

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 85-15708

Exam Date: 10/3/2012

1. Current Owner: CHERI FULLER And/Or
TIM FULLER
30207 ROSENKRANTZ RD
LEWISTON ID 83501
(208)746-5073

2. Accompanied by: Permit holder

3. **SOURCE**

GROUND WATER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: **85-7439 (see narrative for discussion)**
2. Other water rights with the same point of diversion: NONE

C. DIVERSION AND DELIVERY SYSTEM1. **LOCATION OF POINT(S) OF DIVERSION:**

GROUND WATER NE1/4NW1/4 Sec. 27, Twp 35N, Rge 05W, B.M. NEZ PERCE County

Method of Determination: GPS (46.35124, -116.952688) cp

2.

PLACE OF USE: IRRIGATION

Twp	Rge	Sec	NE												NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE					
35N	05W	27					4.5																4.5				

Total Acres: 4.5

PLACE OF USE: STOCKWATER

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
35N	05W	27					X												

Method of Determination: field visit

3. ☒ Delivery System Diagram. Indicate all major components and distances between components.
☐ Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required).
☒ Aerial Photo Attached (required for irrigation of 10+ acres).
☒ Photo of Diversion and System Attached

4.

Well or Diversion**ID No.*****Motor Make****Hp****Motor Serial No.****Pump Make****Pump Serial No. or Discharge Size**

D0028191

10 hp

D. FLOW MEASUREMENTS

1.

MeasurementEquipmentTypeMakeModel No.Serial No.SizeCalib. Date

Pitot tube to determine pressure at sprinkler

2. Measurements:

I could not conduct a polysonic measurement on this system since there was no exposed pipe. However, I documented the sprinkler system and obtained pressure readings at a few of the sprinklers. In addition, I will conduct a hp equation as a secondary check.

E. FLOW CALCULATIONS x Additional Computation Sheets Attached

Measured Method:

1). There are 8 zones throughout the pasture. Zone 1 has 20 sprinklers that can put out 3.5-4 gpm. Zones 2 and 3 have 16 sprinklers with the same nozzles as zone 1 and zones 4-8 have one sprinkler each that can put out 60 gpm each.

Zone 1 has the most sprinklers running at once at the highest rate so my figures below will be based on that zone at an average rate:

20 sprinklers x 3.75 gpm = 75 gpm or 0.17 cfs

2). Depth to water = 150' based on the perforations per well driller's report

hp = 10

PSI = measured 62 at hydrant near the well

Efficiency = department standard of 70%

$8.8 \times 10 \times 0.7 / 150 + (2.31 \times 62) = 61.6/293.2 = 0.21 \text{ cfs}$

Conclusion: The permitted diversion rate of 0.17 cfs is justified; however, the duty of water for 4.5 acres is 0.14 cfs and will be limited accordingly for irrigation. The diversion rate of 0.02 cfs for stockwater will be additive, the total maximum diversion rate is 0.16 cfs.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 4.5 \times 4 = 18 \text{ AF}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.14 \times 294 \times 1.9835 = 81.6 \text{ AF}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 18 \text{ AF}$$

2. Volume Calculations for Other Uses: 17 animals x 12 gpd = 204 x 365 = 74,460/325,850 = 0.2 AF

Conclusion: The total volume for stockwater and irrigation will be 18.2 af. Overlapping right 85-7439 provides for the same animals so there will be a condition on this license that will limit them to the rate and diversion rate of the senior right.

G. NARRATIVE/REMARKS/COMMENTS

Water right 85-7439 was decreed in 2005 for irrigation, domestic, and stockwater purposes. The irrigation component covers 4 acres that is located around the home and directly north of the home. When the field examination was conducted for that right, in 1988, the area north of the home was irrigated but those acres are now corrals for stock. Right 85-7439 is no longer used to irrigate 4 acres, it may be more like 1 acre now and if there's any administrative action involving 85-7439 they may be facing partial forfeiture of their water right. Since water right 85-7439 was developed on different lands than permit 85-15708 and is diverted from a separate well, this overlap will not be significant in the licensure of the permit.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
IRRIGATION	02/15 to 11/30	0.140 CFS	18.0 af
STOCKWATER	01/01 to 12/31	0.020 CFS	0.2 af
<u>Totals:</u>		0.160 CFS	18.2 AF

