

SACRAMENTO MUNICIPAL UTILITY DISTRICT □ 6201 S Street, Box 15830, Sacramento, California 95813; (916) 452-3211

July 7, 1980

Mr. R. H. Engelken, Director
Region V, Office of Inspection
and Enforcement
U.S. Nuclear Regulatory Commission
Suite 202, Walnut Creek Plaza
1990 North California Boulevard
Walnut Creek, CA 94596



Docket No. 50-312
Rancho Seco Nuclear
Generating Station,
Unit 1

Dear Mr. Engelken:

In accordance with IE Bulletin 80-08, the District has reviewed the containment piping penetration and outer sleeve design.

1. Rancho Seco Unit No. 1 uses the flued head design for process piping penetrations.
- 2.a) The standard in effect for nuclear power piping for the design and construction of Rancho Seco was USAS B31.7, 1969 edition.
- b) Each weld between the piping penetration assembly and the containment penetration sleeve was subjected to liquid penetrant testing and helium leak testing.
- c) The type of weld joint and the pipe sizes used are shown on the attached drawings SK-6292-M-192, Sheets 1 through 7. Stainless steel piping material is ASTM-SA-376 TP304 or ASTM-SA-358 Grade 304 depending upon the size and service. Carbon steel piping material is ASTM-A-106 Grade B, ASTM-A-155 Grade KCF60, or ASME-SA-333 Grade 6 depending upon the size and service. Backing bars were not used.
- d) Results of construction nondestructive examination are available at the plant site.

THIS DOCUMENT CONTAINS
POOR QUALITY PAGES

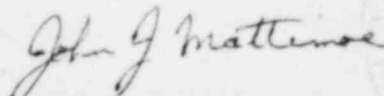
Mr. R. H. Engelken

-2-

July 7, 1980

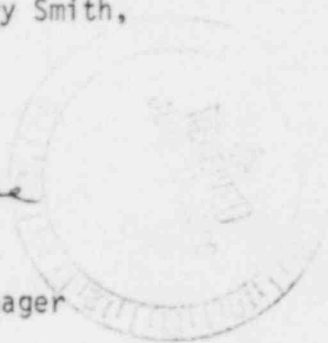
Should you have any questions, please contact Larry Smith,
(916) 452-3211, extension 621.

Sincerely,



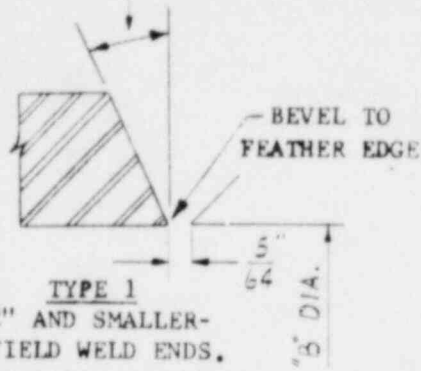
John J. Mattimoe

John J. Mattimoe
Assistant General Manager
and Chief Engineer

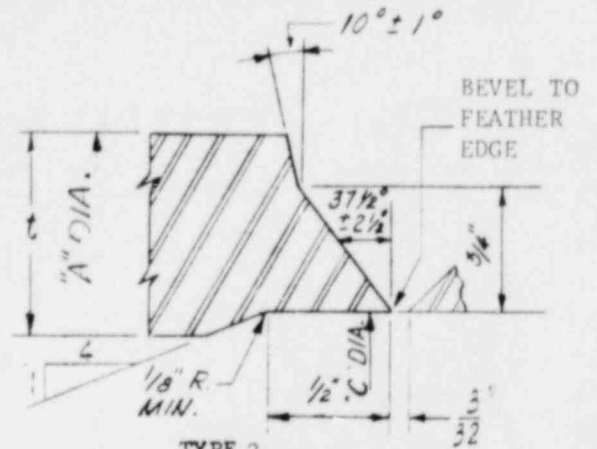


cc: Director
Division of Reactor Construction
Inspection
Nuclear Regulatory Commission
Washington, DC 20555

