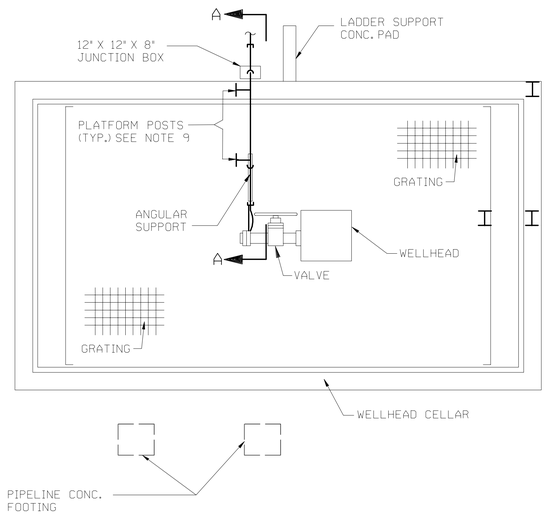
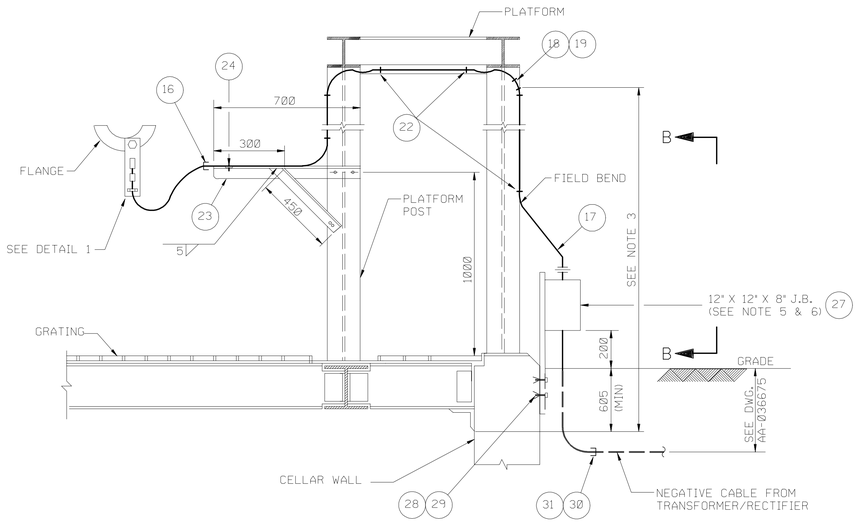
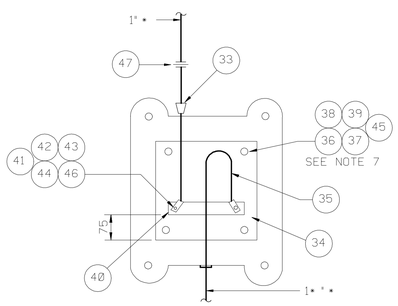
PLANT NO.	INDEX	DRAWING NUMBER	SHT. NO.	REV. NO.
990	X	AA-036073	002	04



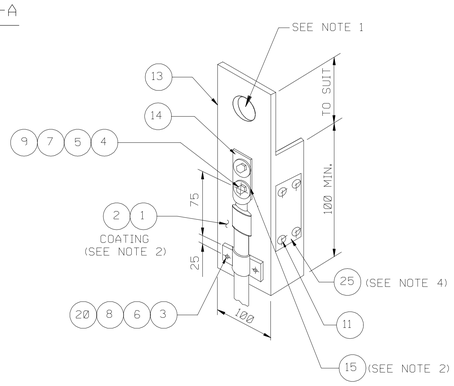
CABLE CONNECTION AT KHUFF GAS WELLHEADS



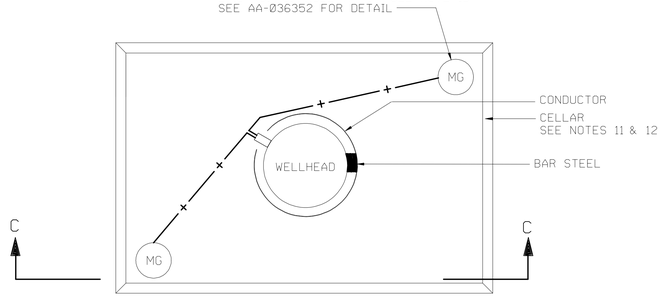
SECTION A-A



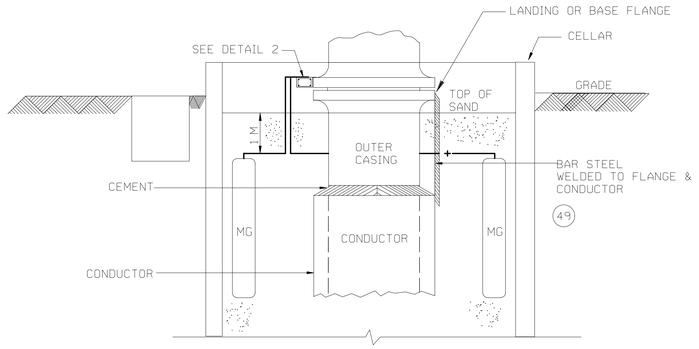
VIEW B-B
(BOX COVER REMOVED)



