

Docket No. SA-534

Exhibit No. 2-DS

NATIONAL TRANSPORTATION SAFETY BOARD

Washington, D.C.

JOURNAL ENTRIES
FROM 1948 L132 CONSTRUCTION

(29 Pages)

TERMS: CASH

PACIFIC PIPE COMPANY

401 FOLSOM STREET
TELEPHONE EXBROOK 2-6255
SAN FRANCISCO 5, CALIF.

DATE OF INVOICE 12/2/48

INVOICE NUMBER 16924

CUSTOMER'S NUMBER MCH#1-7R69294

REQUISITION NUMBER

DATE OF ORDER

DATE SHIPPED



Sold to

PACIFIC GAS & ELECTRIC CO.
245 Market St.
San Francisco, California

Shipped to

Via Call

F. O. B.

62'1" 30" Pipe

\$700.00 c' \$ 434.58

Sales Tax 10.86

\$ 445.44

CASH DISCOUNT 2%

8.91

V. O. B. VENDOR'S WHSE.
OAKLAND

436.53

I CERTIFY THAT THE MATERIAL LISTED
ON THIS DOCUMENT HAS BEEN RECEIVED
AND USED ON G. M. 98015
ITEM 503P J/O GM 100989

TIMEKEEPER

FOREMAN

695

98015

593470

NO CLAIMS FOR ERRORS, SHORTAGE OR DEFECTIVE MATERIAL ALLOWED UNLESS MADE WITHIN 5 DAYS AFTER RECEIPT OF GOODS.
WE WILL REPLACE SUCH GOODS AS PROVE DEFECTIVE. NO CLAIMS WILL BE ALLOWED FOR LABOR OR EXPENSE REQUIRED TO REPLACE DEFECTIVE GOODS.
INTEREST WILL BE CHARGED AT THE RATE OF 8 PER CENT PER ANNUM ON ALL OVERDUE ACCOUNTS.

INVOICE

CONSOLIDATED WESTERN STEEL CORPORATION

UNITED STATES STEEL  CORPORATION SUBSIDIARY

PLANT ADDRESS

141 BATTERY STREET
SAN FRANCISCO 6, CALIFORNIA

INVOICE #S-64-12-48

YOUR ORDER NO.: 7R-67263
INVOICE DATE: DECEMBER 14, 1948
OUR ORDER NO.: 40139

SOLD TO:

PACIFIC GAS & ELECTRIC COMPANY
245 MARKET STREET
SAN FRANCISCO, CALIFORNIA



SHIPPED TO:

SAME

DESTINATION:

SEE BELOW

DATE SHIPPED:

9-24-48, 10-18-48, 10-27-48, 11-23-48

SHIPPED VIA

SEE BELOW

CAR NUMBER:

SHIPPED FROM: SOUTH SAN FRANCISCO, CALIF.

F.O.B.: SOUTH SAN FRANCISCO, CALIF.

PREPAID OR COLLECT: COLLECT

TERMS: NET 30 DAYS

7% INTEREST CHARGED ON OVERDUE ACCOUNTS

QUANTITY	DESCRIPTION	WEIGHT	PRICE	UNIT	AMOUNT
SHIPPED TO BELMONT:					
420	FEET 36" O.D. X 0.375" WALL WELDED STEEL PIPE IN 28' SECTIONS (MADE FROM STEEL HAVING CARBON CONTENT OF .30 TO .40 PERCENT) NOT TESTED - BARE. SECTIONS COMPOSED OF 7 FOOT WIDE COURSES WITH BUTT WELDED LONGITUDINAL AND CIRCUMFERENTIAL SEAMS		\$ 10.65	/FOOT	\$ 4,473.00
420	FEET ASPHALT DIP (SINGLE)		.36	/FOOT	151.20
SHIPPED TO HAYWARD: 50 1/2 Ave Oak. 55 1/2 s/n Green 213					
180	FEET 36" O.D. X 0.375" WALL WELDED STEEL PIPE IN 28' SECTIONS (AS ABOVE)		10.65	FOOT	1,917.00
180	FEET ASPHALT DIP (SINGLE)		.36	FOOT	<u>64.80</u>
					\$ 6,606.00
CALIFORNIA SALES TAX					<u>165.15</u>
					\$ 6,771.15

SHIPMENTS TO BELMONT VIA STOLTE TRUCK
SHIPMENTS TO HAYWARD VIA WARREN TRANSPORTATION

F. O. B.
TERMINAL S. F.

711

I CERTIFY THAT THE MATERIAL LISTED ON THIS DOCUMENT HAS BEEN RECEIVED AND USED ON G. M. 98015 ITEM Susp.

