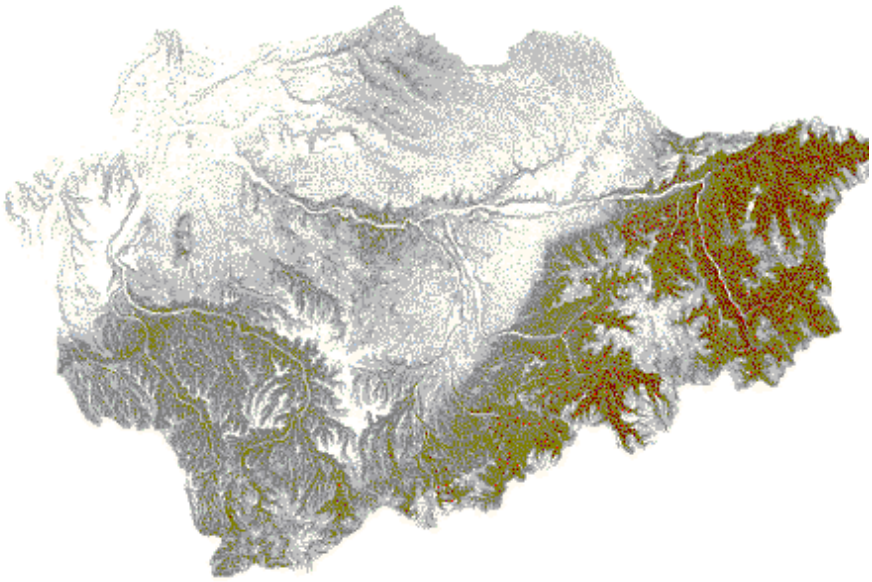

Water Resources Status
A Study of the Water Resources Availability and Demand in the Umatilla River Basin, Oregon

Prepared for

U.S. Bureau of Indian Affairs
Portland OR

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WATER RESOURCES STATUS
A STUDY OF THE WATER RESOURCES AVAILABILITY AND DEMAND
IN THE UMATILLA RIVER BASIN, OREGON

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Water Resources Status- A Study of Water Resources Availability and Demand in the Umatilla River Basin, Oregon

I. INTRODUCTION

A. Purpose

The purpose of this study is to examine existing information on water supplies that will be needed to meet current and future water needs, both instream for the Tribal fisheries and out-of-stream for consumption on the Umatilla Indian Reservation, which is located in northeastern Oregon (Figure 1). This report[1] presents the results of an analysis of existing water-rights information, both surface water and groundwater, and the availability of water resources for development in the Umatilla River Basin.

An analysis of existing water demands and availability in the Umatilla River Basin is essential to fill an important information gap. While many studies exist which evaluate various aspects of basin-water supply, there is no comprehensive summary of both surface water and groundwater use in the basin where fishery and instream habitat requirements are considered. This need is also recognized in the following excerpt from the Umatilla River Basin Total Maximum Daily Load (TMDL) and Water Quality Management Plan (WQMP) (ODEQ 2000).

> "In the Umatilla Basin demand for water is greater than the available supply. We can only assume that this situation will become worse. Residential and industrial demand for water will begin to compete more with the water needs of fish, agriculture and other uses as population and economic development increases. Though water availability in the Basin has been reviewed, e.g., OWRD 1988, no comprehensive study of available water has been done.… A thorough study of all groundwater and surface water in the Umatilla Basin is necessary for planning for future water needs. More research on quantity, origin, rate of replenishment and interaction between surface and groundwater would be especially helpful. Certainly, for the long-term environmental and economic health of this basin there must be an accurate estimate of groundwater as well as surface water."

B. Scope

This study examines the uses and available supply of water in the Umatilla River Basin. The study was confined to the examination of existing data and information available online from the State of Oregon Water Resources Department (OWRD) website, and previous studies by OWRD, the US Geological Survey (USGS), Oregon Department of Environmental Quality (ODEQ), and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). This report addresses the current status of groundwater resources; the

[1] This report was prepared for the U.S. Bureau of Indian Affairs in fulfillment of a grant to Confederated Tribes of the Umatilla Indian Reservation under the Water Resources Management, Planning, and Pre-Development Program, Fiscal Year 1999.

status of surface-water resources; the effects of current groundwater depletion; identification of data gaps; and conclusions and recommendations.

II. PHYSICAL SETTING

A. Geography

The "Umatilla Drainage Basin" as defined by OWRD for management purposes is comprised of the Umatilla sub-basin, the Willow Creek sub-basin, and part of the Walla Walla River sub-basin. Throughout this report the term "Umatilla sub-basin" will be used to describe the Umatilla River and its tributaries. The Umatilla sub-basin encompasses approximately 2,520 square miles (mi^2) in northeastern Oregon (OWRD WARS 2001).

As shown on Figure 1, the Umatilla River basin is bounded on the north by the Columbia River and Walla Walla River sub-basin, on the south-southeast by the Grande Ronde River basin, on the south-southwest by the John Day River basin, and on the west by the Willow Creek sub-basin. The Umatilla basin is comprised of two major physiographic regions: the Deschutes-Umatilla Plateau and the Blue Mountains. The Deschutes-Umatilla Plateau located in the northern part of the basin is a broad upland plain formed by vast basalt flows of the Columbia River Basalt Group. The basalt flows dip gently to the north from the base of the Blue Mountains toward the Columbia River. The Blue Mountains form an arcuate band along the southern and eastern boundary of the basin. Elevations in the basin range from about 270 feet above mean sea level (amsl) near the Columbia River to over 5,500 feet amsl in the Blue Mountains.

The principal land use in the Umatilla sub-basin is about 16% forest, 46% rangeland, 37% cropland, and 1.4% other including towns, roads, etc (OWRD 1963). The Umatilla Indian Reservation occupies approximately 10% of the land area. As shown on Figure 1, irrigated agriculture occurs primarily in the lower Umatilla sub-basin where surface water is diverted to supplement natural rainfall. Since 1963, however, the area under irrigation has expanded with the advent of deep wells.

B. Climate

The climate of the Umatilla basin is temperate and semiarid, characterized by low-annual precipitation across the Umatilla-Deschutes Plateau to much higher annual precipitation in the Blue Mountains. As shown on Figure 2, precipitation ranges from 8 inches near the Cities of Umatilla and Hermiston, 14 inches near the City of Pendleton and up to nearly 50 inches in upper-most region of the Blue Mountains. Most of the cropland areas of the basin receive annual precipitation between 8 and 20 inches (OWRD 1963).

C. Hydrology

Figure 2 shows the location of the Umatilla basin, sub-basins, and selected active gaging stations in the Umatilla River and tributaries. Table 1 lists all of the active gaging stations for the Umatilla River and tributaries in the basin and the responsible agency for

maintaining and operating the respective stations. All of the gaging stations operated and maintained by the U.S. Bureau of Reclamation are equipped with near-real-time capability

Table 1: Active USGS (CTUIR Cooperator) and USBR Hydromet stations in the Umatilla River, 2001.

A. USGS Gaging stations (USGS-WRD-OR-00-1)

Station name	Station Number	Drainage Area, Mi^2	Period of Record
Umatilla River above Meacham Creek near Gibbon	14020000	131	1933 – current year
Umatilla River near Umatilla	14033500	2,290	1903 – current year
Meacham Creek at Gibbon	14020300	176	1975 – current year
Moonshine Creek near Mission	14020740	4.62	1991 – current year
Squaw Creek near Gibbon	14020520	32.6	1998 – current year
Patawa Creek near Pendleton	14021980	30	1991 – current year
West Boundary near Pendleton	14020850	Not determined	1995 - current year
NF McKay Creek near Pilot Rock	14022200	48.6	1973 – current year

B. USBR/OWRD Hydromet stations in the Umatilla basin (does not include diversion, canal, or reservoir stations).

Station Name	Station Code	OWRD Period of Record	Hydromet Period of Record
Umatilla River below Dillon Diversion	UMDO	-	1993 - current
Umatilla River below Umatilla Project Feed Canal Diversion	UMUO	-	1993 - current
McKay Creek near Pendleton	MCKO	-	1993 - current
Umatilla River below Butter Creek	UBBO	-	1996 - current
McKay Creek near Pilot Rock	MYKO	11/1918 - 9/1991	1993 - current
Umatilla River at Pendleton	PDTO	11/1903 - 9/1990	1990 - current
Umatilla River near Umatilla	UMAO	11/1903 - 9/1996	1996- current
Umatilla River at Yoakum	YOKO	10/1903 - 10/1991	1993 - current

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and satellite telemetry as part of the Hydromet system. Hydromet data can be viewed on the Internet at http://www.usbr.gov/pn/hydromet/umatilla/umatilla.html and http://www.usbr.gov/pn/hydromet/umatilla/umatea.html. The latter site depicts a graphical

layout of stations located on streams, stream diversions, canals and reservoirs from Pendleton down to the confluence of the Umatilla River to the Columbia River. Above Pendleton, however, the USGS, in cooperation with the CTUIR, operate and maintain five gaging stations. Figure 3 illustrates the complex network of diversions and irrigation-system operations managed by OWRD District 5 Watermaster for the lower Umatilla River below the City of Pendleton.

Figure 4 shows a combined hydrograph of the average and median-daily streamflow from three gaging stations that together represent the flows of the upper Umatilla Basin at river mile 49 (RM 49). The three stations include Umatilla River in Pendleton (PDTO), McKay Creek near Pilot Rock (MYKO), and Birch Creek near Reith (BIR0). For water allocation purposes of the lower Umatilla River, the state Watermaster assesses water availability from the combined flows recorded for these three gaging stations.

Note that the average flow is considerably greater than median flow. This comparison illustrates the influence that a few extremely wet years can have on the average-flow curve. Because of such anomalies, OWRD applies exceedance-streamflow estimates based on statistical summaries for the period of record. The 50% exceedance streamflow is the flow that occurs 50% of the time, which is not an average. If the period of record is sufficiently long, the median flow approximates the 50% exceedance flow. In this report, streamflow summaries are based on the median flow for the specified period of record.

Appendix A contains hydrographs of the average- and median-daily flow recorded at the following stations: Umatilla River near Umatilla (UMAO), Umatilla River at Yoakum (YOKO), Umatilla River at Pendleton (PDTO), McKay Creek near Pilot Rock (MYKO), and Birch Creek near Reith (BIRO). Appendix A also contains watershed-characteristic summaries from OWRD's Water Availability Reporting System (WARS) website (www.wrd..state.or.us/).

D. Geology

It is important to understand the geology and geologic structures of the basin because geologic characteristics, folds, and faults can have a modifying effect on the distribution and availability of groundwater in storage and the groundwater-flow regime. Figure 5 shows a generalized geologic map of the Umatilla Basin (USDA 1962). The oldest rock units in the study area are composed of the pre-Tertiary metamorphic (sg) and igneous rocks (gd) and Tertiary sedimentary rocks (Clarno Formation, Tc).

Most of the basin is underlain by a thick sequence of Miocene basalt flows collectively called the Columbia River Basalt Group (CRBG) (Hansen, etal., 1994). Individual basalt flows range in thickness from a few feet to four-hundred feet but average about 50-100-feet thick (Hooper 1982). Total thickness of the CRBG in the Umatilla basin may be more than 10,000 feet (Davis-Smith, etal., 1988).

Sediments of glacial-stream origin (glaciofluvitile-Qgf and Glacial lake-Qls shown on Figure 5) and recent stream deposits (alluvium, Qal) overlie the basalt in the lower Umatilla

basin near and along the Columbia River. The thickness of these sedimentary units is collectively about 150 feet but can range up to 200-feet thick (Wozniak 1995). The Tertiary fanglomerate (Tf) deposits occur in the central part of the basin on the Umatilla Indian Reservation. Thickness of the Tf can be as much as 150 feet but generally is less than 25-feet thick (Gonthier and Bolke, 1993). These sediments were deposited along the base of the Blue Mountains by streams and possibly the ancestral Umatilla River. Although not shown on Figure 5, loess (windblown silt) covers much of the central part of the study area.

Very few detailed geologic investigations have been conducted for the Umatilla basin particularly in the upper Umatilla basin where many structural features are known to occur. The U.S. Geological Survey has investigated the surface and groundwater resources of the Columbia Regional Aquifer System, Umatilla Basin, and the Umatilla Indian Reservation, but most of the analyses and interpretations were developed from the general regional character of the basalts in the Columbia Basin (Smith-Davies, etal., 1988; Hansen, etal., 1994; Hogenson 1964; and Gonthier and Bolke, 1993). To better understand the groundwater-flow regime and flow barriers, additional detailed geologic mapping is needed to identify the faults present in Umatilla basin, including the Umatilla Indian Reservation. This information will greatly help in developing a conceptual model of groundwater flow and surface-water interaction.

Initially, across the Columbia Plateau, the basalt flows were extruded onto irregular surfaces filling in canyons and lowlands to a relatively horizontal position. Deposition of subsequent flows occurred over a period of 11 million years and ended about six million years ago (Hooper 1982). Before the end of CRBG deposition, however, tectonic forces disturbed the basalts and distorted the basalt flows into the present landform of the Deschutes-Umatilla Plateau and the Blue Mountain physiographic subareas (Swanson, etal., 1979; Baurer and Hansen, 2000). The rocks of the CRBG were tilted, arched, downwarped, or faulted. Geologic features (folds and faults) emanating from these tectonic forces include the Blue Mountain anticline (arch), Agency syncline (trough), Reith anticline, Service anticline, and the Hite fault system (located on the eastern boundary of the Reservation along the western flank of the Blue Mountains (Smith-Davies, etal., 1988; Gonthier and Bolke, 1993). The arching of the basalt flows in the Blue Mountains reached elevations above 5,000 feet msl. On the Reservation, the basalt flows generally dip toward the northwest. According to Gonthier and Harris (1977), "the angle of dip of the basalt varies locally and regionally; it ranges between 2^{o} and 10^{o} along much of the western edge of the Blue Mountains, but the basalt flows are nearly horizontal in the Pendleton area."

E. Hydrogeology

In the Umatilla basin, groundwater occurs beneath the water table in pore spaces between granular material of unconsolidated stream deposits and in the permeable zones between basalt flows. The permeable interflow zone between two basalt flows was developed by the incomplete covering of rough, irregular surfaces of the lava flow by the next flow. Gas bubbles (vesicles), lava tubes or small caverns, and shrinkage cracks add to the pore space. Porous sand and gravel and sandy silt interbeds also occur in the volcanic sequence in some places and tend to be less permeable (Gonthier and Bolke, 1993).

The primary aquifers in the Umatilla Basin occur in (1) the Quaternary deposits of lower Umatilla basin, and (2) the interflow zones between successive basalt flows throughout the basin in the CRBG. The fanglomerate is comprised of gravel with interstices filled with silt. These materials do not transmit water readily (Hogenson 1964) and may be considered more of an aquitard than an aquifer.

Alluvial Aquifer

In general, the alluvial aquifer is unconfined but locally can be confined by less permeable clay layers. Wells tapping the alluvial aquifer are capable of large yields particularly in the glacial-fluvial materials but are much less productive in the glacial lake deposits.

Recharge is from natural and artificial sources. Natural recharge occurs from the limited amount of precipitation that falls in the lower basin and from hydraulically connected surface-water sources. Artificial recharge occurs from the application of surface water and other sources for irrigation and from leaky irrigation canals. Another source of recharge is from an artificial groundwater recharge project managed by the County Line Water Improvement District (CLWID) for the Ordnance gravel aquifer located west of the Umatilla River in the lower Umatilla basin.

Discharge is by natural and artificial processes. Natural discharge occurs to hydraulically connected surface-water bodies, springs, subsurface outflow, and a minor amount to vegetation through evapotranspiration (Davies-Smith, etal., 1988). Artificial discharge occurs through withdrawals by pumping. Concentrated well development in Ordnance area began in 1950s and continued into the 1970s. By 1976 excessive withdrawals and subsequent decline in groundwater levels prompted the Oregon Water Resources Department (OWRD) to regulate use of the Ordnance gravel aquifer (Miller 1985)[2]. The CLWID recharge project was started in 1977 to augment the available supply and improve the yield of wells in the area.

Another potential, though currently unevaluated, source of artificial discharge is through leakage to the underlying basalt aquifers. Oberlander and Miller (1981) described many areas with historic deep flowing artesian wells from the basalt aquifer. Some areas of the basalt aquifers have experienced considerable groundwater declines with development such that water levels are currently hundreds of feet below land surface. Prior to development of the deep-basalt aquifer, however, the hydraulic gradient most likely was upward and the groundwater flux, in this case would have been from the basalt aquifer to the alluvial aquifer. Thus, historically, the alluvial aquifer would have been recharged by the deep basalt aquifers. Now, because of groundwater development of the deep-basalt aquifer and the subsequent decline in groundwater levels, the gradient has reversed and is downward. So, the flux is now from the alluvial aquifer to the basalts. This current condition is a direct result of changing the pressure gradients and flow regimes of the basalt aquifers through artificial development of the groundwater resource.

[2] Establishment of Critical Ground Water Area by Order of OWRD Director in 1976 (OAR 690-507-0070).

Basalt Aquifer

In general, wells tapping the basalt aquifers are semi-confined to confined (Davies-Smith, etal., 1988). In areas where groundwater levels have declined below the confining unit, the aquifer is unconfined. According to Davies-Smith and others (1988), the interflow zones in the CRBG tend to be highly permeable in the horizontal direction, which is parallel to the interflow zone. Due to the dense interior of the individual basalt flows, however, the vertical permeability between the interflow zones probably is limited to just a few sporadic open fractures. Most of the fractures are filled with secondary minerals like opaline and zeolites, which act as barriers to groundwater flow and thus tend to separate the interflow zones.

Because of the limited thickness of the interflow zone, transmissivity tends to be low, and consequently, water wells are commonly drilled through more than one interflow zone to attain the desired yield. Due to the high permeability of the interflow zones, some wells produce more than 2,500 gallons per minute (gpm) with a high specific capacity. OWRD treats the basalt aquifer as a regional groundwater reservoir rather than individual aquifers for each of the interflow zones in the CRBG.

Aquifer testing by OWRD (Oberlander and Miller, 1981) in the lower basin and by CTUIR (2000) in the upper basin had indicated numerous vertical hydrologic barriers in the basalt aquifer. These barriers to a large degree determine the rate and movement of groundwater from recharge areas to discharge areas. They can act as a "bottleneck" to groundwater flow.

Recharge to basalt aquifers is primarily from precipitation in the higher elevations of the Blue Mountains. Very little recharge is known occur in the lower elevations (borehole flux in wells constructed across several basalt aquifers has not been quantified). Consequently, recharge to the basalt aquifer is very slow to the lower Umatilla basin. OWRD sampled groundwater in the basalt aquifers to determine age by Carbon 14 age-dating techniques (indicates when water was last exposed to earth's atmosphere) and found that groundwater is youngest near the Blue Mountains and oldest adjacent to the Columbia River (Oberlander and Miller, 1981). Dates were reported as young as 2,570 years in Pendleton and as high as 27,250 years in the lower Umatilla basin. It is important to note that, according to Oberlander and Miller (1981), groundwater ages greater than 2,000 years are recharged too slowly to prevent aquifer mining. This would apply to all areas that OWRD tested in the Umatilla structural basin (Appendix B provides an annotated bibliography of the 1981 Oberlander and Miller study, which includes a description of the Umatilla Structural basin).

As discussed above, with declining water levels in the basalt aquifer, recharge may also occur by gravity drainage from the alluvial aquifer above. Discharge from the basalt aquifer occurs naturally to springs (local flow system) and to a lesser degree to the regional-flow regime (Hansen, etal., 1994) and artificially to wells.

Groundwater-level declines in the Umatilla basin have occurred as irrigation development progressed from the late-1950s and early-1960s, and in urban areas where basalt wells are tapped by municipalities. The greatest water-level declines are centered in areas where irrigation withdrawals are largest.

III. PREVIOUS STUDIES

Table 2 summarizes selected references from the Umatilla Basin regarding both surface water and groundwater use and available supply. Appendix B provides an annotated bibliography of selected studies that provide a more regional and comprehensive understanding of groundwater and surface-water conditions in the Umatilla basin.

Table 2: Selected references with data and information on water use and availability in the Umatilla River basin.

Reference	Ground-water	Surface Water	Coverage
WATER USE			
Oregon Water Resources Department, Umatilla Basin report (1963, 1988)	X	X	Umatilla basin (Umatilla Rv, Walla Walla Rv, Willow Cr)
Oregon Water Resources Department - Water Rights Information System (WRIS 1996)		X	Umatilla basin and major tributaries
Oregon Water Resources Department - Water Rights Information System (WRIS)/GIS posting on website for public access (2000)	X	X	Umatilla basin (Umatilla Rv, Walla Walla Rv, Willow Cr)
Oregon Water Resources Department - Groundwater Resources Information Database (GRID) (1997)	X		Umatilla basin (well-log records 1953-1997)
Oregon Water Resources Department - Ground-water studies (Norton and Bartholomew, 1984; Zwart 1990; and Oberlander and Miller, 1981)	X		Umatilla basin-Butter Creek, Stage Gulch, and Ordnance areas
Oregon Water Resources Department - McKay and Umatilla River management plan (1991)		X	Umatilla River (rm 0-50) and McKay Creek
Plateau Industrial, LLC and W&H Pacific - Regional water system feasibility study (1996)	X	X	Umatilla Reservation; upper Umatilla basin
Wallulis and Associates - Water system master plan for the City of Pendleton (1995)	X	X	City of Pendleton; upper Umatilla basin
U.S. Geological Survey - Ground-water pumpage from the Columbia Plateau regional aquifer system (Collins 1987)	X		Columbia Plateau regional aquifer system
Confederated Tribes of the Umatilla Indian Reservation, Flow needs for salmonids and other aquatic organisms in the Umatilla River (1998)		X	Umatilla River mainstem
US Bureau of Reclamation, Umatilla basin project planning report and environmental impact study (1988)		X	Umatilla drainage basin
WATER AVAILABILITY			
Oregon Water Resources Department - Water Availability Report (WARS, OWRD webpage) (2000)		X	Umatilla basin and tributaries
Oregon Water Resources Department - Watershed Characteristics (WARS, OWRD webpage) (1999)		X	Umatilla basin and tributaries
Oregon Water Resources Department - Hydrologic studies in the Umatilla structural basin (Oberlander and Miller, 1981)	X		Umatilla basin-Butter Creek, Stage Gulch, and Ordnance areas
U.S. Geological Survey - Hydrogeology of the Columbia Plateau aquifer system (Davis-Smith, etal 1988; Hansen Jr. etal., 1991, Bauer and Hansen, Jr. 2000)	X	X	Model, Columbia Plateau regional aquifer system

IV. RECORDS AND SOURCES FOR DATA

Listed below are the sources of data compiled for this study:

Oregon Water Resources Department

1. Data and information on valid water rights for the basin are recorded on OWRD's database called Water Rights Information System (WRIS), which is maintained in Salem and accessible via the Internet at www.wrd.or.us.gov. In 1996, OWRD furnished a list of all valid water rights (except groundwater) for each sub-basin in the Umatilla basin. The original data set is provided in Appendix C. To compute the total water rights issued by sub-basin, the list was further compiled by tributaries, reservoirs, and springs to the next stream order in the sub-basin, which was then listed by the primary tributary to the Umatilla River. Appendix D contains the water-rights list by sub-basin and tributary stream order. For this report, the water-rights information contained in Appendix D will be called WRIS 1996. The most rescent record reported in this WRIS data set is from 1993.

2. In addition, more "user friendly" and interactive water-rights data sets are available at OWRD's website (www.wrd.or.us.gov/). For example, with interactive mapping and search techniques, which are now possible with the Geographic Information System (GIS), a Umatilla Basin database has been developed for places of use (POUs) and points of diversion (PODs), and instream water rights (ISWR). Individual water rights have been digitized using the best available data for the area (1:24,000-scale or larger map). OWRD began this process in 1989 and completed all of the basins in Oregon in 2000. Appendix E provides a description of the water right GIS coverage information. The GIS listing purportedly includes all individual POU and POD (with well records), and ISWR; however irrigation districts are not listed. The data set was retrieved at ftp.wrd.state.or.us/pub/water_right_data/uma/ and ftp.wrd.state.or.us/pub/water_right_data/documentation. For this report the water-rights information obtained from this source will be called GIS WRIS 2000. The most recent record reported on GIS WRIS 2000 is from 1993.

3. OWRD's District 5 office located in Pendleton also maintains a data set that is current (2001) with recent water-right transfers, cancellations, etc., and the 1916 decreed water rights (vested[3] and inchoate[4] water rights), which sought to impose order and legal significance to water use and water “claims” as of that date. Appendix F contains a copy of the distribution list for the Umatilla River, updated June 11, 2001. The list does not include tributaries or groundwater. This list was used to supplement the irrigation district water rights that were not reported in GIS WRIS 2000.

4. For groundwater-use estimates, the water rights listed for non-exempt wells can be found in GIS WRIS 2000 as well. A review of these records indicated that the database is

[3] Vested water right- A decreed water right that has been perfected prior to 1909.
[4] Inchoate right means a right to use water that began prior to 1909. The right must be put to full beneficial use and perfected with reasonable diligence. OAR 690-028.

incomplete, i.e. not all water-well records are noted in the GIS WRIS 2000 data set. For example, only five wells of the eleven wells owned and operated by the City of Pendleton are noted in the database.

5. To supplement the GIS WRIS 2000 non-exempt well records, all well records listed on the Groundwater Resource Information Distribution (GRID) database were compiled by Township/Range and Section and sorted by their use. GRID is a system for archival and retrieval of information related to groundwater resources. It contains the information recorded on driller's well reports including the type of well--exploration (G), monitoring (M), and water (W); type of work--new, abandonment, alteration, repair, deepening, reconditioning and other; and type of use--domestic, industrial, irrigation, test, injection, thermal, livestock, and community (includes municipal). The data set was sorted by type of well- water only, then by type of work- new only; and then by use. Over 4,000 new water wells are listed in GRID dating back to 1918. This data set is summarized in Appendix G. For brevity, the data set is not produced in its entirety in this report but summarized and the information garnered from GRID will be called GRID 2001.

6. Instream Water Rights (ISWR) were also found at the same OWRD website as GIS WRIS 2000 (www.wrd.state.or.us). A distinction between minimum flows (MF) and instream water rights is noteworthy in the 34 records posted. Several minimum flows with a priority date of 1988 were converted to instream flows with a priority date of 1990. These instream water rights were separated from the converted minimum flows and are summarized in Appendix H.

7. Climatic and estimated natural-streamflow information was found on OWRD's webpage under WARS (Water Availability Reporting System, and then from Telnet WARS Utilities selection). Appendix A contains sub-basin summaries of watershed characteristics in the Umatilla River basin.

8. Appendix I contains summary tables of water availability at the 50% exceedance level for the limiting sub-basin[5] in the Umatilla River basin (OWRD WARS 2001). A description of the methodology used to compute water availability is also provided.

9. Groundwater pumpage estimates by Oberlander and Miller (1981) for the Umatilla Structural basin are used in this study to check other estimates of groundwater pumpage in the Umatilla basin. Appendix B contains summaries of pumpage estimates from previous OWRD studies (Oberlander and Miller 1981; OWRD 1988; and Zwart 1990).

10. Groundwater pumpage allocations from the alluvial aquifer and designated Critical Groundwater Areas (Butter Creek basalt aquifer, Stage Gulch basalt aquifer, and Ordnance gravel and basalt aquifers) are summarized in Appendix J (OWRD allocation tables 1999, and CH2M Hill 1999).

[5] For water to be available at any given point, it must be available at all points of calculation downstream from that point. For points in the Umatilla basin, the limiting reach for most of the sub-basins is the reach of Umatilla River from RM 0 - 50 (OWRD WARS 1999).

U.S. Geological Survey

11. Groundwater-pumpage estimates from the Columbia Plateau regional aquifer system (Collins 1987) provided the comprehensive pumpage-estimates from both the alluvial and basalt aquifers in the Umatilla basin. All subsequent USGS reports prepared as part of the Columbia Plateau Regional Aquifer System Analysis (RASA) Program cite the pumpage data for Oregon from this 1987 report. Appendix K contains a summary of groundwater pumpage from both the alluvial and basalt aquifers.

12. A USGS report called "Ground-Water Flow Simulation of the Columbia Plateau Regional Aquifer System, Washington, Oregon, and Idaho" (Hansen, etal., 1994) provides water-budget estimates for streamflow, groundwater recharge, and discharge for the Umatilla River basin. Appendix L contains excerpts from this report related to water-budget information.

Confederated Tribes of the Umatilla Indian Reservation

13. A report called "Flow Needs for Salmonids and Other Aquatic Organisms in the Umatilla River" (CTUIR 1998) provides streamflow estimates for salmonids and other aquatic organisms for various life stages, migration flows, and channel-maintenance flows to protect existing habitat. Appendix M provides a summary table of the flow needs for migration and channel maintenance.

14. Median and average streamflow analyses for selected gaging stations were developed by CTUIR staff from the Department of Natural Resources (CTUIR 1996).

15. Groundwater-pumpage estimates from basalt wells in the lower Umatilla basin were developed by CTUIR (2000) from groundwater allocation tables prepared by OWRD in designated groundwater-management areas. Appendix N contains a summary table of current groundwater extraction from the basalt aquifers in the lower Umatilla basin.

V. WATER RESOURCES SUPPLY AND DEMAND

A. Water Rights

According to Oregon Water Laws (Title 45 of the 1993 edition of the Revised Statutes), all surface water and groundwater belong to the public. The Water Resources Commission of the State of Oregon has authority over water supply and allocation of the state's water resources (OWRD 1988). OWRD is the state agency responsible for the administration of the laws and carrying out the policies and rules of the Water Resources Commission. The CTUIR also has authority under the Tribal Water Code (1981) to issue water permits on the Reservation. Anyone seeking to drill a well and develop water on the Reservation must obtain a CTUIR water-use permit. Further discussions of water rights and permitting in this report will be limited to those recorded and regulated by OWRD.

Water rights recognized by the State of Oregon fall into several different categories. These include water rights filed in the 1916 Final Decree for the Umatilla River (1916 Decree) (Umatilla County Courthouse) and permits issued since then by the state. In addition, the state allows certain "out-of-season" water withdrawals and recognizes but does not regulate certain "exempt" uses of water. Also, under certain conditions, OWRD recognizes the inter-connection of groundwater and surface water sources and will classify, and regulate use of hydraulically connected groundwater as surface water. Finally, OWRD recognizes the existence of very large water rights, as discussed below, but does not include them in some important evaluations.

The 1916 Decree defined water rights for irrigation, municipal, domestic, stock, power, and industrial uses. The irrigation season is defined as March 1 through November 1 (however, the growing season is typically six months per year). The rate and duty is defined by soil type and location within the basin. The range for rate and duty[6] is $1/80^{th}$-$1/40^{th}$ cfs/ac and 3 - 6 ac-ft/ac, respectively. There are other limitations as well such as the capacity of the delivery system to the place of use. Most wells are limited to $1/80^{th}$ cfs/acre rate and 3 ac-ft/acre duty. All water rights which post-date the 1909 OWRD Water Code require a permit to begin using water. Water rights which predate the code are decreed rights (vested and inchoate) and recorded in the 1916 Decree for the Umatilla Basin.

Water may be appropriated for certain purposes at any time when it is available. For example, "out-of-season" uses are for filling reservoirs, groundwater recharge, irrigation to increase soil moisture, industrial and other uses. In the Umatilla River basin, at least 563 cfs can be attributed to off-season irrigation water rights -- 350 cfs to the Hermiston Irrigation District to divert water to Cold Springs Reservoir, 75 cfs to the County Line Water Improvement District for groundwater recharge, and 138 cfs to Teel Irrigation District for soil moisturization.

[6] Duty is defined here as the total volume of water that can be applied per acre (ac-ft/ac) during an irrigation season. A water right permit for irrigation contains both a rate and duty specification that ranges between three and six acre-feet per acre maximum. It is assumed here that the duty is 4.5 ac-ft/ac.

Exempt uses of surface water include natural springs which do not form a natural channel and flow off the property where it originates; stock watering; fish protection, fire control, forest management, land management practices where water is not the intended activity, and rainwater collection from an impervious source. ORS 537.545. All non-exempt groundwater pumpage requires a water permit from OWRD as well. Exempt uses of groundwater include stock watering; lawn or non-commercial garden watering of not more than one-half acre; single or group domestic purposes not exceeding 15,000 gallons per day; single industrial or commercial purposes not exceeding 5,000 gallons per day; down-hole heat exchange uses, and watering school grounds ten acres or less, at schools located within a critical ground water area. ORS 537.545.

According OAR 690-507-0070, for the Columbia-Umatilla Plateau Subbasin, the Umatilla River and tributaries (surface water) are withdrawn from further appropriation of unappropriated water during the period June 1 through October 31 each year. However, withdrawals for exempt uses, storage, groundwater recharge, power development, and pollution abatement are possible from November 1 through May 31.

Currently, the CTUIR has an unquantified reserved water right for present and future uses from both groundwater and surface water with a priority date that is senior to all non-Indian water rights in the basin. Until there is a quantification of CTUIR's water rights, the OWRD has reserved up to 75,000 ac-ft for storage for CTUIR's use with a priority date of 1988. OAR 690-507-0050 (B). In addition, all waters of the North Fork of the Umatilla River and its tributaries were set aside by the Oregon Legislature for the exclusive use of the City of Pendleton. OAR 690-507-0050 (2)(a) and ORS 538.450. Neither of these administrative rules nor statute is recorded in WRIS or tabulated in the water-rights tables reported in OWRD (1988).

OWRD has recorded the water rights which it recognizes and regulates in several different databases. Unfortunately, there are several significant inconsistencies and omissions in these records. So determining what water rights exist is a difficult and uncertain task. However, it appears that the state has issued consumptive surface-water rights for approximately 2,000 cfs per year.

B. Surface Water Resources

1. Umatilla Basin Project

Since the early 1900s, federal irrigation projects along with individual senior water-right holders, de-watered the lower Umatilla River for many months of the year. The irrigation projects also created fish passage problems at dams which, together with de-watering of the river, caused extinction of chinook and coho salmon from the Umatilla River basin[7]. Beginning in the 1980s, the Tribes, irrigators, and federal and state agencies developed a plan to (1) improve passage problems at the dams and (2) improve instream flows through an exchange of Umatilla River water for Columbia River water during critical migration times of the year. Federal legislation in 1988 authorized and funded the Umatilla Basin

[7] A remnant summer steelhead population survived these irrigation projects.

Project, Phases I and II. Target flows[8] were established to meet minimum passage needs both for salmonid adults returning to the river and smolts leaving the river. Figure 6 shows the location of the Irrigation Districts involved with Phases I and II.

In 1993, Phase I began an exchange with the West Extension Irrigation District. Up to 140 cfs of flow in the Umatilla River from Three Mile Dam (river mile 3) to the mouth is left instream (un-diverted) for salmonid passage in exchange for an equal amount of water diverted from the Columbia River. Phase II is an exchange with the Hermiston (HID) and Stanfield Irrigation Districts (SID), and completed in 1999. In Phase II, Cold Springs Reservoir is filled with Columbia River water to service districts in exchange for (1) flow in Umatilla River is left instream, un-diverted by HID (river mile 28) during the winter and spring months, and (2) SID's portion of McKay Reservoir is stored for instream-flow augmentation. As a result of Phases I and II, in just this year, more than 30,000 fall and spring chinook, coho and summer steelhead have returned to the Umatilla River.

Although Phases I and II has greatly improved salmonid-passage conditions in the lower Umatilla River, there is still inadequate streamflow to meet the needs of salmonids for all life stages including spawning and rearing, and migration during dry years in the lower Umatilla River (CTUIR 1998). In addition, water-quality limiting conditions such as high stream temperatures limit year-round use by salmonids of the lower Umatilla River. Because of this need to sustain streamflows throughout the year and improve water-quality conditions, the Tribes, the Westland Irrigation District, and the US Bureau of Reclamation have proposed a Phase III of the project, which would exchange WID's Umatilla River water and McKay Reservoir stored water for Columbia River water (Figure 6).

2. Surface-Water Appropriation

OWRD (1988) Report: Table 3 summarizes all valid surface water rights and groundwater rights for the Umatilla sub-basin (OWRD 1988). Figure 7 shows a table and chart of the water rights reported by OWRD for the Umatilla sub-basin. Notably absent from the tables are (1) the Tribes administrative "reserved" water right and (2) the City of Pendleton's statutory right to all waters of the North Fork of the Umatilla River and its tributaries. The total surface-water rights issued in the Umatilla sub-basin by OWRD for all uses is estimated here to be 1,951.46 cfs; and of these, 1,773.14 cfs (91%) are for irrigation purposes.

WRIS 1996: Table 4 summarizes WRIS 1996 data by use, number of acres irrigated (both primary and supplemental) from a point-of-diversion or storage, sub-basin and tributary by stream order, rate in cubic feet per second (cfs) or gallons per minute (gpm), and stored volume in acre-feet (ac-ft). Noteworthy in the records is storage for 5,500 ac-ft in a reservoir that no longer exists. (The remaining 50,000 ac-ft for storage is accurately reported for the Hermiston Irrigation District to store water in Cold Springs Reservoir).

[8] Phases I and II are implemented to meet target flows of 250 cfs (September 16 -30), 300 cfs (October 1 - November 15), 250 cfs (November 16-June 30), and 0 (July 1 - September 15). If water is available, however, fishery managers at their discretion can use exchange water during the summer months to maintain streamflow for salmonids and lamprey eels.

Also noteworthy is the absence of (1) the remaining volume of water stored in McKay Reservoir for irrigation purposes (estimated at 61,540 ac-ft)[9], (2) the Tribes allocation for storage in the amount of 75,000 ac-ft, and (3) the City of Pendleton's use of all waters of the North Fork of the Umatilla River and its tributaries. These omissions exceed 136,540 ac-ft of reserved or permitted water. The record indicates that the water rights in the Umatilla sub-basin total 2,180.4 cfs; and of these, 1,914.3 cfs (88%) are for irrigation purposes.

GIS WRIS 2000: Table 5 summarizes GIS WRIS 2000 information which does not include water rights for the Irrigation Districts. Records from GIS WRIS 2000 were examined, compiled, and edited by stream number to eliminate records from adjacent sub-basins such as Willow Creek, Walla Walla River, and Juniper Gulch. To eliminate the error of multiple sources of water for one use, all of the records were sorted by primary and primary and supplemental from the supplemental and alternate water rights. The list was further divided by use and then sorted by rate so that all of the water rights listed by cfs, ac-ft, and gpm could be easily summarized for each use. The total number of water rights listed in Table 5 is 981.54 cfs; and of these, 681.5 cfs are for irrigation purposes (excluding the irrigation district records).

[9] McKay Reservoir was built by the U.S. Bureau of Reclamation and completed in 1927 with a total capacity of 73,540 ac-ft. A 1993 water right for fish use in the name of US Bureau of Reclamation and in the amount of 12,000 ac-ft was issued by OWRD in June 1993 (Permit Number S 51676). The difference of 12,000 ac-ft from 73,540 ac-ft is 61,540 ac-ft.

Table 3: Summary of Umatilla sub-basin water rights (OWRD 1988).

A. Surface Water Rights in cfs (OWRD, 1988, p. 115)*
Umatilla Drainage Basin (Grand total = 1951.456 cfs)

1 System	2 Irrigation	3 Domestic	4 Livestock	5 Municipal	6 Industry, Manufact	7 Storage (Acre-Ft)	8 Power	9 Instream	10 Wildlife
Umatilla River	1,282.032	0.21	0.035	31.2	5.119	55,509.5	108	32.511	0.002
Butter Creek Sub-basin	390.408	0	0.02	0	0	6.7	0	0	0
Birch Creek Sub-basin	61.324	0.198	0.012	0	1	0.14	0	0	0.002
McKay Ck Sub-basin	30.285	0	0	0	0	73,250	0	0	0
Wildhorse Ck Sub-basin	9.09	0	0.01	0	0	0	0	0	0
Total	1,773.14	0.408	0.077	31.2	6.119	128,766	108	32.511	0.004

B. Surface Water and Groundwater Rights in cfs (OWRD, 1988, p. 31)*
Umatilla Drainage Basin (Grand total = 2,621.632 cfs)

1 System	2 Irrigation	3 Domestic	4 Livestock	5 Municipal Quasi-Municipal	6 Industry, Manufact Commerc	7 Storage (Acre-Ft)	8 Power	9 Instream	10 Wildlife	11 Mining
Umatilla River	1,607.088	3.06	2.035	79.97	26.935	55,509.5	108	32.511	0.002	1
Butter Creek Sub-basin	497.578	0	.02	0	0	6.7	0	0	0	0
Birch Creek Sub-basin	103.434	0.218	0.012	2	5.72	0.14	0	0	0.002	0
McKay Ck Sub-basin	51.958	0.117	0	0.06	0	75,000	0	0	0	
Wildhorse Ck Sub-basin	91.206	0	0.01	3.86	4.84	0	0	0	0	0
Total	2,351.26	3.395	2.077	85.89	37.495	130,516	108	32.511	.004	1

C. Difference between the two tables above = groundwater rights in cfs (Grand total = 670.173 cfs)*

1 System	2 Irrigation	3 Domestic	4 Livestock	5 Municipal Quasi-Municipal	6 Industry, Manufact Commerc	7 Storage (Acre-Ft)	8 Power	9 Instream	10 Wildlife	11 Mining
Umatilla Drainage Basin	578.12	2.987	2.0	54.69	31.376	1,750	0	0	0	1

*All rights in cfs except where noted. These water rights tabulations are provisional. These figures do not incorporate diversion rates for alternate uses (diversions would be double counted if that were the case). Storage is separate from the use of stored water. Assumptions operated under: 1. Irrigation rights are for purposes of calculation 180 days; and 2. Primary and supplemental rights are combined.

Table 4: Summary of water rights in the Umatilla sub-basin and tributaries (OWRD WRIS 1996).

Use	Primary Acres	Sup'l Acres	CFS	Ac Ft	GPM
Aesthetic	0.00	0.00	0.00	5.00	0.00
Domestic, dom including lawn/garden, and dom/stock	11.80	0.00	0.71	10.60	0.00
Fish and fish/wildlife	0.00	0.00	34.51	12001.7	0.00
Fire Protection	0.00	0.00	0.01	1.10	0.00
Groundwater recharge	0.00	0.00	75.00	0.00	0.00
Irrigation; irr/dom; irr/dom/stock; irr/stock	74376.21	2489	1914.3	1182.18	380
Industrial/manufacturing	0.00	0.00	4.39	9.00	0.00
Livestock and livestock/wildlife	88.80	6.80	0.26	98.05	0.00
Municipal	161.00	0.00	43.20	0.00	0.00
Power	0.00	0.00	108.00	0.00	0.00
Storage	3230.70	0.00	0.00	55500.0	0.00
Wildlife	0.00	0.00	0.00	5.00	1.00
Supplemental permit for storage	0.00	0.00	0.00	61540.0	0.00
Total	77868.5	2496	2180.4	130353	381.0

Table 5: Water rights by use and source in cubic feet per second (OWRD GIS WRIS 2000). Summarizes only primary (P) and primary/supplement (C) water rights and does not include water rights for Irrigation Districts, in cubic feet per second (cfs).

