AGREEMENT BETWEEN NORTH UNIT IRRIGATION DISTRICT AND DESCHUTES RIVER CONSERVANCY regarding minimum stream flows in the Crooked River. April 12, 2012

(Attachment 3 to Conserved Water Application CW-75)

STATE OF OREGON, }
} ss
County of Marion. }

I certify that the within was received by me on the 18TH day of Sept, 2013 at 4:00 o'clock P m., and was recorded in the Miscellaneous Records, Vol. 9 Page 218-224

Water Resources Director

2012 NUID Conserved Water Application

ATTACHMENT 3

Applicant requests that OWRD impose conditions to limit the Applicant's exercise of its Crooked River water rights under Certificates 72281, 72282, 72283, and 72284. These conditions will limit the Applicant's post-project exercise of these rights to ensure protection of the minimum stream flows in the Crooked River downstream of the Certificates' POD as particularly described in the sections below.

1. Non-Dry Year and Dry Year Declarations by OWRD

Applicant requests that the underlying foundation for setting the minimum post-project Crooked River flows be based on whether OWRD declares in writing that "dry year" or "non-dry year" conditions exist in the Crooked River basin. The Dry Year/Non-Dry Year Declaration metric ("Metric") was developed with the intention that a Dry Year will have an expected recurrence interval of three out of ten years over a thirty year period. Applicant requests that OWRD's declaration be made during March of every year according to the following metrics:

i. Dry Year Declaration – Established only if the following conditions apply:

   a. OWRD's or Bureau of Reclamation's predicted March month-end contents of Prineville Reservoir are less than or equal to the 50% exceedance level of the contents at March 31 based on all data from the prior 30 years, **and**
   b. Either:
      i. The Prineville Reservoir outflow has not exceeded 75 cfs within 30 days of the actual date of OWRD's Non-Dry Year/Dry Year declaration, **or**
      ii. The Prineville Reservoir outflow has exceeded 75 cfs within 30 days of the actual date of OWRD's Non-Dry Year/Dry Year declaration only to supply irrigation demands for downstream users.

ii. Non-Dry Year Declaration – Established if any of the following conditions apply:

   a. The conditions necessary for a Dry Year Declaration do not apply, **or**
   b. When OWRD fails to make any written Dry Year Declaration by April 1 of that year.

iii. The OWRD shall maintain discretion to apply and interpret the Dry Year Declaration metric in **Section 1.i** if there is an extenuating circumstance(s) with respect to predicted March month-end contents of Prineville Reservoir or its outflows 30 days prior to a Dry or Non-Dry Year Declaration so as to target a Dry Year recurrence interval of three out of ten years over a thirty year period.

iv. The Applicant and DRC may jointly make a written petition to OWRD to administratively revise the Metric if they expect that the recurrence interval of a Dry Year Declaration over a thirty-year period will change from three out of ten years, and OWRD shall be allowed to amend the Metric in response to their petition. The anticipated conditions that could change the recurrence interval of a Dry Year include the allocation of uncontracted storage from Prineville Reservoir, the reallocation of

contracted storage from Prineville Reservoir, significant changes to reservoir operations, and changes in long-term precipitation patterns.

2. Minimum Crooked River Flows: After Issuance of the First Incremental Final Order

Applicant requests that OWRD condition its Certificates 72281, 72282, 72283, and 72284 to limit the Applicant's use of water after issuance of the first incremental Final Order for this Application to ensure that Applicant may only exercise these water rights if and when existing Crooked River stream flows meet or exceed the stream flows levels set during Non-Dry Years as set out below in Column F of **Table 1**, or meet or exceed the stream flow levels set during Dry Years as set out in Column F of **Table 2**.

The historical stream flows downstream of the District's pumps on the Crooked River (pre-Project) include but are not limited to (1) irrigation return flows, (2) spring and tributary inputs, (3) undiverted irrigation deliveries, (4) instream water rights, and (5) any non-irrigation releases (uncontracted or contracted water) from Prineville Reservoir available above the District's pumps, after being reduced for channel and transportation losses, ground water pumping effects, and the District's pumping under Certificates 72281, 72282, 72283, and 72284 at the historical per acre rates. The resulting historical flows in cfs are represented by the figures in Column E in Tables 1 and 2 below. ("**Columns E**"). The **Columns E** flows represent the historical stream flows immediately above the District's pumps less the District's historical pumping.

Table 1. This table shows the development of the minimum monthly Crooked River stream flows required in **Non-Dry Years** after issuance of the **first incremental Final Order**, pursuant to the Non-Dry Year Declaration metric set forth in Section 1 above. Column F establishes the minimum stream flows.