TIMEKEEPER

FOREMAN

98015

598557

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
CLAIMS FOR DEDUCTIONS MUST BE MADE WITHIN FIVE DAYS AFTER RECEIPT OF GOODS.

INVOICE

CONSOLIDATED WESTERN STEEL CORPORATION

UNITED STATES STEEL  CORPORATION SUBSIDIARY

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SAN FRANCISCO, CALIFORNIA



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SAME

DESTINATION:

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BECHTEL CORPORATION

Engineers



Constructors

CUSTOMERS ORDER NO. **GM98015** MILLS TOWER • TWO TWENTY BUSH STREET
SAN FRANCISCO 4

INVOICE DATE **Oct. 30, 1948**
INVOICE NUMBER **W-2077**
OUR JOB NUMBER **R-330**

Pacific Gas & Electric Company
245 Market Street
San Francisco 6, Calif.

SHIPPED TO

Mailing date: **11-3-48**

DATE SHIPPED

F. O. B.

TERMS: NET CASH

Unload, blast and prime and load out 9,544.84' of 30" pipe

9,544.84'

@ \$29.00/c ft.

\$2,768.00

Unload, and load out only 124.13' of 30" pipe

124.13'

@ .10/ft.

12.41

\$2,780.41

417.06

Less 15% withheld

\$ 2,363.35



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AND USED ON G. M. 98015
ITEM 715.1

TIMEKEEPER

FOREMAN

S. F. CONTRACT *7/16/48*

gm98015

708-2

2912

TERMS: CASH

PACIFIC PIPE COMPANY

401 FOLSOM STREET
TELEPHONE EXBROOK 2-6255
SAN FRANCISCO 5, CALIF.

DATE OF INVOICE 12/2/48

INVOICE NUMBER 16924

CUSTOMER'S NUMBER MCH#1-7R69294

REQUISITION NUMBER

DATE OF ORDER

DATE SHIPPED



Sold to

PACIFIC GAS & ELECTRIC CO.
245 Market St.
San Francisco, California

Shipped to

Via Call

F. O. B.

62' 1" 30" Pipe

\$700.00 c' \$ 434.58

Sales Tax 10.86

\$ 445.44

CASH DISCOUNT 2%

8.91

V. O. B. VENDOR'S WHSE.
OAKLAND

436.53

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ITEM 503P J/O GM 100989

TIMEKEEPER

FOREMAN

695

98015

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TELEPHONE EXBROOK 2-6255
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SAN FRANCISCO
OFFICE AND TERMINAL
200 BRANNAN STREET
EXBROOK 5270