$37\frac{1}{2} \pm 2\frac{1}{2}$



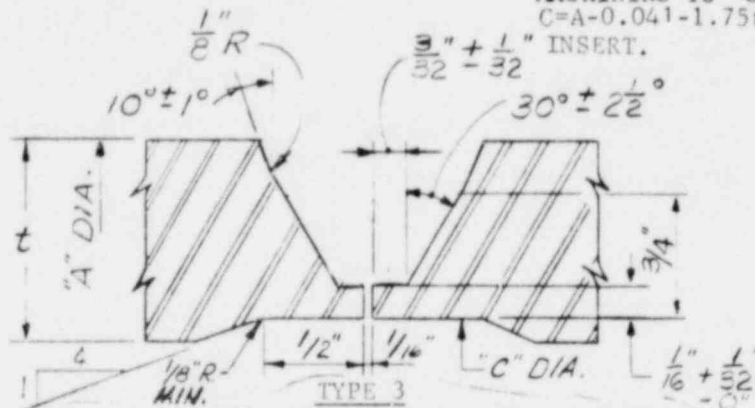
TYPE 1
2" AND SMALLER-FIELD WELD ENDS. USE WITH Y-RING CONSUMABLE INSERT.



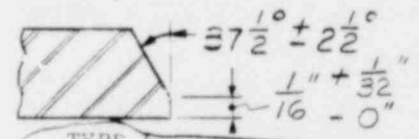
TYPE 2
2 1/2" AND LARGER-FIELD WELD ENDS, REQUIRE INTERNAL MACHINING TO "C" WHEN NOM. WALL (t) IS OVER 3/8". C=A-0.041-1.75t USE WITH Y-RING CONSUMABLE

ABBREVIATIONS

- A = NOMINAL PIPE O.D., INCHES
- B = NOMINAL PIPE I.D., INCHES
- C = MACHINED PIPE I.D., INCHES
- t = NOMINAL WALL THK., INCHES
- = $\frac{8}{7} \times$ MIN WALL THICKNESS



TYPE 3
2 1/2" & LARGER - SHOP WELD ENDS WITH NOMINAL WALL (t) OVER 3/8". REQUIRES INTERNAL MACHINING TO "C" DIA. C=A-0.041-1.75t USE WITH/WITHOUT PFI STD. NO. ES-21 TYPE A OR B INSERT RINGS OR EQUAL



TYPE 4
SHOP & FIELD WELD ENDS-FOR STAINLESS STEEL FITTINGS & FLANGES WITH NOMINAL WALL "t" THICKNESS 3/8" & UNDER. USE WITH/WITHOUT PFI STD. NO. ES-21 TYPE A OR B INSERT RINGS OR EQUAL.

NOTES:

1. THESE WELD END PREPARATIONS SHALL BE USED FOR BUTT WELDS IN THE FOLLOWING APPLICATIONS:
 - a. ALL STAINLESS STEEL PIPING.
 - b. ALL CLASS I, II OR III NUCLEAR PIPING.
 - c. ALL CONVENTIONAL STEEL POWER PIPING WITH 3/4" OR GREATER NOMINAL WALL THICKNESS
2. FOR STAINLESS STEEL PIPE-SCHEDULE 10S, 40S & 80S APPLY TO PIPES UP TO & INCLUDING 12" PIPE (ANSI B36.19). BEYOND THIS, CARBON STEEL SCHEDULES APPLY (ANSI B36.10).
3. 4 TO 1 TRANSITION MANDATORY FOR PIPE BORE, FOR TRANSITION TO VALVES, ETC. SEE SK-6292-M-192 SHEET 2 of 7.
4. SEE THE SPECIFICATIONS FOR PIPING DESIGN, DWG. NO. 870, FOR DETAILED INSTRUCTIONS AS TO USE PERTAINING TO EACH PIPING DESIGN SPECIFICATION ENTITY.

