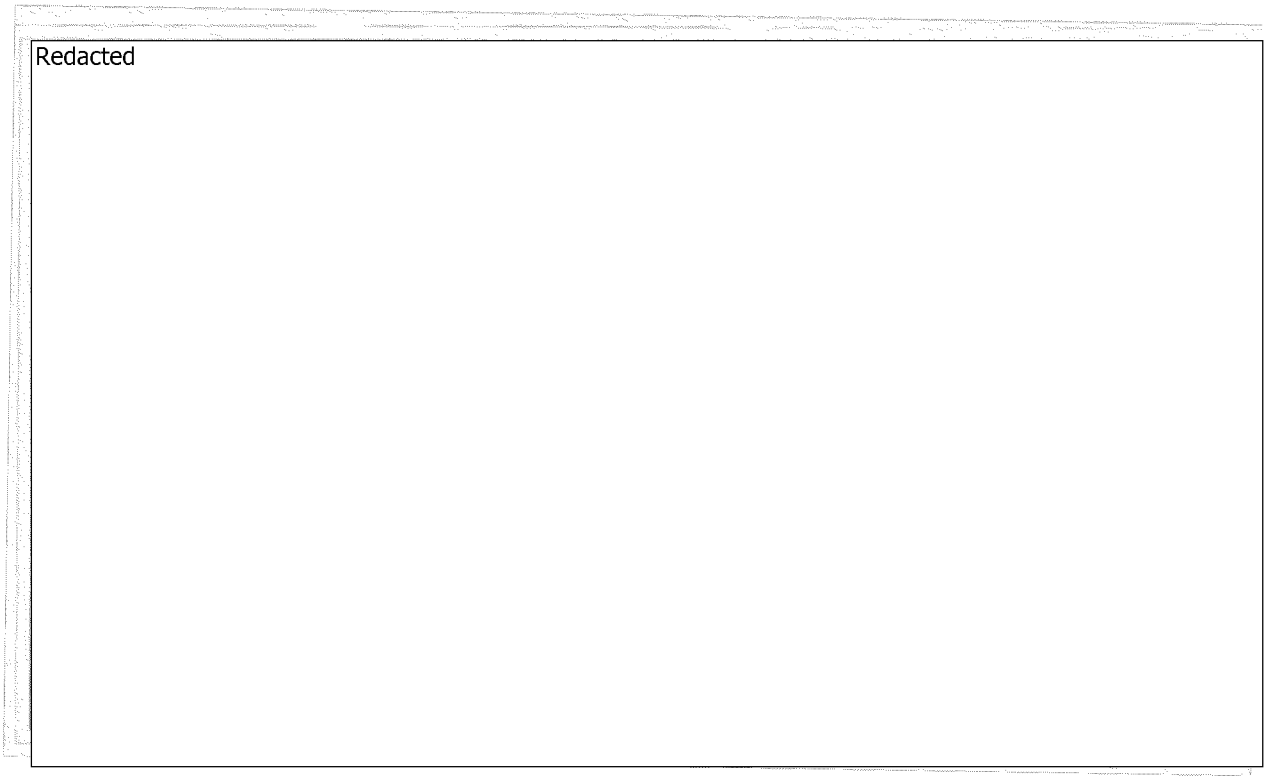
Pipeline Specifications for Line 300B at Colorado River

Location Description

Redacted

Redacted The ownership and maintenance of the pipeline is shared between PG&E Co. and El Paso Natural Co. and is split mid-span at the center of the river.



Background

The below presented attachments are in conflict regarding the specifications for the 34" Pipe as specified on suspension bridge crossing the Colorado River at Topock, specifically Line 1113, also known as Line 300B. A concern regarding the yield strength of the pipeline has come in question. A letter dated from March 4th, 1966 to the El Paso Gas Company indicates the specified Minimum Yield Strength on the 34" X ½" WT pipeline as 46,000 psi (X-46). This documentation was the only documentation found in the Job File indicating a Minimum Yield Strength of 46,000.

To JEV

1113

PACIFIC GAS AND ELECTRIC COMPANY

PG&E

Redacted

Redacted
MANAGER
PIPE LINE OPERATIONS DEPARTMENT

March 4, 1966

Redacted

Mr. Carlton C. Holman, Chief Engineer
El Paso Natural Gas Company
El Paso, Texas 79999

Dear Mr. Holman:

The information tabulated below is being sent to you in response to your request to Mr. Redacted for data on the Colorado River pipeline crossings.