FARNSWORTH & RUGGLES

(INCORPORATED)
ESTABLISHED 1858

OAKLAND
OFFICE AND TERMINAL
24TH AND WILLOW STREETS
HIGATE 0248

Draying & Warehousing

FREIGHT FORWARDING - POOL CAR DISTRIBUTION - SPUR TRACK FACILITIES **OCT 15 1948**

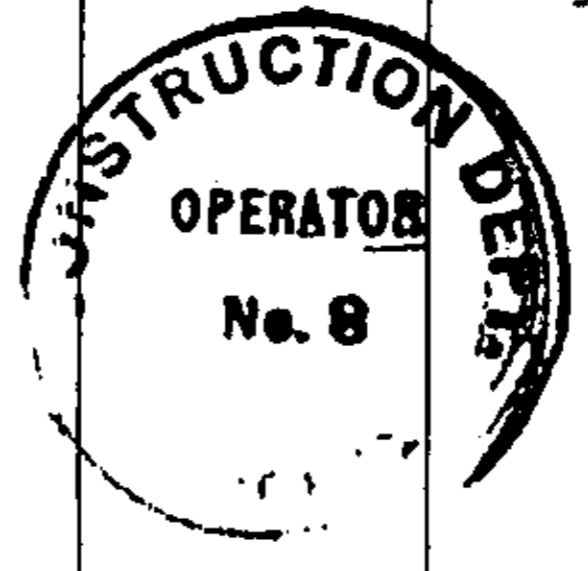
PACIFIC GAS AND ELECTRIC CO

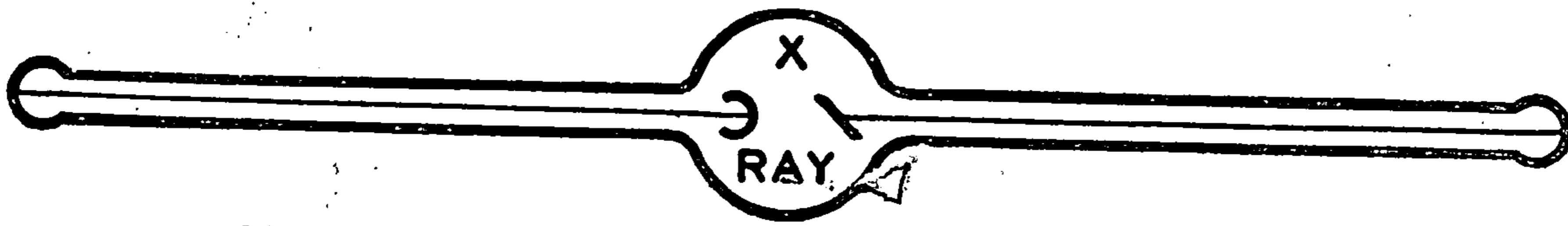


1430

DATE	NO.	PKGS.	DESCRIPTION	FROM	TO		AMOUNT	TOTAL OF INVOICE LAST AMOUNT IN THIS COLUMN
			8 PCS WESTERN WELDING TO GENEVA AVE 7 R 70713 SIGNED FOR BY B. C. WILSON			3200 M	5 20	
						FED TAX	16	5 36
			CF or FD# _____ Store Del. _____ Depot Del. _____ Reqn. <u>7R 70713</u> G. M. <u>98015</u> Item <u>715.25</u>					

650-12





X-RAY ENGINEERING COMPANY

420 MARKET STREET
SAN FRANCISCO 11, CALIFORNIA
PHONE SUTTER 1-3975

INVOICE NO. 123-48

SOLD TO Pacific Gas & Electric Co.
3150 Geneva Ave.
San Francisco, Cal.

DATE September 30, 1948

REQ. NO.

TERMS: Contract No. 3-3048

Attention: Mr. Green

Radiographing service for September on 30" gas pipe line.				
1	Complete 30 ft. longitudinal seam		\$100	00
58	Single exposures on longitudinal seams	\$5	00	290 00
			<u>\$390</u>	00

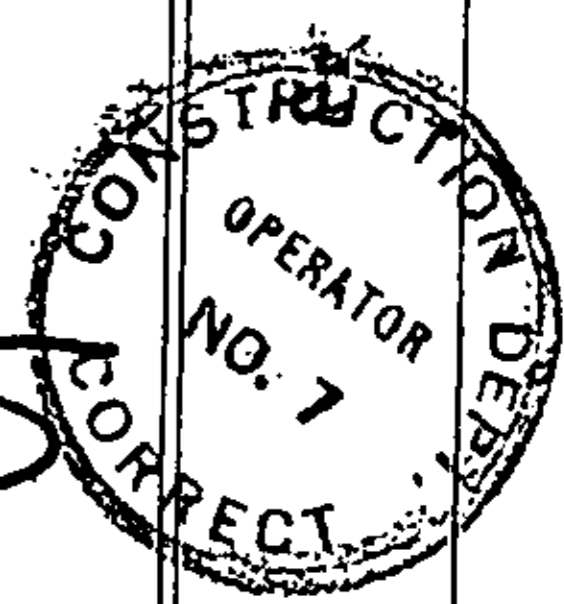
577-1

S. F. CONTRACT 9/1/48

I CERTIFY THAT THE MATERIAL LISTED ON THIS DOCUMENT HAS BEEN RECEIVED AND USED ON G. M. 98015

Gm 98015

ITEM 715.3



TIMEKEEPER _____ FOREMAN 851

Hamilton is getting stencils
for all welds on 30" X ray
job.

The welder making the
stringer beads shall in all
cases place their marks on
the north or San Francisco side
within 2" of the welded seam.
The welder making the
succeeding passes shall place
his marks on the south side.

in 30" pipe. Hand touch was
used & the fit up was good.

