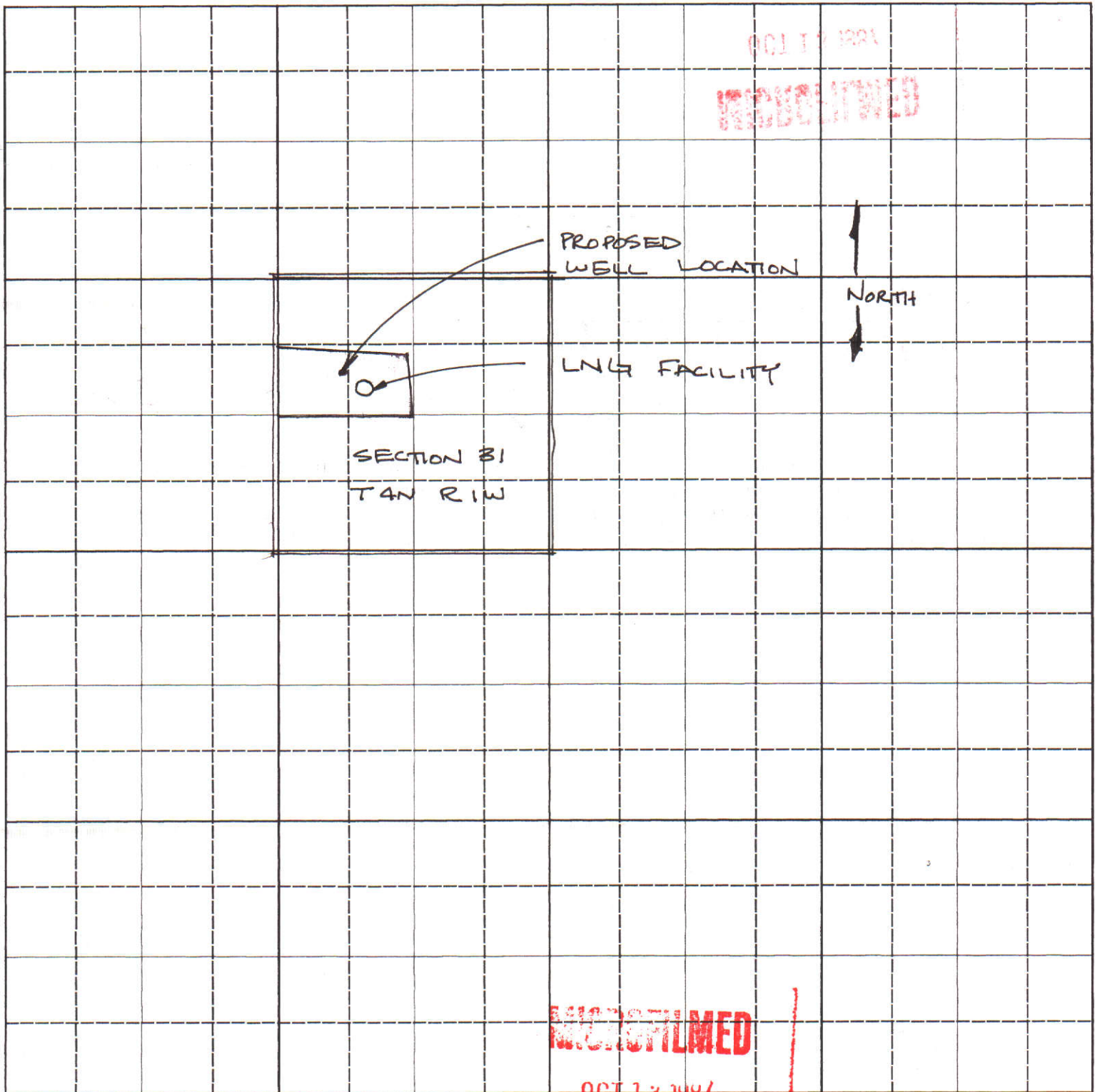


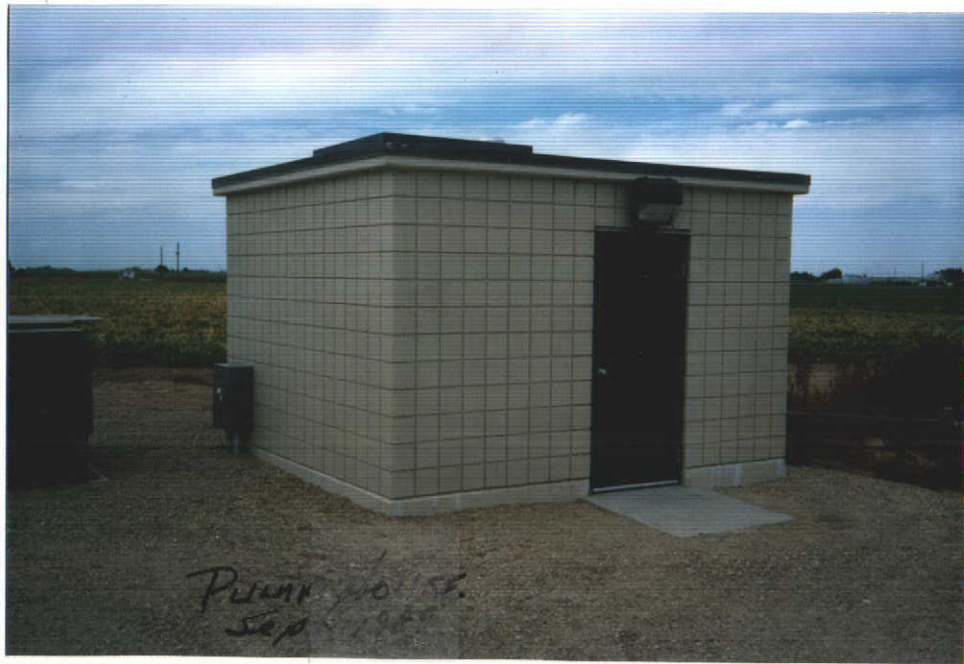
13. Map of proposed project: show clearly the proposed point of diversion, place of use, section number, township and range number.



Scale: 2 inches equal 1 mile.

BE IT KNOWN that the undersigned hereby makes application for permit to appropriate the public waters of the State of Idaho as herein set forth.

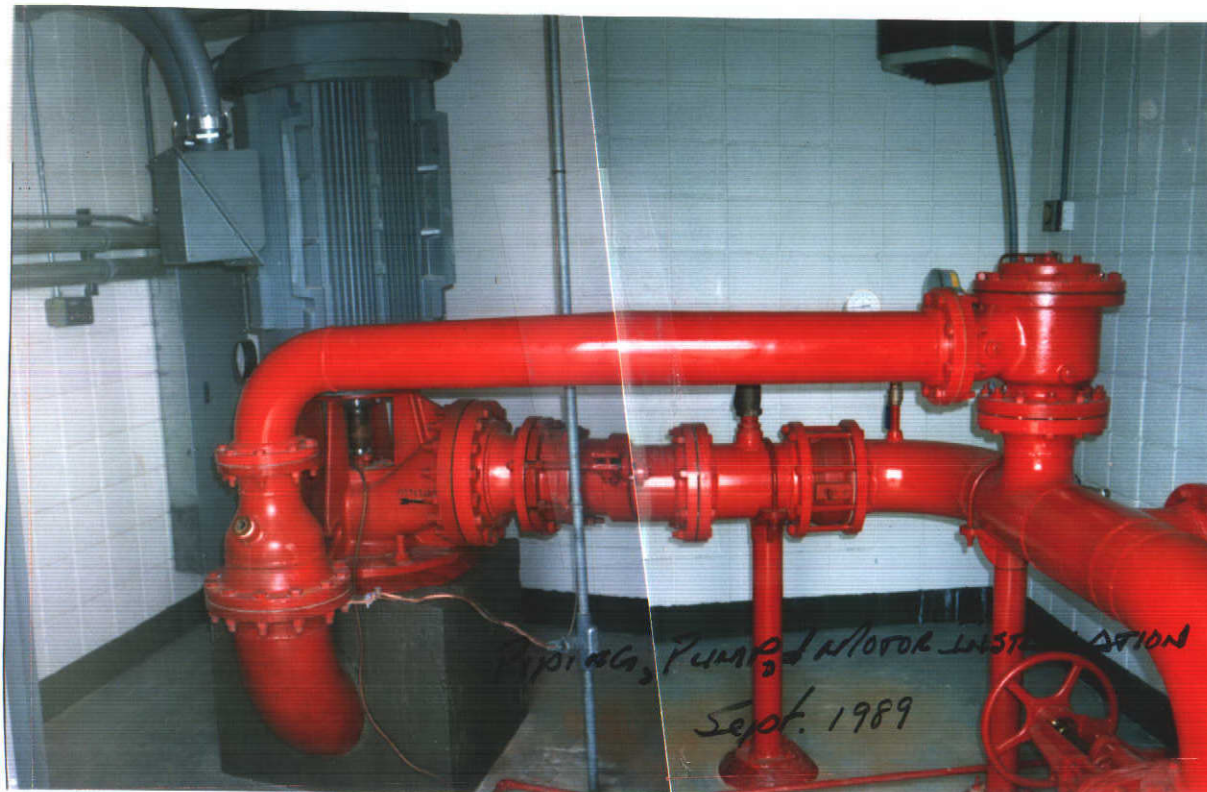
[Signature]
(Applicant)
Manager of Measurement & Control



Pump House
Sept. 1989



Fire Pump Test Nozzle
Sept. 1989

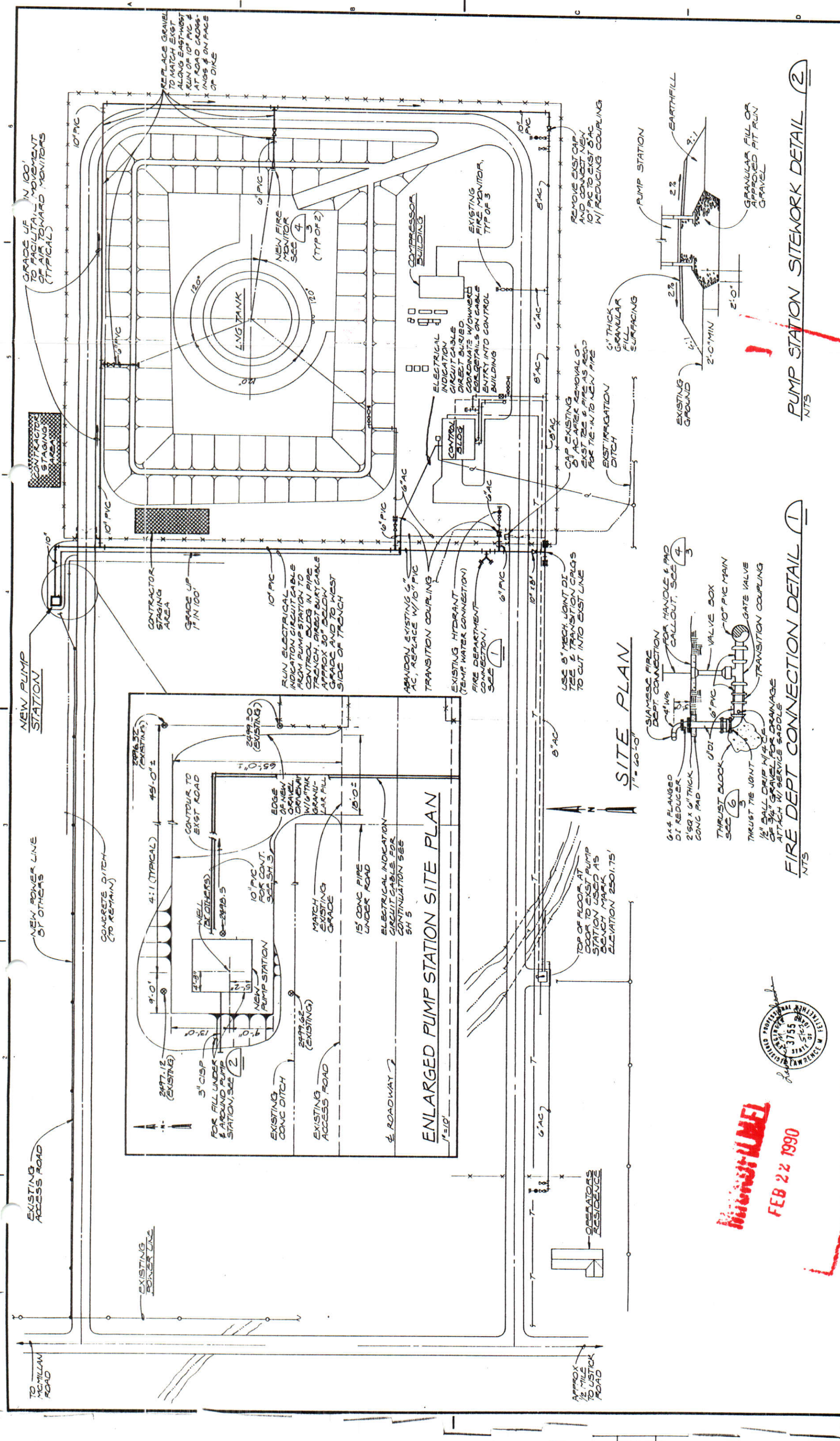


Piping, Pump & Motor Installation
Sept. 1989

FEB 22 1990

MICROFILMED

BENEFICIAL USE REPORT
INTERMOUNTAIN GAS CO.
LNG FIRE PROTECTION
PERMIT NO. 63-10523
Sept. 1989



																																																																																																																																																																																																																																																																																																																																																	
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INTERMOUNTAIN
FEB 22 1990

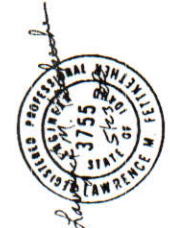
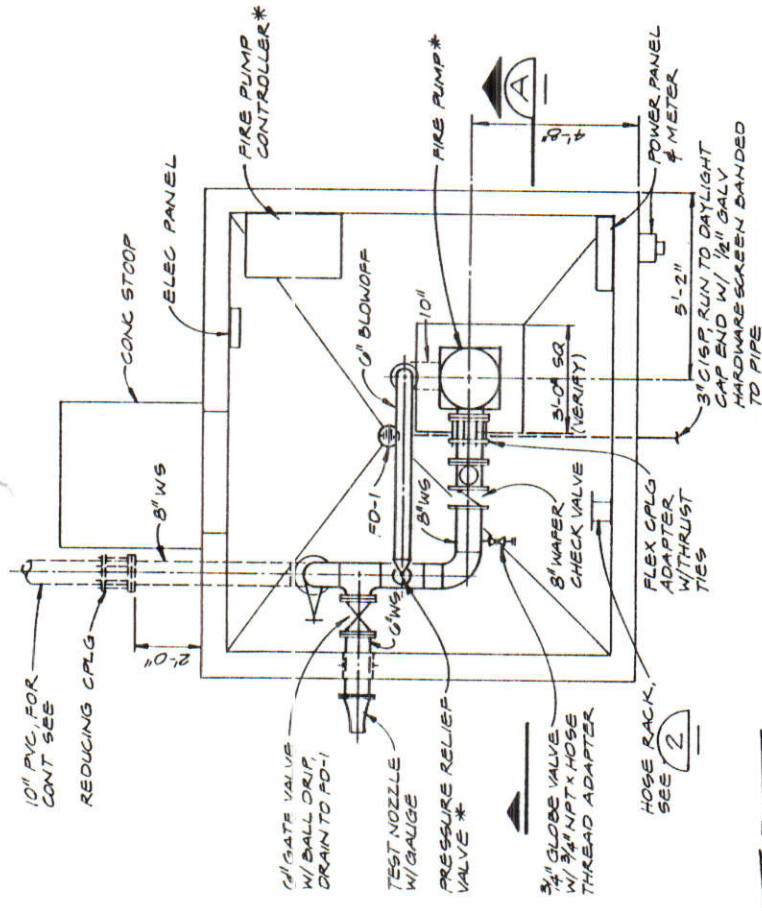
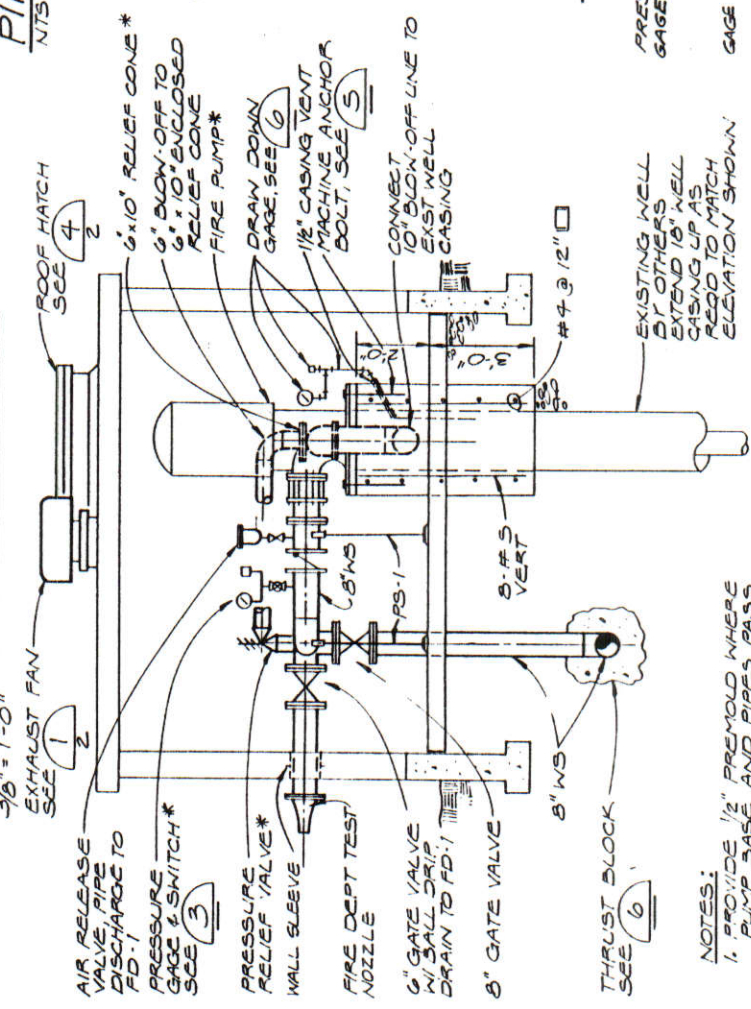


EXHIBIT A



PUMP STATION PLAN
3/8" = 1'-0"



NOTES:
1. PROVIDE 1/2" PREMOLD WHERE PUMP BASE AND PIPES PASS THROUGH FLOOR.
2. *INDICATES OWNER-FURNISHED EQUIPMENT.

SECTION
3/8" = 1'-0"

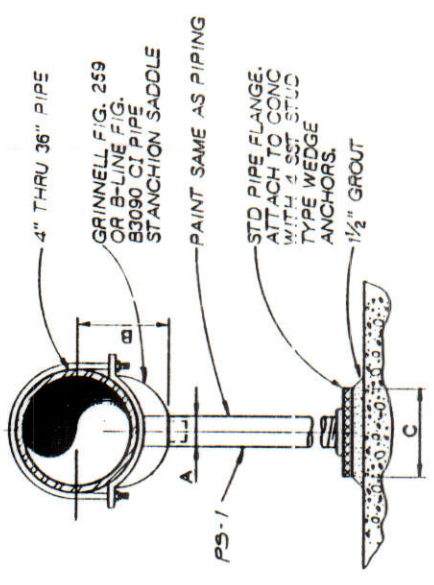


DESIGN: L.M. FETZKO, P.E.
CHECKED: R.M. NELSON
APPROVED: [Signature]
DATE: [Blank]
NO. DATE REVISION

REUSE OF DOCUMENTS
THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED IN WHOLE OR IN PART FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL.

INTERMOUNTAIN GAS COMPANY
BOISE, IDAHO

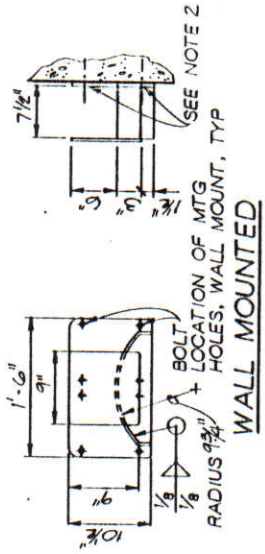
FIRE SYSTEM PUMP STATION
AND PIPELINE FOR THE LNG FACILITIES
AT NAMP, IDAHO
MECHANICAL PLAN, SECTION & DETAILS
SHEET 4
DWG NO. 0
DATE MAY 1988
PROJ. NO. 850455A.1



DIMENSION TABLE

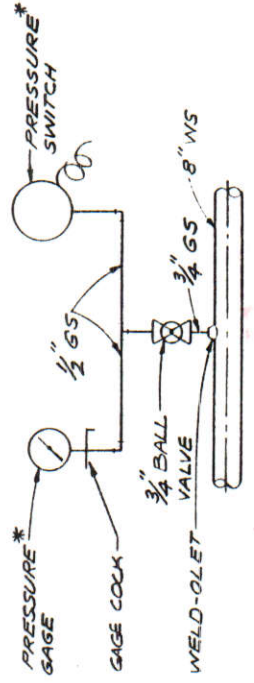
PIPE SIZE	A	B	C	D	E
2-1/2"	2-1/2"	3-1/2"	9"	1-1/2"	MIN 8"
3"	2-1/2"	3-3/4"	9"	1-1/2"	8-1/4"
3-1/2"	3"	4-1/4"	9"	2-1/2"	8-1 1/2"
4"	3"	4-7/8"	9"	2-1/2"	9-1 1/4"
5"	3"	5-1/2"	9"	2-1/2"	10-1/2"
6"	3"	5-7/8"	9"	2-1/2"	11-3/4"
8"	3"	6-1/2"	9"	2-1/2"	13-1/2"
10"	3"	6-15/16"	9"	2-1/2"	15-1/4"
12"	4"	10-15/16"	11"	2-1/2"	18-3/4"
14"					20-3/4"

PIPE SUPPORT DETAIL 1
NTS



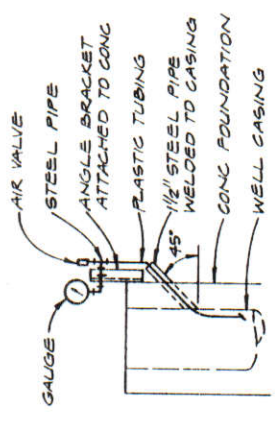
NOTES:
1. FABRICATE FROM 1/8" A-36 STEEL PLATE AND ENTIRE UNIT SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
2. ATTACH TO CONCRETE WALL WITH (4) 1/4" STAINLESS STEEL STUD TYPE WEDGE ANCHORS.

HOSE RACK DETAIL 2
NTS

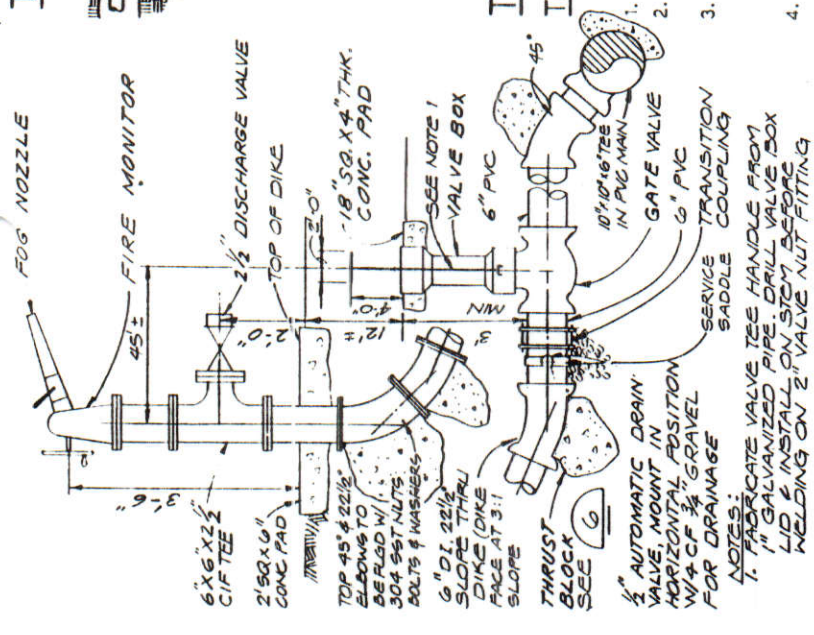


PRESSURE GAGE & SWITCH DETAIL 3
NTS

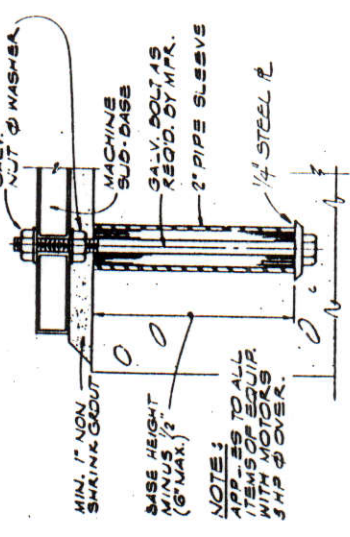
MACHINERY ANCHOR BOLT DETAIL 5
NTS



DRAWDOWN GAUGE 6
NTS



FIRE MONITOR DETAIL 4
NTS



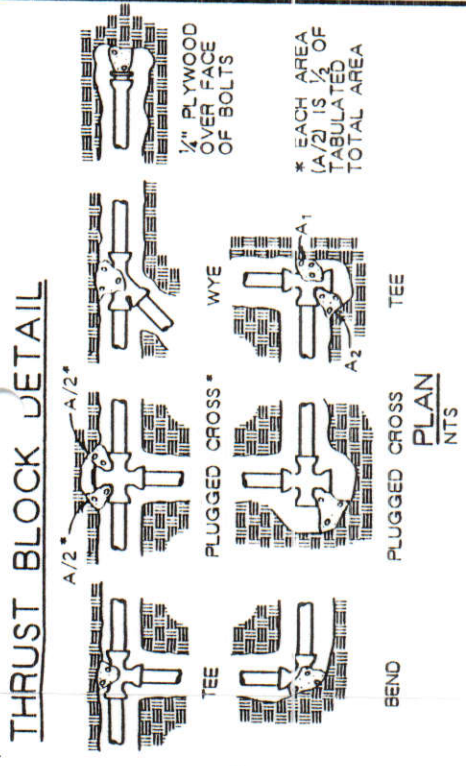
BEARING AREA OF THRUST BLOCKS IN SQ. FT. (HORIZONTAL BENDS)

FITTING SIZE	TEE, WYE, 90° BEND		TEE PLUG, OR PLUGGED RUN		BEND ANGLE
	A ₁	A ₂	A ₁	A ₂	
4	1.0	1.4	1.9	1.4	45°
6	2.1	3.0	4.3	3.0	1.0
8	3.8	5.3	7.6	5.4	2.9
10	5.9	8.4	11.8	8.4	4.6
12	8.5	12.0	17.0	12.0	6.6
14	11.5	16.3	23.0	16.3	8.9

VOLUME OF THRUST BLOCK IN CUBIC YARDS (VERTICAL BENDS)

FITTING SIZE	BEND ANGLE	
	45°	22 1/2°
4	1.1	0.4
6	2.7	1.0
8	4.0	1.5
10	6.0	2.3
12	8.5	3.2
14	11.5	4.3

THRUST BLOCK DETAILS 7
NTS



THRUST BLOCK NOTES AND DETAILS
THRUST BLOCK NOTES

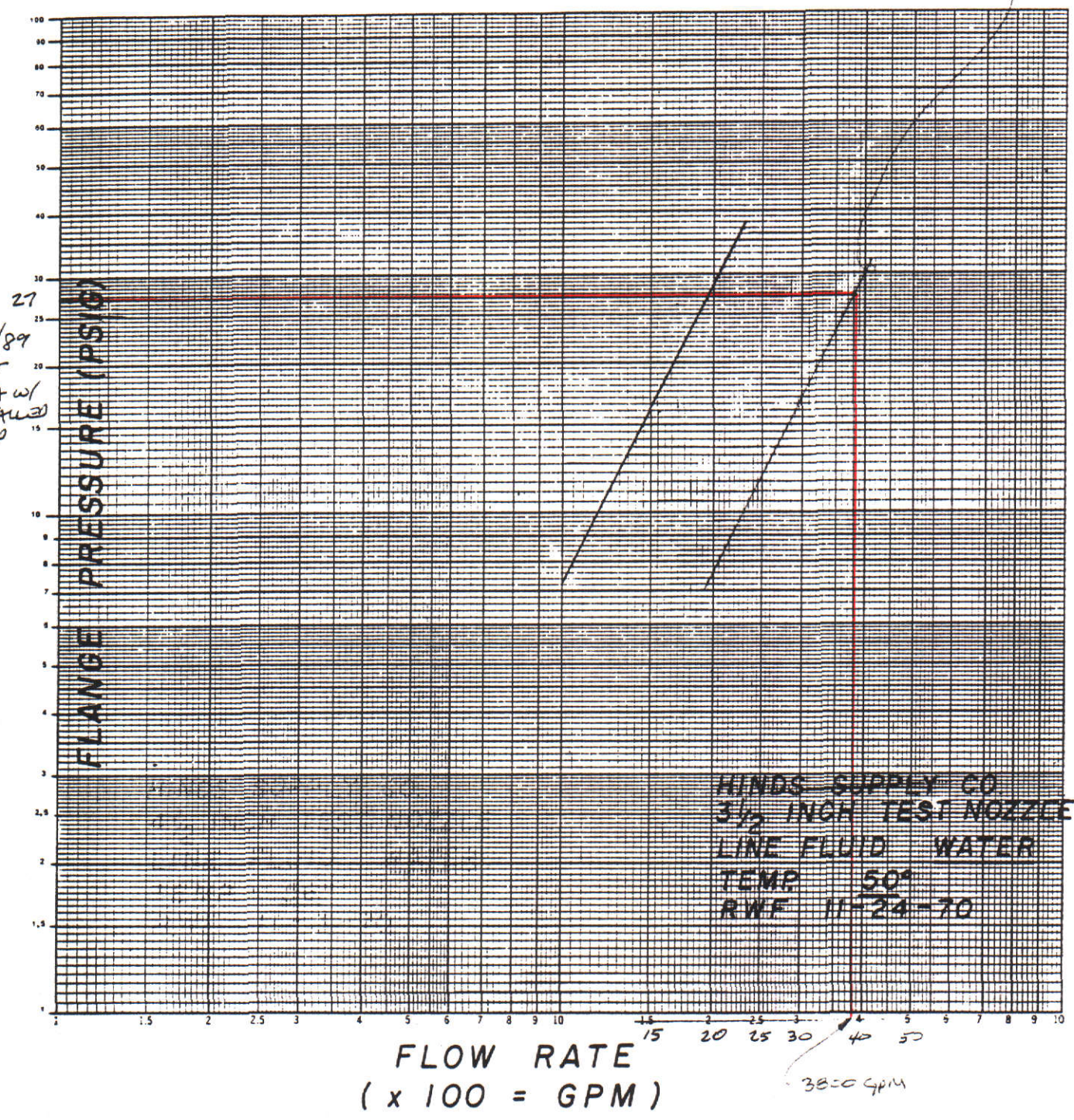
- KEEP CONCRETE CLEAR OF JOINT AND JOINT ACCESSORIES.
- CONCRETE THRUST BLOCKING SHALL BE POURED AGAINST UNDISTURBED EARTH.
- REQUIRED VOLUMES OR BEARING AREAS AT FITTINGS SHALL BE AS INDICATED BELOW. ADJUSTED, IF NECESSARY, TO CONFORM TO THE TEST PRESSURE(S) AND ALLOWABLE SOIL BEARING STRESS(ES) STATED IN THE SPECIFICATIONS.
- THRUST BLOCK VOLUMES FOR VERTICAL BENDS HAVING UPWARD RESULTANT THRUSTS ARE BASED ON TEST PRESSURE OF 150 PSIG AND THE WEIGHT OF CONCRETE = 4050 LBS/CU YD. TO COMPUTE VOLUMES FOR DIFFERENT TEST PRESSURES, USE THE FOLLOWING EQUATION: VOLUME = (TEST PRESS./150) x (TABLE VALUE).
- BEARING AREAS FOR HORIZONTAL BEND THRUST BLOCKS ARE BASED ON TEST PRESSURE OF 150 PSIG AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 LBS/SQ FT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, MULTIPLY TABLE VALUES BY THE FACTOR (13.33(P/S_b)). WHERE: P = ACTUAL TEST PRESSURE, PSIG. S_b = ACTUAL SOIL BEARING PRESSURE, PSF.

NOTE: THAT TEST PRESSURE IS 200 PSIG

EXHIBIT B

CURVE FOR
4 1/2" TEST NOZZLE AT IGC

5/4/89
TEST
DATA w/
INSTALLED
PUMP



FLOW RATE CHART

The above chart provides a direct reading of the gallons per minute being delivered by the pump under test.

The water (or flange) pressure reading taken from the gauge is located along the left edge of the chart. Read across to the line representing the nozzle being used and then down for the flow rate in gallons per minute. This reading will be accurate to plus or minus 2% within the range indicated by the lines on the chart.

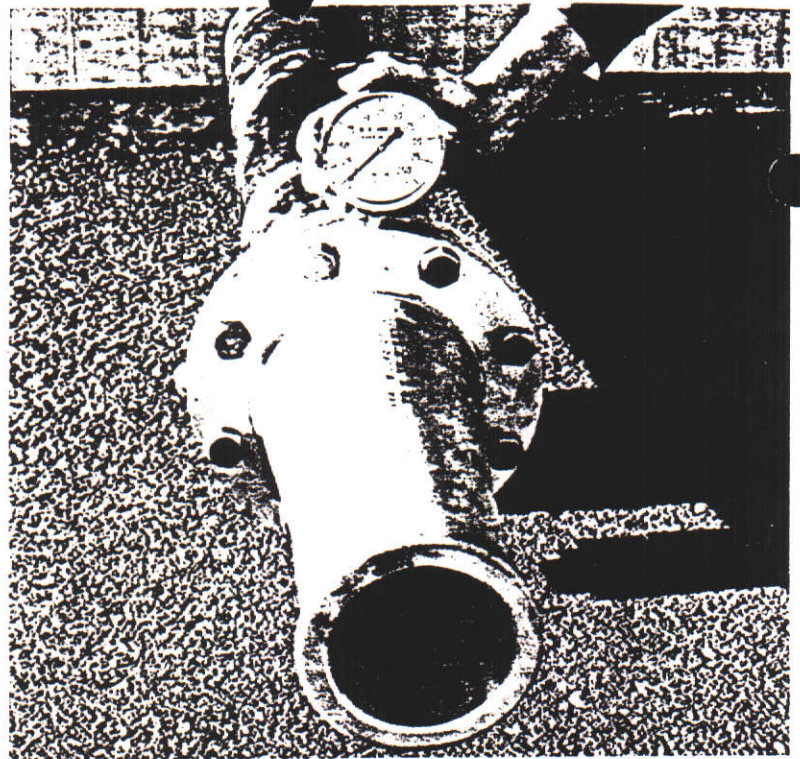
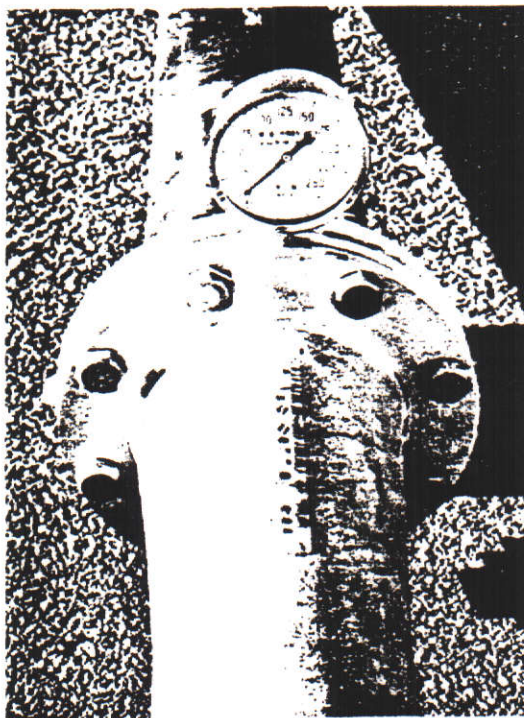
MICROFILMED

FEB 22 1990

EXHIBIT D

IF YOU
MUST TEST
FIRE PUMPS ANNUALLY,

THIS IS THE WAY
TO DO IT



THE HINDS FIRE PUMP TEST NOZZLE

Here is how it works:

- 1) Turn on the pump.
- 2) Read the water pressure on the gauge (or measure it with a hand-held pitot instrument)
- 3) Use the result on the special chart (see next page) to arrive at the flow being produced by the pump.