SACRAMENTO MUNICIPAL UTILITY DISTRICT
RANCHO SECO NUCLEAR STATION - UNIT 1

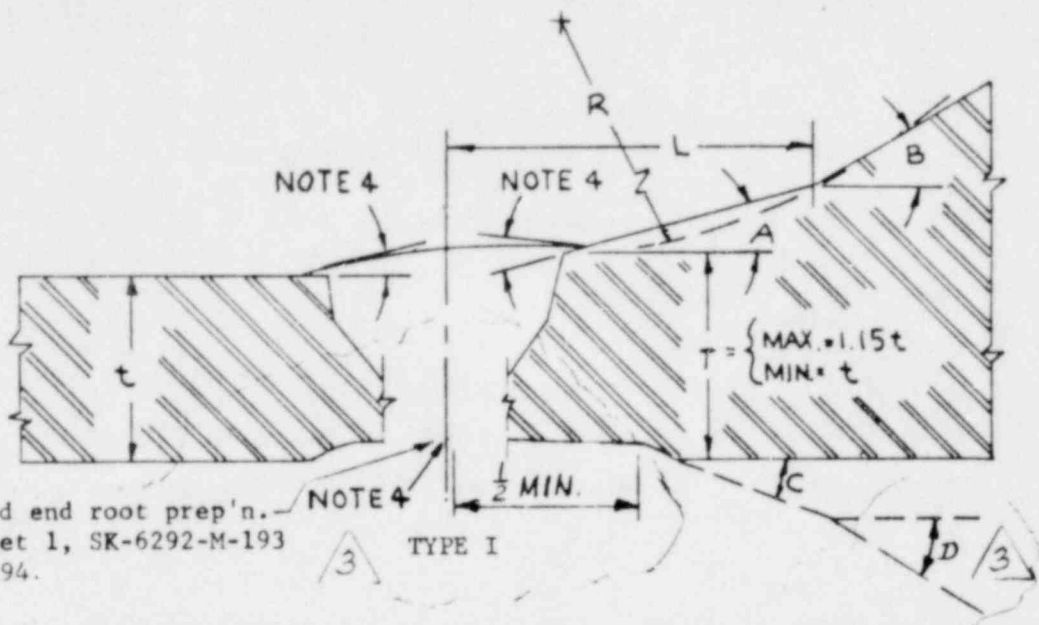
10-22-70	REVISED NOTES FOR TYPES 3 & 4	PG	VE	YOL	INT	WJM
10-5-70	REVISED TYPE 3 - ADDED TYPE 4	CJ	VE DWP	HQZ	INT	WJM
DATE 8-28-70	REV. TO ACCOMMODATE CONSUMABLE INSERTS	DR P.G.	CHIEF ENGR. GQL	DR. SUP. GQL	ENGR. SUP. WJM	CHIEF ENGR. WJM



WELD END PREPARATIONS
TUNGSTEN-INERT-GAS SHIELDED-ARC
WITH/WITHOUT CONSUMABLE INSERT RINGS

DR. PG	DATE 7-30-70	JOB NO. 6292
CHIEF ENGR. GQL DWP	DR. SUP. GQL	DRAWING NO. SK-6292-M-192
ENGR. WJM	CHIEF ENGR. WJM	SHT. 1 OF 7

5



For weld end root prep'n.
See Sheet 1, SK-6292-M-193
and M-194.

TYPE I

Type	t=Nom. Pipe Wall	L Min.	R	Maximum Angle (Deg.)		
				A	B	C
SEE NOTE 2						
I	To 1" Incl.	1-1/2t	2"	30°	45°	1 in 3
I	More than 1"	1-1/2t	3"	30°	45°	1 in 3

- Ends machined for ANSI B31.7 services: Where necessary for meaningful examination, surface roughness shall be reduced.
- The sum of "A" plus "C" shall not exceed 30° and "B" shall not exceed 45° for valves to Nuclear Class I or ASME B&PV Code Section I. "B" plus "D" shall not exceed 45° for valves to ASME B&PV Code Section I.
- Manufacturer's transition of radius "R" is an acceptable alternate.
- Root shall not be concave nor pipe to weld contour angle exceed 7°. Maximum reinforcement thickness for Nuclear Class I butt welds: 1/16". Where grinding is used to obtain required contour, it shall be controlled to avoid grinding into basic wall thickness of the weld or adjacent parent metal.
- Other Classes require weld surface and transition smoothness sufficient for examinations required by Code. In these Classes, the crowns shall not be less than 1/16 inch nor more than 1/8".