DETAIL -1

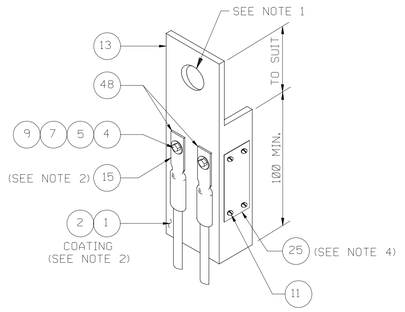


GALVANIC ANODE INSTALLATION
AT WELLHEAD
SEE NOTES 12,13,14 & 15



SECTION C-C

GALVANIC ANODE CONNECTION
TO CASING
SEE NOTES 12,13,14 ,15



DETAIL -2

MATERIAL LIST

CODE	SAMS NO.	UNIT	QUANTITY	DESCRIPTION
1	09-686-354	CN	AS REQ'D.	PAINT: EXTERIOR, INSULATED COATING FIN.
2	09-708-133	CN	AS REQ'D.	PRIMER: ZINC CHROMATE
3	10-565-211	EA	2	NUT: HEX., STEEL, CADMIUM PLATED, 20 THD./IN., • "
4	10-565-219	EA	2	NUT: HEX., STEEL, CADMIUM PLATED, 20 THD./IN., • "
5	10-829-415	EA	2	LOCKWASHER: SPRING, STEEL CADMIUM PLATED
6	10-887-832	EA	2	WASHER: RND., FLAT STEEL, CADMIUM PLATED, • "
7	10-887-848	EA	2	WASHER: RND., FLAT STEEL, CADMIUM PLATED, • "
8	11-173-012	EA	2	SCREW: CAP STEEL CADMIUM PLATED, 20 THD./IN, • " X • " LG.
9	11-173-415	EA	2	SCREW: CAP STEEL CADMIUM PLATED, 20 THD./IN, • " X • " LG.
10	11-268-095	EA	2	LAG SCREW: • " X 1• " LONG.
11	11-777-989	PK	1/25	SCREW: #8 X • "-G STEEL, CADMIUM PLATED, SELF TAPPING
12	11-805-514	EA	2	MASONRY ANCHOR: FOR • " • LAG SCREW
13	12-413-108	FT	1	ANGLE STRUCTURAL: 4" X 3• " X • " THK
14	14-198-136	EA	1	LUG: HYLUG COPPER, 2/0 AWG. MAX
15	14-800-125	TU	1	GREASE/CONTACT LUBRICATION
16	15-288-050	EA	2	BUSHING END: CONDUIT, 1" • RSC
17	15-314-914	PC	2	CONDUIT: RSC PVC COATED, 1" •
18	15-334-210	EA	8	COUPLING: CONDUIT PVC COATED, 1" •
19	15-368-105	EA	4	ELBOW: CONDUIT 90• STD. RAD., 1" SIZE
20	15-511-218	EA	1	STRAP: CONDUIT, 2 HOLE, • "
21	15-511-223	EA	1	STRAP: CONDUIT, 1" SIZE
22	15-515-186	EA	7	SUPPORT CONDUIT PARALLEL TYPE FOR 1" • CONDUIT
23	12-413-010	FT	4	ANGLE: STRUCTURAL, 3" X 2" X • "
24	10-425-021	EA	1	U-BOLT: FOR 1" • CONDUIT
25	ARAMCO SUPPLY	EA	1	WARNING TAG: • " THK X 2• " X 4• " ENGRAVED LAM. PLASTIC
26	10-206-466	EA	4	BOLT: MACH., • " • X 1• " LG.
27	15-814-725	EA	1	BOX: JUNCTION, 12" X 12" X 8"
28	11-268-139	EA	4	SCREW: LAG, • " X 2" LG.
29	11-805-616	EA	4	ANCHOR: MASONRY, • "
30	15-288-060	EA	1	BUSHING: END, 1• " •
31	14-872-276	PK	1	DUXSEAL
32	15-599-146	EA	1	CONDULET: LBH, 1• "
33	15-736-174	EA	1	REDUCER: 1• " X 1"
34	14-885-362	SH.	0.25	PHENOLIC FIBER: • " THK.
35	17-858-731	FT.	50	CABLE: CP, 1/C #2/0 HMWPE
36	10-565-213	EA	8	NUT: MACH., HEX. HEAD, • "
37	10-883-725	LB	0.25	WASHER: FLAT, BRASS, • "
38	11-291-583	EA	4	SCREW: MACHINE, BRASS, • " • X 18 TPI
39	14-188-836	LB	0.25	WASHER: LOCK, SPRING, • "
40	14-084-659	FT	1	BAR: COPPER, • " THK. X 1"
41	11-289-445	EA	2	SCREW, MACHINE BRASS, • " • X 20 TPI
42	10-565-211	EA	6	NUT: MACH., HEX. HEAD, • "
43	14-188-834	LB	0.25	WASHER: LOCK SPRING, • "
44	10-883-719	LB	0.25	WASHER: FLAT, • "
45	LOC. PURCH.	PC	1	SPACER: TUBE, • " •
46	14-197-827	EA	1	LUG: CABLE #2/0
47	15-537-262	EA	1	UNION: CDT, 1" •
48	14-198-111	EA	2	TERMINAL CRIMP-1 HOLE FOR #8 AWG (8.34MM) CABLE
49	12-336-110	MT	AS REQD.	BAR STEEL 6MM X 25MM