	Crossing Installed on Old Highway Bridge	New Suspension
Outside Diameter & Wall Thickness	30" x 3/8"	34" x 1/2"
Specified Minimum Yield Strength	52,000 psi	46,000 psi
Manufacturer	Consolidated Western Steel Corporation	
Plant Site	Maywood & So. S.F.	Maywood
Ladle Analysis - Carbon	0.30% max.	0.30% max.
Manganese	1.25% max.	1.25% max.
Phosphorus	0.045% max.	0.045% max.
Sulfur	0.05% max.	0.05% max.
Transverse Ultimate Strength	72,000 pai	65,000 psi
Factory Test Pressure	1,170 psi	1,215 psi

Very truly yours,

Redacted

The following attachment from October 11th, 1974 indicates a Minimum Yield Strength on the pipeline of "X-52" (34" O.D. , .500"wt X52 grade pipe) which differs from the above memo.

EL PASO NATURAL GAS COMPANY

Memorandum

	File (022)	Date:	October 11, 1974
rom:	J. W. Rowland	Place:	Engineering Department Codes & Standards Division

Subject: MAOP of 34" San Juan Crossover "C" Line (1113)
VA-15 Through Colorado River Crossing

This review is for the purpose of evaluating the present maximum allowable operating pressure of 660 psig on the subject line segment.

An area extending from the Colorado River eastward to E.S. 902 + 50 presently has a population density level equal to a Class 2 Location. The class location limit had previously been at E.S. 886 + 29.5 during the period near 1967. The segment was constructed in 1955 of 34" O.D., .406" w.t., X52 and 34" O.D., .500" w.t., X52 grade pipe. The limiting pressure of the pipe in the Class 2 Location is 745 psig. In the present system configuration, the operation of Line 1113 must be in concert with Line 1104. Thus, the lower limiting design pressure of the 30" O.D., .324 w.t., X52 grade pipe found in the Class 2 Location on Line 1104 dictates that 674 psig is the minimum design pressure for operation of the unisolated Line 1113.

The line segment from approximately E.S. 917 + 22 eastward to Valve 16, E.S. 855 + 75, was hydrostatically tested in February, 1957 to a minumum pressure of 1020 psig for an unknown period. The line was subsequently gas tested from Valve 15 on Line 1104 to a valve near the P.G.&E. compressor station. The test was to a minimum pressure of 880 psig for a period of 24 hours in March, 1957.

The operating pressure of the segment has been controlled at Valve 15 since a date prior to 1965. The exact date could not be determined. Mr. Redacted of Systems Dispatching indicated in a conversation that he felt the operating pressure of the segment during the period July 1, 1965 to July 1, 1970 was substantially higher than 660 psig on numerous occasions. No records could be found in the Home Office Dispatching Center, the Topock Dispatching Office, nor the Measurement Department that could substantiate this.

In view of the information gathered, the segment maximum allowable operating pressure is correctly established at 660 psig in compliance with Department of Transportation standards.

Jim Rowland
J. W. Rowland

JWR:cvg
cc: m. H. Pofahl

The original intent of the project was to install 34" API 5LX X-52 piping as date by the memo from July 1, 1955 as seen below. The original installation was completed in 1957 under GM 134616.

Redacted

62-0224

134616
C2

PACIFIC GAS AND ELECTRIC COMPANY **COPY**

GAS OPERATIONS

Tentative Order for 34" O.D. Steel Pipe
to Increase Main 300 Capacity to 750 M²/Day

July 1, 1955

MR. Redacted :

We have had a number of discussions with the Consolidated Western Steel Division, U. S. Steel Corporation, concerning the delivery of 34" O.D. steel pipe required by the P. G. & E. Company in 1956, if the Company is to be in a position to accept minimum gas purchase obligations from the El Paso Natural Gas Company by November, 1956.

Consolidated has supplied us with preliminary estimates concerning costs, specifications and rolling schedules, together with their recommendation that a tentative order be placed for our requirements, as early as possible, if they will be expected to protect a mill rolling schedule as early as May, 1956. We are told that recent large orders have been booked for the El Paso Co., the Pacific Northwest Co. and others which is effectively filling up their 1956 rolling schedules.

In view of Consolidated's concern, we recommend that consideration be given their request and that a tentative order for 34" pipe be placed, conditional upon receipt by the P. G. & E. Co. of the necessary California Public Utility and Federal Power Commission approvals for the project and further subject to cancellation or adjustment by P. G. & E. Co. within an agreed upon time prior to actual mill rolling.