2. Recommended Amendments

☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

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

I. AUTHENTICATION

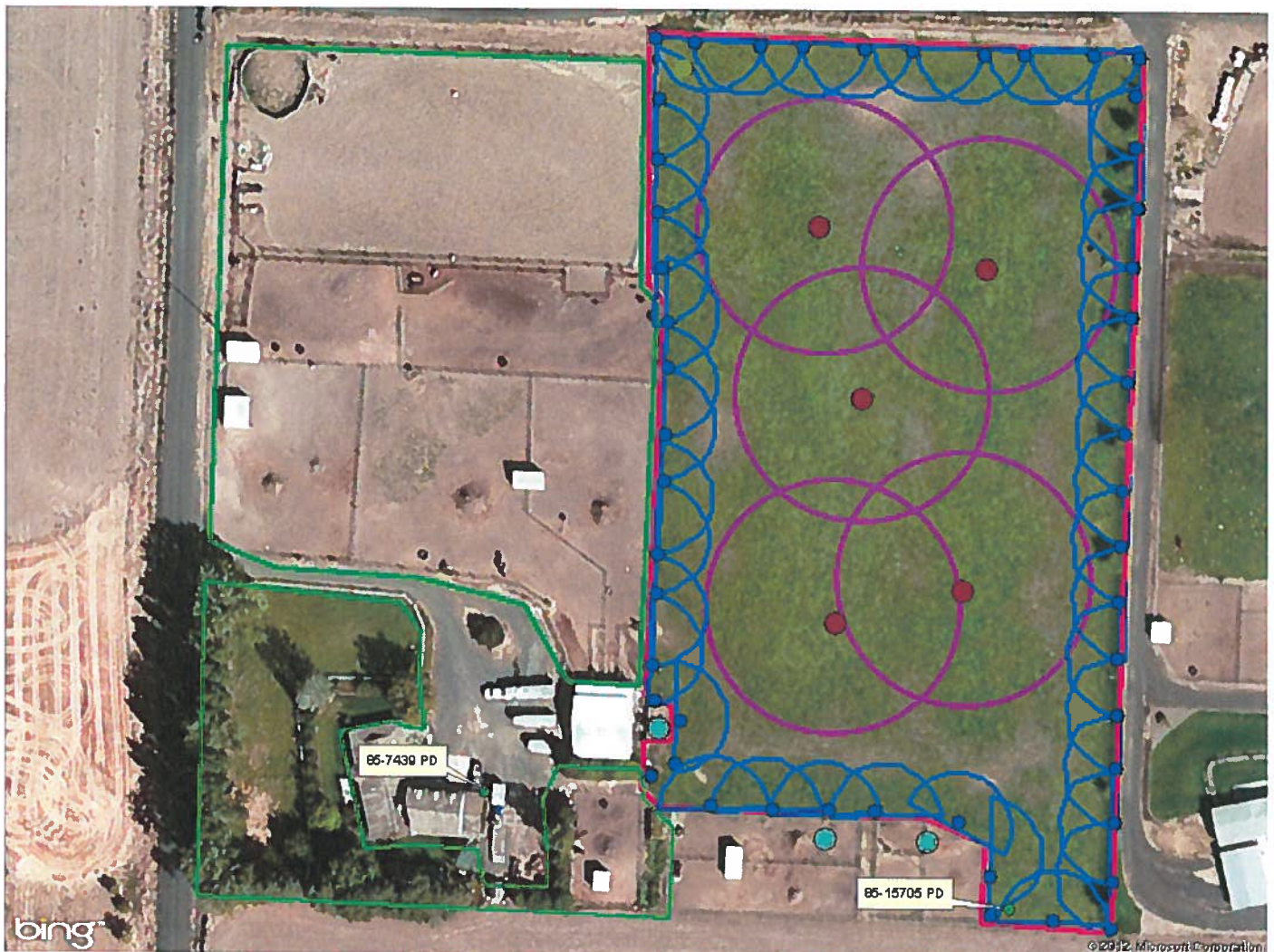
Field Examiner's Name Cherie Delmon Date 11/8/2012

Reviewer _____ Date _____

2 attachments

#1 - sprinkler worksheet 1-90 360V

#2 - sprinkler worksheet P6P Ultra

SYSTEM DIAGRAM

Green Outline = Irrigation place of use for 85-7439

Pink Outline = Irrigation place of use for 85-15708

● = troughs and standpipes

● = Hunter I-90 360V/ 92 ft radius sprinklers w/ nozzle #53, measured psi at >100 psi → 60 gpm each

● = PGP Ultra w/ blue standard nozzle #4.0, measured 35-40 psi → 3.5-4.0 gpm each