NOTES:

1. CONTRACTOR TO DRILL HOLE TO SUIT VALVE FLANGE BOLT SIZE.
2. THE LUG CONNECTION AREA & THE INTERFACE SURFACE OF THE BRACKET & FLANGE SHALL BE CLEANED TO BRIGHT METAL. MATING SURFACE SHALL BE COATED WITH CONTACT LUBRICATING GREASE BEFORE ASSEMBLY. ENTIRE BRACKET & EXPOSED ADJACENT METAL COATINGS SHALL BE BRUSH APPLIED AS PER APCS-6 (AES-H-I) WITH ZINC CHROMATE PRIMER & ALUMINUM ALKYD TOP COAT AFTER ASSEMBLY BUT PRIOR TO INSTALLATION OF WARNING TAG.
3. CONDUIT SHALL BE ONE PIECE-LENGTH.
4. FOR WARNING TAG DETAIL REFER TO DWG. AA-036073 SHEET 001.
5. FIELD TO PROVIDE MOUNTING SUPPORT FOR THE JUNCTION BOX.
6. INSTALL WARNING TAG ON THE JUNCTION BOX COVER SEE DWG. AA-036073 SHEET 001.
7. DRILL & TAP • "-18 THD./IN. AT 4 LOCATIONS.
8. FIELD TO DETERMINE THE EXACT ROUTING OF THE CONDUIT.
9. PLATFORM POSTS AND SUPPORT BRACKETS WILL VARY WITH EACH INSTALLATION.
10. ANODES TO BE INSTALLED AT ONE METER DEPTH BELOW TOP OF SAND FILL IN CELLAR. ANODES TO BE AT FURTHEST POINT FROM WELL CASING.
11. ANODES ARE NOT TO BE IN CONTACT WITH STEEL CELLARS.
12. FOR WELL CASINGS WITHOUT CELLARS, NO GALVANIC ANODES ARE REQUIRED.
13. KHUFF GAS WELLS DO NOT REQUIRE A GALVANIC ANODE INSTALLATION.
14. GALVANIC ANODES MAY BE INSTALLED HORIZONTALLY OR VERTICALLY.
15. CONDUCTORS WHETHER BURIED OR FINISHED ABOVE GRADE ARE TO BE BONDED TO THE LANDING OR BASE FLANGE WITH WELDED BAR STEEL AND ANNULAR CEMENT TO BE CONTINUED TO 1" ABOVE CONDUCTOR.

REFERENCE DRAWINGS

DIRECT BURIED DC CP CABLE	AA-036675
GALVANIC ANODE INSTALLATION	AA-036352
THERMITE WELDING OF CABLES	AB-036381
MOUNTING SUPPORT DETAILS	AB-036540
SYMBOLS FOR CATHODIC PROTECTION	AE-036785

DRAWING RESPONSIBILITY:
CATHODIC PROTECTION STANDARDS COMMITTEE

REV. NO.	DATE	BY	JO/EWO	DESCRIPTION	CHKD.	CERT.	APPD.
04	JUN'97	ESSD MAG		REVISED SECTION C-C TITLE			
03	DEC'95	ESSD RCR		REVISED GALVANIC ANODE INSTALLATION AND SECTION C-C.			
02	JULY'95	ESSD RLO		REVISED NOTE-12 & ADDED NOTE-15.			
01	JUNE'95	ESSD RLO		REVISED & ADDED NOTE-14.			

SAUDI ARABIAN OIL COMPANY

DRAWN BY ESSD/MAG CHECKED BY _____ SCALE: NONE
DATE STARTED FEB93 DATE COMPLETED FEB93
OPR'G. DEPT. _____ ENG. DEPT. _____
APP'D. FOR CONST. _____

THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION OR FOR ORDERING MATERIAL UNTIL CERTIFIED AND DATED

CERTIFIED
BY _____ DATE _____

CATHODIC PROTECTION INSTALLATION DETAILS
CABLE CONNECTION TO WELLHEAD

STD. DWG. METRIC

PLANT NO.	INDEX	DRAWING NUMBER	SHT. NO.	REV. NO.
990	X	AA-036073	002	04

SAUDI ARAMCO 2615 ENG. (3/91)

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CADD-02