PHASE II – LEVEL 1
WATERSHED TECHNICAL ASSESSMENT
FOR THE
METHOW RIVER BASIN

Final Draft Prepared for:

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And
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TABLE OF CONTENTS Page No.

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

°F	Degrees Fahrenheit
7Q10	7-day low flow with a recurrence interval of 10 years
7Q20	7 day low flow with a recurrence interval of 20 years
abv	above
AF/yr	acre-feet per year
amsl	above mean sea level
ARD	acid rock drainage
ASCII	American Standard Code for Information Interchange
blw	below
CBOD	Carbonaceous Oxygen Demand
CCR	Consumer Confidence Report
CD	Cumulative Departure
cfs	cubic feet per second
cfs/AF/yr	cubic feet per second per acre-feet per year
CIR	Crop Irrigation Requirement
CORPS	United States Army Corps of Engineers
CRB	Columbia River Basin
CU	Consumptive Use
CURE	Conjunctive Use River Enhancement
CWA	Federal Clean Water Act
degrees C	Degrees Celsius
DEM	Digital Elevation Model
DEQ	Department of Environmental Quality
DNR	Department of Natural Resources
DO	Dissolved Oxygen
DOH	Washington State Department of Health
DP	Deer Park
Ecology	Washington Department of Ecology
EDT	Ecosystem Diagnostic Treatment
e.g.	for example
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
ESA	Federal Endangered Species Act
ESHB	Engrossed Substitute House Bill
ET	Evapotranspiration
ET_{crop}	Crop evapotranspiration
ET_{rc}	evapotranspiration for reference crop
FERC	Federal Energy Regulatory Commission
ft	feet
ft/gpm	feet per gallons per minute
ftp	File Transfer Protocol
gcd	gallons per capita per day
GIS	Geographic Information Systems
GMA	Growth Management Act

gpd/ft	gallons per day per foot
gpm/af/yr	gallons per minute per acre-feet per year
gpm/ft	gallons per minute per foot
GWAC	Groundwater Advisory Committee
HUC	Hydrologic Units Codes
HUC-5s	fifth field Hydrologic Unit Code Basins
IFIM	Instream Flow Incremental Methodology
ISFs	Instream Flows
K	Hydraulic Conductivity
Kh	Horizontal Hydraulic Conductivity
Kv	Vertical Hydraulic Conductivity
LAI	Leaf Area Index
LULC	Land Use and Land Cover
m.y.	million years
m/s	meters per second
mg/L	milligrams per liter
mi^2	square miles
mL	milliliters
mm/h	millimeters per hour
MBP	Methow Basin Plan
MBPU	Methow Basin Planning Unit
MSL	Mean Sea Level
MVID	Methow Valley Irrigation District
MVWPPP	Methow Valley Water Pilot Planning Project
n	Porosity
NASA	National Aeronautics & Space Administration
NAWQA	National Water-Quality Assessment Program
NE	North East
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NID	National Inventory of Dams
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOAA/NWS COOP	National Oceanic and Atmospheric Administration/National Weather Service Cooperative
NPDES	National Pollutant Discharge Elimination System
nr	near
NRCS	National Resource Conservation Service
NTNC	non-transient non-community
NTU	Nephelometric Turbudity Units
NW	North West
NWS	National Weather Service
OWD	on-site waste-disposal
OWDS	on-site waste-disposal systems
PDO	Pacific Decadal Oscillations
P_{ET}	Potential Evapotranspiration
PNRBC	Pacific Northwest River Basins Commission
POD	Point of Discharge
ppb	parts per billion
ppt	Precipitation
PRISM	Parameter-elevation Regressions on Independent Slopes Model
PU	Planning Unit