THAT'S ALL THERE IS TO IT! Simple, quick, and inexpensive. No more unreeling and hooking up the proper length of hose. No more mess, fuss, and bother. Simply install the Hinds test nozzle on stationary pumps which must be tested each year. This is a permanent installation. Once installed, it is always ready.

The Hinds test nozzle is guaranteed to produce extremely accurate results (within plus or minus 2%)* . . . much more accurate than you can achieve by using the old lay-out-the-hose method. Much more accurate than *any* other method being used.

*Attested to by independent engineering evaluation

It Really Works

Insurance companies have tested the Hinds nozzle and found that it does what we say. We will furnish names of companies and agencies approving our nozzle promptly on request.

NOTIFIED

FEB 22 1990

EXHIBIT D, CONT'D.

State of Idaho
Department of Water Resources

WATER RIGHT LICENSE

WATER RIGHT NO. 63-10523

Priority: July 29, 1987

Maximum Diversion Rate:

3.50 CFS

This is to certify, that INTERMOUNTAIN GAS CO.

555 S. COLE RD.

BOISE, ID 837050000

has complied with the terms and conditions of the permit, issued pursuant to Application for Permit dated July 29, 1987; and has submitted Proof of Beneficial Use on September 26, 1989. An examination indicates that the works have a diversion capacity of 8.460 cfs of water from a GROUNDWATER source, and a water right has been established as follows:

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>RATE OF DIVERSION</u>	<u>ANNUAL VOLUME</u>
-----------------------	----------------------	--------------------------	----------------------

FIRE PROTECTION	01/01 to 12/31	3.50 CFS	
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LOCATION OF POINT(S) OF DIVERSION: LOT 2(NESWNW), Sec. 31, Township 04N, Range 01W
ADA County

PLACE OF USE: FIRE PROTECTION

TWN RGE SEC

04N 01W 31 LOT 2(SWNW)

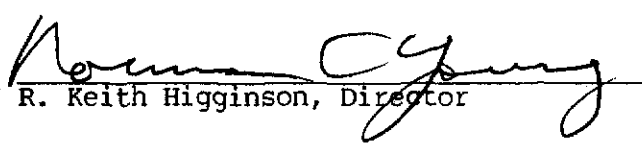
SENE

CONDITIONS/REMARKS:

1. This water right is appurtenant to the described place of use.
2. This right is subject to all prior water rights and may be forfeited by five years of non-use.
3. Modifications to or variance from this license must be made within the limits of Section 42-222, Idaho Code, or the applicable Idaho law.

This license is issued pursuant to the provisions of Section 42-219, Idaho Code.

Witness the seal and signature of the Director, affixed at Boise, this 9th
day of January, 1990.


R. Keith Higginson, Director

MICROFILMED

FEB 22 1990

RECEIVED

SEP 01 1988

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCESFor Office Use Only
\$15 FEE Received by CP
Date 10/4/88
Receipt # 0002788

REQUEST FOR EXTENSION OF TIME

Department of Water Resources provide additional time in which to submit proof
of beneficial use for a water right permit

The Idaho Department of Water Resources will consider this form as a request that the permit holder(s) be granted an additional period of time in which to complete development of a water right under the provisions of Section 42-204, Idaho Code.

Permit No. 63-10523Name(s) of Permit Holder: Intermountain Gas Co.Post Office Address: 555 S. Cole Road, Boise, Idaho 83705Telephone No. 377-6000Date Proof is Due: October 1, 1988

Describe what work has been completed toward the development of this water right: _____

(This must be filled out! If no work has been completed, show "none".)

Well pump has been installed. Pump horse foundation and floor slab have been
poured. Underground water piping has been installed. It is anticipated all
work except getting utility power installed will be completed by October 1,
1988. Costing \$ 93,000

The permit holder(s) has been unable to complete the remainder of the work for the following reasons:

Negotiations with the electrical utility company are still underway in an
effort to obtain power at an acceptable rate.

Permit holder(s) request an extension to October 1, 19 89.
(1 yr. minimum)

(Signature)*

FEE: \$15.00

MR GAS CONTROL*IF OTHER THAN PERMIT HOLDER,
POWER OF ATTORNEY MUST BE SUPPLIED.

ACTION OF THE DEPARTMENT OF WATER RESOURCES

DEC 02 1988

IT IS HEREBY ORDERED that the above request for extension of time be APPROVED and the time within which to submit proof of beneficial use is extended to October 1, 1989.

Signed this 12th day of October, 19 88.A. Shurston
Chief, Operations Bureau



engineers
planners
economists
scientists

JOHN C. AUSTIN, P.E.

700 Clearwater Lane
Box 8748
Boise, Idaho 83707
208/345-5310

↑
*prepared app.
for Intermountain*

Rec-call him if you have questions.

JUL 29 1987

Ident. No. 63-10523

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
Department of Water Resources
APPLICATION FOR PERMIT

APPROVED

To appropriate the public waters of the State of Idaho

1. Name of applicant Intermountain Gas Company Phone 377-6000
Post office address 555 S. Cole Road, Boise, ID 83705

2. Source of water supply Groundwater which is a tributary of N/A

3. Location of point of diversion is NE $\frac{1}{4}$ of SW $\frac{1}{4}$ of NW $\frac{1}{4}$, Govt. Lot 2
Sec. 31 Township 4N Range 1 W B.M. Ada County; additional
points of diversion if any: _____

4. Water will be used for the following purposes:

Amount 3.5 CFS for Fire protection purposes from Jan 1 to Dec 31 (both dates inclusive)
(cfs or acre-feet per annum)

Amount _____ for _____ purposes from _____ to _____ (both dates inclusive)
(cfs or acre-feet per annum)

Amount _____ for _____ purposes from _____ to _____ (both dates inclusive)
(cfs or acre-feet per annum)

Amount _____ for _____ purposes from _____ to _____ (both dates inclusive)
(cfs or acre-feet per annum)

5. Total quantity to be appropriated is (a) 3.5 and/or (b) _____
cubic feet per second acre feet per annum

6. Proposed diverting works:

a. Description of ditches, flumes, pumps, headgates, etc. deep well vertical turbine pump

b. Height of storage dam N/A feet; active reservoir capacity _____ acre-feet; total
reservoir capacity _____ acre-feet; period of year when water will be diverted to storage:
_____ to _____ inclusive.

c. Proposed well diameter is 12 inches; proposed depth of well is 300 feet.

d. Is ground water with a temperature of greater than 90°F being sought? No

7. Time required for the completion of the works and application of the water to the proposed beneficial use is
1 years (minimum 1 year).

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OCT 13 1987

8. Description of proposed uses (if irrigation only, go to item 9):

- Hydropower; show total feet of head and proposed capacity in KW. _____
- Stockwatering; list number and kind of livestock. _____
- Municipal; show name of municipality. _____
- Domestic; show number of households. _____
- Other; describe fully. Fire protection

9. Description of place of use:

- If water is for irrigation, indicate acreage in each subdivision in the tabulation below.
- If water is used for other purposes, place a symbol of the use (example: *D* for Domestic) in the corresponding place of use below. See instructions for standard symbols.

TWP	RANGE	SEC.	NE¼				NW¼				SW¼				SE¼				TOTALS
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
4N	1 W	31							4.2	F									

F = Fire Protection.

Total number of acres to be irrigated _____

10. Describe any other water rights used for the same purposes as described above. 2 CFS fire protection well developed in 1974

11. a. Who owns the property at the point of diversion? Intermountain Gas Co.

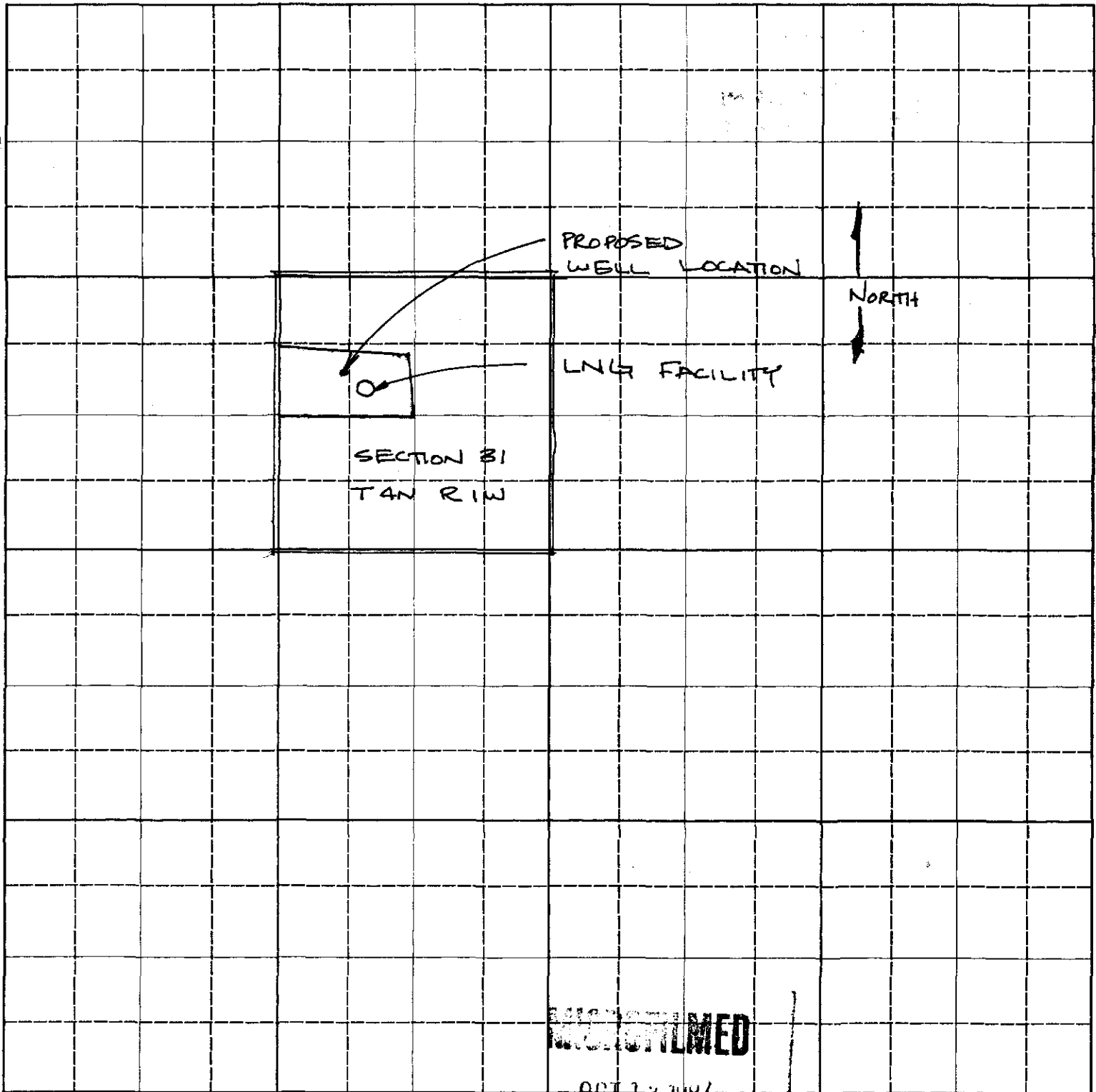
b. Who owns the land to be irrigated or place of use? Same

c. If the property is owned by a person other than the applicant, describe the arrangement enabling the applicant to make this filing. _____

12. Remarks: _____

OCT 13 1987

13. Map of proposed project: show clearly the proposed point of diversion, place of use, section number, township and range number.



Scale: 2 inches equal 1 mile.

BE IT KNOWN that the undersigned hereby makes application for permit to appropriate the public waters of the State of Idaho as herein set forth.

[Signature]
(Applicant)
Manager of Measurement & Control

Proposed Priority 7/29/87

Received by KW Date 7/29/87 Time 1:55 Preliminary check by Jim
Fee \$ 105.00 Receipted by KW # 44118 Date 7/29/87
Publication prepared by SS Date 8/10/87 Published in ID Statesman
Publication approved SS Date 9/2/1987

ACTION OF THE DIRECTOR, DEPARTMENT OF WATER RESOURCES

This is to certify that I have examined Application for Permit to appropriate the public waters of the State of Idaho No. 63-10523, and said application is hereby APPROVED

1. Approval of said application is subject to the following limitations and conditions:

a. SUBJECT TO ALL PRIOR WATER RIGHTS.

b. Proof of construction of works and application of water to beneficial use shall be submitted on or before October 1, 1988.

c. The rate of diversion, if water is to be used for irrigation under this permit, when combined with all other water rights for the same land shall not exceed 0.02 cubic feet per second for each acre of land.

d. The water right acquired under this permit if for hydropower purposes shall be junior and subordinate to all rights to the use of water, other than hydropower, within the State of Idaho that are initiated later in time than the priority of this permit and shall not give rise to any right or claim against any future rights to the use of water, other than hydropower, within the State of Idaho initiated later in time than the priority of this permit.

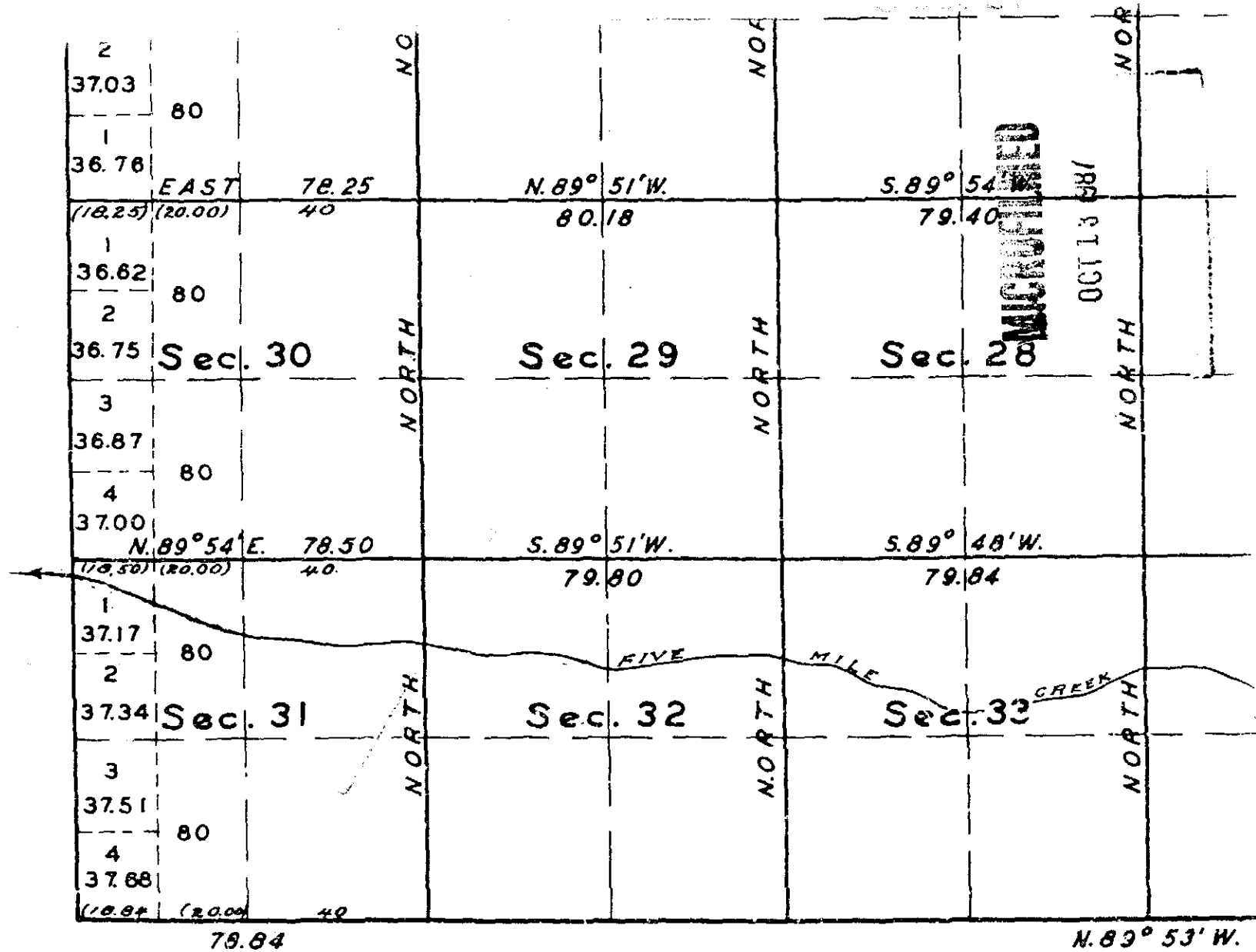
e. Other: Prior to the diversion of water under this permit a flow measurement port or other device as specified by the Department shall be installed to provide for the installation of measuring equipment and the determination of the rate of diversion by the Department.

Witness my hand this 28th day of September, 1987.

J. Glen Saylor
Chief, Operations Bureau

MICROFILMED

OCT 13 1987



RECEIVED The Idaho Statesman

AUG 28 1987

P.O. BOX 40, BOISE, IDAHO 83707

LEGAL ADVERTISING INVOICE

Amount Due

66.75

Department of Water Resources

Account Name Idaho Department of Water Resources (Western)				Account Number #47628	
Address Statehouse			City/State Boise, ID		Zip 83720
Ordered By Judy Pense	P.O. Number	Rate NT	Run Dates 1987 August 20, 27		
Identification Applications for Water Rights			Estimated Inches	Real Inches	
1 Number of Affidavits Requested					Legal Number #6177

RECEIVED
AUG 31 1987

Department of Water Resources
Western Regional Office

STATE OF IDAHO)
) ss.
COUNTY OF ADA)

Deborah Gregory, being duly sworn, deposes and says: That she is the Principal Clerk of The Idaho Statesman, a daily newspaper printed and published at Boise, Ada County, State of Idaho, and having a general circulation therein and which said newspaper has been continuously and uninterruptedly published in said County during a period of twelve consecutive months prior to the first publication of the notice, a copy of which is attached hereto; that said notice was published in The Idaho Statesman in conformity with Section 60-108, Idaho Code as amended, for Two (2) ☒ consecutive weekly ☐ consecutive daily ☐ single ☐ odd skip

insertion(s) beginning with the issue of August 20, 19 87 and ending with the issue of August 27, 19 87

Deborah Gregory

Subscribed and sworn to before me this 27th day of August, 19 87

Cornelia Helleson 8/92
Notary Public for Idaho, Residing at Boise, Idaho

MICROFILMED

OCT 13 1987

NOTICE OF APPLICATION FOR WATER RIGHT

The following application(s) have been filed to appropriate the public waters of the State of Idaho:

63-10518

Firebird Raceway, Inc.
P.O. Box 7235
Boise, ID 83707

Source: Groundwater

Diversion Pt: NWSW Sec 16 T 05N R 01W

Use: Irrigation (0.060 CFS)

Use: Commercial (0.3 CFS)

Use: Domestic (0.040 CFS)

Date Filed: 07/29/1987

In: NWSW SWSW SESW Sec. 16 T 05N R 01W — for 3 Acres

63-10522

Church of Jesus Christ

Latter Day Saints

c/o Warren Widdison

Box 201

Nampa, ID 83651

Source: Groundwater

Diversion Pt: SWSW Sec 24 T 01N R 01W

Use: Irrigation (0.020 CFS)

Date Filed: 08/06/1987

In: SWSW Sec 24 T 01N R 01W — for 1 Acre

63-10523

Intermountain Gas Co.

555 S. Cole Rd.

Boise, ID 83705

Source: Groundwater

Diversion Pt: Lot 02 (NESWNW) Sec 31 T 04N R 01W

Use: Fire Protection (3.5 CFS)

Date Filed: 07/29/1987

Lot 02 (SWNW) SENW Sec. 31 T 04N R 01W

63-10524

State of Idaho

Dept. of Fish & Game

Box 25

Boise, ID 83720

Source: Groundwater

Diversion Pt: Lot 04 (NENW) Sec 14 T 03N R 02E

Use: Irrigation (0.090 CFS)

Use: Wildlife (0.2 CFS)

Date Filed: 08/05/1987

In: Lot 04 (NENW) Sec 14 T 03N R 02E — for 3 Acres

The permit(s) will be subject to all prior water rights. Protests must be filed with the Director, Dept. of Water Resources, Western Region, Statehouse, Boise, Idaho 83720 on, or before September 9, 1987.

KEN DUNN
Director

Pub. Aug. 20, 27, 1987

6177

January 10, 1990

INTERMOUNTAIN GAS CO.
555 S. COLE RD.
BOISE, ID 837050000

RE: PERMIT NO. 63-10523

Dear Permit Holder(s):

Enclosed herewith is a copy of the Water Right License issued on the above referenced permit.

Sincerely,

JIM JOHNSON
Water Rights Supervisor

JJ:sc

Enclosure

RECEIVED

FEB 22 1990

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

RECEIVED
SEP 26 1989

Department of Water Resources

A. GENERAL INFORMATION

- Permit No. 63-10523
1. Owner: Intermountain Gas Company Phone No. (208) 377-6000
Current Address: 555 So. Cole Rd., Boise, Idaho 83705
2. Accompanied by: John Austin EXAM. DATE: 5/4/89 and 9/14/89
Address: 700 Clearwater Ln., Boise, ID Phone No. (208) 345-5310
Relationship to Permit Holder: Engineering Consultant
3. Source: Groundwater tributary to _____

B. OVERLAP REVIEW

1. Other water rights with same place of use: License No's. 63-07881, 63-07952, and 63-4263 ☐ Copies Attached
2. Other water rights with same point of diversion: None ☐ Copies Attached ☐ Copies of Field Exam's Attached

C. SYSTEM DESCRIPTION

1. **Diversion System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe i.d. as applicable. ☒ Alternative diagram attached

NOTE:

See attached Drawing entitled "Fire System Pump Station and Pipeline for the LNG Facilities atampa, Idaho, Mechanical Plan, Section & Details" prepared by CH2M Hill, dated May 1988, and identified as EXHIBIT A.

Scale: 1" = _____

2. ☒ Copy of U.S.G.S. Quadrangle Attached Showing location(s) of point(s) of diversion and place(s) of use (required). ☐ Aerial Photo Attached (required for irrigation of 10 acres or more).
☒ Photo of Diversion and System Attached (required for all but single household domestic groundwater, and stockwater).

System Description (continued)

3. Narrative: Description (As operating at time of measurement. Indicate pressure, number of sprinklers, etc.)

The well and related appurtenances for which this Beneficial Use Field Report is being filed consist of a 18-inch diameter well drilled to a depth of 230-feet, a pump, a mechanical turbine fire pump, electric motor, and related piping, valves, and controls. The pump discharges into a 10-inch dia. fire line which provides fire protection to a 1.5 million(±) gallon liquid natural gas (LNG) storage tank, all as shown on the attached drawing prepared by CH2M Hill and identified as EXHIBIT B.

☐ See Remarks on page 4 for continuation

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
63-10523	GE	300	SL 224041	Peabody	GGD1668

*Code to correspond with No. on map and aerial photo

5. Point(s) of Diversion:

Ident. No.	Gov't. Lot	1/4	1/4	1/4	Sec.	Twp.	Rge.	County	Method of Determination/Remarks
63-10523		SE	SW	NW	31	4N	1W	ADA	Field Survey / Construction Dwg's.

6. Place(s) of Use:

Indicate Method of Determination *Property Description*

Twp.	Rge.	Sec.	NE 1/4				NW 1/4				SW 1/4				SE 1/4				Totals
			NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	
4N	1W	31							FF										

RECORDED

FEB 22 1991

Do not use this space

FILE NO. 100

RECEIVED

D. FLOW MEASUREMENTS

☐ Additional Data Sheets Attached

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Fire Pump Test Nozzle	Flange Pressure	Delta	—	—	4 1/2"	—

2. Measurements:

See attached letter from Chen Hui to Intermountain Gas Company dated May 8, 1989, identified as EXHIBIT C

E. FLOW CALCULATIONS

☐ Additional Computation Sheets Attached

- Measured Method: 3,800 gpm (See attached Fire Pump Test Nozzle Flow RATE CHART identified as EXHIBIT D)
- Alternate Method for Checking Purposes: N.A.

F. PUMP EFFICIENCY DATA (Optional)

Discharge Pressure: _____ psi x 2.31 = _____ ft (1); Dynamic pumping level: _____ ft (2)

Total Head: (1) + (2) = _____ (3) ; Flow rate: _____ cfs (4)

Water HP: (3) x (4) ÷ 8.8 = _____ (5)

Meter Input KW: 3.6 x _____ KH x _____ CTR or _____ MULT x _____ PTR x _____ N/ _____ T = _____ (6)

Meter Input HP: (6) x 1.34 = _____ (7)

Panel Input KW: _____ Ave PF x _____ Ave Volts x _____ Ave Amps x .001732 = _____ (6)

Panel Input HP: (6) x 1.34 = _____ (7) Efficiency: (5)/(7) x 100 = _____ %

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$ _____

$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 =$ _____

$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} =$ _____

2. Volume Calculations for Other Uses: N.A.

[illegible]

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
Fire Protection	Jan 1	Dec. 31	8.46 cfs	N.A.
		Totals:	8.46 cfs	N.A.

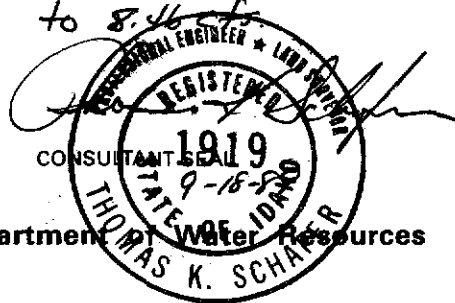
☐ Change P.D. as reflected above ☐ Add P.D. as reflected above

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above

☐ None

☒ Other Change rate of diversion from 3.50 cts to 8.46 cts.

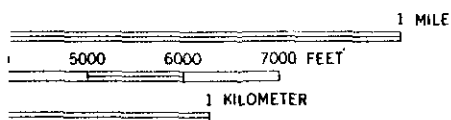
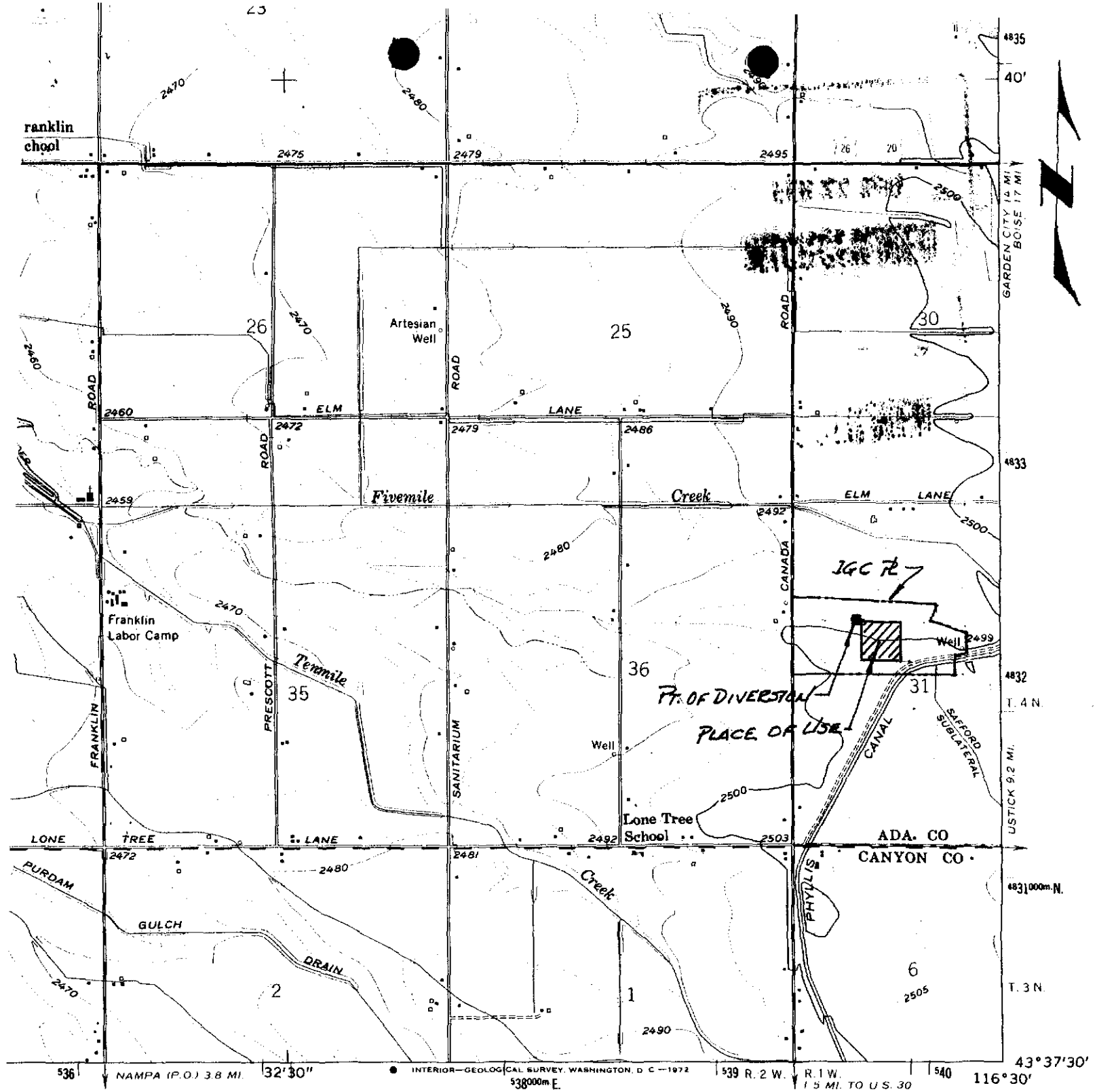
Field Examiner's Name THOMAS K. SCHAFER
Signature Thomas K. Schaf
Certification Date September 18, 1989
Field Report Preparation Date September 15, 1989



K. **Licensing recommendation shall be prepared by an Idaho Department of Water Resources employee on a computer printout attached hereto.**

[illegible]

REF ID: A50



FEET
CONTOURS
1/4"

ACCURACY STANDARDS
ID 80225, OR WASHINGTON, D. C. 20242
BOLS IS AVAILABLE ON REQUEST



QUADRANGLE LOCATION

MICROFILMED

FEB 22 1990

ROAD CLASSIFICATION

Heavy-duty ——— Light-duty ———
Medium-duty ——— Unimproved dirt ———

U. S. Route

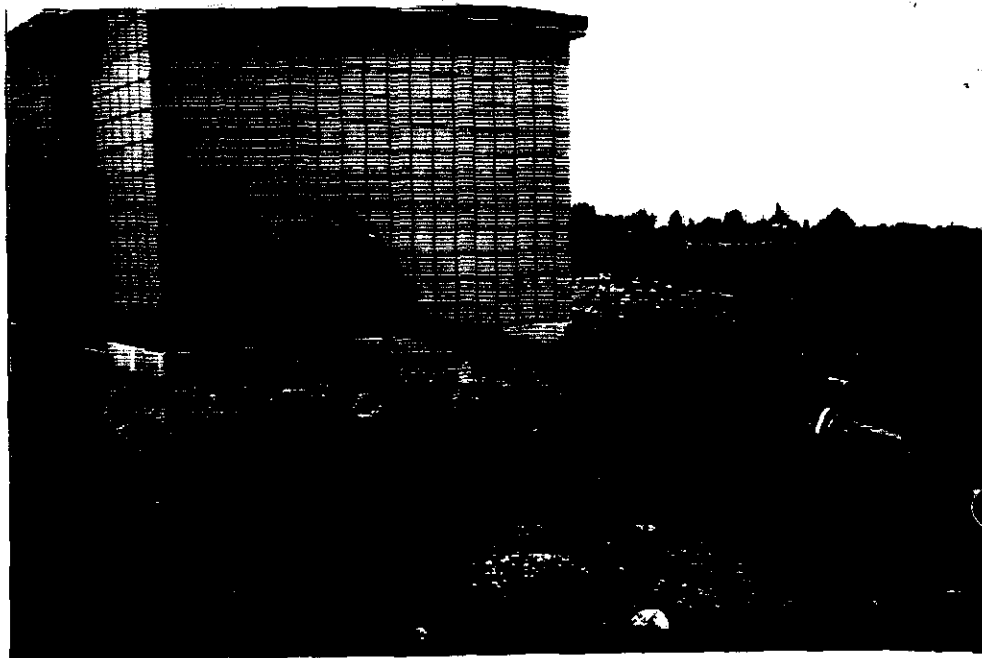
State Route

InterCity Route

MIDDLETON, IDAHO
N4337.5—W11630/7.5

1958
PHOTOGRAPHED 1971
AMS 2671 II NE—SERIES V893

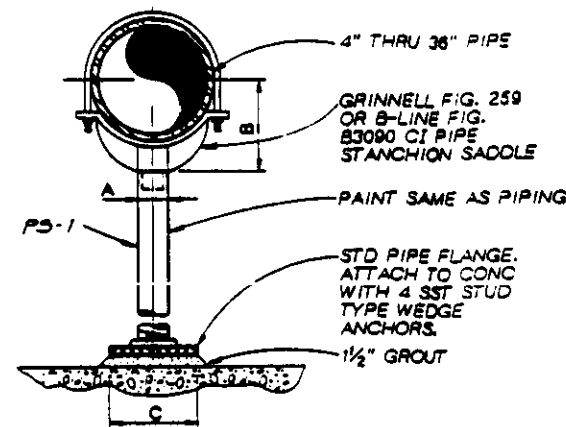
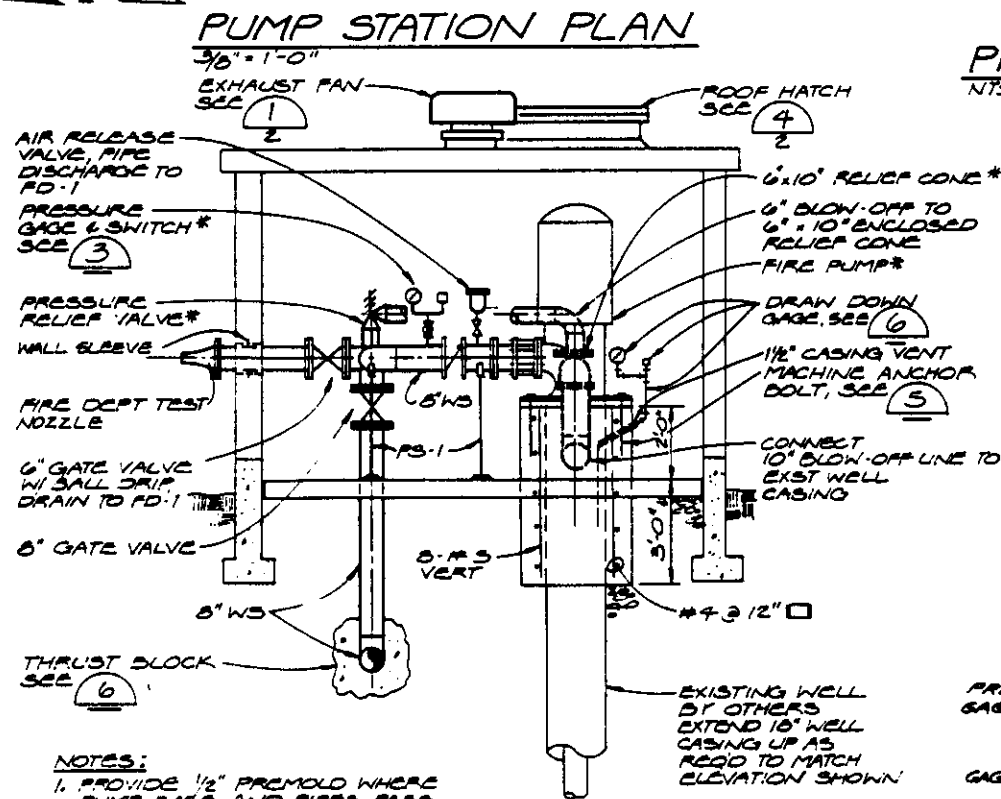
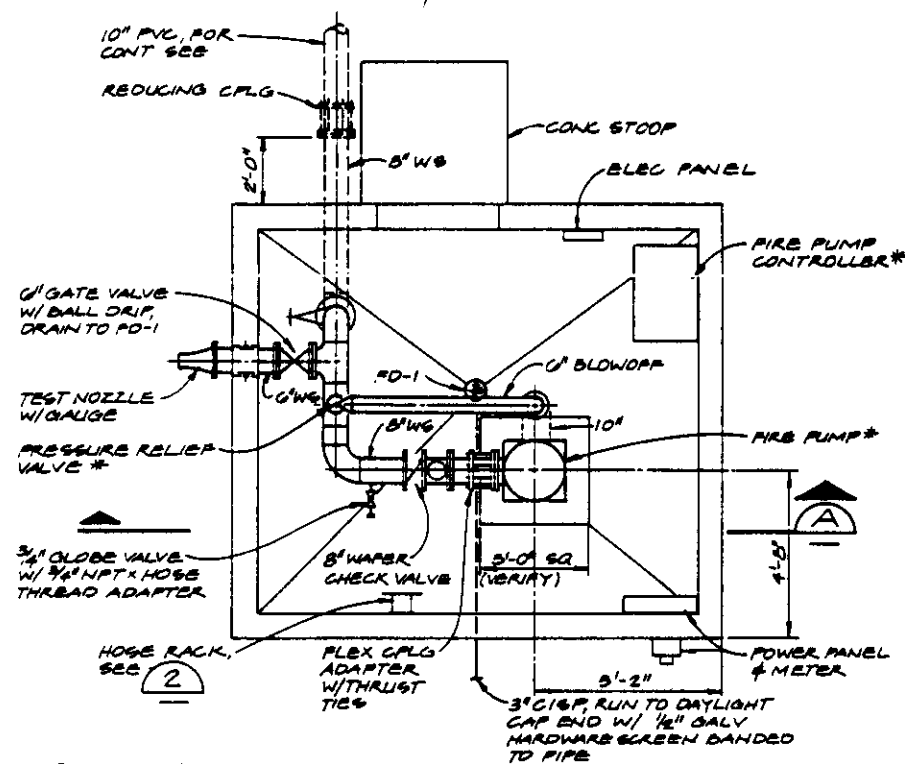
PERMIT NO. 63-10523