9-10-48

2 welders on stringer beads
2 welder helpers
1 cat skinner
6 men lining pipe
2 welders on line
1 side boom cat
4 welding trucks & machines
1 water truck for safety
1 man with power grinder clean edges.
Copper & flux joints welding
behind.

Motor burned out on Internal
Line up machine @ 4:30 today
2 1/2 hrs lost making angle
fit properly.
Cat having to go top far for
pipe each time - Slow days.
Completed 39 joints on line up
& stringer beads.
Crew worked 10 hrs.

9-11-48

Using manual operated Internal line up clamp today.

12 men on line up crew
Welder - helpers - fitters etc.

2 welder & helper welding on firing line.

#85 received of Boxes 5/32 fluted
to use on second pass.

Saturday Double time Day

Used (3) 60' joints today

4-welding Trucks & Machines

1- Side Boom Cat

2- Portable electric plants - one out of order.

Portand operated internal line up clamp.

1- Water Truck for Safety

Power grinder for cleaning

ends of pipe out of order so using hand file to clean same.

Cut a 19° angle at turn
Stubbed off just south of

20" Line. Stopped & Came
back to work road crossings
3:30 P.M. 26 joints
to this time.
16 welds completed today
32 joints of pipe lined
& strung

9-12-48

2 welders & 2 helpers today
2 trucks & Arc Machines
1 water truck standing by -
pulled skin Jones off &
sent him back to the shop
to help weld out a strunge
on the hill so as to lower
in.

All the welders are to
come to the 30" if they get
welded out on the 24".
Cat turned over on operator
on the 24" line - Due to
unforeseen circumstances, heat,
etc. Just working & his today.
Completed 1 weld today

9-13-48

5 welders & helpers today
on firing line - 5 trucks

of welding machines.

11 men on line gang.

2 welding trucks & welding
machines.

1 hand operated internal
line up clamp.

1 water wagon standing
by.

1 side boom cat.

13 welds completed today

18 joints of pipe lined up
line up crew working between
the 2 roads.

9-14-48

4 welders & helpers on
firing line
Started X-Ray today on first
2 welds in the line made by
Allen Conner - maybe some
slag inclusions as he had
difficulty setting machine - 3/16
F.W. # 85 was used for 2nd pass.
X-Rayed 5 welds.

11 men on line up now
11 joints of pipe lined &
strung beads - working on
Road Crossing. Ditch wasn't
dug right. &

9-15-48

10 men on line up crew
2 men on backhoe standing
by to dig road crossing when
ready.

Line up crew making tie in at
road crossing on road that leads
south.

X-ray shows cracks in Long
seams. At X-ray welds Nos. 1-395

28 welds completed
4 joints of pipe lined

9-16-48

At welder & 4 helpers
on firing line.

2 men on Backhoe standing
by to dig north road when
line up crew is ready.

Line up crew fixing to rods
at angles that had given
way.

Lined up 3 joints today
11 men on line up crew
Waiting on ditch at road.
30 welds completed today

Average Amt. of Rod use per Weld

On 30" PIPE
4 full passes

Stringer Bead with $5/32$ F.W. #5

2nd Pass $5/32$ F.W. #85

3rd 4th & 5th Pass with

F.W. $3/16$ #85

4th Pass consists of a
stringer bead to bring up
flush for finish pass.

No. of Rods each size per
Weld.

1- $5/32$ F.W. #5 - 8

2- $5/32$ F.W. #85 - 12

3- $3/16$ F.W. #85 - 24

In a 10 hr. day welders are
averaging 9 welds per day.

9-17-48

Chipped & repaired long seam
that appeared to be cracked. Could
find any sign of cracks in
chipping. Preheated until
sample sticks 500°F melted
then welded patch & preheated
again.

Cut out X ray weld #1
for consolidated steel to
experiment with.

X ray men on the job
shooting pipe ends only to
determine the extent of cracks.
28 welds completed

9-18-48

Lining Pipe at Black Mt.
Road. Two line up crews
& 4 welders & helpers.

30 welds finished on
my end - Keith Rogger will
keep track of no. of welds
completed behind his line
up crew.

9-19-48

X-RAY WELDS in long
seam today. 22 exposures
also two welds on 30°
elbow manufactured in shop.
No one worked on
line today.


cut 4 strips 1 1/4" x 12" long
out of each weld in 30°
angle - X Rays # 10 & # 11
Gave them to Stewart Berger
~~for lab~~ for P.G.E. to
experiment with.