SACRAMENTO MUNICIPAL UTILITY DISTRICT
RANCHO SECO NUCLEAR STATION - UNIT 1


△							
△							
△	8-28-70	REV. REVISIONS ISSUED FOR CONST. M.I.	P.G.	WR	GRL	WR	WR
△	DATE	ISSUED FOR INVITATION M.I.	DR. WR	DATE	DR. SUP. GRL	DATE	CHIEF ENG. 1/69
			DR. WR	DATE	JOB NO.		
			CHIEF & ENG. TRS	DR. SUP. GRL	DRAWING NO.	REV.	
				12-16-69	SK-6292-M-192		
					SH. 2 OF 7	3	

PIPE CLASS	"A" NOMINAL O.D.	SCHED.	"E" NOMINAL WALL THICKNESS	"B"	"C"	REMARKS
				NOMINAL I.D.	MACHINED I.D.	
				TYPE 1, 2 & 3	TYPE 2 & 3	
				MACHINED I.D. FOR VALVES, ETC. + .010 - .000	+ .010 - .000	
	2.375	10	.109	2.157		
	2.875	10	.120	2.635		
	3.500	10	.120	3.260		
	4.500	10	.120	4.260		
	5.563	10	.134	5.295		
	6.625	10	.134	6.357		
	8.625	10	.148	8.329		
	10.750	10	.165	10.420		
	12.750	10	.180	12.390		
	14	10	.250	13.500		
	16	10	.250	15.500		
	18	10	.250	17.500		
	20	10	.250	19.500		
	24	10	.250	23.500		
	8.625	20	.250	8.125		
	10.750	20	.250	10.250		
	12.750	20	.250	12.250		
	14	20	.312	13.375		
	16	20	.312	15.375		
	18	20	.312	17.375		
	20	20	.375	19.250		
	24	20	.375	23.250		
	66.000	-	.500	65.000	NOTE 2 65.084	REACTOR BLDG. PURGE CONN.

NOTE:

- SEE SHEET 1 FOR WELD END DETAIL.
- Assumes same temp. as when machined. The correction = 0.001 inch for each 2.4 F° difference.

SACRAMENTO MUNICIPAL UTILITY DISTRICT
RANCHO SECO NUCLEAR STATION - UNIT 1

△							
△	10-5-70	REVISED TITLE BLOCK					
△	8-28-70	REVISED & ISSUED FOR CONSR. M.I. I					
△	DATE	ISSUED FOR INVITATION M.I. I	DR. WR	CHIEF ENG. GQL	DR. SUP. G	ENG. JED	CHIEF ENG. [Signature]
		WELD END PREPARATION FOR SCHEDULE 10 & 20 PIPE TUNGSTEN-INERT-GAS SHIELDED ARC	DR. BIN CHIEF ENG. [Signature]	DATE 5-24-68 DR. SUP. GQL CHIEF ENG. [Signature]	JOB NO. 6292 DRAWING NO. SK-6292-M-192 SH. 3 OF 7	REV. 4	

BECHTEL CORPORATION

PIPE CLASS	"A" NOMINAL O.D.	SCH'D.	"C" NOMINAL WALL THICKNESS	"B"		"C"		REMARKS
				NOMINAL I.D.		MACHINED I.D.		
				TYPE 1, 2 & 3		TYPE 2 & 3		
				MACHINED I.D. FOR VALVES ETC. + .010 - .000		+ .010 - .000		
	8.625	30	.277	8.071				
	10.750	30	.307	10.136				
	12.750	30	.330	12.090				
	14	30	.375	13.250				
	16	30	.375	15.250				
	18	30	.438	17.124		17.193		
	20	30	.500	19.000		19.084		
	24	30	.562	22.876		22.976		
	.840	40	.109	.622				
	1.050	40	.113	.824				
	1.315	40	.133	1.049				
	1.900	40	.145	1.610				
	2.375	40	.154	2.067				
	2.875	40	.203	2.469				
	3.500	40	.216	3.068				
	4.500	40	.237	4.026				
	5.563	40	.258	5.047				
	6.625	40	.280	6.065				
	8.625	40	.322	7.981				
	10.750	40	.365	10.020				
	12.750	40 S	.375	12.000				
	12.750	40	.406	11.938		11.998		STLS. STL. CARBON STL.
	14	40	.438	13.125		13.192		
	16	40	.500	15.000		15.084		
	18	40	.562	16.876		16.975		
	20	40	.593	18.814		18.921		
	24	40	.687	22.626		22.757		
MAIN STM. ONLY	26"	-	.985	24.030		24.236		t _{MIN.} ≥ .862
	36"	-	1.320	33.360		33.649		t _{MIN.} ≥ 1.155
FEED WTR. ONLY	30"	-	1.5625 PL. MIN. WALL	26.875		27.073		t _{MIN.} ≥ 1.443

NOTE: 1. SEE SHEET 1 FOR WELD END DETAIL.