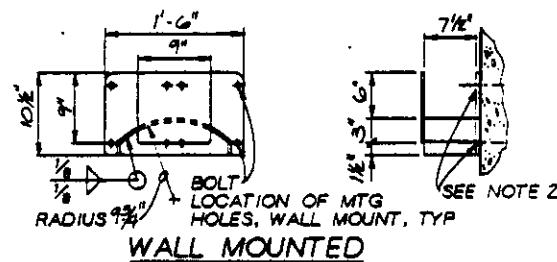
MICROFILMED

FEB 22 1990

BENEFICIAL LIFE REPORT
INTERMOUNTAIN GAS CO.
LNG FIRE PROTECTION
PERMIT NO. 63-10523
Sept. 1989

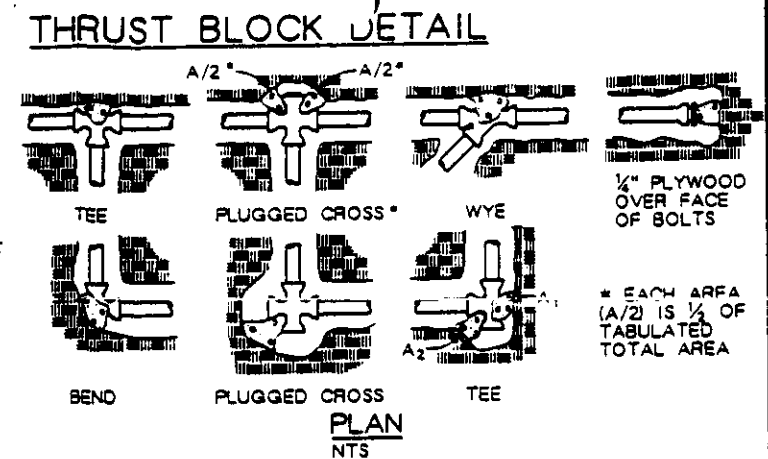
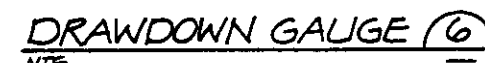
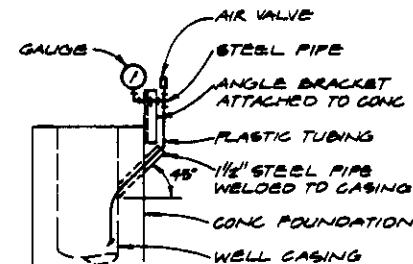
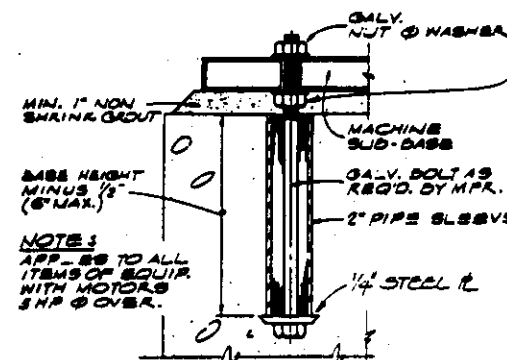
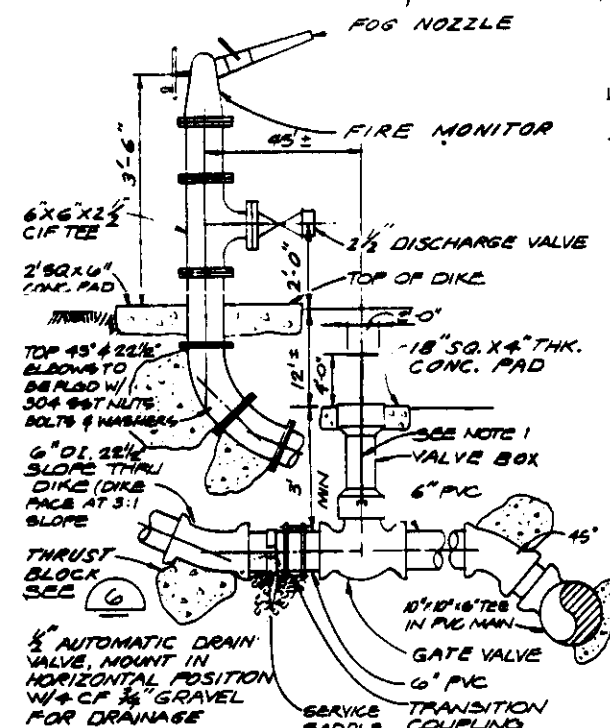
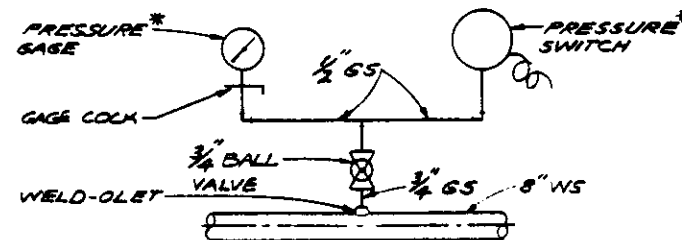


PIPE SIZE	A	B	C	D	E	
					MIN	MAX
2-1/2"	2-1/2"	3-1/2"	8"	1-1/2"	8"	13"
3"	2-1/2"	3-3/4"	8"	1-1/2"	8-1/4"	13-1/2"
3-1/2"	2-1/2"	4"	8"	1-1/2"	8-1/2"	13-1/2"
4"		4-1/4"	8"	2-1/2"	8-1/4"	14"
5"	3"	4-7/8"	8"	2-1/2"	10"	14-3/4"
6"	3"	5-1/2"	8"	2-1/2"	10-1/2"	15-1/4"
8"	3"	6-7/8"	8"	2-1/2"	11-3/4"	15-1/2"
10"	3"	8-1/2"	8"	2-1/2"	13-1/2"	16-1/4"
12"	3"	9-15/16"	8"	2-1/2"	15"	16-3/4"
14"	4"	10-15/16"	11"	3"	16-1/4"	20-3/4"



NOTES:

1. FABRICATE FROM 1/8" A-36 STEEL PLATE AND ENTIRE UNIT SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
2. ATTACH TO CONCRETE WALL WITH (4) 1/4" STAINLESS STEEL STUD TYPE WEDGE ANCHORS.



THRUST BLOCK NOTES AND DETAILS

THRUST BLOCK NOTES

1. KEEP CONCRETE CLEAR OF JOINT AND JOINT ACCESSORIES.
2. CONCRETE THRUST BLOCKING SHALL BE POURED AGAINST UNDISTURBED EARTH.
3. REQUIRED VOLUMES OR BEARING AREAS AT FITTINGS SHALL BE AS INDICATED BELOW, ADJUSTED, IF NECESSARY, TO CONFORM TO THE TEST PRESSURE(S) AND ALLOWABLE SOIL BEARING STRESS(ES) STATED IN THE SPECIFICATIONS.
4. THRUST BLOCK VOLUMES FOR VERTICAL BENDS HAVING UPWARD RESULTANT THRUSTS ARE BASED ON TEST PRESSURE OF 150 PSIG AND THE WEIGHT OF CONCRETE = 4050 LBS/CU YD. TO COMPUTE VOLUMES FOR DIFFERENT TEST PRESSURES, USE THE FOLLOWING EQUATION: $VOLUME = (TEST\ PRESS./150) \times (TABLE\ VALUE)$.
5. BEARING AREAS FOR HORIZONTAL BEND THRUST BLOCKS ARE BASED ON TEST PRESSURE OF 150 PSIG AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 LBS/SQ FT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, MULTIPLY TABLE VALUES BY THE FACTOR $(13.33)/(P/P_b)$, WHERE: P = ACTUAL TEST PRESSURE, PSIG
 P_b = ACTUAL SOIL BEARING PRESSURE, PSF.

NOTE THAT TEST PRESSURE IS 200 PSIG

BEARING AREA OF THRUST BLOCKS IN SQ. FT. (HORIZONTAL BENDS)							
FITTING SIZE	TEE, WYE, PLUG, OR CAP	90° BEND PLUGGED CROSS	TEE PLUGGED RUN		BEND ANGLE		
			A ₁	A ₂	45°	22½°	11¼°
4	1.0	1.4	1.9	1.4	1.0	-	-
6	2.1	3.0	4.3	3.0	1.6	1.0	-
8	3.8	5.3	7.6	5.4	2.9	1.5	1.0
10	5.9	8.4	11.8	8.4	4.6	2.4	1.2
12	8.5	12.0	17.0	12.0	6.6	3.4	1.7
14	11.5	16.3	23.0	16.3	8.9	4.6	2.3

VOLUME OF THRUST BLOCK IN CUBIC YARDS (VERTICAL BENDS)			
FITTING SIZE	BEND ANGLE		
	45°	22½°	11¼°
4	1.1	0.4	0.2
6	2.7	1.0	0.4
8	4.0	1.5	0.6
10	6.0	2.3	0.9
12	8.5	3.2	1.3
14	11.5	4.3	1.8



SECTION
3/8" = 1'-0"

FEB

PRESSURE GAGE & SWITCH DETAIL (3)

DRAWDOWN GAUGE (6)

~~REFUSED~~ BLOCK DETAILS (7)

22 1000 FIRE SYSTEM PUMP STATION AND PIPELINE FOR THE LNG FACILITIES AT NAMPA, IDAHO MECHANICAL PLAN, SECTION & DETAILS	SHEET	4
	DWG NO	
	DATE	MAY 1988
	PROJ NO	880488A1

EXHIBIT B

EXHIBIT C



Engineers
Planners
Economists
Scientists

BOI 10.41

May 8, 1989

Dan McAlister
Intermountain Gas Co.
555 S. Cole Road
Boise, Idaho 83709

Dear Dan:

Subject: LNG Facility Fire System Test

On Thursday, May 4, 1989, a test was conducted on the new fire pump and fire monitors located at the LNG facility near Nampa, Idaho. Prior to the test, the fire system had been shut down and repressurized to 50 psi by the process well. Accumulated air was bled off through the monitors. The new fire pump was started with the test valve open. The east and north dike fire monitors were opened sequentially and the test valve closed. The south dike monitor was opened. All three monitor water streams easily hit the LNG tank. The north and south monitor were able to place water well on top of the tank with water cascading over the top rim. System pressure stabilized at 175 psi at the pump station. While the three dike monitors were operational, the two yard monitors were opened. The pump station pressure stabilized at 130 psi with all five monitors operating. The north and east monitors are rated at 500 gpm at 125 psi; the remaining nozzles are variable flow rate and were set at 750 gpm at 125 psi.

The system was sequentially shut down by closing the yard monitors and then the dike monitors. The pump bypass valve was reset to maintain system pressure at approximately 125 psig and the system placed in the automatic mode.

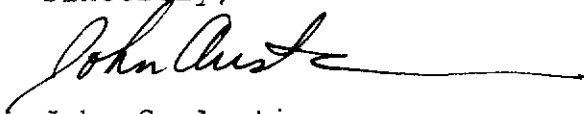
RECEIVED

FEB 22 1990

Mr. Dan McAlister
BOI 10.41
May 8, 1989
Page 2

If you have any questions concerning the procedure or results of the test, please give me a call.

Sincerely,

A handwritten signature in cursive script, appearing to read "John C. Austin", followed by a long horizontal flourish.

John C. Austin

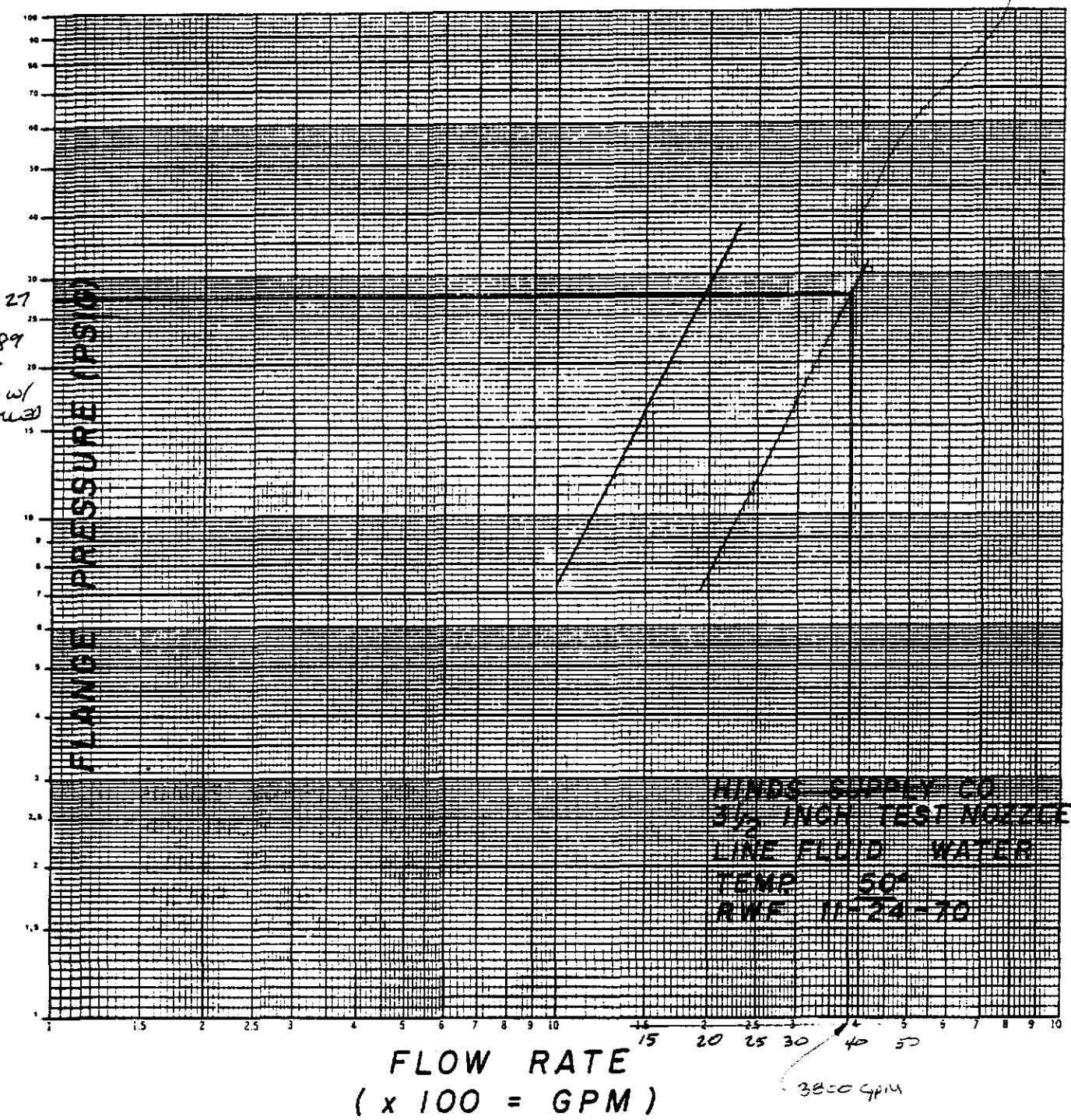
sm

MICROFILMED

FEB 24 1990

CURVE FOR
4 1/2" TEST NOZZLE AT IGC

5/4/89
TEST
DATA w/
INSTALLED
PUMP



FLOW RATE CHART

MICROFILMED

The above chart provides a direct reading of the gallons per minute being delivered by the pump under test.

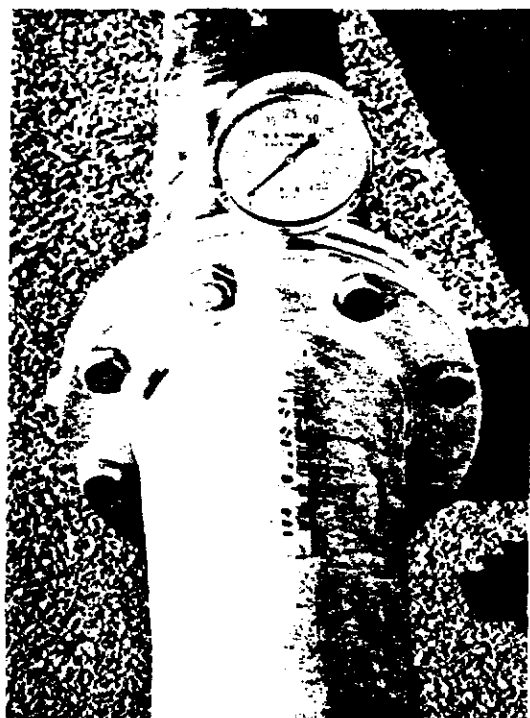
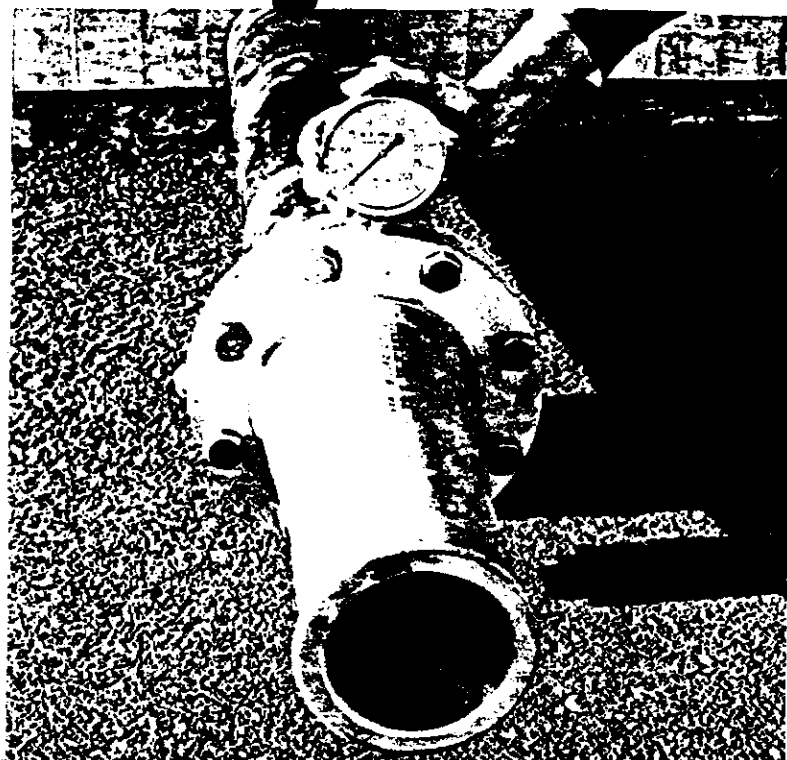
FEB 22 1990

The water (or flange) pressure reading taken from the gauge is located along the left edge of the chart. Read across to the line representing the nozzle being used and then down for the flow rate in gallons per minute. This reading will be accurate to plus or minus 2% within the range indicated by the lines on the chart.

EXHIBIT D

**IF YOU
MUST TEST
FIRE PUMPS ANNUALLY,**

**THIS IS THE WAY
TO DO IT**



THE HINDS FIRE PUMP TEST NOZZLE

Here is how it works:

- 1) Turn on the pump.
- 2) Read the water pressure on the gauge (or measure it with a hand-held pitot instrument)
- 3) Use the result on the special chart (see next page) to arrive at the flow being produced by the pump.

THAT'S ALL THERE IS TO IT! Simple, quick, and inexpensive. No more unreeling and hooking up the proper length of hose. No more mess, fuss, and bother. Simply install the Hinds test nozzle on stationary pumps which must be tested each year. This is a permanent installation. Once installed, it is always ready.

The Hinds test nozzle is guaranteed to produce extremely accurate results (within plus or minus 2%)* . . . much more accurate than you can achieve by using the old lay-out-the-hose method. Much more accurate than *any* other method being used.

*Attested to by independent engineering evaluation

It Really Works

Insurance companies have tested the Hinds nozzle and found that it does what we say. We will furnish names of companies and agencies approving our nozzle promptly on request.

Microfilm

FEB 26 1960

EXHIBIT D, CONT'D.

November 17, 1989

Intermountain Gas Co.
555 S. Cole Rd.
Boise, Ida. 83705

RE: Permit No. 63-10523

Dear Permit Holder:

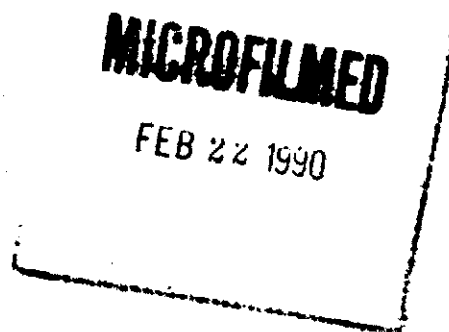
The department acknowledges receipt of the proof of beneficial use form and field report submitted on September 26, 1989 in connection with the above referenced permit. The next step is for the department to review the field report and prepare a water right license.

If you have questions concerning this matter, please feel free to contact this office.

Sincerely,

Nina Shields
Clerical Assistant

C: Region



1/88

PROOF OF BENEFICIAL USE

ANALYSIS SHEET

Permit No. 63-10523

Date: 11/7/89

General Considerations:

- ☒ Name same as permit
☒ Signature the same as permit holder
☒ Address change ☐ If yes, prepare a data entry
☒ Proof received timely
☐ Reinstated

Source of Water:

- ☐ Surface water
☒ Groundwater
☒ 1. well log in file
☐ 2. drilling permit
☐ A. amount of drilling fee paid for proposed uses

Extent of Use and Rate of Diversion:

- ☒ Rate of diversion appropriate for uses
☒ Is rate or volume and fee appropriate?
☐ Has permit holder indicated when water was first put to a beneficial use?

Measuring Device:

- ☒ Is a measuring device or access port required?
☒ Has one been installed?
☐ Waiver or modification of measuring device requested

Remarks:

Priority Calculation:

Date proof received	<u>NA</u>	
Date proof due		-
No. of days late		=
Priority date		+
NEW PRIORITY DATE		=

SEND FILES TO DATA ENTRY AND THEN TO MICROFILM

RECEIVED

SEP 26 1989

no fee incl
Department of Water Resources

STATE OF IDAHO

DEPARTMENT OF WATER RESOURCES

For Office Use Only
Fee Received _____
Date _____
Receipt # _____
Receipt by _____
Reviewed by MS-11/7/89
Sent to region _____

PROOF OF BENEFICIAL USE

The Idaho Department of Water Resources will consider this form as a statement that the permit holder(s) has completed all development that will occur under this permit and that water has been applied according to the provisions of the permit for the beneficial use(s) described below. This form must be accompanied by a license examination fee or a completed field examination report prepared by a certified water right examiner who has been appointed by the department.

Permit No. 63-10523

Name(s) of Permit Holder: Intermountain Gas Company

Post Office Address: 555 So. Cole Road, Boise, ID 83705

Telephone No. (208) 377-6000

Source of Water: Groundwater

Extent of Use:

Domestic _____ (number of households) Stockwater _____ (number and type of stock)

Irrigation _____ (acres) Other/Remark Fire protection for 1.5

million gallon LNG storage tank

Total rate and/or volume for which proof is submitted 8.46 cfs _____ acre-feet

Show the date water was first diverted and beneficially used under this permit: May 4, 1989

Measuring Device: Required? ☒ Yes ☐ No Fee enclosed \$ N.A.
Installed? ☒ Yes ☐ No (See License Examination Fee Schedule)

Flow Measurement Port: Required? ☐ Yes ☐ No
Installed? ☐ Yes ☐ No

Person to contact to accompany the Department representative during the field examination:

N.A.

(Name)

(Telephone Number)

(Address)

MICROFILMED

FEB 22 1990

The above information is my true statement of the extent to which the above numbered permit has been developed and I relinquish any undeveloped portion of the permit to the state of Idaho.

Sept 25 1989
Date

Intermountain Gas Company
Signature of Permit Holder (and title, if appropriate)

INTERMOUNTAIN GAS CO.
555 S. COLE RD.
BOISE, ID 837050000

July 31, 1989

138490

PROOF DUE NOTICE

RE: PERMIT NO. 63-10523

Dear Permit Holder:

One of the conditions of approval of the above referenced water permit was that proof of the extent of your beneficial use must be submitted to this office on or before October 1, 1989. (See last page of your approved permit or your last approved extension request.) Enclosed is a form which when accompanied by the license examination fee or a complete field examination report prepared by a certified water right examiner may be used to submit the required proof.

If you have not fully completed your project, and you or a previous owner of this permit have not received a prior extension of time, you may request an extension of time if the delay is for reasonable cause as provided in Section 42-204, Idaho Code. If you have been prevented from proceeding by a governmental agency or by litigation which might bring title to the water in question, more than one extension of time can be granted. An extension of time request form is enclosed for your convenience.

Either an acceptable proof of beneficial use submittal or an acceptable request for an extension of time must be received by this department on or before the above described proof due date. If neither is received, the department will send you a lapse notice. Within sixty (60) days of the mailing of the lapse notice, the permit will no longer be of any force nor effect.

SINCERELY,

Rita Fleck
Secretary/Records Manager

Enclosures

MICROFILMED

FEB 22 1990

October 12, 1988

Intermountain Gas Co.
555 S. Cole Rd.
Boise, ID 83705

Gentlemen:

Re: Permit No. 63-10523

Enclosed is a copy of the approved request for extension of time. The time within which to submit the proof of beneficial use form is extended to October 1, 1989.

If you have any questions or concerns regarding the permit, please contact this office.

Sincerely,

RITA I. FLECK
Secretary/Records Manager

Enclosure

DEC 02 1988

STAFF REVIEW SHEET - EXTENSION OF TIME

Permit No. 63-10523Reviewed by RJDate 10-12-88

BASIC INFORMATION

Y Date stamp received
Y Extension received timely
(not prior to 6 month before proof due date or after reinstatement period)
Y Fee received and receipted
Y Name and signature same as permit
N Address change (indicate on coding sheet)

BASIS FOR EXTENSION REQUEST

Y Has adequate work been completed to demonstrate due diligence?
Y Has the cost incurred been adequate to demonstrate an intent to complete the project?
N/A Has the permit been involved in litigation?
a. Swan Falls _____ Dismissed from Swan Falls _____
Other _____ Identify _____
b. Is supporting documentation needed to complete the file? _____
Requested _____
c. Calculate the period of delay

Date litigation completed _____

Date litigation began _____

Total period of delay = _____

Present proof due date + _____

NEW PROOF DUE DATE = _____

N/A Is delay by a government agency?
Is supporting documentation needed to complete the file? _____
Requested? _____

ACTION TAKEN

Recommend approval based on due diligence for one year

Special conditions or remarks:

N/A Reinstatement Date extension received _____ = _____
Proof due date _____ = _____
No. of days late _____ = _____
Priority date _____ = + _____
ADJUSTED PRIORITY DATE _____ = _____

____ Prepare coding sheet
____ Change rolodex cardf

S T A T E O F I D A H O

DEPARTMENT OF WATER RESOURCES

Statehouse
Boise, Idaho 83720
(208) 334-7900
Certified Mail
July 31, 1988

138225

INTERMOUNTAIN GAS CO.
555 S. COLE RD.
BOISE, ID 837050000

PROOF DUE NOTICE

RE: PERMIT NO. 63-10523

Dear Permit Holder:

One of the conditions of approval of the above referenced water permit was that proof of the extent of your beneficial use must be submitted to this office on or before October 1, 1988. (See last page of your approved permit or your last approved extension request.) Enclosed is a form which when accompanied by the license examination fee or a complete field examination report prepared by a certified water right examiner may be used to submit the required proof.

If you have not fully completed your project, and you or a previous owner of this permit have not received a prior extension of time, you may request an extension of time if the delay is for reasonable cause as provided in Section 42-204, Idaho Code. If you have been prevented from proceeding by a governmental agency or by litigation which might bring title to the water in question, more than one extension of time can be granted. An extension of time request form is enclosed for your convenience.

Either an acceptable proof of beneficial use submittal or an acceptable request for an extension of time must be received by this department on or before the above described proof due date. If neither is received, the department will send you a lapse notice. Within sixty (60) days of the mailing of the lapse notice, the permit will no longer be of any force nor effect.

SINCERELY,

Rita Fleck
Secretary/Records Manager

Enclosures



DEC 6 1988

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources **OCT 26 1987**
within 30 days after the completion or abandonment of the well.

WELL OWNER

Name Intermountain Gas Co.
555 So. Cole Road
Address Boise, ID 83709
Owner's Permit No. 63-10523
63-87-2-20

NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

PROPOSED USE

☐ Domestic ☐ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☒ Other Fire Protection (specify type)

METHOD DRILLED

☐ Rotary ☐ Air ☐ Hydraulic ☒ Reverse rotary
☐ Cable ☐ Dug ☐ Other

WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other

Thickness	Diameter	From	To
.375 inches	24"	0 feet	25 feet
.375 inches	18"	+18"	132 feet
.375 inches	18"	157 feet	195 feet
.375 inches	18"	205 feet	230 feet

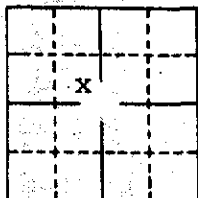
Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☒ Yes ☐ No
Manufacturer's name Roscoe Moss
Type Stainless Steel Model No. _____
Diameter 18" Slot size .040 Set from 132 feet to 157 feet
Diameter 18" Slot size .040 Set from 195 feet to 205 feet
Gravel packed? ☒ Yes ☐ No ☐ Size of gravel 3/8 Minus
Placed from 125' feet to 312' feet
Surface seal depth 125' Material used in seal: ☒ Cement grout
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing
☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld
☐ Cemented between strata
Describe access port 2"

LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County Ada
SW 1/4 NW 1/4 Sec. 31 T. 4N N/S, R. 1W E/W.

7. WATER LEVEL

Department of Water Resources

Static water level 8' feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other

Discharge G.P.M.	Pumping Level	Hours Pumped
3002	85' 1"	5

9. LITHOLOGIC LOG

Bore Diam.	Depth		Material	Water	
	From	To		Yes	No
28"	0	8	Silty Clay		
	8	40	Sand, Gravel & Rock	x	
	40	57	Brown Clay		
	57	60	Fine to coarse gray sand	x	
	60	71	Brown Clay		
	71	85	Fine to coarse gray sand	x	
	85	93	Brown Clay		
	93	101	Fine to medium sand	x	
	101	104	Brown Clay		
	104	111	Sand & Clay-Variied Mix		
	111	132	Brown Clay		
	132	168	Fine Medium Gray Sand	xx	
	168	193	Brown Clay		
	193	207	Fine to coarse gray sand	x	
	207	221	Brown Clay		
	221	222	Sand and some clay		
	222	227	Brown Clay		
	227	244	Fine to med. gray sand	xx	
	244	253	Fine to coarse gray and brown sand.	xx	
	253	267	Brown Clay		
	267	286	Fine to medium sand	x	
	286	288	Brown Clay		
	288	294	Fine brown to blue sand	x	
	294	302	Fine Blue Sand	x	
	302	304	Blue Clay		
	304	305	Blue Sand	x	
	305	312	Blue Clay		

RECEIVED
OCT 16 1987

Department of Water Resources
Western Regional Office

10.