We are listing below our current minimum 34" O. D. pipe requirements. Delivery should start in June, 1956:

34" O. D. Steel Pipe to API 5LX - x 52 Specifications

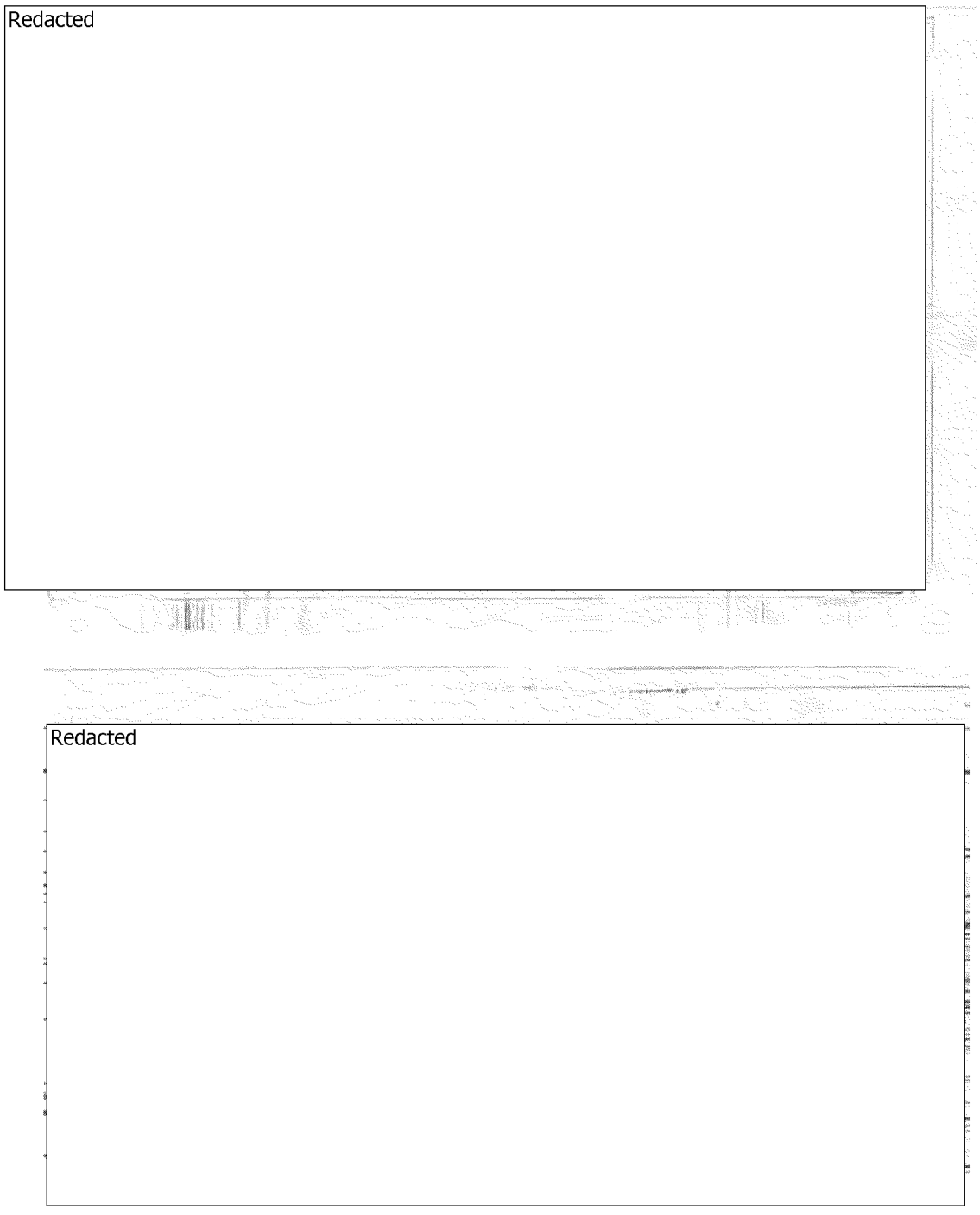
Wall thickness	11/32"		13/32"		7/16"		Total	
Section	Miles	Tons	Miles	Tons	Miles	Tons	Miles	Tons
1 - Colorado River	-	-	-	-	0.44	182	0.44	182
2 - Topock-Hinkley	-	-	20.8	8,005	-	-	20.8	8,005
3 - Kettleman-Milpitas	26.7	8,711	25.5	9,614	11.8	4,885	64.0	23,410
Totals	26.7	8,711	46.3	17,619	12.24	5,067	85.25	31,597