	SOURCE							
Use (1)	Reservoir (2)	Spring (3)	Stream (4)	Sump (5)	Well (6)	Runoff (7)	Waste Water (8)	Total CFS
DO, DI, DS, GD	-	1.06	0.72	-	1.37	-	-	3.15
GR	-	-	-	-	7.80	-	-	7.80
FI	-	2.00	5.00	-	-	-	-	7.00
FP	-	-	0.01	-	1.11	-	-	1.12
IM, CM, ID, AH	-	-	2.50	-	18.07	-	-	20.57
IR, IS, I*, ID	4.85	18.27	246.85	18.04	389.39	0.01	4.14	681.54
LV, LW	-	0.01	0.09	-	-	0.05	-	0.15
MI	-	-	-	1.00	-	0.00	-	1.00
MU, QM	-	14.70	12.00	-	101.34	-	-	128.04
PW	-	-	78.70	-	-	-	-	78.70
ST	0.01	0.15	0.32	-	-	-	0.01	0.49
WI	-	0.00	0.00	-	-	-	-	0.00
Total	4.85	36.04	345.87	19.04	519.08	0.06	4.14	**929.09**

Column Notes:
(1) DO, DI, DS, GD= Domestic, Domestic Inc lawn/garden, Domestic/Stock, Group Domestic, respectively; FI= Fish; FP= Fire Protection; GR= Groundwater recharge; LV= Livestock, LW= Livestock/Wildlife; IM, CM, ID, AH= Manufacturing, Commercial, Industrial, and Air Conditioning, respectively; IR, IS, I*, ID= Irrigation, Supplemental Irrigation, Irrigation/Domestic/Stock, and Irrigation/Domestic, respectively;
MI= Mining; MU= Municipal and QM= Quasi-Municipal; PW= Power; ST= Storage; and WI= Wildlife.
(2) Reservoir/Pond/Lake = All irrigation uses noted with a 1/40th cfs rate at 4.5 ac-ft/year duty.
(3) Spring= Irrigation uses noted with a range 1/80 - 1/40th cfs rate at 3-4.5 ac-ft/ year duty. Average is approximately 4 ac-ft/year.
(4) Stream= Irrigation uses noted with a range 1/80-1/40th cfs rate at 3-6.0 ac-ft/ year duty. Average is greater than 4.0 ac-ft/year.
(5) Sump= Irrigation uses noted with 1/80th cfs at 3.0 ac-ft/year duty.
(6) Well= Irrigation uses noted with 1/80th cfs rate at 3.0 ac-ft/year duty.
(7) Runoff= Irrigation uses noted with 1/80th cfs rate at 3.0 ac-ft/year duty.
(8) Waste Water= Irrigation uses noted with 1/80th cfs rate at 3.0 ac-ft/year duty.

Watermaster Distribution List (2001): The Irrigation District water rights shown in Table 6 were compiled from the Distribution List that District 5 Watermaster uses in allocating water to the lower 51 miles of the Umatilla River. The OWRD has recently completed a certification process for Stanfield Irrigation District which reduced one of their permitted water rights from 292 cfs to 111.7 cfs (not all of the acres in the 1965 permit were perfected). OWRD is in the process of permit certification for Westland Irrigation District and Hermiston Irrigation District including inchoate water rights for Maxwell. From Table 6, the total water rights permitted for irrigation use is 1,996 cfs.

Table 6: Summary of Irrigation District Water Rights (District 5 Watermaster 2001) and total GIS WRIS 2000 water rights for irrigation.

	Primary			Supplement	
	Surface Water-Flood		Cold Springs Storage	McKay Storage	Total (Maximum)
	CFS	Ac-Ft	Ac-Ft	Ac-Ft	Ac-Ft
Westland ID	123.900	55,258		29,520	55,258
Stanfield ID	191.790	69,044		25,830	69,044
Hermiston ID	425.610	33,268	50,000		83,268
West Extension ID	325.745	143,328			143,328
Total	**1067.045**				**350,898**

Total primary GIS WRIS 2000	**929**	
Total primary Irrigation Districts	**1067**	
Grand Total	**1,996**	**Cfs**

WRIS Data Discrepancies: After reviewing the GIS WRIS 2000 data set, several discrepancies were noted. One water right may have more than one use but in WRIS it is recorded for each use. An attempt was made for this study to eliminate multiple listings where the information was the same except for use. A second use column was inserted to list the additional uses. If the POD_ID (point of diversion identification code) differed, the record was not removed.

Neither WRIS 1996 or GIS WRIS 2000 databases had a complete listing of the decreed water rights. This is because vested water rights predate OWRD's 1909 water code and do not require a permit or certification. Many of the inchoate rights are not listed in either WRIS databases or in the distribution list maintained by the District Watermaster. In addition, notably absent from the WRIS tables are the (1) 75,000 ac-ft that the state administratively reserved for the Tribes, (2) City of Pendleton's statutory right to all waters of the North Fork of the Umatilla River, (3) 61,540 ac-ft of stored water in McKay Reservoir, and (4) 85-300 cfs minimum perennial streamflow for the Umatilla River. The minimum and maximum perennial instream water right is 85 cfs and 300 cfs, respectively, which are both greater than the 32.5 cfs reported in Table 3. (In the database called Water Availability Reporting System, however, instream water rights are assessed in the computation and analysis of availability of water for appropriation.)

With respect to primary and primary/supplemental water rights only, the number of water rights reported in WRIS (1996) is greater than that reported from any other source of information**.** From Table 3, surface water rights for uses that "consume" water other than irrigation is estimated to be 48.6 cfs (water rights for power and instream flows are not included). This amount is minor in comparison to irrigation but it is important to

streamflow during the summer and fall months. Not all of the water is consumed, but the recycling of water diverted for municipal and commercial use generally degrades its quality.

Mr. Bob Devyldere, Information Services Manager at OWRD Salem, explained that the information provided is provisional and may require additional checking. For specific water rights, the information contained in the GIS WRIS 2000 records may be incomplete but for basin-wide review purposes, the data set is fairly representative of existing water rights. Mr. Devyldere also said that contents and status of a water right can be confirmed by looking up the individual water right either by certificate or permit number.

3. Instream Flows

The OWRD GIS WRIS 2000 data set for instream water rights describes the early generation of instream rights as minimum flow (MF) past a point and current instream rights are described along stream reaches. Table 7 summarizes current instream rights to the Umatilla River and its tributaries. A total of thirty-four minimum flows (MF) and instream rights (IS) are listed with duplicates noted for four of the records and one record (last) without a listing of values, reach, or priority date. The Umatilla Basin Project target flows are the same as instream water rights for the lower Umatilla River with the exception that the "target flow" is 250 cfs in June and zero from July 1 to September 15.

Table 8 summarizes benchmark flows in the lower Umatilla River for various salmonid life stages. These estimates are based on field experience and observation of salmonid behavior in the Umatilla River by fishery biologists working for CTUIR (CTUIR 1998). These benchmark flows represent the streamflow needed for salmonid spawning, rearing, and migration in the lower Umatilla River. Because of water-quality limited conditions in the Umatilla River, estimated summer and early fall migration flows exceed median monthly values.

In addition to migration or benchmark flows, channel-maintenance flows are necessary to create and maintain stream habitat. Channel-maintenance flows are defined here as short-duration, high-flow events that occur every one to two years. For the lower Umatilla River, this amount of discharge is equal to 3,000 to 5,000 cfs which exceeds the maximum median flow shown in Figure 4 (CTUIR 1998). These periodic high-flow events may occur between November and May and serve many important functions including moving sediment, shaping the channel, creating scour pools, recharging bank storage and groundwater which releases later to support base flow and lower stream temperatures. It should be noted that although the benefits of high-flow events are recognized and reported by OWRD (OWRD 1999), they are not protected from further appropriation in the Umatilla Basin between the months of November 1 and May 31.

PERM NUM	REACH RV MILE	PRIORITY DATE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ANNUAL
221	0-51.0	11/03/1983	300	300 250	250	250	250	250	250	250	120	85	85	250	79,420
222	0-51.0	11/03/1983	200	200	200	200	240	240	240	240	200	100	60	60	66,160 cfs
542	79-90	03/31/1988	25	25	60	60	97	97	97	97	60	40	40	40	22,365 cfs
543	0-2.5	03/31/1988	12	12	25	25	40	40	40	40	25	25	25	25	10,132 cfs
544	0-3	03/31/1988	15	15	30	30	58	58	58	58	30	30	30	30	13,395 cfs
70568	0	03/31/1988	5	5	10	16	16	16	16	16	15	5	5	5	3,941 cfs
546	0-2.0	03/31/1988	3	3	15	15	25	25	25	25	15	8	3	3	4,994 cfs
547	0-2.0	03/31/1988	10	10	40	40	70	70	70	70	40	25	10	10	14,075 cfs
70570	0	03/31/1988	5	5	11	11	11	11	11	11	5	5	5	5	2,917 cfs
549	0-8.0	03/31/1988	4	4	20	20	27	27	27	27	20	12	4	4	5,940 cfs
70536	0	03/31/1988	5	10	15	15	15	15	15	15	15	10	5	5	4,250 cfs
220	0-16.0	11/03/1983	8	8	20	20	30	30	30	30	20	12	8	8	6,788 cfs
551	0-5.0	03/31/1988	5	5	20	20	24	24	24	24	20	10	5	5	5,640 cfs
552	0	03/31/1988	2	2	5	7	7	7	7	7	2	2	2	2	1,578 cfs
553	0	03/31/1988	2	2	5	6	6	6	6	6	2	2	2	2	1,427 cfs
554	0	03/31/1988	2	2	5	18	18	18	18	18	10	5	2	2	3,572 cfs
Total flow from tributaries			6,322	6,415	17,248	18,598	24,615	27,253	26,374	27,253	16,573	11,724	8,961	8,672	**200,008 (af)**
Umatilla River near Umatilla (af)			18,414	16,335	15,345	15,345	13,860	15,345	14,850	15,345	7,128	5,217	5,217	14,850	**157,252 (af)**

PERM NUM	REACH RV MILE	PRIORITY DATE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ANNUAL
70490	0-15.2	07/16/1990	14.4	33.1	120	120	225	225	225	225	68.8	18.9	10.9	11.3	39,206 cfs
70681	0-10.5	09/24/1990	6.5	10.7	23	28.2	38	38	38	38	16.5	9.8	6.6	5.6	7,841 cfs
70682	9.5-22.2	09/24/1990	439	17.2	54	65	80	130	130	87.1	18.4	8.1	5.4	4.2	31,781 cfs
70687	0-7.5	09/24/1990	3.5	5.6	16.7	21.7	30.2	32	32	32	14.8	12	9.7	5.9	6,550 cfs
70488	0	07/16/1990	8	16.3	50.7	53.9	76.5	95.9	100	100	39.7	10.5	6	6.6	17,095 cfs
70489	15.2-35	07/16/1990	3.4	7.6	39.2	47.9	102	102	102	92.7	18.2	5.6	2.3	2.6	15,854 cfs
70563	0-7.0	08/21/1990	3.4	6.7	15	15	15	15	15	15	8.5	3.5	3.4	3	3,595 cfs
70566	0-4.3	08/21/1990	22.1	39	55	55	110	110	110	110	55	25.5	20.5	20.4	22,153 cfs
70567	0-6.0	08/21/1990	24.7	27	40	40	68	68	68	68	40	26.5	22.5	24.5	15,670 cfs
70568	0-3.0	08/21/1990	5	5	10	16	16	16	16	16	15	5	5	5	3,941 cfs
70569	0-2.3	08/21/1990	8.8	14.3	24.6	25	43	43	43	43	23.7	10.8	8.1	8.4	8,948 cfs
70570	0-2.8	08/21/1990	1.1	2.3	5	11	11	11	11	11	5	1.2	0.9	0.8	2,158 cfs
70680	0	09/19/1990	0.2	0.4	1.3	2.8	3.2	6.6	7	6	2	0.3	0.1	0.1	911 cfs
70683	0	09/19/1990	1.8	8	28	35	42	70	66.3	23.3	4.6	1.4	0.9	1.1	8,548 cfs
70684	0	09/19/1990	1.2	2	5	8.3	16.2	12.8	18	12.9	3.2	1.5	0.9	0.9	2,497 cfs
70685	0-8.0	09/19/1990	1.4	4	27	27	40	40	40	27.4	2.3	0.6	0.5	0.6	6,368 cfs
70686	0	09/19/1990	0.4	0.4	0.7	1.6	2	3.8	4.7	6	2	0.7	0.5	0.4	706 cfs
		06/18/1993	/	/	/	/	/	/	/	/	/	/	/	/	
Total flow from tributaries (af)			33,446	11,856	31,623	35,195	50,899	62,552	60,944	56,064	20,059	8,710	6,396	6,023	383,769 (af)

Table 7: Summary of state instream water rights for the Umatilla River and tributaries (OWRD GIS WRIS 2000).

TYPE OF FLOW [1/] AND LOCATION	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Migration[2/]- Above McKay Creek Confluence	200	240	310	310	430	500	500	490	270	200	180	180
Channel Maintenance Above McKay Creek Confluence[3/]			3,100-5,100	3,100-5,100	3,100-5,100	3,100-5,100	3,100-5,100	3,100-5,100				
Migration- Below McKay Creek Confluence	250	290	370	370	510	600	600	600	330	250	210	210
Channel Maintenance Below McKay Creek Confluence			3,700-5,500	3,700-5,500	3,700-5,500	3,700-5,500	3,700-5,500	3,700-5,500				

Notes:

1. Because of water-quality limited conditions in the Umatilla River, recommended summer and early fall migration flows exceed average monthly values. Flows needed for rearing and other life stages are not necessarily the same value.
2. Not more than 20% of flows exceeding migration-flow values can be withdrawn for out-of-stream use without detriment to the fishery and channel habitat assuming proper screening etc.
3. Range of flows needed for sediment transport, riparian habitat inundation, and maintenance of channel form and diversity.

Table 8: Recommended benchmark flows for fish migration and channel-maintenance flows for the Umatilla River in cubic feet per second (CTUIR 1998).

Surface-Water Availability

Natural Streamflow: Figure 4 shows the median-daily discharge from the upper Umatilla basin, McKay Creek, and Birch Creek (PDTO, MYKO, and BIRO). These three stations are used by the Watermaster to compute the water available each day for diversion during the irrigation season in the lower 51 miles of the Umatilla River. The total median streamflow from the combined stations sums to 355,600 ac-ft of discharge per year. Figure 8 shows the computed median-monthly flow in the Umatilla River below Birch Creek, estimated benchmark flows, instream water rights (OWRD 1983) and irrigation water rights (seasonal, OWRD 1988). Note that existing water rights for surface water and the alluvial aquifer[10] exceed the natural streamflow at RM 49. As shown in Figure 8, the total water rights for irrigation which directly affects instream flow ranges from 563 cfs to 1,350 cfs.

Water Availability Reporting System (WARS): To develop water availability reports for selected sub-basins in the Umatilla, OWRD developed watershed characteristics summaries for each sub-basin in the Umatilla River and posted the tables on their website. Appendix A contains tables of watershed characteristics for Umatilla sub-basins (OWRD WARS 2001).

Appendix I contains water availability tables for the Umatilla River sub-basin at the 50%-exceedence criteria. Water availability computations are compiled by sub-basin and then reported in WARS by the limiting watershed downstream from the sub-basin of interest. Because of the large number of senior water rights for irrigation diversion permitted in lower 51 miles of the Umatilla River, it is the limiting watershed.

According to WARS, the net water available for appropriation in January through April ranges from 21.5 cfs (January) to 534 cfs (March). In addition, 83,500 ac-ft is available for storage under the 50%-exceedance criteria. Purportedly, instream flows are incorporated in these computations.

Notwithstanding conflicts with WRIS records and water use in the basin, the OWRD is continuing to work with the State Department of Agriculture (ODA) in reserving all perceived "un-appropriated" available water in the Umatilla basin for future economic development through multi-purpose storage. Hearings were held in Pendleton (1996) on this proposed reservation but because of issues identified during the hearings, further action was delayed. However, since the hearing, adoption of federal legislation for Phase III (1996) had failed and local water-supply planning efforts have stalled. A decision by OWRD is still pending on ODA's reservation request for all un-appropriated water in the Umatilla basin, which according to WARS, could amount to 83,500 ac-ft of water for storage.

Because WARS is based on WRIS, invariably these computations neglect over 136,540 ac-ft of water legislatively or administratively reserved and permitted for storage. Other data from decreed water rights are missing from WRIS as well. In view of these deficiencies,

[10] In general, the flow paths in the alluvial aquifer are local and regionally unconfined. Because of the local flow conditions in the alluvial aquifer, it is assumed that all groundwater pumped from the alluvial aquifer is "hydraulically" connected to the Umatilla River. Therefore, the total groundwater pumped for irrigation from the alluvial aquifer is additive to the surface water diversion for irrigation.

existing water-availability reports should not be used to make water management decisions without further investigation of the water rights already reserved or decreed.

C. Groundwater Resources

Groundwater Appropriation

For the Columbia-Umatilla Plateau Sub-basin (OAR 690-507-0070), OWRD describes the following:

(1) Groundwater resources of the basalt aquifer and shallow gravel aquifer within the Ordnance Critical Ground Water Area are closed to further appropriation by Order of the Director dated 1976.
(2) Groundwater resources of the basalt aquifer in the Stage Gulch Ground Water Study Area are closed to further appropriation by Proclamation of the Director dated 1985.
(3) Groundwater resources of the basalt aquifer within the Butter Creek Critical Groundwater Area are closed to further appropriation by Order of the Director dated 1996.
(4) Groundwater resources of the basalt aquifer within the Ella Butte Ground Water Study Area (previously classified as Critical Ground Water Area in 1985) are classified for statutorily exempt uses only by order of Proclamation by the Director dated 1985.

Figure 9 illustrates the groundwater management areas described above. In addition to the restrictions placed in the Critical Ground Water and Study Areas, groundwater resources from the basalt aquifer in a five-mile radius around any municipal well of the Cities of Echo, Hermiston, Pendleton, Stanfield, and Umatilla are classified for municipal, group domestic and statutorily exempt groundwater uses only. OAR 690-507-0070 (D). In addition, special conditions are placed on wells hydraulically connected with surface water[11] such that hydraulically connected wells are regulated with surface water by priority date.

OWRD 1988 Report: According to OWRD (1988), tabulated surface water rights total 1,951.5 cfs for all uses and of that amount 1,773.14 cfs is for irrigation. In a separate table in the same report, surface water and groundwater rights for all uses and irrigation total 2,621.6 cfs and 2,351.3 cfs, respectively. The differences between the two tables are the total groundwater rights for all uses including irrigation. (This assumption was confirmed by a call made to OWRD in Salem.) Therefore, the total groundwater rights in the basin total 670.2 cfs for all uses with 86% permitted for irrigation (578.12 cfs).

In general, the duty for basalt wells is 3 ac-ft per irrigated acre and the duty for alluvial wells ranges from 3 to 4.5 ac-ft/ac (GIS WRIS 2000). Based on 578 cfs of permitted groundwater rights for irrigation, a conservative estimate of potential groundwater pumpage is 172,000 ac-ft per year (assumes an annual groundwater application rate of 2 ac-ft and a growing period of 150 days). Exercising full duty of 3 ac-ft/ac for 150 days is approximately 264,000 ac-ft.

[11] Unless satisfactory information or demonstration proves otherwise, all wells located 1/4-mile from a surface water source that produce water from an unconfined aquifer shall be assumed to be hydraulically connected to the surface water source. OAR 690-009-0040.

Estimated annual pumpage from the basalt aquifer, however, is less than 124,000 ac-ft/year (Collins 1987). The WRIS database provided no estimate of rate or annual pumpage from the alluvial aquifer.

GIS WRIS 2000: Table 5 shows the total groundwater rights for non-exempt uses in GIS WRIS 2000. A total of 389 cfs is reported for irrigation use in GIS WRIS 2000 which is considerably less than the 578 cfs reported in the OWRD (1988) tables (Table 3). Assuming a 2 ac-ft/acre application rate (estimated agronomic rate) and a 150-day growing season, the amount of well water reported in GIS WRIS 2000 for irrigation is 77,000 ac-ft. At a 3 ac-ft/acre application rate (duty), the amount of water that could be pumped for irrigation is 115,500 ac-ft.

Lower Umatilla Basin Pumpage: Due to basalt and alluvial groundwater-resource restrictions imposed by OWRD regulations, not all of the groundwater rights issued by OWRD are fully exercised. In a report by CH2M Hill (1999), pumpage records for irrigation (and municipal) from the basalt aquifer and pumpage records and water rights for the alluvial aquifer in the lower Umatilla basin total 86,300 ac-ft (CH2M Hill 1999, CTUIR 2000). Of this amount, approximately 50,000 ac-ft is pumped from the alluvial aquifer. These estimates represent the best available information on current groundwater pumpage in the lower Umatilla Basin for irrigation and municipal uses.

Upper Umatilla Basin Pumpage: Based on a regional water study conducted by Plateau Industrial (1996), water requirements per capita (1996) for the Tribes municipal water system and the City of Pendleton is approximately 6,140 ac-ft/year. Most of the municipal water used by the Tribes and the City of Pendleton is extracted from groundwater. With the completion of the Tribal golf course, projected economic development, and population growth, the projected total municipal demand for both the Tribes and the city in 2015 is estimated to be 7,400 ac-ft/year (Plateau Industrial, 1996).

According to the 1999 census data, the City of Pendleton represents about 25 percent of the total population in Umatilla County. Assuming actual per capita water demand similar to that used by the City of Pendleton, the total amount of groundwater pumped in Umatilla County for municipalities, domestics and group wells is about 24,000 ac-ft/year.

Lower and Upper Umatilla Basin Pumpage: The minimum estimate of actual groundwater pumpage for irrigation and other uses such as municipal, domestic, commercial, etc. is the sum of estimated lower-basin pumpage for irrigation and the sum of water demand per capita for Umatilla County. In this case, the estimated actual groundwater pumpage for the Umatilla basin is at least 86,300 ac-ft/year + 24,000 ac-ft/year = 110,300 ac-ft/year. (In addition to Umatilla County, Umatilla River basin includes parts of Morrow and Union Counties.) To estimate the amount coming from the basalt aquifers, subtract 50,000 ac-ft/year of alluvial-aquifer pumpage from the 110,300 ac-ft/year which is 60,300 ac-ft/year, the total pumpage from the basalt aquifer.

GRID: Because WRIS contains only records of wells that require an OWRD permit for a non-exempt use, a database search of OWRD's Groundwater Resources Information Distribution (GRID) was conducted to supplement WRIS information. Since 1955 a statutory rule by OWRD has required that well constructors submit a well log to OWRD for each well. A substantial number of irrigation wells were drilled since the statute was implemented (Oberlander and Miller, 1981).

The database contains all of the data fields found on a well log including well owner, address, location (T/R-Sec, 1/4,1/4), well depth, yield, first water, static water, location, type of well--exploration (G), monitoring (M), and water (W); type of work--new, abandonment, alteration, repair, deepening, reconditioning and other; and type of use--domestic, industrial, irrigation, test, injection, thermal, livestock, and community (includes municipal). Only wells noted as "New" and "Water" are examined here. Table 9 summarizes the information extracted from GRID 2001. And although many records contain sparse information, particularly the early logs, most well logs contained information on yield.

Table 9: Summary of well information of new water wells located in the Umatilla River basin (OWRD GRID 2001).

New Water Wells - Well Use	Number of Records	Number of Blank Yield Records	Average Yield per Record	Total Yield
Domestic Only	3,151	86	58.7 gpm 0.131 cfs	184,600 gpm 412 cfs
Domestic and Irrigation	180	11	175 gpm 0.390 cfs	31,600 gpm 70.64 cfs
Domestic with Irrigation, Livestock, Industrial, and/or Community	3,332	97	64.5 gpm 0.144 cfs	215,500 gpm 480.8 cfs
Irrigation Only	641	53	605 gpm 1.35 cfs	386,600 gpm 863 cfs
Combination: Domestic, Irrigation, Livestock, Industrial, thermal, and/or Community	4,062	194	153 gpm 0.131 cfs	625,400 gpm 1396 cfs

Of the 4,062 records for new water wells, more than 95 % of the records report yield. The total potential yield from all new water wells drilled in the Umatilla basin and recorded in GRID is approximately 1,400 cfs. Of this amount about 863 cfs is for irrigation. This value is larger than the reported estimate of pumpage by water rights in the 1988 OWRD report.

USGS Pumpage Estimates: Appendix K contains a table of estimated groundwater pumpage from both the alluvial and basalt aquifers by the USGS (Collins 1987). The USGS estimated the range of annual groundwater pumpage from the alluvial aquifer ("overburden") is 8,600 to 11,500 ac-ft; and from the basalt aquifer 44,120 to 123,500 ac-ft. Pumpage estimates from the combined alluvial and basalts aquifers range from 55,080 to 125,300 ac-ft per year. The alluvial pumping estimates are too low given the measured pumpage records for Ordnance area alone are over 12,000 ac-ft (CH2M Hill 1999). The total pumpage estimates for the combined units are also low compared to the 172,000 ac-ft computed from OWRD (1988) groundwater rights records.

Because (1) most of the groundwater withdrawn from the Umatilla basin occurs in the lower Umatilla basin (Collins 1987), (2) irrigation use dominates all water rights issued in the basin (86% of the water rights), and (3) OWRD regulatory restrictions limit the amount of groundwater pumped from the lower basin, it can be assumed that total groundwater extraction from the basin is greater than 110,000 ac-ft/year (86,000 irrigation + 24,000 municipal/domestic/group) but less than 125,000 ac-ft/year. These estimates agree with the total pumpage estimates from the USGS (Collins 1987).

Groundwater Availability

OWRD: Groundwater-level declines and aquifer mining in the lower basin have been reported by OWRD for nearly 40 years (Sceva 1966), and conditions do not appear to be stabilizing. Water levels are also declining in the upper basin with the City of Pendleton's wells declining at a rate of 3.5 ft per year (Wallulis 1995). Groundwater recharge to the basalt aquifer in the Umatilla sub-basin ranges from 10,000 to over 64,000 ac-ft per year (OWRD 1988) and estimated annual pumpage from the basalt is over 90,000 ac-ft. If these estimates are accurate, the basalt aquifer is overdrawn by 26,000 to 80,000 ac-ft/year.

According to Oberlander and Miller (1981), between the period of 1965-1980, over 486-square miles of the Umatilla structural basin has been experiencing 50-100-feet of water level declines. The average rate of decline is 5.1 feet per year over 862-square miles. The Umatilla structural basin is shown on Figure 9. According to Zwart (1991), the sustainable-annual yield for the Stage Gulch groundwater study area is 28,000 ac-ft and yet the average-annual pumpage is 30,600 ac-ft. Groundwater levels in the Stage Gulch area continue to decline as a result of over pumpage.

In the Ordnance area, alluvial pumpage has in the past exceeded recharge (Oberlander and Miller, 1981; McCall 1975). With implementation of the CLWID groundwater recharge project (1976) in the Ordnance area, artificial recharge from surface-water diversions in the winter has helped to offset alluvial pumping during the irrigation season. However, according to Miller (1985), a greater rate of recharge will be needed in order to continue the

past rises in water level (since implementation of the CLWID project) under current pumpage conditions.

GRID: The average depth of all new water wells reported in GRID is about 250 feet (average of 4,062 wells); and the average depth of all new irrigation wells is about 400 feet (641 wells). GRID records indicate that 551 wells have been deepened; and of these, 142 are irrigation wells. The average depth of deepened irrigation wells is about 715 feet and the average depth of all deepened wells is about 500 feet. All of these deepened wells penetrate multiple interflow zones of the basalt aquifer and a majority of all new wells drilled penetrate more than one interflow zone of the basalt aquifer. Consequently, commingling of water from the interflow zones is common and, as a result, the static-water level in each well is a composite of aquifer pressures from each of the interflow zones (basalt aquifer) and possibly the water-table aquifer (alluvial aquifer) if unsealed from the basalt aquifer.

The importance of commingling of waters is that, over time, the natural flux between aquifers increases as a result of many wells perforating both the alluvial aquifer and the basalt aquifer. Given the declining pressure heads of the basalt aquifer, commingling of aquifers would bring about an increase in discharge from the alluvial aquifer to the basalt aquifer, which corresponds to an increase in recharge to the basalt aquifer. In this case, more water is made available to the basalt aquifer.

Any change in the flow regime of the alluvial and basalt aquifers, however, corresponds to a change in the hydrologic system which includes the rate of discharge from groundwater to supporting instream flows. The effects of commingling of interflow zones and the upper aquifer are not well understood and should be quantified to better define the available groundwater supply.

USGS Groundwater-Recharge Estimates: The US Geological Survey (Hansen 1994) calculated the total groundwater recharge to both the alluvial and basalt aquifer is 720 cfs, which also includes contributions from irrigation. If it were assumed that 35% of irrigation diversions from the Umatilla River recharges the alluvial aquifer and that the average-annual diversion from all of the irrigation districts (and those serviced by the districts) is 577cfs (computed from total diversion in ac-ft, CH2M Hill 1998), then the total amount of recharge from irrigation is 202 cfs. Taking this into account, the average-annual recharge to groundwater basinwide minus the contribution from irrigation is 518 cfs. This computes to approximately 374,000 ac-ft/year of total recharge. Not all of this water is available to pump, however, because a large portion of it naturally discharges to the Umatilla River and tributaries to support base flow, seeps to springs, evapotranspires by vegetation, and provides intra-basin flow to the Columbia River.

D. Water Budget

Surface-Water Budget

Table 10 shows the total water rights for surface water and the alluvial aquifer in the lower Umatilla basin, and proposed benchmark flows for instream use by salmonid migration and other aquatic organisms. Figure 8 shows a hydrograph of the median streamflow in the

Umatilla River at RM 49 (computed from PDTO, MYKO, and BIRO gaging stations); OWRD water rights issued for irrigation (surface-water diversions + alluvial wells) and instream; and benchmark flows. As shown on Figure 8, current surface-water rights for irrigation exceed available streamflow throughout year except April.

Table 10: Summary of (1) existing water rights for irrigation in the lower Umatilla Basin and (2) benchmark-flow estimates for salmonid migration.

Umatilla River RM 49 Median Discharge	Month	Irrigation Water Right	1983 Instream Water Right	Shallow Aquifer Wells	Total Irrigation Water Right	Benchmark Flows	Total Water Needed
(1) CFS		(2) CFS	(3) CFS	(4) CFS	(5) CFS	(6) CFS	(7) CFS
62	Oct	1210	300	140	1350	250	1600
176	Nov	563	275*	0	563	290	853
449	Dec	563	250	0	563	370	933
521	Jan	563	250	0	563	370	933
760	Feb	563	250	0	563	510	1073
1144	Mar	1210	250	140	1350	600	1950
1524	Apr	1210	250	140	1350	600	1950
895	May	1210	250	140	1350	600	1950
251	Jun	1210	120	140	1350	330	1680
65	Jul	1210	85	140	1350	250	1600
36	Aug	1210	85	140	1350	210	1560
43	Sep	1210	250	140	1350	210	1560

Column notes:

(1) Median monthly flows in the Umatilla River below the confluence of Birch Creek (RM 49). Sum of the median monthly flows from PDTO, MYKO, and BIRO (CTUIR 1996). The sum of the average-daily discharge from these three gaging stations is used by the District Watermaster in determining water allocations for the day.

(2) Total surface water rights for irrigation (OWRD 1988) separated by season of use. The winter diversion is the sum of Hermiston Feed Canal Diversion (storage, 350 cfs), County Line Water Improvement District (groundwater recharge, 75 cfs) and Teel Irrigation District (soil moisturization, 88 cfs & 50 cfs).

(3) Instream Water Rights (1983 priority date) for Umatilla River from the mouth to RM 51.

(4) Sum of shallow-aquifer well water rights in the lower Umatilla Basin (CH2M Hill, 1999). Estimated use is 49,950 ac-ft/season. To compute to cfs, 49,950 was divided by [1.98 (conversion factor) times 180 days].

(5) Sum of columns (2) and (4).

(6) Estimate of benchmark flows for fish migration in the lower Umatilla River (RM 0-50.5) (CTUIR 1998).

(7) Sum of columns (2), (4), and (6).

* Instream flow is the average for the month (300 cfs: Nov 1-Nov 15;-and 250 cfs: Nov 16-Nov 30).

USGS Simulation

The following section summarizes the regional water budget for the Umatilla Basin based on results simulated from a groundwater model developed by the USGS for the Columbia Plateau aquifer system (Hansen, etal., 1994; Baur and Hansen, 2000). The USGS modeled an area covering 32,700 square miles in eastern Oregon and Washington, and western Idaho. The Umatilla Basin is one of 27 basins modeled in the Columbia Plateau and occupies about 7.6% of the total model area.

Table 11 shows the computed water budget for the Umatilla River sub-basin. The USGS estimated the Umatilla River baseflow from groundwater discharge to be 328 cfs, which is approximately 44 % of the average-annual streamflow (750 cfs). Total discharge from the Umatilla drainage basin is estimated at 554 cfs. The ratio of the calculated discharge to the mean annual streamflow is a qualitative measure of the aquifer system's connection to the surface-water system. A low ratio means that groundwater development would affect late summer and fall baseflows and a high ratio means that groundwater development would affect streamflows throughout the year. For the Umatilla basin, the ratio of groundwater discharge to streamflow is 0.74, a moderate ratio.

What is important to understand is that any groundwater or surface-water development will affect flow in the hydrologic system to some degree. The effects of water developments are variable and are based on the magnitude, location, and timing of the development. According to the USGS (Hansen, etal., 1994) perturbations to the groundwater system can propagate as much as 20 miles in an aquifer system and long-term development of a fairly large quantity of water would increase the distance considerably including across several basins.

Surface-water diversions to land application for irrigation purposes have increased the total annual groundwater recharge and subsequent discharge to the river. The USGS estimated that the net annual increase in discharge to the river from irrigation practices is about three percent greater than would otherwise occur under natural or undeveloped conditions. This reported increase in recharge is misleading, however, because it includes the contributions from surface water application for irrigation. Without surface water diversions for irrigation and subsequent recharge to the alluvial aquifer, the net change in aquifer discharge would be considerably less. Moreover, without alluvial aquifer recharge from surface water, the change in discharge to the river would be much less than under natural conditions due to the over-development of the basalt aquifer.

Table 11: Groundwater recharge/discharge estimates from the USGS model for the Umatilla Basin (Hansen etal. 1994) .

Parameter	Unit	Value	Comment
Drainage area	Square mile	2,436	Not exact due to size of model cells
Precipitation	Inches	16.3	Period (1956-1977)
Precipitation	Cfs	2,928.3	Period (1956-1977)
Groundwater recharge	Cfs	719.8	Includes recharge from precipitation and irrigation
Leakage to irrigation drains/small streams	Cfs	542.7	Local flow system
Leakage to large rivers	Cfs	10.4	Regional flow system
Leakage to seepage	Cfs	3.4	Local flow system
Total discharge	Cfs	556.5	Total discharge to rivers, drains, springs, wells.
Streamflow-base	Cfs	328	Groundwater supported streamflow
Streamflow-annual	Cfs	750	Estimated

VI. FINDINGS AND CONCLUSIONS

1. Stream gaging stations from Umatilla River at Pendleton (PDTO), McKay Creek near Pilot Rock (MYKO), and Birch Creek near Reith (BIRO) are summed together by OWRD to compute available streamflow for use by senior water-right holders. Streamflow from these three stations represents the natural streamflow in the upper Umatilla River at river mile 49, below the confluence of Birch Creek.

2. The maximum median-monthly streamflow for the upper Umatilla River and tributaries (PDTO+MYKO+BIRO) is 1,524 cfs and occurs in April.

3. As a result of Phase I and II of the Umatilla Basin Project (1988), the Umatilla River supports an anadromous fishery (fall and spring chinook, and coho) that were once extirpated in early 1900s. Summer steelhead has also benefited from Phases I and II.

4. Although many geologic structures such as folds and faults have been identified in the Umatilla basin from regional studies, very little detailed geologic mapping has been done for the Umatilla Basin. More information on geologic structures controlling groundwater flow is needed to characterize flow conditions.

5. Because of declining water levels, groundwater in the Umatilla Basin has been monitored extensively for the past 45 years by OWRD. Although considerable data has been collected and reported by OWRD, hydrogeologic features controlling groundwater flow, recharge and discharge estimates, and the effects of commingling of aquifers by water wells are not well understood.

6. Groundwater recharge to the alluvial aquifer is primarily from application of diverted surface water for irrigation, leaky irrigation canals, interaction with surface water, and, since 1977, from the CLWID winter-recharge project in the Ordnance area.

7. Development of groundwater has resulted in declines in water levels for both the basalt and alluvial aquifers. Recharge from irrigation and a winter recharge project in the Ordnance area has offset declining water levels in the alluvial aquifer. More recharge is needed, however, to recover water levels under current pumping conditions.

8. Groundwater recharge to the basalt aquifer is primarily from precipitation in the higher elevations of the Blue Mountains. In addition, recharge from the alluvial aquifer through wells perforated and/or open to both aquifers may occur. The magnitude of this exchange is unknown and should be investigated.

9. OWRD (1988) estimated recharge to basalt aquifer ranges from 10,000 to 64,000 ac-ft per year. Based on monitored basalt pumping in the lower Umatilla basin for irrigation and estimated per capita demand for Umatilla County (computed from measured use by the City of Pendleton), estimated groundwater pumpage from the basalt aquifer is at least 60,300 ac-ft per year for irrigation, municipal, domestic and commercial uses.

10. From computer simulation of groundwater flow for the Columbia Plateau region, the USGS (Hansen, etal., 1994) estimated recharge to both the alluvial and basalt aquifer in the Umatilla sub-basin is 720 cfs. This estimate includes contributions from irrigation. For this study, if it is assumed that 35% of the measured diversions by the irrigation districts in the lower Umatilla basin goes to recharge the aquifer, then the contribution from irrigation to recharge is 202 cfs. Net recharge to the aquifer minus the irrigation contribution is, therefore, 518 cfs. Not all of the recharge is available for pumping, however, a large portion of this discharges to the river to support baseflow, intra-basin flow, and seepage to springs and irrigation drains.

11. According to the OWRD (1988) report, the total groundwater rights issued by OWRD is 670.173 cfs. Of this amount, 578.12 cfs is for irrigation. According to the GIS WRIS 2000 database, total groundwater rights issued by OWRD is 519.08 cfs with 389.39 cfs going to irrigation. Total reported yield from drillers well logs is 1,396 cfs with 863 cfs going to irrigation (GRID 2001).

12. Data sets from WRIS 1996, GIS WRIS 2000, the Distribution List from OWRD District 5 office, and GRID provided the only readily accessible information on water rights and use for the entire Umatilla River basin.

13. WRIS records are not sufficiently accurate or complete to reflect current water permits/certificates, reservations, or actual use. Many of the decreed water rights are listed but information on the rate and acreage is not provided. Inchoate rights are not listed at all. One right to store 5,500 ac-ft from an instream reservoir in the Umatilla River (Furnish Ditch Co) is obsolete. Both of the administratively reserved right to store 75,000 ac-ft of water from the upper Umatilla sub-basin for the Tribes use, and the statutorily reserved water right for the City of Pendleton to all waters of the North Fork of the Umatilla River and its tributaries are not included in the WRIS records.

14. The Umatilla River is fully appropriated primarily for irrigation during the summer and fall months, requiring additional storage to meet the demand for water. Water is stored annually during the non-irrigation season in both surface impoundments and as groundwater recharge for later withdrawal.

15. Depending on the database and source of information, total surface-water rights issued by OWRD for all uses in the Umatilla basin and tributaries is 1,951 cfs (OWRD 1988); 2,180 cfs (OWRD WRIS 1996); and 1,996 cfs (OWRD GIS WRIS 2000 plus OWRD District 5 Distribution List for irrigation-district water rights). The OWRD GIS WRIS 2000 database does not include irrigation-district water rights.

16. The total water rights issued for irrigation by OWRD from both surface-water and alluvial-aquifer sources is 1,350 cfs, which exceeds the median-monthly streamflow in the Umatilla River below the Birch Creek confluence, river mile 49, for all months during the irrigation season except April (1,524 cfs). If instream flows were managed to include the recommended benchmark flows for salmonid passage (up to 600 cfs in

March, April, and May), then the total water rights issued by OWRD for irrigation exceed the median streamflow in the Umatilla River (rm49) for all months of the year.

17. Channel-maintenance flows, high-flow events, needed to maintain channel habitat and move the sediment delivered from the watershed are not protected from appropriation.

18. At the 50%-exceedence criteria, OWRD WARS lists a range of 21.5 cfs to 534 cfs of surface waters is available for diversion in January, February, March, and April; and a total of 83,500 ac-ft for storage. Examination of WRIS records along with OWRD administrative rules indicate that waters allocated or reserved for the Tribes (75,000 ac-ft storage), City of Pendleton (all waters of the North Fork Umatilla), and pending permits such as 61,540 ac-ft of McKay Reservoir are not incorporated into water-availability calculations.

19. The increasing demand on groundwater supplies has led OWRD to the establishment of critical groundwater areas in the lower Umatilla Basin and conservation areas in the upper basin for the City of Pendleton, Athena, Pilot Rock and Weston. Although OWRD has implemented restricted use of groundwater resources from the basalt aquifer, water levels continue to decline as the basalt aquifer is being overdrafted or mined.

20. Sustainable use of water resources from either surface water or groundwater requires adequate knowledge of the available water supply and demand. Currently, the effects of groundwater depletion which have occurred in the Umatilla Basin are not well understood. It is possible that this depletion along with the intense competition for surface water supplies will have a deleterious effect on available water supplies for current and future uses.

21. Although WRIS is a tremendous start at compiling all of the water rights issued by OWRD and providing that information to the public over the Internet, it is not yet ready for direct use without the user having specific knowledge of activities and use in the basin. That is, using WRIS requires prior knowledge of an adjudication in the basin where there are decreed water rights--vested or inchoate, which are not necessarily listed in WRIS (pre-1909), duplicate, out-of-date, and/or inaccurate records for example.

22. There is enough available data from the previous work--monitoring of groundwater allocations, water levels, and pumpage; watershed characteristics, and model simulations-- to estimate the relative proportion of recharge and discharge to the upper and lower Umatilla River sub-basins. In addition, there is adequate data and information to assess impact to streamflow quantity from water-resources development in the Umatilla basin. However, it is beyond the scope of this study to conduct such analysis.

VII. RECOMMENDATIONS

1. Benchmark flows for migration and channel-maintenance flows that are needed to create and maintain habitat in the stream channel should be protected by Oregon regulations.

2. Inaccurate and incomplete reporting of all water rights in the basin greatly hinders an accurate accounting of all water rights in the basin. Therefore, an inventory of exercised water rights should be conducted in the basin and the results should be used to update the WRIS database. All inactive water rights should be cancelled. Rate and duty should reflect current irrigation technology.

3. The state should provide OWRD adequate funding and staffing to manage the water resources of the basin including field investigation of active and efficient use of water, completion of certification process of outstanding permits and proofing inchoate rights, and updating the database(s).

4. State water allocation for non-Tribal uses seriously threaten the development and use of water for the homeland of the Umatilla Tribes and tribal fisheries as protected by the federal government in the Treaty of 1855.

5. The Tribes have an unquantified senior water right for instream and out-of-stream uses. At this time, the state does not incorporate the Tribes seniority in its water availability analysis and allocation process. Before any new permits are issued, the state needs to consider the Tribes outstanding senior water right.

6. The Federal Government, Umatilla Tribes, and the State of Oregon need to quantify the Tribes reserved water rights.

7. Before a comprehensive, long-term water-quantity management plan can be written, an accurate and up-to-date inventory of available resources must be conducted. This is essential for the health of the basin's watersheds, for aquatic habitat and fish passage, for the maintenance of a viable agricultural economy, and for future municipal and industrial growth.

8. Current water management practices allows for the dewatering of certain reaches of the lower Umatilla River during the irrigation season when the target flow is zero. With the threatened status two fish populations in the Umatilla River (under the Endangered Species Act), continued dewatering of the river is unlikely to be permitted in the future. Almost certainly, water management and diversion practices will need to change to provide continuous streamflow to meet ESA requirements to protect listed species.

9. The following parties should develop long-term management strategies to meet instream flow needs and out-of-stream consumptive uses: CTUIR, OWRD, USBR, Irrigation Districts, and Municipalities.

10. A hydrologic model should be developed (steady state and transient state) to predict long-term effects of current management practices on instream flows and aquifer sustainability. Based on the hydrologic model, a management model for optimization of the resource should be developed.