9-20-48

Sept. 20, 1948

Westinghouse Electric welding Rod,
type A-P-Class, E. 6018 was tried
out on the Stinger Bead only.
Rod was used by Clyde Jones,
& Dawson of Pacific Pipe Line
& Bennie Mills of P.S. & E.
The general conclusion was, that
it couldn't come up to Lincoln
F.W. #5. The coating wasn't
uniform enough to penetrate both
sides of the pipe ends at once. It
has a tendency to cling to one
side at a time.

Thus



In order to keep it from doing
this, the rod had to be turned
in the electrode holder, so that the
thin side of the coating was
up at all times. ~~It is very~~
~~difficult to have to do this all day.~~

The same day Westinghouse Electric welding rod type AP-140 Class E 7010 was used by approx 8 of Pacific Pipe Line & Eng. welders. I also made one complete weld. The surface pin holes were so bad that some of the welders wouldn't even try to complete the weld with this rod. However we did get 4 welds completed with this wire. Each succeeding pass had fewer surface holes. The finished weld had a good general appearance except for pin holes along the edges, which had to be spotted. ~~of the rod was used~~ Some the welders tried dampening the rod & had better results and fewer surface holes.

These welds were made right in the line & the wrapping crew was so close that we could not have X rays made of them. I am sure they would stand any type of bend or pull test & ~~perhaps~~ perhaps show up good in an X-ray, but due to circumstances, we didn't do any of these things to the welds. If P.G.&E. wants tests made we still have some of the rod. These tests should not be made in the line. ~~may I suggest that on March 11 we could buy both of them.~~

Oct 18, 1948

Sibly one of the P.P.E.L. welders made experimental welds on a 2 1/2" Pipe. He cut two plates 5" x 10" & welded them to the pipe.



one of them was welded on without preheating & the other was preheated to a temperature of approx. 500°.

We used a sledge hammer on both plates. They were bent to an angle of 5° off square & then hammered back to 5° off square in the opposite direction. There was no visible signs of cracks at the welds or in the pipe.

The plate was 1/2" thick & a fillet weld 3/8" in size was applied.

After hammering we cut out the samples to be sent

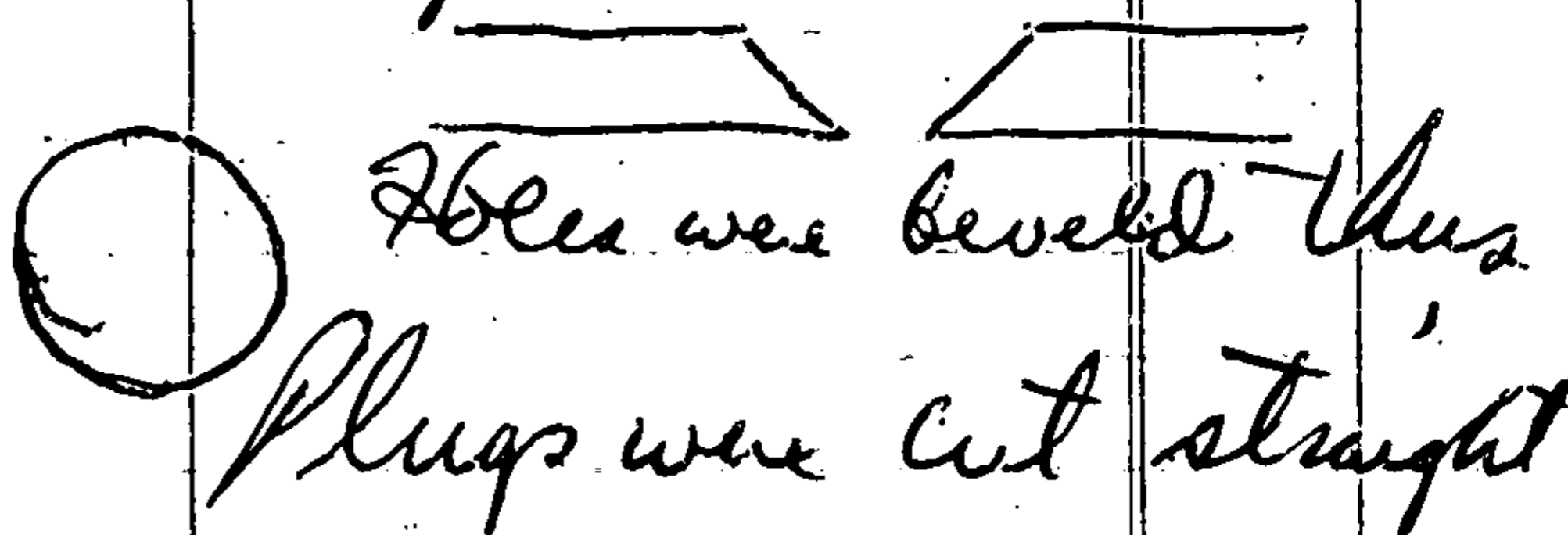
To P. D. & G. Laboratory at
Emeryville for experimental
purposes.