P. E. BECKMAN

RDS:rr
cc:NRS
AJS

Redacted

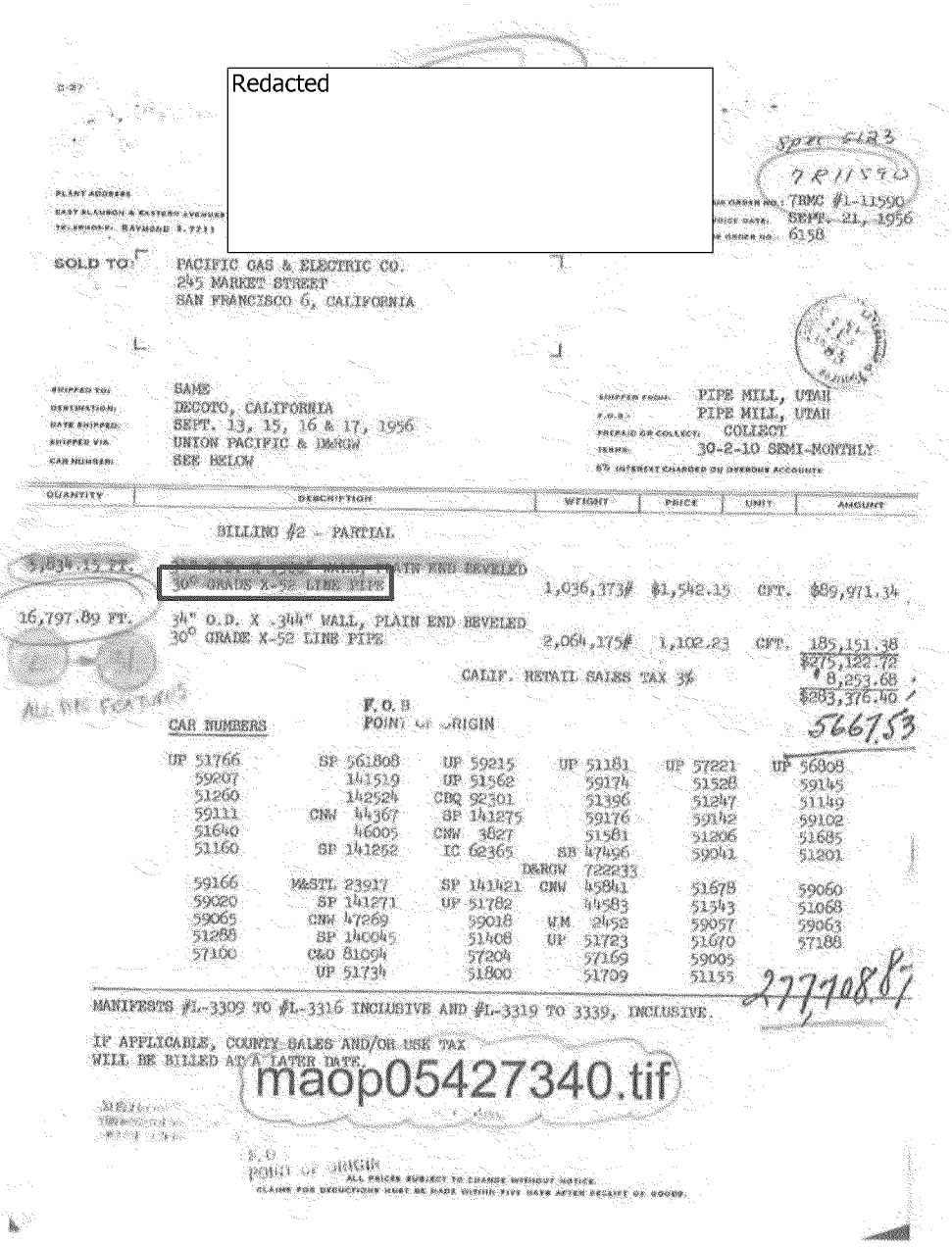
The specifications found on the As-Built Drawing 383779 indicate a 34” pipeline with a ½ ” W.T. was used on the span which connected on the bridge ends at the spring anchors. No indication of the Minimum Yield Strength was found on the drawings available..



From the job file there were various wall thicknesses of the 34” ordered all being grade X-52 piping. The maximum wall thickness was ½” or 0.500” WT. Likely, using the best engineering practices, the 0.500” WT piping would be used for the bridge span, in agreement with the above drawing.