Qa	Permitted Annual Water Use
Qa/Qi	ratio for non-irrigation groundwater and surface water rights
Qal	Recent Deposits of Alluvium
QC	Quality Control
Qfs/Qfg/Qfcg	Lower Sand and Gravel Unit, Flood Sand and Gravel Units
Qgl	Glacial Deposits
Qi	Instantaneous Water Use
Ql	Loess
Qmw	Mass Wasting Deposits
Qp/Qla	Recent Deposits of Lacustrine
R	Runoff
RCD	Rescaled Cumulative Departure
RCW	Revised Code of Washington
RO	Mean monthly runoff
RVA	Range of Variability Statistics
SCS	Soil Conservation Service
SDWA	Safe Drinking Water Act
SEPA	State Environmental Policy Act
SNOTEL	SNOwpack TELemetry, snowpack and related climatic data collected in the Western United States by the Natural Resources Conservation Service (NRCS) through an automated system.
S_s	Specific Storage
SSA	Sole Source Aquifer
stn	Station
SW/GW	Surface Water-Groundwater
SWE	Snow Water Equivalent
S_y	Specific Yield
T	Transmissivity
TCE	Trichloroethlyene
TEM	Transient electro-magnetics
TIR	Total Irrigation Requirement
Tl	Lacustrine silts and clays, Latah Formation
TMDL	Federal Total Maximum Daily Load
TNC	transient non-community
TRS	Township, Range, Section
TVP	Technical Validation Process
USDA	United States Department of Agriculture
USGS	United States Geological Survey
UTM	Universal Transvere Mercator
v	Linear Velocity
w/o	without
WA	Washington
WAC	Washington Administrative Code
WAUs	Watershed Administrative Units
WMA	Watershed Management Act
WQMP	Water Quality Management Program
WRATS	Water Rights Application Tracking System
WRIA	Water Resource Inventory Area
WRIS	Water Resources Information System

LIST OF TERMS

Consumptive and Non-consumptive Water Use:

Consumptive Water Use - The consumptive component of water use is water that is not returned to the hydrologic system after use. Examples of consumptive water use include evapotranspiration from forestland and agricultural crops, evaporation of open water, and water used for landscaping and home gardening.

Non-consumptive Water Use - The non-consumptive component of water use is characterized by water that, after being put to beneficial use, is returned to the hydrologic system via mechanisms such as wastewater treatment plants, septic systems, and infiltration of excess irrigation water. Water from non-consumptive uses (water that is not permanently removed from the system) is returned to streams or groundwater after being put to beneficial use, and does not impact the overall basin-wide water balance.

Regulatory Baseflow, Scientific Baseflow and Instream Flow:

The term baseflow is commonly used in groundwater and surface water hydrology. This can be confusing since there are regulatory definitions of baseflow which do not reflect the scientific use of the word in hydrology. This Technical Assessment uses the following definitions:
Baseflow (Scientific) - Streamflow includes both surface runoff and baseflow. Baseflow is water that enters the stream from sources other than direct run-off of precipitation, primarily from groundwater. Since it constitutes most of the streamflow during low flow periods, it is an important parameter in evaluating groundwater systems and their interaction with surface water. Flow in a stream during low flow periods is sometimes referred to as "baseflow".

Regulatory Baseflow (institutional definition) – Refers to the instream flows established for seven stream management reaches by Ecology in 1976 as part of the instream resource protection program (IRPP) as authorized by the state under the Water Resources Act of 1971 (RCW 90.54). Regulatory baseflows are the flows administratively established "necessary to provide for the preservation of wildlife, fish, scenic, aesthetic, and other environmental values, and navigational values".

Regulatory baseflow and instream flow are similar in definition. In the current working legislative draft for instream flow guidance, "instream flow" is now specifically defined as:

Instream Flow - A level of stream flow or lake level designated by rule that establishes the rate of stream flow or lake level that cannot be further diminished by water rights issued subsequent to the adoption of the instream flow rule. It is the level of stream flow or lake level which, when not met or exceeded, triggers the department's authority to regulate or otherwise interrupt the exercise of water rights that are conditioned to the instream flow.

Groundwater Recharge – the condition of surface waters "replenishing" or "recharging" groundwater via infiltration of precipitation and run-off, infiltration of streamflow through permeable streambeds, and infiltration from irrigation canals.

Groundwater Discharge – the condition of groundwater leaving the subsurface and, either contributing to surface flows or being withdrawn by wells that pump. groundwater.