Work started 9/21/87 finished 9/29/87

11. DRILLERS CERTIFICATION

We certify that all minimum well construction standards were complied with at the time the rig was removed.
Pete Cope Drilling Co., Inc.
Firm Name _____ Firm No. 213
6505 West Chinden Blvd.
Address Meridian, ID 83642 Date 9/30/87
Signed by (Firm Official) Pete Cope
and
(Operator) Frank Chastain

WELL DRILLER'S REPORT

OCT 26 1987

Owner's Permit No. 63-10523
63-87-2-20

(Operator)

RECORDED

JUL 29 1987

State of Idaho
Department of Water Resources

DRILLING PERMIT

Department of Water Resources

(Authorizing Construction of a Well)*

1. Applicant Intermountain Gas Co.

2. Address 555 S. Cole Road

Boise, Idaho 83709

(X) Well Owner (X) Well Operator () Other, specify _____

3. Water right ^{application} permit no. 63-10523; Injection well permit no. _____

4. Proposed well location NE 1/4 SW 1/4 NW 1/4, or Gov't lot No. _____,

Sec. 31, Twp. 4N, Rge. 1 W, County Ada,

Lot, block and subdivision _____

5. Proposed use of well: (Check all that apply)

() Domestic () Stockwater () Monitoring

() Irrigation () Industrial () Municipal

() Injection (X) Other, Specify Fire

6. Well construction information:

(X) New well () Deepen () Replace

Proposed surface diameter 12 Proposed depth 300

Anticipated bottom hole temperature:

(X) 85°F or less (Cold water well)
() 85°F to 212°F (Low temp. geothermal well)
() 212°F or more (Geothermal well)

7. Anticipated construction start date Sept. 1

8. Well Driller (if known) will be bid

Address _____

X Date 7/29/87 Applicant's signature [Signature]

Title mgr. measurement control

DEC 02 1988

ACTION OF IDWR

☒ Approved () Denied

The approval of this permit authorizes the construction of a well as described on this application subject to the conditions on this permit.

GENERAL CONDITIONS:

1. The well must be constructed in compliance with the applicable statutes, specific conditions of approval shown on the water right permit, injection well permit, transfer or amendment and the rules and regulations of the Department for water appropriation, injection wells and well construction standards.
2. This drilling permit is valid for two (2) months from its date of issuance for the start of construction and is valid for one (1) year from the date of issuance for completion of the well unless an extension has been granted.
3. The permit holder or his representative shall notify the Department ten (10) days prior to the start of construction unless good cause for later notification can be shown.
4. The well shall be constructed by a driller currently licensed in the State of Idaho who must maintain a copy of the drilling permit at the drilling site.
5. Issuance of this drilling permit does not authorize trespass on the land of another party.
6. This permit does not constitute other local, county, state or federal approvals which may be required for construction of a well.

SPECIFIC CONDITIONS:

Approval of this drilling permit does not authorize the diversion or use of the water of the State of Idaho prior to the applicant obtaining a permit to appropriate water.

The well proposed under this drilling permit must be constructed by a licensed Idaho well driller.

The drilling permit holder must identify the well driller in writing to the Department of Water Resources prior to commencing construction of the well.

Dated this 3rd day of August, 1987.

Signed

Gary Spackman

Title

Water Allocation Section Supervisor

no fee rec'd when this was submitted w/app.

Received by acw Fee \$100.00 Date 7/31/87 #44128 *kw*

Receipt No. _____ Construction start date 7/29/87

Construction start extension to DEC 02 1988

Extension approved by _____

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

STATEHOUSE
BOISE, IDAHO 83720
(208) 334-4440
OCTOBER 02, 1987

INTERMOUNTAIN GAS CO.
555 S. COLE RD.
BOISE, ID 83705

PERMIT APPROVAL NOTICE

RE: PERMIT NO. 63-10523

DEAR PERMIT HOLDER:

ENCLOSED IS A COPY OF YOUR APPROVED APPLICATION FOR PERMIT. WE DIRECT YOUR ATTENTION TO THE CONDITIONS OF APPROVAL ON THE FOURTH PAGE.

BE SURE TO NOTE THE SPECIAL CONDITION REQUIRING YOU TO INSTALL A MEASURING DEVICE, OR A FLOW MEASUREMENT PORT TO PROVIDE FOR THE INSTALLATION OF MEASURING EQUIPMENT BY THE DEPARTMENT. ENCLOSED PLEASE FIND A LIST OF MEASURING DEVICE OPTIONS, AND SPECIFICATIONS FOR THE INSTALLATION OF THE FLOW MEASUREMENT PORT.

YOU SHOULD BE AWARE THAT THE GROUNDWATER YOU PROPOSE TO DIVERT IS LOCATED WITHIN A DRAINAGE BASIN WHERE SURFACE WATERS ARE REGULATED DURING THE MONTHS OF LOW FLOW. IT IS POSSIBLE THAT DIVERSION OF GROUNDWATER MAY HAVE AN ADVERSE IMPACT ON THESE SURFACE WATER FLOWS. INFORMATION AVAILABLE TO US AT THIS TIME DOES NOT WARRANT REFUSING TO ISSUE PERMITS IN YOUR AREA, BUT WE DO CAUTION THAT DIVERSIONS OF GROUNDWATER ARE NOT ALLOWED TO DEplete FLOWS AVAILABLE FOR SURFACE WATER USERS WITH EARLIER PRIORITY DATES. SITING YOUR WELL AS FAR FROM SURFACE SOURCES AS POSSIBLE AND CASING OUT UPPER WATER PRODUCING ZONES MAY REDUCE THE POTENTIAL OF INTERFERENCE.

WE HAVE ENCLOSED A FORM ENTITLED "INSTRUCTIONS FOR PROOF OF BENEFICIAL USE". PLEASE READ THE INSTRUCTIONS CAREFULLY SINCE YOU MUST TAKE FURTHER ACTION TO DEVELOP THIS PERMIT. ALSO ENCLOSED FOR YOUR CONVENIENCE IS THE STATEMENT OF BENEFICIAL USE FORM THAT MUST BE SUBMITTED WHEN YOUR PROJECT IS COMPLETED.

SINCERELY,

GARY SPACKMAN
SUPERVISOR, WATER ALLOCATION SECTION

GS: SC
ENCLOSURES

RECORDED

OCT 13 1987

State of Idaho
Department of Water Resources

DRILLING PERMIT

(Authorizing Construction of a Well)*

Department of Water Resources

COPY

JUL 29 1987

1. Applicant Intermountain Gas Co.

2. Address 555 S. Cole Road

Boise, Idaho 83709

(X) Well Owner (X) Well Operator () Other, specify _____

3. Water right ^{application} permit no. 63-10523; Injection well permit no. _____

4. Proposed well location NE 1/4 SW 1/4 NW 1/4, or Gov't lot No. _____,

Sec. 31, Twp. 4N, Rge. 1 W, County Ada,

Lot, block and subdivision _____

5. Proposed use of well: (Check all that apply)

() Domestic () Stockwater () Monitoring

() Irrigation () Industrial () Municipal

() Injection (X) Other, Specify Fire

6. Well construction information:

(X) New well () Deepen () Replace

Proposed surface diameter 12 Proposed depth 300

Anticipated bottom hole temperature:

(X) 85°F or less (Cold water well)
() 85°F to 212°F (Low temp. geothermal well)
() 212°F or more (Geothermal well)

RECORDED

7. Anticipated construction start date Sept. 1 OCT 13 1987

8. Well Driller (if known) will be bid

Address _____

X Date 7/29/87 Applicant's signature [Signature]

Title Mgr. Measurement Control

ACTION OF IDWR

☒ Approved☐ Denied

The approval of this permit authorizes the construction of a well as described on this application subject to the conditions on this permit.

GENERAL CONDITIONS:

1. The well must be constructed in compliance with the applicable statutes, specific conditions of approval shown on the water right permit, injection well permit, transfer or amendment and the rules and regulations of the Department for water appropriation, injection wells and well construction standards.
2. This drilling permit is valid for two (2) months from its date of issuance for the start of construction and is valid for one (1) year from the date of issuance for completion of the well unless an extension has been granted.
3. The permit holder or his representative shall notify the Department ten (10) days prior to the start of construction unless good cause for later notification can be shown.
4. The well shall be constructed by a driller currently licensed in the State of Idaho who must maintain a copy of the drilling permit at the drilling site.
5. Issuance of this drilling permit does not authorize trespass on the land of another party.
6. This permit does not constitute other local, county, state or federal approvals which may be required for construction of a well.

SPECIFIC CONDITIONS:

Approval of this drilling permit does not authorize the diversion or use of the water of the State of Idaho prior to the applicant obtaining a permit to appropriate water.

The well proposed under this drilling permit must be constructed by a licensed Idaho well driller.

The drilling permit holder must identify the well driller in writing to the Department of Water Resources prior to commencing construction of the well.

Dated this 3rd day of August, 1987.

Signed

Bary Spalkman

Title

Water Allocation Section Supervisor

Received by

acwFee 100.00

Date

7-31-87#44128

kw

Receipt No. _____

Construction start date

RECORDED7/29/87

Construction start extension to _____

051 11 1987

Extension approved by _____

MENT BEFORE DEPOSITING

INTERMOUNTAIN GAS COMPANY, BOISE, IDAHO

DATE	INVOICE NO.	DESCRIPTION	AMOUNT	DISCOUNT OR DEDUCTION	NET AMOUNT
7-31-87		Permit fee to drill well at LNG Plant	\$100.00		\$100.00

FILED

OCT 13 1987

State of Idaho
Department of Water Resources

APPLICATION FOR PERMIT ANALYSIS SHEET

INITIAL REVIEW BY: Jim Jan

APPLICATION NUMBER: 63-10523

CHECK:

- ☒ Source.
☐ Point of diversion.
☒ County.
☒ Description of diverting works.
☒ Time required for beneficial use of water.
☒ Place of use or acres irrigated.
☒ Map.
☒ Signature.
☒ Fee.

Field check by: _____

Date: _____

Comments: _____

- ☐ Yes ☒ No Field check required.
☐ Yes ☒ No Critical groundwater area.
☐ Yes ☒ No Request dam safety information. Sent by: _____ Date: _____
☒ Yes ☐ No* In form to receipt.

*REQUEST THE FOLLOWING ADDITIONAL INFORMATION FROM THE APPLICANT: _____

Well drilling permit filed & approved by
State Office - See Jim Johnson for details.

SEND COPIES TO:

- ☒ Idaho State Health Department.
☐ Idaho Fish and Game Department.
☐ Idaho Department of Lands.
☐ U.S. Bureau of Land Management.
☐ U.S. Forest Service.
☐ Other _____

Copies sent by: _____ Date: _____

PROCESSING:

- ☐ Yes ☒ No Platted by: _____ Map No. _____
☐ Yes ☒ No Other rights on same place of use. _____

- ☒ Yes ☐ No* In form for advertising.
Final date for protests: September 9, 1987
☐ Yes ☒ No Protests received. If yes, record information on 4th page of application.

FINAL REGIONAL PROCESSING REVIEW:

- ☒ Affidavit of publication received. Date: August 31, 1987
☒ Application published correctly. If not, record action taken: _____
☒ Fee amount, receipt date & number, recorded on application. 105/44118
☒ Publication dates and paper, recorded on application. ID STATESMAN 8/20 & 8/27/87
☒ Protests, dates, withdrawal, etc., recorded on application.
☒ Recommendation & initial, recorded on application.
☐ Yes ☒ No Measuring device required.
☒ Yes ☒ No Access port required.
☐ Yes ☒ No Will water be delivered by watermaster? If yes, what district? 63
☒ 7/29/1987 Date of priority recommended.
Special conditions of approval or cover letter. _____

MICROFILMED

OCT 13 1987

By: DW Date: 9/16/87

STATE OFFICE REVIEW:

105-103-116

OIG

drilling permit has been obtained

RECEIVED
SEP 23 1987

- ☐ See attached sheet for more information.

By: kw Date: 9/24/87 Department of Water Resources

63-10523

INTERMOUNTAIN GAS CO.

555 S. COLE RD., BOISE, ID 83705

Source: GROUNDWATER

Diversion Pt: LOT 02 (NESWNW) Sec 31 T 04N R 01W

Use: FIRE PROTECTION (3.5 CFS)

Date Filed: 07/29/1987

In: LOT 02 (SWNW) SENW Sec 31 T 04N R 01W

MICROFILMED

OCT 13 1987

CONTRACT DOCUMENTS

FOR THE CONSTRUCTION OF

FIRE PROTECTION WELL NO. 2

FOR

INTERMOUNTAIN GAS CO.

BOISE, IDAHO

For information regarding this project contact:

LARRY FETTKETHER
BOISE, IDAHO
(208) 345-5310



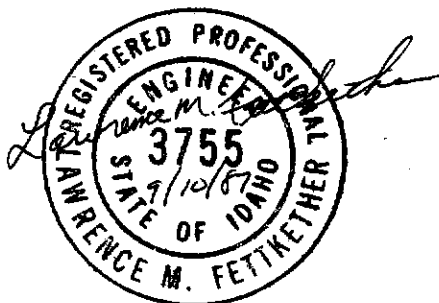
SEPTEMBER 1987

INTERMOUNTAIN GAS COMPANY

BOISE, IDAHO

CONTRACT DOCUMENTS
for the construction of the
FIRE PROTECTION WELL NO. 2

CONSISTING OF:
BIDDING REQUIREMENTS
CONTRACT FORMS
CONDITIONS OF THE CONTRACT
SPECIFICATIONS
DRAWINGS



CH2M HILL

Boise, Idaho

September, 1987

Copyright 1987 CH2M HILL

Project No. B20453.A1

Copy No. _____

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* * * * *

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02590 Well Capping.....	1- 1

DIVISIONS 3 THRU 16 - NOT USED

PART 5 - DRAWINGS

* * * * *

PART 1

BIDDING REQUIREMENTS

INVITATION TO BID

Sealed Proposals for the construction of Fire Protection Well No. 2, addressed to Intermountain Gas Company (Owner herein), will be received at 555 South Cole Road, Boise, Idaho, 83705, until 3:00 p.m., local time, on the 16th day of September, 1987, and then will be opened and read. Any bids received after the time and date specified will not be considered. Only bids from contractors invited to bid will be considered.

The project contemplated consists of an 18-inch diameter water well approximately 300 feet deep.

Drawings and Specifications may be examined in the office of Intermountain Gas Company, or at the office of the Engineer, CH2M HILL, 700 Clearwater Lane, Boise, Idaho. A copy of the Documents may be obtained at the Engineer's office upon payment of \$25 for each Document. The amount paid for the Documents will be refunded if the Documents are returned in good condition within 10 days after bid opening.

Each Bid must be submitted on the prescribed form and accompanied by bid security executed on the prescribed form, payable to Intermountain Gas Company, Boise, Idaho, in an amount not less than 5 percent of the amount bid.

The successful Bidder will be required to furnish the necessary additional bond(s) for the faithful performance of the Contract, as prescribed in the Contract Documents.

Contractors shall be required to have an Idaho State well drillers license.

Before a Contract will be awarded for the work contemplated herein, the Owner will conduct such investigation as is necessary to determine the performance record and ability of the apparent low Bidder to perform the size and type of work specified under this Contract. Upon request, the Bidder shall submit such information as deemed necessary by the Owner to evaluate the Bidder's qualifications.

The right is reserved to reject all Bids or any Bid not conforming to the intent and purpose of the Contract Documents, and to postpone the award of the Contract for a period of time which, however, shall not extend beyond 45 days from the bid opening date.

The Owner's intention is to have the well construction as complete as possible, with the exception of the testing, by September 30, 1987. The drilling should be done by this date, and the casing and gravel packing also, if at all possible.

Dated this 9th day of September, 1987.

INTERMOUNTAIN GAS COMPANY
555 South Cole Road
Boise, Idaho

By _____

* * * * *

INSTRUCTIONS TO BIDDERS

1. CONTRACT DOCUMENTS

A. FORMAT

The Contract Documents are divided into parts, divisions, and sections for convenient organization and reference. Generally, there has been no attempt to divide the Specification sections into work performed by the various building trades, work by separate subcontractors, or work required for separate facilities in the project.

B. DOCUMENT INTERPRETATION

The separate sections contained within these Contract Documents are intended to be mutually cooperative and to provide all details reasonably required for the execution of the proposed work.

Should there be any doubt as to the meaning or intent of said Contract Documents, the Bidder should request of the Engineer, in writing (at least 6 working days prior to bid opening) an interpretation thereof. Any interpretation or change in said Contract Documents will be made only in writing, in the form of Addenda to the Documents which will be furnished to all registered holders of Contract Documents. Bidders shall submit with their Proposals, or indicate receipt of, all Addenda. The Owner will not be responsible for any other explanation or interpretations of said Documents.

2. GENERAL DESCRIPTION OF THE PROJECT

A general description of the work to be done is contained in the Invitation to Bid. The scope is indicated on the accompanying Drawings and specified in applicable parts of these Contract Documents.

3. LICENSE REQUIREMENTS FOR CONTRACTORS

Contractors must have an Idaho State well drillers license to bid on and perform the work under this Contract.

4. BIDDER'S UNDERSTANDING

Each Bidder must inform himself of the conditions relating to the execution of the work, and it is assumed that he will inspect the site and make himself thoroughly familiar with all the Contract Documents. Failure to do so will not relieve the successful Bidder of his obligation to enter into a Contract and

complete the contemplated work in strict accordance with the Contract Documents. It shall be the Bidder's obligation to verify for himself and to his complete satisfaction all information concerning site and subsurface conditions.

The Owner will make available to prospective Bidders upon request and at the office of the Engineer, prior to bid opening, any information that he may have as to subsurface conditions and surface topography at the worksite. Investigations conducted by the Engineer of subsurface conditions were made for the purpose of study and design, and neither the Owner nor the Engineer assumes any responsibility whatever in respect to the sufficiency or accuracy of borings, or of the logs of test borings, or of other investigations that have been made, or of the interpretations made thereof, and there is no warranty or guarantee, either expressed or implied, that the conditions indicated by such investigations are representative of those existing throughout such area, or any part thereof, or that unforeseen developments may not occur.

Logs of test borings, geotechnical reports, or topographic maps showing a record of the data obtained by the Engineer's investigations of surface and subsurface conditions that are made available shall not be considered a part of the Contract Documents, said logs representing only the opinion of the Engineer as to the character of the materials encountered by him in his investigations, and are available only for the convenience of the Bidders.

Information derived from inspection of logs of test borings, or pits, geotechnical reports, topographic maps, or from Drawings showing location of utilities and structures will not in any way relieve the Contractor from any risk, or from properly examining the site and making such additional investigations as he may elect, or from properly fulfilling all the terms of the Contract Documents.

Each Bidder shall inform himself of, and the Bidder awarded a Contract shall comply with, federal, state, and local laws, statutes, and ordinances relative to the execution of the work. This requirement includes, but is not limited to, applicable regulations concerning minimum wage rates, nondiscrimination in the employment of labor, protection of public and employee safety and health, environmental protection, the protection of natural resources, fire protection, burning and nonburning requirements, permits, fees, and similar subjects.

5. TYPE OF PROPOSAL

A. COMBINED UNIT PRICE-LUMP SUM

The Proposal for the work is to be submitted on a combined unit price-lump sum basis. Unit price or lump sum price amounts shall be submitted on all items of work set forth in the Proposal. All items required to complete the work specified or shown on the Drawings but not included in the Proposal shall be considered incidental to those set forth in the Proposal. The estimate of quantities of unit price work to be done is tabulated in the Proposal and, although stated with as much accuracy as possible, is approximate only and is assumed solely for the basis of calculation upon which the award of Contract shall be made. Payment to the Contractor will be made on the measurement of work actually performed by the Contractor as specified in the Contract Documents. The total amount to be paid the Contractor for the lump sum work shall be the amount of the lump sum bid as adjusted for additions or deletions resulting from Owner-authorized changes in the project.

6. PREPARATION OF PROPOSALS

A. GENERAL

All blank spaces in the Proposal form must be filled in, as required, preferably in BLACK ink. All price information shall be shown in both words and figures where required. No changes shall be made in the phraseology of the forms. Written amounts shall govern in case of discrepancy between the amounts stated in writing and the amounts stated in figures. In case of discrepancy between unit prices and extended totals, unit prices shall prevail.

Any Proposal shall be deemed informal which contains omissions, erasures, alterations, or additions of any kind, or prices uncalled for, or in which any of the prices are obviously unbalanced, or which in any manner shall fail to conform to the conditions of the published Invitation to Bid.

B. SIGNATURE

The Bidder shall sign his Proposal in the blank space provided therefor. If Bidder is a corporation, the legal name of the corporation shall be set forth above, together with the signature of the officer or officers authorized to sign Contracts on behalf of the corporation. If Bidder is a partnership, the true name of the firm shall be set forth above, together with the signature of the partner or partners authorized to sign Contracts in behalf of the partnership. If signature is by an agent, other than an officer of a corporation or a member of a partnership, a notarized power-of-attorney must be on file with the Owner prior to opening of Proposals or submitted with the

Proposal, otherwise the Proposal will be regarded as not properly authorized.

C. ATTACHMENTS

Bidder shall complete and submit the following forms with his bid:

Bid Security
Bidder's Experience
Bidder's Affidavit

7. CHANGES IN QUANTITIES

The Owner reserves the right to increase or decrease the amount of any class of unit price work item shown in the Proposal that may be deemed necessary, except that such increases or decreases in amounts shall not be more than 25 percent of the quantities shown on the Drawings and Specifications without a Change Order.

8. STATE AND LOCAL SALES AND USE TAXES

State and local sales and use taxes, as required by the laws and statutes of the state and its political subdivisions, shall be paid by the Contractor. Prices quoted in the Proposal shall include sales and use taxes, unless provision is made in the Proposal form to separately itemize the taxes.

9. SUBMISSION OF PROPOSALS

All Proposals must be submitted not later than the time prescribed, at the place, and in the manner set forth in the Invitation to Bid. Proposals must be made on the Proposal forms provided herewith, and submitted intact with the volume containing the Bidding Requirements, Contract Forms, and Conditions of the Contract.

Each Proposal must be submitted in a sealed envelope, so marked as to indicate the Bidder's name and its contents without being opened, and addressed in conformance with the instructions in the Invitation to Bid.

10. MODIFICATION OR WITHDRAWAL OF PROPOSALS

Prior to the time and date designated for receipt of Proposals, any Proposal submitted may be modified or withdrawn by notice to the party receiving Proposals at the place designated for receipt of Proposals. Such notice shall be in writing over the signature of the Bidder or by telegram. If by telegram, written confirmation over the signature of the Bidder shall be mailed and postmarked on or before the date and time set for receipt of Proposals, and it shall be so worded as not to reveal the amount

of the original Proposal. No Proposal may be withdrawn after the time scheduled for opening of Proposals, unless the time specified in paragraph AWARD OF CONTRACT of these Instructions to Bidders shall have elapsed.

11. BID SECURITY

Proposals must be accompanied by cash, a certified check, or cashier's check drawn on a bank in good standing, or a Bid Bond issued by a Surety authorized to issue such bonds in the state where the work is located, or suitable substitute in accordance with the Idaho Code and having provisions acceptable to the Owner for cashing in the substitute on demand, in an amount not less than 5 percent of the total amount of the Proposal submitted. This bid security shall be given as a guarantee that the Bidder will not withdraw his Proposal for a period of 60 days after bid opening, and that if awarded the Contract, the successful Bidder will execute the attached Contract and furnish a properly executed Performance and Payment Bond as hereinafter specified.

The Attorney-in-Fact who executes this bond in behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond. Where State Statute requires, certification by a resident agent shall also be provided.

If the Bidder elects to furnish a Bid Bond, he shall use the Bid Bond form bound herewith, or one conforming substantially thereto in form and content.

12. RETURN OF BID SECURITY

Within 15 days after the award of the Contract, the Owner will return the bid securities to all Bidders whose Proposals are not to be further considered in awarding the Contract. Retained bid securities will be held until the Contract has been finally executed, after which all Bid securities, other than Bidders' bonds and any guarantees which have been forfeited, will be returned to the respective Bidders whose Proposals they accompanied.

13. AWARD OF CONTRACT

Within 45 calendar days after the opening of Proposals, the Owner will accept one of the Proposals or will act in accordance with the following paragraphs. The acceptance of the Proposal will be by written notice of award, mailed to the office designated in the Proposal, or delivered to the Bidder's representative.

The Owner reserves the right to accept or reject any or all Proposals, and to waive any informalities and irregularities in said Proposals.

14. BASIS OF AWARD

The award will be made by the Owner on the basis of that Proposal from the responsive, responsible Bidder which, in the Owner's sole and absolute judgment, will best serve the interest of the Owner.

15. EXECUTION OF CONTRACT

The successful Bidder shall, within 5 working days after receiving notice of award, sign and deliver to the Owner a Contract in the form hereto attached together with the acceptable bonds and insurance certificates as required in these Documents. Within 10 working days after receiving the signed Contract with acceptable bonds from the successful Bidder, the Owner's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract.

16. CONTRACT BONDS

A. PERFORMANCE AND PAYMENT BONDS

The successful Bidder shall file with the Owner, a Performance Bond and Payment Bond on the forms bound herewith each in the full amount of the Contract based on the estimated quantities listed in the Proposal, or suitable substitute in accordance with the Idaho Code and having provisions acceptable to the Owner for cashing in the substitute on demand, as security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the construction of the work, and to cover all guarantees against defective workmanship or materials, or both, during the warranty period following the date of the final acceptance of the work by the Owner. The Surety furnishing these bonds shall have a sound financial standing, have a record of service satisfactory to the Owner, and shall be authorized to do business in the state.

B. POWER-OF-ATTORNEY

The Attorney-in-Fact (Resident Agent) who executes the Performance Bond and Payment Bond in behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bonds.

17. FAILURE TO EXECUTE CONTRACT AND FURNISH BOND

The Bidder who has a Contract awarded to him and who fails to promptly and properly execute the Contract or furnish the required Bonds shall forfeit the bid security that accompanied his bid, and the bid security shall be retained as liquidated damages by the Owner, and it is agreed that this said sum is a fair estimate of the amount of damages the Owner will sustain in case the Bidder fails to enter into a Contract or furnish the required Bonds. Bid security deposited in the form of cash, a certified check, or cashier's check shall be subject to the same requirement as a Bid Bond.

18. TIME OF COMPLETION

The time of completion of the work to be performed under this Contract is the essence of the Contract. Delays and extensions of time may only be allowed in accordance with the provisions stated in the General Conditions. The time allowed for the completion of the work is stated in the Proposal.

* * * * *

NOTE TO BIDDER: Use preferably BLACK ink for completing this Proposal form.

PROPOSAL

To: Intermountain Gas Company (Owner herein)

Address: 555 South Cole Road, Boise, Idaho

Project Title: Fire Protection Well No. 2

Project No.: 2117

Bidder's person to contact for additional information on this Proposal:

Name: _____

Telephone: _____

BIDDER'S DECLARATION AND UNDERSTANDING

The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this Proposal are those named herein, that this Proposal is, in all respects, fair and without fraud, that it is made without collusion with any official of the Owner, and that the Proposal is made without any connection or collusion with any person submitting another Proposal on this Contract.

The Bidder further agrees that he has exercised his own judgment regarding the interpretation of subsurface information and has utilized all data which he believes pertinent from the Engineer, Owner, and other sources in arriving at his conclusions.

CONTRACT EXECUTION AND BONDS

The Bidder agrees that if this Proposal is accepted, he will, within 5 working days after receiving notice of award, sign the Contract in the form annexed hereto, and will at that time, deliver to the Owner the Performance Bond and Payment Bond required herein, and will, to the extent of his Proposal, furnish all machinery, tools, apparatus, and other means of construction and do the work and furnish all the materials necessary to complete all work as specified or indicated in the Contract Documents.

CERTIFICATES OF INSURANCE

Bidder agrees to furnish the Owner, before commencing the work under this Contract, the certificates of insurance as specified in these Documents.

Bidder further agrees that the unit and lump sum prices stated herein include specific consideration for the insurance coverages, including contractual liability, specified in the Contract Documents.

START OF CONSTRUCTION AND CONTRACT COMPLETION TIME

The Bidder further agrees to begin work within 5 working days after the date of the Notice to Proceed and to complete the construction, in all respects, within 30 working days after the date of the Notice to Proceed. Pump testing will not be begun before October 5, 1987.

LIQUIDATED DAMAGES

In the event the Bidder is awarded the Contract and shall fail to complete the work within the time limit or extended time limit agreed upon, as more particularly set forth in the Contract Documents, liquidated damages shall be paid to the Owner at the rate of \$250 per day for all work awarded under this contract until the work shall have been satisfactorily completed as provided by the Contract Documents.

ADDENDA

The Bidder hereby acknowledges that he has received Addenda No's.

(Bidder shall insert No. of each Addendum received) and agrees that all addenda issued are hereby made part of the Contract Documents, and the Bidder further agrees that his Proposal(s) includes all impacts resulting from said addenda.

SALES AND USE TAXES

The Bidder agrees that all sales and use taxes are included in the stated bid prices for the work, unless provision is made herein for the Bidder to separately itemize the estimated amount of sales tax.

LUMP SUM OR UNIT PRICE WORK

The Bidder further proposes to accept as full payment for the work proposed herein the amounts computed under the provisions of the Contract Documents and based on the following lump sum or unit price amounts, it being expressly understood that the unit prices are independent of the exact quantities involved. The Bidder agrees that the unit prices represent a true measure of the labor and materials required to perform the work, including all allowances for

overhead and profit for each type and unit of work called for in these Contract Documents. The amounts shall be shown in both words and figures. In case of a discrepancy, the amount shown in words shall govern.

UNIT PRICE OR LUMP SUM BID
FIRE PROTECTION WELL NO. 2

<u>Item</u>	<u>Quan.</u>	<u>Unit</u>	<u>UP (Fig)</u>	<u>Unit Price (Words)</u>	<u>Ext.Total Amt.</u>
-------------	--------------	-------------	-----------------	---------------------------	-----------------------

02015 MOVE IN AND SITE PREPARATION

	1	LS	\$ _____		\$ _____
--	---	----	----------	--	----------

02581 DRILLING

24-Inch Hole

	300	LF	\$ _____		\$ _____
--	-----	----	----------	--	----------

02583 CASING

Furnish, Install, and Withdraw
24-Inch Outer Casing

	300	LF	\$ _____		\$ _____
--	-----	----	----------	--	----------

18-Inch Casing and Tail Pipe

	227	LF	\$ _____		\$ _____
--	-----	----	----------	--	----------

02584 GROUT SEAL

	50	LF	\$ _____		\$ _____
--	----	----	----------	--	----------

02585 WELL SCREEN ASSEMBLY

Furnish and Install 18-inch Pipe Size Screen

	75	LF	\$ _____		\$ _____
--	----	----	----------	--	----------

Screen Fittings

	3	SETS	\$ _____		\$ _____
--	---	------	----------	--	----------

02586 GRAVEL PACK

Gravel Pack Material

	125	LF	\$ _____		\$ _____
--	-----	----	----------	--	----------

Bentonite Seal

125 LF \$ _____ \$ _____

02587 WELL DEVELOPMENT

24 HRS \$ _____ \$ _____

02588 PUMPING TEST

Furnish, Install, and Remove Pump

1 LS \$ _____ \$ _____

Pump Test

24 HRS \$ _____ \$ _____

02590 WELL CAPPING

1 LS \$ _____ \$ _____

SUM OF EXTENDED TOTALS \$ _____

BIDDER

The name of the Bidder submitting this Proposal is _____

_____ doing business at

_____ ' _____ ' _____ Zip

which is the address to which all communications concerned with this Proposal and with the Contract shall be sent.

The names of the principal officers of the corporation submitting this Proposal, or of the partnership, or of all persons interested in this Proposal as principals are as follows:

If Sole Proprietor or Partnership

IN WITNESS hereto the undersigned has set his (its) hand this _____
day of _____, 19__.

Signature of Bidder

Title

If Corporation

IN WITNESS WHEREOF the undersigned corporation has caused this
instrument to be executed and its seal affixed by its duly
authorized officers this _____ day of _____, 19__.

(SEAL)

Name of Corporation

By _____

Title _____

Attest _____

Secretary

* * * * *

IDAHO BID BOND

BOND NO. _____

AMOUNT: \$ _____

KNOW ALL MEN BY THESE PRESENTS, that _____

hereinafter called the PRINCIPAL, and _____

a corporation duly organized under the laws of the State of _____,

having its principal place of business at _____

_____ in the State of _____
and authorized to do business in the State of Idaho, as SURETY,

are held and firmly bound unto _____

hereinafter called the OBLIGEE, in the sum of _____

_____ DOLLARS (\$ _____),
for the payment of which we bind ourselves, our heirs, executors,
administrators, successors, and assigns, jointly and severally,
firmly by these presents.

THE CONDITION OF THIS BOND IS SUCH THAT:

WHEREAS, the PRINCIPAL is herewith submitting his or its Bid
Proposal for __________ said Bid Proposal, by reference thereto, being hereby made a part
hereof.NOW, THEREFORE, if the Bid Proposal submitted by the PRINCIPAL is
accepted, and the Contract awarded to the PRINCIPAL, and if the
PRINCIPAL shall execute the proposed Contract and shall furnish such
Performance and Payment Bond as required by the Contract Documents
within the time fixed by the Documents, then this obligation shall
be void; otherwise to remain in full force and effect.

Signed and sealed this _____ day of _____, 19__

PRINCIPAL

By _____

SURETY

By _____
Attorney-In-Fact

* * * * *

PART 2

CONTRACT FORMS

CONTRACT

This Contract, made and entered into this _____ day of _____ 19____, by and between Intermountain Gas Company hereinafter called the "Owner", and

of _____,
hereinafter called the "Contractor";

WITNESSETH:

The Contractor, in consideration of the sum to be paid him by the Owner and of the covenants and agreements herein contained, hereby agrees at his own proper cost and expense to do all the work and furnish all the materials, tools, labor, and all appliances, machinery, and appurtenances for construction of the Fire Protection Well No. 2 to the extent of the Proposal made by the Contractor,

dated the _____ day of _____, 19____, all in full compliance with the Contract Documents referred to herein.

The BIDDING REQUIREMENTS, including the signed copy of the Proposal, the CONTRACT FORMS, the CONDITIONS OF THE CONTRACT, the SPECIFICATIONS, and the DRAWINGS, which consist of 1 sheet entitled "Fire Protection Well No. 2", dated September, 1987, are hereby referred to and by reference made a part of this Contract as fully and completely as if the same were fully set forth herein and are mutually complementary therewith.

In consideration of the performance of the work as set forth in these Contract Documents, the Owner agrees to pay to the Contractor the amount bid in the Proposal as adjusted in accordance with the Contract Documents, or as otherwise herein provided, and to make such payments in the manner and at the times provided in the Contract Documents.

The Contractor agrees to complete the work within the time specified herein and to accept as full payment hereunder the amounts computed as determined by the Contract Documents and based on the said Proposal.

The Contractor agrees to remedy all defects appearing in the work or developing in the materials furnished and the workmanship performed under this Contract during the warranty period after the date of final acceptance of the work by the Owner, and further agrees to indemnify and save the Owner harmless from any costs encountered in remedying such defects.

It is agreed that the Contract, based upon the Proposal, shall be fully complete within 30 consecutive calendar days from the date the Notice to Proceed is issued.

In the event that the Contractor shall fail to complete the work within the time limit or the extended time limit agreed upon, as more particularly set forth in the Contract Documents, liquidated damages shall be paid at the rate of \$250 per day. Sundays and legal holidays shall be included in determining days in default.

The address of each party to this Contract for all purposes shall be the address set forth on the pages of this Contract, or such other address which the other party has received written notice. Any notice, demand or request required or permitted to be given or made hereunder shall be in writing and shall be deemed given or made when received by each party.

All article titles or captions in this Contract are for convenience only. They shall not be deemed part of this Contract and in no way define, limit, extend or describe the scope or intent of any provisions hereof.

The parties shall execute and deliver all documents, provide all information and take or forebear from all such action as may be necessary or appropriate to achieve the purposes of this Contract.

This Contract shall be construed in accordance with and governed by the laws of the State of Idaho.

Any failure by any party to insist upon the strict performance of any covenant, duty, agreement or condition of this Contract or to exercise any right or remedy consequent upon a breach thereof shall not constitute a waiver of any such breach or any other covenant, agreement, term or condition.

This Contract may be executed in counterparts, all of which together shall constitute one contract binding on all the parties.