Supporting Documentation for X-52 piping

Supporting documentation for 34" X .500" wall X-52 can also be sound in the job file for GM 134616. All the available "Receiving Records" from PG&E and "Invoices" from Redacted indicate shipments of "34" O.D. X 0.500" Wall Grade X-52" Pipe. Shipments of 34" pipe not the 0.500" Wall had also indicated a Grade of X-52 for the piping. (Multiple ship documents exist, one example shown)



Redacted

PLANT ADDRESS
EAST SLAUSON & EASTERN AVENUES
TELEPHONE: RAYMOND 3-7211

OUR ORDER NO.: TRMC #1-11590
PRICE DATE: SEPT. 21, 1956
BUYER'S ORDER NO.: 6158

SOLD TO: PACIFIC GAS & ELECTRIC CO.
245 MARKET STREET
SAN FRANCISCO 6, CALIFORNIA

SHIPPED TO: SAME
DESTINATION: DECOTO, CALIFORNIA
DATE SHIPPED: SEPT. 13, 15, 16 & 17, 1956
SHIPPED VIA: UNION PACIFIC & D&RGW
CAR NUMBERS: SEE BELOW

SHIPPED FROM: PIPE MILL, UTAH
F.O.B.: PIPE MILL, UTAH
PREPAID OR COLLECT: COLLECT
TERMS: 30-2-10 SEMI-MONTHLY
6% INTEREST CHARGED ON OVERDUE ACCOUNTS

QUANTITY	DESCRIPTION	WEIGHT	PRICE	UNIT	AMOUNT
	BILLING #2 - PARTIAL				
5,834.15 FT.	34" O.D. X .344" WALL, PLAIN END BEVELED 30° GRADE X-52 LINE PIPE	1,036,373#	$1,542.15	CFT.	$89,971.34
16,797.89 FT.	34" O.D. X .344" WALL, PLAIN END BEVELED 30° GRADE X-52 LINE PIPE	2,064,175#	1,102.23	CFT.	185,151.38
					$275,122.72
	CALIF. RETAIL SALES TAX 3%				8,253.68
					$283,376.40

F. O. B. POINT OF ORIGIN

CAR NUMBERS

UP 51766	SP 561808	UP 59215	UP 51181	UP 57221	UP 56808
59207	141519	UP 51562	59174	51528	59145
51260	142524	CBQ 92301	51396	51247	51149
59111	CNW 44367	SP 141275	59176	59142	59102
51640	46005	CNW 3827	51581	51206	51685
51160	SP 141252	IC 62365	SB 47496	59041	51201
			D&RGW 722233		
59166	M&STL 23917	SP 141421	CNW 45841	51678	59060
59020	SP 141271	UP 51782	44583	51543	51068
59065	CNW 47269	59018	WM 2452	59057	59063
51288	SP 140045	51408	UP 51723	51670	57188
57100	C&O 81094	57204	57169	59005	
	UP 51734	51800	51709	51155	