Zone 1 = 20 sprinklers located at the north and south ends of the pasture

Zone 2 = 16 sprinklers at the west side of the pasture

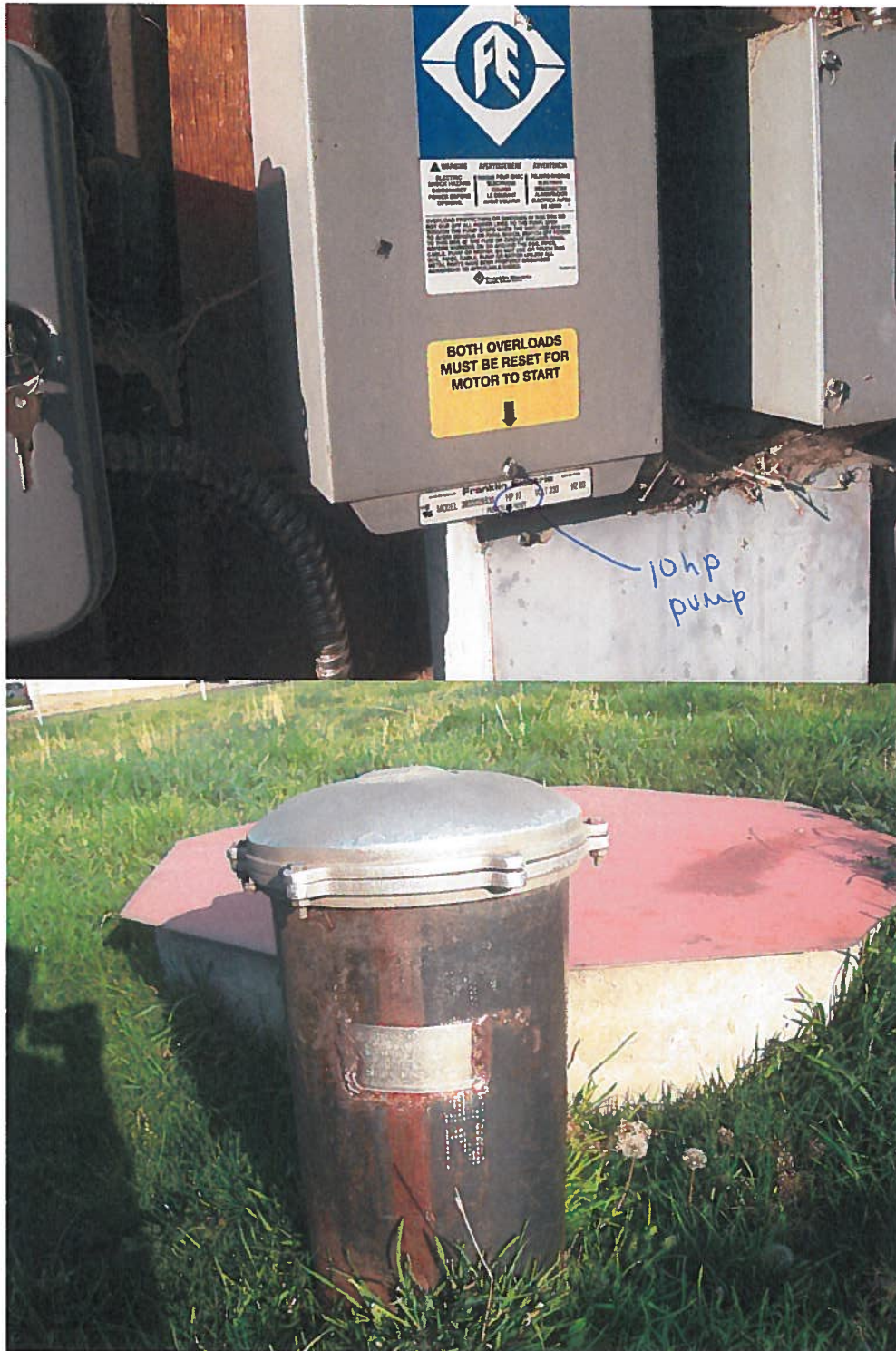
Zone 3 = 16 sprinklers at the east side of the pasture