The same day two test
holes were cut approx. $\frac{3}{4}$ "
in diam. The holes were
beveled approx. 45° & then
two round plugs were cut
to be welded back in.

One plug was tacked &
welded while the pipe was
cold. The other was
preheated to approx. 500°
& then welded. After welding
~~it was~~ the temperature was
brought back to 500° and
allowed to cool off.

These holes were less
than 12" apart so they
were X-rayed & showed
no signs of cracks or
checking. With the

exception of penetration on
the first pass which lacked
 $\frac{1}{16}$ " of being completely through
they showed up good in
the X-ray.

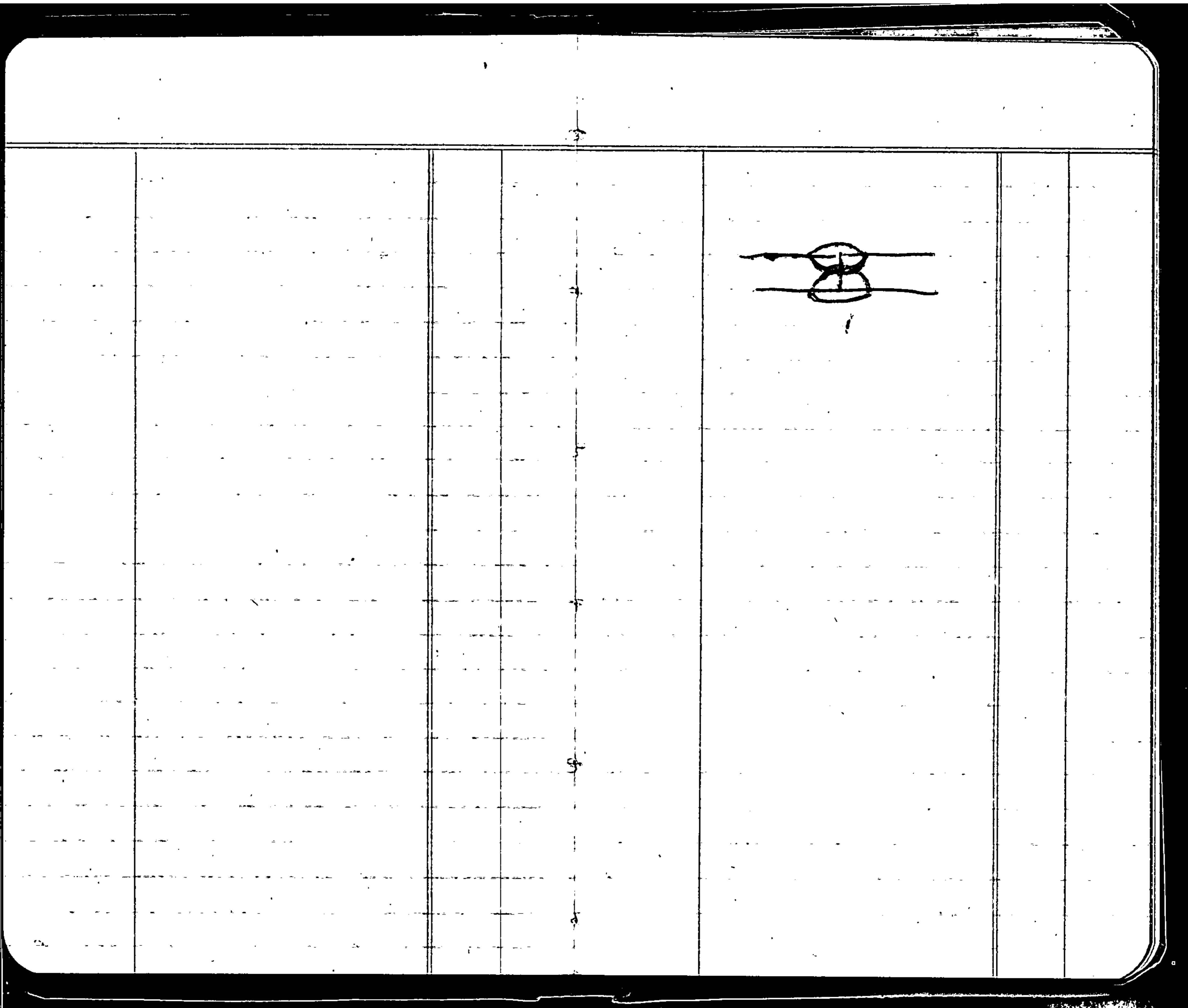
 Holes were beveled thus
Plugs were cut straight

