 can't be found
195	X	RC6	BACC person indicated that the next major nuclear accident will be caused by BAC
197a	X	RC6	Risk significance of BA on RPV head is low NRC
206	X	RC6	PMs don't conduct site visits

Davis-Besse Lessons Learned Task Force Meeting *(8/5-8/2002)*

NRC PreDecisional

224	X	RC6	Risk informed process didn't alert the NRC to a potential risk
249	X	RC6	Bonus correlation with operations
250	X	RC6	Basis for dose estimates for RPV head inspections
258	X	RC6	Eng received closed door talking to for CR initiation
286	X	RC6	Lic is doing an assessment of BU2001-01 submittal
288	**X**	**RC6**	**No VT-2 insp during RFO12 per RCS sys eng**
292	X	RC6	QA group didn't have a problem with BAC RFO12 report shows positive finding
299	X	RC6	Same job done by Framatome at other plants?
320	X	RC6	Too much focus on PRA vs deterministic
349	X	RC6	High turnover on BWOG positions from DB staff