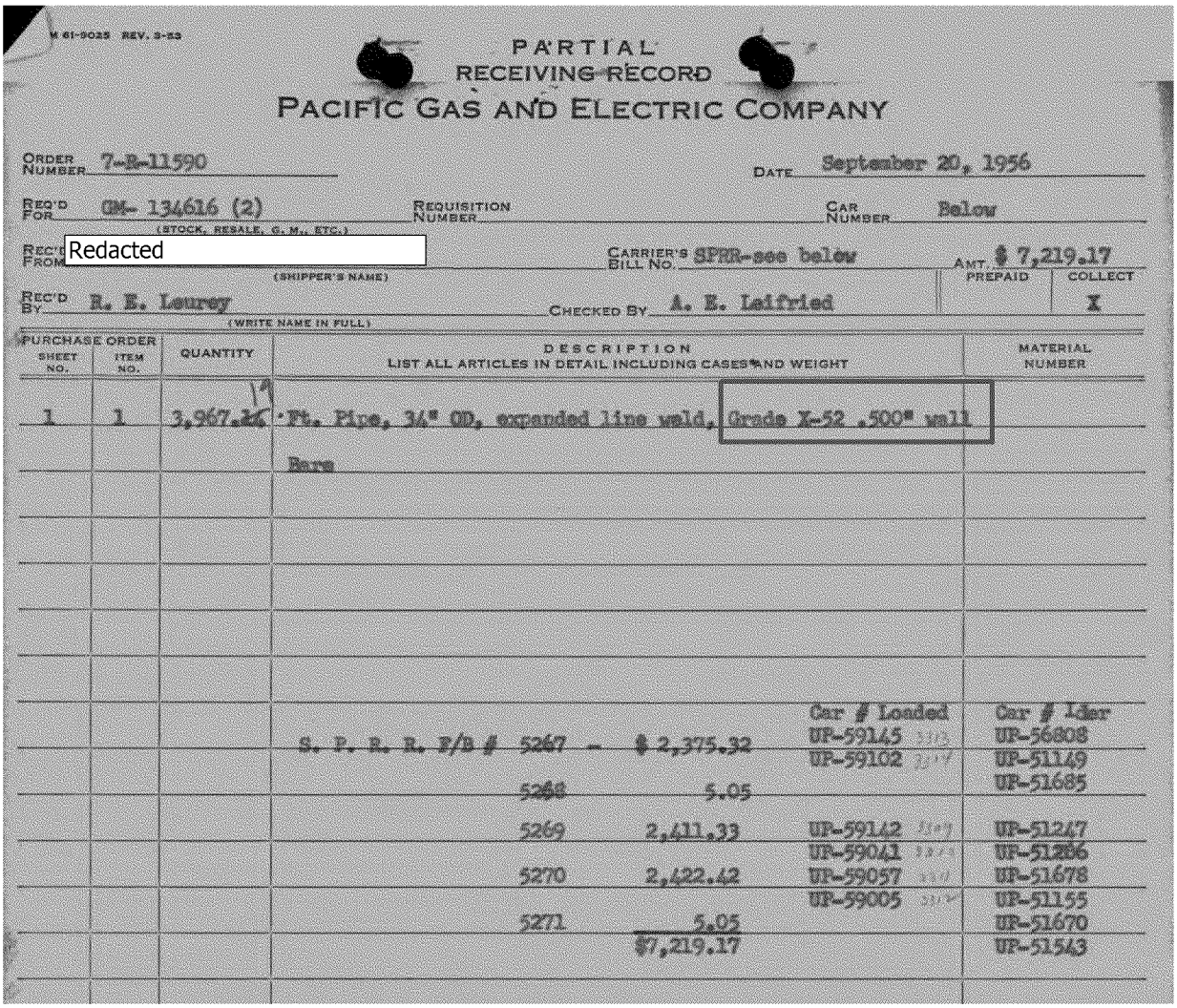
MANIFESTS #L-3309 TO #L-3316 INCLUSIVE AND #L-3319 TO 3339, INCLUSIVE.

IF APPLICABLE, COUNTY SALES AND/OR USE TAX WILL BE BILLED AT A LATER DATE.

maop05427340.tif

F.O.B. POINT OF ORIGIN

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



M 61-9025 REV. 3-53

PARTIAL
RECEIVING RECORD
PACIFIC GAS AND ELECTRIC COMPANY

ORDER NUMBER 7-B-11590 DATE September 20, 1956

REC'D FOR GM- 134616 (2) (STOCK, RESALE, G. M., ETC.) REQUISITION NUMBER CAR NUMBER Below

REC'D FROM Redacted (SHIPPER'S NAME) CARRIER'S BILL NO. SPRR-see below AMT. $ 7,219.17

REC'D BY R. E. Lourey (WRITE NAME IN FULL) CHECKED BY A. E. Leifried PREPAID COLLECT X

PURCHASE ORDER SHEET NO.	PURCHASE ORDER ITEM NO.	QUANTITY	DESCRIPTION LIST ALL ARTICLES IN DETAIL INCLUDING CASES AND WEIGHT			MATERIAL NUMBER
1	1	3,967.26	Ft. Pipe, 34" OD, expanded line weld, Grade X-52 .500" wall			
			Bare			
					Car # Loaded	Car # Ltr
			S. P. R. R. B/B # 5267	$ 2,375.32	UP-59145	UP-56808
					UP-59102	UP-51149
			5268	5.05		UP-51685
			5269	2,411.33	UP-59142	UP-51247
					UP-59041	UP-51286
			5270	2,422.42	UP-59057	UP-51678
					UP-59005	UP-51155
			5271	5.05		UP-51670
				$7,219.17		UP-51543

Additional Support

During the production period in 1956 inspections were made at the production facility at Redacted Reda in Utah as shown in this weekly inspection report below. During this time, inspections were also made of the piping and steel including offsite inspection by H Redacted These samples indicate steel was made at the facility with a Yield Point in excess 52,000 psi. Although this does not prove the piping was X-52, it would indicate the facility had produced steel at this time which have met the requirements of X-52.

PACIFIC GAS AND ELECTRIC COMPANY
DEPARTMENT OF ENGINEERING
BUREAU OF TESTS AND INSPECTION

ORDER OR SPEC. NO. T R 11500
G. M. NO. 134616
SERIAL REPORT NO. 5
FILE NO.