REFERENCES

Bartholomew, William, S, 1975, Ground-water conditions and declining water levels in the Butter Creek area, Morrow and Umatilla Counties, Oregon: State of Oregon, Water Resources Department

Baurer, H.H., and A. J. Hansen Jr., 2000, Hydrology of the Columbia Plateau regional aquifer system, Washington, Oregon, and Idaho: U.S. Geological Survey, Water-Resources Investigations Report 96-4106, 61 p.

CH2M Hill, 1999 Hydrologic model development lower Umatilla River Basin: U.S. Bureau of Reclamation, Study Report, 200 p.

Collins C.A., 1987, Ground-water pumpage from the Columbia plateau regional aquifer system, Oregon: U.S. Geological Survey, Water-Resources Investigations Report 86-4211, 21 p.

Confederated Tribes of Umatilla Indian Reservation, 1999, Flow needs for salmonids and other aquatic organisms in the Umatilla River: Department of Natural Resources, 18 p.

------, 2000, unpublished analysis of basalt pumpage for the U.S. Bureau of Reclamation.

Davies-Smith, A., Bolke E.L., and Collins C.A., 1988, Geohydrogeology and digital simulation of the ground-water flow system in the Umatilla Plateau and Horse Heaven Hills area, Oregon and Washington: U.S. Geological Survey, WRI 87-4268, 72 p.

Devyldere, Bob (Information Services, OWRD), Personal Communication, 2001.

Gonthier, J.B., and E.L. Bolke, 1993, Summary appraisal of water resources of the Umatilla Indian Reservation: US Geological Survey, WRI Report 91-4087, 54 p.

Gonthier, J.B., and D.D. Harris, 1977, Water resources of the Umatilla Indian Reservation, Oregon: U.S. Geological Survey, Water-Resources Investigations 77-3, 112 p.

Hansen, A.J., Vaccaro, J.J., Baurer, H.H., 1994, Ground-water flow simulation of the Columbia Plateau regional aquifer system, Washington, Oregon, and Idaho: U.S. Geological Survey, Water-Resources Investigations Report 91-4178, 81 p.

Hogenson, G.M., 1964, Geology and ground water of the Umatilla River basin, Oregon: US Geological Survey, Water-Supply Paper 1620, 162 p.

Hooper, Peter R., 1982, The Columbia River Basalts: Science, v. 215, no 4539, p. 1463-1468.

McCall, William B., 1975, Ground-water conditions and declining water levels in the Ordnance area, Morrow and Umatilla Counties, Oregon: State of Oregon, Water Resources Department, Ground Water Report No. 23, 134 p.

Miller, Donn W., 1985, An evaluation of artificial recharge to the alluvial ground water reservoir near Ordnance, Oregon, for the period 1977-1984: State of Oregon, Water Resources Department, 105 p.

Montgomery, James M. Consulting Engineers, Inc., 1990, Shallow groundwater artificial recharge study, prepared for U.S. Bureau of Reclamation, lower Umatilla River Basin, 68 p.

Montgomery, James, M. Consulting Engineers, Inc., 1997, Water resource investigations within the Umatilla River Basin, prepared for U.S. Bureau of Reclamation, PN Region, Boise, Idaho 128 p.

Norton, Marc A., and Bartholomew, William S., 1984, Update of ground water conditions and declining water levels in the butter creek area, Morrow and Umatilla Counties, Oregon: State of Oregon, Water Resources Department, 203 p.

Oberlander, P. J. and Miller, D.W., 1981, Summary of hydrologic studies in the Umatilla structural basin: State of Oregon, Water Resources Department, unpublished, 9 p.

Oregon Water Resources Department, 1991, McKay and Umatilla River Water Management Plan: State of Oregon, Salem OR, 21 p.

------, 1988, Umatilla Basin report: State of Oregon, Salem, OR, 245 p.

------, 1963, Umatilla Basin report: State of Oregon, Salem, OR, 107 p.

------, Groundwater Resources Information Distribution (GRID), www.wrd..state.or.us/groundwater/gridonline.html

------, Water Availability Reporting System (WARS), www.wrd.state.or.us/Telnet.

------, 1996, 2000 Water Rights Information System, (WRIS) www.wrd.state.or.us/

Plateau Industrial, L.L.C. and W&H Pacific, 1996, Feasibility report for the Confederated Tribes of the Umatilla Indian Reservation and the City of Pendleton regional water system: Unpublished report.

Robison, James H., 1971, Hydrology of basalt aquifers in the Hermiston-Ordnance area, Umatilla and Morrow Counties, Oregon: U.S. Geological Survey, Hydrologic Investigation Atlas HA-387, 2 Sheets.

Sceva, J.E., 1966, A brief description of the ground-water conditions in the Ordnance area, Morrow and Umatilla Counties, Oregon: State of Oregon, Water Resources Department, 43 p.

Swanson, D.A., Wright, T.L., Hooper, P.R., and Bentley, R.D., 1979, Revisions in stratigraphic nomenclature of the Columbia River Basalt Group: U.S. Geological Survey Bulletin, 1457-G, 59 p.

Umatilla County Courthouse, Final Decree [Umatilla River], 1910-1916 (3 volumes).

U.S. Bureau of Reclamation 1989, Draft Review of Umatilla Project Operations: U.S. Bureau of Reclamation, 46 p.

U.S. Department of Agriculture, Soil Conservation Service, 1962, Water and related land resources, Umatilla drainage basin, Oregon: U.S. Department of Agriculture, M-3829, 135 p.

Wagner, Norman, S., 1949, Ground water studies in Umatilla and Morrow Counties: State of Oregon, Department of Geology and Mineral Industries, Bulletin No. 41, 100 p.

Wallulis and Associates, 1995, Draft of the water system master plan for the City of Pendleton, Oregon, 247 p.

Whiteman, K.J., Vaccaro, J.J., Gonthier, J.B. and Bauer, H.H., 1994, The hydrogeologic framework and geochemistry of the Columbia Plateau aquifer system, Washington, Oregon, and Idaho: U.S. Geological Survey Professional Paper 1413-B, 73 p.

Wozniak, Karl, 1995, Chapter 2 Hydrogeology, in Hydrogeology, groundwater chemistry and land uses in the lower Umatilla Basin Groundwater Management Area, Northern Morrow and Umatilla Counties, final review draft: Oregon Department of Environmental Quality, 80 p. (Chapter 2 only).

Zwart, Michael J., 1984, A summary of ground water conditions in the Umatilla structural basin: State of Oregon, Water Resources Department, Salem, OR, 57 p.

Zwart, Michael J., 1985, Ground water conditions in the Umatilla structural basin, an executive summary: State of Oregon, Water Resources Department, Salem, OR, 5 p.

Zwart, Michael J., 1990, Groundwater conditions in the Stage gulch area Umatilla County, Oregon: State of Oregon, Water Resources Department, Salem, OR Groundwater Report No. 35 145 p.

Zwart, Michael J., 1991, Alternative strategies for groundwater management in the Stage Gulch area, Umatilla County, Oregon: State of Oregon, Water Resources Department, Salem, OR, Ground Water Open File Report No. 91-01, 31 p.

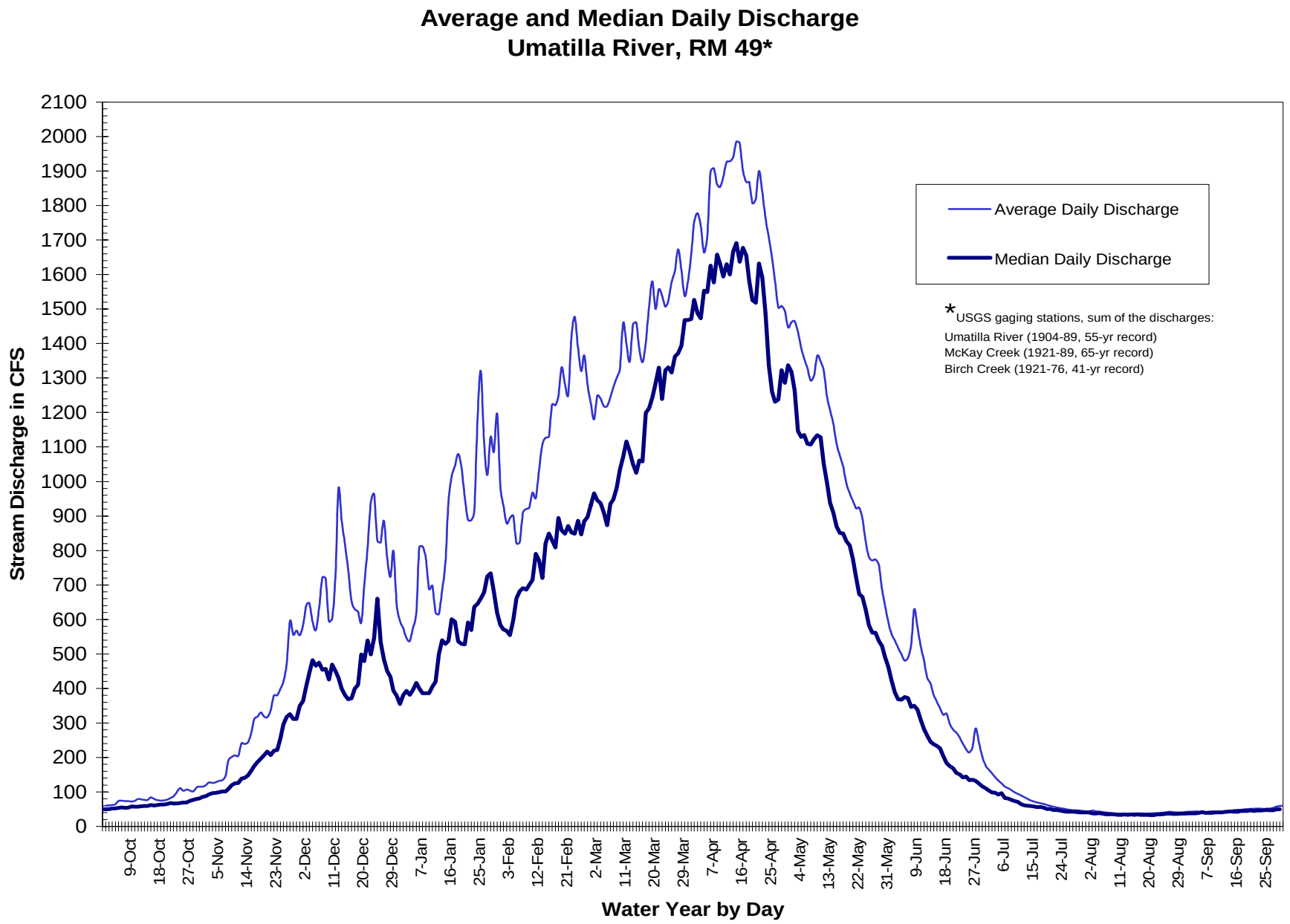


Figure 4: Average-and median-daily streamflow from PDTO, MYKO, and BIRO.

Water Rights of the Umatilla River and Sub-Basins[1]

Beneficial Use	%	CFS
Irrigation	89%	2,351.26
Domestic	-[2]	3.40
Livestock	-[2]	2.08
Municipal/Quasi-Muni	3%	85.89
Industrial Manufacturing	1%	37.50
Fire Protection	-[2]	5.96
Temperature Control	-	-
Sewage Effluent	-	-
Power	4%	108.00
Fish	1%	32.51
Wildlife	-[2]	0.00
Mining	-[2]	1.00
Total	100%	2,627.59
Storage	128,766	

1. OWRD, 1988, Umatilla Basin Report, pg 31.
2. - = Less than one percent.

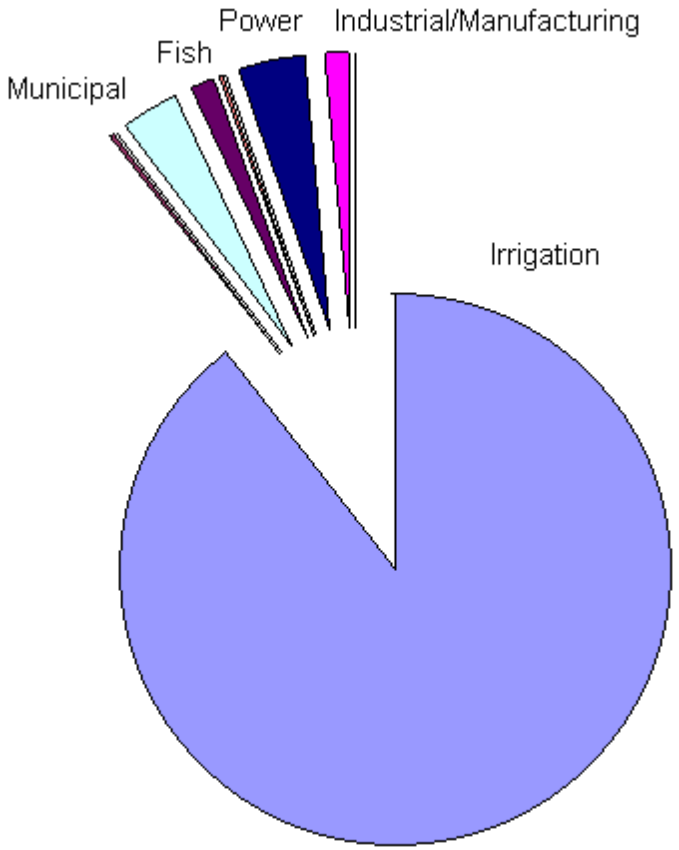
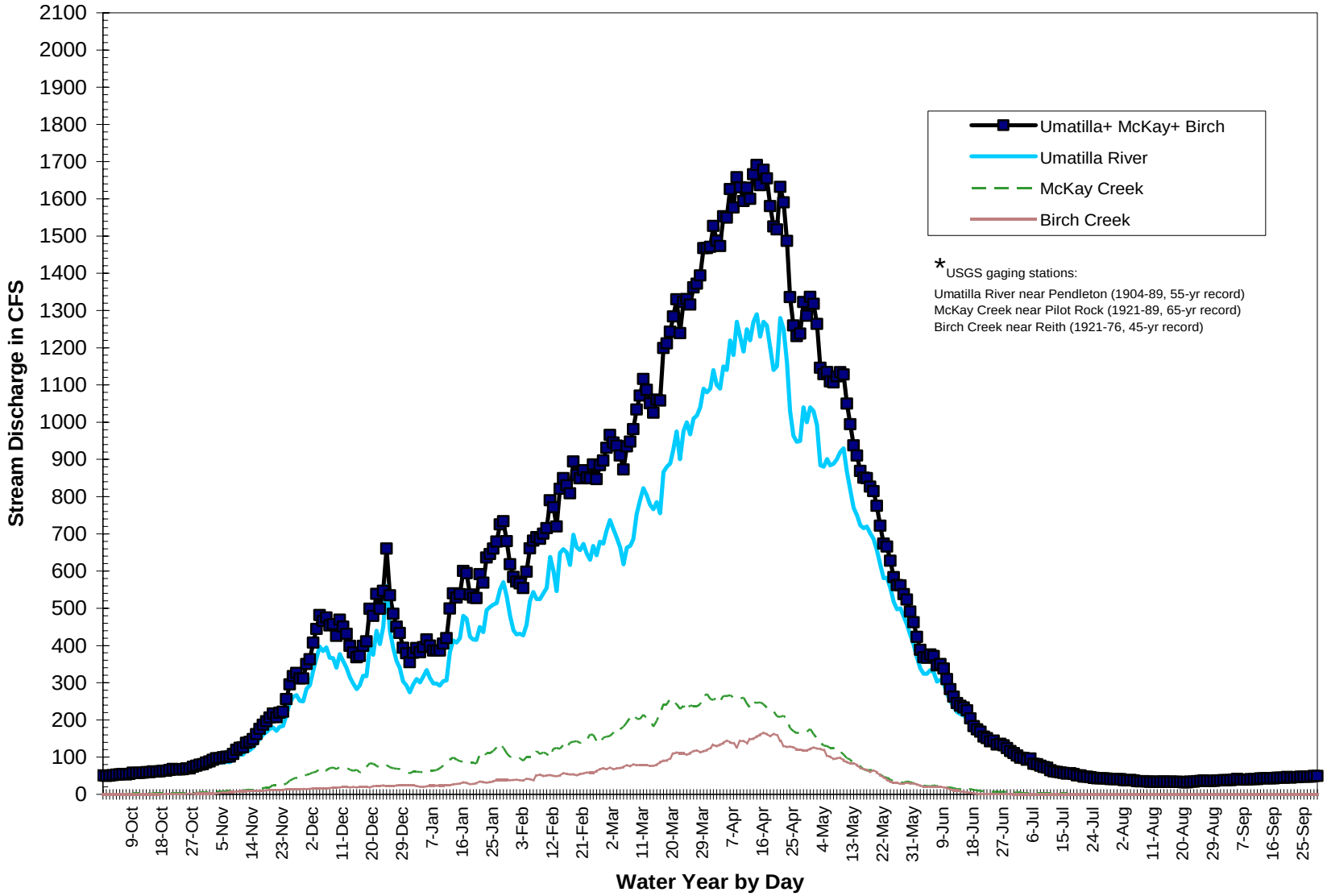
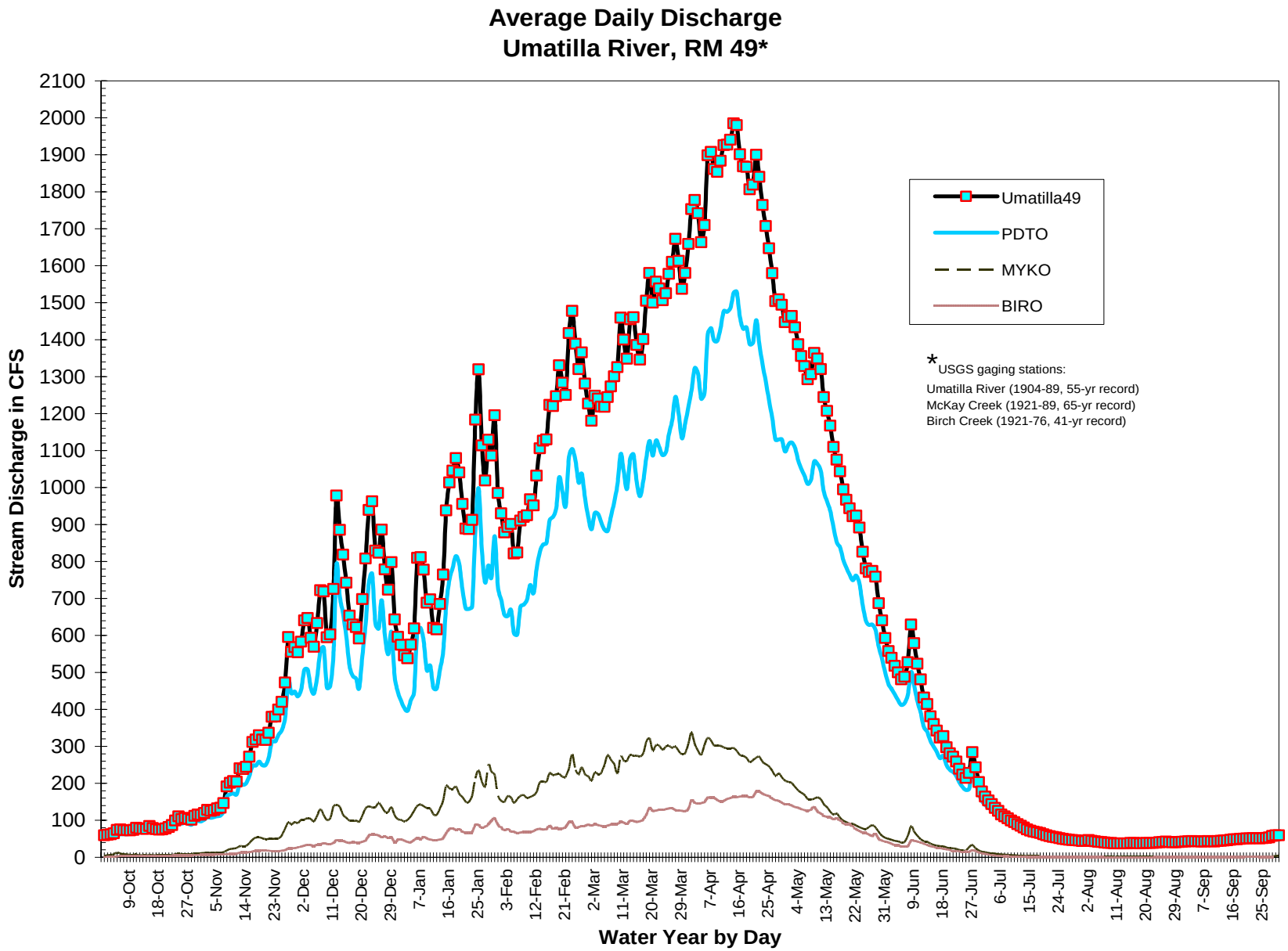


Figure 7: Pie chart of the total water rights reported for the Umatilla sub-basin (OWRD 1988).

Median Daily Discharge
Umatilla River, RM 49*




Average Daily Discharge
Umatilla River, RM 49*
Stream Discharge in CFS
2100
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
9-Oct
18-Oct
27-Oct
5-Nov
14-Nov
23-Nov
2-Dec
11-Dec
20-Dec
29-Dec
7-Jan
16-Jan
25-Jan
3-Feb
12-Feb
21-Feb
2-Mar
11-Mar
20-Mar
29-Mar
7-Apr
16-Apr
25-Apr
4-May
13-May
22-May
31-May
9-Jun
18-Jun
27-Jun
6-Jul
15-Jul
24-Jul
2-Aug
11-Aug
20-Aug
29-Aug
7-Sep
16-Sep
25-Sep
Water Year by Day
Umatilla49
PDTO
MYKO
BIRO
*USGS gaging stations:
Umatilla River (1904-89, 55-yr record)
McKay Creek (1921-89, 65-yr record)
Birch Creek (1921-76, 41-yr record)

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 14020000

Basin: 7

Stream: UMATILLA R AB MEACHAM CR NR GIBBON, OR

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.72
Longitude of Outlet (deg)	118.32
Latitude of Centroid (deg)	45.69
Longitude of Centroid (deg)	118.19
Drainage Area (mi^2)	131.25
Stream Length (mi)	137.33
Perimeter (mi)	62.64
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	2001.29
Max Polygon Elevation (ft)	4806.37
Max Watershed Elevation (ft)	5465.81
Maximum Relief (ft)	3464.52
Mean Slope (deg)	26.70

CHARACTERISTICS FOR WATERSHED 14020700

Basin: 7

Stream: UMATILLA R NR CAYUSE, OR

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.68
Longitude of Outlet (deg)	118.52
Latitude of Centroid (deg)	45.61
Longitude of Centroid (deg)	118.28
Drainage Area (mi^2)	383.99
Stream Length (mi)	443.43
Perimeter (mi)	114.88
Lakes and Ponds (%)	0.01
Min Watershed Elevation (ft)	1499.33
Max Polygon Elevation (ft)	3799.17
Max Watershed Elevation (ft)	5816.86
Maximum Relief (ft)	4317.53
Mean Slope (deg)	23.87

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 14021000

Basin: 7

Stream: UMATILLA R AT PENDLETON, OR

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.68
Longitude of Outlet (deg)	118.78
Latitude of Centroid (deg)	45.67
Longitude of Centroid (deg)	118.40
Drainage Area (mi^2)	638.72
Stream Length (mi)	729.49
Perimeter (mi)	159.53
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	1197.49
Max Polygon Elevation (ft)	3799.17
Max Watershed Elevation (ft)	5816.86
Maximum Relief (ft)	4619.37
Mean Slope (deg)	16.10
Average Aspect (deg)	171.60
Mean Elevation (ft)	2985.35
Area above 3000 ft (%)	49.53
Area above 4000 ft (%)	23.44
Area above 5000 ft (%)	2.51
Area above 6000 ft (%)	0.00
Conductivity Index	30.85
Porosity Index	40.63
Conductivity/Porosity Index	71.48
Mean Soils Index	3.10
Mean Annual Precip (in)	28.86

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 14022000

Basin: 7

Stream: UMATILLA R AB MCKAY CR NR PENDLETON, OR

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.67
Longitude of Outlet (deg)	118.83
Latitude of Centroid (deg)	45.66
Longitude of Centroid (deg)	118.43
Drainage Area (mi^2)	708.12
Stream Length (mi)	814.64
Perimeter (mi)	171.78
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	997.36
Max Polygon Elevation (ft)	1502.61
Max Watershed Elevation (ft)	5816.86
Maximum Relief (ft)	4819.50
Mean Slope (deg)	15.15
Average Aspect (deg)	176.10
Mean Elevation (ft)	2865.19
Area above 3000 ft (%)	45.21
Area above 4000 ft (%)	21.15
Area above 5000 ft (%)	2.26
Area above 6000 ft (%)	0.00
Conductivity Index	32.21
Porosity Index	41.80
Conductivity/Porosity Index	74.01
Mean Soils Index	3.05
Mean Annual Precip (in)	27.60

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 14025500

Basin: 7

Stream: UMATILLA R AB FURNISH RES NR YOAKUM, OR

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.66
Longitude of Outlet (deg)	118.97
Latitude of Centroid (deg)	45.57
Longitude of Centroid (deg)	118.58
Drainage Area (mi^2)	1263.14
Stream Length (mi)	1528.72
Perimeter (mi)	214.12
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	997.36
Max Polygon Elevation (ft)	2145.64
Max Watershed Elevation (ft)	5816.86
Maximum Relief (ft)	4819.50
Mean Slope (deg)	14.27
Average Aspect (deg)	169.99
Mean Elevation (ft)	2868.33
Area above 3000 ft (%)	44.26
Area above 4000 ft (%)	19.60
Area above 5000 ft (%)	1.62
Area above 6000 ft (%)	0.00
Conductivity Index	22.10
Porosity Index	32.95
Conductivity/Porosity Index	55.05
Mean Soils Index	3.39
Mean Annual Precip (in)	25.44

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 14026000

Basin: 7

Stream: UMATILLA R AT YOAKUM, OR

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.68
Longitude of Outlet (deg)	119.04
Latitude of Centroid (deg)	45.57
Longitude of Centroid (deg)	118.58
Drainage Area (mi^2)	1274.61
Stream Length (mi)	1542.17
Perimeter (mi)	220.61
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	987.52
Max Polygon Elevation (ft)	2148.92
Max Watershed Elevation (ft)	5816.86
Maximum Relief (ft)	4829.34
Mean Slope (deg)	14.22
Average Aspect (deg)	169.78
Mean Elevation (ft)	2854.07
Area above 3000 ft (%)	43.86
Area above 4000 ft (%)	19.42
Area above 5000 ft (%)	1.61
Area above 6000 ft (%)	0.00
Conductivity Index	22.09
Porosity Index	32.93
Conductivity/Porosity Index	55.02
Mean Soils Index	3.39
Mean Annual Precip (in)	25.33

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 14033500

Basin: 7

Stream: UMATILLA R NR UMATILLA, OR

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.90
Longitude of Outlet (deg)	119.33
Latitude of Centroid (deg)	45.59
Longitude of Centroid (deg)	118.88
Drainage Area (mi^2)	2519.58
Stream Length (mi)	2932.53
Perimeter (mi)	296.82
Lakes and Ponds (%)	0.01
Min Watershed Elevation (ft)	400.26
Max Polygon Elevation (ft)	2201.42
Max Watershed Elevation (ft)	5816.86
Maximum Relief (ft)	5416.60
Mean Slope (deg)	10.29
Average Aspect (deg)	163.16
Mean Elevation (ft)	2336.97
Area above 3000 ft (%)	29.19
Area above 4000 ft (%)	11.70
Area above 5000 ft (%)	0.91
Area above 6000 ft (%)	0.00
Conductivity Index	34.48
Porosity Index	43.53
Conductivity/Porosity Index	78.01
Mean Soils Index	3.00
Mean Annual Precip (in)	20.24
Mean January Precip (in)	

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 30710338

Basin: 7

Stream: WILDHORSE CR > UMATILLA R - AB GERKING CR

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.78
Longitude of Outlet (deg)	118.55
Latitude of Centroid (deg)	45.79
Longitude of Centroid (deg)	118.44
Drainage Area (mi^2)	45.45
Stream Length (mi)	41.72
Perimeter (mi)	53.76
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	1597.75
Max Polygon Elevation (ft)	2798.52
Max Watershed Elevation (ft)	3799.17
Maximum Relief (ft)	2201.42
Mean Slope (deg)	5.47

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 30710333

Basin: 7

Stream: WILDHORSE CR > UMATILLA R - AT MOUTH

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.68
Longitude of Outlet (deg)	118.76
Latitude of Centroid (deg)	45.78
Longitude of Centroid (deg)	118.57
Drainage Area (mi^2)	195.67
Stream Length (mi)	205.03
Perimeter (mi)	85.04
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	1197.49
Max Polygon Elevation (ft)	2201.42
Max Watershed Elevation (ft)	3799.17
Maximum Relief (ft)	2601.68
Mean Slope (deg)	3.15
Average Aspect (deg)	161.10
Mean Elevation (ft)	1879.36
Area above 3000 ft (%)	3.94
Area above 4000 ft (%)	0.00
Area above 5000 ft (%)	0.00
Area above 6000 ft (%)	0.00
Conductivity Index	77.11
Porosity Index	80.35
Conductivity/Porosity Index	157.46
Mean Soils Index	1.69
Mean Annual Precip (in)	17.75

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 14020900

Basin: 7

Stream: WILDHORSE CR NR ATHENA, OR

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.76
Longitude of Outlet (deg)	118.44
Latitude of Centroid (deg)	45.76
Longitude of Centroid (deg)	118.35
Drainage Area (mi^2)	15.34
Stream Length (mi)	15.42
Perimeter (mi)	24.70
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	1998.01
Max Polygon Elevation (ft)	3799.17
Max Watershed Elevation (ft)	3799.17
Maximum Relief (ft)	1801.16
Mean Slope (deg)	9.35
Average Aspect (deg)	194.26
Mean Elevation (ft)	3014.25
Area above 3000 ft (%)	50.60
Area above 4000 ft (%)	0.00
Area above 5000 ft (%)	0.00
Area above 6000 ft (%)	0.00
Conductivity Index	1.15
Porosity Index	15.13
Conductivity/Porosity Index	16.27
Mean Soils Index	4.00
Mean Annual Precip (in)	27.74

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 14032000

Basin: 7

Stream: BUTTER CR NR PINE CITY, OR

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.55
Longitude of Outlet (deg)	119.30
Latitude of Centroid (deg)	45.38
Longitude of Centroid (deg)	119.14
Drainage Area (mi^2)	287.13
Stream Length (mi)	340.28
Perimeter (mi)	89.15
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	1587.91
Max Polygon Elevation (ft)	3999.29
Max Watershed Elevation (ft)	5364.11
Maximum Relief (ft)	3776.20
Mean Slope (deg)	11.94
Average Aspect (deg)	162.68
Mean Elevation (ft)	3131.76
Area above 3000 ft (%)	48.87
Area above 4000 ft (%)	14.91
Area above 5000 ft (%)	0.87
Area above 6000 ft (%)	0.00
Conductivity Index	0.96
Porosity Index	13.91
Conductivity/Porosity Index	14.87
Mean Soils Index	4.00
Mean Annual Precip (in)	22.06

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 30710305

Basin: 7

Stream: BUTTER CR > UMATILLA R - AT MOUTH

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.75
Longitude of Outlet (deg)	119.36
Latitude of Centroid (deg)	45.42
Longitude of Centroid (deg)	119.21
Drainage Area (mi^2)	442.85
Stream Length (mi)	521.43
Perimeter (mi)	128.19
Lakes and Ponds (%)	0.01
Min Watershed Elevation (ft)	600.39
Max Polygon Elevation (ft)	1400.90
Max Watershed Elevation (ft)	5364.11
Maximum Relief (ft)	4763.72
Mean Slope (deg)	11.70
Average Aspect (deg)	159.57
Mean Elevation (ft)	2815.60
Area above 3000 ft (%)	38.99
Area above 4000 ft (%)	10.69
Area above 5000 ft (%)	0.57
Area above 6000 ft (%)	0.00
Conductivity Index	6.59
Porosity Index	19.11
Conductivity/Porosity Index	25.70
Mean Soils Index	3.83
Mean Annual Precip (in)	19.83

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 14025000

Basin: 7

Stream: BIRCH CR AT RIETH, OR

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.65
Longitude of Outlet (deg)	118.88
Latitude of Centroid (deg)	45.41
Longitude of Centroid (deg)	118.84
Drainage Area (mi^2)	284.80
Stream Length (mi)	390.89
Perimeter (mi)	95.78
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	997.36
Max Polygon Elevation (ft)	3799.17
Max Watershed Elevation (ft)	5400.20
Maximum Relief (ft)	4402.83
Mean Slope (deg)	11.98
Average Aspect (deg)	153.64
Mean Elevation (ft)	3013.51
Area above 3000 ft (%)	43.97
Area above 4000 ft (%)	22.35
Area above 5000 ft (%)	1.55
Area above 6000 ft (%)	0.00
Conductivity Index	8.42
Porosity Index	20.61
Conductivity/Porosity Index	29.03
Mean Soils Index	3.91
Mean Annual Precip (in)	22.34

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 14022500

Basin: 7

Stream: MCKAY CR NR PILOT ROCK, OR

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.55
Longitude of Outlet (deg)	118.77
Latitude of Centroid (deg)	45.47
Longitude of Centroid (deg)	118.57
Drainage Area (mi^2)	178.66
Stream Length (mi)	234.71
Perimeter (mi)	78.75
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	1397.62
Max Polygon Elevation (ft)	3448.12
Max Watershed Elevation (ft)	4760.44
Maximum Relief (ft)	3362.82
Mean Slope (deg)	18.54
Average Aspect (deg)	186.51
Mean Elevation (ft)	3253.80
Area above 3000 ft (%)	63.33
Area above 4000 ft (%)	19.06
Area above 5000 ft (%)	0.00
Area above 6000 ft (%)	0.00
Conductivity Index	4.55
Porosity Index	18.05
Conductivity/Porosity Index	22.59
Mean Soils Index	3.89
Mean Annual Precip (in)	27.39

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 30710326

Basin: 7

Stream: MCKAY CR > UMATILLA R - AT MOUTH

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.67
Longitude of Outlet (deg)	118.84
Latitude of Centroid (deg)	45.49
Longitude of Centroid (deg)	118.59
Drainage Area (mi^2)	199.26
Stream Length (mi)	249.79
Perimeter (mi)	98.01
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	997.36
Max Polygon Elevation (ft)	1929.11
Max Watershed Elevation (ft)	4760.44
Maximum Relief (ft)	3763.08
Mean Slope (deg)	17.13
Average Aspect (deg)	186.08
Mean Elevation (ft)	3085.93
Area above 3000 ft (%)	56.99
Area above 4000 ft (%)	17.09
Area above 5000 ft (%)	0.00
Area above 6000 ft (%)	0.00
Conductivity Index	10.49
Porosity Index	23.15
Conductivity/Porosity Index	33.64
Mean Soils Index	3.71
Mean Annual Precip (in)	26.09

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 70685

Basin: 7

Stream: SQUAW CR > UMATILLA R - AT MOUTH

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.70
Longitude of Outlet (deg)	118.40
Latitude of Centroid (deg)	45.60
Longitude of Centroid (deg)	118.41
Drainage Area (mi^2)	34.82
Stream Length (mi)	34.11
Perimeter (mi)	32.79
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	1797.88
Max Polygon Elevation (ft)	4199.42
Max Watershed Elevation (ft)	4199.42
Maximum Relief (ft)	2401.55
Mean Slope (deg)	23.61
Average Aspect (deg)	175.94
Mean Elevation (ft)	3287.76
Area above 3000 ft (%)	68.22
Area above 4000 ft (%)	6.45
Area above 5000 ft (%)	0.00
Area above 6000 ft (%)	0.00
Conductivity Index	3.79
Porosity Index	17.40
Conductivity/Porosity Index	21.19
Mean Soils Index	3.91
Mean Annual Precip (in)	30.35

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 30710332

Basin: 7

Stream: TUTUILLA CR > UMATILLA R - AT MOUTH

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.67
Longitude of Outlet (deg)	118.81
Latitude of Centroid (deg)	45.60
Longitude of Centroid (deg)	118.69
Drainage Area (mi^2)	60.98
Stream Length (mi)	73.97
Perimeter (mi)	36.78
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	1194.21
Max Polygon Elevation (ft)	3454.68
Max Watershed Elevation (ft)	3454.68
Maximum Relief (ft)	2260.47
Mean Slope (deg)	6.76
Average Aspect (deg)	230.91
Mean Elevation (ft)	1819.71
Area above 3000 ft (%)	6.32
Area above 4000 ft (%)	0.00
Area above 5000 ft (%)	0.00
Area above 6000 ft (%)	0.00
Conductivity Index	45.24
Porosity Index	52.99
Conductivity/Porosity Index	98.23
Mean Soils Index	2.66
Mean Annual Precip (in)	16.48

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 70563

Basin: 7

Stream: RYAN CR > UMATILLA R - AT MOUTH

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.72
Longitude of Outlet (deg)	118.31
Latitude of Centroid (deg)	45.67
Longitude of Centroid (deg)	118.29
Drainage Area (mi^2)	12.95
Stream Length (mi)	13.46
Perimeter (mi)	18.92
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	2001.29
Max Polygon Elevation (ft)	4799.81
Max Watershed Elevation (ft)	4799.81
Maximum Relief (ft)	2798.52
Mean Slope (deg)	31.74
Average Aspect (deg)	189.10
Mean Elevation (ft)	3670.06
Area above 3000 ft (%)	78.15
Area above 4000 ft (%)	39.39
Area above 5000 ft (%)	0.00
Area above 6000 ft (%)	0.00
Conductivity Index	1.36
Porosity Index	15.31
Conductivity/Porosity Index	16.67
Mean Soils Index	3.99
Mean Annual Precip (in)	35.60

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 30710317

Basin: 7

Stream: ALKALI CAN > UMATILLA R - AT MOUTH

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.73
Longitude of Outlet (deg)	119.19
Latitude of Centroid (deg)	45.59
Longitude of Centroid (deg)	119.12
Drainage Area (mi^2)	55.66
Stream Length (mi)	71.44
Perimeter (mi)	51.35
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	698.81
Max Polygon Elevation (ft)	2798.52
Max Watershed Elevation (ft)	2798.52
Maximum Relief (ft)	2099.71
Mean Slope (deg)	5.19
Average Aspect (deg)	153.67
Mean Elevation (ft)	1796.57
Area above 3000 ft (%)	0.00
Area above 4000 ft (%)	0.00
Area above 5000 ft (%)	0.00
Area above 6000 ft (%)	0.00
Conductivity Index	14.94
Porosity Index	26.97
Conductivity/Porosity Index	41.91
Mean Soils Index	3.58
Mean Annual Precip (in)	14.48

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 30710341

Basin: 7

Stream: DESPAIN G > COLD SPRINGS RES - AT MOUTH

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.85
Longitude of Outlet (deg)	119.13
Latitude of Centroid (deg)	45.79
Longitude of Centroid (deg)	118.95
Drainage Area (mi^2)	60.51
Stream Length (mi)	81.36
Perimeter (mi)	54.34
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	672.56
Max Polygon Elevation (ft)	1699.45
Max Watershed Elevation (ft)	1699.45
Maximum Relief (ft)	1026.89
Mean Slope (deg)	2.24
Average Aspect (deg)	174.85
Mean Elevation (ft)	1229.88
Area above 3000 ft (%)	0.00
Area above 4000 ft (%)	0.00
Area above 5000 ft (%)	0.00
Area above 6000 ft (%)	0.00
Conductivity Index	92.67
Porosity Index	93.71
Conductivity/Porosity Index	186.38
Mean Soils Index	1.22
Mean Annual Precip (in)	12.32

WATERSHED CHARACTERISTICS (OWRD WARS, Aug 15, 2001)

CHARACTERISTICS FOR WATERSHED 30710342

Basin: 7

Stream: COLD SPRINGS CAN > COLD SPRINGS RES - AT MOUTH

Watershed Characteristic	Value
Latitude of Outlet (deg)	45.87
Longitude of Outlet (deg)	119.11
Latitude of Centroid (deg)	45.86
Longitude of Centroid (deg)	118.87
Drainage Area (mi^2)	120.27
Stream Length (mi)	121.94
Perimeter (mi)	70.86
Lakes and Ponds (%)	0.00
Min Watershed Elevation (ft)	698.81
Max Polygon Elevation (ft)	1601.03
Max Watershed Elevation (ft)	2007.85
Maximum Relief (ft)	1309.04
Mean Slope (deg)	3.23
Average Aspect (deg)	158.23
Mean Elevation (ft)	1472.32
Area above 3000 ft (%)	0.00
Area above 4000 ft (%)	0.00
Area above 5000 ft (%)	0.00
Area above 6000 ft (%)	0.00
Conductivity Index	88.87
Porosity Index	90.44
Conductivity/Porosity Index	179.31
Mean Soils Index	1.33
Mean Annual Precip (in)	14.43

ANNOTATED BIBLIOGRAPHY
UMATILLA BASIN GROUNDWATER STUDIES [1]

1. **Wagner, Norman, S., 1949, Ground water studies in Umatilla and Morrow Counties: State of Oregon, Dept. of Geology and Mineral Industries, Bulletin No. 41, 100 p.**

Hydrologic records: Reviewed 209 well records in Umatilla and Morrow Counties (span of 25 years). Not complete index of wells; focus was on basalt wells, deeper wells. Interesting note on the number of flowing wells, wells where water-levels declined with production, Pendleton Airport well was "reportedly" abandoned due to contamination. Well was deepened from 573 ft to 825 ft. Static level at 573 ft. (suspect co-mingling at 573 ft). Well logs are provided with index map.

2. **Hogenson, G.M., 1964, Geology and ground water of the Umatilla River basin, Oregon: US Geological Survey, Water-Supply Paper 1620, 162 p., 2 Plates.**

3. **Sceva, J.E., 1966, A brief description of the ground-water conditions in the Ordnance area, Morrow and Umatilla Counties, Oregon: State of Oregon, Water Resources Dept., Ground Water Report No. 11, 43 p.**

Report to be part of the record for proceedings of a determination of a Critical Ground Water Area in the Ordnance area. Forty-three well records from both the gravel and basalt aquifers were examined, hydrographs were developed for 23 of the wells. Eleven "shallow" wells (depths ranging from 96 ft to126 ft) are described with capacities of 1,000 gpm or more. Substantial portion of recharge to the gravels in the southeastern portion of the area is believed to come from irrigation water and leakage from the High Line Canal of Westland ID. Recharge also occurs from runoff of precipitation in the hills to the south of the area. Precipitation in the immediate area is less than 10 inches. This may not be enough to replace soil-moisture deficiencies and is probably not a significant source of recharge. Water-level declines averaging less than 1-ft per year have occurred in the southeastern part of the area.

Deep wells in the area have shown serious water-level declines during the past six years. This decline is in the magnitude of 4-5 ft per year in some wells. The decline was attributed to ground water withdrawals from the deep wells in the area. Wells drilled into water bearing zones near the top of the basalt show a lower rate of water-level decline. The difference between the rate of decline between these wells and the deep wells indicates that the shallow zones in the basalt are probably hydraulically separated from the deeper zones. Some recharge from the shallower water-bearing zones probably occurs by the downward leakage from the overlying layers.

[1] Annotation by Kate Ely, Umatilla Basin Hydrologist, Confederated Tribes of the Umatilla Indian Reservation, Water Resources Program (WRP), created in 1998 with periodic updates. In chronological order, this summary of information highlights document contents and/or findings; it is not intended to be a complete annotation or represent all available documents in WRP's collection. Additional reports by the US Bureau of Reclamation related to water and irrigation/land use in the lower Umatilla Basin are included.