A	B	C	D	E	F
Month	**Proportion of Pumping During Month**	**7,092 af Allocated Monthly (af)**	**7,092 af Allocated Monthly (cfs)**	**Pre-Project 70% Exceedance Stream Flow (cfs)**	**Minimum Stream Flow (cfs) Post-First Increment of Conserved Water ***
Apr	0.0435	308.795	5.189	174.7	179.889
May	0.1400	992.699	16.145	74.7	90.845
Jun	0.1969	1,396.602	23.471	55.7	79.171
Jul	0.2174	1,541.501	25.070	29	54.07
Aug	0.2414	1,712.279	27.848	32.1	59.948
Sep	0.1348	956.108	16.068	93.42	109.49
Oct	0.0259	184.016	2.993	147.7	150.69

Description of Table 1

Column	Calculation	Description
A	None	Month
B	Monthly Total Crooked River Pumping from 2001-2010 / Total Annual Crooked River Pumping from 2001-2010	The proportion of NUID's annual pumping that occurred during each month based on data from 2001 through 2010.
C	7,092 af * Column B	The first increment of conserved water will reduce NUID's demand by 7,092 af. NUID will protect this 7,092 af instream in the Crooked River. This column shows the portion of 7,092 af allocated to each month based on the proportion of NUID's total pumping that occurred during that month.

D	Column C / Number of Days in Month / 1.98347 af per cfs per day	Column C converted to a daily rate during each month.
E	None	This column represents the stream flow that was present 70% of the time during each month prior to this project from 2001 through 2010.
F	Column D + Column E	Minimum stream flow is equal to 7,092 af, allocated monthly, and the stream flow that would have been present prior to the project. *As described in **Section 4**, the described rates may increase under specified conditions.

Table 2. This table shows the development of the minimum monthly Crooked River stream flows required in **Dry Years** after issuance of **the first incremental Final Order**, pursuant to the Dry Year Declaration metric set forth in Section 1 above. Column F establishes the minimum stream flows.

A	B	C	D	E	F
Month	**Proportion of Pumping During Month**	**7,092 af Allocated Monthly (af)**	**7,092 af Allocated Monthly (cfs)**	**Pre-Project 90% Exceedance Stream Flow (cfs)**	**Minimum Stream Flow (cfs) Post-First Increment of Conserved Water ***
Apr	0.0435	308.795	5.189	113.9	119.089
May	0.1400	992.699	16.145	22.9	39.045
Jun	0.1969	1,396.602	23.471	24	47.471
Jul	0.2174	1,541.501	25.070	19	44.07
Aug	0.2414	1,712.279	27.848	20.8	48.648
Sep	0.1348	956.108	16.068	36.8	52.868
Oct	0.0259	184.016	2.993	118	120.99

Description of Table 2

Column	Calculation	Description
A	None	Month
B	Monthly Total Crooked River Pumping from 2001-2010 / Total Annual Crooked River Pumping from 2001-2010	The proportion of NUID's annual pumping that occurred during each month based on data from 2001 through 2010.
C	7,092 af * Column B	The first increment of conserved water will reduce NUID's demand by 7,092 af. NUID will protect this 7,092 af instream in the Crooked River. This column shows the portion of 7,092 af allocated to each month based on the proportion of NUID's total pumping that occurred during that month.
D	Column C / Number of Days in Month / 1.98347 af per cfs per day	Column C converted to a daily rate during each month.
E	None	This column represents the stream flow that was present 90% of the time during each month prior to this project from 2001 through 2010.
F	Column D + Column E	Minimum stream flow is equal to 7,092 af, allocated monthly, and the stream flow that would have been present prior to the project. *As described in **Section 4**, the specified rates may increase under certain conditions.

3. Minimum Crooked River Flows: After Issuance of the Second Incremental Final Order

Applicant currently estimates that the additional conserved water finalized after the true-up process in the second incremental Final Order will be 788 AF (which is 10% of the total conserved water requested in this Application). The actual amount of acre-feet requested in Applicant's second finalization request will be set by the trued-up amount that is in excess of the 7,092 AF finalized by the first incremental Final Order. This actual amount will then be used instead of the 788 AF estimate used as a place holder estimate in Columns C and D in Tables 3 and 4 below and the values in these tables will be adjusted accordingly, consistent with the descriptions below of the calculations for each column.

Applicant requests that OWRD condition its Certificates 72281, 72282, 72283, and 72284 to limit the Applicant's use of water after issuance of the second (and final) incremental Final Order for this Application to ensure that Applicant may only exercise these water rights when Crooked River stream flows meet or exceed the final stream flow levels set during Non-Dry Years as calculated below in **Table 3** in Column F, or meet or exceed the final stream flow levels set during Dry Years as calculated in **Table 4** in Column F below.

Table 3. This table shows the development of the minimum monthly Crooked River stream flows required in **Non-Dry Years** after issuance of the **second incremental Final Order**, pursuant to the Non-Dry Year Declaration metric set forth in Section 1 above. Column F establishes the minimum stream flows. The minimum stream flow will be the sum of the second increment of conserved water and the non-dry year minimum flow following the Final Order of the first increment of conserved water.