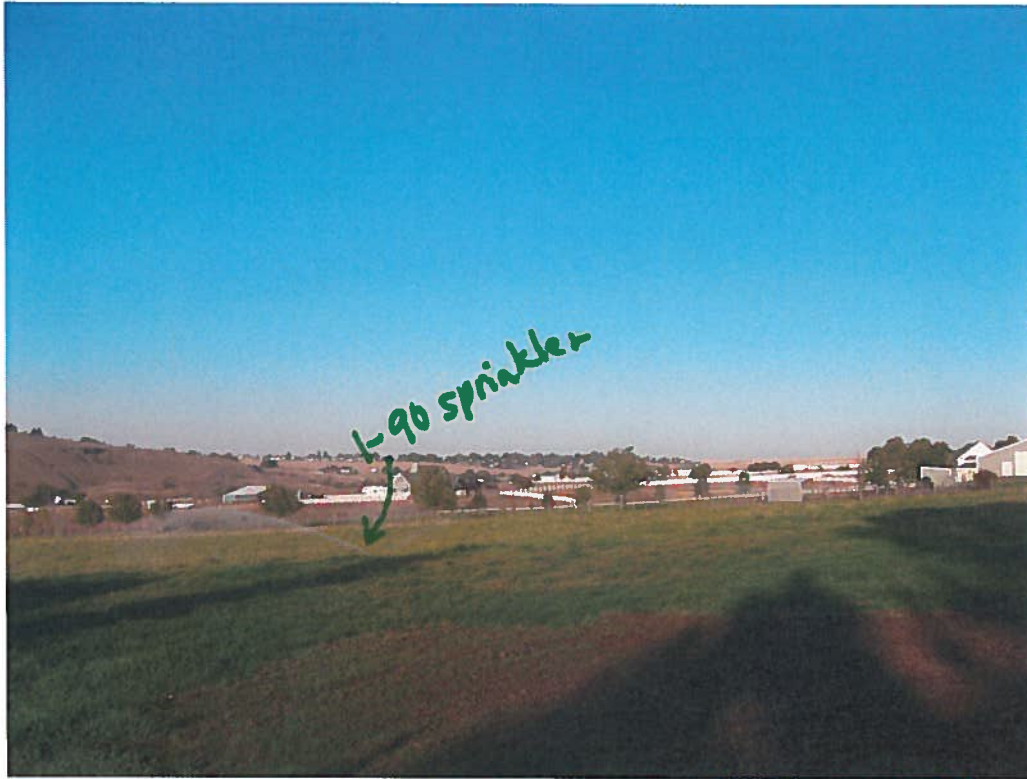
Zone 4 through Zone 8 = 1 sprinkler each

*the location of the sprinklers is a rough estimate based on the coverage and number of sprinklers.

MAP AND AERIAL PHOTO







Place of use
looking NE



Place of use
looking north



Place of use
looking NW



Stock ' corrals
located to the
south end of the pasture



Stock water
troughs located
directly east
of the barn



← P6P ultra

I-90-ADV NOZZLE PERFORMANCE DATA

Nozzle	Pressure (PSI)	Radius (FT.)	Flow (GPM)	Precip in/hr ■ ▲	
25 ● Lt. Blue	60	63	22.0	1.07	1.23
	70	64	24.9	1.17	1.35
	80	65	27.5	1.25	1.45
	90	67	28.8	1.24	1.43
	100	68	30.6	1.27	1.47
33 ● Gray	60	67	30.7	1.32	1.52
	70	67	33.1	1.42	1.64
	80	68	35.5	1.48	1.71
	90	69	37.7	1.52	1.76
	100	70	39.8	1.56	1.81
38 ● Red	60	69	34.0	1.37	1.59
	70	70	36.9	1.45	1.67
	80	72	39.8	1.48	1.71
	90	73	42.3	1.53	1.76
	100	75	44.1	1.51	1.74
43 ● Dk. Brown	60	70	38.7	1.52	1.76
	70	71	42.0	1.60	1.85
	80	72	44.5	1.65	1.91
	90	73	47.6	1.72	1.99
	100	75	48.3	1.74	2.01
48 ● Dk. Green	70	75	47.0	1.61	1.86
	80	77	50.2	1.63	1.88
	90	79	53.3	1.64	1.90
	100	81	56	1.64	1.90
53 ● Dk. Blue	70	79	48.5	1.50	1.73
	80	81	53.4	1.57	1.81
	90	85	57.0	1.52	1.75
	100	86	59.5	1.55	1.79
63 ● Black	70	84	60.9	1.66	1.92
	80	86	63.8	1.66	1.92
	90	88	66.5	1.65	1.91
	100	90	69.8	1.66	1.92
73 ● Orange	80	90	66.9	1.59	1.84
	90	92	69.7	1.59	1.83
	100	95	72.8	1.55	1.79
	110	98	76.2	1.53	1.76

* Factory-installed nozzle

Notes:

Precipitation rates for ADV models are calculated for 180-degree operation. To calculate precipitation rate for 360-degree operation, divide by 2. Precipitation rates for 36V models are calculated at 360 degrees.