WEEKLY INSPECTION REPORT

WEEK ENDING 10-13-56

MATERIAL INSPECTED: 34" O.D. STEEL PIPE
FOR SHIPMENT TO: Decoto, California
INSPECTED AT: [Redacted] - Provo, Utah

DATE OF ORDER | DEL. REQUIRED | SHIPMENT PROMISED | PRESENT | PREVIOUS | EST. TRANSIT TIME

TESTS AND INSPECTIONS

34" O.D. x 7/16" wall x 40' sections - completed 10-8-56
34" O.D. x 13/32" wall x 40' sections.

13/32" wall pipe in 40' sections started through the mill October 8 and expected to complete approximately October 23. P.G.& E inspection offered approximately 410 pipe per 24 hour day of which there is a rejection of about 10% for further repair, making an acceptance of approx. 350 pipe for the three shifts. Rejection is for plate slivers, gouges, scabs, pits, refacing, lamination and longitudinal weld repairs.
Physical and chemical tests satisfactory.

Production: 34" O.D. x 7/16" wall.	40' Sections	30' Sections	Footage
Shipped		621	64,737.54
"	19		736.43
		Total	65,494.27

Completes 7/16" wall.

34" O.D. x 13/32" wall to October 13, 1956.

	30' sections	Footage
Shipped	259	20,512.50

~~PROGRESS OF WORK~~

Round seam production is approximately 120 round seams for 3 - 8 hour shifts 13/32" wall pipe.

X RAYS AS OF October 10, 1956

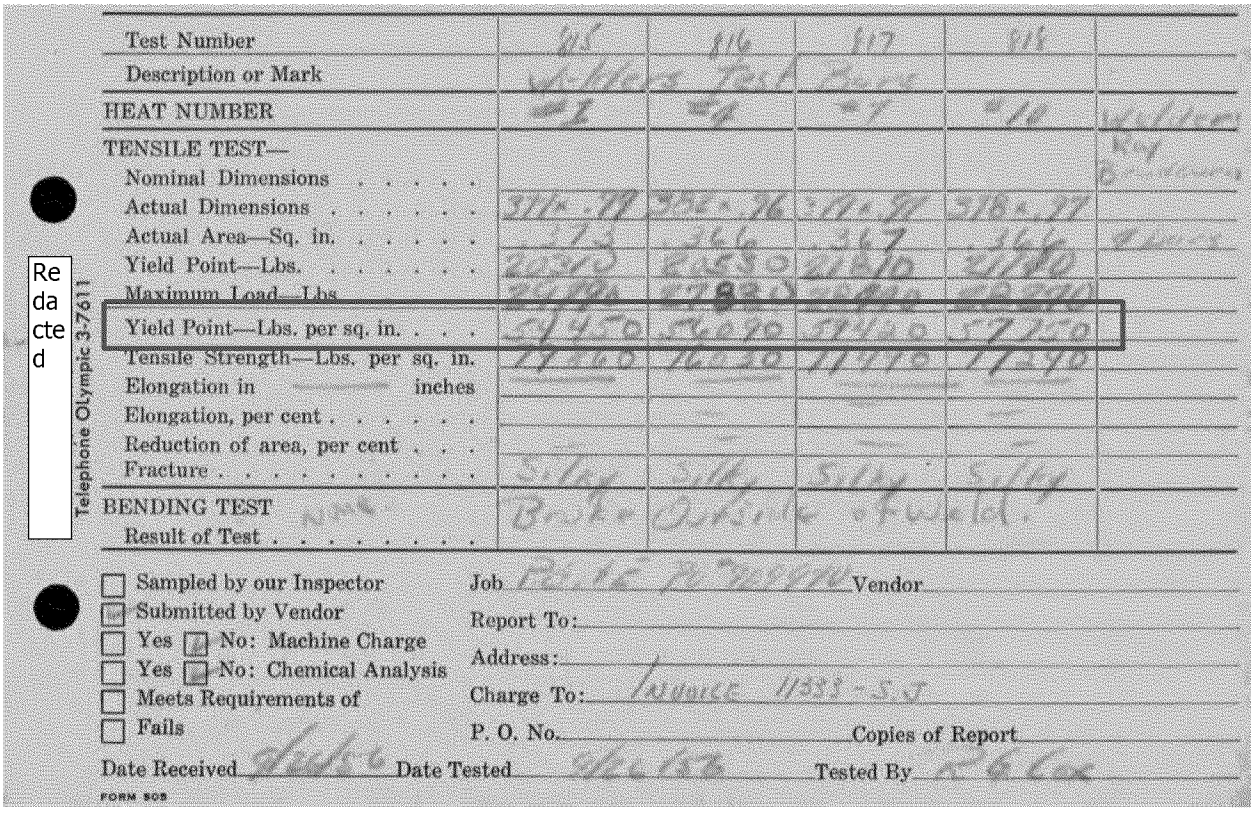
Wall	Total R.S. X rayed.	R. S. Cut	Accepted R.S.	X rays OK	X rays repaired	Total X rays	
1/2"	6	0	6	45	3	48	
11/32"	135	15	120	906	54	960	completed
7/16"	73	7	66	492	36	528	completed