Each provision of this Contract shall be considered separable and if for any reason any provision or provisions herein are determined to be invalid and contrary to any existing or future laws, such invalidity shall not impair the operation of or affect those portions of this Contract which are valid.

IN WITNESS WHEREOF, we, the parties hereto, each herewith subscribe
the same this ____ day of _____, A.D., 19__.

INTERMOUNTAIN GAS COMPANY
BOISE, IDAHO

By _____

Title _____

Contractor

By _____

Title _____

APPROVED AS TO FORM

Attorney for Owner

Attorney for Contractor

* * * * *

IDAHO PERFORMANCE BOND

BOND NO. _____

AMOUNT: \$ _____

KNOW ALL MEN BY THESE PRESENTS, that _____

of _____

hereinafter called the CONTRACTOR (Principal), and _____

_____ a corporation duly organized and existing under and by virtue of the laws of the State of _____, hereinafter called the SURETY, and authorized to transact business within the State of Idaho, as SURETY, are held and firmly bound unto _____ as OWNER (Obligee), in the sum of:

_____ DOLLARS (\$ _____), lawful money of the United States of America, for the payment of which, well and truly be made to the OWNER, the CONTRACTOR and the SURETY bind themselves and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents as follows:

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain

Contract hereto attached, with the OWNER, dated _____, 19____, for:

NOW, THEREFORE, the condition of this obligation is such that if the Contractor shall promptly and faithfully perform said Contract according to the terms and provisions thereof and shall faithfully discharge the duties and obligations therein assumed, then the above obligation shall be null and void; otherwise it shall remain in full force and effect.

The SURETY, for value received, hereby waives notice of any extension of time, alteration, addition or forbearance as to the terms of the Contract made or extended by Owner or Contractor.

No right of action shall accrue upon or by reason hereof to, or for the use or benefit of, anyone other than the Owner.

IN WITNESS WHEREOF, the above parties bounded together have executed this instrument this _____ day of _____, 19____, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR

By _____ (Seal)

Attest _____

SURETY

By _____ (Seal)

Attest _____

NOTE: The Attorney-in-Fact who executes this bond in behalf of the Surety must attach a copy of his Power-of-Attorney as evidence of his authority. If the Contractor is from a State other than Idaho, and the Contractor's Bond has been provided by a broker from a State other than Idaho, this bond must be countersigned by a Resident Agent of the Surety in the State of Idaho, as follows.

COUNTERSIGNED:

By _____, Resident Agent at _____, Idaho

Name (Typed)

* * * * *

IDAHO PAYMENT BOND

BOND NO. _____

AMOUNT: \$ _____

KNOW ALL MEN BY THESE PRESENTS, that _____

_____ of _____

hereinafter called the CONTRACTOR (Principal), and _____

_____ a corporation duly organized and existing under and by virtue of the laws of the State of _____, hereinafter called the SURETY, and authorized to transact business within the State of Idaho, as SURETY, are held and firmly bound unto _____ as OWNER (Obligee), in the sum of:

_____ DOLLARS (\$ _____), lawful money of the United States of America, for the payment of which, well and truly be made to the OWNER, the CONTRACTOR and the SURETY bind themselves and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents as follows:

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain

Contract hereto attached, with the OWNER, dated _____, 19____, for:

NOW, THEREFORE, if Contractor shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise, it shall remain in full force and effect, subject, however, to the following conditions:

The SURETY, for value received, hereby waives notice of any extension of time, alteration, addition or forbearance as to the terms of the Contract made or extended by Owner or Contractor.

- (1) A claimant is defined as one having a direct contract with Contractor or with a subcontractor of Contractor for labor, material, or both, used or reasonably required for use in the performance of the Contract; labor and material being also construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental of equipment directly applicable to the Contract.
- (2) The above-named Contractor and SURETY hereby jointly and severally agree with Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of 90 days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any costs or expenses of any such suit.
- (3) No suit or action shall be commenced hereunder by any claimant,
 - (A) unless claimant, other than one having a direct contract with the Contractor, shall have given written notice to any two of the following: Contractor, Owner, or the SURETY above-named, within 90 days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to Contractor, Owner, or SURETY, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the State in which the aforesaid project is located, save that such service need not be made by a public officer.
 - (B) after the expiration of 1 year following the date on which Contractor ceased work on said Contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.
 - (C) other than in a state court of competent jurisdiction in and for the county or other political subdivision of the state in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere.

- (4) The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by SURETY of mechanics' liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against this bond.

IN WITNESS WHEREOF, the above parties bounded together have executed this instrument this _____ day of _____, 19____, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR

By _____ (Seal)

Attest _____

SURETY

By _____ (Seal)

Attest _____

NOTE: The Attorney-in-Fact who executes this bond in behalf of the Surety must attach a copy of his Power-of-Attorney as evidence of his authority. If the Contractor is from a state other than Idaho, and the Contractor's Bond has been provided by a broker from a state other than Idaho, this bond must be countersigned by a Resident Agent of the Surety in the State of Idaho, as follows.

COUNTERSIGNED:

By _____, Resident Agent at _____, Idaho

Name (Typed)

* * * * *

PART 3

CONDITIONS OF THE CONTRACT

GENERAL CONDITIONS

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GENERAL CONDITIONS

This section of the Contract Documents is preprinted. Any modifications to the following Articles required for this project are made in the Supplementary Conditions.

DEFINITIONS

Wherever in the Contract Documents the following terms are used, the intent and meaning shall be interpreted as follows:

1. AS APPROVED

The words "as approved", unless otherwise qualified, shall be understood to be followed by the words "by the Engineer for conformance with the Contract Document".

2. AS SHOWN, AND AS INDICATED

The words "as shown" and "as indicated" shall be understood to be followed by the words "on the Drawings".

3. BIDDER

The person or persons, partnership, firm, or corporation submitting a Proposal for the work contemplated.

4. CONTRACT DOCUMENTS

The "Contract Documents" consist of the Bidding Requirements, Contract Forms, Conditions of the Contract, Specifications, Drawings, all modifications thereof incorporated into the Documents before their execution, Change Orders, and all other requirements incorporated by specific reference thereto. These form the Contract.

5. CONTRACTOR

The person or persons, partnership, firm, or corporation who enters into the Contract awarded him by the Owner.

6. CONTRACT COMPLETION

The "Contract Completion" is the date the Owner accepts the entire work as being in compliance with the Contract Documents, or formally waives nonconforming work to the extent of nonconformity, and issues the final payment in accordance with the requirements set forth in Article, "Final Payment" of these General Conditions.

7. DAYS

Unless otherwise specifically stated, the term "days" will be understood to mean calendar days. Business day or working day means any day other than Saturday, Sunday, or legal holiday.

8. DRAWINGS

The term "Drawings" refers to the official Drawings, profiles, cross sections, elevations, details, and other working drawings and supplementary drawings, or reproductions thereof, signed by the Engineer, which show the location, character, dimensions, and details of the work to be performed. Drawings may either be bound in the same book as the balance of the Contract Documents or bound in separate sets, and are a part of the Contract Documents, regardless of the method of binding.

9. ENGINEER

The person or organization identified as such in the Contract Documents. The term "Engineer" means the Engineer or his authorized representative.

10. NOTICE

The term "notice" or the requirement to notify, as used in the Contract Documents or applicable state or federal statutes, shall signify a written communication delivered in person or by certified or registered mail to the

individual, or to a member of the firm, or to an officer of the corporation for whom it is intended. Certified or registered mail shall be addressed to the last business address known to him who gives the notice.

11. OR EQUAL

The term "or equal" shall be understood to indicate that the "equal" product is the same or better than the product named in function, performance, reliability, quality, and general configuration. Determination of equality in reference to the project design requirements will be made by the Engineer. Such equal products shall not be purchased or installed by the Contractor without written authorization.

12. OWNER

The person, organization, or public body identified as such in the Contract Documents.

13. PLANS (See DRAWINGS)

14. SPECIFICATIONS

The term "Specifications" refers to those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards, and workmanship as applied to the work and certain administrative details applicable thereto. Where standard specifications, such as those of ASTM, AASHTO, etc., have been referred to, the applicable portions of such standard specifications shall become a part of these Contract Documents. If referenced specifications conflict with specifications contained herein, the requirements contained herein shall prevail.

15. NOTICE TO PROCEED

A written notice given by the Owner to the Contractor (with a copy to the

Engineer) fixing the date on which the Contract time will commence to run and on which the Contractor shall start to perform his obligation under the Contract Documents. The Notice to Proceed will be given within 30 days following execution of the Contract by the Owner.

16. SUBSTANTIAL COMPLETION

"Substantial completion" shall be that degree of completion of the project or a defined portion of the project, as evidenced by the Engineer's written notice of Substantial Completion, sufficient to provide the Owner, at his discretion, the full-time use of the project or defined portion of the project for the purposes for which it was intended. "Substantial Completion" of an operating facility shall be that degree of completion that has provided a minimum of 7 continuous days of successful, trouble-free, operation, which period shall begin after all performance and acceptance testing has been successfully demonstrated to the Engineer. All equipment contained in the work, plus all other components necessary to enable the Owner to operate the facility in the manner that was intended, shall be complete on the substantial completion date.

17. WORK

The word "work" within these Contract Documents shall include all material, labor, tools, and all appliances, machinery, transportation, and appurtenances necessary to perform and complete the Contract, and such additional items not specifically indicated or described which can be reasonably inferred as belonging to the item described or indicated and as required by good practice to provide a complete and satisfactory system or structure. As used herein, "provide" shall be understood to mean "furnish and install, complete in-place".

CONTRACT DOCUMENTS

18. INTENT OF CONTRACT DOCUMENTS

The Contract Documents are complementary, and what is called for by one shall be as binding as if called for by all. The intent of the Documents is to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any work, materials, or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result shall be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe work, materials, or equipment, such words shall be interpreted in accordance with that meaning.

Reference to standard specifications, manuals, or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or laws or regulations in effect on the first published date of the Invitation to Bid, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of Owner, Contractor, or Engineer, or any of their consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to Engineer, or any of Engineer's consultants, agents, or employees, any duty or authority to supervise or direct the furnishing or performance of the work or any duty or authority to undertake responsibility contrary to the provisions of Article LIMITATIONS ON ENGINEER'S RESPONSIBILITIES.

19. DISCREPANCIES AND OMISSIONS

Any discrepancies or omissions found in the Contract Documents shall be reported to the Engineer immediately. The Engineer will clarify discrepancies or omissions, in writing, within a reasonable time.

In resolving inconsistencies among two or more sections of the Contract Documents, precedence shall be given in the following order:

- A. CONTRACT
- B. PROPOSAL
- C. SUPPLEMENTARY CONDITIONS
- D. INVITATION TO BID
- E. INSTRUCTIONS TO BIDDERS
- F. GENERAL CONDITIONS
- G. SPECIFICATIONS
- H. DRAWINGS

Addenda shall take precedence over all sections referenced therein. Figure dimensions on Drawings shall take precedence over scale dimensions. Detailed Drawings shall take precedence over general Drawings.

20. CHANGES IN THE WORK

The Owner, without notice to the Sureties and without invalidating the Contract, may order changes in the work within the general scope of the Contract by altering, adding to, or deducting from the work, the Contract being adjusted accordingly. All such work shall be executed under the conditions of the original Contract, except as specifically adjusted at the time of ordering such change.

In giving instructions, the Engineer may order minor changes in the work not involving extra cost and not inconsistent with the purposes of the project, but otherwise, except in an emergency endangering life or property, additions or deductions from the work shall be performed only in pursuance of an approved Change Order from the Owner, countersigned by the Engineer.

If the work is reduced by alterations, such action shall not constitute a claim for damages based on loss of anticipated profits.

21. EXAMINATION AND VERIFICATION OF CONTRACT DOCUMENTS

The Contractor shall thoroughly examine and become familiar with all of the various parts of these Contract Documents and determine the nature and location of the work, the general and local conditions, and all other matters which can in any way affect the work under this Contract. Failure to make an examination necessary for this determination shall not release the Contractor from the obligations of this Contract. No verbal agreement or conversation with any officer, agent, or employee of the Owner, or with the Engineer either before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained.

22. DOCUMENTS TO BE KEPT ON THE JOBSITE

The Contractor shall keep one copy of the Contract Documents on the jobsite, in good order, available to the Engineer and to his representatives.

The Contractor shall maintain on a daily basis at the jobsite, and make available to the Engineer on request, one current record set of the Drawings which have been accurately marked to indicate all modifications in the completed work that differ from the design information shown on the Drawings. Upon substantial completion of the work, the Contractor shall give the Engineer one complete set of these marked up record Drawings.

23. ADDITIONAL CONTRACT DOCUMENTS

Copies of Contract Documents or Drawings may be obtained on request from the Engineer and by paying the actual cost of reproducing the Contract Documents or Drawings.

24. OWNERSHIP OF CONTRACT DOCUMENTS

All portions of the Contract Documents, and copies thereof furnished by the Engineer are instruments of service for this project. They are not to be used on other work and are to be returned to the Engineer on request at the completion of the work. Any reuse of these materials without specific written verification or adaptation by the Engineer will be at the risk of the user and without liability or legal expense to the Engineer. Such user shall hold the Engineer harmless from any and all damages, including reasonable attorneys' fees, from any and all claims arising from any such reuse. Any such verification and adaptation shall entitle the Engineer to further compensation at rates to be agreed upon by the user and the Engineer.

THE ENGINEER

25. AUTHORITY OF THE ENGINEER

The Engineer will be the Owner's representative during the construction period. His authority and responsibility will be limited to the provisions set forth in these Contract Documents. The Engineer will have the authority to reject work which does not conform to the Contract Documents. However, neither the Engineer's authority to act under this provision, nor any decision made by him in good faith either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the Engineer to the Contractor, any Subcontractor, their respective Sureties, any of their agents or employees, or any other person performing any of the work.

26. DUTIES AND RESPONSIBILITIES OF THE ENGINEER

The Engineer will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the

work and to determine, in general, if the work is proceeding in accordance with the intent of the Contract Documents. He will not make comprehensive or continuous review or observation to check quality or quantity of the work, and he will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the work. Visits and observations made by the Engineer shall not relieve the Contractor of his obligation to conduct comprehensive inspections of the work and to furnish materials and perform acceptable work, and to provide adequate safety precautions, in conformance with the intent of the Contract.

The Engineer will make recommendations to the Owner, in writing, on all claims of the Owner or the Contractor arising from interpretation or execution of the Contract Documents. Such recommendations will be of factual and/or technical nature, and will not include the legal interpretation of the Contract Documents. Any necessary legal interpretation of the Contract Document will be made by the Owner. Such recommendation shall be necessary before the Contractor can receive additional money under the terms of the Contract. Changes in work ordered by the Engineer shall be made in compliance with Article CHANGES IN THE WORK.

One or more project representatives may be assigned to observe the work. It is understood that such project representatives shall have the authority to issue notice of nonconformance and make decisions within the limitations of the authority of the Engineer. The Contractor shall furnish all reasonable assistance required by the Engineer or project representatives for proper observation of the work. The above-mentioned project representatives shall not relieve the Contractor of his obligations to conduct comprehensive inspections of the work and to furnish materials and perform acceptable work,

and to provide adequate safety precautions, in conformance with the intent of the Contract.

27. LIMITATIONS ON ENGINEER'S RESPONSIBILITIES

Engineer will not be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, and Engineer will not be responsible for Contractor's failure to perform or furnish the work in accordance with the Contract Documents.

Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any supplier, or of any other person or organization performing or furnishing any of the work.

Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved", or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper", or "satisfactory", or adjectives of like effect or import are used to describe a requirement, direction, review or judgment of Engineer as to the work, it is intended that such requirement, direction, review, or judgment will be solely to evaluate the work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to Engineer any duty or authority to supervise or direct the furnishing or performance of the work or any duty or authority to undertake responsibility contrary to the provisions of this Article.

28. REJECTED WORK

Any defective work or nonconforming materials or equipment that may be discovered at any time prior to expiration of the warranty period, shall

be removed and replaced by work which shall conform to the provisions of the Contract Documents. Any material condemned or rejected shall be removed at once from the project site.

Failure on the part of the Engineer to condemn or reject bad or inferior work or to note nonconforming materials or equipment on Contractor submittals shall not be construed to imply acceptance of such work. The Owner shall reserve and retain all of its rights and remedies at law against the Contractor and its Surety for correction of any and all latent defects discovered after the guarantee period.

29. LINES AND GRADES

Lines and grades shall be established as provided in the Supplementary Conditions. All stakes, marks, and other reference information shall be carefully preserved by the Contractor, and in case of their careless or unnecessary destruction or removal by him or his employees, such stakes, marks, and other information shall be replaced at the Contractor's expense.

30. SUBMITTALS

After checking and verifying all field measurements and after complying with applicable procedures specified in Section GENERAL REQUIREMENTS, Contractor shall submit to Engineer, in accordance with the schedule for submittals for review, shop drawings, electrical diagrams, and catalog cuts for fabricated items and manufactured items (including mechanical and electrical equipment), which shall bear a stamp or specific written indication that Contractor has satisfied Contractor's responsibilities under the Contract Documents with respect to the review of the submittal. All submittals shall be identified as Engineer may require. The data shown shall be complete with respect to quantities, dimensions specified performance and design criteria, materials, and similar data to enable

Engineer to review the information. Contractor shall also submit to Engineer for review, with such promptness as to cause no delay in work, all samples required by the Contract Documents. All samples shall have been checked by and accompanied by a specific written indication that Contractor has satisfied Contractor's responsibilities under the Contract Documents with respect to the review of the submission and shall be identified clearly as to material, supplier, pertinent data such as catalog numbers and the use for which intended.

Before submission of each submittal, Contractor shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar data with respect thereto and reviewed or coordinated each submittal with other submittals and with the requirements of the work and the Contract Documents.

At the time of each submission, Contractor shall give Engineer specific written notice of each variation that the submittal may have from the requirements of the Contract Documents, and, in addition, shall cause a specific notation to be made on each shop drawing submitted to Engineer for review and approval of each such variation.

Engineer will review submittals with reasonable promptness, but Engineer's review will be only for conformance with the design concept of the project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, techniques, sequences, or procedures of construction (except where a specific means, method, technique, sequence, or procedure of construction is indicated in or required by the Contract Documents) or to safety precautions or programs incident thereto. The review of a separate item as such will not indicate review of the assembly in which the item functions. Contractor shall make corrections required by Engineer,

and shall return the required number of corrected copies of shop drawings and submit as required new samples for review. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

Engineer's review of submittals shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has in writing called Engineer's attention to each such variation at the time of submission and Engineer has given written approval of each such variation by a specific written notation thereof incorporated in or accompanying the shop drawing or sample approval; nor will any approval by Engineer relieve Contractor from responsibility for errors or omissions in the shop drawings or from responsibility for having complied with the provisions herein.

Where a shop drawing or sample is required by the Specifications, any related work performed prior to Engineer's review and approval of the pertinent submission shall be the sole expense and responsibility of Contractor.

31. DETAIL DRAWINGS AND INSTRUCTIONS

The Engineer will furnish, with reasonable promptness, additional instructions by means of Drawings or otherwise, if, in the Engineer's opinion, such are required for the proper execution of the work. All such Drawings and instructions will be consistent with the Contract Documents, true developments thereof, and reasonably inferable therefrom.

THE CONTRACTOR AND HIS EMPLOYEES

32. CONTRACTOR, AN INDEPENDENT AGENT

The Contractor shall independently perform all work under this Contract and

shall not be considered as an agent of the Owner or of the Engineer, nor shall the Contractor's Subcontractors or employees be subagents of the Owner or of the Engineer.

33. SUBCONTRACTING

Unless modified in the Supplementary Conditions, within 10 days after the execution of the Contract, the Contractor shall submit to the Engineer the names of all Subcontractors proposed for the work, including the names of any Subcontractors that were submitted with the Proposal. The Contractor shall not employ any Subcontractors to which the Owner may object to as lacking capability to properly perform work of the type and scope anticipated.

The Contractor is as fully responsible to the Owner for the acts and omissions of his Subcontractors and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him.

Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor and the Owner or Engineer.

34. INSURANCE AND LIABILITY

A. GENERAL

The Contractor shall provide (from insurance companies acceptable to the Owner) the insurance coverage designated hereinafter and pay all costs.

Before commencing work under this Contract, Contractor shall furnish the Owner with certificates of insurance specified herein showing the type, amount, class of operations covered, effective dates, and date of expiration of policies, and containing substantially the following statement:

"The insurance covered by this certificate shall not be cancelled

or materially altered, except after 30 days' written notice has been received by the Owner."

In case of the breach of any provision of this Article, the Owner, at his option, may take out and maintain, at the expense of the Contractor, such insurance as the Owner may deem proper and may deduct the cost of such insurance from any monies which may be due or become due the Contractor under this Contract.

B. CONTRACTOR AND SUBCONTRACTOR INSURANCE

The Contractor shall not commence work under this Contract until he has obtained all the insurance required hereunder and such insurance has been reviewed by the Owner, nor shall the Contractor allow any Subcontractor to commence work on his subcontract until insurance specified below has been obtained. Review of the insurance by the Owner shall not relieve or decrease the liability of the Contractor hereunder.

C. COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE

The Contractor shall maintain during the life of this Contract the statutory amount of Workmen's Compensation Insurance, in addition, Employer's Liability Insurance in an amount as specified in the Supplementary Conditions, for each occurrence, for all of his employees to be engaged in work on the project under this Contract. In case any such work is subcontracted, the Contractor shall require the Subcontractor to provide similar Workmen's Compensation and Employer's Liability Insurance for all of the Subcontractor's employees to be engaged in such work.

D. GENERAL LIABILITY INSURANCE (INCLUDING AUTOMOBILE)

The Contractor shall maintain during the life of this Contract such general

liability, completed operations and products liability, and automobile liability insurance as will provide coverage for claims for damages for personal injury, including accidental death, as well as for claims for property damage, which may arise directly or indirectly from performance of the work under this Contract. The general liability policy should also specifically ensure the contractual liability assumed by the Contractor under Article INDEMNITY. Coverage for property damage shall be on a "broad form" basis with no exclusions for "X, C & U". The amount of insurance to be provided shall be as specified in the Supplementary Conditions.

In the event any work under this Contract is performed by a Subcontractor, the Contractor shall be responsible for any liability directly or indirectly arising out of the work performed by the Subcontractor, to the extent such liability is not covered by the Subcontractor's insurance.

The Owner and Engineer, their officers, agents, and employees shall be named as Additional Insureds on the Contractor's and any Subcontractor's general liability and automobile liability insurance policies for any claims arising out of work performed under this Contract.

E. BUILDERS RISK ALL RISK INSURANCE

Unless otherwise modified in the Supplementary Conditions, the Contractor shall secure and maintain during the life of this Contract, Builders Risk All Risk Insurance coverage in an amount equal to the full value of the facilities under construction. Such insurance shall include coverage for earthquake, landslide, flood, collapse, loss due to the results of faulty workmanship or design, and all other risks, and shall provide for losses to be paid to the Contractor, Owner, and Engineer as their interests may appear.

The Owner and Engineer, their officers, agents, and employees shall be named as additional insureds on the Contractor's and any subcontractor's Builders Risk All Risk insurance policies for any claims arising out of work performed under this Contract.

This insurance shall include a waiver of subrogation as to the Engineer, the Owner, the Contractor, and their respective officers, agents, employees, and subcontractors.

F. NO PERSONAL LIABILITY OF PUBLIC OFFICIALS

In carrying out any of the provisions hereof in exercising any authority granted by the Contract, there will be no personal liability upon any public official.

35. INDEMNITY

To the maximum extent permitted by law, the Contractor shall indemnify and defend the Owner and the Engineer, and their officers, employees, agents, and subconsultants, from all claims and losses, including attorney's fees and litigation costs arising out of property losses or health, safety, personal injury, or death claims by the Contractor, its subcontractors of any tier, and their employees, agents, or invitees regardless of the fault, breach of Contract, or negligence of the Owner or the Engineer, excepting only such claims or losses that have been adjudicated to have been caused solely by the negligence of the Owner or the Engineer and regardless of whether or not the Contractor is or can be named a party in a litigation.

36. EXCLUSION OF CONTRACTOR CLAIMS

In performing its obligations, the Engineer and its consultants may cause expense for the Contractor or its subcontractors and equipment or material suppliers. However, those parties and their sureties shall maintain no direct

action against the Engineer, its officers, employees, agents, and consultants for any claim arising out of, in connection with, or resulting from the engineering services performed or required to be performed.

37. TAXES AND CHARGES

The Contractor shall withhold and pay any and all sales and use taxes and all withholding taxes, whether State or Federal, and pay all Social Security charges and also all State Unemployment Compensation charges, and pay or cause to be withheld, as the case may be, any and all taxes, charges, or fees or sums whatsoever, which are now or may hereafter be required to be paid or withheld under any laws.

38. REQUIREMENTS OF STATE LAW FOR PUBLIC WORKS PROJECTS

When the Contract Documents concern public works of the state or any county, municipality, or political subdivision created by its laws, the applicable statutes shall apply. All parties to this Contract shall determine the contents of all applicable statutes and comply with their provisions throughout the performance of the Contract.

39. CODES, ORDINANCES, PERMITS, AND LICENSES

The Contractor shall keep himself fully informed of all local codes and ordinances, as well as state and federal laws, which in any manner affect the work herein specified. The Contractor shall at all times comply with said codes and ordinances, laws, and regulations, and protect and indemnify the Owner, the Engineer and their respective employees, and its officers and agents against any claim or liability arising from or based on the violation of any such laws, ordinances, or regulations. All permits, licenses, and inspection fees necessary for prosecution and completion of the work shall be secured and paid for by the Contractor, unless otherwise specified.

40. SUPERINTENDENCE

The Contractor shall keep at the project site, competent supervisory personnel. The Contractor shall designate, in writing, before starting work, a project superintendent who shall be an employee of the Contractor and shall have complete authority to represent and to act for the Contractor. Engineer shall be notified in writing prior to any change in superintendent assignment. The Contractor shall give efficient supervision to the work, using his best skill and attention. The Contractor shall be solely responsible for all construction means, methods, techniques, and procedures, and for providing adequate safety precautions and coordinating all portions of the work under the Contract. It is specifically understood and agreed that the Engineer, its employees and agents, shall not have control or charge of and shall not be responsible for the construction means, methods, techniques, procedures, or for providing adequate safety precautions in connection with the work under the Contract.

41. RECEPTION OF ENGINEER'S COMMUNICATIONS

The superintendent shall receive for the Contractor all communications from the Engineer. Communications of major importance will be confirmed in writing upon request from the Contractor.

The Engineer may schedule project meetings for the purposes of discussing and resolving matters concerning the various elements of the work. Time and place for these meetings and the names of persons required to be present shall be as determined by the Engineer. Contractor shall comply with these attendance requirements and shall also require his Subcontractors to comply.

42. SAFETY

The Contractor shall be solely and completely responsible for conditions of

the jobsite, including safety of all persons (including employees) and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours. Safety provisions shall conform to U.S. Department of Labor (OSHA), and all other applicable federal, state, county, and local laws, ordinances, codes, and regulations. Where any of these are in conflict, the more stringent requirement shall be followed. The Contractor's failure to thoroughly familiarize himself with the aforementioned safety provisions shall not relieve him from compliance with the obligations and penalties set forth therein.

The Contractor shall develop and maintain for the duration of this Contract, a safety program that will effectively incorporate and implement all required safety provisions. The Contractor shall appoint an employee who is qualified and authorized to supervise and enforce compliance with the safety program.

The duty of the Engineer to conduct construction review of the work does not include review or approval of the adequacy of the Contractor's safety program, safety supervisor, or any safety measures taken in, on, or near the construction site.

The Contractor, as a part of his safety program, shall maintain at his office or other well-known place at the jobsite, safety equipment applicable to the work as prescribed by the aforementioned authorities, all articles necessary for giving first-aid to the injured, and shall establish the procedure for the immediate removal to a hospital or a doctor's care of persons (including employees) who may be injured on the jobsite.

If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the Engineer and the

Owner. In addition, the Contractor must promptly report in writing to the Engineer all accidents whatsoever arising out of, or in connection with, the performance of the work whether on, or adjacent to, the site, giving full details and statements of witnesses.

If a claim is made by anyone against the Contractor or any Subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Engineer, giving full details of the claim.

43. PROTECTION OF WORK AND PROPERTY

The Contractor shall at all times safely guard and protect from damage the Owner's property, adjacent property, and his own work from injury or loss in connection with this Contract. All facilities required for protection by federal, state, or municipal laws and regulations and local conditions must be provided and maintained.

The Contractor shall protect his work and materials from damage due to the nature of the work, the elements, carelessness of other contractors, or from any cause whatever until the completion and acceptance of the work. All loss or damages arising out of the nature of the work to be done under these Contract Documents, or from any unforeseen obstruction or defects which may be encountered in the prosecution of the work, or from the action of the elements, shall be sustained by the Contractor.

44. RESPONSIBILITY OF CONTRACTOR TO ACT IN EMERGENCY

In case of an emergency which threatens loss or injury of property, and/or safety of life, the Contractor shall act, without previous instructions from the Owner or Engineer, as the situation may warrant. The Contractor shall notify the Engineer thereof immediately thereafter. Any claim for compensation by the Contractor, together with

substantiating documents in regard to expense, shall be submitted to the Owner through the Engineer and the amount of compensation shall be determined by agreement.

45. MATERIALS AND APPLIANCES

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, heat, light, fuel, power, transportation, construction equipment and machinery, appliances, telephone, sanitary facilities, temporary facilities and other facilities and incidentals necessary for the execution and completion of the work.

Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of good quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

In selecting and/or approving equipment for installation in the project, the Owner and Engineer assume no responsibility for injury or claims resulting from failure of the equipment to comply with applicable federal, state, and local safety codes or requirements, or the safety requirements of a recognized agency, or failure due to faulty design concepts, or defective workmanship and materials.

46. CONTRACTORS' AND MANUFACTURERS' COMPLIANCE WITH STATE SAFETY, OSHA, AND OTHER CODE REQUIREMENTS

The completed work shall include all necessary permanent safety devices, such as machinery guards and similar ordinary safety items required by the state and federal (OSHA) industrial authorities and applicable local and national codes. Further, any features of the work subject to such safety regulations shall be fabricated, furnished, and installed (including Owner-furnished equipment) in compliance with these requirements. Contractors and manufacturers of

equipment shall be held responsible for compliance with the requirements included herein. Contractors shall notify all equipment suppliers and Subcontractors of the provisions of this Article.

47. SUBSTITUTION OF MATERIALS

Except for Owner-selected equipment items, and items where no substitution is clearly specified, whenever any material, article, device, product, fixture, form, type of construction, or process is indicated or specified by patent or proprietary name, by name of manufacturer, or by catalog number, such specifications shall be deemed to be used for the purpose of establishing a standard of quality and facilitating the description of the material or process desired. This procedure is not to be construed as eliminating from competition other products of equal or better quality by other manufacturers where fully suitable in design, and shall be deemed to be followed by the words "or equal". The Contractor may, in such cases, submit complete data to the Engineer for consideration of another material, type, or process which shall be substantially equal in every respect to that so indicated or specified. Substitute materials shall not be used unless approved in writing. The Engineer will be the sole judge of the substituted article or material.

48. TESTS, SAMPLES, AND OBSERVATIONS

The Contractor shall furnish, without extra charge, the necessary test pieces and samples, including facilities and labor for obtaining the same, as requested by the Engineer. When required, the Contractor shall furnish certificates of tests of materials and equipment made at the point of manufacture by a recognized testing laboratory.

The Owner, Engineer, and authorized government agents, and their representatives shall at all times be

provided safe access to the work wherever it is in preparation or progress, and the Contractor shall provide facilities for such access and for observations, including maintenance of temporary and permanent access.

If the Specifications, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give timely notice of its readiness for observations. If any work should be covered up without approval or consent of the Engineer, it shall, if required by the Engineer, be uncovered for examination at the Contractor's expense.

Reexamination of questioned work may be ordered by the Engineer, and, if so ordered, the work shall be uncovered by the Contractor. If such work is found to be in accordance with the Contract Documents, the Owner will pay the cost of uncovering, exposure, observation, inspection, testing and reconstruction. If such work is found to be not in accordance with the Contract Documents, the Contractor shall correct the defective work, and the cost of reexamination and correction of the defective work shall be paid by the Contractor.

49. ROYALTIES AND PATENTS

The Contractor shall pay all royalty and license fees, unless otherwise specified. The Contractor shall defend all suits or claims for infringement of any patent rights and shall save the Owner and the Engineer harmless from any and all loss, including reasonable attorneys' fees, on account thereof.

50. CONTRACTOR'S RIGHT TO TERMINATE CONTRACT

If the work should be stopped under an order of any court or other public authority for a period of more than 3 months, through no act or fault of the Contractor, its Subcontractors, or respective employees or if the Engineer should fail to issue any estimate for

payment within 30 days after it is due, or if the Owner should fail to pay the Contractor within 30 days after time specified in Article PARTIAL PAYMENTS, any sum recommended by the Engineer, then the Contractor may, upon 15 days' written notice to the Owner and the Engineer, stop work or terminate this Contract and recover from the Owner payment for all acceptable work performed and reasonable termination expenses, unless said default has been remedied.

51. CORRECTION OF DEFECTIVE WORK DURING WARRANTY PERIOD

The Contractor hereby agrees to make, at his own expense, all repairs or replacements necessitated by defects in materials or workmanship, provided under terms of this Contract, and pay for any damage to other works resulting from such defects, which become evident within 1 year after the date of final acceptance of the work or within 1 year after the date of substantial completion established by the Engineer for specified items of equipment, or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents. Unremedied defects identified for correction during the warranty period but remaining after its expiration shall be considered as part of the obligations of the warranty. Defects in material, workmanship, or equipment which are remedied as a result of obligations of the warranty shall subject the remedied portion of the work to an extended warranty period of 1 year after the defect has been remedied.

The Contractor further assumes responsibility for a similar guarantee for all work and materials provided by Subcontractors or manufacturers of packaged equipment components. The effective date for the start of the guarantee or warranty period for equipment qualifying as substantially complete is defined in Article SUBSTANTIAL COMPLETION, and Article

SUBSTANTIAL COMPLETION DATE, in these General Conditions.

The Contractor also agrees to hold the Owner and the Engineer harmless from liability of any kind arising from damage due to said defects. The Contractor shall make all repairs and replacements promptly upon receipt of written order for same from the Owner. If the Contractor fails to make the repairs and replacements promptly, or in an emergency where delay would cause serious risk, or loss, or damage, the Owner may have the defective work corrected or the rejected work removed and replaced, and the Contractor and his Surety shall be liable for the cost thereof.

PROGRESS OF THE WORK

52. BEGINNING OF THE WORK

Following execution of the Contract, the Contractor shall meet with the Owner and Engineer relative to his arrangements for prosecuting the work.

53. SCHEDULES AND PROGRESS REPORTS

Prior to starting the construction, the Contractor shall prepare and submit to the Engineer, a progress schedule showing the dates on which each part or division of the work is expected to be started and finished, and a preliminary schedule for submittals. The progress schedule for submittals shall be brought up to date and submitted to the Engineer at the end of each month or at such other times the Engineer may request.

The Contractor shall forward to the Engineer, at the end of each month, an itemized report of the delivery status of major and critical items of purchased equipment and material, including shop drawings and the status of shop and field fabricated work. These progress reports shall indicate the date of the purchase order, the current percentage of completion, estimated delivery, and cause of delay, if any.

If the completion of any part of the work or the delivery of materials is behind the submitted progress schedule, the Contractor shall submit in writing a plan acceptable to the Owner and Engineer for bringing the work up to schedule.

The Owner shall have the right to withhold progress payments for the work if the Contractor fails to update and submit the progress schedule and reports as specified.