SACRAMENTO MUNICIPAL UTILITY DISTRICT
RANCHO SECO NUCLEAR STATION - UNIT 1

△									
△	10-5-70	REVISED TITLE BLOCK							
△	8-28-70	GEN. REV. & ISSUED FOR CONST. M.I.I							
△	DATE	ISSUED FOR INVITATION M.I.I							
			DR. WR.	DATE	5-24-68	DR. SUP. GQL	JOB NO. 6292		
			DR. BW	DATE		DR. SUP. GQL	DRAWING NO.		
			CH. EN. GQL	DATE		CH. EN. GQL	SK-6292-M-192		
			CH. EN. GQL	DATE		CH. EN. GQL	SH. 4 OF 7		4




WELD END PREPARATION
FOR SCH. 30 & 40 PIPE - MAIN STM. & F. WTR.
TUNGSTEN-INERT-GAS SHIELDED ARC

PIPE CLASS	"A" NOMINAL O.D.	SCHD.	"t" NOMINAL WALL THICKNESS	"g"	"C"	REMARKS
				NOMINAL I. D.	MACHINED I. D.	
				TYPE 1, 2 & 3	TYPE 2 & 3	
				MACHINED I. D. FOR VALVES ETC. + .010 - .000	+ .010 - .000	
	8.625	60	.406	7.813	7.873	
	10.750	60	.500	9.750	9.834	
	12.750	60	.562	11.626	11.725	
	14.	60	.593	12.814	12.921	
	16.	60	.656	14.688	14.811	
	18.	60	.750	16.500	16.646	
	20	60	.812	18.376	18.538	
	24	60	.968	22.064	22.265	
	.840	80	.147	.546		
	1.050	80	.154	.742		
	1.315	80	.179	.957		
	1.900	80	.200	1.500		
	2.375	80	.218	1.939		
	2.875	80	.276	2.323		
	3.500	80	.300	2.900		
	4.500	80	.337	3.826		
	5.564	80	.375	4.813		
	6.625	80	.432	5.761	5.828	
	8.625	80	.500	7.625	7.709	
	10.750	80	.593	9.564	9.671	CARBON STL.
	10.750	80 S	.500	9.750	9.834	STLS. STL.
	12.750	80	.687	11.376	11.507	CARBON STL.
	12.750	80 S	.500	11.750	11.834	STLS. STL.
	14.	80	.750	12.500	12.646	
	16.	80	.843	14.314	14.484	
	18.	80	.937	16.126	16.319	
	20.	80	1.031	17.938	18.155	
	24.	80	1.218	21.564	21.827	

NOTE:
1. SEE SHEET 1 FOR WELD END DETAIL

SACRAMENTO MUNICIPAL UTILITY DISTRICT
RANCHO SECO NUCLEAR STATION - UNIT 1

△							
△	10-5-70	REVISED TITLE INDEX					
△	5-18-70	GEN REVISION ISSUED FOR CONST. M.I.	P.G.				
△	DATE	ISSUED FOR INVITATION M.I.	DR. WR	DATE	DR. SUP.	DR. SUP.	DR. SUP.

 BECHTEL CORPORATION	WELD END PREPARATION FOR SCHEDULE 60 & 80 PIPE TUNGSTEN-INERT-GAS SHIELDED ARC	DR. WR	DATE 12-10-60	JOB NO. 6292	
		DR. GQL	DR. SUP. H	DRAWING NO.	REV.
		DR. Z.P.	DR. SUP. H	6K-6292-M-192	
			DR. SUP. H	SH 5 of 7	4