SHIPMENTS

ENGINEERING - WD-2 FEB RDS
OPER. & MAINT.
CONSTRUCTION - AJS JAL RST
PURCH. & STORES - FEB
DIVISION

INSPECTOR A V TATE

W. N. LINDBLAD, CHIEF



Test Number	115	116	117	118	
Description or Mark	[illegible]	[illegible]	[illegible]	[illegible]	
HEAT NUMBER	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
TENSILE TEST—					
Nominal Dimensions					
Actual Dimensions	[illegible]	[illegible]	[illegible]	[illegible]	
Actual Area—Sq. in.	[illegible]	[illegible]	[illegible]	[illegible]	
Yield Point—Lbs.	[illegible]	[illegible]	[illegible]	[illegible]	
Maximum Load—Lbs.	[illegible]	[illegible]	[illegible]	[illegible]	
Yield Point—Lbs. per sq. in.	[illegible]	[illegible]	[illegible]	[illegible]	
Tensile Strength—Lbs. per sq. in.	[illegible]	[illegible]	[illegible]	[illegible]	
Elongation in inches					
Elongation, per cent					
Reduction of area, per cent					
Fracture	[illegible]	[illegible]	[illegible]	[illegible]	
BENDING TEST					
Result of Test	[illegible]	[illegible]	[illegible]	[illegible]	

Redacted

Telephone Olympic 3-7611

☐ Sampled by our Inspector
☑ Submitted by Vendor
☐ Yes ☑ No: Machine Charge
☐ Yes ☑ No: Chemical Analysis
☐ Meets Requirements of
☐ Fails

Job [illegible] Vendor
Report To:
Address:
Charge To: Invoice 11333-S.F.
P. O. No. Copies of Report

Date Received [illegible] Date Tested [illegible] Tested By [illegible]

FORM 503

Additional Memos

Further documentation can be found supporting the use of X-52 with a Yield Strength of 52,000 psi. The search yielded an additional memo from PG&E to El Paso Natural Gas Company. On January 10th 1964, the El Paso Natural Gas Company requested information from PG&E concerning specifications regarding the pipe crossings at this location. The second item in question of this correspondence refers to GM 134616 used for the suspension bridge in question. In the response dated January 15th 1964, PG&E indicate the pipelines in question have a Minimum Yield Strength of 52,000 psi. This documentation from 1964 is not only closer to the completion date of the project, but it also predates the memo with the lowered minimum yield strength.

1113

January 10, 1964

Mr. Redacted
Pacific Gas and Electric Company
Redacted

Re: Minimum Yield of Colorado River
Pipeline Crossings

Dear Mr. Redact

Would you please furnish us with the minimum yield of pipe on the Redacted
Redacted, California. Listed below is the information that we already have pertaining to this pipe:

30" O. D., .375"w. t. - your invoice No. 85747 of September 26, 1950
34" O. D., .500"w. t. - your invoice No. GM 134616 of April 19, 1960

This information will be very much appreciated.

Very truly yours,

EL PASO NATURAL GAS COMPANY

Clinton McClure
Senior Engineer - Southern Division

CMc.f
cc: Redacted

PACIFIC GAS AND ELECTRIC COMPANY

1113

Redacted

Sutter 1-4211

In reply please refer to

January 15, 1964

Mr. Clinton McClure
Senior Engineer - Southern Division
El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas

Dear Mr. McClure:

In answer to your letter of January 10, 1964, the 30" and 34" pipe to which you refer has a minimum yield strength of 52,000 psi.

If we can be of further assistance to you, please do not hesitate to call on us.

Very truly yours,

Redacted

RDS:ha

Conclusion

Likely the memo dated March 4th 1966 indicating the piping crossing the Colorado River is in error as there is no technical supporting documentation. All the documentation and correspondence reviewed in the Job file indicate that the piping used o Redacted ing the Colorado River for line 300B is 34" X 0.500" WT X-52, with the exception of this memo. The memos pre-dating and memos post-dating this memo define this piping to be X-52. All the found technical drawings, invoices, receiving records, and inspections provide further evidence to the installation of X-52 piping on the Redacted