 This weld # 85 was used
on both experiments.

11-5-48

4 labor and one air compressor
working at Crystal Springs
Cross over.

1 welder & 1 Helper started
at 3 P.M. today. 1 welding
truck.

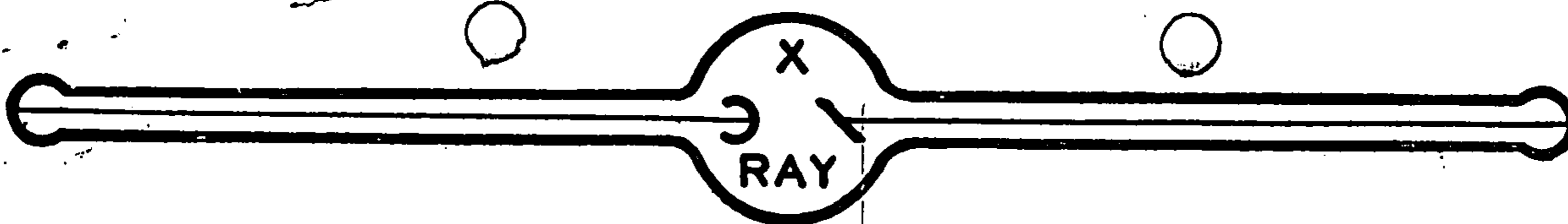


X-RAY

NO.	STRINGS BEAD	WELDER	STATION LOCATION	REMARKS
1	D4U	C		3/16 #85
2	D4U	C		3/16 #85
3	D4U	C		3/16 on 2nd Bead
4	D4U	U		32-3/16 on 2nd
5	D4U	U		5/32 on 2nd Bead
6	B4Q	B4Q	6	5/32 on 2nd Bead
5-1	P4U	U		PICTURE OF LONG SEAM ONLY #5
7				END OF LONG SEAM ONLY
8	B4Q	B4Q		" "
9				FULL LENGTH OF LONG SEAM.
10				ROUND SEAM OF 30° ELBOW SHOLD WELD
11				" " " "
12				END OF PIPE 60ft joint Black mt. hd.
13				" " Plants mt. heads
14				" in string just before angle point hd.
15	D4L	E		
16	D4L	V		Shows crack on long seam
17	D4L	N		
18	D4L	E		
19				Factory weld at angle point shows crack at long seam
20				Relake on #16 shows crack
21	D4L	V		Goldman Good

9-22-48

9-25-48



X-RAY ENGINEERING COMPANY

420 MARKET STREET
SAN FRANCISCO 11, CALIFORNIA
PHONE SUTTER 1-3975

INVOICE NO. **136-48**

SOLD TO **Pacific Gas and Electric Co.**
3150 Geneva Avenue
San Francisco, 24, Cal.

DATE **October 31, 1948**

REQ. NO.
TERMS: **Contract 3-3048**

Attention: **Mr. C. W. Young.**

Radiograph service on the 30" "Skyline" pipe line.