PIPE CLASS	"A" NOMINAL O. D.	SCHED.	"L" NOMINAL WALL THICKNESS	"B"	"C"	REMARKS
				NOMINAL I. D.	MACHINED I. D.	
				TYPE 1, 2 & 3 MACHINED I. D. FOR VALVES, ETC. + .010 - .000	TYPE 2 & 3 + .010 - .000	
	8.625	100	.593	7.439	7.546	
	10.750	100	.718	9.314	9.452	
	12.750	100	.843	11.064	11.234	
	14.	100	.937	12.126	12.319	
	16.	100	1.031	13.938	14.155	
	18.	100	1.156	15.688	15.936	
	20.	100	1.281	17.438	17.717	
	24.	100	1.531	20.938	21.280	
	4.500	120	.438	3.624	3.693	
	5.563	120	.500	4.563	4.647	
	6.625	120	.562	5.501	5.600	
	8.625	120	.718	7.189	7.327	
	10.750	120	.843	9.064	9.234	
	12.750	120	1.000	10.750	10.959	
	14.	120	1.093	11.814	12.046	
	16.	120	1.218	13.564	13.827	
	18.	120	1.375	15.250	15.553	
	20.	120	1.500	17.000	17.334	
	24.	120	1.812	20.376	20.788	

NOTE:

1. SEE SHEET 1 FOR WELD END DETAIL.

SACRAMENTO MUNICIPAL UTILITY DISTRICT
RANCHO SECO NUCLEAR STATION - UNIT 1

△							
△	10.3.70	ISSUED FOR INVITATION M.I.I.		DR. GQL	DATE 12-10-69	DR. SUP. GQL	ENG. GQL
△	8.28.70	ISSUED FOR CONSTRUCTION M.I.I.		DR. WR	DATE	DR. SUP. WR	ENG. WR
△	DATE 12.13.71	ISSUED FOR INVITATION M.I.I.		DR. WR	DATE 12-10-69	DR. SUP. WR	ENG. WR



WELD END PREPARATION
FOR SCHEDULE 100 & 120 PIPE
TUNGSTEN-INERT-GAS SHIELDED ARC

DR. WR	DATE 12-10-69	JOB NO. 6292
CHK. GQL	DR. SUP. WR	DRAWING NO. SK-292-M-192
ENG. WR	CHIEF ENG. WR	SH 6 of 7
		REV. 4

PIPE CLASS	"A" NOMINAL O.D.	SCHED.	"t" NOMINAL WALL THICKNESS	"B"	"C"	REMARKS
				NOMINAL I.D.	MACHINED I.D.	
				TYPE 1 & 2 MACHINED I.D. FOR VALVES ETC. + .010 - .000	TYPE 3 + .010 - .000	
	8.625	140	.812	7.001	7.163	
	10.750	140	1.000	8.750	8.959	
	12.750	140	1.125	10.500	10.740	
	14	140	1.250	11.500	11.771	
	16	140	1.438	13.124	13.442	
	18	140	1.562	14.876	15.225	
	20	140	1.750	16.500	16.896	
	24	140	2.062	19.876	20.350	
	.840	160	.187	.466		
	1.050	160	.218	.614		
	1.315	160	.250	.815		
	1.900	160	.281	1.337		
	2.375	160	.343	1.689		
	2.875	160	.375	2.125		
	3.500	160	.438	2.624	2.692	
	4.500	160	.531	3.438	3.530	
	5.563	160	.625	4.313	4.428	
	6.625	160	.718	5.189	5.327	
	8.625	160	.906	6.813	6.998	
	10.750	160	1.125	8.500	8.740	
	12.750	160	1.312	10.126	10.413	
	14	160	1.406	11.188	11.498	
	16	160	1.593	12.814	13.171	
	18	160	1.781	14.438	14.842	
	20	160	1.968	16.064	16.515	
	24	160	2.343	19.314	19.859	

NOTE:

1. SEE SHEET 1 FOR WELD END DETAIL.

SACRAMENTO MUNICIPAL UTILITY DISTRICT
RANCHO SECO NUCLEAR STATION - UNIT 1

△							
△	10-5-70	REVISED FROM M.I. 1					
△	8-28-70	GEN. REV. (ISSUED FOR CON'T. M.I. 1)					
△	DATE 12-18-69	ISSUED FOR INVITATION M.I. 1	DR. WR	DATE 5-29-68	DR. SUP. GQL	ENG. J.P.C.	CHIEF ENG. J.P.C.



WELD END PREPARATION
FOR SCHEDULE 140 & 160 PIPE
TUNGSTEN-INERT-GAS SHIELDED ARC

DR. BW	DATE 5-29-68	JOB NO. 6292	
CHK. R. DWP	DR. SUP. GQL	DRAWING NO.	REV.
ENG. J.P.C.	CHIEF ENG. J.P.C.	SK-6292-M-192	4
		SHT. 7 OF 7	