Deep-well current meter tests were performed on two wells in the Umatilla Army Depot in 1964. Test results indicate no measurable movement of water from one zone to another. Water levels will continue to decline without curtailment of withdrawals. Recommend declaration of "Critical Ground Water Area." Chronologic history of well development in the area presented in Table 1.

4. U.S. Bureau of Reclamation, 1968, Appendix A, Lands, Umatilla Basin Project, Oregon, feasibility: U.S. Dept. of Interior, USBR, Upper Columbia Development Office, Spokane, WA, 175 p., 10 Maps, 10 Tables, 3 Tabbed sections.

Other Appendices referenced but not part of this report:

Appendix B - Hydrology (2 Volumes)
Appendix C - Plans and estimates
Appendix D - Agricultural economy
Appendix E - Economic and financial analysis
Appendix F - Supplemental analysis
Appendix G - Drainage

Classification information: Land development, productivity, land use, land drain ability, and water requirements.

Study area: 120,600 acres in lower Umatilla Basin and Umatilla Reservation-low lands: Stanfield and Cold Springs area, Despain, Lower Paradise, Upper Paradise, Teel, North and South Reservation, McKay Ck bottoms, Umatilla bottoms, Birch Ck bottoms, and Stewart Bench.

Field work: Started in 1961 and completed in 1967.
No of borings and pits:

Shallow (0-5')= 16 detail, 2 reconnaissance; average 13 per sq mi, total= 4,070.
Deep (5-10')= 2 detail, 1 reconnaissance; 0.6 per sq mi, total = 213.
Open pit or deep hole>10'= 0.2 per sq mi; total=63.

Base Maps: Aerial photos, B&W, 1:4800, 1:12,000 & 1:20,000.
Topographic maps, 1:24,000 with 10-ft contour intervals.

5. Robison, James H., 1971, Hydrology of basalt aquifers in the Hermiston-Ordnance area, Umatilla and Morrow Counties, Oregon: USGS, Hydrologic Investigation Atlas HA-387, 2 Sheets.

Sheet 1: Geologic map showing structure contours of the top of the basalt and location of select wells; Table of selected well data including well depth, use, source of water, land-surface elevation, and water level data (feet below ground surface, date measured, and estimated current rate of change since 1967).

Text describing groundwater conditions (groundwater development, spatial relations and potentiometric heads, and seasonal declines), quality of water (Types A, B, and C), and Carbon-14 dating of water.

Sheet 2: Hydrologic map showing location of selected wells, well depth, chemical diagrams, and hydrographs; Table of chemical analysis of groundwater; and trilinear diagram showing 3 water types: A, B, and C for shallow, intermediate and deep groundwater, respectively.

6. McCall, William B., 1975, Ground-water conditions and declining water levels in the Ordnance area, Morrow and Umatilla Counties, Oregon: State of Oregon, Water Resources Dept., Ground Water Report No. 23, 134 p.

Table 1: Chronologic List of Currently Used Irrigation and Industrial Wells by Date of Construction.

Year	Wells in Gravel	Wells in Gravel and Upper Basalt	Wells in Basalt (Over 500-Ft in Depth)
	No.	No.	No.
1941-45	0	3	1
1946-50	1	1	2
1951-55	5	3	1
1956-60	3	1	7
1961-65	10	0	1
1966-70	21	6	0
1971-73	7	3	0
Total	47	17	12
1941-1970	40		

	Lost Lake-Depot		Upper and Deep Basalt	
	No.	Acres	No.	Acres
Certificated	14	1070.4	23	
Permits	17	3849	16	
Applications	8	2073.5	3	
Total	39	6,993	42	3,252

	Westland Rd	
Certificated	8	723.7
Permits	12	821.9
Applications	10	378.2
Total	20	1,546

(Industrial)	(2)	(6.6 cfs)	(2)	(3 cfs) (Ind/Muni/Stk) (1.62 cfs) (Army Depot)

7. OWRD, 1979, Publications, Water Resources Dept., 555 13th St., NE, Salem, Oregon, 97310, 21 p.

Groundwater

1. Umatilla River Basin, June 1963.
2. Ground water levels - 1963, by Jack E. Sceva and Robert DeBow, July 1964. (No. 4)
3. do -1964, January 1965. (No. 5)
4. do -1965, February 1966. (No. 9)
5. A brief description of the groundwater conditions in the Ordnance Area, Morrow and Umatilla Counties, Oregon, by Jack E. Sceva. May 1966 (No. 11).
6. Ground water levels - 1966, by Wm. S. Bartholomew and Robert DeBow. May 1967 (No. 12).
7. do - 1967-1968, May 1970, (No. 15)
8. do - 1968-1972, by Wm. S. Bartholomew, Monte Graham and John Fuesner. Nov 1973. (No. 18).
9. Ground water conditions and declining water levels in the Ordnance area Morrow and Umatilla Counties, Oregon, by Wm. B. McCall. Oct 1975 (No. 23)
10. Ground water conditions and declining water levels in the Butter Creek area, Morrow and Umatilla Counties, Oregon, by Wm. S. Bartholomew, Oct 1975 (No. 24).

Watershed planning reports

11. A preliminary feasibility study to irrigate North Morrow, 1972.
12. A preliminary study to irrigate western Umatilla and northeaster Morrow Counties, Oregon, 1975.

Other reports

13. Maintaining levee and drainage projects, Jan 1973.
14. Oregon's long-range requirements for water, June 1969, 21 volumes + Appendix I - general soil map report with irrigable areas (by basin); Appendix II - irrigation and food products; Appendix III - water using industries and population; Appendix VI - water quality; Appendix VII - areas of origin.
15. Map of potential development, Umatilla No. 7.6, 20 x 34, 1962.

8. Oberlander, P. J. and Miller, D.W., 1981, Summary of hydrologic studies in the Umatilla structural basin: State of Oregon, Water Resources Dept., unpublished, 9 p.

Figure 1 shows study area divided by Service Anticline -- eastside called the Stage Gulch, westside called the Butter Creek--Ella Butte area.
Figure 2 show cumulative water rights trend beginning in 1955 to 1980
Primary and supplemental water rights applied for totaled over 97,000 and 15,000 acres, respectively; based on 570 wells having water rights, and does not include domestic.
Domestic and stock wells are estimated at 3,000 with annual withdrawal of 5,000 acre feet. All use by cities/towns is included in this estimate.
Figure 19 shows 3-D head decline over 15-year period.

USGS in Portland have records about wells in the study area that tap the basalt aquifer. Data include well location, owner's name, water rights, horsepower, pump setting, flow meter readings, casing record, elevation, water temperature, airline length, and other data+ every recorded measurement.

Findings:

1. The principal basalt aquifer is regional confined groundwater that can be represented by a potentiometric surface. The upper basalt aquifer in places contains a local flow system that can have a higher or lower head than the regional aquifer system.

2. The basalt aquifer is non-homogeneous and contains hydrologic boundaries that are stratigraphic--petrological changes and structural changes. Folding and faulting is evident throughout the region.

3. Aquifer testing has identified hydrologic boundaries and determined aquifer characteristics of transmissivity (T) and storage (S). T ranges from 1,000 to 36,000 ft^2/day with a weighted average of 6,000 ft^2/day. S varies less than T and averages $5.2x10^{-4}$. The S as computed from estimated withdrawals and volumetric overdraft calculations averages $3.2x10^{-2}$. The dual storage demonstrates that the aquifer behaves as an unconfined aquifer during actual long-term use due to dewatering of voids.

4. Recharge is from higher elevations in the Blue Mountains; no significant flow of groundwater from Oregon to Washington.

5. Rate of recharge under steady state conditions is reflected in the Carbon 14 apparent age dates. Groundwater ages range from 2,570 to 27,290 years ago. Most of the water being withdrawn is greater than 10,000 years old.

6. Water level declines from 1965 to 1980 have dewatered 13 cubic miles of basalt aquifer. The average decline rate is 5.1 ft per year. Area affected with greater than 20-ft decline is 262 square miles.

7. Water level decline rates are increasing in portions of Stage Gulch, at the City of Pendleton, and at the City of Milton Freewater.

8. Improper well construction and deepening are draining some upper aquifers. This lowering the potentiometric surface in upper aquifers, but will increase the water supply to the lower aquifers.

Conclusions:

1. The water level declines are continuing at the same rate or at an accelerated rate in nearly all of the study area. There is no evidence to suggest that water levels are reaching a point of equilibrium or that in the near future water-level declines will cease.

2. Water level declines are due to withdrawals that exceed natural recharge which depletes the limited supply of water in the aquifer, pumping rates that exceed the capacity of the aquifer to

transmit water, and cross-connection of high and low head zones within the aquifer. Supply overdrafts can be reduced only by limiting the total amount of water pumped each year from the aquifer. Demand overdrafts can be reduced by either a reduction in pumping rates or decreased withdrawal density.

3. The rate of recharge of meteoric water into the aquifer is unknown. Carbon 14 age dating tests and reasonable estimates based on hydrogeologic factors indicate that recharge is much less than present appropriations.

4. The amount of water that can be practicably recovered in aquifer storage to a depth of 500 feet is estimated to be 18 million ac-ft. Assuming withdrawals remain constant, this represents about a 95-year supply if declines could be equalized for the 2,200 square mile region. However, centralized overdrafts of the aquifer are already restricting some appropriator's ability to withdraw water in intensely developed areas.

5. Interference between wells is common and contributes to the water supply problems of the area. The seasonal interference factor can be 10 times the value of annual decline.

9. Gonthier, J.B., and D.D. Harris, 1977, Water resources of the Umatilla Indian Reservation, OR: U.S. Geological Survey, WRI 77-3, 112 p, 1 Plate

Plate 1-Geohydrologic map of the Umatilla Indian Reservation, Oreg. Plate shows well and spring locations, high capacity and flowing wells, weir house for City of Pendleton's infiltration gallery, and chemical diagrams of major ions in groundwater samples.

Figures include frequency curves for long-term gaging stations in and near the UIR; frequency curves of annual maximum and minimum flows from the Umatilla River and McKay Creek near Pilot Rock; hydrographs of groundwater levels (seasonal pumping, basalt); map of water-level contours in Tertiary deposits on south reservation; map of infiltration galleries, and map of sampling sites for surface waters. Seasonal profiles of water temperatures and dissolved-oxygen concentration for three sites at Indian Lake are included.

Table 8-water quality of streams in the UIR
Table 9-chemical analyses of water from Indian Lake
Table 10-chemical analyses of water from selected wells and springs in the UIR
Table 13-records of selected wells and springs in the UIR
Table 14-Drillers' logs of selected wells in the UIR

Contents
Geology, hydrology, and summary of problems related to water resources on the Reservation. Hydrology section includes climate, surface water (distribution of flows, high/low/average flows, Indian Lake), groundwater (occurrence, water level, availability), and water quality of both surface water and groundwater.

Average surface water outflow from the Reservation is about 600 cfs; total streamflow inflow is about 540 cfs. About 480 cfs of the outflow is in the Umatilla River, 106 cfs is in McKay

Creek, and 14 cfs is in other streams. Dependable streamflow, defined as the 7-day mean low flow that will occur once every 50 years, on the average is 30 cfs in the Umatilla River above Meacham Creek near Gibbon, 5 cfs in Meacham Creek below Line Creek at the east boundary, 33cfs in the Umatilla River in Umatilla River at Cayuse, and 14 cfs in Umatilla River in Pendleton.

Wells in the Columbia River Basalt Group range in depth from a few to 1,910 feet, and their yields range from less than 1 to more than 1,200 gpm. Evaluation of specific-capacity data from wells in the basalts in four geographic areas suggests that the basalt is more permeable beneath the south reservation and the Umatilla River valley; permeability decreases on the north reservation, and it is least permeable in the Blue Mountains.

Local seasonal declines of groundwater levels of about 100 feet or more occur in shallow basalt wells in the Umatilla River valley between the Mission and the west boundary. Declines are due chiefly to pumping from many small-capacity shallow wells in the basalt for irrigation of lawns and small acreages of pasture or hay.

Quality of surface water and groundwater are good; surface water usually contains less than 120 ppm of dissolved solids; groundwater ranges from 88 to 561 ppm, but is generally between 200 and 250 ppm.

10. Norton, Marc A. and Wm. S. Bartholomew, 1984, Update of ground water conditions and declining water levels in the Butter Creek area, Morrow and Umatilla Counties, OR: Oregon Water Resources Dept., Groundwater Report No. 30; 203 p., 2 Plates.

Update of Groundwater Report 24 (1975). Original text and data are included with revisions denoted by single space text and asterisk. Ground-water level decline has been documented since 1958 for wells completed in basalt aquifers. Report 30 has revised the original 1977 Butter Creek critical area boundary to a *proposed* Butter Creek critical area with four subareas: North, Butter Creek Junction, Sand Hollow, and South.

Plate 1: Well location, priority and boundary map (1977) showing (1) location of both wells with a water right and wells with a pending permit/application but not drilled, and (2) boundary of Butter Creek critical area. Wells were numbered in numerical order by priority date. Plate 2: Boundary and well locations, proposed Butter Creek critical ground water area (1984) showing (1) location of both wells with a water right and wells not drilled with application pending, and (2) boundary of proposed critical ground water area and subarea boundaries. Wells were numbered by location rather than priority date in Plate 1, and were denoted by section number and letters within a Township/Range.

Appendix I-- Definitions of terms.

Appendix II-- Basalt water rights. Table 4: Ground water rights as of Oct 1984; table listed by priority date with headings: location (T/R-Sec 1/4,1/4,1/4); record holder; date; permitted discharge; acreage (primary or supplemental), and remarks re: former record holder; (79

permits total w/ 23 permits in T3N- T4N- and T5N/R28E; 7 wells in T5N/28E; 11 wells in T4N/28E; and 9 wells in T2N/R28E).

Appendix III-- Water rights canceled. (Table 5: Canceled ground water rights as of Oct 1984; (11 canceled applications total, not all had permits or certificates).

Appendix IV-- Water rights in gravels. Table 6: Water rights for sumps as of Oct 1984; listed by date with headings: location, record holder, permitted discharge, acreage (primary or secondary), remarks re: use or well type; (22 permits total w/ 21 permits in T3N- T4N- and T5N/R28E).

Appendix V-- Water rights and well records. Well information re: location, owner, construction, use, elevation, date, appropriation, protested application, pump info., etc.

Appendix VI-- Water level data. All wells listed were completed in basalt aquifer. Data recorded is depth to water from land-surface datum for the period of 1947 to 1984; (26 wells w/ water-level data in T3N- T4N- and T5N/28E).

Appendix VII--Pumpage data. Table 8: Ground water pumpage in ac-ft. listed by priority number with headings: subarea, well location, owner, quantity pumped per year for period of 1973 through 1982; (13 permits in T3N- T4N- & T5N/R28E; 7 in north subarea and 5 in Butter Ck Jcn subarea, 3 are domestic, 4 have no data).

11. Zwart, Michael J., 1984, A summary of ground water conditions in the Umatilla structural basin: **State of Oregon, Water Resources Dept., 57 p (includes Appendix A).**

Umatilla Structural Basin (USB) includes over 2,500 square miles and is underlain by basalts of the CRBG. Oberlander and Miller (1981) documented regional water level declines in the USB. OWRD/USGS cooperative agreement in 1980 to describe and quantify the hydrogeology of the USB. Measured water levels, recorded power and flowmeter data at wells annually in February and March when water levels are least subject to the effects of pumping.

The USB as defined by Oberlander and Miller (1981) is bounded generally by the Columbia River on the north, the extension of the Horse Heaven anticline on the east, the crest of the Blue Mtn uplift to the southeast and south, and the Rock Creek Lineament to the west (west of Willow Creek). The eastern portion of the USB is called Stage Gulch, the western part is known as the Butter Creek-Ella Butte.

Different processes in which water level declines have occurred:
1. Supply overdraft (Oberlander and Miller, 1981)-- pumpage exceeds recharge, regional lowering of potentiometric surface.

2. Demand overdraft (Oberlander and Miller, 1981)-- hydrogeologic limitations, eg low T, flow barriers, inability for water levels to recover completely between pumping seasons. More localized than supply overdraft. In these areas the decline rate can be several times > than that caused by supply overdraft.

3. Downhole flow in the well bore due to poor construction. For example, deepening a well to aquifers having a lower potentiometric head without sealing the upper aquifer. The static water level is lower as a result. Water levels can rise in some wells but this is less common than the reverse in the USB.

The effects of all three type of water level decline processes are interrelated and can be additive. Six Plates showing decline trends beginning 1960 to 1984. Plate 6 shows 1981-1984. 25 hydrographs were prepared from wells in the USB. Plate 7 shows location of wells. Annual precipitation plotted for the record 1970-1983. Precipitation was above normal for six of the last seven years.

Totalizing flow meters have been required by OWRD for permitted wells in most of the USB since 1980 and in Ordnance and Butter Creel-Ella Butte areas since 1976. Estimates of annual pumpage from the basalt in USB exclusive of the Butter Creek and Ordnance areas were made for the period 1980-83.

An additional 4,000 af of un-metered pumpage by exempt uses of groundwater is estimated and added to each year's total to approximate total pumpage in the area.

Area 1A--east of Butter Creek in the Stage Gulch area.

	1980	1981	1982	1983
Estimated pumpage (af)	36,713	35,419	33,206	33,275

Declines of 50 ft or greater from 1965 - 1980; boundaries refined to 5 ft/year; 1980-83 average decline is 6.1 ft/year; interference occurs with one inactive well declining 559 ft in one season (not typical, however).
Area 1A encompasses 200 square miles, 51 to 57 percent of USB, excluding the Butter Creek-Ordnance area, as well as 1B and 1C.

Area 1B--west of Butter Creek in the Ella Butte area.

	1980	1981	1982	1983
Estimated pumpage (af)	3,854	3,702	2,607	983

1980-83 -average rate of water level decline is 2.6 ft/year; Area 1B encompasses 36 square miles

Area 1C--west of 1B along Willow Creek in the Cecil area.

	1980	1981	1982	1983
Estimated pumpage (af)	1,088	1,010	901	522

1980-83 -average rate of water-level decline is 6.9 ft/year

Area 2--all of 1A, 1B, 1C and buffer zones, and areas near Pendleton, Boardman, and n/o Hermiston.

	1980	1981	1982	1983
Estimated pumpage (af)	47,811	46,567	42,988	41,677
(difference)	6,156	6,436	6,274	6,897

485 square miles; 1980-83 average rate of water-level decline is 4.8 ft/year.

All three areas of the USB (Plate 9)

	1980	1981	1982	1983
Estimated pumpage* (af)	64,716	64,173	64,585	61,400
Estimated exempt use	4,000	4,000	4,000	4,000
Total	68,716	68,173	68,585	65,400

* Exclusive of Butter Creek and Ordnance areas.

The USGS estimated recharge to the Oregon part of study area to be 64,000 af (Ann Davies-Smith, personal communication). An unknown portion of this recharge is to the shallow basalt which is soon discharged to springs and surface waters. Therefore, the actual amount of recharge to the deeper basalts may be substantially less. Based on this estimate and the estimate of recent pumpage, the available groundwater supply in the USB is being overdrawn by a minimum of 15,000 af per year.

Five separate areas within the USB have been delineated (Plate 9) in which groundwater conditions satisfy one or more of the criteria to initiate a proceeding for determination of a critical groundwater area.

12. Zwart, Michael J., 1985, Ground water conditions in the Umatilla Structural Basin, an executive summary: State of Oregon , Water Resources Dept., 5 p.

Aquifer tests have been conducted by OWRD personnel in the Umatilla Structural Basin (USB). These tests have documented well interference between wells. As an extreme example, an unused well located in T3N/R30E-sec 6 had a water level which declined from about 111 to 670 feet below land surface from February to August 1984.

In an effort to calibrate a digital flow model of basalt hydrology in the USB, the USGS estimated average annual recharge from precipitation as 64,400 af (Davies-Smith, personal communication). An unknown proportion of this recharge is to shallow basalt groundwater reservoirs and is soon discharged to surface streams or springs. Therefore, the actual amount of average annual recharge to the deep basalts may be substantially less than 64,000 af. Based on this preliminary estimate and estimates of pumpage in the USB made for the period 1980-1983, OWRD had tentatively concluded that the available groundwater supply in the USB is being overdrawn by a minimum of 15,000 af per year.

Other areas within the USB that manifest similar problems as the areas in proclamations dated 01/31/1985 with well interference due to high well density and resulting concentration of pumpage, include the Boardman area, Pendleton area, an area NE of Hermiston, an area between Pendleton and Pilot Rock, and an area near Adams, Weston, and Athena.

"Because we [OWRD] have tentatively concluded that the available groundwater supply in the entire USB is being overdrawn, some concern is expressed for all remaining areas. However, development of the ground water resources is much more limited in the remainder of the basin. Therefore, documentation for water level declines is limited, and where it exists the declines

are not excessive. Water level rises have occurred in many wells in this area during the period of 1980 to 1984. Substantial well interference is also not documented in the remainder of the basin."

13. Gonthier, Joseph B., 1985, Description of aquifer units in eastern Oregon: US Geological Survey, WRI Report 84-4095, 39 p., 4 Plates.

Study Area: All of Oregon east of the crest of the Cascade Range.

Report Objectives: 1) delineate and describe major aquifers, 2) identify aquifers containing water with dissolved-solids concentrations exceeding 10,000 mg/L, 3) evaluate methods by which the area of review may be estimated for proposed injection wells (EPA inquiry), and 4) provide very general ground-water use information.

Findings
Aquifers grouped into six units (informally named): 1) igneous and metamorphic aquifers, 2) older volcanic aquifers, 3) basalt aquifers, 4) volcanic and sedimentary aquifers, 5) sedimentary aquifers, and 6) basin-fill and alluvial aquifers. In general, hydrogeologic data for eastern Oregon are both sparse and unevenly distributed. Discussion of rocks grouped into basalt aquifers is primarily on Columbia River Basalt Group and related sedimentary interbeds located in the Deschutes-Umatilla Plateau (D-U Plateau), north of the Blue Mountains.

Localities in eastern Oregon where the basalt is heavily developed for supply are northern Morrow Co, NW Umatilla Co, northern Wasco Co, areas around the Cities of Pendleton, Athena, and Milton Freewater, and in the Grande Ronde Valley. Withdrawal from the basalt aquifers has caused significant regional ground-water declines and local water-level declines in excess of 300 feet. Causes for the declines are the combined result of excessive ground-water withdrawals, close spacing of wells, low storage capacity of the basalt aquifers, low recharge, and low vertical permeability.

Increased withdrawals from the untapped basalt aquifers in the D-U Plateau will result in accelerated drawdowns and water-level declines, especially if wells continue to be closely spaced. Much larger spacings between wells and greater cooperation, planning, and management among users will be required to optimize yields and minimize drawdowns in the D-U Plateau.

Regarding water quality, dissolved solids in water from 187 sampling sites in the basalt aquifers ranged from 50 to 695 mg/L; the median value was 238 mg/L.

Plate 1: Aquifer units in eastern Oregon. Shows Section line B-B'.
Plate 2: Geologic cross sections of aquifer units in eastern Oregon. Section B-B' runs north-south from the Columbia River between Irrigon and Umatilla south to Black Mountain.
Plate 3: Ground-water-level contours and distribution of irrigation, industrial, and public supply wells in eastern Oregon.
Plate 4: Concentrations of total dissolved solids in ground water and in selected lakes in eastern Oregon.

14. Report to the Governor Umatilla Basin Ground Water Task Force, 1986,
Report provides a list of recommendations and conclusions concerning surface and groundwater problems in the Umatilla River Basin-primarily the problem of inadequate water supply and declining groundwater levels. The report addresses management alternatives (critical areas, conservation practices and groundwater recharge programs) but does not describe quantitatively groundwater usage in the basin. Management concerns are includes in the report.

15. Collins, C.A., 1987, Ground-water pumpage from the Columbia Plateau regional aquifer system, Oregon, 1984: U.S. Geological Survey, WRI Report 86-4211, 21 p., 1 Plate, 6 Figures, 2 Tables.

Study area: 8,000 square miles in north central Oregon (parts of Sherman, Gilliam, Wheeler, Morrow and Umatilla Counties).

Scope: Pumpage data were collected from irrigation, industrial, and public supply users and analyzed as part of the Columbia Plateau Regional Aquifer System Analysis (RASA) study. Annual pumpage for 1984 was computed from field data collected in February 1984 to February 1985. Data were collected rom flowmeter readings, power-consumption rates (if available), or from irrigated acreage data using an areally adjusted application rates.

Figure 2, p. 6, shows the relation between 1984 power consumption and pumpage for basalt wells. The equation of best-fit through the plotted points (r=0.95) was used to estimate pumpage. Figure 3 shows the best-fit for wells constructed in the alluvial aquifer.

Tabulation of groundwater pumpage in acre-feet per year in the Umatilla River basin (exerpt by K.Ely). Pumpage estimates shown on Plate 1 as a range by quarter township blocks (about 9 square miles each).

USGS WRI 86-4211 Groundwater pumpage in acre-feet per year by quarter-township blocks.

	Quantity	Range				Total
Overburden Unit	1	5000	5000 +		5000	5000
(Alluvial Material)	1	3000	4999		3000	4999
		1000	2999		0	0
	1	500	999		500	999
	1	100	499		100	499
		20	99		0	0
					8600	11497
					AVERAGE	**10049**

	Quantity	Range			Total	
Saddle Mountain		5000	5000 +		0	0
(CRBG)		3000	4999		0	0
		1000	2999		0	0
		500	999		0	0
	8	100	499		800	3992
	3	20	99		60	297
					860	4289
					AVERAGE	**2575**

	Quantity	Range				Total
Wanapum		5000	5000 +		0	0
(CRBG)	2	3000	4999		6000	9998
	7	1000	2999		7000	20993
	5	500	999		2500	4995
	22	100	499		2200	10978
	8	20	99		160	792
					17860	47756
					AVERAGE	**32808**

	Quantity	Range				Total
Grande Ronde		5000	5000 +		0	0
(CRBG)	2	3000	4999		6000	9998
	11	1000	2999		11000	32989
	9	500	999		4500	8991
	37	100	499		3700	18463
	10	20	99		200	990
					25400	71431
					AVERAGE	**48416**

	Quantity	Range				Total
Combined Units	1	5000	5000 +		5000	5000
(Alluvium + CRBG)	7	3000	4999		21000	34993
	18	1000	2999		18000	53982
	16	500	999		8000	15984
	29	100	499		2900	14471
	9	20	99		180	891
					55080	125321
					AVERAGE	**90201**

16. Davies-Smith, A., E.L. Bolke, and C.A. Collins, 1988, Geohydrology and digital simulation of the ground-water flow system in the Umatilla Plateau and Horse Heaven Hills area, Oregon and Washington, USGS WRI Report 87-4268, 72 p.

Study Area: 5,800 square miles in northeastern OR (3,800 mi2) and southeastern WA.

Geohydrologic units (aquifers) from youngest to oldest (Holocene to Miocene):
Layer 1. Unconsolidated sediments, max thickness 150 ft (Holocene-Miocene;
Layer 2. Saddle Mountains Basalt, max thickness 800 ft, 3 members/2 interbeds;
Layer 3. Wanapum Basalt, max thickness 1,000 ft, 3 members+3 interbeds; and
Layer 4: Grande Ronde Basalt, >8,000 ft thick; Vantage interbed.

Groundwater pumpage (p. 23)
Flow meter data available from OWRD beginning in late 1970's to present; statistical relation was between power consumption and volume of water pumped. This relation was used to estimate pumpage from the power records of unmetered wells.

Power records: Pacific Power and Light, Columbia Basin Electrical Coop, Umatilla Electric Coop Assoc (monthly); well inspectors power-meter record.
Period of record: 1976-1982 for 30% of irrigation wells.

Figure 11b: Groundwater pumpage from irr, ind, and muni wells delineated by geohydrologic unit. Appears that most of layer 1 development occurred between 1970 and 1979, and peaked in 1979 without new development to 1982. (Basalt well development trends differ however.)

Other records:
1. OWRD water-rights records.
2. US Corps of Engineers/USGS Cooperative study, EROS Data Center, Columbia River and tribs irr-withdrawals analysis project (Johnson and others, 1981, executive summary, US ACE, Portland Dist CRT-45, 18 p.; Descriptive Notes, CRT-46, 262 p.).
3. OSU, Corvallis, Landsat-based vegetation and land-use inventory for five Columbia Basin counties in OR, final rept. Environmental Remote Sensing Applications Lab (ERSAL), 39 p. and appendix.
4. Umatilla Electric Cooperative Association, July 1981, Irrigation Study: 750 W. Elm St., Hermiston, OR, 97838, 27 p.
5. Collins, Charles A., 1987, Ground-water pumpage from the Columbia Plateau regional aquifer system, OR 1984: USGS WRI 86-4211, 12 p.

Steady state and transient model (MODFLOW)
(3D, finite-difference numerical model, Strongly Implicit Procedure)
Layer 1 (p.33) covers LUB with 35 active nodes and 5 stream nodes
(18-active and 5-stream nodes are in study area)

Steady state (p.51) calibrated to pre-1950 gw development, streamflow analysis (p. 51), gains/losses in Columbia River, Umatilla River and tribs. Inflow/Outflow as recharge, leakage

from streams, and boundaries. Transient Analysis (p. 52) with 33 stress periods between 1950 - 1982.

Estimated range/average aquifer coefficients for Layer 1 (p. 69):

Storage Coefficient (calibrated from transient state) = 0.15
(initial estimate = 0.25)
Transmissivity (calibrated from transient state) = 0.5 to 2 ft^2/sec.
Vertical conductivity (k/b, calibrated from transient state) = $5x10^{-10}$ - $1x10^{-11}$/sec

Findings from transient analysis for the period 1952 - 1980:

1. Return flow from surface irrigation increased to about 36 cfs or about 26,100 ac-ft/yr (p. 69).
2. Groundwater leakage to streams decreased by about 42 cfs or about 30,400 ac-ft/yr (p. 69).
3. Leakage from streams increased by about 17 cfs or about 12,300 ac-ft/yr (p. 69).
4. Max pumpage for 1 year at any one node was about 4 ft per acre with about 70 % of this water simulated as return flow to Layer 1 (p. 54).

17. Zwart, Michael J., 1990, Groundwater conditions in the Stage Gulch Area, Umatilla County, OR: Oregon Water Resources Dept., Ground Water Report No. 35; 44 p. (text), 144 p (Appendices), 4 Plates.

The Stage Gulch study area borders the Butter Creek critical groundwater area to the west and covers about 252 square miles. The cities of Standfield, Echo and most of Hermiston are included in the Stage Gulch area. All of the Stanfield irrigation district and most of Hermiston ID, portions of both Westland and Teel IDs, most of Echo and Umatilla Meadows, and Cold Springs Reservoir are included in the Stage Gulch area.

There are water rights for about 50,000 acres of primary and supplemental irrigation from all ground water sources in the study area. About 28,000 of these irrigated acres are from basalt-aquifer sources and remainder from alluvial aquifers. Pumpage from the basalt aquifer has decreased from 36,200 ac-ft in 1980 to about 30,700 ac-ft in 1989.

Plate 1: Generalized potentiometric surface of basalt aquifers in the Stage Gulch area, Feb 1990. General groundwater-flow direction is westerly.

Plate 2: Water level decline in the Stage Gulch area, 1965 to 1980. Water-level declines range from 28 ft (E-SE area, E/o Umatilla River) to 167 ft (W-SW area, lower Spikes Gulch, W/of Umatilla River; and 104-ft decline in central area, E/of Umatilla River).

Plate 3: Water level decline in the Stage Gulch area, 1980 to 1990. Water-level decline has magnified relative to previous period in Plate 2. The additional declines range from 16 (S-SE area, E/of Umatilla River) to 183 ft (S-SW area, W/of Umatilla River; 78-ft decline in City of Stanfield area).

Plate 4: Aquifer test locations, groundwater age determinations, and groundwater barrier locations in the Stage Gulch area.

Appendix A: Stage Gulch Proclamation.
Appendix B: Groundwater rights.
Appendix C: Records of representative wells, basalt aquifers.
Appendix D: Water level data.
Appendix E: Hydrographs of selected wells.
Appendix F: Division 8 rules.

18. Montgomery, James M. Consulting Engineers, Inc., 1990, Shallow Groundwater Artificial Recharge Study; prepared for U.S. Bureau of Reclamation, Lower Umatilla River Basin, 68 p., 3 Figs, 2 Appendices.

Study: Shallow groundwater recharge, phased plan of implementation for development of pilot-scale and full-scale recharge facilities.

Well-log information evaluated to define physical boundaries of glacialfluviatile sediments. Annual pumpage from the shallow sedimentary aquifers in the Hermiston-Ordnance vicinity is estimated to be 23,500 af (JMM, 1985). Average yield is about 1,800 gpm; range is from 400 to 3000 gpm. Lower yielding wells are thought to be poorly constructed; therefore, average yield is better reflected by the high-yield wells.

Groundwater-flow velocities: $v = (Ki)/n \sim 2$ to 3 ft/day

K, Hydraulic conductivity (estimated from well-log info),
Specific Capacity = Q/s' ~ 1500 gpm/15 ft = 100 gpm/ft,
Transmissivity ~ 100,000 - 150,000 gpd/ft.
Thickness ~ 50 ft
Hydraulic conductivity ~ 300 ft/day
i, Gradient ~ 10 ft/mile = 0.002
n, Porosity ~ 25 %

Umatilla Return Flow Study, 1987: River gains about 35 - 65 cfs during the irrigation season from about river mile 9 on down to Columbia River, and may lose from river mile 12 and up from Cottonwood Bend area.

CLWID Project: Storage benefit from recharge projects is estimated from aquifer volume and porosity -- shallow groundwater area = 30 mi^2 and porosity = 0.25 -- an addition of 5,000 af would produce about a 1 ft rise in groundwater level.

Estimated canal leakage: A-Line canal near Lamb Weston factory is estimated at 20 ft/day and 30 ft/day from County Line recharge canal (WID district manager, oral communication, experience in monitoring infiltration losses).

Appendix A, Table A-1: Current average use of County Line recharge canal in af/day based on 6 years of diversion-flow data in the 1980's.

19. Zwart, Michael J., 1991, Alternative strategies for groundwater management in the Stage Gulch area, Umatilla County, OR: Oregon Water Resources Dept., Ground Water Open File Report No. 91-01, 31 p., 1 plate (in back), 2 appendices.

OWRD proceeding initiation (ORS 537.730) for the determination of a critical groundwater area for the *basalt reservoir* in the Stage Gulch area began in 1985. Text includes discussion on OWRD rules and administration re: withdrawals and designation of a critical groundwater area classification; average pumping, sustainable annual yield, and calculation of sustainable yield (Appendix B).

Plate 1 shows the proposed boundaries of 12 subareas within the Stage Gulch critical Groundwater area. (The study area for the lower Umatilla basin model being developed by CH2M Hill is coincident with all 12 subareas.)

Selected references include three unpublished reports:
1. Oberlander, P.L., and Miller, D.W., 1981, Hydrologic studies in the Umatilla structural basin: Water Resources Department, unpub report, Salem, Oregon.
2. Sceva, J.E., 1966, A brief description of the ground-water conditions in the Ordnance area, Umatilla and Morrow Counties, Oregon: Oregon State Engineer, unpub report, Salem, Oregon.
3. Zwart, M.J., 1984, A summary of ground water conditions in the Umatilla structural basin: Water Resources Department, unpub report, Salem, Oregon.

20. U.S. Bureau of Reclamation, 1993, Land Classification report for expansion of Stanfield Irrigation District, Westland Irrigation District and West Extension Irrigation District, supplement to 1970 Lands Appendix, Umatilla Basin Project, Oregon: US Dept. of Interior, USBR, Boise, ID, 105 p. 4 Appendices, 3 Land classification maps in pocket.

Study: Update land classification for center-pivot irrigation. The proposed expansion area (outside of recognized district land) requires classification as a pre-requisite to approving delivery of Federally developed water supplies.

Evaluations: Trace-element assessment of soil (Appendix B), soil-drainage report (Appendix C), and economic analyses (Appendix D).

Table 1: Land classification specifications.
Table 2: Irrigated lands by land class.
Acreage summaries (Appendix A).

Supplement to 1970 Lands classification report.

21. Gonthier, J.B., and E.L. Bolke, 1993, Summary appraisal of water resources of the Umatilla Indian Reservation: US Geological Survey, WRI Report 91-4087, 54 p.

22. Whiteman, K.J., J.J. Vaccaro, J.B. Gonthier, and H.H. Bauer, 1994, The hydrogeologic framework and geochemistry of the Columbia Plateau Aquifer System: U.S. Geological Survey, Professional Paper 1413-B, 73 p.

23. Hansen, A.J. Jr., J.J. Vaccaro, and H.H. Bauer, 1994, Ground-water flow simulation of the Columbia Plateau Regional Aquifer System, Washington, Oregon, and Idaho: U.S. Geological Survey, WRI Report 91-4187, 81 p., 15 Plates, 10 Figures, and 10 Tables.

24. Grondin, Gerald H. (DEQ), Wozniak, Karl C. (OWRD), Nelson, Dennis O. (OHD), and Camancho, Ivan (DEQ), 1995, Hydrogeology, groundwater chemistry and land uses in the lower Umatilla Basin Groundwater Management Area, Northern Morrow and Umatilla Counties, Oregon (final draft review): Oregon Dept. of Environmental Quality.

Executive Summary: 8 p.
Chapter 1, Investigative Overview: 87 p. 13 Figures, 10 Tables, 3 Appendices
Chapter 2, Hydrogeology: 85 p. 25 Figures, 4 Tables, 3 Appendices, 6 Plates
Chapter 3, Land Use and Nitrogen Loading: 1 Figure, 12 Tables, 13 Appendices, 7 Plates
Chapter 4, Groundwater Chemistry: 315 p., 97 Figures, 40 Tables, 8 Appendices, 13 Plates
References: 33 p.

25. Montgomery, James, M. Consulting Engineers, Inc., 1997, Water resource investigations within the Umatilla River Basin, for US Dept. of Interior, Bureau of Reclamation, PN Region, Boise, ID, 128 p., 13 Figs, 1 Plate, 5 Appendices.

Study Area: Umatilla River drainage basin, 2,300 mi^2.

Study Sub-Areas: Upper basin and tributaries within and above Umatilla Indian Reservation. Lower basin below, WID Diversion Dam, river mile 28.

Study: Evaluation of micro-storage potential -- mainstem storage, tributary storage, offstream storage -- shallow aquifer recharge potential in the lower Umatilla Basin.

Artificial Recharge Potential (Part II): Figure 12: Potential artificial recharge areas--criteria based on permeability of material, areal extent and thickness of aquifer and proximity to river. Majority of recharge to aquifer in Ordnance area is from artificial sources (canal leakage, artificial recharge) with minor recharge from precipitation.

County Line Water Improvement District: CLWID--about 6,000 acres located in Lost Lake/Ordnance region--surrounds an artificial recharge project. Artificial recharge through 2.5 miles of "leaky" canal averages about 5,600 af per year up to 6,000 af.
Measurement gage located at end of buried pipeline and beginning of canal.

Appendix E: King, Gary, 1987, Groundwater report, potential for groundwater recharge, lower Umatilla River Basin, OR: USBR, Division of Design and Construction, Geology Branch, Boise, ID, 33p.

Figure 3, Groundwater pumping in af per quarter township from "basalt" and "sediment" aquifers (after Collins, 1984, USGS). Total pumping from the sediment and basalt aquifers is 31,500 and 59,500 af per year, respectively.

Figure 5, Map showing lines of equal water-level decline in basalt aquifer, 1985. Figure 6, Map showing active and inactive gravel pits.

26. CH2M Hill, 1999, Hydrologic model development lower Umatilla River Basin: U.S. Bureau of Reclamation, Study Report, 200 p., 14 Appendices, 14 Tables, 20 Figures.

27. Ely, Kate, 2001, Hydrogeology in the vicinity of Tribal Municipal Well 2: Confederated Tribes of the Umatilla Indian Reservation, unpublished, 17 p. 16 Figs, 4 Appendices.

Study Area: Mission community, upper Umatilla Basin.

Study: Assess the distribution, availability, and water-quality characteristics of groundwater in the vicinity of Tribal Municipal Well 2. A seven-day constant discharge and a seven-day recovery aquifer test was conducted on Tribal MW 2 in May 1999. Water level measurements and water-quality samples were collected from a nearby monitoring well completed in the same aquifer as the pumped well and from seven additional monitoring wells. Data collected from these wells and the pumped well were used to identify flow boundaries and compute aquifer coefficients of transmissivity (T) and storage (S). Results from the aquifer test, analysis of water-quality data, and interpretation of driller well logs were used to characterize the aquifers in the study area.

Findings

1. Computed values of T ranged between 6,200 and 10,500 gpd/ft, with an average of 9,200 gpd/ft. Computed values of S ranged three orders of magnitude from 0.04 (semi-confined aquifer) to 0.00004 (highly confined aquifer) with an average value of 0.001 (confined aquifer). The high variability in S is due to the presence of flow boundaries identified during testing in the Mission area. (Both barrier and recharge boundaries have a modifying effect on the magnitude of water-level drawdown in wells.) A value of S = 0.001 probably best represents intermediate-depth aquifer storage coefficient in the Mission area.

2. Water quality typing of major ions in water appears to be a useful technique in identifying flow systems in the alluvial and basalt aquifers. Water-quality typing permitted delineation of different aquifers in the Mission area. The older the water source, the more prevalent the cation-anion exchange. Local flow systems ("young" meteoric waters) are calcium-magnesium-bicarbonate type; intermediate to regional flow systems (older waters) range from sodium-bicarbonate to sodium-chloride type.

Date: Fri, 31 May 1996 08:04:38 -0700
X-Sender: devyldbj@mailhub.wrd.state.or.us
To: Michael.F.LADD@wrd.state.or.us
From: Bob DeVyldere <Bob.J.DEVYLDERE@wrd.state.or.us>
Subject: First wave of reports
X-Attachments: M:\UMATILLA\BIRCH.WPD; M:\UMATILLA\BUTTER.WPD;
M:\UMATILLA\MCKAY.WPD; M:\UMATILLA\MISSION.WPD;
M:\UMATILLA\NFK.WPD;
M:\UMATILLA\SFK.WPD; M:\UMATILLA\TUTUILLA.WPD;
M:\UMATILLA\UMAT.WPD;
M:\UMATILLA\WILD.WPD;
X-UIDL: 5360cd883acdb1ea90a9c03c16094083

Mike -

Here is the first wave of reports for the Umatilla stuff. I am still working on the miscellaneous report. Hopefully will have it done today as
well. I am including the files as attachments in a Windows WordPerfect
format. Let me know if you have any questions or if we need to do them
differently.

The Squaw Creek report came up with no rights. Does that seem right or do
we have some database problems?

Attachment Converted: C:\EUDORA\LADDMF\BIRCH.WPD

Attachment Converted: C:\EUDORA\LADDMF\BUTTER.WPD

Attachment Converted: C:\EUDORA\LADDMF\MCKAY.WPD

Attachment Converted: C:\EUDORA\LADDMF\MISSION.WPD

Attachment Converted: C:\EUDORA\LADDMF\NFK.WPD

Attachment Converted: C:\EUDORA\LADDMF\SFK.WPD

Attachment Converted: C:\EUDORA\LADDMF\TUTUILLA.WPD

Attachment Converted: C:\EUDORA\LADDMF\UMAT.WPD

Attachment Converted: C:\EUDORA\LADDMF\WILD.WPD

Kate,

Here is what I have so far. See how it looks & let me know. I'll forward others when I get it.