43	Single exposure radiographs	\$5 00	\$215 00
85	Complete and half circumferential weld radiographs	8 30	<u>705 50</u>
			\$ 920 50

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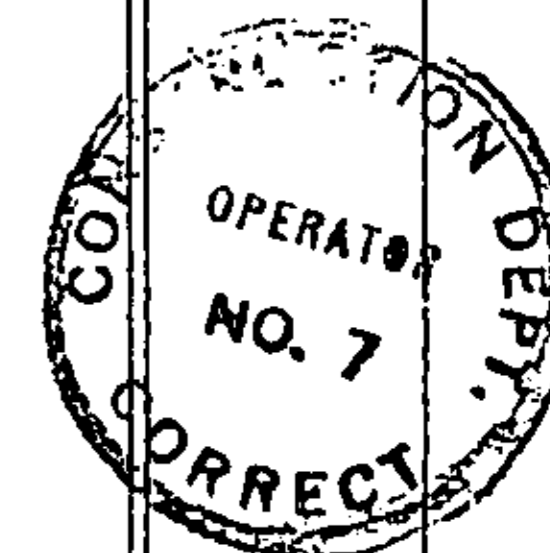
TIMEKEEPER

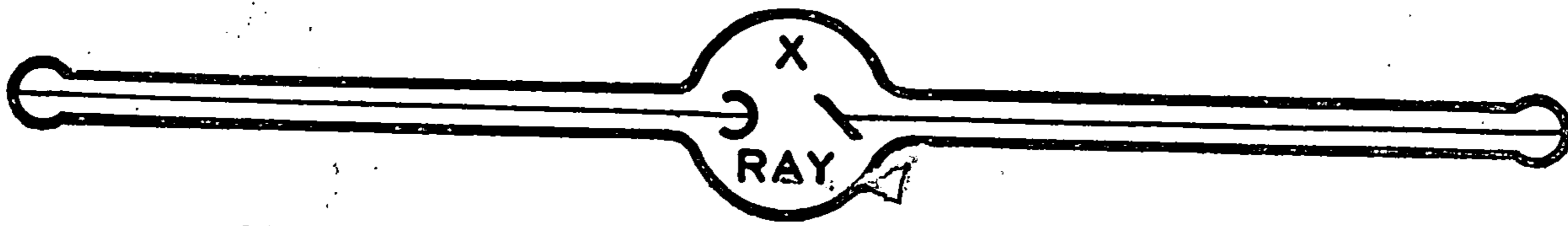
FOREMAN

742

4015

DJL 9/1/48
Gm 98015





X-RAY ENGINEERING COMPANY

420 MARKET STREET
SAN FRANCISCO 11, CALIFORNIA
PHONE SUTTER 1-3975

INVOICE NO. 123-48

SOLD TO Pacific Gas & Electric Co.
3150 Geneva Ave.
San Francisco, Cal.

DATE September 30, 1948

REQ. NO.

TERMS: Contract No. 3-3048

Attention: Mr. Green

Radiographing service for September on 30" gas pipe line.				
1	Complete 30 ft. longitudinal seam		\$100	00
58	Single exposures on longitudinal seams	\$5	00	290 00
			<u>\$390</u>	00

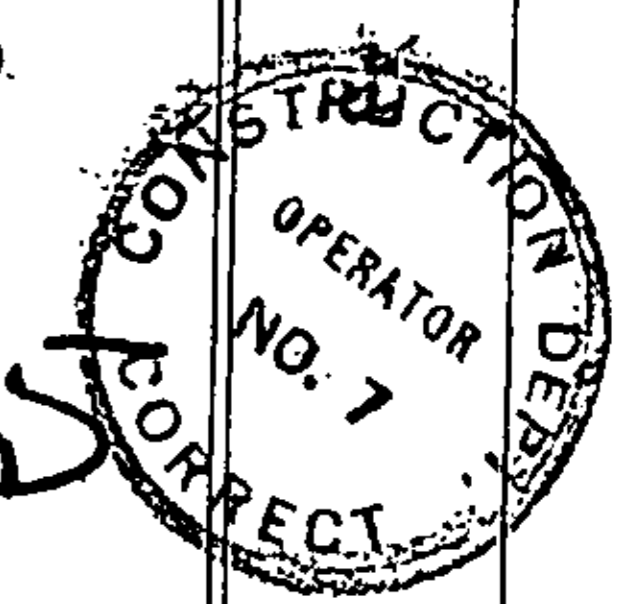
577-1

S. F. CONTRACT 9/1/48

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Gm 98015

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TIMEKEEPER

FOREMAN

851