54. PROSECUTION OF THE WORK

It is expressly understood and agreed that the time of beginning, rate of progress, and time of completion of the work are the essence of this Contract. The work shall be prosecuted at such time, and in or on such part or parts of the project as may be required, to complete the project as contemplated in the Contract Documents and the progress schedule.

If the Contractor desires to carry on work at night or outside the regular hours, he shall give timely notice to the Engineer to allow satisfactory arrangements to be made for observing the work in progress.

55. OWNER'S RIGHT TO RETAIN IMPERFECT WORK

If any part or portion of the work completed under this Contract shall prove defective and not in accordance with the Drawings and Specifications, and if the imperfection in the same shall not be of sufficient magnitude or importance as to make the work dangerous or unsuitable, or if the removal of such work will create conditions which are dangerous or undesirable, the Owner shall have the right and authority to retain such work but will make such deductions in the final payment therefor as may be just and reasonable.

56. OWNER'S RIGHT TO DO WORK

Should the Contractor neglect to prosecute the work in conformance with the Contract Documents or neglect or refuse at his own cost to remove and replace work as shall have been rejected by the Engineer, then the Owner may notify the Surety of the condition, and after 10 days' written notice to the Contractor and the Surety, or without notice if an emergency or danger to the work or public exists, and without prejudice to any other right which the Owner may have under the Contract, or otherwise, take over that portion of the work which has been improperly or nontimely executed, and make good the deficiencies and deduct the cost therefrom from the payments then or thereafter due the Contractor.

57. OWNER'S RIGHT TO TRANSFER EMPLOYMENT

If the Contractor should abandon the work or if he should persistently or repeatedly refuse or should fail to make prompt payment to Subcontractors for material or labor, or to persistently disregard laws, ordinances, or to prosecute the work in conformance with the Contract Documents, or otherwise be guilty of a substantial violation of any provision of the Contract or any laws or ordinance, then the Owner may, without prejudice to any other right or remedy, and after giving the Contractor and Surety 10 days' written notice, transfer the employment for said work from the Contractor to the Surety. Upon receipt of such notice, such Surety shall enter upon the premises and take possession of all materials, tools, and appliances thereon for the purpose of completing the work included under this Contract and employ, by Contract or otherwise, any qualified person or persons to finish the work and provide the materials therefor, in accordance with the Contract Documents, without termination of the continuing full force and effect of this Contract. In case of such transfer of employment to such

Surety, the Surety shall be paid in its own name on estimates according to the terms hereof without any right of the Contractor to make any claim for the same or any part thereof.

If, after the furnishing of said written notice to the Surety, the Contractor and the Surety still fail to make reasonable progress on the performance of the work, the Owner may terminate the employment of the Contractor and take possession of the premises and of all materials, tools, and appliances thereon and finish the work by whatever method he may deem expedient and charge the cost thereof to the Contractor and Surety. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished. If the expense of completing the Contract, including compensation for additional managerial and administrative services, shall exceed such unpaid balance, the Contractor and the Surety shall pay the difference to the Owner.

58. DELAYS AND EXTENSION OF TIME

If the Contractor is delayed in the progress of the work by any act or neglect of the Owner or the Engineer, or by any separate Contractor employed by the Owner, or by strikes, lockouts, fire, adverse weather conditions not reasonably anticipated, or acts of Nature, and if the Contractor, within 48 hours of the start of the occurrence, gives written notice to the Owner of the cause of the potential delay and estimate of the possible time extension involved, and within 10 days after the cause of delay has been remedied, the Contractor gives written notice to the Owner of any actual time extension requested as a result of the aforementioned occurrence, then the Contract time may be extended by Change Order for such reasonable time as the Engineer determines. It is agreed that no claim shall be made or allowed for any damages, loss, or expense which may arise out of any delay caused by the above referenced acts or occurrences,

other than claims for the appropriate extension of time.

No extension of time will be granted to the Contractor for delays occurring to parts of the work that have no measurable impact on the completion of the total work under this Contract. No extension of time will be considered for weather conditions reasonably anticipated for the area in which the work is being performed. Reasonably anticipated weather conditions will be based on official records of monthly precipitation and other historical data. Adverse weather conditions, if determined to be of a severity that would impact progress of the work, may be considered as cause for an extension of Contract completion time.

Delays in delivery of equipment or material purchased by the Contractor or his Subcontractors, including Owner-selected equipment, shall not be considered as a just cause for delay, unless the Owner determines that for good cause the delay is beyond the control of the Contractor. The Contractor shall be fully responsible for the timely ordering, scheduling, expediting, delivery, and installation of all equipment and materials.

Within a reasonable period after the Contractor submits to the Owner a written request for an extension of time, the Engineer will present his written opinion to the Owner as to whether an extension of time is justified, and, if so, his recommendation as to the number of days for time extension. The Owner will make the final decision on all requests for extension of time.

59. DIFFERING SITE CONDITIONS

The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Owner and Engineer of:

- A. subsurface or latent physical conditions at the site which differ materially from those indicated in this Contract, or
- B. unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

The Engineer will investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this Contract, whether or not changed as a result of the conditions, an equitable adjustment shall be made under this Article and the Contract modified in writing accordingly.

No request by the Contractor for an equitable adjustment to the Contract under this Article will be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed above for giving written notice may be extended by the Owner.

No request by the Contractor for an equitable adjustment to the Contract for differing site conditions will be allowed if made after final payment under this Contract.

60. LIQUIDATED DAMAGES

Should the Contractor fail to complete the work, or any part thereof, in the time agreed upon in the Contract or within such extra time as may have been allowed for delays by extensions granted as provided in the Contract, the Contractor shall reimburse the Owner for the additional expense and damage for each calendar day, Sundays and legal holidays included, that the Contract remains uncompleted after the Contract

completion date. It is agreed that the amount of such additional expense and damage incurred by reason of failure to complete the work is the per-diem rate, as stipulated in the Proposal. The said amount is hereby agreed upon as a reasonable estimate of the costs which may be accrued by the Owner after the expiration of the time of completion. It is expressly understood and agreed that this amount is not to be considered in the nature of a penalty, but as liquidated damages which have accrued against the Contractor. The Owner shall have the right to deduct such damages from any amount due, or that may become due the Contractor, or the amount of such damages shall be due and collectible from the Contractor or Surety.

61. OTHER CONTRACTS

The Owner reserves the right to let other Contracts in connection with the work. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with theirs.

If any part of the work under this Contract depends for proper execution or results upon the work of any other Contractor, utility service company or Owner, the Contractor shall inspect and promptly report to the Engineer in writing any patent or apparent defects or deficiencies in such work that render it unsuitable for such proper execution and results. The Contractor's failure to so report shall constitute an acceptance of the work by others as being fit and proper for integration with work under this Contract, except for latent or nonapparent defects and deficiencies in the work.

62. USE OF PREMISES

The Contractor shall confine his equipment, the storage of materials, and the operation of his workers to limits

shown on the Drawings or indicated by law, ordinances, permits, or directions of the Engineer, and shall not unreasonably encumber the premises with his materials. The Contractor shall provide, at his own expense, the necessary rights-of-way and access to the work which may be required outside the limits of the Owner's property and shall furnish the Engineer copies of permits and agreements for use of property outside that provided by the Owner.

Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the work or adjacent property to stresses or pressures that will endanger it.

63. SUBSTANTIAL COMPLETION DATE

The Engineer may issue a written notice of substantial completion for the purpose of establishing the starting date for specific equipment guarantees, and to establish the date that the Owner will assume the responsibility for the cost of operating such equipment. Said notice shall not be considered as final acceptance of any portion of the work or relieve the Contractor from completing the remaining work within the specified time and in full compliance with the Contract Documents. See SUBSTANTIAL COMPLETION under DEFINITIONS of these General Conditions.

64. PERFORMANCE TESTING

Operating equipment and systems shall be performance tested in the presence of the Engineer to demonstrate compliance with the specified requirements. Performance testing shall be conducted under the specified design operating conditions or under such simulated operating conditions as recommended or approved by the Engineer. Schedule such testing with the Engineer at least 1 week in advance of the planned date for testing.

65. OWNER'S USE OF PORTIONS OF THE WORK

Following issuance of the written notice of Substantial Completion, the Owner may initiate operation of the facility. Such use shall not be considered as final acceptance of any portion of the work, nor shall such use be considered as cause for an extension of the Contract completion time, unless authorized by a Change Order issued by the Owner.

66. CUTTING AND PATCHING

The Contractor shall do all cutting, fitting, or patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by work of other Contractors shown upon or reasonably implied by the Drawings.

67. CLEANING UP

The Contractor shall, at all times, keep property on which work is in progress and the adjacent property free from accumulations of waste material or rubbish caused by employees or by the work. Upon completion of the construction, the Contractor shall remove all temporary structures, rubbish, and waste materials resulting from his operations.

PAYMENT

68. PAYMENT FOR CHANGE ORDERS

The Owner's request for quotations on alterations to the work shall not be considered authorization to proceed with the work prior to the issuance of a formal Change Order, nor shall such request justify any delay in existing work. Quotations for alterations to the work shall include substantiating documentation with an itemized breakdown of Contractor and Subcontractor costs, including labor, material, rentals, approved services, overhead, and profit. Owner may require detailed cost data in order to substantiate the reasonableness of the proposed costs.

Any compensation paid in conjunction with the terms of a Change Order shall comprise total compensation due the Contractor for the work or alteration defined in the Change Order. By signing the Change Order, the Contractor acknowledges that the stipulated compensation includes payment for the work or alteration plus all payment for the interruption of schedules, extended overhead, delay, or any other impact claim or ripple effect, and by such signing specifically waives any reservation or claim for additional compensation in respect to the subject Change Order.

At the Owner's option, payment or credit for any alterations covered by a Change Order shall be determined by one or a combination of the methods set forth in A, B, or C below, as applicable:

A. UNIT PRICES

Those unit prices stipulated in the Proposal shall be utilized where they are applicable. In the event the Change Order results in a change in the original quantity that is materially and significantly different from the original bid quantity, a new unit price shall be negotiated upon demand of either party. Unit prices for new items included in the Change Order shall be negotiated and mutually agreed upon.

B. LUMP SUM

A total lump sum for the work negotiated and mutually acceptable to the Contractor and Owner.

Lump sum quotations for modifications to the work shall include substantiating documentation with an itemized breakdown of Contractor and Subcontractor costs, including labor, material, rentals, approved services, overhead, and profit, all calculated as specified under "C" below.

C. COST REIMBURSEMENT WORK

The term "cost reimbursement" shall be understood to mean that payment for the work will be made on a time and expense basis, that is, on an accounting of the Contractor's forces, materials, equipment, and other items of cost as required and used to do the work.

If the method of payment cannot be agreed upon prior to the beginning of the work, and the Owner directs by written Change Order that the work be done on a cost reimbursement basis, then the Contractor shall furnish labor, and furnish and install equipment and materials necessary to complete the work in a satisfactory manner and within a reasonable period of time. For the work performed, payment will be made for the documented actual cost of the following:

1. Labor, including foremen, for those hours they are assigned and participating in the cost reimbursement work (actual payroll cost, including wages, fringe benefits as established by negotiated labor agreements, labor insurance, and labor taxes as established by law). No other fixed labor burdens will be considered, unless approved in writing by the Owner.
2. Material delivered and used on the designated work, including sales tax, if paid for by the Contractor or his Subcontractor.
3. Rental, or equivalent rental cost of equipment, including necessary transportation for items having a value in excess of \$100.

Rental or equivalent rental cost will be allowed for only those days or hours during which the equipment is in actual use. Rental and transportation allowances shall not exceed the current rental rates prevailing in the locality. The rentals allowed for equipment will,

in all cases, be understood to cover all fuel, supplies, repairs, and renewals, and no further allowances will be made for those items, unless specific agreement to that effect is made.

4. Additional bond, as required and approved by the Owner.
5. Additional insurance (other than labor insurance) as required and approved by the Owner.

In addition to items 1 through 5 above, an added fixed fee for general overhead and profit shall be negotiated and allowed for the Contractor (or approved Subcontractor) actually executing the Cost Reimbursement work.

An additional fixed fee shall be negotiated and allowed the Contractor for the administrative handling of portions of the work that are executed by an approved Subcontractor. No additional fixed fee will be allowed for the administrative handling of work executed by a Subcontractor of a Subcontractor, unless by written permission from the Owner.

The added fixed fees shall be considered to be full compensation, covering the cost of general supervision, overhead, profit, and any other general expense. The Contractor's records shall make clear distinction between the direct costs of work paid for on a cost reimbursement basis and the costs of other work. The Contractor shall furnish the Engineer report sheets in duplicate of each day's cost reimbursement work no later than the working day following the performance of said work. The daily report sheets shall itemize the materials used, and shall cover the direct cost of labor and the charges for equipment rental, whether furnished by the Contractor, Subcontractor, or other forces. The daily report sheets shall provide names or identifications and classifications of workers, the hourly rate of pay and

hours worked, and also the size, type, and identification number of equipment and hours operated.

Material charges shall be substantiated by valid copies of vendors' invoices. Such invoices shall be submitted with the daily report sheets, or, if not available, they shall be submitted with subsequent daily report sheets. Said daily report sheets shall be signed by the Contractor or his authorized agent.

The Owner reserves the right to furnish such materials and equipment as he deems expedient, and the Contractor shall have no claim for profit or added fees on the cost of such materials and equipment. To receive partial payments and final payment for cost reimbursement work, the Contractor shall submit to the Engineer, in a manner approved by the Engineer, detailed and complete documented verification of the Contractor's and any of his Subcontractors' actual costs involved in the cost reimbursement work. Such costs shall be submitted within 30 days after said work has been performed.

69. PARTIAL PAYMENTS

A. GENERAL

Nothing contained in this Article shall be construed to affect the right, hereby reserved, to reject the whole or any part of the aforesaid work, should such work be later found not to comply with the provisions of the Contract Documents. All estimated quantities of work for which partial payments have been made are subject to review and correction on the final estimate. Payment by the Owner and acceptance by the Contractor of partial payments based on periodic estimates of quantities of work performed shall not, in any way, constitute acceptance of the estimated quantities used as the basis for computing the amounts of the partial payments.

B. ESTIMATE

At least 30 days before each progress payment falls due, as specified in the Supplementary Conditions, the Contractor shall submit to the Engineer a detailed estimate of the amount earned during the preceding month for the separate portions of the work, and request payment. As used in this Article, the words "amount earned" means the value, on the date of the estimate for partial payment, of the work completed in accordance with the Contract Documents, and the value of approved materials delivered to the project site suitably stored and protected prior to incorporation into the work.

Engineer will, within 7 days after receipt of each request for payment, either indicate in writing a recommendation of payment and present the request to Owner, or return the request to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may, within 7 days, make the necessary corrections and resubmit the request.

Engineer may refuse to recommend the whole or any part of any payment if, in his opinion, it would be incorrect to make such representations to Owner. Engineer may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

1. The work is defective, or completed work has been damaged requiring correction or replacement;
2. Written claims have been made against Owner or Liens have been filed in connection with the work;
3. The Contract Price has been reduced because of Change Orders;

4. Owner has been required to correct defective work or complete the work in accordance with Article OWNER'S RIGHT TO DO WORK;
5. Of Contractor's unsatisfactory prosecution of the work in accordance with the Contract Documents; or
6. Contractor's failure to make payment to Subcontractors or for labor, materials, or equipment.

C. DEDUCTION FROM ESTIMATE

Unless modified in the Supplementary Conditions, deductions from the estimate will be as described below:

1. The Owner will deduct from the estimate, and retain as part security, 10 percent of the amount earned for work satisfactorily completed. A deduction and retainage of 10 percent will be made on the estimated amount earned for approved items of material delivered to and properly stored at the jobsite but not incorporated into the work. When the work is 50 percent complete, the Owner may reduce the retainage to 5 percent of the dollar value of all work satisfactorily completed to date provided that the Contractor is making satisfactory progress and there is no specific cause for a greater retainage. The Owner may reinstate the retainage up to 10 percent if the Owner determines, at his discretion, that the Contractor is not making satisfactory progress or where there is other specific cause for such withholding.

D. QUALIFICATION FOR PARTIAL PAYMENT FOR MATERIALS DELIVERED

Unless modified in the Supplementary Conditions, qualification for partial payment for materials delivered but not yet incorporated into the work shall be as described below:

1. Materials, as used herein, shall be considered to be those items which are fabricated and manufactured material and equipment. No consideration shall be given to individual purchases of less than \$200 for any one item.
2. To receive partial payment for materials delivered to the site, but not incorporated in the work, it shall be necessary for the Contractor to include a list of such materials on the Partial Payment Request. At his sole discretion, the Engineer may approve items for which partial payment is to be made. Partial payment shall be based on the Contractor's actual cost for the materials as evidenced by invoices from the supplier. Proper storage and protection shall be provided by the Contractor, and as approved by the Engineer. Final payment shall be made only for materials actually incorporated in the work and, upon acceptance of the work, all materials remaining for which advance payments had been made shall revert to the Contractor, unless otherwise agreed, and partial payments made for these items shall be deducted from the final payment for the work.
3. Contractor warrants and guarantees that title to all work, materials, and equipment covered by any Application for Payment, whether incorporated in the project or not, will pass to Owner at the time of payment free and clear of all liens, claims, security interests, and encumbrances.
4. If requested by the Engineer, the Contractor shall provide, with subsequent pay requests, invoices receipted by the supplier showing payment in full has been made.

E. PAYMENT

After deducting the retainage and the amount of all previous partial payments

made to the Contractor from the amount earned, the amount due will be made payable to the Contractor. Recommendations for payment received by the Owner less than 9 days prior to the scheduled day for payment will not be processed or paid until the following month.

70. CLAIMS FOR EXTRA WORK

In any case where the Contractor deems additional time or compensation will become due him under this Contract for circumstances other than those defined in Article DELAYS AND EXTENSION OF TIME, the Contractor shall notify the Engineer, in writing, of his intention to make claim for such time or compensation before he begins the work on which he bases the claim, in order that such matters may be settled, if possible, or other appropriate action promptly taken. The notice of claim shall be in duplicate, in writing, and shall state the circumstances and the reasons for the claim, but need not state the amount. If such notification is not given or the Engineer is not afforded proper facilities by the Contractor for keeping strict account of actual cost, then the Contractor hereby agrees to waive the claim for such additional time or compensation. Such notice by the Contractor, and the fact that the Engineer has kept account of the cost as aforesaid, shall not in any way be construed as proving the validity of the claim.

No extension of time will be granted to the Contractor for delays resulting from extra work that have no measurable impact on the completion of the total Work under this Contract.

Claims for additional time or compensation shall be made in itemized detail and submitted, in writing, to the Owner and Engineer within 10 days following completion of that portion of the work for which the Contractor bases his claim. Failure to make the claim for additional compensation in the manner and within the time specified

above shall constitute waiver of that claim. In case the claim is found to be just, it shall be allowed and paid for as provided in Article PAYMENT FOR CHANGE ORDERS.

71. RELEASE OF LIENS OR CLAIMS

The Contractor shall indemnify and hold harmless the Owner from all claims for labor and materials furnished under this Contract. Prior to the final payment, the Contractor shall furnish to the Owner, as part of his final payment request, a certification that all of the Contractor's obligations on the project have been satisfied and that all monetary claims and indebtedness have been paid. The Contractor shall furnish complete and legal effective releases or waivers, satisfactory to the Owner, of all liens arising out of or filed in connection with the work.

72. FINAL PAYMENT

Upon completion of all of the work under this Contract, the Contractor shall notify the Engineer, in writing, that he has completed his part of the Contract and shall request final payment. Upon receipt of such notice the Engineer will inspect and, if acceptable, submit to the Owner his recommendation as to acceptance of the completed work and as to the final estimate of the amount due the Contractor. Upon approval of this final estimate by the Owner and compliance by the Contractor with provisions in Article RELEASE OF LIENS OR CLAIMS, and other provisions as may be applicable, the Owner shall pay to the Contractor all monies due him under the provisions of these Contract Documents.

73. NO WAIVER OF RIGHTS

Neither the inspection by the Owner, through the Engineer or any of his employees, nor any order by the Owner for payment of money, nor any payment for, or acceptance of, the whole or any part of the work by the Owner or

Engineer, nor any extension of time, nor any possession taken by the Owner or its employees, shall operate as a waiver of any provision of this Contract, or any power herein reserved to the Owner, or any right to damages herein provided, nor shall any waiver of any breach in this Contract be held to be a waiver of any other or subsequent breach. Acceptance or final payment shall not be final and conclusive with regards to latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Owner's rights under the warranty.

74. ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE

The acceptance by the Contractor of the final payment shall release the Owner and the Engineer, as representatives of the Owner, from all claims and all liability to the Contractor for all things done or furnished in connection with the work, and every act of the Owner and others relating to or arising out of the work except claims previously made in writing and still unsettled. No payment, however, final or otherwise, shall operate to release the Contractor or his Sureties from obligations under this Contract and the Performance Bond, Payment Bond, and other bonds and warranties, as herein provided.

* * * * *

SUPPLEMENTARY CONDITIONSLOCATION AND DRAWINGS

LOCATION

The location of the work is shown on the first sheet of the Drawings titled "Vicinity Map, Index to Drawings and Legend".

DRAWINGS

The Drawings for the construction of the Fire Protection Well consist of 1 sheet, entitled "Fire Protection Well No. 2", and dated September, 1987.

REVISIONS AND ADDITIONS TO THE GENERAL CONDITIONS

The General Conditions are hereby revised as follows:

ARTICLE "ENGINEER"

Add the following:

Wherever in these Documents the word "Engineer" appears, it shall be understood to mean CH2M HILL and their authorized representatives, acting either directly or indirectly as authorized agents of the Owner.

ARTICLE "OWNER"

Add the following:

Wherever in these Documents the word "Owner" appears, it shall be understood to mean Intermountain Gas Company whose address is 555 South Cole Road, Boise, Idaho, 83705.

ARTICLE "INSURANCE AND LIABILITY", SUBARTICLE "COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE"

Add the following:

Provide Employer's Liability Insurance in an amount not less than \$100,000.

ARTICLE "INSURANCE AND LIABILITY", SUBARTICLE "GENERAL LIABILITY INSURANCE (INCLUDING AUTOMOBILE)"

Add the following:

The amount of General Liability Insurance shall not be less than \$500,000 for bodily injury for each occurrence, with

coverage for property damage not less than \$500,000. Comprehensive automobile liability shall not be less than \$500,000 for each person and \$500,000 for each occurrence. Contractual liability shall not be less than \$500,000 for bodily injury per each occurrence with coverage for property damage not less than \$500,000 for each occurrence.

ARTICLE "TAXES AND CHARGES"

Add the following:

The Contractor shall pay promptly when due all excises, license fees, and all state and local sales and use taxes accruing during this Contract in a manner as required by the laws and statutes of the State of Idaho and its political subdivisions (Idaho Code 63-1503). The Contractor shall withhold and pay any and all withholding taxes, whether state or federal, and pay all Social Security charges and also all State Unemployment Compensation charges, and pay or cause to be withheld, as the case may be, any and all taxes, charges, or fees or sums whatsoever, which are now or may hereafter be required to be paid or withheld under any laws.

In the event of the Contractor's default on the payment of taxes, excises, and license fees as set forth in Idaho Code 63-1503 (as amended), the Owner shall have the authority to withhold from any payment due the Contractor under this Contract, the estimated amount of such accrued and accruing taxes, excises, and license fees for the benefit of all taxing authorities to which said Contractor is liable.

ARTICLE "PARTIAL PAYMENTS" SUBARTICLE "PAYMENT"

Add the following:

Partial payments will be made payable to the Contractor after deducting the retainage and the amount of all previous partial payments made to the Contractor, the amount earned as of the current month will be made payable to the Contractor 20 days after the last day of said month.

Add the following to the General Conditions:

ARBITRATION

All claims, disputes, and other matters in question between OWNER and CONTRACTOR arising out of, or relating to the Contract Documents or the breach thereof except for claims which have been waived by the making or acceptance of final payment, as provided by Article FINAL PAYMENT, shall be

decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association, then obtaining, subject to the limitations of this Article. This agreement so to arbitrate and any other agreement or consent to arbitrate entered into in accordance herewith as provided in this Article will be specifically enforceable under the prevailing arbitration law of any court having jurisdiction.

No demand for arbitration of any claim, dispute, or other matter that is required to be referred to Engineer initially for decision shall be made until the earlier of (a) the date on which Engineer has rendered a decision; or (b) the 10th day after the parties have presented their evidence to Engineer if a written decision has not been rendered by Engineer before that date. No demand for arbitration of any such claim, dispute, or other matter shall be made later than 30 days after the date on which Engineer has rendered a written decision in respect thereof and the failure to demand arbitration within said 30 days' period shall result in Engineer's decision being final and binding upon Owner and Contractor. If Engineer renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but shall not supersede the arbitration proceedings, except where the decision is acceptable to the parties concerned.

Notice of the demand for arbitration shall be filed in writing with the other party to the Agreement and with the American Arbitration Association, and a copy shall be sent to Engineer for information. The demand for arbitration shall be made within the 30-day period specified above, where applicable, and in all other cases within a reasonable time after the claim, dispute, or other matter in question has arisen, and in no event shall any such demand be made after institution of legal or equitable proceedings based on such claim, dispute, or other matter in question would be barred by the applicable statute of limitations.

No arbitration arising out of or relating to the Contract Documents shall include by consolidation, joinder, or in any other manner, the Engineer, its agents, employees, or consultants, except by written consent of the Engineer. No arbitration arising out of or relating to the Contract Documents shall include by consolidation, joinder, or in any other manner any other person or entity who is not a party to this Agreement unless:

The inclusion of such other person or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration;

Such other person or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings; and

The written consent of the other person or entity sought to be included and of Owner and Contractor has been obtained for such inclusion, which consent shall make specific reference to this paragraph; but no such consent shall constitute consent to arbitration of any dispute not specifically described in such consent or to arbitration with any party not specifically identified in such consent.

The award rendered by the arbitrators will be final, judgment may be entered upon it in any court having jurisdiction thereof, and will not be subject to modification or appeal except to the extent permitted by Sections 10 and 11 of the Federal Arbitration Act (9 U.S.C., Subsection 10, 11).

* * * * *

PART 4
SPECIFICATIONS

ABBREVIATIONS

Whenever in these Contract Documents the following abbreviations are used, the intent and meaning shall be interpreted as follows:

AA	Aluminum Association
AAMA	Architectural Aluminum Manufacturers' Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AFBMA	Anti-Friction Bearing Manufacturers' Association
AGA	American Gas Association
AGMA	American Gear Manufacturers' Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute
AREA	American Railway Engineering Association
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Institute
AWPA	American Wood Preservers' Association
AWPB	American Wood Preservers Bureau
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers' Association
CBMA	Certified Ballast Manufacturers' Association
CDA	Copper Development Association
CISPI	Cast Iron Soil Pipe Institute
CMAA	Crane Manufacturers' Association of America
CRSI	Concrete Reinforcing Steel Institute
Fed. Spec.	Federal Specifications
HI	Hydraulic Institute
HMI	Hoist Manufacturers' Institute
ICBO	International Conference of Building Officials
ICEA	Insulated Cable Engineers' Association
IEEE	Institute of Electrical and Electronics Engineers, Inc.
ISA	Instrument Society of America
JIC	Joint Industry Conferences of Hydraulic Manufacturers
MMA	Monorail Manufacturers' Association
NBHA	National Builders' Hardware Association
NEC	National Electrical Code

NEMA	National Electrical Manufacturers' Association
NESC	National Electric Safety Code
NFPA	National Fire Protection Association
NLMA	National Lumber Manufacturers' Association
NWMA	National Woodwork Manufacturers' Association
OECI	Overhead Electrical Crane Institute
OSHA	Occupational Safety and Health Act (both Federal & State)
PS	Product Standards Section - U.S. Department of Commerce
RLM	RLM Standards Institute, Inc.
RMA	Rubber Manufacturers' Association
SAE	Society of Automotive Engineers
SDI	Steel Door Institute
SSPC	Steel Structures Painting Council
TEMA	Tubular Exchanger Manufacturers' Association
TCA	Tile Council of America
UBC	Uniform Building Code
UL	Underwriters' Laboratories, Inc.
WWPA	Western Wood Products Association

Unless a particular issue is designated, all references to the above specifications, standards, or methods shall, in each instance, be understood to refer to the issue in effect (including all amendments) on the first published date of the Invitation to Bid.

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01001
GENERAL REQUIREMENTS

1. PROJECT DESCRIPTION

1.1 GENERAL:

1.1.1 A brief description of the work is stated in the Invitation to Bid. To determine the full scope of the project or any particular part of the project, coordinate the applicable information in the several parts of these Contract Documents.

2. SEQUENCE OF OPERATIONS

2.1 SCHEDULING: Plan the work and carry it out with minimum interference to the operation of the existing facilities. Prior to starting the work, confer with the Engineer and Owner's representative to develop an approved work schedule which will permit the facilities to function normally as practical.

2.2 The pump testing of the well shall not be begun before October 5, 1987, to avoid flooding of the field adjacent to Intermountain Gas property prior to harvest.

3. SITE CONDITIONS

3.1 SITE INVESTIGATION AND REPRESENTATION:

3.1.1 The Contractor acknowledges satisfaction as to the nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, access to the site, disposal, handling and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, river stages, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during the prosecution of the work, and all other matters which can in any way affect the work or the cost thereof under this Contract.

3.1.2 The Contractor further acknowledges satisfaction as to character, quality, and quantity of surface and subsurface materials to be encountered from his inspection of the site and from reviewing any available records of exploratory work furnished by the Owner or included in these Documents. Failure by the Contractor to become acquainted with the physical conditions of the site and all the available information will not relieve the Contractor from responsibility for properly estimating the difficulty or cost of successfully performing the work.

3.1.3 The Contractor warrants that as a result of examination and investigation of all the aforesaid data, the Contractor can perform

the work in a good and workmanlike manner and to the satisfaction of the Owner. The Owner assumes no responsibility for any representations made by any of its officers or agents during or prior to the execution of this Contract, unless (1) such representations are expressly stated in the Contract, and (2) the Contract expressly provides that the responsibility therefor is assumed by the Owner.

3.2 INFORMATION ON SITE CONDITIONS:

3.2.1 General: Any information obtained by the Engineer regarding site conditions, subsurface information, groundwater elevations, existing construction of site facilities as applicable, and similar data will be available for inspection at the office of the Engineer upon request. Such information is offered as supplementary information only. Neither the Engineer nor the Owner assumes any responsibility for the completeness or interpretation of such supplementary information.

3.3 SUBSURFACE INVESTIGATION:

3.3.1 Two test holes and three water wells have been previously excavated in the vicinity of the proposed well. Neither the Owner nor the Engineer assumes any responsibility whatever in respect to the sufficiency or accuracy of borings made, or of the log of test borings, or of other investigations, or of the interpretations made thereof, and there is no warranty or guarantee, either expressed or implied, that the conditions indicated by such investigations are representative of those existing throughout such area, or any part thereof, or that unforeseen developments may not occur.

3.3.2 A log of test hole and two of the well borings showing a record of the data obtained on subsurface conditions is included in the Contract Documents.

3.3.3 The Contractor may make arrangements with the Owner for permission to conduct such additional subsurface investigation as may be necessary to verify existing conditions.

4. TEMPORARY CONSTRUCTION UTILITIES AND FACILITIES

4.1 TEMPORARY WATER: The Owner will provide a place of connection for temporary water at the site. The Contractor shall provide all temporary piping required to bring the water to the point of use and shall remove the piping when no longer needed.

4.2 TEMPORARY ELECTRIC POWER: No electric power is available at the site. The Contractor shall make arrangements to obtain and pay for electrical power used until final acceptance by the Owner.

4.3 SAFETY REQUIREMENTS FOR TEMPORARY ELECTRIC POWER: Temporary electric power installation shall meet the construction safety requirements of OSHA, state, and other governing agencies.

4.4 SANITARY FACILITIES: The Contractor shall provide and maintain sanitary facilities for his employees and his subcontractors' employees that will comply with the regulations of the local and state departments of health and as directed by the Engineer.

4.5 STORAGE OF MATERIALS: Materials shall be so stored as to ensure the preservation of their quality and fitness for the work. When considered necessary, they shall be placed on wooden platforms or other hard, clean surfaces, and not on the ground. Stored materials shall be located so as to facilitate prompt inspection. Private property shall not be used for storage purposes without the written permission of the owner or lessee.

5. PRESERVATION, RESTORATION, AND CLEANUP

5.1 SITE RESTORATION AND CLEANUP: At all times during the work, keep the premises clean and orderly, and upon completion of the work, repair all damage caused by equipment and leave the project free of rubbish or excess materials of any kind.

5.2 FINISHING OF SITE, BORROW, AND STORAGE AREAS: Upon completion of the project, all areas used by the Contractor shall be properly cleared of all temporary structures, rubbish, and waste materials and properly graded to drain and blend in with the abutting property. Areas used for the deposit of waste materials shall be finished to properly drain and blend with the surrounding terrain.

6. PAYMENT

6.1 GENERAL: Payment for the work in this section will be included as part of the lump sum bid or applicable unit prices stated in the Proposal.

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02015
MOVE IN AND SITE PREPARATION

1. SCOPE

1.1 WORK INCLUDED: This section covers the work necessary to move in personnel and equipment, set up all temporary offices, buildings, facilities, utilities, and prepare the site for construction, complete.

1.2 GENERAL: The limits of the site and areas designated for Contractor's temporary facilities are shown on Drawing No. 1.

1.3 WORK INCLUDED HEREIN, BUT SPECIFIED IN OTHER SECTIONS:

<u>Section No.</u>	<u>Item</u>
01001	General Requirements

2. MATERIALS

2.1 TEMPORARY FACILITIES: The Contractor shall provide all temporary facilities as required for performing the work.

2.2 TEMPORARY UTILITIES: Utility tie-ins are available as stated in Division 1, GENERAL REQUIREMENTS. The Contractor shall obtain the necessary permits for connection to these services.

3. WORKMANSHIP

3.1 LAYOUT: Set up construction facilities in a neat and orderly manner within designated area at location of choice. Accomplish all required work in accordance with applicable portions of these Specifications. Confine operations to work area shown.

3.2 OBSTRUCTIONS:

3.2.1 Some obstructions may not be shown. Bidders are advised to carefully inspect the existing facilities before preparing their proposals.

3.2.2 Major obstructions encountered that are not shown on the Drawings, or could not have been foreseen by visual inspection of the site prior to bidding, should immediately be brought to the attention of the Engineer. The Engineer will make a determination for proceeding with the work. If the Engineer finds that the obstruction adversely affects the Contractor's costs or schedule for completion, a proper adjustment to the Contract will be made in accordance with the Article CHANGE ORDERS in the General Conditions.

4. PAYMENT

4.1 GENERAL:

4.1.1 Payment for the work under this section will be included as part of the lump sum bid amount stated in the Proposal.

4.1.2 Retention from amount earned shall apply for the work under this section in accordance with Article PAYMENT in the General Conditions.

4.1.3 Any extension of Contract time that may be granted by the Owner will not of itself constitute a claim for additional payment for the work under this section.

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**02581
DRILLING**

1. SCOPE

1.1 WORK INCLUDED: This section covers the work, materials, and equipment necessary for drilling the well bores, complete.

2. MATERIALS AND EQUIPMENT

2.1 GENERAL: All equipment shall be in good working condition prior to use in the work. Operate and maintain equipment in conformance with manufacturer's recommendations.