5/30/1996

Summary of quantities for the tributaries of Birch Creek***

/ Non-Canceled rights only \
/ Primary diversions only \
/ Groundwater rights not included \
/ Surface water rights included \
/ Reservoir rights included \

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
			BIRCH CR > UMATILLA R				
2565	D 2565	JINKINS	0 0 0	I*	12/31/1867	BIRCH CR	0.080 CFS
54769	D 2579	MALE	0 0 0	I*	12/31/1867	BIRCH CR	0.685 CFS
2543	D 2543	HEMPHILL	0 0 0	I*	12/31/1870	BIRCH CR	0.730 CFS
49213	D 2530	CONDRA	SENE 4 1S 32E	I*	12/31/1870	BIRCH CR	0.760 CFS
2556	D 2556	INGRAM	0 0 0	I*	12/31/1872	BIRCH CR	0.250 CFS
2566	D 2566	JENSEN	0 0 0	I*	12/31/1873	BIRCH CR	0.370 CFS
56171	D 2534	GUDERIAN	NWSE 22 1N 32E	I*	12/31/1873	BIRCH CR	1.450 CFS
2626	D 2626	STRAUGHAN	0 0 0	I*	12/31/1876	BIRCH CR	0.940 CFS
2499	D 2499	BYRD	0 0 0	I*	12/31/1877	BIRCH CR	0.500 CFS
2585	D 2585	MCBEE	0 0 0	I*	12/31/1880	BIRCH CR	1.060 CFS
2540	D 2540	HASCALL	0 0 0	I*	3/ 1/1885	BIRCH CR	0.320 CFS
2541	D 2541	HASCALL	0 0 0	I*	3/ 1/1885	BIRCH CR	0.170 CFS
2542	D 2542	HASCALL	0 0 0	I*	12/31/1886	BIRCH CR	0.200 CFS
2563	D 2563	JANES	0 0 0	I*	12/31/1886	BIRCH CR	0.050 CFS
56170	D 2497	BUSH	NWSE 22 1N 32E	I*	12/31/1889	BIRCH CR	0.434 CFS
2529	D 2529	GIENGER	33 1N 32E	I*	2/20/1890	BIRCH CR	0.750 CFS
46937	D 2623	SPARKS	NESE 9 1N 32E	I*	12/31/1890	SPRS	0.010 CFS
53121	D 2581	MANNING	0 0 0	I*	12/31/1890	BIRCH CR	0.220 CFS
0	CD 2610	PENDLETON COUNTRY CLUB INC.	SENW 15 1N 32E	IR	12/31/1894	BIRCH CR	0.030 CFS
56172	D 2610	ROCKWELL	NWSE 22 1N 32E	I*	12/31/1894	BIRCH CR	0.270 CFS
53264	D 2567	MCBROOM	SENW 19 2N 32E	I*	12/13/1895	BIRCH CR	1.000 CFS
2622	D 2622	HEIRS OF JOHN SOUTHWELL	0 0 0	I*	12/31/1895	BIRCH CR	0.380 CFS
54765	D 2614	WEINKE	NESW 27 1N 32E	I*	12/31/1895	BIRCH CR	0.310 CFS
2618	D 2618	SLOAN	0 0 0	I*	10/31/1902	BIRCH CR	0.810 CFS
2499	D 2499	BYRD	0 0 0	I*	12/31/1903	BIRCH CR	0.990 CFS
0	DN1443127	MCGOWAN	0 0 0	IR	12/31/1904	BIRCH CR	0.0000
2544	D 2544	HEMPHILL	0 0 0	I*	12/31/1904	BIRCH CR	0.780 CFS
2564	D 2564	JACQUES	0 0 0	I*	12/31/1904	BIRCH CR	0.290 CFS
2616	D 2616	SHERMAN	0 0 0	I*	12/31/1904	BIRCH CR	0.720 CFS
49213	D 2530	CONDRA	SENE 4 1S 32E	I*	12/31/1905	BIRCH CR	0.0000
2566	D 2566	JENSEN	0 0 0	I*	12/31/1907	BIRCH CR	0.500 CFS
2590	D 2590	NEWQUIST	0 0 0	I*	5/31/1908	BIRCH CR	0.630 CFS
54766	D 2579	WEINKE	NESW 27 1N 32E	IR	12/31/1908	BIRCH CR	0.125 CFS
54767	D 2579	HOEFT	SENW 27 1N 32E	IR	12/31/1908	BIRCH CR	0.250 CFS
54768	D 2579	HOEFT	SENW 27 1N 32E	IR	12/31/1908	BIRCH CR	0.380 CFS
2934	D 2525	MCLEAN	0 0 0	I*	5/31/1909	BIRCH CR	0.030 CFS
64211	S 396	BIRCH CREEK DITCH COMPANY IN	SWNW 10 1N 32E	IR	7/28/1910	BIRCH CR	0.695 CFS
64212	S 396	PETERSON	NWSW 33 2N 32E	IR	7/28/1910	BIRCH CR	0.220 CFS
64213	S 396	MCDANIEL	SWNE 4 1N 32E	IR	7/28/1910	BIRCH CR	0.355 CFS
53264	D 2567	MCBROOM	SENW 19 2N 32E	I*	12/31/1910	BIRCH CR	1.000 CFS
783	S 730	OREGON-WASHINGTON RAILROAD &	8 1S 32E	DS	6/23/1911	UNN SPR	0.013 CFS
932	S 1022	STRAUGHN	0 0 0	IR	1/ 2/1912	BIRCH CR	0.150 CFS
54764	S 5067	WEINKE	NESW 27 1N 32E	IR	3/30/1921	BIRCH CR	0.130 CFS
11548	S 11576	HOEFT	NWSW 34 1N 32E	IR	2/22/1935	BIRCH CR	0.230 CFS
11563	S 12000	EASTERN OREGON STATE HOSPITA	NESW 19 2N 32E	IR	10/25/1935	BIRCH CR	0.500 CFS
11565	S 12026	HOEFT	NWSW 34 1N 32E	IR	1/ 7/1936	BIRCH CR	0.200 CFS
12380	S 12045	STRAUGHAN	SWNW 33 2N 32E	IR	1/22/1936	BIRCH CR	0.300 CFS
12406	S 12629	HOEFT	NWSW 34 1N 32E	IR	5/ 4/1937	BIRCH CR	0.260 CFS
13399	S 12666	ELLENBERGER	NENE 17 1S 32E	IR	5/27/1937	BIRCH CR	0.470 CFS
14014	S 14222	PILOT ROCK LUMBER CO.	SWSW 9 1S 32E	IM	3/ 5/1940	BIRCH CR	1.000 CFS
24340	S 22267	KORVOLA	SWNW 29 2N 32E	IR	5/ 6/1953	BIRCH CR	1.320 CFS
24498	R 1530	OREGON FIBRE PRODUCTS INC.	5 1S 32E	IR	10/30/1953	WASTE WATER	350.000 AFT
24499	S 22473	OREGON FIBRE PRODUCTS INC.	SWNW 9 1S 32E	IR	10/30/1953	WASTE WATER/RE	700.000 AFT
23821	S 24144	OREGON DEPARTMENT OF CORRECT	SWNE 13 2N 31E	IR	4/ 5/1956	BIRCH CR	0.150 CFS
51169	S 24830	HOEFT	SENW 27 1N 32E	IR	1/29/1957	BIRCH CR	1.960 CFS
54119	S 24830	HOEFT	SENW 27 1N 32E	IR	1/29/1957	BIRCH CR	0.380 CFS
41258	S 29330	JOHNS SMITH & BEAMER	NWSE 13 2N 31E	IR	3/11/1964	BIRCH CR	0.780 CFS
40940	S 32132	PETERSON	NWSW 33 2N 32E	IR	11/ 7/1966	BIRCH CR	0.580 CFS
42344	S 32314	HACHLER	SWSE 31 2S 31E	IR	1/24/1967	BIRCH CR	0.290 CFS
52682	S 39341	HEMPHILL	NWSE 4 1S 32E	IR	8/ 9/1974	BIRCH CR	0.450 CFS
0	S 41823	HOEFT	NWNW 15 1N 32E	IR	3/ 9/1977	BIRCH CR	0.730 CFS
							28.637 CFS
							1050.000 AFT

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
			UNN STR > BIRCH CR				
12678	D 12678	FIELDS	6 6N 36E	ID	12/31/1906	UNN STR	0.112 CFS
						0.112 CFS	
			UNN STR > BIRCH CR				
70614	R 101825	PETERSON	NENE 30 2N 32E	LW	1/ 3/1993	SPRS/KORVOLA R	1.600 AFT
						1.600 AFT	
			UNN STR > BIRCH CR				
990	S 885	SPARKS	NESW 5 1N 32E	DO	10/ 4/1911	A SPR	0.130 CFS
						0.130 CFS	
			GEORGE CAN > BIRCH CR				
5806	S 6558	OWEN	SWNE 21 1N 32E	IR	10/ 7/1924	2 UNN SPRS	0.100 CFS
						0.100 CFS	
			UNN STR > GEORGE CAN				
70615	R 101826	PETERSON	SWNE 16 1N 32E	LW	1/ 3/1993	GEO CAN/RES 1	0.270 AFT
70615	R 101826	PETERSON	SENE 16 1N 32E	LW	1/ 3/1993	GEO CAN/RES 2	3.200 AFT
70615	R 101826	PETERSON	SESE 17 1N 32E	LW	1/ 3/1993	GEO CAN/RES 3	0.520 AFT
70615	R 101826	PETERSON	SWSW 16 1N 32E	LW	1/ 3/1993	GEO CAN/RES 4	0.320 AFT
70819	R 102030	WENDLER	SENW 20 1N 32E	LW	1/ 3/1993	SPRS/RES 1	1.250 AFT
70819	R 102030	WENDLER	NENW 20 1N 32E	LW	1/ 3/1993	SPRS/RES 2	1.250 AFT
70819	R 102030	WENDLER	SWNE 20 1N 32E	LW	1/ 3/1993	SPRS/RES 3	1.250 AFT
70819	R 102030	WENDLER	SWNE 20 1N 32E	LW	1/ 3/1993	SPRS/RES 4	1.250 AFT
						9.310 AFT	
			UNN STR > GEORGE CAN				
2485	D 2485	BAIN	SWSW 28 1N 32E	I*	12/31/1879	A SPR	0.070 CFS
						0.070 CFS	
			STEWART CR > BIRCH CR				
2537	D 2537	FOR WARD SMITH	SESW 3 1S 32E	I*	12/31/1870	STEWART CR	0.090 CFS
2550	D 2550	HORN	NWSE 24 2S 32E	I*	12/31/1870	STEWART CR	0.150 CFS
2932	D 2532	GILLILAND	0 0 0	I*	12/31/1879	STEWART CR	0.460 CFS
2915	S 4646	JENNINGS	0 0 0	IR	5/ 3/1920	STEWART CR	0.310 CFS
20861	S 18787	HORN	SENE 23 1S 32E	IR	6/17/1949	STEWART CR	0.380 CFS
						1.390 CFS	
			W BIRCH CR > BIRCH CR				
2508	D 2508	CUMMINGHAM SHEEP & LAND CO.	25 1S 31E	I*	12/31/1865	W BIRCH CR	0.070 CFS
2647	D 2647	WILLSON	25 1S 31E	I*	3/30/1874	W BIRCH CR	0.130 CFS
2508	D 2508	CUMMINGHAM SHEEP & LAND CO.	25 1S 31E	I*	12/31/1880	W BIRCH CR	0.610 CFS
2639	D 2639	WAUGH	19 1S 32E	I*	12/31/1880	W BIRCH CR	0.250 CFS
0	DN 324113	LIVESTOCK CO.	SWNE 2 2S 31E	IL	12/31/1881	BEAR CR	1.570 CFS
2636	D 2636	WARNER	25 2S 31E	I*	6/30/1886	W BIRCH CR	0.340 CFS
2493	D 2493	BOYLEN	1 2S 31E	I*	12/31/1887	W BIRCH CR	0.690 CFS
2488	D 2488	BELTS	SESW 17 1S 32E	I*	12/31/1890	WEST BIRCH CR	0.060 CFS
2647	D 2647	WILLSON	25 1S 31E	I*	12/31/1890	W BIRCH CR	0.900 CFS
2500	D 2500	CABLE	11 2S 31E	I*	12/31/1892	W BIRCH CR	0.360 CFS
2639	D 2639	WAUGH	19 1S 32E	I*	12/31/1892	W BIRCH CR	0.250 CFS
2563	D 2563	JANES	19 2S 32E	I*	4/30/1895	W BIRCH CR	0.090 CFS
2524	D 2524	FLETCHER	4 3S 32E	I*	11/30/1895	W BIRCH CR	0.250 CFS
2522	D 2522	FIEDLER	SENE 5 3S 32E	I*	4/30/1898	W BIRCH CR	0.100 CFS
2521	D 2521	FIEDLER	NENW 9 3S 32E	I*	5/31/1898	W BIRCH CR	0.050 CFS
0	DN 324113	LIVESTOCK CO.	0 0 0	IL	12/31/1899	WEST BIRCH CR	0.780 CFS
2521	D 2521	FIEDLER	NWNE 9 3S 32E	I*	5/31/1908	W BIRCH CR	0.120 CFS
2638	D 2638	WARNER	SENW 9 3S 32E	I*	5/31/1908	W BIRCH CR	0.080 CFS
2505	D 2505	CLINE	SWNW 4 3S 32E	I*	12/31/1908	W BIRCH CR	0.100 CFS
2630	D 2630	THOMAS	SWNW 16 3S 32E	I*	12/31/1908	W BIRCH CR	0.050 CFS
2639	D 2639	WAUGH	19 1S 32E	I*	12/31/1909	W BIRCH CR	0.220 CFS
706	E 46	BOYLEN	NENW 13 2S 31E	IR	4/23/1910	W BIRCH CR	1.250 CFS

Cert #	Permit	Name	Location			Use	Priority	Source	Quantity
798	S 891	CABLE	12	2S	31E	IR	8/31/1911	W FK BIRCH CR	0.300 CFS
3262	S 4418	J E SMITH LIVESTOCK CO.	NWSW 1	2S	31E	IR	1/30/1920	W BIRCH CR	0.190 CFS
8418	S 6637	HOEFT	NENW 30	1S	32E	IR	1/ 8/1925	W BIRCH CR	0.300 CFS
9779	S 8842	FALCONER	NWSW 1	2S	31E	IR	12/16/1928	W FK BIRCH CR	1.230 CFS
15571	S 12562	TEMPLE	NWNE 23	2S	31E	IR	3/ 1/1937	W BIRCH CR	0.860 CFS
15583	S 13910	MERKLING	NENW 9	3S	32E	IR	7/ 6/1939	2 SPRINGS	0.040 CFS
13820	S 14652	HASCALL	SESW 19	2S	32E	DO	10/19/1940	A SPR	0.010 CFS
32349	S 27002	HOEFT	NWSE 19	1S	32E	IR	8/29/1960	W BIRCH CR	1.000 CFS
32349	S 27002	HOEFT	NWSE 19	1S	32E	IR	10/17/1960	W BIRCH CR	0.770 CFS
44226	S 29261	LOW	NWSW 36	1S	31E	IR	12/ 9/1963	A SPR	0.220 CFS
0	S 40301	COLCORD	NWSE 9	3S	32E	DI	4/ 9/1975	SPRING #2	0.020 CFS
0	S 40301	COLCORD	NWSE 9	3S	32E	IR	4/ 9/1975	UNN STR 1	0.500 CFS
0	S 40301	COLCORD	NWSE 9	3S	32E	IR	4/ 9/1975	UNN STR 2	0.500 CFS
0	R 11027	U.S. UMATILLA NATIONAL FORES	SENE 13	3S	32E	LW	10/ 3/1983	UNN STR/POND 6	0.070 AFT
0	R 11027	U.S. UMATILLA NATIONAL FORES	NENE 14	3S	32E	LW	10/ 3/1983	UNN STR/POND 6	0.050 AFT
									14.260 CFS
									0.120 AFT
		UNN STR > W BIRCH CR							
0	R 11020	U.S. UMATILLA NATIONAL FORES	NESW 28	3S	32E	LV	10/ 3/1983	UNN STR/POND 7	0.060 AFT
0	R 11020	U.S. UMATILLA NATIONAL FORES	NESE 29	3S	32E	LV	10/ 3/1983	UNN STR/POND 8	0.050 AFT
0	R 11021	U.S. UMATILLA NATIONAL FORES	SENE 20	3S	32E	LV	10/ 3/1983	UNN STR/POND 9	0.030 AFT
0	R 11023	U.S. UMATILLA NATIONAL FORES	NWSE 32	3S	32E	LV	10/ 3/1983	UNN STR	0.170 AFT
									0.310 AFT
		UNN STR > JACK CAN							
70569	R 101780	CUNNINGHAM SHEEEP & LAND CO.	NWNW 29	1S	31E	LW	1/ 3/1993	RUNOFF/CASTEEL	1.070 AFT
									1.070 AFT
		UNN STR > W BIRCH CR							
1655	S 1361	CAMPBELL	SESW 30	1S	32E	IR	4/17/1912	UNN STR	0.580 CFS
									0.580 CFS
		BEAR CR > W BIRCH CR							
7328	S 6149	BOYD	SWNE 21	2S	31E	IR	1/ 9/1924	BEAR CR	0.250 CFS
44227	S 34906	LOW	SWNE 10	2S	31E	IR	2/13/1970	BEAR CR	0.480 CFS
63482	R 10021	U.S. UMATILLA NATIONAL FORES	NENW 5	4S	32E	LW	3/ 1/1982	BEAR CR	0.020 CFS
									0.750 CFS
		OWINGS CR > BEAR CR							
2516	D 2516	EDWARDS	20	2S	31E	I*	12/31/1880	OWINGS CR	0.730 CFS
11064	S 9487	J E SMITH LIVESTOCK CO.	NENE 16	2S	31E	DO	1/18/1930	UNN SPR	0.020 CFS
									0.750 CFS
		WILLOW SPR CAN > OWINGS CR							
2643	D 2643	WHITAKER	18	3S	31E	I*	12/31/1885	WILLOW SPR CAN	0.020 CFS
2594	D 2594	BY H BOYLEN, GUARDIAN	20	2S	31E	I*	12/31/1898	WILLOW SPR CAN	0.380 CFS
2596	D 2596	OWINGS	SENE 19	2S	31E	I*	12/31/1898	WILLOW SPR CAN	0.250 CFS
									0.650 CFS
		UNN STR > WILLOW SPR CAN							
69783	R 100994	KROSTING	18	3S	31E	LV	1/ 3/1993	RUNOFF/RES 1	0.090 AFT
69783	R 100994	KROSTING	18	3S	31E	LV	1/ 3/1993	RUNOFF/RES 2	0.370 AFT
69783	R 100994	KROSTING	18	3S	31E	LV	1/ 3/1993	RUNOFF/RES 3	0.310 AFT
									0.770 AFT
		UNN STR > BEAR CR							
70264	R 101475	BEAR CREEK GRAZING ASSOC.	SWSW 21	2S	31E	LV	1/ 3/1993	UNN STR/RESERV	0.420 AFT
									0.420 AFT

Cert #		Permit	Name	Location				Use	Priority	Source	Quantity
				ARLIE CAN > BEAR CR							
70568	R	101779	CUNNINGHAM SHEEP & LAND CO.	NWSW	21	3S	31E	LW	1/ 3/1993	RUNOFF/CARNEY	0.200 AFT
											0.200 AFT
				UNN STR > BEAR CR							
61289	R	9351	U.S. UMATILLA NATIONAL FORES	SESE	10	1S	37E	LW	3/ 1/1982	UNN STR	0.080 AFT
											0.080 AFT
				UNN STR > BEAR CR							
70064	R	101276	U.S. UMATILLA NATIONAL FORES	SESW	33	3S	32E	LW	1/ 3/1993	RUNOFF/L STRIK	0.160 AFT
											0.160 AFT
				BRIDGE CR > W BIRCH CR							
0	S	48768	U.S. UMATILLA NATIONAL FORES	NWNW	21	3S	32E	LW	2/28/1983	BRADY FLAT	0.003 CFS
											0.003 CFS
				STANLEY CR > W BIRCH CR							
2637	D	2637	WARNER		29	2S	32E	I*	5/31/1884	STANLEY CR	0.200 CFS
2562	D	2562	JANES	SENW	19	2S	32E	I*	12/31/1885	STANLEY CR	0.040 CFS
2563	D	2563	JANES		19	2S	32E	I*	4/30/1908	STANLEY CR	0.010 CFS
3259	S	4323	GIRTON	SWSE	29	2S	32E	IR	12/ 1/1919	STANLEY CR	0.040 CFS
											0.290 CFS
				KENNY G > W BIRCH CR							
14029	S	14853	JONES	SWSE	4	3S	32E	IR	3/31/1941	KENNY G	0.270 CFS
											0.270 CFS
				SOUTH CAN > W BIRCH CR							
61272	R	9321	U.S. UMATILLA NATIONAL FORES	SWNE	20	3S	32E	LW	3/ 1/1982	SOUTH CAN	0.130 AFT
0	R	11020	U.S. UMATILLA NATIONAL FORES	SENW	28	3S	32E	LV	10/ 3/1983	UNN STR/POND 5	0.070 AFT
0	R	11020	U.S. UMATILLA NATIONAL FORES	SESW	28	3S	32E	LV	10/ 3/1983	UNN STR/POND 6	0.150 AFT
0	R	11021	U.S. UMATILLA NATIONAL FORES	SWNE	20	3S	32E	LV	10/ 3/1983	UNN STR/POND 1	0.140 AFT
0	R	11110	U.S. UMATILLA NATIONAL FORES	SESW	33	3S	32E	LV	10/ 3/1983	UNN STR/POND 1	0.079 AFT
0	R	11110	U.S. UMATILLA NATIONAL FORES	NWNW	33	3S	32E	LV	10/ 3/1983	UNN STR/POND 2	0.108 AFT
0	R	11110	U.S. UMATILLA NATIONAL FORES	NWNE	32	3S	32E	LV	10/ 3/1983	UNN STR/POND 4	0.074 AFT
0	R	11111	U.S. UMATILLA NATIONAL FORES	NWSW	27	3S	32E	LV	10/ 3/1983	UNN STR/POND 4	0.090 AFT
											0.841 AFT
				UNN STR > W BIRCH CR							
61271	R	9320	U.S. UMATILLA NATIONAL FORES	NWNW	28	3S	32E	LW	3/ 1/1982	UNN STR	0.010 AFT
											0.010 AFT
				UNN STR > W BIRCH CR							
61188	R	8646	U.S. UMATILLA NATIONAL FORES	SWNE	26	3S	32E	LW	2/24/1983	UNN STR	0.015 AFT
0	R	11111	U.S. UMATILLA NATIONAL FORES	NWNW	34	3S	32E	LV	10/ 3/1983	UNN STR/POND 1	0.054 AFT
											0.069 AFT
				E BIRCH CR > BIRCH CR							
32152	D	2486	BAKER	SWSE	33	1S	32E	I*	12/31/1870	E BIRCH CR	0.0000
38658	D	2486	BAKER	SWSE	33	1S	32E	IR	12/31/1870	E BIRCH CR	0.125 CFS
47434	D	2627	STURTEVANT		16	1S	32E	I*	12/31/1873	E BIRCH CR	0.250 CFS
2528	D	2528	GIBSON		17	2S	33E	I*	12/31/1875	E BIRCH CR	0.270 CFS
32154	D	2575	ESTATE OF; ALONZO KNOTTS, AG	NESE	4	2S	32E	I*	12/31/1875	E BIRCH CR	0.370 CFS
32403	D	2531	GILLIAM	SWSW	3	2S	32E	I*	12/31/1875	E BIRCH CR	0.060 CFS
53012	D	2531	ESTATE OF, C/O WILLIAM CAMPB	NWNE	4	2S	32E	I*	12/31/1875	E BIRCH CR	0.330 CFS
2488	D	2488	BELTS		11	2S	32E	I*	12/31/1878	EAST BIRCH CR	0.260 CFS
47434	D	2627	STURTEVANT		16	1S	32E	I*	12/31/1882	E BIRCH CR	0.625 CFS
2567	D	2567	JOHNSON		4	2S	32E	I*	12/31/1883	E BIRCH CR	0.080 CFS

Cert #	Permit	Name	Location			Use	Priority	Source	Quantity
2567	D	2567 JOHNSON	4	2S	32E	I*	12/31/1884	E BIRCH CR	0.060 CFS
2553	D	2553 HOUSER	11	2S	32E	I*	12/31/1885	E BIRCH CR	0.130 CFS
2512	D	2512 DICK	SESE 12	2S	32E	I*	12/31/1889	E BIRCH CR	0.300 CFS
2545	D	2545 A C HENDERSON & SONS	28	1S	32E	I*	12/31/1891	E BIRCH CR	1.320 CFS
2567	D	2567 JOHNSON	4	2S	32E	I*	12/31/1892	E BIRCH CR	0.050 CFS
32154	D	2575 ESTATE OF; ALONZO KNOTTS, AG	NESE 4	2S	32E	I*	12/31/1892	E BIRCH CR	0.460 CFS
53013	D	2575 ESTATE OF C/O WILLIAM CAMPBE	NWNE 4	2S	32E	I*	12/31/1892	E BIRCH CR	0.050 CFS
0	CD	2569 MORRELL	NWNW 18	2S	33E	IR	4/30/1895	E BIRCH CR	0.050 CFS
47434	D	2627 STURTEVANT	16	1S	32E	I*	12/31/1895	E BIRCH CR	0.365 CFS
64233	D	127 MORRELL	0	2S	33E	DS	12/31/1895	E BIRCH CR	
2553	D	2553 HOUSER	11	2S	32E	I*	12/31/1897	E BIRCH CR	0.600 CFS
2642	D	2642 WESTGATE	NWSW 23	2S	33E	I*	12/31/1899	E BIRCH CR	0.060 CFS
2567	D	2567 JOHNSON	4	2S	32E	I*	12/31/1900	E BIRCH CR	0.130 CFS
2551	D	2551 HORN	7	2S	33E	I*	3/31/1905	E BIRCH CR	0.090 CFS
2519	D	2519 EVANS	SENE 20	1S	32E	I*	12/ 5/1905	E BIRCH CR	0.450 CFS
2620	D	2620 F.M. SMITH	16	1S	32E	I*	4/30/1906	E BIRCH CR	0.030 CFS
32152	D	2486 BAKER	SWSE 33	1S	32E	I*	12/31/1907	E BIRCH CR	0.0000
53122	D	2587 APPLEBURG WATER COMPANY	28	1S	32E	I*	5/31/1909	E BIRCH CR	2.450 CFS
434	S	137 HOUSER	SWSE 12	2S	32E	IR	6/ 7/1909	E BIRCH CR	0.750 CFS
4808	S	5722 SCHLEGEL	SESW 28	1S	32E	ID	11/29/1922	E BR BIRCH CR	0.150 CFS
38866	S	29916 BAKER	SWSE 33	1S	32E	IR	8/ 3/1964	E BIRCH CR	0.070 CFS
0	S	45865 MCKAQUE	18	2S	33E	IR	4/29/1981	EAST BIRCH CR	0.050 CFS
								==========	
								9.985 CFS	
			UNN STR > WEGNER CR						
70334	R	101545 CLARKE	SESE 35	1S	32E	FW	1/ 3/1993	WEGNOR CR	0.960 AFT
								==========	
								0.960 AFT	
			SPRING HOL > E BIRCH CR						
2508	D	2508 CUMMINGHAM SHEEP & LAND CO.	SWNW 6	2S	32E	I*	12/31/1880	SPR HOL	0.020 CFS
2508	D	2508 CUMMINGHAM SHEEP & LAND CO.	SWNW 6	2S	32E	I*	12/31/1901	SPR HOL	0.110 CFS
56717	S	40629 EUDORA L. WILSON	SWNW 28	1S	32E	IR	5/10/1976	SPR HOL	0.140 CFS
								==========	
								0.270 CFS	
			UNN STR > E BIRCH CR						
45829	S	29046 HUMPHREYS	SWSE 3	2S	32E	DO	8/14/1963	UNN SPR	0.005 CFS
45829	S	29046 HUMPHREYS	SWSE 3	2S	32E	LV	8/14/1963	UNN SPR	0.005 CFS
								==========	
								0.010 CFS	
			CALIFORNIA G > E BIRCH CR						
2592	D	2592 OGILVY	22	2S	32E	I*	12/31/1880	CALIFORNIA G	0.310 CFS
2576	D	2576 KNOTTS	NENW 10	2S	32E	I*	12/31/1882	CALIFORNIA G	0.050 CFS
2576	D	2576 KNOTTS	NWNW 10	2S	32E	I*	12/31/1898	CALIFORNIA G	0.100 CFS
								==========	
								0.460 CFS	
			UNN STR > E BIRCH CR						
72022	R	103233 HACHLER	SESE 7	2S	33E	LV	1/ 3/1993	RUNOFF/RES A	0.144 AFT
72022	R	103233 HACHLER	NESE 7	2S	33E	LV	1/ 3/1993	RUNOFF/RES B	0.270 AFT
72022	R	103233 HACHLER	NWNE 7	2S	33E	LV	1/ 3/1993	RUNOFF/RES C	0.057 AFT
72022	R	103233 HACHLER	SWNW 7	2S	33E	LV	1/ 3/1993	RUNOFF/RES D	0.674 AFT
								==========	
								1.145 AFT	
			PEARSON CR > E BIRCH CR						
1408	S	138 HOUSER	0	0	0	IR	7/ 9/1909	PEARSON CR	0.920 CFS
15572	S	12663 PORTER	SWNE 18	2S	33E	IR	5/25/1937	PEARSON CR	0.100 CFS
0	R	11022 U.S. UMATILLA NATIONAL FORES	NENE 31	3S	33E	LV	10/ 3/1983	UNN STR	0.050 AFT
0	R	11024 U.S. UMATILLA NATIONAL FORES	NESW 29	3S	33E	LV	10/ 3/1983	UNN STR	0.130 AFT
0	R	11025 U.S. UMATILLA NATIONAL FORES	NESW 24	3S	32E	LW	10/ 3/1983	UNN STR	0.090 AFT
0	R	11026 U.S. UMATILLA NATIONAL FORES	NESW 3	3S	33E	LW	10/ 3/1983	UNN STR	0.140 AFT
								==========	
								1.020 CFS	
								0.410 AFT	

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
			UNN STR > PEARSON CR				
0	S 48804	U.S. WALLOWA-WHITMAN NATIONA	NENE 15 3S 33E	WI	9/10/1982	TWIN SPRING	1.000 GPM
						0.002 CFS	
			UNN STR > PEARSON CR				
0	R 11207	U.S. UMATILLA NATIONAL FORES	NESW 18 3S 33E	LW	10/ 3/1983	UNN STR	0.080 AFT
						0.080 AFT	
			UNN STR > PEARSON CR				
63457	R 9976	U.S. UMATILLA NATIONAL FORES	NWNW 25 3S 32E	LW	2/24/1983	UNN STR	0.020 CFS
						0.020 CFS	
			LONG CAN > E BIRCH CR				
70275	R 101486	CHRISTENSEN MGR	NWSE 8 2S 33E	LW	1/ 3/1993	A SPR/RES 5A	0.040 AFT
						0.040 AFT	
			UNN STR > E BIRCH CR				
70275	R 101486	CHRISTENSEN MGR	SESE 17 2S 33E	LW	1/ 3/1993	A SPR/RES 6A	0.022 AFT
						0.022 AFT	
			UNN STR > E BIRCH CR				
70827	R 102038	MCKAGUE	NWSE 16 2S 33E	LW	1/ 3/1993	E. BIRCH STR/U	0.400 AFT
						0.400 AFT	
			S CAN > E BIRCH CR				
70055	R 101267	U.S. UMATILLA NATIONAL FORES	NENE 11 3S 33E	LW	1/ 3/1993	A SPR/CUNNINGH	0.410 AFT
						0.410 AFT	

Totals
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Total CFS: 59.76
Total AFT: 1068.43

***The acres for the following rights were removed from the arcreage report because they appear on other reports:

Certificate	Permit	Certificate	Permit	Certificate	Permit
69783	R 100994	70568	R 101779	70569	R 101780
0	DN 324113	41258	S 29330		

Acres summary for Birch Creek > Umatilla River 5-29-96

Cert #	Permit	Primary	Supplemental
0	CD 2569	4.00	
0	CD 2610		2.10
0	DN1443127	34.20	
0	S 40301	50.26	
0	S 41823	29.20	
0	S 45865	4.40	
434	S 137	60.00	
706	E 46	100.00	
798	S 891	24.00	
932	S 1022	12.08	
1408	S 138	73.00	
1655	S 1361	46.00	
2485	D 2485	5.00	
2488	D 2488	26.00	
2493	D 2493	55.50	
2499	D 2499	119.50	
2500	D 2500	29.00	
2505	D 2505	8.00	

A B C D E

Cert #	Permit		Primary	Supplemental
2508	D	2508	67.00	
2512	D	2512	24.00	
2516	D	2516	58.00	
2519	D	2519	36.00	
2521	D	2521	13.00	
2522	D	2522	8.00	
2524	D	2524	19.50	
2528	D	2528	22.00	
2529	D	2529	60.00	
2537	D	2537	7.00	
2540	D	2540	25.50	
2541	D	2541	13.50	
2542	D	2542	16.00	
2543	D	2543	58.00	
2544	D	2544	62.00	
2545	D	2545	105.50	
2550	D	2550	12.00	
2551	D	2551	7.00	
2553	D	2553	58.00	
2556	D	2556	20.00	
2562	D	2562	3.00	
2563	D	2563	12.00	
2564	D	2564	23.00	
2565	D	2565	6.00	
2566	D	2566	70.00	
2567	D	2567A	25.00	
2576	D	2576	12.00	
2585	D	2585	85.00	
2590	D	2590	50.00	
2592	D	2592	25.00	
2594	D	2594	40.00	
2596	D	2596	20.00	
2616	D	2616	57.50	
2618	D	2618	65.00	
2620	D	2620	2.00	
2622	D	2622	30.50	
2626	D	2626	74.00	
2630	D	2630	4.00	
2636	D	2636	31.50	
2637	D	2637	15.50	
2638	D	2638	6.00	
2639	D	2639	58.00	
2642	D	2642	5.00	
2643	D	2643	1.50	
2647	D	2647	82.00	
2915	S	4646	25.00	
2932	D	2532	37.00	
2934	D	2525	2.00	
3259	S	4323	3.00	
3262	S	4418	15.00	
4808	S	5722	5.45	
5806	S	6558	8.00	
7328	S	6149	20.00	
8418	S	6637	20.70	
9779	S	8842	98.00	
11548	S	11576	18.20	
11563	S	12000	20.10	
11565	S	12026	14.70	
12380	S	12045	23.50	
12406	S	12629	15.30	
12678	D	12678	3.00	
13399	S	12666	27.40	
14029	S	14853	21.00	
15571	S	12562	34.20	
15572	S	12663	6.00	
15583	S	13910	1.60	
20861	S	18787	15.00	
23821	S	24144	6.17	
24340	S	22267	77.50	
24499	S	22473	260.20	
32152	D	2486	8.50	
32154	D	2575	66.00	
32349	S	27002	86.10	
32403	D	2531	5.00	
38658	D	2486	10.00	
38866	S	29916	2.80	
40940	S	32132	81.30	
42344	S	32314	11.50	

Cert #	Permit		Primary	Supplemental
44226	S	29261	17.90	
44227	S	34906	29.20	
46937	D	2623	1.00	
47434	D	2627	99.20	
49213	D	2530	61.00	
51169	S	24830	101.90	
52682	S	39341	21.00	
53012	D	2531	26.00	
53013	D	2575	5.00	
53121	D	2581	17.50	
53122	D	2587	195.80	
53264	D	2567	80.60	
54119	S	24830	20.00	
54764	S	5067	10.00	
54765	D	2614	25.00	
54766	D	2579	10.00	
54767	D	2579	20.00	
54768	D	2579	31.00	
54769	D	2579	54.00	
56170	D	2497	35.00	
56171	D	2534	70.00	47.00
56172	D	2610	21.00	1.90
56717	S	40629	6.60	
64211	S	396	55.40	
64212	S	396	17.50	
64213	S	396	28.30	

Water Rights Information System (WRIS)
Data Considerations

When using data and information from the WRIS system be aware of the following considerations:

- The WRIS data base is a representation of the information contained in the legal rights of record. More complete information is contained in the paper records associated with a water right.
- The data in WRIS does not reflect actual use of a water right.
- The data does not reflect transfers associated with irrigation districts.
- The Department has issued water rights using a variety of measurements methods. With the exception of acre-feet and gallons per minute, all units were converted to cubic feet per second prior to entry in the database. In summary reports gallons per minute are converted to cubic feet second and acre-feet summaries are listed separate.
- Many adjudicated rights do not list a maximum rate of diversion or locations on the certificate. In these cases the database may not include rate or location information.
- When multiple uses are listed on a right, often the Department did NOT associate a particular rate with each use. In those cases all of the rate is listed with one use and the other uses are listed as alternate with the same rate.
- For summary reports, groundwater diversions are grouped together according to the nearest stream and are not necessarily based on hydraulic connection.

5/30/1996

Summary of quantities for the tributaries of Butter Creek

/ Non-Canceled rights only \
/ Primary diversions only \
/ Groundwater rights not included \
/ Surface water rights included \
/ Reservoir rights included \

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
			BUTTER CR > UMATILLA R				
2699	D	2699 VEY	28 1N 28E	I*	12/31/1862	BUTTER CR	1.890 CFS
2690	D	2690 STANFIELD	0 0 0	I*	12/31/1864	BUTTER CR	0.170 CFS
2696	D	2696 THOMSON	0 0 0	I*	12/31/1864	BUTTER CR	1.030 CFS
51357	D	2668 HAMILTON	0 0 0	I*	12/31/1864	BUTTER CR	1.498 CFS
2679	D	2679 MOORE	0 0 0	I*	12/31/1866	BUTTER CR	2.780 CFS
53666	D	2692 AMMON BROTHERS INC.	NESE 2 2N 27E	I*	12/31/1866	BUTTER CR	0.216 CFS
63802	D	2692 HALE BROTHERS FARMS	SWNE 11 2N 27E	I*	12/31/1866	BUTTER CR	0.284 CFS
2687	D	2687 SAYLOR	0 0 0	I*	12/31/1867	BUTTER CR	3.130 CFS
2697	D	2697 THOMSON	0 0 0	I*	12/31/1867	BUTTER CR	2.670 CFS
2667	D	2667 FRENCH	0 0 0	I*	12/31/1869	BUTTER CR	0.420 CFS
60952	D	2683 ROGERS	18 3N 28E	I*	12/31/1869	BUTTER CR	2.000 CFS
2674	D	2674 MATTHEWS	0 0 0	I*	12/31/1870	BUTTER CR	3.910 CFS
2681	D	2681 NELSON	0 0 0	I*	12/31/1870	BUTTER CR	0.430 CFS
2682	D	2682 RHEA	0 0 0	I*	12/31/1870	BUTTER CR	1.600 CFS
53666	D	2692 AMMON BROTHERS INC.	NESE 2 2N 27E	I*	12/31/1870	BUTTER CR	0.432 CFS
63802	D	2692 HALE BROTHERS FARMS	SWNE 11 2N 27E	I*	12/31/1870	BUTTER CR	0.568 CFS
2657	D	2657 CHAPMAN	0 0 0	I*	12/31/1872	BUTTER CR	0.600 CFS
49217	D	2678 MOORE	0 0 0	I*	12/31/1872	BUTTER CR	0.730 CFS
63814	D	2678 PEDRO	SENE 25 3N 27E	IR	12/31/1872	BUTTER CR	0.520 CFS
2665	D	2665 DOHERTY	0 0 0	I*	12/31/1873	BUTTER CR	0.660 CFS
2704	D	2704 WARNER	16 1S 30E	I*	12/31/1873	BUTTER CR	0.510 CFS
40397	D	2695 SUNDERMAN	SESW 34 2N 27E	I*	12/31/1873	BUTTER CR	0.240 CFS
44542	D	2695 DOHERTY	NESW 34 2N 27E	IR	12/31/1873	BUTTER CR	2.740 CFS
2685	D	2685 ROSS	0 0 0	I*	12/31/1877	BUTTER CR	0.700 CFS
49074	D	2702 CORREA	SWSW 14 1N 27E	I*	12/31/1877	BUTTER CR	1.770 CFS
63270	D	2702 CORREA	NWSE 23 1N 27E	IR	12/31/1877	BUTTER CR	1.740 CFS
2676	D	2676 MCCARTY	0 0 0	I*	12/31/1878	BUTTER CR	2.490 CFS
0	CD	2651 VEY	NENE 30 1N 28E	I*	12/31/1880	BUTTER CR	0.500 CFS
2673	D	2673 JARMAN	0 0 0	I*	12/31/1880	BUTTER CR	0.860 CFS
2688	D	2688 SHERIDAN	0 0 0	I*	12/31/1880	BUTTER CR	0.330 CFS
60952	D	2683 ROGERS	18 3N 28E	I*	12/31/1880	BUTTER CR	1.400 CFS
2675	D	2675 MCCARTY	0 0 0	I*	12/31/1882	BUTTER CR	0.830 CFS
0	CD	2653 CORREA	SWNW 27 2N 27E	IR	12/31/1883	BUTTER CR	2.330 CFS
0	RD	2653 JOHNSON	SWNW 27 2N 27E	I*	12/31/1883	BUTTER CR	2.750 CFS
2659	D	2659 COLE	0 0 0	I*	12/31/1883	BUTTER CR	0.010 CFS
67877	D	2653 BOWMAN	0 2N 27E	IR	12/31/1883	BUTTER CR	5.010 CFS
0	RD	2661 CORRIGAL	NWSW 36 3N 27E	IR	12/31/1884	BUTTER CR SPR	1.330 CFS
53666	D	2692 AMMON BROTHERS INC.	NESE 2 2N 27E	I*	12/31/1884	BUTTER CR	0.216 CFS
63802	D	2692 HALE BROTHERS FARMS	SWNE 11 2N 27E	I*	12/31/1884	BUTTER CR	0.284 CFS
2658	D	2658 CLARK	0 0 0	I*	12/31/1885	BUTTER CR	0.260 CFS
2670	D	2670 HINKLE	0 0 0	I*	12/31/1885	BUTTER CR	3.560 CFS
2680	D	2680 L.D. NEILL	0 0 0	I*	12/31/1885	BUTTER CR	1.820 CFS
2689	D	2689 SHERIDAN	0 0 0	I*	12/31/1885	BUTTER CR	2.330 CFS
2700	D	2700 VEY	0 0 0	I*	12/31/1885	BUTTER CR	0.700 CFS
49217	D	2678 MOORE	0 0 0	I*	12/31/1885	BUTTER CR	1.090 CFS
63814	D	2678 PEDRO	SENE 25 3N 27E	IR	12/31/1885	BUTTER CR	0.790 CFS
2701	D	2701 VEY	0 0 0	DS	12/31/1886	BUTTER CR	0.0000
2671	D	2671 ALEX LINDSEY	0 0 0	I*	12/31/1887	BUTTER CR	2.170 CFS
2681	D	2681 NELSON	0 0 0	I*	12/31/1888	BUTTER CR	0.340 CFS
2697	D	2697 THOMSON	0 0 0	I*	12/31/1888	BUTTER CR	1.600 CFS
0	CD	2651 VEY	NENE 30 1N 28E	I*	12/31/1890	BUTTER CR	3.850 CFS
2649	D	2649 AYERS	0 0 0	I*	12/31/1892	BUTTER CR	1.780 CFS
2666	D	2666 FRENCH	0 0 0	I*	12/31/1892	BUTTER CR	0.240 CFS
52817	D	2669 HAYES	0 0 0	I*	12/31/1892	BUTTER CR	2.190 CFS
2706	D	2706 WATTENBURGER	0 0 0	I*	12/31/1893	BUTTER CR	0.170 CFS
2656	D	2656 CHAPMAN	0 0 0	I*	12/31/1894	BUTTER CR	0.630 CFS
0	CD	2653 CORREA	SENE 28 2N 27E	IR	12/31/1895	BUTTER CR	2.940 CFS
0	RD	2653 JOHNSON	SWNW 27 2N 27E	IR	12/31/1895	BUTTER CR	3.460 CFS
0	RD	2661 CORRIGAL	NWSW 36 3N 27E	IR	12/31/1895	BUTTER CR SPR	1.170 CFS
67877	D	2653 BOWMAN	0 2N 27E	IR	12/31/1895	BUTTER CR	6.400 CFS
2687	D	2687 SAYLOR	0 0 0	I*	12/31/1896	BUTTER CR	3.500 CFS
53666	D	2692 AMMON BROTHERS INC.	NESE 2 2N 27E	I*	12/31/1896	BUTTER CR	5.484 CFS
60455	D	2655 COCHRAN	SESW 11 2N 27E	IR	12/31/1896	BUTTER CR	1.160 CFS
63802	D	2692 HALE BROTHERS FARMS	SWNE 11 2N 27E	I*	12/31/1896	BUTTER CR	7.216 CFS