A	B	C	D	E	F
Month	Proportion of Pumping During Month	Estimated 788 af Allocated Monthly (af)	Estimated 788 af Allocated Monthly (cfs)	Non-Dry Year Minimum Stream Flow (cfs) Post-First Increment of Conserved Water	Estimated Minimum Stream Flow (cfs) Post-Second Increment of Conserved Water *
Apr	0.0435	34.311	0.577	179.889	180.466
May	0.1400	110.300	1.794	90.845	92.639
Jun	0.1969	155.178	2.608	79.171	81.779
Jul	0.2174	171.278	2.786	54.07	56.856
Aug	0.2414	190.253	3.094	59.948	63.042
Sep	0.1348	106.234	1.785	109.49	111.275
Oct	0.0259	20.446	0.333	150.69	151.023

Description of Table 3

Column	Calculation	Description
A	None	Month
B	Monthly Total Crooked River Pumping from 2001-2010 / Total Annual Crooked River Pumping from 2001-2010	The proportion of NUID's annual pumping that occurred during each month based on data from 2001 through 2010.
C	788 af * Column B	The second increment of conserved water will reduce NUID's demand by an estimated 788 af. NUID will protect this estimated 788 af instream in the Crooked River. This column shows the portion of the estimated 788 af allocated to each month based on the proportion of NUID's total pumping that occurred during that month.
D	Column C / Number of Days in Month / 1.98347 af per cfs per day	Column C converted to a daily rate during each month.

E	None	Non-Dry Year minimum stream flow from Table 1, Column F (Attachment 3)
F	Column D + Column E	Estimated minimum stream flow is equal to the estimated 788 af, allocated monthly, and the sum of the non-dry year minimum stream flow finalized following the second incremental Final Order. *As described in **Section 4**, the described rates may increase under specified conditions.

Table 4. This table shows the development of the minimum monthly Crooked River stream flows required in **Dry Years** after issuance of the **second incremental Final Order,** pursuant to the Dry Year Declaration metric set forth in Section 1 above. Column F establishes the minimum stream flows. The minimum stream flow will be the sum of the second increment of conserved water and the non-dry year minimum flow following the Final Order of the first increment of conserved water.

A Month	B Proportion of Pumping During Month	C Estimated 788 af Allocated Monthly (af)	D Estimated 788 af Allocated Monthly (cfs)	E Dry Year Minimum Stream Flow (cfs) Post-First Increment of Conserved Water	F Estimated Minimum Stream Flow (cfs) Post-Second Increment of Conserved Water *
Apr	0.0435	34.311	0.577	119.089	119.666
May	0.1400	110.300	1.794	39.045	40.839
Jun	0.1969	155.178	2.608	47.471	50.079
Jul	0.2174	171.278	2.786	44.07	46.856
Aug	0.2414	190.253	3.094	48.648	51.742
Sep	0.1348	106.234	1.785	52.868	54.653
Oct	0.0259	20.446	0.333	120.99	121.323

Description of Table 4

Column	Calculation	Description
A	None	Month
B	Monthly Total Crooked River Pumping from 2001-2010 / Total Annual Crooked River Pumping from 2001-2010	The proportion of NUID's annual pumping that occurred during each month based on data from 2001 through 2010.
C	788 af * Column B	The second increment of conserved water will reduce NUID's demand by an estimated 788 af. NUID will protect this estimated 788 af instream in the Crooked River. This column shows the portion of the estimated 788 af allocated to each month based on the proportion of NUID's total pumping that occurred during that month.
D	Column C / Number of Days in Month / 1.98347 af per cfs per day	Column C converted to a daily rate during each month.
E	None	Dry Year minimum stream flow from Table 2, Column F (Attachment 3).
F	Column D + Column E	Estimated minimum stream flow is equal to the estimated 788 af, allocated monthly, and the sum of the Dry Year minimum stream flow finalized following the second incremental Final Order. *As described in **Section 4**, the described rates may increase under specified conditions.

4. Revisions of Columns E and F after Petition by Parties to OWRD

After any Final Orders are issued by OWRD in response to this Application, and in response to a joint petition by the Applicant and the DRC to modify the flow rates set in Column E of Tables 1 and 2 due to changed conditions, OWRD may revise the flow rates set in Column E of Tables 1 and 2, and then correspondingly update Column F, in Tables 1 and 2, and Columns E and F in Tables 3 and 4.

5. Daily Stream Flow Records

Applicant agrees it shall observe and record daily stream flow levels in the Crooked River at gauge 14087300 and time recorded at least once between 5 AM and 6 PM for each day that it considers operating its pumps on the Crooked River. (And in case of a future event that makes data from gauge 14087300 unavailable, then Applicant will observe stream flow levels at an alternate gauge location established by OWRD that adequately describes stream flow in the reach downstream from the POD for Certificates 72281, 72282, 72283, and 72284.)

6. Applicant Diversions and Minimum Crooked River Stream Flows

Applicant agrees it shall not divert any water under Certificates 72281, 72282, 72283, and 72284 if that diversion would reduce the daily observed Crooked River stream flow level below the levels identified in Column F in Tables 1, 2, 3, and 4.

7. Submission of Daily Stream Flow Observations and Pumping Rates

Applicant agrees it shall record its daily near-real time stream flow observations and daily pumping rates and submit this information digitally to OWRD following the completion of each irrigation season and prior to the subsequent irrigation season, and/or anytime OWRD requests the information.