2.2 DRILLING EQUIPMENT:

2.2.1 Provide a drilling rig capable of completing the well as shown on the attached well construction drawing.

2.2.2 Provide all tools, bits, and all other necessary equipment for drilling.

2.3 DRILLING FLUID: Provide all drilling fluids, water, and additives as required. Review fluids and additives with the Engineer prior to drilling.

2.4 TEST AND SAMPLING EQUIPMENT:

2.4.1 Provide equipment for measuring drilling fluid properties.

2.4.2 Provide sampling bags or containers.

3. WORKMANSHIP

3.1 DRILLING:

3.1.1 Notify the Engineer 5 days (Saturdays, Sundays, and holidays excepted) prior to drilling.

3.1.2 Provide at all times a thoroughly experienced, competent, and licensed driller during all operations at the drill site.

3.1.3 Drill the boreholes of the dimensions and at the approximate location shown on the attached well construction drawing. The exact location will be determined by the Engineer in the field.

3.1.4 The boreholes shall be drilled so as to permit the installation of the casing and screen(s), if used, straight and plumb to the tolerances specified in Section CASING. The outer casing shall be installed to the total depth shown and pulled back after installation of the inner casing and screen assembly and the gravel pack.

3.1.5 Use only drilling fluids and additives specifically recommended by the manufacturer for use in water well drilling. Avoid contamination of the samples or the aquifer. Do not introduce muds, clays, or drilling aids into the well or use lime, cement, organic matter, or other material to stop circulation losses of the drilling fluid, without reviewing the proposed program with the Engineer.

3.1.6 The Contractor may check plumbness, out-of-roundness, and straightness of the drilled hole as the drilling progresses. Such checking shall not relieve the Contractor from requirements for testing as specified in Section CASING.

3.2 COMPLIANCE WITH GOVERNMENTAL REGULATIONS: Construct the well in strict conformance with all laws, rules, regulations, and standards related to the construction of wells in the State of Idaho and the County of Ada.

3.3 FORMATION SAMPLES:

3.3.1 Take representative formation samples between 5 feet below the ground surface to the full depth of the well. Samples shall be taken at each 10-foot level and each change in formation or material type. In the aquifer zone, samples shall be taken at each 2-1/2-foot level. The method must yield samples that are representative of the actual depth to which drilling has progressed.

3.3.2 Each sample shall be approximately 1 quart in volume. Place each sample in a container labeled with the date, well identification, and depth from which the sample was taken clearly marked on the container. Submit sample to the Engineer immediately.

3.4 PROTECTION OF WATER QUALITY: Take all necessary precautions to prevent contaminated water, gasoline, or other deleterious substances from entering the well, either through the opening or by seepage through the ground surface. Maintain precautions during and after construction of the well until accepted by the Owner.

3.5 DRILLING AND WELL LOGS:

3.5.1 Furnish the Engineer a daily drilling log. The log shall accurately describe the geologic materials and depths encountered; the presence or absence of water; depths of lost circulation zones and methods of regaining circulation; drilling rates; time, depth, and description of any unusual occurrences or problems during drilling; and diameters and lengths of casing installed. Keep the log up-to-date with the progress of drilling. Keep a copy at the drill site for inspection by the Engineer. Use reproductions of the Daily Drilling Report located at the end of this section, or equal.

3.5.2 Prepare and submit a final well log which shall include geologic log; borehole diameters; depth of the bottom of the casing

and/or the bottom of the borehole; casing diameters and wall thicknesses; cemented zones; perforated or screened interval(s); type, size, and quantity of gravel pack installed, amount of sand removed during development; and other information from the daily logs pertinent to the well construction. File all records and reports with the proper agencies required by federal, state, and local codes or regulations.

3.6 DISPOSAL OF CUTTINGS AND WATER: Remove from the drill site all cuttings, water, or other material removed by drilling operations which are not required to complete the work.

4. PAYMENT

4.1 GENERAL:

4.1.1 Drilling will be measured in linear feet of hole drilled, to the nearest foot.

4.1.2 Payment for all work, materials, and equipment specified in this section will be made at the unit price per foot drilled as stated in the Contractor's Proposal for DRILLING.

(See next page for Daily Drilling Report)

DAILY DRILLING REPORT

Date: _____ Owner: _____

Well No.: _____

Casing/Hole Diameter _____ -inch

Depth of Well _____ Depth to Water (below ground) _____

Start of Shift _____ feet Start of Shift _____ feet

End of Shift _____ feet End of Shift _____ feet

Log of Materials Encountered

<u>Description</u>	<u>From</u>	<u>Depth</u>	<u>To</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: (Character of drilling, casing added, miscellaneous work items, etc.)

Driller: _____

Helper: _____

(Use other side for more comments)

* * * * *

02583 CASING

1. SCOPE

1.1 WORK INCLUDED: This section covers the work, materials, and equipment necessary for furnishing, installing, and testing the straightness and plumbness of the well casing and for furnishing blank casing for the well screen assembly, complete.

2. MATERIALS AND EQUIPMENT

2.1 GENERAL: Provide all materials and equipment necessary for joining and installing the casing as specified.

2.2 OUTER CASING:

2.2.1 Use pipe of sufficient strength to hold drilled hole open until grouting and gravel packing are completed and to withstand pulling. Minimum wall thickness shall be .375-inch. Temporary outer casing which is removed shall remain the property of the Contractor.

2.2.2 The nominal diameter of the outer casing shall be a minimum of 24 inches. Outer casing shall extend to total depth shown, or as determined by the Engineer, and shall be pulled back after gravel packing. The grouted portion of the outer casing shall be left in place.

2.3 WELL AND BLANK CASING:

2.3.1 Provide all casing of the types, thicknesses, diameters, and weights as specified. All casing shall be of new first quality material and free of defects in workmanship and handling.

2.3.2 All casing shall be made of steel which conforms to ASTM A 53, Type F, E, or S, Grade B or better or equal, with a .375-inch wall thickness.

2.4 FITTINGS: Provide all fittings, drive shoes, and centering guides as shown on the attached well construction drawing or as necessary to complete the well.

2.5 STRAIGHTNESS AND PLUMBNESS: Provide all materials and equipment necessary to perform the straightness and plumbness test(s) as specified. Test equipment shall be in conformance with AWWA A100, except as modified by these Specifications.

3. WORKMANSHIP

3.1 GENERAL:

3.1.1 Install specified casing in hole plumb and straight as defined in the STRAIGHTNESS AND PLUMBNESS paragraph of this section.

3.1.2 All casing shall be installed by a method appropriate to the attached well construction drawing, as selected by the Contractor.

3.1.3 Casing lengths shall be joined watertight by welding, so that the resulting joint shall have the same structural integrity as the casing itself.

3.1.4 The standards of the American Welding Society shall apply.

3.1.5 Attach centering guides spaced at 120-degree intervals around the casing 5 feet from the bottom end and thereafter every 40 feet.

3.1.6 Casing which fails, collapses, or separates during construction shall be removed from the hole and repaired or replaced at Contractor's sole expense.

3.2 STRAIGHTNESS AND PLUMBNESS TEST:

3.2.1 All wells shall be constructed and all casings and liners set round, straight, and plumb. To demonstrate compliance with the requirements, the Contractor shall perform the test described herein in conformance with AWWA A100, or equal. The test for straightness and plumbness shall be made following construction of the well and before test pump equipment is installed.

3.2.2 Straightness and plumbness shall be tested by lowering into the well to a depth of at least 200 feet (lowest anticipated pump setting) a section of pipe 40 feet long or a dummy of the same length. The outer diameter of the test pipe or dummy shall not be more than 1 inch smaller than the inside diameter of that part of the casing or hole being tested. If a dummy is used, it shall consist of a rigid spindle with three rings, each ring being 12 inches in length. The rings shall be truly cylindrical and shall be spaced one at each end of the dummy and one ring in the center. The central member of the dummy shall be rigid so that it will maintain the alignment of the axes of the rings.

3.2.3 The plumb line may be suspended from the drilling rig or from a tripod with winch. An adjustable guide block shall be provided so that the test pipe or dummy will hang in the exact center of the top of the well casing. As the pipe or dummy is lowered into the hole, the deflection of the plumb line from the exact center of the casing will be measured every 10 feet.

3.3 STRAIGHTNESS AND PLUMBNESS REQUIREMENTS: Should the test pipe or dummy fail to move freely throughout the length of the casing or hole to a depth of 200 feet (lowest anticipated pump setting) or should the well vary from plumb in excess of 1/2 the smallest inside diameter of that part of the well being tested per 100 feet of

depth, the plumbness and straightness of the well shall be corrected by the Contractor at his sole expense. Should the Contractor fail to correct such faulty straightness or plumbness, the Engineer may refuse to accept the well.

4. PAYMENT

4.1 GENERAL:

4.1.1 Installed casing will be measured in linear feet to the nearest foot.

4.1.2 Payment for providing and installing all well, blank and tailpipe casing will be made at the unit prices per foot installed, as stated in the Contractor's Proposal for CASING.

4.1.3 Full payment for providing, installing, and pulling the temporary surface casing, providing and installing all fittings, and performing the straightness and plumbness test(s) specified in this section shall be included in the unit prices as stated in the Contractor's Proposal for FURNISH, INSTALL, AND WITHDRAW CASING.

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**02584
GROUT SEAL**

1. SCOPE

1.1 WORK INCLUDED: This section covers the work, materials, and equipment necessary for furnishing and installing the grout seal, complete.

2. MATERIALS AND EQUIPMENT

2.1 GENERAL: Provide all grout and the materials and equipment necessary for placement of the grout as specified.

2.2 PORTLAND CEMENT: Conform to ASTM C 150, Type I or III.

2.3 SAND AND AGGREGATE: Use only clean, durable sand and aggregate with suitable gradation for fluid grout. Submit sample to the Engineer for approval prior to use.

3. WORKMANSHIP

3.1 NEAT CEMENT GROUT: Portion 1 cubic foot of cement to not more than 6 gallons of water.

3.2 ADDITIVES:

3.2.1 The use of special cements, bentonite to reduce shrinkage or other admixtures (ASTM C 494) to reduce permeability, increase fluidity and/or control set time, and the composition of the resultant slurry shall be reviewed by the Engineer.

3.2.2 Consistency and method of mixing shall be reviewed by the Engineer prior to grouting.

3.3 PLACING: The method of grout placement shall be reviewed by the Engineer. If grouting below the water table, no method will be permitted that does not force grout from the bottom of the space to be grouted to the surface. The grouting shall be done continuously and in such a manner as will ensure the entire filling of the annular space in one operation. No drilling operations will be permitted until the grout has cured. Curing time for portland cement, Type I, is a minimum 72 hours and for Type III, a minimum 48 hours.

4. PAYMENT

4.1 GENERAL:

4.1.1 Installed grout seal will be measured in linear feet to the nearest foot.

4.1.2 Payment for all work, materials, and equipment specified in this section will be made at the unit price per foot installed as stated in the Contractor's Proposal for GROUT SEAL.

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02585
WELL SCREEN ASSEMBLY

1. SCOPE

1.1 **WORK INCLUDED:** This section covers the work, materials, and equipment necessary for furnishing and installing the well screen assembly, complete.

2. MATERIALS AND EQUIPMENT

2.1 WELL SCREEN:

2.1.1 Provide the well screen(s) and all materials and equipment necessary to fabricate and install the well screen assembly as specified.

2.1.2 The well screen(s) shall be made of stainless steel and be of the welded, wire-wound, continuous-slot type as manufactured by UOP Johnson, Howard Smith, Cooke, Roscoe Moss, or equal.

2.1.3 Dimension of openings and screen length will be determined by the Engineer, based upon analysis of formation samples taken by the Contractor as specified in Section DRILLING.

2.1.4 The Engineer reserves the right to increase or decrease the length of the well screen, or to eliminate the screen entirely if the formation samples indicate the aquifer characteristics are desirable.

2.1.5 Within 5 days (Saturdays, Sundays, and holidays excepted) after the full depth of the well has been reached and the formation samples have been received by the Engineer, the Engineer will decide whether or not a well screen shall be installed. If the Engineer decides that the well screen is to be installed, the Engineer will specify the lengths, location, and slot sizes of the well screen and the locations and lengths of blank casing sections within this same 5-day period.

2.2 **CENTERING GUIDES:** Provide centering guides for the well screen assembly, as shown on the attached well construction drawing or as necessary to complete the well.

2.3 **BLANK CASING:** See Section CASING for blank casing specifications.

2.4 FITTINGS AND PACKERS:

2.4.1 Provide all well screen assembly fittings and packers as shown on the well construction drawing or as necessary to complete the well.

2.4.2 All well screen fittings and packers shall be manufactured by the well screen manufacturer and shall be designed for use with the particular well screen selected.

3. WORKMANSHIP

3.1 WELL SCREEN INSTALLATION: Install the well screen assembly and fittings in conformance with the well screen manufacturer's recommendations.

4. PAYMENT

4.1 WELL SCREEN: Payment for providing and installing the well screen will be made at the unit price per linear foot installed as stated in the Contractor's Proposal for WELL SCREEN ASSEMBLY.

4.2 BLANK CASING: Payment for providing and installing the blank casing will be made at the unit price per foot installed as stated in the Contractor's Proposal for CASING.

4.3 FITTINGS AND CENTERING GUIDES: Full payment for providing and installing the well screen fittings and centering guides will be included in the unit price(s) for well screen as stated in the Contractor's Proposal for WELL SCREEN ASSEMBLY.

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02586
GRAVEL PACK

1. SCOPE

1.1 **WORK INCLUDED:** This section covers the work, materials, and equipment necessary for furnishing and installing the gravel pack, complete.

2. MATERIALS AND EQUIPMENT

2.1 **GENERAL:** Provide all gravel and the materials and equipment necessary for placing the gravel pack as specified.

2.2 **GRAVEL:**

2.2.1 The gravel shall be thoroughly washed, sound, durable, well rounded basalt or siliceous material containing, when delivered, less than 5 percent silt and clay, and no organic material, anhydrite, gypsum, mica, or calcareous material. Specific gravity shall be not less than 2.5.

2.2.2 The size and gradation of the gravel packing material will be determined by the Engineer on the basis of formation samples taken by the Contractor during drilling.

2.2.3 Submit to the Engineer a 5-pound sample of proposed gravel pack material for approval prior to delivery of gravel pack to the site.

2.3 **GRAVEL SOUNDING DEVICE:** Provide a measuring device to sound the gravel level in the hole during placement to detect bridging.

3. WORKMANSHIP

3.1 **GENERAL:** If high viscosity drilling fluid has been used in drilling, it shall be thinned with water, prior to placement of gravel.

3.2 **PLACING GRAVEL:** The gravel shall be introduced at a metered uniform rate in a manner that will allow even placement of the gravel. Every precaution shall be taken to ensure placement of the gravel pack continuously from the bottom of the well to a point above the well screen without separation or bridging of the materials as they are introduced into the well. During placement of the gravel, the top of the gravel shall be continuously sounded to measure its rate of rise and to determine if bridging is occurring.

4. PAYMENT

4.1 **GENERAL:**

4.1.1 Installed gravel pack will be measured in linear feet to the nearest foot.

4.1.2 Payment for all work, materials, and equipment specified in this section will be made at the unit price per foot installed as stated in the Contractor's Proposal for GRAVEL PACK.

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02587
WELL DEVELOPMENT

1. SCOPE

1.1 WORK INCLUDED:

1.1.1 This section covers the work, materials, and equipment necessary for the development of the well, complete.

1.1.2 The total development time is estimated to be 24 hours. However, the Engineer shall be the sole judge as to when development is complete and may therefore increase or decrease the total development time.

2. MATERIALS AND EQUIPMENT

2.1 SURGING AND BAILING EQUIPMENT: Furnish a solid type surge block, bailer, sand pump, and all necessary appurtenant equipment necessary for developing the well.

2.2 HYDRAULIC JETTING EQUIPMENT: Furnish and install the following hydraulic jetting equipment, or equal:

- A. One-and-one-half-inch jetting pipe with four solid stream jet nozzles threaded at right angle to the long axis of the jetting pipe and located at 90 degrees around the jetting pipe. Jetting nozzles to be encased within a steel guard having an outside distance between opposing guards of 14 inches.
- B. Two-inch or larger piping to connect the jetting pipe to the water pump.
- C. Swivel joints or flexible connections on the piping to permit vertical and rotational movement of the jetting tool.
- D. A high-pressure water pump capable of delivering 55 gpm at a pressure of 200 psi and equipped with a flowmeter and regulation valve.
- E. An airlift (air-line and eductor pipe), centrifugal, or submersible pump capable of pumping from 80 to 100 gpm during jetting.
- F. Miscellaneous connecting pipe and fittings as required.

2.3 HIGH CAPACITY PUMPING EQUIPMENT: Furnish a turbine pump and discharge equipment and piping for development of the well by pumping. Pump and appurtenances are specified in Section PUMPING TEST.

2.4 SAND CONTENT MEASURING DEVICE: Provide a sand content measuring device such as a Rossum centrifugal sand separator, or equal.

3. WORKMANSHIP

3.1 INITIAL DEVELOPMENT BY SURGING:

3.1.1 After the well screen is installed, initially develop the well by means of a surge block and bailer. If fines which have been drawn into the well fill the well screen sump or tailpipe, the well shall be bailed or otherwise cleaned to the bottom before resuming surging.

3.1.2 After initial development by surging, the well shall be sounded and cleaned to the bottom by bailing or other equal method.

3.2 INITIAL DEVELOPMENT BY HYDRAULIC JETTING:

3.2.1 After the well screen has been installed, develop the well by high velocity jetting while simultaneously pumping the well at a higher rate than the jet discharge.

3.2.2 The equipment shall be assembled and operated so that jet streams of water are directed into the well screen at right angles to the axis of the screen. During jetting the tool shall be slowly rotated through 120 degrees and back and moved up and down within the screen so that the jet streams are directed against all parts of the screen.

3.2.3 If the well screen sump or tailpipe fills with fines prior to completion of jet development, the jetting equipment shall be removed and the well cleaned to the bottom before resuming jetting.

3.2.4 After initial development by hydraulic jetting, the well shall be sounded and cleaned to the bottom by bailing or other equal method.

3.3 INSTALLATION OF PUMPING EQUIPMENT: After initial development, the high capacity pump, flow measuring device(s), discharge piping, access pipe/air-line, and other necessary appurtenances shall be installed for development and testing as specified in Section WELL PUMPING TEST.

3.4 PUMPING DEVELOPMENT:

3.4.1 Operate the pumping development equipment continuously at such rates of discharge and for such periods of time as determined by the Engineer. The well shall be pumped until the water is free from sand, silt, and turbidity and/or until no further increase in specific capacity can be observed. The Engineer shall determine when development by high capacity pumping is complete.

3.4.2 The static water level in the well shall be allowed to recover for a time equal to the pumping development time before start of the well pumping test.

3.5 PUMP REMOVAL: Do not remove the pump and appurtenant equipment until the work is complete as specified in Section PUMPING TEST.

3.6 DISPOSAL OF WATER: Disposal of development water shall be the responsibility of the Contractor. Discharge piping, if required, is specified in Section PUMPING TEST.

4. PAYMENT

4.1 HOURLY DEVELOPMENT: Payment for development of the well, regardless of the method(s) used, will be made at the unit price per hour as stated in the Contractor's Proposal for WELL DEVELOPMENT. The Contractor will not be paid the hourly rate for development during the time the equipment is not actually in use in the development of the well, or for any equipment repair, or for any time, in the opinion of the Engineer, that the development procedure is not being accomplished in accordance with these Specifications. Payment at the hourly rate shall constitute full compensation for all work, materials, and equipment specified in this section.

4.2 HIGH CAPACITY PUMP SETUP: Payment for high capacity pump setup is specified in Section PUMPING TEST.

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02588
PUMPING TEST

1. SCOPE

1.1 WORK INCLUDED:

1.1.1 This section covers the work, materials, and equipment necessary for the well pumping test, complete.

1.1.2 The estimated length of the pumping test is 24 hours. However, the Engineer shall be the sole judge as to length of the test and therefore may increase or decrease the total pumping time.

2. MATERIALS AND EQUIPMENT

2.1 TEST PUMP:

2.1.1 Furnish and install a test pump and driver capable of pumping from 500 to 2,500 gallons per minute against a total head of 225 feet (200 feet of lift plus 25 feet surface discharge head) at an impeller bowl setting of 200 feet below ground surface for a prolonged length of time. The pump shall not be fitted with a foot valve.

2.1.2 Provide a gate valve, or equal, on the discharge side of the pump for adjustment of flow rate down to 500 gallons per minute if the test pump engine cannot be sufficiently throttled.

2.1.3 The pumping unit prime mover, controls, and appurtenances shall be capable of being operated without interruption for a period of 24 hours.

2.1.4 Contractor shall furnish engine-driven equipment or shall make his own arrangements for power for well pumping test.

2.2 FLOW MEASURING DEVICE: Provide machined orifice plate(s) or flowmeter(s) capable of measuring the pump discharge within plus or minus 5 percent of true flow for flow rates from 500 gpm to 2,500 gpm.

2.3 DISCHARGE PIPING: Furnish, install, maintain, and operate discharge piping for the pump unit of sufficient size to conduct pumped water to the waste area shown.

2.4 AIR-LINE:

2.4.1 Provide an air-line, pressure gauge, and source of air under pressure, for determining water level in the well before, during, and after the pumping test. The pressure gauge shall be accurate to within 1/2 psi.

2.4.2 Air-line shall be securely fastened to the pumping unit and shall terminate approximately 2 feet above the pump.

3. WORKMANSHIP

3.1 INSTALLATION OF PUMPING EQUIPMENT: The high capacity pump, flow measuring device(s), discharge piping, access pipe/air-line, and other necessary appurtenances shall be installed for the well pumping test.

3.2 PRELIMINARY CAPACITY PUMPING TEST:

3.2.1 Run a preliminary capacity pumping test prior to the pumping test. Operate the pumping test equipment continuously at such rates of discharge and for such period of time as determined by the Engineer. Duration of such preliminary test shall be approximately 2 hours, for the purpose of checking operation of pumping test equipment and to estimate the production capacity of the well.

3.2.2 The static water level in the well shall be allowed to recover for a time equal to the duration of the preliminary test before start of well pumping test or less as determined by the Engineer.

3.3 PUMPING TEST:

3.3.1 Operate the pumping test equipment continuously at such rates of discharge and for such period of time prescribed by the Engineer. The Contractor shall provide an operator 24 hours a day, as required by the Engineer, to operate the prime mover and to regulate the discharge by the throttling device during the test pumping period. The fire code requires a minimum test of 8 hours at a flow of 2,250 gpm for the well to be suitable for a 1,500 gpm rated fire pump.

3.3.2 At completion of the pumping test, the pump bowls and column shall not be removed from the well for a time equal to 25 percent of the total pumping time to allow accurate water level recovery measurements to be taken or less as determined by the Engineer.

3.4 FURTHER DEVELOPMENT:

3.4.1 If considerable quantities of fines are pumped out of the well during the test, the Contractor shall discontinue the test and resume well development. The Engineer shall be the sole judge as to whether such additional development is necessary.

3.4.2 After completion of the test, the Contractor shall sound the well and remove any sand or silt accumulated in the well as a result of the pumping test.

3.5 DISPOSAL OF WATER: Disposal of water shall be the responsibility of the Contractor. The method of disposal shall prevent recirculation of discharged water into the aquifer being tested.

4. PAYMENT

4.1 HIGH CAPACITY PUMP SETUP: Payment for furnishing, installing, and removing the high capacity pump and driver will be at the lump sum price per setup as stated in the Contractor's Proposal for PUMPING TEST. Payment shall constitute full compensation for all time, materials, and equipment required to obtain, assemble, and disassemble the equipment.

4.2 HOURLY OPERATION:

4.2.1 Payment for the operation of the pumping equipment will be made at the unit price per hour for the actual time the equipment is in operation as stated in the Contractor's Proposal for PUMPING TEST. No payment will be made for the time of operation if the test is disrupted due to equipment failure, neglect, labor problems, and similar items before the pumping test is determined by the Engineer to be complete.

4.2.2 Payment for removal of accumulated sand or silt from the well resulting from the pumping test will be made at the unit price per hour for the method used as stated in the Contractor's Proposal for WELL DEVELOPMENT.

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02590
WELL CAPPING

1. SCOPE

1.1 WORK INCLUDED: This section covers the work, materials, and equipment necessary for capping the well, complete.

2. MATERIALS AND EQUIPMENT

2.1 GENERAL: Provide all materials and equipment necessary for capping the well as specified and shown.

2.2 CAPPING PLATE: Provide a minimum 1/4-inch thick steel plate with a 1-1/2-inch threaded plug installed in the approximate center of the plate.

2.3 RELIEF VALVE DISCHARGE PIPE: Schedule 40 black steel pipe, ASTM A 53 Grade B, with standard weight butt welding fittings, ASTM A 234 Grade WPB, conforming to ANSI B16.9. Elbow shall be long radius. Tack weld a 1/4-inch steel plate cap to elbow.

3. WORKMANSHIP

3.1 CAPPING: Tack weld capping plate to casing after the well has been pumped out.

3.2 RELIEF VALVE DISCHARGE PIPE: Joints shall be welded. The connection of the discharge pipe to the well casing shall be reinforced with four 1/4-inch gusset plates equally spaced around the discharge pipe. The legs of the gusset plates shall have a minimum of 3 inches of contact with the discharge pipe or the well casing and shall be fillet welded on both sides.

4. PAYMENT

4.1 GENERAL: Payment for all work, materials, and equipment specified in this section will be made at the lump sum price as stated in the Contractor's Proposal for WELL CAPPING.

* * * * *

ABBREVIATIONS

Whenever in these Contract Documents the following abbreviations are used, the intent and meaning shall be interpreted as follows:

AA	Aluminum Association
AAMA	Architectural Aluminum Manufacturers' Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AFBMA	Anti-Friction Bearing Manufacturers' Association
AGA	American Gas Association
AGMA	American Gear Manufacturers' Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute
AREA	American Railway Engineering Association
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Institute
AWPA	American Wood Preservers' Association
AWPB	American Wood Preservers Bureau
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers' Association
CBMA	Certified Ballast Manufacturers' Association
CDA	Copper Development Association
CISPI	Cast Iron Soil Pipe Institute
CMAA	Crane Manufacturers' Association of America
CRSI	Concrete Reinforcing Steel Institute
Fed. Spec.	Federal Specifications
HI	Hydraulic Institute
HMI	Hoist Manufacturers' Institute
ICBO	International Conference of Building Officials
ICEA	Insulated Cable Engineers' Association
IEEE	Institute of Electrical and Electronics Engineers, Inc.
ISA	Instrument Society of America
JIC	Joint Industry Conferences of Hydraulic Manufacturers
MMA	Monorail Manufacturers' Association
NBHA	National Builders' Hardware Association
NEC	National Electrical Code

NEMA	National Electrical Manufacturers' Association
NESC	National Electric Safety Code
NFPA	National Fire Protection Association
NLMA	National Lumber Manufacturers' Association
NWMA	National Woodwork Manufacturers' Association
OECI	Overhead Electrical Crane Institute
OSHA	Occupational Safety and Health Act (both Federal & State)
PS	Product Standards Section - U.S. Department of Commerce
RLM	RLM Standards Institute, Inc.
RMA	Rubber Manufacturers' Association
SAE	Society of Automotive Engineers
SDI	Steel Door Institute
SSPC	Steel Structures Painting Council
TEMA	Tubular Exchanger Manufacturers' Association
TCA	Tile Council of America
UBC	Uniform Building Code
UL	Underwriters' Laboratories, Inc.
WWPA	Western Wood Products Association

Unless a particular issue is designated, all references to the above specifications, standards, or methods shall, in each instance, be understood to refer to the issue in effect (including all amendments) on the first published date of the Invitation to Bid.

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01001
GENERAL REQUIREMENTS

1. PROJECT DESCRIPTION

1.1 GENERAL:

1.1.1 A brief description of the work is stated in the Invitation to Bid. To determine the full scope of the project or any particular part of the project, coordinate the applicable information in the several parts of these Contract Documents.

2. SEQUENCE OF OPERATIONS

2.1 SCHEDULING: Plan the work and carry it out with minimum interference to the operation of the existing facilities. Prior to starting the work, confer with the Engineer and Owner's representative to develop an approved work schedule which will permit the facilities to function normally as practical.

2.2 The pump testing of the well shall not be begun before October 5, 1987, to avoid flooding of the field adjacent to Intermountain Gas property prior to harvest.

3. SITE CONDITIONS

3.1 SITE INVESTIGATION AND REPRESENTATION:

3.1.1 The Contractor acknowledges satisfaction as to the nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, access to the site, disposal, handling and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, river stages, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during the prosecution of the work, and all other matters which can in any way affect the work or the cost thereof under this Contract.

3.1.2 The Contractor further acknowledges satisfaction as to character, quality, and quantity of surface and subsurface materials to be encountered from his inspection of the site and from reviewing any available records of exploratory work furnished by the Owner or included in these Documents. Failure by the Contractor to become acquainted with the physical conditions of the site and all the available information will not relieve the Contractor from responsibility for properly estimating the difficulty or cost of successfully performing the work.

3.1.3 The Contractor warrants that as a result of examination and investigation of all the aforesaid data, the Contractor can perform

the work in a good and workmanlike manner and to the satisfaction of the Owner. The Owner assumes no responsibility for any representations made by any of its officers or agents during or prior to the execution of this Contract, unless (1) such representations are expressly stated in the Contract, and (2) the Contract expressly provides that the responsibility therefor is assumed by the Owner.

3.2 INFORMATION ON SITE CONDITIONS:

3.2.1 General: Any information obtained by the Engineer regarding site conditions, subsurface information, groundwater elevations, existing construction of site facilities as applicable, and similar data will be available for inspection at the office of the Engineer upon request. Such information is offered as supplementary information only. Neither the Engineer nor the Owner assumes any responsibility for the completeness or interpretation of such supplementary information.

3.3 SUBSURFACE INVESTIGATION:

3.3.1 Two test holes and three water wells have been previously excavated in the vicinity of the proposed well. Neither the Owner nor the Engineer assumes any responsibility whatever in respect to the sufficiency or accuracy of borings made, or of the log of test borings, or of other investigations, or of the interpretations made thereof, and there is no warranty or guarantee, either expressed or implied, that the conditions indicated by such investigations are representative of those existing throughout such area, or any part thereof, or that unforeseen developments may not occur.

3.3.2 A log of test hole and two of the well borings showing a record of the data obtained on subsurface conditions is included in the Contract Documents.

3.3.3 The Contractor may make arrangements with the Owner for permission to conduct such additional subsurface investigation as may be necessary to verify existing conditions.

4. TEMPORARY CONSTRUCTION UTILITIES AND FACILITIES

4.1 TEMPORARY WATER: The Owner will provide a place of connection for temporary water at the site. The Contractor shall provide all temporary piping required to bring the water to the point of use and shall remove the piping when no longer needed.

4.2 TEMPORARY ELECTRIC POWER: No electric power is available at the site. The Contractor shall make arrangements to obtain and pay for electrical power used until final acceptance by the Owner.

4.3 SAFETY REQUIREMENTS FOR TEMPORARY ELECTRIC POWER: Temporary electric power installation shall meet the construction safety requirements of OSHA, state, and other governing agencies.

4.4 SANITARY FACILITIES: The Contractor shall provide and maintain sanitary facilities for his employees and his subcontractors' employees that will comply with the regulations of the local and state departments of health and as directed by the Engineer.

4.5 STORAGE OF MATERIALS: Materials shall be so stored as to ensure the preservation of their quality and fitness for the work. When considered necessary, they shall be placed on wooden platforms or other hard, clean surfaces, and not on the ground. Stored materials shall be located so as to facilitate prompt inspection. Private property shall not be used for storage purposes without the written permission of the owner or lessee.

5. PRESERVATION, RESTORATION, AND CLEANUP

5.1 SITE RESTORATION AND CLEANUP: At all times during the work, keep the premises clean and orderly, and upon completion of the work, repair all damage caused by equipment and leave the project free of rubbish or excess materials of any kind.

5.2 FINISHING OF SITE, BORROW, AND STORAGE AREAS: Upon completion of the project, all areas used by the Contractor shall be properly cleared of all temporary structures, rubbish, and waste materials and properly graded to drain and blend in with the abutting property. Areas used for the deposit of waste materials shall be finished to properly drain and blend with the surrounding terrain.

6. PAYMENT

6.1 GENERAL: Payment for the work in this section will be included as part of the lump sum bid or applicable unit prices stated in the Proposal.

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02015
MOVE IN AND SITE PREPARATION

1. SCOPE

1.1 WORK INCLUDED: This section covers the work necessary to move in personnel and equipment, set up all temporary offices, buildings, facilities, utilities, and prepare the site for construction, complete.

1.2 GENERAL: The limits of the site and areas designated for Contractor's temporary facilities are shown on Drawing No. 1.

1.3 WORK INCLUDED HEREIN, BUT SPECIFIED IN OTHER SECTIONS:

<u>Section No.</u>	<u>Item</u>
01001	General Requirements

2. MATERIALS

2.1 TEMPORARY FACILITIES: The Contractor shall provide all temporary facilities as required for performing the work.

2.2 TEMPORARY UTILITIES: Utility tie-ins are available as stated in Division 1, GENERAL REQUIREMENTS. The Contractor shall obtain the necessary permits for connection to these services.

3. WORKMANSHIP

3.1 LAYOUT: Set up construction facilities in a neat and orderly manner within designated area at location of choice. Accomplish all required work in accordance with applicable portions of these Specifications. Confine operations to work area shown.

3.2 OBSTRUCTIONS:

3.2.1 Some obstructions may not be shown. Bidders are advised to carefully inspect the existing facilities before preparing their proposals.

3.2.2 Major obstructions encountered that are not shown on the Drawings, or could not have been foreseen by visual inspection of the site prior to bidding, should immediately be brought to the attention of the Engineer. The Engineer will make a determination for proceeding with the work. If the Engineer finds that the obstruction adversely affects the Contractor's costs or schedule for completion, a proper adjustment to the Contract will be made in accordance with the Article CHANGE ORDERS in the General Conditions.

4. PAYMENT

4.1 GENERAL:

4.1.1 Payment for the work under this section will be included as part of the lump sum bid amount stated in the Proposal.

4.1.2 Retention from amount earned shall apply for the work under this section in accordance with Article PAYMENT in the General Conditions.

4.1.3 Any extension of Contract time that may be granted by the Owner will not of itself constitute a claim for additional payment for the work under this section.

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**02581
DRILLING**

1. SCOPE

1.1 WORK INCLUDED: This section covers the work, materials, and equipment necessary for drilling the well bores, complete.

2. MATERIALS AND EQUIPMENT

2.1 GENERAL: All equipment shall be in good working condition prior to use in the work. Operate and maintain equipment in conformance with manufacturer's recommendations.

2.2 DRILLING EQUIPMENT:

2.2.1 Provide a drilling rig capable of completing the well as shown on the attached well construction drawing.

2.2.2 Provide all tools, bits, and all other necessary equipment for drilling.

2.3 DRILLING FLUID: Provide all drilling fluids, water, and additives as required. Review fluids and additives with the Engineer prior to drilling.

2.4 TEST AND SAMPLING EQUIPMENT:

2.4.1 Provide equipment for measuring drilling fluid properties.

2.4.2 Provide sampling bags or containers.

3. WORKMANSHIP

3.1 DRILLING:

3.1.1 Notify the Engineer 5 days (Saturdays, Sundays, and holidays excepted) prior to drilling.

3.1.2 Provide at all times a thoroughly experienced, competent, and licensed driller during all operations at the drill site.

3.1.3 Drill the boreholes of the dimensions and at the approximate location shown on the attached well construction drawing. The exact location will be determined by the Engineer in the field.