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
2690	D 2690	STANFIELD	0 0 0	I*	12/31/1898	BUTTER CR	2.760 CFS
2694	D 2694	SUISTE	0 0 0	I*	12/31/1898	BUTTER CR	0.350 CFS
2696	D 2696	THOMSON	0 0 0	I*	12/31/1898	BUTTER CR	3.040 CFS
2697	D 2697	THOMSON	0 0 0	I*	12/31/1899	BUTTER CR	1.600 CFS
2698	D 2698	THOMSON	0 0 0	I*	12/31/1899	BUTTER CR	0.120 CFS
2673	D 2673	JARMAN	0 0 0	I*	12/31/1900	BUTTER CR	3.150 CFS
2686	D 2686	RUST	0 0 0	I*	12/31/1900	BUTTER CR	1.240 CFS
2687	D 2687	SAYLOR	0 0 0	I*	12/31/1900	BUTTER CR	3.070 CFS
2659	D 2659	COLE	0 0 0	I*	12/31/1901	BUTTER CR	0.480 CFS
0	CD 2653	CORREA	SESW 22 2N 27E	IR	12/31/1903	BUTTER CR	0.690 CFS
0	RD 2653	JOHNSON	SWNW 27 2N 27E	IR	12/31/1903	BUTTER CR	0.810 CFS
2675	D 2675	MCCARTY	0 0 0	I*	12/31/1903	BUTTER CR	2.310 CFS
67877	D 2653	BOWMAN	0 2N 27E	IR	12/31/1903	BUTTER CR	1.500 CFS
0	CD 2661	MADISON	SENE 25 3N 27E	IR	12/31/1904	BUTTER CR SPR	0.460 CFS
0	RD 2661	CORRIGAL	NWSW 36 3N 27E	IR	12/31/1904	BUTTER CR SPR	0.650 CFS
2665	D 2665	DOHERTY	0 0 0	I*	12/31/1904	BUTTER CR	1.190 CFS
2697	D 2697	THOMSON	0 0 0	I*	12/31/1904	BUTTER CR	1.370 CFS
2681	D 2681	NELSON	0 0 0	I*	12/31/1907	BUTTER CR	0.400 CFS
2847	S 2102	SAVELY	0 0 0	ID	7/ 3/1914	BUTTER CR	1.410 CFS
60951	S 3694	THOMAS RICHARDS AND SONS	NESW 19 3N 28E	IR	5/17/1917	BUTTER CR	0.640 CFS
3853	S 3860	ESTATE OF, BY JOHN ROSS	SWSE 21 1S 30E	IR	7/19/1918	BUTTER CR	0.230 CFS
3500	S 3877	WARNER	SWSW 16 1S 30E	IR	7/30/1918	BUTTER CR	0.380 CFS
8795	S 7550	AMERICAN NATIONAL BANK	NWSE 18 3N 28E	IR	8/28/1926	BUTTER CR	0.560 CFS
28734	S 18911	MADISON	SENE 25 3N 27E	IR	7/29/1949	BUTTER CR	3.150 CFS
26171	S 24146	SAYLOR	SENE 25 3N 27E	IR	4/11/1956	BUTTER CR	0.650 CFS
31293	S 26320	SAYLOR	NWSW 19 3N 28E	IR	4/30/1956	UNN SPR	1.000 CFS
32597	S 26265	MADISON	SWNE 30 3N 28E	IR	7/13/1959	UNN SPR	0.630 CFS
46612	S 40167	C/O WELDON WITHERRITE	SENE 10 1N 27E	IR	12/15/1975	BUTTER CR	0.100 CFS
61697	S 41446	SAYLOR	NWNW 1 2N 27E	IR	10/13/1976	BUTTER CR	0.520 CFS
0	R 11109	U.S. UMATILLA NATIONAL FORES	SESE 14 4S 29E	LV	10/ 3/1983	UNN STR/BOMBER	0.237 AFT
0	R 11109	U.S. UMATILLA NATIONAL FORES	NESE 23 4S 29E	LV	10/ 3/1983	UNN STR/MATLOC	0.062 AFT
70507	R 101718	DOHERTY	NWSW 7 4S 30E	LW	1/ 3/1993	RUNOFF/RES 1	0.060 AFT
70581	R 101792	KL RANCHES, INC.	SWSE 17 2S 30E	LW	1/ 3/1993	A SPR/RES 1	0.007 AFT
70776	R 101987	HUGHES RANCH	SWNE 32 3S 29E	LW	1/ 3/1993	RUNOFF/RES 9	0.050 AFT
						==========	
						140.888 CFS	
						0.416 AFT	

LITTLE BUTTER CR > BUTTER CR

2652	D 2652	BARTHOLOMEW	16 1N 27E	I*	12/31/1868	LITTLE BUTTER	0.590 CFS
60012	D 2710	HUGHES	SESW 12 2S 28E	IR	12/31/1872	LITTLE BUTTER	0.320 CFS
61998	D 2705	IRMA DORENE WATTENBERGER	SENE 15 1N 27E	IR	12/31/1872	LITTLE BUTTER	0.100 CFS
2664	D 2664	CURRIN	28 1S 28E	I*	12/31/1874	LITTLE BUTTER	1.900 CFS
2660	D 2660	CORNETT	17 1S 28E	I*	12/31/1877	LITTLE BUTTER	0.600 CFS
2654	D 2654	BROSNAN	19 2S 29E	I*	12/31/1880	LITTLE BUTTER	1.410 CFS
2708	D 2708	W.E. WIGGLESWORTH	6 1S 28E	I*	12/31/1880	LITTLE BUTTER	2.070 CFS
2709	D 2709	WIGGLESWORTH	26 1N 27E	I*	12/31/1880	LITTLE BUTTER	1.310 CFS
2650	D 2650	AYERS	2 2S 28E	I*	12/13/1885	LITTLE BUTTER	1.210 CFS
2662	D 2662	COX	20 1S 28E	I*	12/31/1885	LITTLE BUTTER	0.990 CFS
2703	D 2703	VINSON	NWSE 2 2S 28E	I*	12/31/1886	LITTLE BUTTER	0.300 CFS
2693	D 2693	STRAIGHT	31 2S 29E	I*	12/31/1890	LITTLE BUTTER	1.660 CFS
61998	D 2705	IRMA DORENE WATTENBERGER	SENE 15 1N 27E	IR	12/31/1890	LITTLE BUTTER	0.340 CFS
61998	D 2705	IRMA DORENE WATTENBERGER	SENE 15 1N 27E	IR	12/31/1896	LITTLE BUTTER	1.910 CFS
2652	D 2652	BARTHOLOMEW	16 1N 27E	I*	12/31/1898	LITTLE BUTTER	2.180 CFS
49207	D 2707	WILCOX	NWNE 13 2S 28E	I*	12/31/1898	LITTLE BUTTER	0.180 CFS
60011	D 2707	HUGHES	SESW 12 2S 28E	IR	12/31/1898	LITTLE BUTTER	0.410 CFS
0	S 44615	BAILEY	SESE 21 1N 27E	IR	9/24/1979	LITTLE BUTTER	180.000 GPM
70270	R 101481	CURRIN RANCH	NESE 34 1S 28E	LW	1/ 3/1993	A SPR/RES 16	0.000 AFT
70270	R 101481	CURRIN RANCH	NE 27 1S 28E	LW	1/ 3/1993	A SPR/RES 17	0.001 AFT
70270	R 101481	CURRIN RANCH	SWNE 25 1N 27E	LW	1/ 3/1993	A SPR/RES 12	0.003 AFT
70270	R 101481	CURRIN RANCH	SWNW 34 1S 28E	LW	1/ 3/1993	A SPR/RES 18	0.030 AFT
70271	R 101482	CURRIN RANCH	NWSW 27 1S 28E	LW	1/ 3/1993	A SPR/RES 10	0.003 AFT
70775	R 101986	HUGHES RANCH	SENW 2 2S 28E	LW	1/ 3/1993	RUNOFF/RES 12	0.010 AFT
70775	R 101986	HUGHES RANCH	SWSE 1 2S 28E	LW	1/ 3/1993	RUNOFF/RES 14	0.010 AFT
70992	R 102203	HEALY	SW 17 1S 28E	LW	1/ 3/1993	RUNOFF/RESERVO	0.011 AFT
70992	R 102203	HEALY	SW 17 1S 28E	LW	1/ 3/1993	RUNOFF/RESERVO	0.040 AFT
70992	R 102203	HEALY	SWSE 20 1S 28E	LW	1/ 3/1993	A SPR/RESERVOI	0.005 AFT
70992	R 102203	HEALY	SENW 20 1S 28E	LW	1/ 3/1993	RUNOFF/RESERVO	0.000 AFT
70992	R 102203	HEALY	NWSE 20 1S 28E	LW	1/ 3/1993	A SPR/RESERVOI	0.000 AFT
70992	R 102203	HEALY	SW 17 1S 28E	LW	1/ 3/1993	RUNOFF/RESERVO	0.008 AFT
70993	R 102204	BUCKNUM	21 1S 28E	LW	1/ 3/1993	A SPR/RES 2	0.002 AFT
70993	R 102204	BUCKNUM	21 1S 28E	LW	1/ 3/1993	RUNOFF/RES 3	0.003 AFT
70993	R 102204	BUCKNUM	21 1S 28E	LW	1/ 3/1993	RUNOFF/RES 4	0.000 AFT

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
70993	R 102204	BUCKNUM	21 1S 28E	LW	1/ 3/1993	RUNOFF/RES 6	0.003 AFT
70993	R 102204	BUCKNUM	NENW 20 1S 28E	LW	1/ 3/1993	A SPR/RES 7	0.002 AFT
						==========	
						17.881 CFS	
						0.134 AFT	
			UNN STR > LITTLE BUTTER CR				
70988	R 102199	HEALY	33 1N 27E	LW	1/ 3/1993	RUNOFF/RESERVO	0.005 AFT
						==========	
						0.005 AFT	
			UNN STR > LITTLE BUTTER CR				
70988	R 102199	HEALY	34 1N 27E	LW	1/ 3/1993	RUNOFF/RESERVO	0.003 AFT
70988	R 102199	HEALY	34 1N 27E	LW	1/ 3/1993	RUNOFF/RESERVO	0.002 AFT
70988	R 102199	HEALY	34 1N 27E	LW	1/ 3/1993	RUNOFF/RESERVO	0.002 AFT
70988	R 102199	HEALY	34 1N 27E	LW	1/ 3/1993	RUNOFF/RESERVO	0.007 AFT
						==========	
						0.014 AFT	
			JOHNSON CAN > LITTLE BUTTER CR				
70987	R 102198	HEALY	S 19 1S 28E	LW	1/ 3/1993	RUNOFF/RESERVO	0.029 AFT
70987	R 102198	HEALY	S 19 1S 28E	LW	1/ 3/1993	RUNOFF/RESERVO	0.003 AFT
70987	R 102198	HEALY	SW 30 1S 28E	LW	1/ 3/1993	RUNOFF/RESERVO	0.003 AFT
70987	R 102198	HEALY	SW 30 1S 28E	LW	1/ 3/1993	RUNOFF/RESERVO	0.024 AFT
70987	R 102198	HEALY	SW 30 1S 28E	LW	1/ 3/1993	RUNOFF/RESERVO	0.001 AFT
70987	R 102198	HEALY	NWSE 31 1S 28E	LW	1/ 3/1993	RUNOFF/RESERVO	0.003 AFT
70987	R 102198	HEALY	W 29 1S 28E	LW	1/ 3/1993	RUNOFF/RESERVO	0.002 AFT
70987	R 102198	HEALY	SW 30 1S 28E	LW	1/ 3/1993	RUNOFF/RESERVO	0.003 AFT
70987	R 102198	HEALY	SW 30 1S 28E	LW	1/ 3/1993	RUNOFF/RESERVO	0.006 AFT
70987	R 102198	HEALY	S 19 1S 28E	LW	1/ 3/1993	RUNOFF/RESERVO	0.009 AFT
70989	R 102200	HEALY	31 1S 28E	LW	1/ 3/1993	RUNOFF/RES 1	0.001 AFT
70989	R 102200	HEALY	31 1S 28E	LW	1/ 3/1993	RUNOFF/RES 2	0.004 AFT
70989	R 102200	HEALY	31 1S 28E	LW	1/ 3/1993	RUNOFF/RES 3	0.003 AFT
70989	R 102200	HEALY	31 1S 28E	LW	1/ 3/1993	RUNOFF/RES 4	0.002 AFT
70989	R 102200	HEALY	31 1S 28E	LW	1/ 3/1993	RUNOFF/RES 5	0.003 AFT
70989	R 102200	HEALY	31 1S 28E	LW	1/ 3/1993	A SPR/RES 6	0.000 AFT
70989	R 102200	HEALY	31 1S 28E	LW	1/ 3/1993	RUNOFF/RES 7	0.008 AFT
70993	R 102204	BUCKNUM	NE 29 1S 28E	LW	1/ 3/1993	RUNOFF/RES 5	0.003 AFT
						==========	
						0.107 AFT	
			UNN STR > JOHNSON CAN				
70992	R 102203	HEALY	SE 18 1S 28E	LW	1/ 3/1993	RUNOFF/RESERVO	0.002 AFT
						==========	
						0.002 AFT	
			NEWMAN CAN > LITTLE BUTTER CR				
70271	R 101482	CURRIN RANCH	SWSW 17 2S 28E	LW	1/ 3/1993	A SPR/RES 5	0.000 AFT
70271	R 101482	CURRIN RANCH	SESW 17 2S 28E	LW	1/ 3/1993	A SPR/RES 6	0.001 AFT
70778	R 101989	HUGHES RANCH	SENE 17 2S 28E	LW	1/ 3/1993	RUNOFF/RES 1	0.030 AFT
70778	R 101989	HUGHES RANCH	SESE 17 2S 28E	LW	1/ 3/1993	RUNOFF/RES 2	0.030 AFT
70778	R 101989	HUGHES RANCH	SWSW 9 2S 28E	LW	1/ 3/1993	RUNOFF/RES 3	0.010 AFT
70993	R 102204	BUCKNUM	NE 28 1S 28E	LW	1/ 3/1993	A SPR/RES 1	0.007 AFT
						==========	
						0.078 AFT	
			UNN STR > LITTLE BUTTER CR				
70775	R 101986	HUGHES RANCH	NENE 3 2S 28E	LW	1/ 3/1993	RUNOFF/RES 11	0.010 AFT
						==========	
						0.010 AFT	
			UNN STR > JONES CAN				
70775	R 101986	HUGHES RANCH	NENE 13 2S 28E	LW	1/ 3/1993	RUNOFF/RES 15	0.010 AFT
70775	R 101986	HUGHES RANCH	NENE 13 2S 28E	LW	1/ 3/1993	RUNOFF/RES 16	0.020 AFT
						==========	
						0.030 AFT	
			UNN STR > JONES CAN				
70778	R 101989	HUGHES RANCH	SENE 16 2S 28E	LW	1/ 3/1993	RUNOFF/RES 4	0.010 AFT

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
70778	R 101989	HUGHES RANCH	SESE 15 2S 28E	LW	1/ 3/1993	RUNOFF/RES 5	0.010 AFT
70778	R 101989	HUGHES RANCH	NESW 22 2S 28E	LW	1/ 3/1993	A SPR/RES 6	0.020 AFT
70778	R 101989	HUGHES RANCH	NESE 22 2S 28E	LW	1/ 3/1993	A SPR/RES 7	0.010 AFT
70778	R 101989	HUGHES RANCH	SWSE 22 2S 28E	LW	1/ 3/1993	RUNOFF/RES 8	0.030 AFT
						==========	
							0.080 AFT
			UNN STR > LITTLE BUTTER CR				
70694	R 101905	BARBER	SE 0 3S 28E	WI	1/ 3/1993	HINTON CR/RES	4.000 AFT
						==========	
							4.000 AFT
			DRY MORRIS CAN > MORRIS CAN				
70270	R 101481	CURRIN RANCH	NENE 31 1N 28E	LW	1/ 3/1993	A SPR/RES 14	0.030 AFT
70270	R 101481	CURRIN RANCH	SWNW 5 1S 28E	LW	1/ 3/1993	A SPR/RES 15	0.001 AFT
70270	R 101481	CURRIN RANCH	SWNW 31 1N 28E	LW	1/ 3/1993	A SPR/RES 13	0.008 AFT
						==========	
							0.039 AFT
			AYERS CAN > BUTTER CR				
70775	R 101986	HUGHES RANCH	SWSE 36 1S 28E	LW	1/ 3/1993	RUNOFF/RES 13	0.010 AFT
						==========	
							0.010 AFT
			UNN STR > AYERS CAN				
70271	R 101482	CURRIN RANCH	NWSW 26 1S 28E	LW	1/ 3/1993	A SPR/RES 11	0.008 AFT
70775	R 101986	HUGHES RANCH	NWSW 26 1S 28E	LW	1/ 3/1993	RUNOFF/RES 9	0.010 AFT
70775	R 101986	HUGHES RANCH	SENW 35 1S 28E	LW	1/ 3/1993	RUNOFF/RES 10	0.010 AFT
						==========	
							0.028 AFT
			MATLOCK CAN > BUTTER CR				
70777	R 101988	HUGHES RANCH	NWNE 16 2S 29E	LW	1/ 3/1993	RUNOFF/RES 22	0.010 AFT
70777	R 101988	HUGHES RANCH	SESW 16 2S 29E	LW	1/ 3/1993	RUNOFF/RES 23	0.010 AFT
						==========	
							0.020 AFT
			UNN STR > MATLOCK CAN				
70824	R 102035	DOHERTY	27 1S 29E	LV	1/ 3/1993	RUNOFF/RES 37	0.034 AFT
						==========	
							0.034 AFT
			BUTTERMILK CAN > MATLOCK CAN				
70777	R 101988	HUGHES RANCH	NENE 18 2S 29E	LW	1/ 3/1993	RUNOFF/RES 17	0.010 AFT
						==========	
							0.010 AFT
			UNN STR > MATLOCK CAN				
70777	R 101988	HUGHES RANCH	SESE 32 1S 29E	LW	1/ 3/1993	RUNOFF/RES 18	0.020 AFT
						==========	
							0.020 AFT
			UNN STR > MATLOCK CAN				
70777	R 101988	HUGHES RANCH	NWSW 4 2S 29E	LW	1/ 3/1993	RUNOFF/RES 20	0.030 AFT
						==========	
							0.030 AFT
			UNN STR > MATLOCK CAN				
70777	R 101988	HUGHES RANCH	SWNE 17 2S 29E	LW	1/ 3/1993	RUNOFF/RES 19	0.040 AFT
70777	R 101988	HUGHES RANCH	NENW 9 2S 29E	LW	1/ 3/1993	RUNOFF/RES 21	0.100 AFT
						==========	
							0.140 AFT
			SLUSHER CAN > BUTTER CR				
70939	R 102150	PENDLETON RANCHES	SWNW 32 1N 30E	LV	1/ 3/1993	RUNOFF/BECHNER	0.145 AFT
						==========	
							0.145 AFT

Cert #		Permit	Name	Location	Use	Priority	Source	Quantity
				UNN STR > SLUSHER CAN				
70904	R	102115	OWEN RANCHES	SWSW 36 1N 29E	LV	1/ 3/1993	RUNOFF/RES 10	0.162 AFT
70939	R	102150	PENDLETON RANCHES	NWNE 25 1N 29E	LV	1/ 3/1993	RUNOFF/MCCUTCH	0.330 AFT
								0.492 AFT
				CUNNINGHAM CAN > BUTTER CR				
2663	D	2663	CUMMINGHAM SHEEP & LAND CO.	2 1S 29E	I*	12/31/1878	UNN STR	0.510 CFS
								0.510 CFS
				UNN STR > BUTTER CR				
70005	R	101217	JENSEN	SE 35 1N 29E	LV	1/ 3/1993	A SPRING/RES 1	0.002 AFT
								0.002 AFT
				DIXIE CAN > BUTTER CR				
70822	R	102033	DOHERTY	34 1S 29E	LV	1/ 3/1993	A SPR/RES 13	0.213 AFT
70822	R	102033	DOHERTY	34 1S 29E	LV	1/ 3/1993	A SPR/ RES 14	0.219 AFT
70822	R	102033	DOHERTY	34 1S 29E	LV	1/ 3/1993	A SPR/RES 15	0.169 AFT
70824	R	102035	DOHERTY	26 1S 29E	LV	1/ 3/1993	RUNOFF/RES 38	0.004 AFT
70824	R	102035	DOHERTY	26 1S 29E	LV	1/ 3/1993	RUNOFF/RES 39	0.025 AFT
								0.630 AFT
				HOG HOL > BUTTER CR				
2684	D	2684	ROSS	29 1S 30E	IL	12/31/1870	SPRS	0.0000
70822	R	102033	DOHERTY	1 2S 29E	LV	1/ 3/1993	A SPR/RES 12	0.155 AFT
								0.155 AFT
				DRY HOG HOL > HOG HOL				
70821	R	102032	DOHERTY	11 2S 29E	LV	1/ 3/1993	A SPR/RES 5	0.275 AFT
70821	R	102032	DOHERTY	11 2S 29E	LV	1/ 3/1993	A SPR/RES 6	0.025 AFT
70821	R	102032	DOHERTY	11 2S 29E	LV	1/ 3/1993	A SPR/RES 7	0.025 AFT
70821	R	102032	DOHERTY	11 2S 29E	LV	1/ 3/1993	A SPR/RES 8	0.025 AFT
70821	R	102032	DOHERTY	2 2S 29E	LV	1/ 3/1993	A SPR/RES 9	0.674 AFT
70821	R	102032	DOHERTY	2 2S 29E	LV	1/ 3/1993	A SPR/RES 10	0.405 AFT
70822	R	102033	DOHERTY	2 2S 29E	LV	1/ 3/1993	A SPR/RES 11	0.039 AFT
								1.468 AFT
				NELSON CR > HOG HOL				
70822	R	102033	DOHERTY	12 2S 29E	LV	1/ 3/1993	A SPR/RES 16	0.050 AFT
70823	R	102034	DOHERTY	12 2S 29E	LV	1/ 3/1993	RUNOFF/RES 26	0.234 AFT
70823	R	102034	DOHERTY	12 2S 29E	LV	1/ 3/1993	RUNOFF/RES 27	0.674 AFT
								0.958 AFT
				UNN STR > BUTTER CR				
70822	R	102033	DOHERTY	5 2S 30E	LV	1/ 3/1993	A SPR/RES 20	0.223 AFT
70823	R	102034	DOHERTY	5 2S 30E	LV	1/ 3/1993	RUNOFF/RES 21	0.260 AFT
70823	R	102034	DOHERTY	5 2S 30E	LV	1/ 3/1993	RUNOFF/RES 22	0.459 AFT
70823	R	102034	DOHERTY	5 2S 30E	LV	1/ 3/1993	RUNOFF/RES 23	0.383 AFT
								1.325 AFT
				WEBB SL > BUTTER CR				
70824	R	102035	DOHERTY	10 2S 30E	LV	1/ 3/1993	RUNOFF/RES 31	0.155 AFT
								0.155 AFT
				CARNEY CAN > WEBB SL				
70581	R	101792	KL RANCHES, INC.	NESW 26 2S 30E	LW	1/ 3/1993	CARNEY CR/RES	0.020 AFT
								0.020 AFT

Cert #		Permit	Name	Location	Use	Priority	Source	Quantity
			LONE PINE CAN > CARNEY CAN					
70581	R	101792	KL RANCHES, INC.	NESW 22 2S 30E	LW	1/ 3/1993	A SPR/RES 3	0.030 AFT
70581	R	101792	KL RANCHES, INC.	NESE 27 2S 30E	LW	1/ 3/1993	A SPR/RES 7	0.060 AFT
								0.090 AFT
			ROBERTS CAN > WEBB SL					
70570	R	101781	CUNNINGHAM SHEEP & LAND CO.	SESE 25 2S 30E	LW	1/ 3/1993	RUNOFF/UPR WEB	0.013 AFT
								0.013 AFT
			UNN STR > WEBB SL					
70570	R	101781	CUNNINGHAM SHEEP & LAND CO.	SWSE 24 2S 30.5E	LW	1/ 3/1993	RUNOFF/WEBB SL	1.580 AFT
70570	R	101781	CUNNINGHAM SHEEP & LAND CO.	SWNE 25 2S 30.5E	LW	1/ 3/1993	RUNOFF/WEBB SL	0.100 AFT
70570	R	101781	CUNNINGHAM SHEEP & LAND CO.	NWSE 25 2S 30.5E	LW	1/ 3/1993	RUNOFF/WEBB SL	0.128 AFT
70570	R	101781	CUNNINGHAM SHEEP & LAND CO.	NWSE 25 2S 30.5E	LW	1/ 3/1993	RUNOFF/WEBB SL	1.488 AFT
								3.296 AFT
			E FK BUTTER CR > BUTTER CR					
56395	D	2677	K L RANCHES INC.	SENW 34 2S 30E	IL	12/31/1885	E FK BUTTER CR	1.280 CFS
10148	S	4482	DOHERTY	SESW 12 3S 30E	IR	3/12/1920	E FK BUTTER CR	0.880 CFS
0	S	50676	U.S. UMATILLA NATIONAL FORES	SESE 17 4S 30E	LV	10/ 3/1983	GULLIFORD SPR	0.003 CFS
70568	R	101779	CUNNINGHAM SHEEP & LAND CO.	NWSW 36 3S 30E	LW	1/ 3/1993	RUNOFF/CORLEY	0.100 AFT
70569	R	101780	CUNNINGHAM SHEEEP & LAND CO.	SWSW 7 4S 31E	LW	1/ 3/1993	RUNOFF/HLDNG P	0.200 AFT
70569	R	101780	CUNNINGHAM SHEEEP & LAND CO.	NWSW 7 4S 31E	LW	1/ 3/1993	RUNOFF/ANNA PL	0.400 AFT
70677	R	101888	ANDERSEN	NE 1 4S 30E	LV	1/ 3/1993	RUNOFF/RES 2	0.041 AFT
70824	R	102035	DOHERTY	16 2S 30E	LV	1/ 3/1993	RUNOFF/RES 32	0.309 AFT
70965	R	102176	LOUISIANA PACIFIC CORP.	NWNW 14 4S 30E	LW	1/ 3/1993	RUNOFF/RES 31	0.200 AFT
								2.163 CFS
								1.250 AFT
			CORLEY CR > E FK BUTTER CR					
70581	R	101792	KL RANCHES, INC.	NENW 28 2S 30E	LW	1/ 3/1993	A SPR/RES 5	0.006 AFT
								0.006 AFT
			HARRINGTON CAN > CORLEY CR					
70581	R	101792	KL RANCHES, INC.	NENE 4 3S 30E	LW	1/ 3/1993	HARRINGTON CR/	0.020 AFT
70582	R	101793	KL RANCHES, INC.	SENW 4 3S 30E	LW	1/ 3/1993	CORLEY CR/RES	0.020 AFT
70582	R	101793	KL RANCHES, INC.	SESW 4 3S 30E	LW	1/ 3/1993	CORLEY CR/RES	0.040 AFT
70582	R	101793	KL RANCHES, INC.	NWNW 9 3S 30E	LW	1/ 3/1993	CORLEY CR/RES	0.700 AFT
70582	R	101793	KL RANCHES, INC.	SWNW 9 3S 30E	LW	1/ 3/1993	CORLEY CR/RES	0.020 AFT
70582	R	101793	KL RANCHES, INC.	NENE 9 3S 30E	LW	1/ 3/1993	HARRINGTON CR/	0.050 AFT
70582	R	101793	KL RANCHES, INC.	SENE 9 3S 30E	LW	1/ 3/1993	HARRINGTON CR/	0.050 AFT
70582	R	101793	KL RANCHES, INC.	SWSE 9 3S 30E	LW	1/ 3/1993	HARRINGTON CR/	0.060 AFT
70584	R	101795	KL RANCHES, INC.	NWSE 4 3S 30E	LW	1/ 3/1993	CORLEY CR/RES	0.060 AFT
70584	R	101795	KL RANCHES, INC.	NWNW 4 3S 30E	LW	1/ 3/1993	HARRINGTON CR/	0.030 AFT
								1.050 AFT
			ELY CR > E FK BUTTER CR					
70582	R	101793	KL RANCHES, INC.	NENW 16 3S 30E	LW	1/ 3/1993	HARRINGTON CR/	0.090 AFT
70583	R	101794	KL RANCHES, INC.	NWNW 16 3S 30E	LW	1/ 3/1993	CORLEY CR/RES	0.030 AFT
70583	R	101794	KL RANCHES, INC.	SWNW 16 3S 30E	LW	1/ 3/1993	HARRINGTON CR/	0.060 AFT
70583	R	101794	KL RANCHES, INC.	SENE 16 3S 30E	LW	1/ 3/1993	ELY CR/RES 23	0.030 AFT
70583	R	101794	KL RANCHES, INC.	NWSE 16 3S 30E	LW	1/ 3/1993	ELY CR/RES 24	0.060 AFT
70646	R	101857	DOHERTY	SESE 21 3S 30E	LW	1/ 3/1993	RUNOFF/RES 1	0.617 AFT
								0.887 AFT
			MONAHAN CR > ELY CR					
70581	R	101792	KL RANCHES, INC.	NWSE 3 3S 30E	LW	1/ 3/1993	ELY CR/RES 10	0.006 AFT
70582	R	101793	KL RANCHES, INC.	NWNW 10 3S 30E	LW	1/ 3/1993	HARRINGTON CR/	0.040 AFT
70583	R	101794	KL RANCHES, INC.	SENW 15 3S 30E	LW	1/ 3/1993	MONAHAN CR/RES	0.006 AFT
70583	R	101794	KL RANCHES, INC.	SENW 15 3S 30E	LW	1/ 3/1993	MONAHAN CR/RES	0.006 AFT
70646	R	101857	DOHERTY	SESE 3 3S 30E	LW	1/ 3/1993	RUNOFF/RES 4	0.617 AFT
								0.675 AFT

Cert #		Permit	Name	Location				Use	Priority	Source	Quantity
				CATES CAN > MONAHAN CR							
70583	R	101794	KL RANCHES, INC.	NENW 22	3S	30E		LW	1/ 3/1993	MONAHAN CR/RES	0.040 AFT
70583	R	101794	KL RANCHES, INC.	SENE 22	3S	30E		LW	1/ 3/1993	CATES CR/RES 2	0.040 AFT
70583	R	101794	KL RANCHES, INC.	SWNE 22	3S	30E		LW	1/ 3/1993	MONAHAN CR/RES	0.040 AFT
70584	R	101795	KL RANCHES, INC.	NWNW 22	3S	30E		LW	1/ 3/1993	MONAHAN CR/RES	0.040 AFT
70584	R	101795	KL RANCHES, INC.	NENW 22	3S	30E		LW	1/ 3/1993	MONAHAN CR/RES	0.130 AFT
70584	R	101795	KL RANCHES, INC.	SENW 22	3S	30E		LW	1/ 3/1993	MONAHAN CR/RES	0.070 AFT
70584	R	101795	KL RANCHES, INC.	SENW 22	3S	30E		LW	1/ 3/1993	MONAHAN CR/RES	0.070 AFT
70584	R	101795	KL RANCHES, INC.	SENW 22	3S	30E		LW	1/ 3/1993	MONAHAN CR/RES	0.008 AFT
70584	R	101795	KL RANCHES, INC.	SESW 22	3S	30E		LW	1/ 3/1993	MONAHAN CR/RES	0.030 AFT
										==========	
										0.468 AFT	
				POTTS CAN > E FK BUTTER CR							
70583	R	101794	KL RANCHES, INC.	SWSW 14	3S	30E		LW	1/ 3/1993	CATES CR/RES 2	0.040 AFT
										==========	
										0.040 AFT	
				ALEXANDER CR > E FK BUTTER							
12288	S	13073	OREGON DEPARTMENT OF TRANSPO	NENE 29	3S	31E		DO	6/13/1938	UNN SPR 1	0.005 CFS
										==========	
										0.005 CFS	
				UNN STR > ALEXANDER CR							
70568	R	101779	CUNNINGHAM SHEEP & LAND CO.	SWNW 30	3S	31E		LW	1/ 3/1993	RUNOFF/BATTLE	0.300 AFT
70569	R	101780	CUNNINGHAM SHEEEP & LAND CO.	SWSE 30	3S	31E		LW	1/ 3/1993	RUNOFF/HLDNG P	0.200 AFT
70569	R	101780	CUNNINGHAM SHEEEP & LAND CO.	SESE 30	3S	31E		LW	1/ 3/1993	RUNOFF/HLDNG P	0.200 AFT
70570	R	101781	CUNNINGHAM SHEEP & LAND CO.	SESW 30	3S	31E		LW	1/ 3/1993	RUNOFF/BATTLE	0.100 AFT
										==========	
										0.800 AFT	
				UNN STR > ALEXANDER CR							
69783	R	100994	KROSTING	19	3S	31E		LV	1/ 3/1993	A SPR/RES 4	0.030 AFT
69783	R	100994	KROSTING	19	3S	31E		LV	1/ 3/1993	RUNOFF/RES 5	0.480 AFT
										==========	
										0.510 AFT	
				TUNNEL CAN > E FK BUTTER CR							
70568	R	101779	CUNNINGHAM SHEEP & LAND CO.	SESW 23	3S	30.5E		LW	1/ 3/1993	RUNOFF/TUNNEL	0.200 AFT
70568	R	101779	CUNNINGHAM SHEEP & LAND CO.	NENW 6	4S	31E		LW	1/ 3/1993	RUNOFF/CORLEY	0.100 AFT
70568	R	101779	CUNNINGHAM SHEEP & LAND CO.	NENW 5	4S	31E		LW	1/ 3/1993	RUNOFF/CORLEY	0.200 AFT
70569	R	101780	CUNNINGHAM SHEEEP & LAND CO.	SWSW 31	3S	31E		LW	1/ 3/1993	RUNOFF/BATTLE	0.200 AFT
										==========	
										0.700 AFT	
				BUCKHORN CR > E FK BUTTER CR							
70174	R	101385	ANDERSEN	SWNW 9	4S	30E		LV	1/ 3/1993	RUNOFF/RES	6.000 AFT
70646	R	101857	DOHERTY	SWNW 27	3S	30E		LW	1/ 3/1993	RUNOFF/RES 2	0.617 AFT
70646	R	101857	DOHERTY	NWNW 33	3S	30E		LW	1/ 3/1993	RUNOFF/RES 3	0.899 AFT
70646	R	101857	DOHERTY	SWNW 33	3S	30E		LW	1/ 3/1993	RUNOFF/RES 5	0.055 AFT
70646	R	101857	DOHERTY	NESW 33	3S	30E		LW	1/ 3/1993	RUNOFF/RES 6	0.026 AFT
										==========	
										7.598 AFT	
				UNN STR > E FK BUTTER CR							
61276	R	9326	U.S. UMATILLA NATIONAL FORES	NWNW 21	4S	30E		LW	3/ 1/1982	UNN STR	0.050 AFT
0	R	10965	U.S. UMATILLA NATIONAL FORES	NWSW 21	4S	30E		LV	10/ 3/1983	UNN STR	0.090 AFT
0	R	10966	U.S. UMATILLA NATIONAL FORES	SWSW 17	4S	30E		LV	10/ 3/1983	UNN STR	0.150 AFT
0	R	11108	U.S. UMATILLA NATIONAL FORES	NESW 20	4S	30E		LV	10/ 3/1983	UNN STR/SPRUCE	0.064 AFT
0	R	11108	U.S. UMATILLA NATIONAL FORES	NWNW 21	4S	30E		LV	10/ 3/1983	UNN STR/TOMS P	0.122 AFT
										==========	
										0.476 AFT	
				UNN STR > BUTTER CR							
70822	R	102033	DOHERTY	13	2S	29E		LV	1/ 3/1993	A SPR/RES 17	1.012 AFT
70822	R	102033	DOHERTY	13	2S	29E		LV	1/ 3/1993	A SPR/RES 18	0.169 AFT
70822	R	102033	DOHERTY	7	2S	30E		LV	1/ 3/1993	A SPR/RES 19	0.470 AFT
70823	R	102034	DOHERTY	8	2S	30E		LV	1/ 3/1993	RUNOFF/RES 24	0.025 AFT

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
70823	R 102034	DOHERTY	7 2S 30E	LV	1/ 3/1993	RUNOFF.RES 25	0.555 AFT
70823	R 102034	DOHERTY	7 2S 30E	LV	1/ 3/1993	RUNOFF/RES 28	0.456 AFT
70823	R 102034	DOHERTY	8 2S 30E	LV	1/ 3/1993	RUNOFF/RES 29	0.082 AFT
70823	R 102034	DOHERTY	8 2S 30E	LV	1/ 3/1993	RUNOFF/RES 30	0.675 AFT
						==========	
							3.444 AFT
			SPR HOL > BUTTER CR				
70581	R 101792	KL RANCHES, INC.	SENW 20 2S 30E	LW	1/ 3/1993	A SPR/RES 2	0.030 AFT
						==========	
							0.030 AFT
			UNN STR > SPR HOL				
70581	R 101792	KL RANCHES, INC.	NENW 29 2S 30E	LW	1/ 3/1993	A SPR/RES 4	0.040 AFT
70581	R 101792	KL RANCHES, INC.	NESW 29 2S 30E	LW	1/ 3/1993	A SPR /RES 6	0.040 AFT
70582	R 101793	KL RANCHES, INC.	NESE 8 3S 30E	LW	1/ 3/1993	CORLEY CR/RES	0.020 AFT
70824	R 102035	DOHERTY	6 3S 30E	LV	1/ 3/1993	RUNOFF/RES 33	0.050 AFT
70824	R 102035	DOHERTY	7 3S 30E	LV	1/ 3/1993	RUNOFF/RES 34	0.138 AFT
70824	R 102035	DOHERTY	7 3S 30E	LV	1/ 3/1993	RUNOFF/RES 35	0.143 AFT
						==========	
							0.431 AFT
			UNN STR > BUTTER CR				
70777	R 101988	HUGHES RANCH	NWNW 15 2S 29E	LW	1/ 3/1993	RUNOFF/RES 25	0.010 AFT
70821	R 102032	DOHERTY	22 2S 29E	LV	1/ 3/1993	A SPR/RES 1	0.026 AFT
70821	R 102032	DOHERTY	22 2S 29E	LV	1/ 3/1993	A SPR/RES 2	0.144 AFT
70821	R 102032	DOHERTY	22 2S 29E	LV	1/ 3/1993	A SPR/RES 3	0.077 AFT
						==========	
							0.257 AFT
			CUNHA CAN > BUTTER CR				
70777	R 101988	HUGHES RANCH	NWNW 21 2S 29E	LW	1/ 3/1993	RUNOFF/RES 24	0.020 AFT
70821	R 102032	DOHERTY	20 2S 29E	LV	1/ 3/1993	A SPR/RES 4	0.843 AFT
						==========	
							0.863 AFT
			PAGET CAN > BUTTER CR				
70990	R 102201	HEALY	8 3S 29E	LW	1/ 3/1993	RUNOFF/RES 2	0.030 AFT
70990	R 102201	HEALY	8 3S 29E	LW	1/ 3/1993	A SPR/RES 3	0.003 AFT
70990	R 102201	HEALY	5 3S 29E	LW	1/ 3/1993	RUNOFF/RES 4	0.002 AFT
70990	R 102201	HEALY	5 3S 29E	LW	1/ 3/1993	RUNOFF/RES 5	0.003 AFT
70990	R 102201	HEALY	5 3S 29E	LW	1/ 3/1993	RUNOFF/RES 6	0.060 AFT
70990	R 102201	HEALY	8 3S 29E	LW	1/ 3/1993	RUNOFF/RES 8	0.003 AFT
70990	R 102201	HEALY	8 3S 29E	LW	1/ 3/1993	RUNOFF/RES 10	0.000 AFT
						==========	
							0.102 AFT
			JOHNSON CR > BUTTER CR				
2657	D 2657	CHAPMAN	0 0 0	I*	12/31/1872	JOHNSON CR	0.630 CFS
2672	D 2672	HUFFORD	10 3S 29E	I*	12/31/1892	JOHNSON CR	0.560 CFS
						==========	
							1.190 CFS
			HOODLUM CAN > JOHNSON CR				
70990	R 102201	HEALY	4 3S 29E	LW	1/ 3/1993	RUNOFF/RES 1	0.005 AFT
70990	R 102201	HEALY	4 3S 29E	LW	1/ 3/1993	RUNOFF/RES 7	0.003 AFT
70990	R 102201	HEALY	9 3S 29E	LW	1/ 3/1993	RUNOFF/RES 9	0.030 AFT
						==========	
							0.038 AFT
			FRISCO CAN > JOHNSON CR				
2120	S 1296	HAYES	NENE 20 3S 29E	IR	7/20/1912	UNN BR	0.230 CFS
70776	R 101987	HUGHES RANCH	SENW 27 3S 29E	LW	1/ 3/1993	RUNOFF/RES 6	0.010 AFT
70776	R 101987	HUGHES RANCH	SESW 27 3S 29E	LW	1/ 3/1993	RUNOFF/RES 7	0.020 AFT
70776	R 101987	HUGHES RANCH	SESW 27 3S 29E	LW	1/ 3/1993	RUNOFF/RES 8	0.020 AFT
						==========	
							0.230 CFS
							0.050 AFT

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
			EDWARDS CAN > JOHNSON CR				
70776	R 101987	HUGHES RANCH	SWSW 33 3S 29E	LW	1/ 3/1993	RUNOFF/RES 1	0.390 AFT
70776	R 101987	HUGHES RANCH	SENE 28 3S 29E	LW	1/ 3/1993	RUNOFF/RES 3	0.100 AFT
70776	R 101987	HUGHES RANCH	SENE 33 3S 29E	LW	1/ 3/1993	RUNOFF/RES 4	0.120 AFT
							0.610 AFT
			UNN STR > JOHNSON CR				
70776	R 101987	HUGHES RANCH	NWNE 8 4S 29E	LW	1/ 3/1993	RUNOFF/RES 2	0.250 AFT
70776	R 101987	HUGHES RANCH	NESE 9 4S 29E	LW	1/ 3/1993	RUNOFF/RES 5	0.010 AFT
							0.260 AFT
			UNN STR > JOHNSON CR				
63919	S 48775	U.S. UMATILLA NATIONAL FORES	SESE 29 4S 29E	LW	10/14/1983	HAPPY HOME SPR	0.004 CFS
71932	R 103143	ARGO	NWNW 29 4S 4E	AS	1/ 3/1993	DORN CR/RES	5.000 AFT
							0.004 CFS
							5.000 AFT
			UNN STR > BUTTER CR				
70824	R 102035	DOHERTY	18 3S 30E	LV	1/ 3/1993	RUNOFF/RES 36	0.215 AFT
							0.215 AFT
			GURDANE CR > BUTTER CR				
28612	R 2127	DOHERTY	0 0 0	IR	3/17/1958	GURDANE CR	1.300 AFT
28613	S 25471	DOHERTY	NWNW 32 3S 30E	IR	3/17/1958	GURDANE CR/RES	0.290 CFS
36677	R 3163	DOHERTY	0 0 0	IR	10/10/1962	GURDANE CR	2.000 AFT
36678	S 28449	DOHERTY	NENE 31 3S 30E	IR	10/10/1962	GURDANE CR/DOH	0.360 CFS
45085	R 5352	DOHERTY	0 0 0	LV	8/16/1968	GURDANE CR/RES	0.010 AFT
45085	R 5352	DOHERTY	0 0 0	IR	8/16/1968	GURDANE CR/RES	0.990 AFT
45085	R 5352	DOHERTY	0 0 0	LV	8/16/1968	GURDANE CR/RES	0.010 AFT
45085	R 5352	DOHERTY	0 0 0	IR	8/16/1968	GURDANE CR/RES	2.390 AFT
0	S 49869	DOHETY	SWNW 32 3S 30E	IR	3/ 1/1979	RESERVOIR 1	0.990 AFT
0	S 49869	DOHETY	NWSW 32 3S 30E	IR	3/ 1/1979	RESERVOIR 2	2.390 AFT
							0.650 CFS
							10.080 AFT

Totals
======
Total CFS: 163.52
Total AFT: 49.80

Acres summary for Butter Creek > Umatilla River 5-29-96

Cert #	Permit	Primary	Supplemental
0	CD 2651	221.57	
0	CD 2653	315.00	
0	CD 2661	18.40	
0	RD 2653	368.50	
0	RD 2661	159.70	
0	S 44615	20.00	
0	S 49869	5.10	
2120	S 1296	18.00	
2649	D 2649	89.00	
2650	D 2650	60.50	
2652	D 2652	144.00	
2654	D 2654	85.00	
2656	D 2656	31.50	
2657	D 2657	36.50	
2658	D 2658	13.00	
2659	D 2659	26.00	
2660	D 2660	36.50	
2662	D 2662	49.50	
2663	D 2663	31.00	
2664	D 2664	114.00	
2665	D 2665	87.60	
2666	D 2666	12.00	
2667	D 2667	25.00	

Cert #	Permit		Primary	Supplemental
2670	D	2670	178.00	
2671	D	2671	107.50	
2672	D	2672	28.00	
2673	D	2673	178.10	
2674	D	2674	234.70	
2675	D	2675	142.50	
2676	D	2676	149.50	
2679	D	2679	166.50	
2680	D	2680	91.00	
2681	D	2681	59.00	
2682	D	2682	96.50	
2685	D	2685	42.00	
2686	D	2686	49.50	
2687	D	2687	486.00	
2688	D	2688	20.00	
2689	D	2689	140.00	
2690	D	2690	148.00	
2693	D	2693	83.30	
2694	D	2694	17.50	
2696	D	2696	214.00	
2697	D	2697	375.00	
2698	D	2698	6.00	
2699	D	2699	113.50	
2700	D	2700	34.00	
2703	D	2703	15.00	
2704	D	2704	31.00	
2706	D	2706	8.33	
2708	D	2708	103.50	
2709	D	2709	79.00	
2847	S	2102	105.00	
3500	S	3877	33.00	
3853	S	3860	18.00	
8795	S	7550	45.00	
10148	S	4482	70.00	
26171	S	24146	48.00	
28613	S	25471	19.40	
28734	S	18911	157.60	
31293	S	26320	4.40	
32597	S	26265	0.40	31.50
36678	S	28449	24.00	
40397	D	2695	14.30	
44542	D	2695	164.10	
46612	S	40167	5.00	
49074	D	2702	107.00	
49207	D	2707	9.20	
49217	D	2678	98.40	
51357	D	2668	89.70	
52817	D	2669	109.90	
53666	D	2692	326.00	
56395	D	2677	64.20	
60011	D	2707	20.30	
60012	D	2710	20.00	
60455	D	2655	58.00	
60951	S	3694	51.00	
60952	D	2683	202.50	
61697	S	41446	26.10	
61998	D	2705	118.40	
63270	D	2702	105.50	
63802	D	2692	429.00	
63814	D	2678	70.60	
67877	D	2653	681.90	

Water Rights Information System (WRIS)
Data Considerations

When using data and information from the WRIS system be aware of the following considerations:

- The WRIS data base is a representation of the information contained in the legal rights of record. More complete information is contained in the paper records associated with a water right.
- The data in WRIS does not reflect actual use of a water right.
- The data does not reflect transfers associated with irrigation districts.
- The Department has issued water rights using a variety of measurements methods. With the exception of acre-feet and gallons per minute, all units were converted to cubic feet per second prior to entry in the database. In summary reports gallons per minute are converted to cubic feet second and acre-feet summaries are listed separate.
- Many adjudicated rights do not list a maximum rate of diversion or locations on the certificate. In these cases the database may not include rate or location information.
- When multiple uses are listed on a right, often the Department did NOT associate a particular rate with each use. In those cases all of the rate is listed with one use and the other uses are listed as alternate with the same rate.
- For summary reports, groundwater diversions are grouped together according to the nearest stream and are not necessarily based on hydraulic connection.