I-90-36V NOZZLE PERFORMANCE DATA

Nozzle	Pressure (PSI)	Radius (FT.)	Flow (GPM)	Precip in/hr ■ ▲	
25 ● Lt. Blue	60	69	25.5	0.52	0.6
	70	71	27.8	0.53	0.61
	80	73	30.2	0.55	0.63
	90	75	31.7	0.54	0.63
	100	77	33.9	0.55	0.64
33 ● Gray	60	71	29.8	0.57	0.66
	70	74	32.2	0.57	0.65
	80	76	34.4	0.57	0.66
	90	78	36.8	0.58	0.67
	100	80	38.6	0.58	0.67
38 ● Red	60	74	33.3	0.59	0.68
	70	77	36.1	0.59	0.68
	80	79	38.4	0.59	0.68
	90	80	40.9	0.62	0.71
	100	82	42.8	0.61	0.71
43 ● Dk. Brown	60	77	38.1	0.62	0.71
	70	79	40.9	0.63	0.73
	80	82	43.9	0.63	0.73
	90	83	46.5	0.65	0.75
	100	84	48.5	0.66	0.76
48 ● Dk. Green	70	82	46.3	0.66	0.77
	80	86	49.6	0.65	0.75
	90	89	52.5	0.64	0.74
	100	90	54.8	0.65	0.75
53 ● Dk. Blue	70	85	50.5	0.67	0.78
	80	88	53.5	0.66	0.77
	90	90	57.4	0.68	0.79
	100	92	59.5	0.66	0.76
63 ● Black	70	90	60.6	0.72	0.83
	80	92	63.2	0.72	0.83
	90	94	65.9	0.72	0.83
	100	96	69.4	0.72	0.84
73 ● Orange	80	95	72.1	0.77	0.89
	90	97	75.9	0.78	0.90
	100	99	79.5	0.78	0.90
	110	101	83.0	0.78	0.90

I-90 NOZZLES

ADV & 36V



Low-Angle ADV & 36V**

** Low-angle nozzles reduce radius by 15%

Attachment #1
85-15708

PGP Ultra Blue Standard Nozzle Performance Data (P/N 782900)					
Nozzle	Pressure (PSI)	Radius (ft.)	Flow (GPM)	Precip in/hr	
				■	▲
1.5	25	29	1.2	0.27	0.32
	35	31	1.4	0.28	0.32
	45	31	1.5	0.30	0.35
	55	32	1.8	0.34	0.39
	65	32	1.9	0.36	0.41
2.0	25	33	1.4	0.25	0.29
	35	33	1.7	0.30	0.35
	45	34	2.0	0.33	0.38
	55	34	2.1	0.35	0.40
	65	32	2.3	0.43	0.50
2.5	25	33	1.7	0.30	0.35
	35	35	2.1	0.33	0.38
	45	35	2.5	0.39	0.45
	55	35	2.6	0.41	0.47
	65	35	2.9	0.46	0.53
3.0	25	35	2.2	0.35	0.40
	35	36	2.7	0.40	0.46
	45	38	3.0	0.40	0.46
	55	39	3.4	0.43	0.50
	65	39	3.7	0.47	0.54
4.0	25	37	3.0	0.42	0.49
	35	39	3.5	0.44	0.51
	45	40	4.0	0.48	0.56
	55	41	4.5	0.52	0.60
	65	41	4.8	0.55	0.63
5.0	25	37	3.7	0.52	0.60
	35	39	4.5	0.57	0.66
	45	42	5.0	0.55	0.63
	55	42	5.7	0.62	0.72
	65	42	6.2	0.68	0.78
6.0	25	38	4.3	0.57	0.66
	35	40	5.6	0.67	0.78
	45	43	6.0	0.62	0.72
	55	44	6.7	0.67	0.77
	65	44	7.3	0.73	0.84
8.0	25	37	6.0	0.84	0.97
	35	41	7.0	0.80	0.93
	45	44	8.0	0.80	0.92
	55	46	9.0	0.82	0.95
	65	46	9.8	0.89	1.03

BOLD = Recommended pressure.
 Note: All precipitation rates calculated for 180 degree operation.
 For the precipitation rate for a 360 degree sprinkler, divide by 2.

Attachment #2
85-15708