3.1.4 The boreholes shall be drilled so as to permit the installation of the casing and screen(s), if used, straight and plumb to the tolerances specified in Section CASING. The outer casing shall be installed to the total depth shown and pulled back after installation of the inner casing and screen assembly and the gravel pack.

3.1.5 Use only drilling fluids and additives specifically recommended by the manufacturer for use in water well drilling. Avoid contamination of the samples or the aquifer. Do not introduce muds, clays, or drilling aids into the well or use lime, cement, organic matter, or other material to stop circulation losses of the drilling fluid, without reviewing the proposed program with the Engineer.

3.1.6 The Contractor may check plumbness, out-of-roundness, and straightness of the drilled hole as the drilling progresses. Such checking shall not relieve the Contractor from requirements for testing as specified in Section CASING.

3.2 COMPLIANCE WITH GOVERNMENTAL REGULATIONS: Construct the well in strict conformance with all laws, rules, regulations, and standards related to the construction of wells in the State of Idaho and the County of Ada.

3.3 FORMATION SAMPLES:

3.3.1 Take representative formation samples between 5 feet below the ground surface to the full depth of the well. Samples shall be taken at each 10-foot level and each change in formation or material type. In the aquifer zone, samples shall be taken at each 2-1/2-foot level. The method must yield samples that are representative of the actual depth to which drilling has progressed.

3.3.2 Each sample shall be approximately 1 quart in volume. Place each sample in a container labeled with the date, well identification, and depth from which the sample was taken clearly marked on the container. Submit sample to the Engineer immediately.

3.4 PROTECTION OF WATER QUALITY: Take all necessary precautions to prevent contaminated water, gasoline, or other deleterious substances from entering the well, either through the opening or by seepage through the ground surface. Maintain precautions during and after construction of the well until accepted by the Owner.

3.5 DRILLING AND WELL LOGS:

3.5.1 Furnish the Engineer a daily drilling log. The log shall accurately describe the geologic materials and depths encountered; the presence or absence of water; depths of lost circulation zones and methods of regaining circulation; drilling rates; time, depth, and description of any unusual occurrences or problems during drilling; and diameters and lengths of casing installed. Keep the log up-to-date with the progress of drilling. Keep a copy at the drill site for inspection by the Engineer. Use reproductions of the Daily Drilling Report located at the end of this section, or equal.

3.5.2 Prepare and submit a final well log which shall include geologic log; borehole diameters; depth of the bottom of the casing

and/or the bottom of the borehole; casing diameters and wall thicknesses; cemented zones; perforated or screened interval(s); type, size, and quantity of gravel pack installed, amount of sand removed during development; and other information from the daily logs pertinent to the well construction. File all records and reports with the proper agencies required by federal, state, and local codes or regulations.

3.6 DISPOSAL OF CUTTINGS AND WATER: Remove from the drill site all cuttings, water, or other material removed by drilling operations which are not required to complete the work.

4. PAYMENT

4.1 GENERAL:

4.1.1 Drilling will be measured in linear feet of hole drilled, to the nearest foot.

4.1.2 Payment for all work, materials, and equipment specified in this section will be made at the unit price per foot drilled as stated in the Contractor's Proposal for DRILLING.

(See next page for Daily Drilling Report)

DAILY DRILLING REPORT

Date: _____ Owner: _____

Well No.: _____

Casing/Hole Diameter _____ -inch

Depth of Well _____ Depth to Water (below ground) _____

Start of Shift _____ feet Start of Shift _____ feet

End of Shift _____ feet End of Shift _____ feet

Log of Materials Encountered

<u>Description</u>	<u>From</u>	Depth	<u>To</u>

Remarks: (Character of drilling, casing added, miscellaneous work items, etc.)

Driller: _____

Helper: _____

(Use other side for more comments)

* * * * *

**02583
CASING**

1. SCOPE

1.1 WORK INCLUDED: This section covers the work, materials, and equipment necessary for furnishing, installing, and testing the straightness and plumbness of the well casing and for furnishing blank casing for the well screen assembly, complete.

2. MATERIALS AND EQUIPMENT

2.1 GENERAL: Provide all materials and equipment necessary for joining and installing the casing as specified.

2.2 OUTER CASING:

2.2.1 Use pipe of sufficient strength to hold drilled hole open until grouting and gravel packing are completed and to withstand pulling. Minimum wall thickness shall be .375-inch. Temporary outer casing which is removed shall remain the property of the Contractor.

2.2.2 The nominal diameter of the outer casing shall be a minimum of 24 inches. Outer casing shall extend to total depth shown, or as determined by the Engineer, and shall be pulled back after gravel packing. The grouted portion of the outer casing shall be left in place.

2.3 WELL AND BLANK CASING:

2.3.1 Provide all casing of the types, thicknesses, diameters, and weights as specified. All casing shall be of new first quality material and free of defects in workmanship and handling.

2.3.2 All casing shall be made of steel which conforms to ASTM A 53, Type F, E, or S, Grade B or better or equal, with a .375-inch wall thickness.

2.4 FITTINGS: Provide all fittings, drive shoes, and centering guides as shown on the attached well construction drawing or as necessary to complete the well.

2.5 STRAIGHTNESS AND PLUMBNESS: Provide all materials and equipment necessary to perform the straightness and plumbness test(s) as specified. Test equipment shall be in conformance with AWWA A100, except as modified by these Specifications.

3. WORKMANSHIP

3.1 GENERAL:

3.1.1 Install specified casing in hole plumb and straight as defined in the STRAIGHTNESS AND PLUMBNESS paragraph of this section.

3.1.2 All casing shall be installed by a method appropriate to the attached well construction drawing, as selected by the Contractor.

3.1.3 Casing lengths shall be joined watertight by welding, so that the resulting joint shall have the same structural integrity as the casing itself.

3.1.4 The standards of the American Welding Society shall apply.

3.1.5 Attach centering guides spaced at 120-degree intervals around the casing 5 feet from the bottom end and thereafter every 40 feet.

3.1.6 Casing which fails, collapses, or separates during construction shall be removed from the hole and repaired or replaced at Contractor's sole expense.

3.2 STRAIGHTNESS AND PLUMBNESS TEST:

3.2.1 All wells shall be constructed and all casings and liners set round, straight, and plumb. To demonstrate compliance with the requirements, the Contractor shall perform the test described herein in conformance with AWWA A100, or equal. The test for straightness and plumbness shall be made following construction of the well and before test pump equipment is installed.

3.2.2 Straightness and plumbness shall be tested by lowering into the well to a depth of at least 200 feet (lowest anticipated pump setting) a section of pipe 40 feet long or a dummy of the same length. The outer diameter of the test pipe or dummy shall not be more than 1 inch smaller than the inside diameter of that part of the casing or hole being tested. If a dummy is used, it shall consist of a rigid spindle with three rings, each ring being 12 inches in length. The rings shall be truly cylindrical and shall be spaced one at each end of the dummy and one ring in the center. The central member of the dummy shall be rigid so that it will maintain the alignment of the axes of the rings.

3.2.3 The plumb line may be suspended from the drilling rig or from a tripod with winch. An adjustable guide block shall be provided so that the test pipe or dummy will hang in the exact center of the top of the well casing. As the pipe or dummy is lowered into the hole, the deflection of the plumb line from the exact center of the casing will be measured every 10 feet.

3.3 STRAIGHTNESS AND PLUMBNESS REQUIREMENTS: Should the test pipe or dummy fail to move freely throughout the length of the casing or hole to a depth of 200 feet (lowest anticipated pump setting) or should the well vary from plumb in excess of 1/2 the smallest inside diameter of that part of the well being tested per 100 feet of

depth, the plumbness and straightness of the well shall be corrected by the Contractor at his sole expense. Should the Contractor fail to correct such faulty straightness or plumbness, the Engineer may refuse to accept the well.

4. PAYMENT

4.1 GENERAL:

4.1.1 Installed casing will be measured in linear feet to the nearest foot.

4.1.2 Payment for providing and installing all well, blank and tailpipe casing will be made at the unit prices per foot installed, as stated in the Contractor's Proposal for CASING.

4.1.3 Full payment for providing, installing, and pulling the temporary surface casing, providing and installing all fittings, and performing the straightness and plumbness test(s) specified in this section shall be included in the unit prices as stated in the Contractor's Proposal for FURNISH, INSTALL, AND WITHDRAW CASING.

* * * * *

**02584
GROUT SEAL**

1. SCOPE

1.1 WORK INCLUDED: This section covers the work, materials, and equipment necessary for furnishing and installing the grout seal, complete.

2. MATERIALS AND EQUIPMENT

2.1 GENERAL: Provide all grout and the materials and equipment necessary for placement of the grout as specified.

2.2 PORTLAND CEMENT: Conform to ASTM C 150, Type I or III.

2.3 SAND AND AGGREGATE: Use only clean, durable sand and aggregate with suitable gradation for fluid grout. Submit sample to the Engineer for approval prior to use.

3. WORKMANSHIP

3.1 NEAT CEMENT GROUT: Portion 1 cubic foot of cement to not more than 6 gallons of water.

3.2 ADDITIVES:

3.2.1 The use of special cements, bentonite to reduce shrinkage or other admixtures (ASTM C 494) to reduce permeability, increase fluidity and/or control set time, and the composition of the resultant slurry shall be reviewed by the Engineer.

3.2.2 Consistency and method of mixing shall be reviewed by the Engineer prior to grouting.

3.3 PLACING: The method of grout placement shall be reviewed by the Engineer. If grouting below the water table, no method will be permitted that does not force grout from the bottom of the space to be grouted to the surface. The grouting shall be done continuously and in such a manner as will ensure the entire filling of the annular space in one operation. No drilling operations will be permitted until the grout has cured. Curing time for portland cement, Type I, is a minimum 72 hours and for Type III, a minimum 48 hours.

4. PAYMENT

4.1 GENERAL:

4.1.1 Installed grout seal will be measured in linear feet to the nearest foot.

4.1.2 Payment for all work, materials, and equipment specified in this section will be made at the unit price per foot installed as stated in the Contractor's Proposal for GROUT SEAL.

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02585
WELL SCREEN ASSEMBLY

1. SCOPE

1.1 WORK INCLUDED: This section covers the work, materials, and equipment necessary for furnishing and installing the well screen assembly, complete.

2. MATERIALS AND EQUIPMENT

2.1 WELL SCREEN:

2.1.1 Provide the well screen(s) and all materials and equipment necessary to fabricate and install the well screen assembly as specified.

2.1.2 The well screen(s) shall be made of stainless steel and be of the welded, wire-wound, continuous-slot type as manufactured by UOP Johnson, Howard Smith, Cooke, Roscoe Moss, or equal.

2.1.3 Dimension of openings and screen length will be determined by the Engineer, based upon analysis of formation samples taken by the Contractor as specified in Section DRILLING.

2.1.4 The Engineer reserves the right to increase or decrease the length of the well screen, or to eliminate the screen entirely if the formation samples indicate the aquifer characteristics are desirable.

2.1.5 Within 5 days (Saturdays, Sundays, and holidays excepted) after the full depth of the well has been reached and the formation samples have been received by the Engineer, the Engineer will decide whether or not a well screen shall be installed. If the Engineer decides that the well screen is to be installed, the Engineer will specify the lengths, location, and slot sizes of the well screen and the locations and lengths of blank casing sections within this same 5-day period.

2.2 CENTERING GUIDES: Provide centering guides for the well screen assembly, as shown on the attached well construction drawing or as necessary to complete the well.

2.3 BLANK CASING: See Section CASING for blank casing specifications.

2.4 FITTINGS AND PACKERS:

2.4.1 Provide all well screen assembly fittings and packers as shown on the well construction drawing or as necessary to complete the well.

2.4.2 All well screen fittings and packers shall be manufactured by the well screen manufacturer and shall be designed for use with the particular well screen selected.

3. WORKMANSHIP

3.1 WELL SCREEN INSTALLATION: Install the well screen assembly and fittings in conformance with the well screen manufacturer's recommendations.

4. PAYMENT

4.1 WELL SCREEN: Payment for providing and installing the well screen will be made at the unit price per linear foot installed as stated in the Contractor's Proposal for WELL SCREEN ASSEMBLY.

4.2 BLANK CASING: Payment for providing and installing the blank casing will be made at the unit price per foot installed as stated in the Contractor's Proposal for CASING.

4.3 FITTINGS AND CENTERING GUIDES: Full payment for providing and installing the well screen fittings and centering guides will be included in the unit price(s) for well screen as stated in the Contractor's Proposal for WELL SCREEN ASSEMBLY.

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**02586
GRAVEL PACK**

1. SCOPE

1.1 **WORK INCLUDED:** This section covers the work, materials, and equipment necessary for furnishing and installing the gravel pack, complete.

2. MATERIALS AND EQUIPMENT

2.1 **GENERAL:** Provide all gravel and the materials and equipment necessary for placing the gravel pack as specified.

2.2 GRAVEL:

2.2.1 The gravel shall be thoroughly washed, sound, durable, well rounded basalt or siliceous material containing, when delivered, less than 5 percent silt and clay, and no organic material, anhydrite, gypsum, mica, or calcareous material. Specific gravity shall be not less than 2.5.

2.2.2 The size and gradation of the gravel packing material will be determined by the Engineer on the basis of formation samples taken by the Contractor during drilling.

2.2.3 Submit to the Engineer a 5-pound sample of proposed gravel pack material for approval prior to delivery of gravel pack to the site.

2.3 **GRAVEL SOUNDING DEVICE:** Provide a measuring device to sound the gravel level in the hole during placement to detect bridging.

3. WORKMANSHIP

3.1 **GENERAL:** If high viscosity drilling fluid has been used in drilling, it shall be thinned with water, prior to placement of gravel.

3.2 **PLACING GRAVEL:** The gravel shall be introduced at a metered uniform rate in a manner that will allow even placement of the gravel. Every precaution shall be taken to ensure placement of the gravel pack continuously from the bottom of the well to a point above the well screen without separation or bridging of the materials as they are introduced into the well. During placement of the gravel, the top of the gravel shall be continuously sounded to measure its rate of rise and to determine if bridging is occurring.

4. PAYMENT

4.1 **GENERAL:**

4.1.1 Installed gravel pack will be measured in linear feet to the nearest foot.

4.1.2 Payment for all work, materials, and equipment specified in this section will be made at the unit price per foot installed as stated in the Contractor's Proposal for GRAVEL PACK.

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02587
WELL DEVELOPMENT

1. SCOPE

1.1 WORK INCLUDED:

1.1.1 This section covers the work, materials, and equipment necessary for the development of the well, complete.

1.1.2 The total development time is estimated to be 24 hours. However, the Engineer shall be the sole judge as to when development is complete and may therefore increase or decrease the total development time.

2. MATERIALS AND EQUIPMENT

2.1 SURGING AND BAILING EQUIPMENT: Furnish a solid type surge block, bailer, sand pump, and all necessary appurtenant equipment necessary for developing the well.

2.2 HYDRAULIC JETTING EQUIPMENT: Furnish and install the following hydraulic jetting equipment, or equal:

- A. One-and-one-half-inch jetting pipe with four solid stream jet nozzles threaded at right angle to the long axis of the jetting pipe and located at 90 degrees around the jetting pipe. Jetting nozzles to be encased within a steel guard having an outside distance between opposing guards of 14 inches.
- B. Two-inch or larger piping to connect the jetting pipe to the water pump.
- C. Swivel joints or flexible connections on the piping to permit vertical and rotational movement of the jetting tool.
- D. A high-pressure water pump capable of delivering 55 gpm at a pressure of 200 psi and equipped with a flowmeter and regulation valve.
- E. An airlift (air-line and eductor pipe), centrifugal, or submersible pump capable of pumping from 80 to 100 gpm during jetting.
- F. Miscellaneous connecting pipe and fittings as required.

2.3 HIGH CAPACITY PUMPING EQUIPMENT: Furnish a turbine pump and discharge equipment and piping for development of the well by pumping. Pump and appurtenances are specified in Section PUMPING TEST.

2.4 SAND CONTENT MEASURING DEVICE: Provide a sand content measuring device such as a Rossum centrifugal sand separator, or equal.

3. WORKMANSHIP

3.1 INITIAL DEVELOPMENT BY SURGING:

3.1.1 After the well screen is installed, initially develop the well by means of a surge block and bailer. If fines which have been drawn into the well fill the well screen sump or tailpipe, the well shall be bailed or otherwise cleaned to the bottom before resuming surging.

3.1.2 After initial development by surging, the well shall be sounded and cleaned to the bottom by bailing or other equal method.

3.2 INITIAL DEVELOPMENT BY HYDRAULIC JETTING:

3.2.1 After the well screen has been installed, develop the well by high velocity jetting while simultaneously pumping the well at a higher rate than the jet discharge.

3.2.2 The equipment shall be assembled and operated so that jet streams of water are directed into the well screen at right angles to the axis of the screen. During jetting the tool shall be slowly rotated through 120 degrees and back and moved up and down within the screen so that the jet streams are directed against all parts of the screen.

3.2.3 If the well screen sump or tailpipe fills with fines prior to completion of jet development, the jetting equipment shall be removed and the well cleaned to the bottom before resuming jetting.

3.2.4 After initial development by hydraulic jetting, the well shall be sounded and cleaned to the bottom by bailing or other equal method.

3.3 INSTALLATION OF PUMPING EQUIPMENT: After initial development, the high capacity pump, flow measuring device(s), discharge piping, access pipe/air-line, and other necessary appurtenances shall be installed for development and testing as specified in Section WELL PUMPING TEST.

3.4 PUMPING DEVELOPMENT:

3.4.1 Operate the pumping development equipment continuously at such rates of discharge and for such periods of time as determined by the Engineer. The well shall be pumped until the water is free from sand, silt, and turbidity and/or until no further increase in specific capacity can be observed. The Engineer shall determine when development by high capacity pumping is complete.

3.4.2 The static water level in the well shall be allowed to recover for a time equal to the pumping development time before start of the well pumping test.

3.5 PUMP REMOVAL: Do not remove the pump and appurtenant equipment until the work is complete as specified in Section PUMPING TEST.

3.6 DISPOSAL OF WATER: Disposal of development water shall be the responsibility of the Contractor. Discharge piping, if required, is specified in Section PUMPING TEST.

4. PAYMENT

4.1 HOURLY DEVELOPMENT: Payment for development of the well, regardless of the method(s) used, will be made at the unit price per hour as stated in the Contractor's Proposal for WELL DEVELOPMENT. The Contractor will not be paid the hourly rate for development during the time the equipment is not actually in use in the development of the well, or for any equipment repair, or for any time, in the opinion of the Engineer, that the development procedure is not being accomplished in accordance with these Specifications. Payment at the hourly rate shall constitute full compensation for all work, materials, and equipment specified in this section.

4.2 HIGH CAPACITY PUMP SETUP: Payment for high capacity pump setup is specified in Section PUMPING TEST.

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02588
PUMPING TEST

1. SCOPE

1.1 WORK INCLUDED:

1.1.1 This section covers the work, materials, and equipment necessary for the well pumping test, complete.

1.1.2 The estimated length of the pumping test is 24 hours. However, the Engineer shall be the sole judge as to length of the test and therefore may increase or decrease the total pumping time.

2. MATERIALS AND EQUIPMENT

2.1 TEST PUMP:

2.1.1 Furnish and install a test pump and driver capable of pumping from 500 to 2,500 gallons per minute against a total head of 225 feet (200 feet of lift plus 25 feet surface discharge head) at an impeller bowl setting of 200 feet below ground surface for a prolonged length of time. The pump shall not be fitted with a foot valve.

2.1.2 Provide a gate valve, or equal, on the discharge side of the pump for adjustment of flow rate down to 500 gallons per minute if the test pump engine cannot be sufficiently throttled.

2.1.3 The pumping unit prime mover, controls, and appurtenances shall be capable of being operated without interruption for a period of 24 hours.

2.1.4 Contractor shall furnish engine-driven equipment or shall make his own arrangements for power for well pumping test.

2.2 FLOW MEASURING DEVICE: Provide machined orifice plate(s) or flowmeter(s) capable of measuring the pump discharge within plus or minus 5 percent of true flow for flow rates from 500 gpm to 2,500 gpm.

2.3 DISCHARGE PIPING: Furnish, install, maintain, and operate discharge piping for the pump unit of sufficient size to conduct pumped water to the waste area shown.

2.4 AIR-LINE:

2.4.1 Provide an air-line, pressure gauge, and source of air under pressure, for determining water level in the well before, during, and after the pumping test. The pressure gauge shall be accurate to within 1/2 psi.

2.4.2 Air-line shall be securely fastened to the pumping unit and shall terminate approximately 2 feet above the pump.

3. WORKMANSHIP

3.1 INSTALLATION OF PUMPING EQUIPMENT: The high capacity pump, flow measuring device(s), discharge piping, access pipe/air-line, and other necessary appurtenances shall be installed for the well pumping test.

3.2 PRELIMINARY CAPACITY PUMPING TEST:

3.2.1 Run a preliminary capacity pumping test prior to the pumping test. Operate the pumping test equipment continuously at such rates of discharge and for such period of time as determined by the Engineer. Duration of such preliminary test shall be approximately 2 hours, for the purpose of checking operation of pumping test equipment and to estimate the production capacity of the well.

3.2.2 The static water level in the well shall be allowed to recover for a time equal to the duration of the preliminary test before start of well pumping test or less as determined by the Engineer.

3.3 PUMPING TEST:

3.3.1 Operate the pumping test equipment continuously at such rates of discharge and for such period of time prescribed by the Engineer. The Contractor shall provide an operator 24 hours a day, as required by the Engineer, to operate the prime mover and to regulate the discharge by the throttling device during the test pumping period. The fire code requires a minimum test of 8 hours at a flow of 2,250 gpm for the well to be suitable for a 1,500 gpm rated fire pump.

3.3.2 At completion of the pumping test, the pump bowls and column shall not be removed from the well for a time equal to 25 percent of the total pumping time to allow accurate water level recovery measurements to be taken or less as determined by the Engineer.

3.4 FURTHER DEVELOPMENT:

3.4.1 If considerable quantities of fines are pumped out of the well during the test, the Contractor shall discontinue the test and resume well development. The Engineer shall be the sole judge as to whether such additional development is necessary.

3.4.2 After completion of the test, the Contractor shall sound the well and remove any sand or silt accumulated in the well as a result of the pumping test.

3.5 DISPOSAL OF WATER: Disposal of water shall be the responsibility of the Contractor. The method of disposal shall prevent recirculation of discharged water into the aquifer being tested.

4. PAYMENT

4.1 HIGH CAPACITY PUMP SETUP: Payment for furnishing, installing, and removing the high capacity pump and driver will be at the lump sum price per setup as stated in the Contractor's Proposal for PUMPING TEST. Payment shall constitute full compensation for all time, materials, and equipment required to obtain, assemble, and disassemble the equipment.

4.2 HOURLY OPERATION:

4.2.1 Payment for the operation of the pumping equipment will be made at the unit price per hour for the actual time the equipment is in operation as stated in the Contractor's Proposal for PUMPING TEST. No payment will be made for the time of operation if the test is disrupted due to equipment failure, neglect, labor problems, and similar items before the pumping test is determined by the Engineer to be complete.

4.2.2 Payment for removal of accumulated sand or silt from the well resulting from the pumping test will be made at the unit price per hour for the method used as stated in the Contractor's Proposal for WELL DEVELOPMENT.

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**02590
WELL CAPPING**

1. SCOPE

1.1 WORK INCLUDED: This section covers the work, materials, and equipment necessary for capping the well, complete.

2. MATERIALS AND EQUIPMENT

2.1 GENERAL: Provide all materials and equipment necessary for capping the well as specified and shown.

2.2 CAPPING PLATE: Provide a minimum 1/4-inch thick steel plate with a 1-1/2-inch threaded plug installed in the approximate center of the plate.

2.3 RELIEF VALVE DISCHARGE PIPE: Schedule 40 black steel pipe, ASTM A 53 Grade B, with standard weight butt welding fittings, ASTM A 234 Grade WPB, conforming to ANSI B16.9. Elbow shall be long radius. Tack weld a 1/4-inch steel plate cap to elbow.

3. WORKMANSHIP

3.1 CAPPING: Tack weld capping plate to casing after the well has been pumped out.

3.2 RELIEF VALVE DISCHARGE PIPE: Joints shall be welded. The connection of the discharge pipe to the well casing shall be reinforced with four 1/4-inch gusset plates equally spaced around the discharge pipe. The legs of the gusset plates shall have a minimum of 3 inches of contact with the discharge pipe or the well casing and shall be fillet welded on both sides.

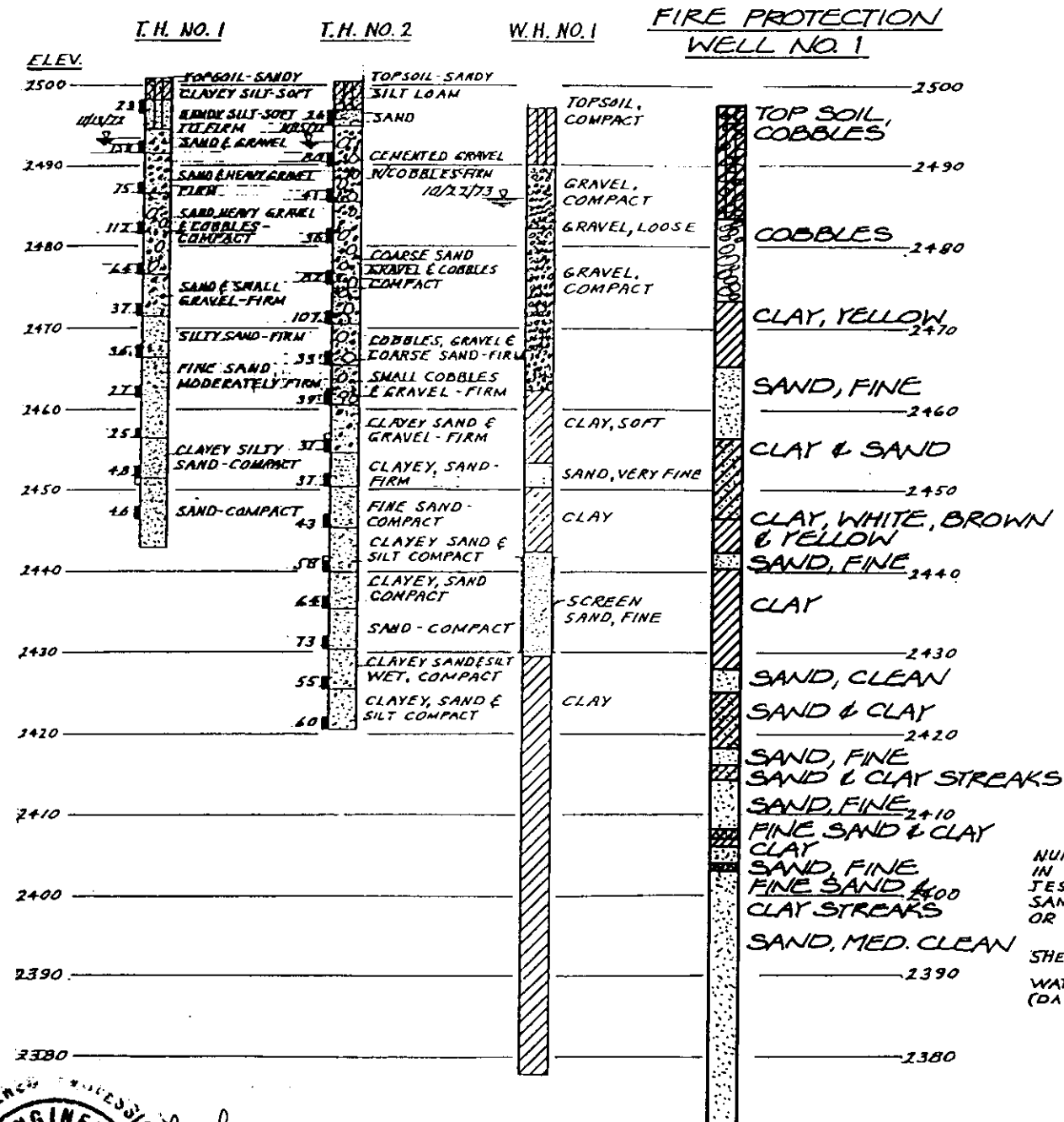
4. PAYMENT

4.1 GENERAL: Payment for all work, materials, and equipment specified in this section will be made at the lump sum price as stated in the Contractor's Proposal for WELL CAPPING.

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PART 5
DRAWINGS

TEST HOLE AND WELL LOGS



LEGEND

- △ NEW WELL
- EXISTING WELL (W.H.)
- TEST HOLE (T.H.)
- PROPERTY LINE

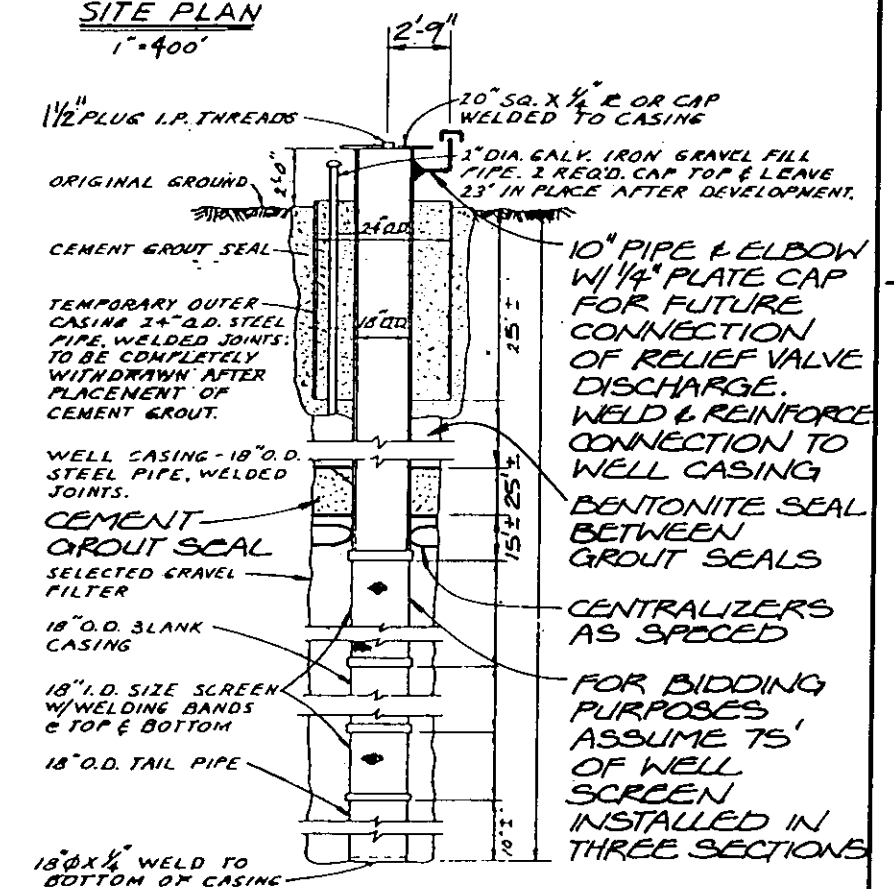
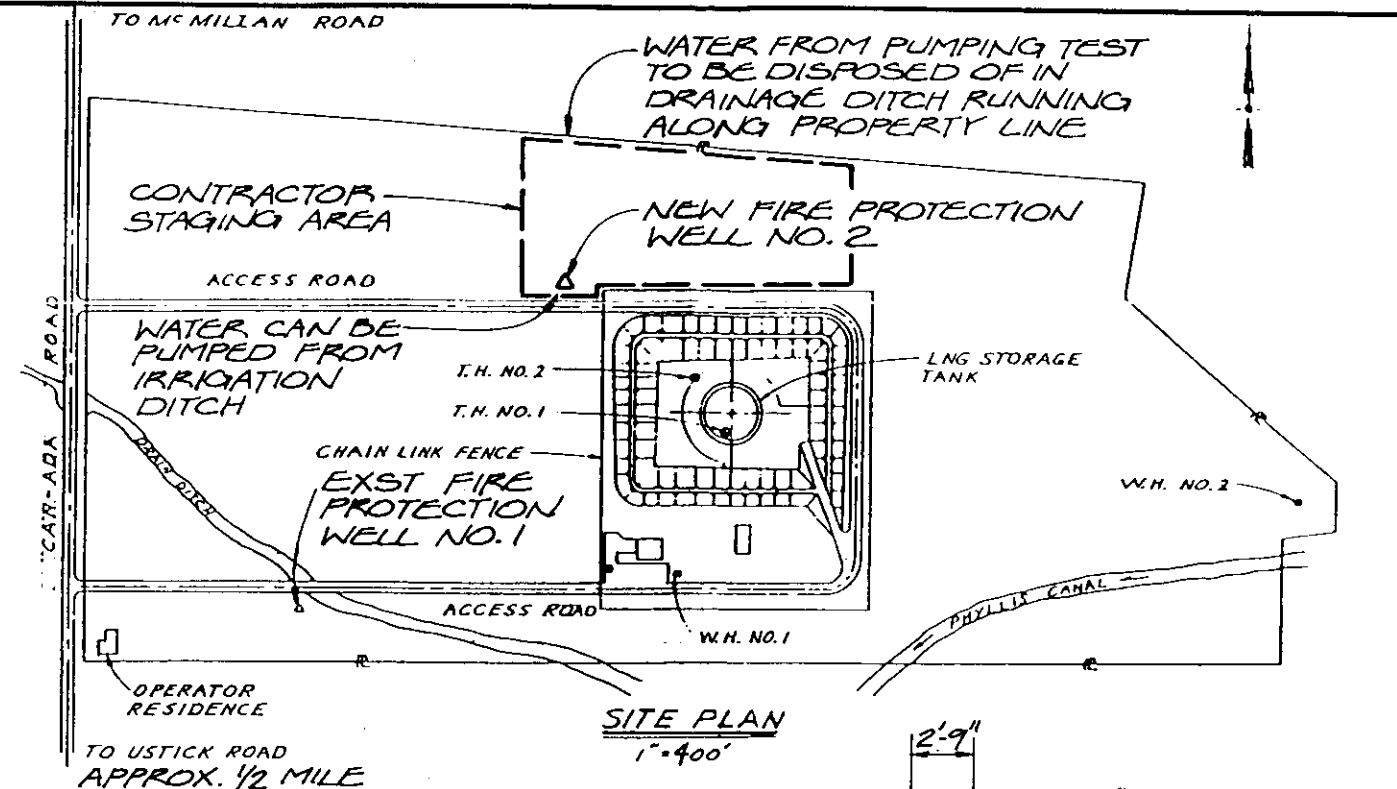
WELL NO. 1 40 GPM @ 35' DRAWDOWN
 WELL NO. 2 650 GPM @ 21.3' DRAWDOWN AFTER 24 HR

NUMBER OF BLOWS
 IN STD. PENETRATION
 TEST TO ADVANCE
 SAMPLER ONE FOOT
 OR DISTANCE SHOWN

SHELBY TUBE SAMPLE
 WATER TABLE 11/10/72
 (DATE SHOWN)

- SAND & GRAVEL
- COBBLES & BOULDERS
- SILT
- CLAY
- CLAYEY SILT
- CLAYEY, SAND & GRAVEL

NOTE: SEE SITE PLAN FOR TEST
 HOLE AND WELL LOCATIONS



WELL PROFILE
 N.T.S.



DES
 LM FETTER
 OR
 RM NELSON
 CHK
 LR TAYLOR
 APPD
 LM FETTER

NO	DATE	REVISION	BY	APPD

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 BOISE, IDAHO
 FIRE PROTECTION
 WELL NO. 2

SITE PLAN, WELL PROFILE AND LOGS		SHEET 1
DATE SEPT 1987		OF
PROJ NO B20453.A1		DATE