5/30/1996

Summary of quantities for the tributaries of McKay Creek

/ Non-Canceled rights only \
/ Primary diversions only \
/ Groundwater rights not included \
/ Surface water rights included \
/ Reservoir rights included \

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
		MCKAY CR > UMATILLA R					
2506	D 2506	CROW	0 0 0	DS	/ /	MCKAY CR	0.0000
2504	D 2504	CHENEY	0 0 0	I*	12/31/1880	MCKAY CR	0.750 CFS
2571	D 2571	KANE	0 0 0	I*	6/16/1891	MCKAY CR	0.540 CFS
2503	D 2503	CARNEY	SENE 30 1S 34E	I*	12/31/1891	MCKAY CR	0.170 CFS
2605	D 2605	PERRIN	0 0 0	I*	12/31/1891	MCKAY CR	0.150 CFS
2612	D 2612	ROTHLIN	0 0 0	I*	12/31/1891	MCKAY CR	0.190 CFS
41634	D 2517	MILLER	SESE 35 1N 32E	I*	12/31/1891	MCKAY CR	0.690 CFS
0	DN 324214	STEPHENS	0 0 0	IR	12/31/1892	MCKAY CR	0.380 CFS
2549	D 2549	HOPPER	0 0 0	I*	12/31/1892	MCKAY CR	0.130 CFS
68115	D 2615	SHAW	NWNE 23 1N 32E	I*	12/31/1892	MCKAY CR	1.080 CFS
2515	D 2515	DUNN	0 0 0	I*	12/31/1893	MCKAY CR	0.060 CFS
2572	D 2572	KEMLER	0 0 0	I*	12/31/1893	MCKAY CR	0.410 CFS
2580	D 2580	MANNING	0 0 0	I*	12/31/1893	MCKAY CR	0.130 CFS
2617	D 2617	SIMON	0 0 0	I*	4/30/1894	MCKAY CR	0.020 CFS
2631	D 2631	COUNTY OF UMATILLA	16 2N 32E	I*	12/31/1894	MCKAY CR	1.220 CFS
51877	D 2606	DOHERTY	SESE 35 1N 32E	IL	12/31/1894	MCKAY CR	0.080 CFS
53297	D 29799	R.L. SMITH, & HAROLD BARTSCH	SENW 21 2N 32E	I*	12/31/1894	MCKAY CR	1.190 CFS
55608	D 2573	R & B BYER, JIM & L GUGIN, L	SWSE 21 2N 32E	I*	12/31/1894	MCKAY CR	0.160 CFS
2482	D 2482	ADAMS	0 0 0	I*	12/31/1895	MCKAY CR	0.050 CFS
2496	D 2496	BROWN	0 0 0	I*	12/31/1895	MCKAY CR	0.100 CFS
2502	D 2502	CARD	0 0 0	I*	12/31/1895	MCKAY CR	1.200 CFS
36470	D 2634	GILLILAND	SENW 1 1S 32E	I*	12/31/1895	MCKAY CR	0.250 CFS
68114	D 2625	STONEBREAKER	NWSW 14 1N 32E	I*	12/31/1896	MCKAY CR	0.440 CFS
0	CD 2611	SAXTON	SESE 1 1S 32E	IR	4/30/1902	MCKAY CR	0.044 CFS
57568	D 2611	SUTHERLAND	SWSE 1 1S 32E	I*	4/30/1902	MCKAY CR	0.201 CFS
65492	D 2611	SUTHERLAND	SWSE 1 1S 32E	I*	4/30/1902	MCKAY CR	0.157 CFS
68052	D 2611	FARIS	SESE 1 1S 32E	IR	4/30/1902	MCKAY CR	0.039 CFS
0	CD 2560	MCKAY	NWNW 34 2N 32E	IR	1/31/1904	MCKAY CR	0.060 CFS
55330	D 2560	ELDER	0 0 0	I*	1/31/1904	MCKAY CR	0.550 CFS
0	DN1443228	MILLER	0 0 0	IR	12/31/1904	MCKAY CR	0.0000
68115	D 2615	SHAW	NWNE 23 1N 32E	I*	12/31/1904	MCKAY CR	1.080 CFS
2482	D 2482	ADAMS	0 0 0	I*	12/31/1905	MCKAY CR	0.150 CFS
2510	D 2510	DAVIS	0 0 0	I*	12/31/1906	MCKAY CR	0.060 CFS
2549	D 2549	HOPPER	0 0 0	I*	12/31/1906	MCKAY CR	0.380 CFS
2580	D 2580	MANNING	0 0 0	I*	12/31/1907	MCKAY CR	0.150 CFS
2510	D 2510	DAVIS	0 0 0	I*	12/31/1908	MCKAY CR	0.260 CFS
474	S 346	COOK	NENW 28 1S 34E	IR	5/23/1910	MCKAY CR	0.125 CFS
1634	S 367	WYNN	0 0 0	IR	5/31/1910	MCKAY CR	0.200 CFS
885	S 360	SCHMIDT	0 0 0	IR	6/ 7/1910	MCKAY CR	0.130 CFS
0	CS 652	BAFUS, VICTORIA P TRUSTEE; P	NWNW 16 2N 32E	IR	5/ 3/1911	MCKAY CR	0.050 CFS
68339	S 652	GRAHAM, E M	NWNW 16 2N 32E	IR	5/ 3/1911	MCKAY CR	0.060 CFS
55836	S 1540	MARION JACK IRRIGATION CO.	0 0 0	IR	1/ 3/1912	MCKAY CR	2.260 CFS
41635	S 1850	ESTATE OF CARL WILSON	SWNW 1 1S 32E	IR	12/24/1913	MCKAY CR	0.190 CFS
1680	S 3303	MILLER	0 0 0	IR	3/10/1917	MCKAY CR	0.740 CFS
5100	S 5996	TULLIS, JR.	0 0 0	IR	8/16/1923	MCKAY CR	0.300 CFS
5168	S 6150	MILLER	0 0 0	IR	1/ 9/1924	MCKAY CR	0.280 CFS
7329	S 6151	BOESCH	0 0 0	IR	1/ 9/1924	MCKAY CR	0.270 CFS
32392	S 6444	PEOPLES WAREHOUSE	NESE 5 1S 33E	IR	8/11/1924	MCKAY CR	0.230 CFS
48553	S 6444	STANHOPE	SENW 5 1S 33E	IR	8/11/1924	MCKAY CR	0.280 CFS
8784	S 6683	ECKLES	NWNW 18 1S 34E	IR	3/11/1925	MCKAY CR	0.260 CFS
13489	S 12262	MILLER	NENE 28 2N 32E	IR	7/14/1936	MCKAY CR	0.025 CFS
0	CS 12309	BALLOU	NWNW 16 2N 32E	IR	8/14/1936	MCKAY CR	0.100 CFS
53298	S 14294	R.L. SMITH, & HAROLD BARTSCH	SENW 21 2N 32E	IR	4/13/1940	MCKAY CR	0.470 CFS
23675	S 22362	KOPP	SWNE 28 2N 32E	IR	3/19/1953	MCKAY CR	0.060 CFS
28609	S 22769	WYLAND	NESE 28 2N 32E	IR	1/ 4/1954	A SPR	0.250 CFS
24354	S 23469	WYLAND	NESE 28 2N 32E	IR	3/29/1955	A SPR	0.005 CFS
38483	S 28206	KOPP	SWSE 21 2N 32E	IR	7/18/1962	UNN SL	0.080 CFS
54725	S 30101	SUTHERLAND	SENW 1 1S 32E	IR	10/23/1964	MCKAY CR	0.400 CFS
41035	S 32571	MILLER	SESE 35 1N 32E	IR	5/ 1/1967	MCKAY CR	0.460 CFS
42345	S 33142	RICE	SWNW 1 1S 32E	IR	1/ 4/1968	MCKAY CR	0.210 CFS
46101	S 33257	JANIECE HELEN STANHOPE	NESW 6 1S 33E	IR	2/ 8/1968	MCKAY CR	0.310 CFS
49083	S 33258	JANIECE H STANHOPE	SENW 5 1S 33E	IR	2/ 8/1968	A SPR	0.220 CFS
42349	S 34664	RICE	SWNW 1 1S 32E	IR	5/22/1970	MCKAY CR	0.100 CFS
45092	S 37639	SUTHERLAND	NESW 1 1S 32E	IR	2/27/1973	MCKAY CR	0.110 CFS

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
55004	S 38161	LOREE TUCKER - MCKENNA	SWNW 34 2N 32E	IR	5/29/1973	TWO SPR STRS	0.150 CFS
63285	S 42032	ANDERSON LAND AND LIVESTOCK	NWSW 4 1S 33E	IR	8/ 5/1977	MCKAY CR	0.480 CFS
63285	S 42032	ANDERSON LAND AND LIVESTOCK	NWSW 7 1S 34E	IR	8/ 5/1977	MCKAY CR	0.320 CFS
55607	S 42712	BETTY GENE SWEEK	NWSE 21 2N 32E	IR	11/ 3/1977	MCKAY CR	0.030 CFS
58494	S 44219	HETTINGA	SWNE 5 1S 33E	IR	5/17/1979	UNN POND	0.500 CFS
69629	R 100840	BOISE CASCADE CORP.	11 2S 35E	LW	1/ 3/1993	SPRING CR/RES	1.300 AFT
70968	R 102179	LOUISIANA PACIFIC CORP.	NWNW 11 2S 35E	LW	1/ 3/1993	RUNOFF/RES 14	0.100 AFT
72075	R 103286	SCHEELER	SENE 28 2N 32E	IR	1/ 3/1993	SPRS/RES	2.000 AFT
0	S 51676	U.S. BUREAU OF RECLAMATION	NWSE 34 2N 32E	FI	6/21/1993	MCKAY RES	12000.000 AFT
						==========	
						22.176 CFS	
						12003.400 AFT	
			LITTLE MCKAY CR > MCKAY CR				
2538	D 2538	HARRISON	SESE 11 1S 32E	I*	12/31/1892	LITTLE MCKAY C	0.050 CFS
2547	D 2547	HOEFT	SENW 17 1S 33E	I*	4/30/1910	LITTLE MCKAY C	0.060 CFS
						==========	
						0.110 CFS	
			N FK MCKAY CR > MCKAY CR				
2609	D 2609	ROACH	0 1N 33E	DS	12/31/1891	N FK MCKAY CR	0.0000
2609	D 2609	ROACH	0 1N 33E	DS	12/31/1892	N FK MCKAY CR	0.0000
63285	S 42032	ANDERSON LAND AND LIVESTOCK	NWNW 6 1S 34E	IR	8/ 5/1977	N FK MCKAY CR	0.010 CFS
70301	R 101512	MARTIN	NENW 6 1S 34E	LW	1/ 3/1993	RUNOFF/RES 8	0.230 AFT
70301	R 101512	MARTIN	NENW 6 1S 34E	LW	1/ 3/1993	RUNOFF/RES 9	0.012 AFT
70301	R 101512	MARTIN	NESE 6 1S 34E	LW	1/ 3/1993	RUNOFF/RES 10	0.002 AFT
						==========	
						0.010 CFS	
						0.244 AFT	
			UNN STR > N FK MCKAY CR				
70763	R 101974	ENGELSTAD, PATRICIA E	0 1S 33E	WI	1/ 3/1993	RUNOFF/RES	1.000 AFT
						==========	
						1.000 AFT	
			CALAMITY CR > N FK MCKAY CR				
70560	R 101771	ANDERSON LAND AND LIVESTOCK	NWNW 3 1S 34E	LW	1/ 3/1993	A SPR/RES 6	1.470 AFT
						==========	
						1.470 AFT	
			UNN STR > CALAMITY CR				
70302	R 101513	MARLIN	NWSE 33 1N 34E	LW	1/ 3/1993	RUNOFF/RES 11	0.008 AFT
70560	R 101771	ANDERSON LAND AND LIVESTOCK	SESE 33 1N 34E	LW	1/ 3/1993	A SPR/RES 7	0.060 AFT
						==========	
						0.068 AFT	
			UNN STR > N FK MCKAY CR				
70301	R 101512	MARTIN	NWNE 30 1N 34E	LW	1/ 3/1993	RUNOFF/RES 1	0.002 AFT
70301	R 101512	MARTIN	NWNE 30 1N 34E	LW	1/ 3/1993	RUNOFF/RES 2	0.012 AFT
70301	R 101512	MARTIN	SENW 31 1N 34E	LW	1/ 3/1993	RUNOFF/RES 5	0.010 AFT
70301	R 101512	MARTIN	SENW 31 1N 34E	LW	1/ 3/1993	RUNOFF/RES 6	0.012 AFT
70301	R 101512	MARTIN	NESW 31 1N 34E	LW	1/ 3/1993	RUNOFF/RES 7	0.008 AFT
70303	R 101514	MARTIN	SWSW 30 1N 34E	LW	1/ 3/1993	RUNOFF/RES 24	0.050 AFT
						==========	
						0.094 AFT	
			UNN STR > N FK MCKAY CR				
70301	R 101512	MARTIN	NWNW 29 1N 34E	LW	1/ 3/1993	RUNOFF/RES 3	0.012 AFT
70301	R 101512	MARTIN	NWNE 29 1N 34E	LW	1/ 3/1993	RUNOFF/RES 4	0.012 AFT
						==========	
						0.024 AFT	
			BELL COW CR > N FK MCKAY CR				
70302	R 101513	MARLIN	SWSE 34 1N 34E	LW	1/ 3/1993	RUNOFF/RES 12	0.033 AFT
70302	R 101513	MARLIN	SWNW 34 1N 34E	LW	1/ 3/1993	RUNOFF/RES 13	0.012 AFT
70302	R 101513	MARLIN	NWNW 27 1N 34E	LW	1/ 3/1993	RUNOFF/RES 14	0.050 AFT
						==========	
						0.095 AFT	

Cert #		Permit	Name	Location				Use	Priority	Source	Quantity
				UNN STR > BELL COW CR							
70302	R	101513	MARLIN	NENW 26	1N	34E		LW	1/ 3/1993	RUNOFF/RES 15	0.002 AFT
70302	R	101513	MARLIN	SENW 26	1N	34E		LW	1/ 3/1993	RUNOFF/RES 16	0.050 AFT
70302	R	101513	MARLIN	SENW 26	1N	34E		LW	1/ 3/1993	RUNOFF/RES 17	0.050 AFT
70302	R	101513	MARLIN	SENE 26	1N	34E		LW	1/ 3/1993	RUNOFF/RES 18	0.060 AFT
70302	R	101513	MARLIN	SESE 26	1N	34E		LW	1/ 3/1993	RUNOFF/RES 19	0.020 AFT
70302	R	101513	MARLIN	NESW 25	1N	34E		LW	1/ 3/1993	RUNOFF/RES 20	0.003 AFT
70303	R	101514	MARTIN	NESW 25	1N	34E		LW	1/ 3/1993	RUNOFF/RES 21	0.040 AFT
70303	R	101514	MARTIN	NWNE 25	1N	34E		LW	1/ 3/1993	RUNOFF/RES 22	0.005 AFT
										==========	
										0.230 AFT	
				UNN STR > N FK MCKAY CR							
70560	R	101771	ANDERSON LAND AND LIVESTOCK	NWNW 10	1N	34E		LW	1/ 3/1993	RUNOFF/RES 8	0.060 AFT
										==========	
										0.060 AFT	
				DARR CR > N FK MCKAY CR							
70303	R	101514	MARTIN	SWSE 24	1N	34E		LW	1/ 3/1993	RUNOFF/RES 23	0.014 AFT
										==========	
										0.014 AFT	
				UNN STR > MCKAY CR							
70560	R	101771	ANDERSON LAND AND LIVESTOCK	SESW 12	1S	33E		LW	1/ 3/1993	RUNOFF/RES 1	0.150 AFT
										==========	
										0.150 AFT	
				LAWLER CAN > MCKAY CR							
70073	R	101285	SKILLMAN	8	1S	34E		LW	1/ 3/1993	RUNOFF/RES 1	0.010 AFT
70073	R	101285	SKILLMAN	8	1S	34E		LW	1/ 3/1993	RUNOFF/RES 5	0.010 AFT
70560	R	101771	ANDERSON LAND AND LIVESTOCK	SENE 8	1S	34E		LW	1/ 3/1993	A SPR/RES 2	0.090 AFT
										==========	
										0.110 AFT	
				SEVENMILE CR > MCKAY CR							
1637	S	562	WRIGHT	SWSW 19	1S	34E		ID	1/28/1911	SEVENMILE CR	0.230 CFS
										==========	
										0.230 CFS	
				WOOD HOL > MCKAY CR							
70274	R	101485	LOUISIANA PACIFIC	SWNW 4	2S	33E		LW	1/ 3/1993	RUNOFF/RES 6	0.002 AFT
70274	R	101485	LOUISIANA PACIFIC	NESW 4	2S	33E		LW	1/ 3/1993	RUNOFF/RES 8	0.008 AFT
70274	R	101485	LOUISIANA PACIFIC	NWSE 4	2S	33E		LW	1/ 3/1993	RUNOFF/RES 11	0.011 AFT
										==========	
										0.021 AFT	
				LAKE CR > WOOD HOL							
70274	R	101485	LOUISIANA PACIFIC	SWSE 6	2S	34E		LW	1/ 3/1993	RUNOFF/RES 24	0.007 AFT
										==========	
										0.007 AFT	
				UNN STR > LITTLE WOOD HOL							
70274	R	101485	LOUISIANA PACIFIC	SENE 12	2S	33E		LW	1/ 3/1993	RUNOFF/RES 18	0.008 AFT
70274	R	101485	LOUISIANA PACIFIC	SESE 12	2S	33E		LW	1/ 3/1993	RUNOFF/RES 20	0.005 AFT
										==========	
										0.013 AFT	
				RAIL CR > MCKAY CR							
70073	R	101285	SKILLMAN	2	1S	34E		LW	1/ 3/1993	RUNOFF/RES 3	0.010 AFT
70073	R	101285	SKILLMAN	2	1S	34E		LW	1/ 3/1993	RUNOFF/RES 4	0.010 AFT
70560	R	101771	ANDERSON LAND AND LIVESTOCK	SENW 10	1S	34E		LW	1/ 3/1993	A SPR/RES 4	0.070 AFT
70560	R	101771	ANDERSON LAND AND LIVESTOCK	SWNE 10	1S	34E		LW	1/ 3/1993	A SPR/RES 5	0.400 AFT
										==========	
										0.490 AFT	

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
			LITTLE RAIL CR > RAIL CR				
70073	R 101285	SKILLMAN	9 1S 34E	LW	1/ 3/1993	RUNOFF/RES 1	0.010 AFT
70560	R 101771	ANDERSON LAND AND LIVESTOCK	NESE 9 1S 34E	LW	1/ 3/1993	A SPR/RES 3	0.070 AFT
							0.080 AFT
			GIBSON CAN > MCKAY CR				
70274	R 101485	LOUISIANA PACIFIC	SWNW 29 1S 34E	LW	1/ 3/1993	RUNOFF/RES 35	0.066 AFT
							0.066 AFT
			BASSEY CR > MCKAY CR				
70274	R 101485	LOUISIANA PACIFIC	SWSW 7 2S 34E	LW	1/ 3/1993	RUNOFF/RES 27	0.009 AFT
70274	R 101485	LOUISIANA PACIFIC	NENE 13 2S 33E	LW	1/ 3/1993	RUNOFF/RES 40	0.013 AFT
							0.022 AFT
			JOHNSON CR > MCKAY CR				
71515	R 102726	U.S. WALLOWA WHITMAN NATIONA	NENE 32 2S 35E	LW	1/ 3/1993	A SPR/FERRIN P	5.000 AFT
							5.000 AFT
			COYOTE CAN > RED SPRING CAN				
70073	R 101285	SKILLMAN	18 1S 35E	LW	1/ 3/1993	RUNOFF/RES 6	0.010 AFT
							0.010 AFT
			UNN STR > MCKAY CR				
70967	R 102178	LOUISIANA PACIFIC CORP.	SENE 7 2S 35E	LW	1/ 3/1993	A SPR/RES 23	0.300 AFT
70967	R 102178	LOUISIANA PACIFIC CORP.	NWNE 7 2S 35E	LW	1/ 3/1993	RUNOFF/RES 24	0.300 AFT
70967	R 102178	LOUISIANA PACIFIC CORP.	SENE 6 2S 35E	LW	1/ 3/1993	RUNOFF/RES 26	0.800 AFT
							1.400 AFT
			SNIPE CR > MCKAY CR				
70967	R 102178	LOUISIANA PACIFIC CORP.	SENW 17 2S 35E	LW	1/ 3/1993	RUNOFF/RES 21	0.300 AFT
70967	R 102178	LOUISIANA PACIFIC CORP.	SWNE 17 2S 35E	LW	1/ 3/1993	RUNOFF/RES 22	0.500 AFT
70967	R 102178	LOUISIANA PACIFIC CORP.	NWNW 8 2S 35E	LW	1/ 3/1993	RUNOFF/RES 25	0.200 AFT
							1.000 AFT
			UNN STR > MCKAY CR				
70968	R 102179	LOUISIANA PACIFIC CORP.	NESE 33 1S 35E	LW	1/ 3/1993	A SPR/RES 13	0.100 AFT
							0.100 AFT
			UNN STR > MCKAY CR				
70945	R 102156	PENDLETON RANCHES	SWNE 16 2S 35E	LW	1/ 3/1993	A SPR/RES 22	0.680 AFT
70967	R 102178	LOUISIANA PACIFIC CORP.	SENW 4 2S 35E	LW	1/ 3/1993	A SPR/RES 19	0.100 AFT
70967	R 102178	LOUISIANA PACIFIC CORP.	NWSW 9 2S 35E	LW	1/ 3/1993	A SPR/RES 20	0.200 AFT
							0.980 AFT

Totals
======
Total CFS: 22.53
Total AFT: 12016.15

Acres summary for McKay Creek > Umatilla River 5-29-96

Cert #	Permit	Primary	Supplemental
0	CD 2560	5.00	
0	CD 2611	3.50	
0	CS 652	4.00	

Cert #	Permit	Primary	Supplemental
0	CS 12309	8.00	
0	DN 324214	30.00	
0	DN1443228	26.40	
474	S 346	10.00	
885	S 360	10.00	
1634	S 367	15.00	
1637	S 562	10.00	
1680	S 3303	59.00	
2482	D 2482	16.00	
2496	D 2496	8.00	
2502	D 2502	99.00	
2503	D 2503	14.00	
2504	D 2504	60.00	
2510	D 2510	26.00	
2515	D 2515	5.00	
2538	D 2538	4.00	
2547	D 2547	5.00	
2549	D 2549	40.00	
2571	D 2571	43.00	
2572	D 2572	33.00	
2580	D 2580	21.85	
2605	D 2605	12.00	
2612	D 2612	15.00	
2617	D 2617	1.50	
2631	D 2631	97.40	
5100	S 5996	24.00	
5168	S 6150	22.20	
7329	S 6151	22.00	
8784	S 6683	21.00	
13489	S 12262	1.90	
23675	S 22362	4.40	
24354	S 23469	0.40	8.40
28609	S 22769	19.70	
32392	S 6444	18.80	
36470	D 2634	20.00	
38483	S 28206	6.60	
41035	S 32571	36.90	
41634	D 2517	62.00	
41635	S 1850	15.00	
42345	S 33142	14.00	
42349	S 34664	8.00	
45092	S 37639	4.30	
46101	S 33257	16.40	
48553	S 6444	22.20	
49083	S 33258	8.00	
51877	D 2606	5.80	
53297	D 29799	95.66	
53298	S 14294	24.85	
54725	S 30101	31.00	
55004	S 38161	6.40	
55330	D 2560	42.89	
55607	S 42712	2.20	
55608	D 2573	13.00	
55836	S 1540	181.09	
57568	D 2611	15.90	
58494	S 44219	20.00	
63285	S 42032	64.10	
65492	D 2611	12.40	
68052	D 2611	3.10	
68114	D 2625	35.00	
68115	D 2615	85.00	
68339	S 652	4.50	

Water Rights Information System (WRIS)
Data Considerations

When using data and information from the WRIS system be aware of the following considerations:

- The WRIS data base is a representation of the information contained in the legal rights of record. More complete information is contained in the paper records associated with a water right.
- The data in WRIS does not reflect actual use of a water right.
- The data does not reflect transfers associated with irrigation districts.
- The Department has issued water rights using a variety of measurements methods. With the exception of acre-feet and gallons per minute, all units were converted to cubic feet per second prior to entry in the database. In summary reports gallons per minute are converted to cubic feet second and acre-feet summaries are listed separate.
- Many adjudicated rights do not list a maximum rate of diversion or locations on the certificate. In these cases the database may not include rate or location information.
- When multiple uses are listed on a right, often the Department did NOT associate a particular rate with each use. In those cases all of the rate is listed with one use and the other uses are listed as alternate with the same rate.
- For summary reports, groundwater diversions are grouped together according to the nearest stream and are not necessarily based on hydraulic connection.

5/30/1996

Summary of quantities for the tributaries of Mission Creek

/ Non-Canceled rights only \
/ Primary diversions only \
/ Groundwater rights not included \
/ Surface water rights included \
/ Reservoir rights included \

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
			MISSION CR > Umatilla R				
883	S 327	PIONEER EDUCATIONAL SOCIETY	SENW 30 2N 34E	DO	6/ 8/1910	A SPR	0.200 CFS
1645	S 1071	PIONEER EDUCATIONAL SOCIETY	0 0 0	IL	2/ 5/1912	MISSION CR	0.190 CFS
7092	S 6464	KOEPPEN	SESE 5 1N 34E	IR	8/ 4/1924	THREE UNN SPRS	0.130 CFS
47962	S 36997	CLARK	NENW 9 2N 33E	IR	6/15/1972	MISSION CR	0.025 CFS
						==========	
						0.545 CFS	
			UNN STR > MISSION CR				
2624	D 2624	ST ANDREWS MISSION	SWNE 25 2N 33E	DS	3/31/1893	SPRS	0.100 CFS
						==========	
						0.100 CFS	

Totals
======
Total CFS: 0.65
Total AFT: 0.00

Acres summary for Mission Creek > Umatilla River 5-29-96

Cert #	Permit	Primary	Supplemental
1645	S 1071	7.00	
7092	S 6464	10.00	
47962	S 36997	2.00	

Water Rights Information System (WRIS)
Data Considerations

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- The WRIS data base is a representation of the information contained in the legal rights of record. More complete information is contained in the paper records associated with a water right.
- The data in WRIS does not reflect actual use of a water right.
- The data does not reflect transfers associated with irrigation districts.
- The Department has issued water rights using a variety of measurements methods. With the exception of acre-feet and gallons per minute, all units were converted to cubic feet per second prior to entry in the database. In summary reports gallons per minute are converted to cubic feet second and acre-feet summaries are listed separate.
- Many adjudicated rights do not list a maximum rate of diversion or locations on the certificate. In these cases the database may not include rate or location information.
- When multiple uses are listed on a right, often the Department did NOT associate a particular rate with each use. In those cases all of the rate is listed with one use and the other uses are listed as alternate with the same rate.
- For summary reports, groundwater diversions are grouped together according to the nearest stream and are not necessarily based on hydraulic connection.

5/30/1996

Summary of quantities for the tributaries of North Fork Umatilla River

/ Non-Canceled rights only \
/ Primary diversions only \
/ Groundwater rights not included \
/ Surface water rights included \
/ Reservoir rights included \

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
		N FK UMATILLA R > UMATILLA R					
0	S 458	CITY OF PENDLETON	SWNW 22 3N 37E	MU	11/12/1910	N FK UMATILLA	8.000 CFS
70062	R 101274	U.S. UMATILLA NATIONAL FORES	SESW 22 3N 38E	LW	1/ 3/1993	RUNOFF/WEST	0.200 AFT
						==========	
						8.000 CFS	
						0.200 AFT	
		UNN STR > N FK UMATILLA R					
12497	S 13828	U.S. UMATILLA NATIONAL FORES	SESW 10 3N 38E	DO	6/19/1939	SPOUT SPR	0.015 CFS
						==========	
						0.015 CFS	

Totals
======
Total CFS: 8.02
Total AFT: 0.20

Acres summary for North Fork Umatilla R > Umatilla River 5-29-96

Cert #	Permit	Primary	Supplemental

Water Rights Information System (WRIS)
Data Considerations

When using data and information from the WRIS system be aware of the following considerations:

- The WRIS data base is a representation of the information contained in the legal rights of record. More complete information is contained in the paper records associated with a water right.
- The data in WRIS does not reflect actual use of a water right.
- The data does not reflect transfers associated with irrigation districts.
- The Department has issued water rights using a variety of measurements methods. With the exception of acre-feet and gallons per minute, all units were converted to cubic feet per second prior to entry in the database. In summary reports gallons per minute are converted to cubic feet second and acre-feet summaries are listed separate.
- Many adjudicated rights do not list a maximum rate of diversion or locations on the certificate. In these cases the database may not include rate or location information.
- When multiple uses are listed on a right, often the Department did NOT associate a particular rate with each use. In those cases all of the rate is listed with one use and the other uses are listed as alternate with the same rate.
- For summary reports, groundwater diversions are grouped together according to the nearest stream and are not necessarily based on hydraulic connection.

5/30/1996

Summary of quantities for the tributaries of South Fork Umatilla River

/ Non-Canceled rights only \
/ Primary diversions only \
/ Groundwater rights not included \
/ Surface water rights included \
/ Reservoir rights included \

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
			THOMAS CR > S FK UMATILLA R				
70061	R 101273	U.S. UMATILLA NATIONAL FORES	1 2N 37E	LW	1/ 3/1993	SPRS/RUNOFF/RE	0.060 AFT
							0.060 AFT
			UNN STR > THOMAS CR				
70061	R 101273	U.S. UMATILLA NATIONAL FORES	2 2N 37E	LW	1/ 3/1993	SPRS/RUNOFF/RE	0.260 AFT
							0.260 AFT
			UNN STR > SPRING CR				
0	R 10613	U.S. UMATILLA NATIONAL FORES	SWNW 36 2N 37E	LV	1/17/1986	UNN STR	0.036 AFT
							0.036 AFT
			UNN STR > THOMAS CR				
70060	R 101272	U.S. UMATILLA NATIONAL FORES	NENW 8 2N 38E	LW	1/ 3/1993	RUNOFF/RES 5	0.029 AFT
							0.029 AFT

Totals
======
Total CFS: 0.00
Total AFT: 0.39

Acres summary for South Fork Umatilla River > Umatilla River 5-29-96

Cert #	Permit	Primary	Supplemental

Water Rights Information System (WRIS)
Data Considerations

When using data and information from the WRIS system be aware of the following considerations:

- The WRIS data base is a representation of the information contained in the legal rights of record. More complete information is contained in the paper records associated with a water right.
- The data in WRIS does not reflect actual use of a water right.
- The data does not reflect transfers associated with irrigation districts.
- The Department has issued water rights using a variety of measurements methods. With the exception of acre-feet and gallons per minute, all units were converted to cubic feet per second prior to entry in the database. In summary reports gallons per minute are converted to cubic feet second and acre-feet summaries are listed separate.
- Many adjudicated rights do not list a maximum rate of diversion or locations on the certificate. In these cases the database may not include rate or location information.
- When multiple uses are listed on a right, often the Department did NOT associate a particular rate with each use. In those cases all of the rate is listed with one use and the other uses are listed as alternate with the same rate.
- For summary reports, groundwater diversions are grouped together according to the nearest stream and are not necessarily based on hydraulic connection.

5/30/1996

Summary of quantities for the tributaries of Tutuilla Creek

/ Non-Canceled rights only \
/ Primary diversions only \
/ Groundwater rights not included \
/ Surface water rights included \
/ Reservoir rights included \

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
		TUTUILLA CR > UMATILLA R					
2632	D 2632	M.F. UMBARGER	0 0 0	I*	/ /	TUTUILLA CR	1.000 CFS
2561	D 2561	JACOBS	0 0 0	I*	5/31/1895	TUTUILLA CR	0.290 CFS
65146	D 2492	BOWMAN	0 2N 32E	IR	12/31/1900	TUTUILLA CR	0.406 CFS
2513	D 2513	DOHERTY	0 0 0	I*	3/31/1908	TUTUILLA CR	0.190 CFS
4958	S 4957	DEVORE	0 0 0	IR	2/17/1921	TUTUILLA CR	0.030 CFS
9495	S 8372	PORTER	NENW 15 2N 32E	IR	10/25/1927	SPRINGS/TUITUI	0.040 CFS
38863	S 31490	CAMPBELL	NENW 15 2N 32E	IR	4/ 7/1966	TUTUILLA CR	0.130 CFS
40944	S 32653	GRIFFEN	SENW 15 2N 32E	IR	6/ 5/1967	TUTUILLA CR	0.030 CFS
						==========	
						2.116 CFS	
		PATAWA CR > TUTUILLA CR					
50536	S 1568	HOBBY	NESE 26 2N 33E	ID	4/26/1913	A SPR	0.110 CFS
8428	S 7209	HUMPHREY	SWSE 18 2N 33E	LV	2/24/1926	A SPR	0.050 CFS
45220	S 33931	PETERSON	NESW 18 2N 33E	IR	2/ 7/1969	PATAWA CR	0.340 CFS
44025	S 34360	UMBARGER	NWNE 20 2N 33E	IR	5/ 2/1969	PATAWA CR	1.820 CFS
46359	S 34897	WILSON	NWSW 5 1N 34E	IR	2/ 9/1970	UNN SPR	0.050 CFS
0	S 37177	GWENDOLYN SMITH	SESW 5 1N 34E	LV	8/28/1972	SPRING 1	0.004 CFS
0	S 37177	GWENDOLYN SMITH	SESW 5 1N 34E	LV	8/28/1972	SPRING 2	0.006 CFS
48084	S 39224	CURL JR	SWSE 18 2N 33E	IR	10/22/1974	PATAWA CR	0.250 CFS
62058	S 45086	BURNS	SENW 14 2N 32E	IR	4/28/1980	PATAWA CR	0.070 CFS
						==========	
						2.700 CFS	

Totals
======
Total CFS: 4.82
Total AFT: 0.00

Acres summary for Tutuilla Creek > Umatilla River 5-29-96

Cert #	Permit	Primary	Supplemental
2513	D 2513	25.00	
2561	D 2561	22.50	
2632	D 2632	80.00	
4958	S 4957	2.00	
9495	S 8372	3.00	
38863	S 31490	7.20	
40944	S 32653	2.40	
44025	S 34360	61.30	194.90
45220	S 33931	70.70	
46359	S 34897	6.50	
48084	S 39224	27.40	
50536	S 1568	1.00	
62058	S 45086	2.80	
65146	D 2492	33.00	

Water Rights Information System (WRIS)
Data Considerations

When using data and information from the WRIS system be aware of the following considerations:

- The WRIS data base is a representation of the information contained in the legal rights of record. More complete information is contained in the paper records associated with a water right.
- The data in WRIS does not reflect actual use of a water right.
- The data does not reflect transfers associated with irrigation districts.
- The Department has issued water rights using a variety of measurements methods. With the exception of acre-feet and gallons per minute, all units were converted to cubic feet per second prior to entry in the database. In summary reports gallons per minute are converted to cubic feet second and acre-feet summaries are listed separate.
- Many adjudicated rights do not list a maximum rate of diversion or locations on the certificate. In these cases the database may not include rate or location information.
- When multiple uses are listed on a right, often the Department did NOT associate a particular rate with each use. In those cases all of the rate is listed with one use and the other uses are listed as alternate with the same rate.
- For summary reports, groundwater diversions are grouped together according to the nearest stream and are not necessarily based on hydraulic connection.

5/30/1996

Summary of claims for the tributaries of N Fk Willamette River

/ Non-Canceled rights only \
/ Primary diversions only \
/ Groundwater rights not included \
/ Surface water rights included \
/ Reservoir rights included \

Cert #	Permit	Name	Location				Use	Priority	Source	Quantity
			UMATILLA R > COLUMBIA R							
2490	D 2490	BOWMAN		0	0	0	I*	12/31/1860	UMATILLA R	0.280 CFS
2584	D 2584	MAXWELL LAND & IRRIGATION CO		21	4N	28E	MU	12/31/1864	MINNEHAHA SPRS	3.000 CFS
0	DN 319501	ALLEN DITCH CO.		0	0	0	IL	12/31/1870	UMATILLA R	11.780 CFS
2641	D 2641	WENAHA SPRINGS CO.		0	0	0	I*	12/31/1880	UMATILLA R	0.190 CFS
2535	D 2535	GULLIFORD		0	0	0	I*	12/31/1883	UMATILLA R	0.460 CFS
2507	D 2507	CUNHA		0	0	0	I*	7/ 1/1884	UMATILLA R	2.070 CFS
2604	D 2604	CITY OF PENDLETON		0	0	0	MU	11/11/1885	UMATILLA R	2.000 CFS
0	DN 324113	LIVESTOCK CO.		0	0	0	IL	2/28/1890	UMATILLA R	0.940 CFS
0	DN 321704	OREGON STATE HOSPITAL, FROM		0	0	0	IR	12/31/1890	UMATILLA R	0.110 CFS
2582	D 2582	CITY OF PENDLETON		0	0	0	I*	12/31/1890	UMATILLA R	0.500 CFS
2619	D 2619	SLOAN		0	0	0	I*	12/31/1892	UMATILLA R	0.270 CFS
0	DN 321303	WEST EXTENSION IRRIGATION DI		0	0	0	I*	4/14/1893	UMATILLA R	25.830 CFS
0	DN 322705	BROWNELL DITCH CO.		0	0	0	I*	11/ 8/1893	UMATILLA R	0.390 CFS
2513	D 2513	DOHERTY	SESW	9	2N	35E	I*	12/31/1893	SPRS	0.130 CFS
11093	D 2595	OREGON-WASHINGTON RAILROAD &	SWSW	3	2N	34E	IM	12/31/1893	UMATILLA R	0.0000
55602	D 2583	MAXWELL IRRIGATION CO.	SENW	8	3N	29E	MU	9/11/1894	UMATILLA R	11.500 CFS
55602	D 2583	MAXWELL IRRIGATION CO.	SENW	8	3N	29E	I*	9/11/1894	UMATILLA R	2.010 CFS
55603	D 2583	OBERSON	SENW	5	3N	29E	IR	9/11/1894	UMATILLA R	0.130 CFS
55604	D 2583	MILLS MINT FARM INC.	NWNW	5	3N	29E	IR	9/11/1894	UMATILLA R	0.410 CFS
0	DN 324215	HERMISTON IRRIGATION DISTRIC		0	0	0	IR	11/14/1894	UMATILLA R	1.000 CFS
2483	D 2483	A-LE-TE-LA		0	0	0	I*	5/23/1895	UMATILLA R	0.300 CFS
2640	D 2640	WA-WA-NE		0	0	0	I*	5/23/1895	UMATILLA R	0.710 CFS
2646	D 2646	WHITE BULL		0	0	0	I*	5/23/1895	UMATILLA R	0.300 CFS
2501	D 2501	CALDWELL		0	0	0	I*	12/31/1895	UMATILLA R	0.170 CFS
2570	D 2570	CAYUSE #248,TO-YAT HEIR OF U		0	0	0	I*	12/31/1895	UMATILLA R	0.010 CFS
2600	D 2600	PAT-SI-AK		0	0	0	I*	12/31/1895	UMATILLA R	0.380 CFS
29165	D 2498	GLENN		0	0	0	IL	12/31/1895	UMATILLA R	0.360 CFS
2607	D 2607	REED		0	0	0	I*	12/31/1896	UMATILLA R	0.060 CFS
53515	D 2491	BOWMAN		0	0	0	I*	12/31/1896	UMATILLA R	0.630 CFS
0	DN 323108	DILLON IRRIGATION DISTRICT		0	0	0	I*	11/17/1897	UMATILLA R	4.750 CFS
2591	D 2591	O'BRIEN	SWSE	1	2N	32E	I*	2/28/1898	O'BRIEN SPRS	0.060 CFS
2487	D 2487	BEITEL DITCH CO.		0	0	0	I*	12/ 1/1898	UMATILLA R	0.700 CFS
2621	D 2621	SNYDER		0	0	0	I*	12/31/1899	UMATILLA R	0.390 CFS
2602	D 2602	ASSIGNEE OF J PELMULDER		0	0	0	I*	1/ 1/1900	UMATILLA R	0.040 CFS
2603	D 2603	ASSIGNEE OF JAY PELMULDER		0	0	0	I*	1/ 1/1900	UMATILLA R	0.060 CFS
0	DN 322806	COURTNEY IRRIGATION CO.		0	0	0	IR	1/ 9/1900	UMATILLA R	6.460 CFS
0	DN 323810	PIONEER IRRIGATION CO.		0	0	0	IR	1/ 9/1900	UMATILLA R	8.400 CFS
0	DN1443229	PIONEER IRRIGATION CO.		0	0	0	IR	1/ 9/1900	UMATILLA R	0.0000
0	DN1442517	ALLEN DITCH CO.		0	0	0	IR	12/31/1900	UMATILLA R	0.0000
0	DN1442518	ANDREWS		0	0	0	IR	12/31/1900	UMATILLA R	0.0000
0	DN1442921	COURTNEY IRRIGATION CO.		0	0	0	IR	12/31/1900	UMATILLA R	0.0000
0	DN1443125	CORREA MACHADO		0	0	0	IR	12/31/1900	UMATILLA R	0.0000
0	DN 322705	BROWNELL DITCH CO.		0	0	0	I*	12/31/1902	UMATILLA R	4.290 CFS
0	DN 324012	SLUSHER		0	0	0	IR	12/31/1902	UMATILLA R	1.100 CFS
0	DN 324113	LIVESTOCK CO.	NWNE	14	2N	31E	IL	12/31/1902	UMATILLA R	0.770 CFS
0	DN1443023	CUNNINGHAM SHEEP CO.		0	0	0	IR	12/31/1902	UMATILLA R	0.0000
0	DN1443126	MCCLINTOCK		0	0	0	IR	12/31/1902	UMATILLA R	0.0000
0	DN 324616	WESTERN LAND & IRRIGATION CO		0	0	0	IR	3/14/1903	UMATILLA R	17.200 CFS
0	DN1442518	ANDREWS		0	0	0	IR	3/14/1903	UMATILLA R	0.0000
0	DN1443732	WESTLAND IRRIGATION DISTRICT		0	0	0	IR	3/14/1903	UMATILLA R	0.0000
0	DN1444133	J L MURRAY		0	0	0	IR	3/14/1903	UMATILLA R	0.0000
2629	D 2629	TEEL		0	0	0	DS	8/ 5/1903	UMATILLA R	0.0000
2577	D 2577	KOONTZ		0	0	0	I*	12/31/1903	UMATILLA R	0.050 CFS
46363	D 2574	KENNISON	SESE	31	4N	29E	I*	12/31/1903	UMATILLA R	0.220 CFS
0	DN 324215	HERMISTON IRRIGATION DISTRIC		0	0	0	IR	2/25/1904	UMATILLA R	115.000 CFS
0	DN 324215	HERMISTON IRRIGATION DISTRIC		0	0	0	IR	2/25/1904	UMATILLA R	25.000 CFS
0	DN 319902	CRAYNE-LISLE IRRIGATION CO.		0	0	0	IL	3/ 7/1904	UMATILLA R	2.820 CFS
0	DN1443022	CRAYNE-LISLE IRRIGATION CO.		0	0	0	IR	3/ 7/1904	UMATILLA R	0.0000
0	CD 2552	LEWIS LIVESTOCK CO.	NESE	16	2N	31E	IR	12/26/1904	UMATILLA R	0.450 CFS
55329	D 2552	HORSESHOE IRRIGATION DISTRIC	SWSE	2	2N	30E	I*	12/26/1904	UMATILLA R	0.810 CFS
0	DN 323309	FURNISH DITCH CO.		0	0	0	IR	3/ 8/1905	UMATILLA R	40.510 CFS
0	DN1443330	STANFIELD IRRIGATION DISTRIC		0	0	0	IR	3/ 8/1905	UMATILLA R	0.0000
0	DN 324215	HERMISTON IRRIGATION DISTRIC		0	0	0	ST	9/ 6/1905	UMATILLA R	50000.000 AFT
0	DN 324215	HERMISTON IRRIGATION DISTRIC		0	0	0	IR	9/ 6/1905	UMATILLA R	350.000 CFS

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
51218	D 2489	UKIAH LUMBER CO. INC.	7 2N 32E	I*	12/31/1905	UMATILLA R	0.250 CFS
51218	D 2489	UKIAH LUMBER CO. INC.	7 2N 32E	IM	12/31/1905	UMATILLA R	0.590 CFS
0	DN1443631	WEST EXTENSION IRRIGATION DI	0 0 0	IR	12/31/1906	UMATILLA R	0.0000
2484	D 2484	ASHWORTH	0 0 0	I*	12/31/1906	UMATILLA R	0.200 CFS
2527	D 2527	FURNISH	0 0 0	I*	12/31/1906	UMATILLA R	0.060 CFS
2644	D 2644	WHITE	0 0 0	I*	12/31/1906	UMATILLA R	0.380 CFS
0	DN 324616	WESTERN LAND & IRRIGATION CO	0 0 0	IR	7/31/1907	UMATILLA R	20.900 CFS
0	DN1443732	WESTLAND IRRIGATION DISTRICT	0 0 0	IR	7/31/1907	UMATILLA R	0.0000
0	DN 323108	DILLON IRRIGATION DISTRICT	0 0 0	I*	12/31/1907	UMATILLA R	5.000 CFS
0	DN1443024	DILLON IRRIGATION DISTRICT	0 0 0	IR	12/31/1907	UMATILLA R	0.0000
2533	D 2533	GRITMAN	0 0 0	I*	3/28/1908	UMATILLA R	0.750 CFS
0	DN 324011	ROBERTS	0 0 0	ID	1/ 4/1909	UMATILLA R	0.360 CFS
0	DN 323309	FURNISH DITCH CO.	0 0 0	ST	2/25/1909	UMATILLA R	5500.000 AFT
10142	S 408	U.S. BUREAU OF RECLAMATION	SWSW 28 5N 28E	IR	3/28/1909	UMATILLA R	346.650 CFS
2554	D 2554	HURLBURT	0 0 0	I*	12/31/1910	UMATILLA R	1.320 CFS
54313	D 2555	HURLBURT	0 0 0	I*	12/31/1910	UMATILLA R	0.240 CFS
816	S 704	HURLBURT	0 0 0	PW	6/30/1911	UMATILLA R	29.300 CFS
7993	S 1197	CITY OF PENDLETON	SESE 34 3N 35E	MU	5/20/1912	SHAPLISH SPRS	3.000 CFS
68390	S 1234	VEY	SWSE 6 2N 33E	IR	6/14/1912	UMATILLA R	0.560 CFS
20190	E 189	PACIFIC POWER & LIGHT CO.	0 0 0	PW	8/ 7/1913	UMATILLA R	28.700 CFS
20313	E 220	PACIFIC POWER & LIGHT CO.	0 0 0	PW	6/18/1914	UMATILLA R	50.000 CFS
8407	S 5261	SMITH	NESW 34 4N 28E	IR	7/ 2/1921	CH GARDINER SP	0.660 CFS
5157	S 5819	RAMOS	0 0 0	IR	3/28/1923	UMATILLA R	0.030 CFS
6331	S 5921	YOUNG	10 2N 32E	IR	5/ 7/1923	SPRING BR	0.080 CFS
5169	S 6180	RAMOS	0 0 0	IR	1/21/1924	UMATILLA R	0.090 CFS
7536	S 6179	RAMOS	0 0 0	IR	1/21/1924	UMATILLA R	0.150 CFS
7537	S 6183	CORREA	0 0 0	IR	2/ 2/1924	UMATILLA R	0.190 CFS
8749	S 9188	OREGON DEPARTMENT OF FISH AN	NWNW 17 3N 37E	FI	7/20/1925	UMATILLA R	3.000 CFS
8051	S 9006	CITY OF PENDLETON	SENW 36 3N 35E	MU	4/22/1929	LONG HAIR SPR	2.000 CFS
8052	S 9007	CITY OF PENDLETON	SWNE 4 2N 35E	MU	4/22/1929	THREE SIMONS S	2.700 CFS
10162	S 9116	ESTATE OF	SWNW 9 2N 30E	IR	8/ 2/1929	SPRS	0.021 CFS
10109	S 9226	ROBINSON	NWSE 1 2N 32E	IR	8/30/1929	O'BRIEN SPR	0.050 CFS
11486	S 11214	U.S. UMATILLA NATIONAL FORES	SESE 16 3N 37E	DO	12/26/1934	UNN SPR	0.010 CFS
11564	S 12001	EASTERN OREGON STATE HOSPITA	NWNW 18 2N 32E	IR	10/25/1935	UMATILLA R	0.860 CFS
12148	S 12261	OREGON DEPARTMENT OF FISH AN	NWNW 10 2N 33E	IR	7/13/1936	UMATILLA R	0.170 CFS
11878	S 12549	O'GRADY	SENW 14 4N 28E	DO	2/ 5/1937	SULLIVAN SPR	0.010 CFS
13675	R 750	HARRIS PINE MILLS	9 2N 32E	IM	5/31/1940	UMATILLA R	9.000 AFT
22156	S 16268	KATHLEEN K SCHRODER	SENW 14 4N 28E	DS	4/11/1945	A SPR	0.010 CFS
28484	S 16393	E F BURLINGHAM & SONS	SENE 12 2N 30E	IR	7/ 3/1945	UMATILLA R/MCK	4.790 CFS
20843	S 17457	CHRISTLEY	SESE 6 4N 29E	IR	1/ 2/1947	UNN SPR	2.515 CFS
68762	S 18659	J R SIMPLOT CO.	NWNE 33 4N 28E	IR	3/23/1949	UMATILLA R	0.290 CFS
23757	S 19771	FARO	SESE 36 3N 29E	IR	9/28/1950	UMATILLA R	0.220 CFS
21559	S 20240	KELLEY	SWSW 1 2N 32E	IR	2/26/1951	UMATILLA R	0.055 CFS
0	CS 20389	LEWIS LIVESTOCK CO.	NESE 16 2N 31E	IR	6/18/1951	UMATILLA R	0.437 CFS
24221	S 20388	MOORE	NWSW 7 4N 29E	IR	6/18/1951	A SPR	0.250 CFS
24221	S 20388	MOORE	NWSW 7 4N 29E	IR	7/ 1/1952	A SPR	0.035 CFS
24221	S 20388	MOORE	SESE 12 4N 28E	IR	7/ 1/1952	SEEPAGE	0.215 CFS
28608	S 21628	CUNNINGHAM SHEEP CO.	SESE 5 2N 30E	IR	7/21/1952	UMATILLA R	0.170 CFS
0	CS 22288	LEWIS LIVESTOCK CO.	NWSE 16 2N 31E	IR	5/25/1953	UMATILLA R	0.090 CFS
30136	S 22289	LEWIS LIVESTOCK CO.	SESW 2 2N 30E	IR	5/25/1953	UMATILLA R	0.040 CFS
31809	S 25222	FARO	SESE 36 3N 29E	IR	5/25/1954	UMATILLA R/MCK	0.130 CFS
0	S 25920	TEEL IRRIGATION DISTRICT	SWNE 21 3N 29E	IC	4/22/1955	UMATILLA R/MCK	60.000 CFS
30137	S 23589	LEWIS LIVESTOCK CO.	SENE 11 2N 30E	IR	4/26/1955	UMATILLA R	0.630 CFS
28486	S 23954	THOMPSON	NENE 36 3N 35E	IR	10/21/1955	A SPR	0.100 CFS
24812	S 25334	HISKEY	SENW 14 4N 28E	DI	2/ 5/1958	SULLIVAN SPR	0.010 CFS
0	S 25924	TEEL IRRIGATION DISTRICT	SWNE 21 3N 29E	IC	6/27/1958	UMATILLA R/MCK	30.000 CFS
31292	S 26114	SNYDER	SWNW 4 4N 28E	LV	1/26/1959	UNN SPR STR	0.010 CFS
0	CS 26097	LEWIS LIVESTOCK CO.; LEWIS,	SESW 2 2N 30E	IR	3/30/1959	UMATILLA R	0.390 CFS
32699	S 26122	LEWIS LIVESTOCK CO.	SENW 12 2N 30E	IR	3/30/1959	UMATILLA R	0.780 CFS
31295	S 26991	MOORE	NWSW 7 4N 29E	IR	6/ 6/1960	A SPR	0.130 CFS
31295	S 26991	MOORE	SESE 12 4N 28E	IR	6/ 6/1960	SEEPAGE	0.140 CFS
0	S 27583	WESTLAND IRRIGATION DISTRICT	SWNE 21 3N 29E	IR	4/12/1961	UMATILLA R/RES	35.120 CFS
42343	S 27481	ANDREWS	NWSW 12 2N 33E	IR	6/29/1961	UNN SL	0.070 CFS
52829	S 27941	ANDEREGG	SWSW 28 5N 28E	IR	3/ 6/1962	UMATILLA R	0.500 CFS
39465	S 28813	GRAY	NENE 8 2N 33E	DO	4/15/1963	UNN SPR	0.010 CFS
35174	S 29198	SIRES	SWNE 21 3N 29E	IR	4/26/1963	UMATILLA R	0.040 CFS
34390	S 29084	OREGON DEPARTMENT OF FISH AN	SWSW 28 5N 28E	FI	8/14/1963	UMATILLA R	20.000 CFS
34390	S 29084	OREGON DEPARTMENT OF FISH AN	SWSW 28 5N 28E	FI	8/14/1963	UMATILLA R	6.000 CFS
36921	S 29156	WALCHLI	SWSW 5 4N 29E	IR	1/15/1964	UNN SPR 1	1.810 CFS
36921	S 29156	WALCHLI	SWSW 5 4N 29E	IR	1/27/1964	UNN SPR 1	0.330 CFS
41258	S 29330	JOHNS SMITH & BEAMER	NWNW 18 2N 32E	IR	3/11/1964	UMATILLA R	1.810 CFS
41258	S 29330	JOHNS SMITH & BEAMER	SWNE 14 2N 31E	IR	3/11/1964	UMATILLA R	0.990 CFS
36922	S 29537	THOMSEN	NENW 6 2N 30E	IR	4/ 1/1964	LAKE X	0.750 CFS
38865	S 29867	HENDRICKSON	SESE 3 2N 30E	IR	7/15/1964	UMATILLA R	0.320 CFS
68763	S 30078	J R SIMPLOT CO.	SESE 27 4N 28E	IR	10/ 1/1964	UMATILLA R	1.140 CFS
36246	S 29960	SHOCKMAN	NWSE 8 4N 28E	IR	10/ 5/1964	UMATILLA R	1.070 CFS
36679	S 30114	SPIKE BROTHERS	SWNE 21 3N 29E	IR	2/23/1965	UMATILLA R	0.320 CFS

Cert #	Permit		Name	Location			Use	Priority	Source	Quantity
0	S	30789	STANFIELD IRRIGATION DISTRIC	SWSW 31	3N	30E	IC	6/23/1965	UMATILLA R	170.000 CFS
41031	S	30588	DAVIS	NENE 8	2N	33E	IR	6/25/1965	UNN SL	0.050 CFS
35598	S	31030	BACUS	NWNE 30	4N	28E	IR	11/15/1965	UMATILLA R	1.240 CFS
44117	S	31390	ESTATE OF ELWIN S MCAHREN	SENE 5	4N	28E	LV	3/23/1966	A SPR	0.005 CFS
44117	S	31390	ESTATE OF ELWIN S MCAHREN	SENE 5	4N	28E	DO	3/23/1966	A SPR	0.005 CFS
44117	S	31390	ESTATE OF ELWIN S MCAHREN	SENE 5	4N	28E	IR	3/23/1966	A SPR	0.180 CFS
44117	S	31390	ESTATE OF ELWIN S MCAHREN	SENE 5	4N	28E	IR	3/23/1966	DRAINAGE DITCH	0.500 CFS
38290	S	32086	STRAND	NESW 33	5N	28E	IR	10/19/1966	UMATILLA R	0.060 CFS
42275	S	31593	DUFF	SESE 5	2N	33E	IR	11/29/1966	UMATILLA R	0.450 CFS
38871	S	32136	GALLOWAY	NWNE 9	2N	30E	IR	1/ 9/1967	UMATILLA R	0.680 CFS
38391	S	32329	RALLS	SWSE 17	4N	28E	IR	2/ 2/1967	UMATILLA R	0.330 CFS
41152	S	32400	ROHDE	NWSE 3	2N	34E	IR	3/ 9/1967	UMATILLA R	0.730 CFS
68761	S	32631	J R SIMPLOT CO.	NWNW 34	4N	28E	IR	5/25/1967	UMATILLA R	0.200 CFS
38874	S	32917	FREDRICKSON	SENW 29	4N	28E	IR	9/ 8/1967	UMATILLA R	2.100 CFS
38875	S	32973	HENDRICKSON	NWNE 10	2N	30E	IR	10/12/1967	UMATILLA R	0.450 CFS
41264	S	33050	JOHNS SMITH & BEAMER	NWNW 18	2N	32E	IR	11/13/1967	UMATILLA R	0.290 CFS
45831	S	32804	HOSKINS	SWNW 31	3N	36E	DO	11/30/1967	A SPR	0.001 CFS
42346	S	33298	PENDLETON READY-MIX CO.	NENE 7	2N	33E	IM	4/29/1968	UMATILLA R	0.300 CFS
42346	S	33298	PENDLETON READY-MIX CO.	NENE 7	2N	33E	IR	4/29/1968	UMATILLA R	0.170 CFS
38392	S	33718	THOMPSON	NENW 20	4N	28E	DO	7/ 2/1968	A SPR	0.010 CFS
38392	S	33718	THOMPSON	NENW 20	4N	28E	IR	7/ 2/1968	A SPR	0.190 CFS
68323	S	33883	WEST EXTENSION IRRIGATION DI	SWSW 28	5N	28E	IR	9/12/1968	UMATILLA R	82.220 CFS
45834	S	33966	DALLMAN	NENW 17	2N	31E	IR	11/ 7/1968	UMATILLA R	0.350 CFS
54755	S	34072	HENNEKE	NENE 17	4N	28E	IR	11/22/1968	A SPR	0.030 CFS
40949	S	34194	RAMOS	SWSW 31	3N	30E	IR	2/28/1969	UMATILLA R	0.280 CFS
41265	S	34381	NEWSOME	NWNW 9	2N	33E	IR	5/13/1969	UNN DRAINAGEWA	0.060 CFS
53199	S	34976	WESTLAND IRRIGATION DISTRICT	SWNE 21	3N	29E	IR	4/15/1970	UMATILLA R	0.095 CFS
54758	S	35811	ANDREWS	SWNE 21	3N	29E	IR	2/ 5/1971	UMATILLA R	1.450 CFS
41042	S	36128	BRIGHT	SENW 33	5N	28E	IR	4/ 9/1971	UMATILLA R	0.050 CFS
0	S	41512	MCDOLE	SWNE 21	3N	29E	GR	1/31/1972	UMATILLA R	75.000 CFS
55605	S	36410	MILLS MINT FARM INC.	NWNW 5	3N	29E	IR	3/ 1/1972	UMATILLA R	0.330 CFS
53491	S	37612	BORCK	SESE 31	4N	29E	IR	2/ 6/1973	UMATILLA R	0.020 CFS
45091	S	37619	MORROW	SENE 2	2N	34E	IR	2/13/1973	UMATILLA R	0.050 CFS
52906	S	38119	MONAGHAN	SESW 33	5N	28E	IR	5/16/1973	UMATILLA R	0.020 CFS
47098	S	38127	LIVESAY	NESE 22	3N	36E	DI	5/18/1973	UNN SPR	0.010 CFS
52410	S	38899	BORK	NENE 1	2N	29E	IR	12/19/1973	UMATILLA R	1.140 CFS
54555	S	39173	CORREA	SWNE 21	3N	29E	IR	1/10/1974	UMATILLA R	5.790 CFS
53732	S	38943	J CLARENCE WATSON AND SONS	SWNE 21	3N	29E	IR	2/ 7/1974	UMATILLA R	0.750 CFS
68760	S	37853	J R SIMPLOT CO.	NWNW 34	4N	28E	IR	5/ 7/1974	UMATILLA R	0.580 CFS
45000	S	37406	ECHO CEMETERY DISTRICT	SWSW 31	3N	30E	IR	5/15/1974	UMATILLA R	0.150 CFS
46936	S	39209	LERFALD JR	NENE 17	4N	28E	IR	6/ 5/1974	A SPR	0.070 CFS
0	S	39444	DAHL	SENE 11	2N	30E	IR	9/24/1974	UMATILLA R	1.300 CFS
46103	S	39653	BEALER	NWSW 4	2N	34E	IR	11/ 1/1974	UMATILLA R	0.220 CFS
48085	S	39883	TANGEY	NWNW 10	2N	33E	IR	3/10/1975	UMATILLA R	0.090 CFS
48086	S	39920	GEORGE G MOORE	NENW 10	2N	33E	IR	3/27/1975	UMATILLA R	0.660 CFS
0	S	39971	BARTELL	NWNE 12	2N	32E	IR	4/ 7/1975	UMATILLA R	0.070 CFS
0	CS	40035	LEWIS LIVESTOCK CO.; LEWIS,	SESW 2	2N	30E	IR	4/28/1975	UMATILLA R	0.320 CFS
61801	S	40118	BORK	NWNW 6	2N	30E	IR	9/12/1975	UMATILLA R	0.970 CFS
0	S	40601	CITY OF HERMISTON	NWNW 21	4N	28E	MU	1/ 2/1976	MINNEHAHA SPR	7.000 CFS
64049	S	40201	ARISTEQUI	NWNW 9	2N	30E	IR	1/26/1976	UMATILLA R	0.280 CFS
51294	S	40238	WALKER	SWNE 21	3N	29E	IR	2/23/1976	UMATILLA R	2.000 CFS
54836	S	40707	J R SIMPLOT CO.	SWNE 21	3N	29E	IR	2/27/1976	UMATILLA R	2.400 CFS
46360	S	40423	LEWIS LIVESTOCK CO.	SWSE 2	2N	30E	IR	3/22/1976	UMATILLA R	0.180 CFS
53202	S	40849	LANGE	NESE 1	2N	34E	IR	6/30/1976	A SLOUGH	0.090 CFS
0	S	41362	LEWIS LIVESTOCK CO.	SENW 12	2N	30E	IR	12/16/1976	UMATILLA R	0.930 CFS
53395	S	41710	RICHARDS	SWSE 1	2N	32E	IR	4/14/1977	O'BRIEN SPR	0.010 CFS
62358	S	41887	ALBERTA L CLARK	NENW 31	3N	36E	IR	5/ 4/1977	UMATILLA R	0.050 CFS
0	S	44378	EDNA J LOVEGROVE & RONALD T	SENE 11	4N	28E	IC	6/17/1977	POND A	2.850 CFS
0	S	44378	EDNA J LOVEGROVE & RONALD T	SENE 11	4N	28E	IC	6/17/1977	POND B	2.500 CFS
0	S	44220	LEWIS	SESW 2	2N	30E	IR	4/20/1979	UMATILLA R	0.610 CFS
0	S	44221	KLEINMAN	SENE 11	2N	33E	IR	5/11/1979	UNN STR	0.110 CFS
55323	S	44614	QUICK	SWSW 16	4N	28E	IR	8/23/1979	UMATILLA R	3.680 CFS
61616	S	44747	DUFF	SWSW 3	2N	33E	IR	11/ 5/1979	UMATILLA R	0.220 CFS
65825	S	45648	KREGER	NWNW 8	2N	33E	IC	3/20/1980	A SPR	0.025 CFS
55006	S	46058	FLINK	SESW 33	5N	28E	IR	10/ 1/1980	UMATILLA R	0.230 CFS
54976	S	45825	CARPENTER	SESW 4	4N	28E	IR	11/21/1980	DRAIN DITCH	5.480 CFS
53733	S	46560	BEEF CITY INC.	SWNE 21	3N	29E	IR	3/ 6/1981	UMATILLA R	1.110 CFS
0	S	45799	PETERSON	NWSE 23	2N	30E	IR	3/27/1981	MUD SPRINGS CA	1.000 CFS
0	S	45799	PETERSON	NWSE 23	2N	30E	LV	3/27/1981	MUD SPRINGS CA	0.010 CFS
0	S	49337	TRI-SET INC.	SWNE 21	3N	29E	IR	5/21/1981	UMATILLA R	1.280 CFS
0	S	46567	LGW RANCH INC.	SWSW 33	5N	28E	IR	6/25/1981	UNN STR	5.120 CFS
58915	S	46568	WESTLAND IRRIGATION DISTRICT	SWNE 21	3N	29E	IR	7/31/1981	UMATILLA R	1.680 CFS
0	S	48450	PRIOR	SWNE 21	3N	29E	IC	8/ 3/1981	UMATILLA R	88.000 CFS
0	S	48968	AMSTAD	SWNE 21	3N	29E	IC	8/10/1981	UMATILLA R	50.000 CFS
61116	S	47673	SPIKE RANCH INC.	SWNE 21	3N	29E	IR	7/ 1/1982	UMATILLA R	3.620 CFS
0	S	47406	CASE	NENW 8	2N	34E	IR	1/ 4/1983	UMATILLA R	200.000 GPM
64698	S	47621	DOHERTY	SWNE 21	3N	29E	IR	3/11/1983	UMATILLA R	0.760 CFS

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
0	S 47723	HERMISTON ROCK PRODUCTS LLC	SWNE 21 3N 29E	IM	4/ 8/1983	UMATILLA R	1.000 CFS
53734	S 47820	WESTLAND IRRIGATION DISTRICT	SWNE 21 3N 29E	IR	5/19/1983	UMATILLA R	0.430 CFS
0	R 11700	CITY OF STANFIELD	SWNE 31 4N 29E	IR	9/14/1992	WASTEWATER/RES	10.100 AFT
0	S 52029	CITY OF STANFIELD	NWSW 32 4S 29E	IR	9/14/1992	WW TREATMENT R	107.000 AFT
69136	R 100349	GASS	SWNW 7 4N 29E	DS	1/ 3/1993	SPR1/POND1	0.800 AFT
69136	R 100349	GASS	SWNW 7 4N 29E	DS	1/ 3/1993	SPR2/POND2	0.200 AFT
69136	R 100349	GASS	SWNW 7 4N 29E	DS	1/ 3/1993	SPR3/POND3	9.600 AFT
0	S 52021	JONES - SCOTT CO. INC.	NWNW 21 5N 28E	IM	8/20/1993	UMATILLA R	1.500 CFS
							1849.615 CFS
							55636.700 AFT

Totals
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Total CFS: 1849.62
Total AFT: 55636.70

Acres summary for Umatilla River > Columbia River 5-29-96

Cert #	Permit	Primary	Supplemental
0	CD 2552	36.00	
0	CS 20389	17.48	
0	CS 22288	7.10	
0	CS 26097	19.10	
0	CS 40035	12.80	
0	DN 319501	942.00	
0	DN 319902	226.00	
0	DN 321303	2066.00	
0	DN 321704	9.00	
0	DN 322705	374.50	
0	DN 322806	517.00	
0	DN 323108	790.00	
0	DN 323309	3230.70	
0	DN 323810	672.00	
0	DN 324011	28.30	
0	DN 324012	88.00	— Slusher 1902
0	DN 324113	323.75	— Livestock 1890 + 1902 (Forth?) 323.75 acres w/ 1.71 cfs
0	DN 324215	2080.00	
0	DN 324616	3046.00	
0	DN1442517	133.00	
0	DN1442518	52.50	
0	DN1442921	595.90	
0	DN1443022	124.50	
0	DN1443023	43.90	
0	DN1443024	1042.00	
0	DN1443125	76.70	
0	DN1443126	25.20	— McClintock (Forth?) 1902, 0 cfs 0.32 cfs @ pod RM 51.7
0	DN1443229	196.30	
0	DN1443330	3208.33	
0	DN1443631	722.80	WEID
0	DN1443732	3943.80	— WID
0	DN1444133	1.50	
0	S 25920	4853.00	
0	S 25924	4050.15	
0	S 27583	7851.50	
0	S 30789	13331.00	
0	S 39444	103.82	
0	S 39971	6.05	
0	S 41362	37.10	
0	S 44220	24.50	
0	S 44221	9.00	
0	S 44378	25.00	
0	S 45799	40.00	
0	S 46567	205.20	
0	S 47406	35.66	
0	S 48450	1124.30	
0	S 48968	2089.04	
0	S 49337	51.00	
0	S 52029	42.00	
2483	D 2483	24.00	
2484	D 2484	15.00	
2487	D 2487	56.00	
2490	D 2490	22.60	
2501	D 2501	13.60	
2507	D 2507	166.00	

Cert #	Permit		Primary	Supplemental
2513	D	2513	25.00	
2527	D	2527	5.00	
2533	D	2533	60.00	
2535	D	2535	37.00	
2554	D	2554	105.00	
2570	D	2570	1.00	
2577	D	2577	4.00	
2582	D	2582	10.00	
2591	D	2591	5.00	
2600	D	2600	30.00	
2602	D	2602	3.25	
2603	D	2603	4.90	
2607	D	2607	5.00	
2619	D	2619	22.00	
2621	D	2621	31.00	
2640	D	2640	57.00	
2641	D	2641	15.00	
2644	D	2644	30.00	
2646	D	2646	23.50	
5157	S	5819	2.00	
5169	S	6180	7.00	
6331	S	5921	5.50	
7536	S	6179	12.15	
7537	S	6183	15.00	
8407	S	5261	53.00	
10109	S	9226	4.00	
10142	S	408	4832.20	
10162	S	9116	2.30	
11564	S	12001	34.60	65.00
12148	S	12261	10.00	
20843	S	17457	100.60	
21559	S	20240	2.20	
23757	S	19771	17.35	
24221	S	20388	10.00	
28484	S	16393	191.60	
28486	S	23954	7.80	
28608	S	21628	21.70	
29165	D	2498	29.40	
30136	S	22289	3.40	
30137	S	23589	37.20	
31292	S	26114		6.80
31295	S	26991	5.30	
31809	S	25222	10.00	
32699	S	26122	65.30	
35174	S	29198	1.60	
35598	S	31030	49.60	
36246	S	29960	42.80	
36679	S	30114	12.80	
36921	S	29156	152.50	
36922	S	29537	4.90	
38290	S	32086	2.30	
38391	S	32329	15.30	
38392	S	33718	8.30	
38865	S	29867	18.50	
38871	S	32136	54.00	
38874	S	32917	188.70	
38875	S	32973	20.20	
39465	S	28813	11.80	
40949	S	34194	11.20	
41031	S	30588	4.00	
41042	S	36128	2.40	
41152	S	32400	58.00	
41258	S	29330	348.00	
41264	S	33050	23.40	
41265	S	34381	5.00	
42275	S	31593	35.90	
42343	S	27481	5.20	
42346	S	33298	13.60	
44117	S	31390	48.80	
45000	S	37406	6.10	
45091	S	37619	4.20	
45834	S	33966	14.10	
46103	S	39653	17.89	
46360	S	40423	7.10	
46363	D	2574	17.68	
46936	S	39209	2.80	
48085	S	39883	7.10	
48086	S	39920	52.40	

Cert #	Permit		Primary Acres	Supplemental Acres
51218	D	2489	20.00	
51294	S	40238	160.00	
52410	S	38899	82.00	
52829	S	27941	20.00	
52906	S	38119	1.50	
53199	S	34976	3.80	197.60
53202	S	40849	7.00	
53395	S	41710	1.00	
53491	S	37612	1.10	
53515	D	2491	50.85	
53732	S	38943	49.00	
53733	S	46560	68.00	
53734	S	47820	17.00	
54313	D	2555	19.00	
54555	S	39173	329.10	
54755	S	34072	1.20	
54758	S	35811	78.10	
54836	S	40707	96.00	
54976	S	45825	71.50	147.70
55006	S	46058	9.20	
55323	S	44614	147.50	
55329	D	2552	65.00	
55602	D	2583	161.00	
55603	D	2583	10.00	
55604	D	2583	33.00	
55605	S	36410	13.00	
58915	S	46568	67.00	
61116	S	47673	144.49	
61616	S	44747	17.50	
61801	S	40118	58.40	
62358	S	41887	3.60	
64049	S	40201	11.20	
64698	S	47621	30.30	
65825	S	45648	0.80	
68323	S	33883	3249.01	
68390	S	1234	44.85	
68760	S	37853	29.70	
68761	S	32631	15.00	
68762	S	18659	15.20	
68763	S	30078	72.50	

Water Rights Information System (WRIS)
Data Considerations

When using data and information from the WRIS system be aware of the following considerations:

- The WRIS data base is a representation of the information contained in the legal rights of record. More complete information is contained in the paper records associated with a water right.
- The data in WRIS does not reflect actual use of a water right.
- The data does not reflect transfers associated with irrigation districts.
- The Department has issued water rights using a variety of measurements methods. With the exception of acre-feet and gallons per minute, all units were converted to cubic feet per second prior to entry in the database. In summary reports gallons per minute are converted to cubic feet second and acre-feet summaries are listed separate.
- Many adjudicated rights do not list a maximum rate of diversion or locations on the certificate. In these cases the database may not include rate or location information.
- When multiple uses are listed on a right, often the Department did NOT associate a particular rate with each use. In those cases all of the rate is listed with one use and the other uses are listed as alternate with the same rate.
- For summary reports, groundwater diversions are grouped together according to the nearest stream and are not necessarily based on hydraulic connection.

5/30/1996

Summary of quantities for the tributaries of Wildhorse Creek

/ Non-Canceled rights only \
/ Primary diversions only \
/ Groundwater rights not included \
/ Surface water rights included \
/ Reservoir rights included \

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
			WILDHORSE CR > UMATILLA R				
2633	D 2633	BY JOHN VERT, RIPARIAN	0 1N 36E	DS	/ /	WILDHORSE CR	0.0000
0	CD 2628	TACHELLA JR	SWSE 29 3N 33E	IR	6/30/1884	WILDHORSE CR	0.190 CFS
2588	D 2588	MORRISON	NWNW 3 3N 34E	DO	12/31/1902	WILDHORSE CR	0.0000
2520	D 2520	FEE	21 3N 33E	I*	12/31/1903	WILDHORSE CR	1.010 CFS
2613	D 2613	RUGG	SESW 1 2N 32E	I*	12/31/1903	WILDHORSE CR	0.310 CFS
10151	S 7159	ALLEN	NWNW 35 4N 34E	IR	11/27/1905	WILDHORSE CR	1.480 CFS
2536	D 2536	HANNA	SESW 1 2N 32E	I*	8/ 4/1906	A WELL	0.050 CFS
1927	E 17	TROXEL	22 3N 33E	IR	10/ 8/1909	WILDHORSE CR	0.090 CFS
49479	S 2430	FARMER	NWNW 32 3N 33E	IR	4/20/1915	WILDHORSE CR	0.015 CFS
49480	S 2430	APPLEGATE	SENE 31 3N 33E	IR	4/20/1915	WILDHORSE CR	0.006 CFS
53644	S 2430	THOMAS	SENE 31 3N 33E	IR	4/20/1915	WILDHORSE CR	0.010 CFS
53645	S 2430	OLIVER	NWNW 32 3N 33E	IR	4/20/1915	WILDHORSE CR	0.020 CFS
53646	S 2430	ELDER	NWNW 32 3N 33E	IR	4/20/1915	WILDHORSE CR	0.057 CFS
53647	S 2430	SCHELL	NWNW 32 3N 33E	IR	4/20/1915	WILDHORSE CR	0.018 CFS
53648	S 2430	REIMAN	NWNW 32 3N 33E	IR	4/20/1915	WILDHORSE CR	0.010 CFS
53649	S 2430	ROACH	NWNW 32 3N 33E	IR	4/20/1915	WILDHORSE CR	0.006 CFS
53650	S 2430	WEBER	SENE 31 3N 33E	IR	4/20/1915	WILDHORSE CR	0.010 CFS
53651	S 2430	CHAMBERLAIN	NENW 32 3N 33E	IL	4/20/1915	WILDHORSE CR	0.031 CFS
56278	S 2430	HARRIS	NWNW 32 3N 33E	IR	4/20/1915	WILDHORSE CR	0.007 CFS
55964	S 5705	DON HULICK	SWNE 1 2N 32E	IR	11/28/1922	WILDHORSE CR	0.130 CFS
13685	S 10823	HOLT	NENE 1 2N 32E	IR	2/18/1933	WILDHORSE CR	0.340 CFS
13377	S 13757	ADAMS	SWNE 9 3N 34E	IR	5/22/1939	WILDHORSE CR	0.012 CFS
28611	S 24848	BAUMEISTER	SESE 4 3N 34E	IR	4/17/1957	WILDHORSE CR	0.030 CFS
35505	S 29148	PAYNE	NESW 34 4N 34E	IR	10/25/1963	WILDHORSE CR	0.210 CFS
41390	S 29557	JAMES/HELEN SMITH, LAWRENCE/	NESE 24 4N 34E	IR	4/13/1964	WILDHORSE CR	1.370 CFS
34733	S 30558	JOHNS	NESE 32 4N 35E	IR	6/11/1965	WILDHORSE CR	0.160 CFS
41259	S 30580	JOHNS SMITH & BEAMER	NWSE 26 4N 34E	IR	6/23/1965	WILDHORSE CR	2.000 CFS
41260	S 30581	JOHNS SMITH & BEAMER	NWSE 4 3N 35E	IR	6/23/1965	WILDHORSE CR	1.870 CFS
41391	S 31039	JAS/HELEN SMITH,LAWRENCE/ALT	NWSE 26 4N 34E	IR	1/26/1966	WILDHORSE CR	5.700 CFS
41032	S 31499	WHITACRE	SWNW 17 3N 34E	IR	4/12/1966	WILDHORSE CR	0.410 CFS
40937	S 31557	B L DAVIS RANCH INC.	NWSE 26 4N 34E	IR	5/ 3/1966	WILDHORSE CR	1.000 CFS
40938	S 31637	B L DAVIS RANCH INC.	SWNW 3 3N 34E	IR	6/ 6/1966	WILDHORSE CR	2.000 CFS
40939	S 31644	B L DAVIS RANCH INC.	SWNW 3 3N 34E	IR	6/ 8/1966	WILDHORSE CR	0.700 CFS
40936	S 31394	OREGON BANK TRUSTEE	SESW 29 4N 35E	IR	7/11/1966	WILDHORSE CR	0.680 CFS
40941	S 32133	B L DAVIS RANCH INC.	NWSE 26 4N 34E	IR	11/ 7/1966	WILDHORSE CR	1.670 CFS
40816	S 32168	SHEARD	SWNW 25 4N 34E	IR	11/16/1966	WILDHORSE CR	0.100 CFS
0	CS 32298	ALBERTY, JOYCE	NESE 24 4N 34E	IR	1/17/1967	WILDHORSE CR	0.660 CFS
41261	S 32322	JOHNS SMITH & BEAMER	NWSE 26 4N 34E	IR	1/30/1967	WILDHORSE CR	0.490 CFS
41262	S 32323	JOHNS SMITH & BEAMER	NWSE 26 4N 34E	IR	1/30/1967	WILDHORSE CR	4.000 CFS
41263	S 32324	JOHNS SMITH & BEAMER	NWSE 26 4N 34E	IR	1/30/1967	WILDHORSE CR	1.500 CFS
45832	S 33097	TACHELLA JR	SWSE 29 3N 33E	IR	12/11/1967	WILDHORSE CR	0.240 CFS
45086	S 34324	KARREN	NWNW 6 2N 33E	IR	4/18/1969	WILDHORSE CR	0.070 CFS
45441	S 38766	JOHNS SMITH & BEAMER	NWSE 26 4N 34E	IR	12/13/1973	WILDHORSE CR	2.290 CFS
53397	S 43255	BYFORD	SESW 29 3N 33E	IR	5/18/1978	WILDHORSE CR	0.100 CFS
49569	S 43398	FARMER	NWNW 32 3N 33E	IR	7/12/1978	WILDHORSE CR	0.010 CFS
60787	S 43723	JOHNS, SMITH AND BEAMER	NWSE 26 4N 34E	IR	11/ 8/1978	WILDHORSE CR	1.010 CFS
0	S 44682	ADAMSON	NWSE 5 3N 36E	LV	10/12/1979	A SPRING	0.010 CFS
69967	R 101179	SMOCK	NESE 7 3N 36E	LW	1/ 3/1993	RUNOFF/RES 2	0.030 AFT
69967	R 101179	SMOCK	NESE 7 3N 36E	LW	1/ 3/1993	RUNOFF/RES 3	0.070 AFT
69967	R 101179	SMOCK	SWNE 7 3N 36E	LW	1/ 3/1993	RUNOFF/RES 4	0.040 AFT
69967	R 101179	SMOCK	SWNE 7 3N 36E	LW	1/ 3/1993	RUNOFF/RES 5	0.030 AFT
69967	R 101179	SMOCK	SENE 7 3N 36E	LW	1/ 3/1993	RUNOFF/RES 7	0.030 AFT
70011	R 101223	WEIGEL	NWSE 3 3N 36E	LW	1/ 3/1993	UNN STR/A RESE	0.730 AFT
70123	R 101334	DORRAN	NW 2 3N 36E	LW	1/ 3/1993	WILDHORSE CR/R	0.570 AFT
70123	R 101334	DORRAN	NE 2 3N 36E	LW	1/ 3/1993	WILDHORSE CR/R	0.360 AFT
70123	R 101334	DORRAN	SE 1 3N 36E	LW	1/ 3/1993	PINE CR/RES 3	0.060 AFT
70191	R 101402	BROGOITTI	1 3N 36E	LV	1/ 3/1993	A SPR/RES 1	0.020 AFT
70191	R 101402	BROGOITTI	1 3N 36E	LV	1/ 3/1993	RUNOFF/RES 2	0.020 AFT
70191	R 101402	BROGOITTI	1 3N 36E	LV	1/ 3/1993	A SPR/RES 7	0.020 AFT
70191	R 101402	BROGOITTI	1 3N 36E	LV	1/ 3/1993	RUNOFF/RES 8	0.020 AFT
70191	R 101402	BROGOITTI	2 3N 36E	LV	1/ 3/1993	RUNOFF/RES 9	0.020 AFT
70191	R 101402	BROGOITTI	2 3N 36E	LV	1/ 3/1993	RUNOFF/RES 10	0.020 AFT
71872	R 103083	PETERSEN, SARA N; NARKAUS, L	11 3N 36E	LW	1/ 3/1993	RUNOFF/RES 1	0.500 AFT
71872	R 103083	PETERSEN, SARA N; NARKAUS, L	11 3N 36E	LW	1/ 3/1993	RUNOFF/RES 2	0.200 AFT

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
71872	R 103083	PETERSEN, SARA N; NARKAUS, L	11 3N 36E	LW	1/ 3/1993	RUNOFF/RES 3	0.300 AFT
71872	R 103083	PETERSEN, SARA N; NARKAUS, L	11 3N 36E	LW	1/ 3/1993	RUNOFF/RES 4	0.250 AFT
71872	R 103083	PETERSEN, SARA N; NARKAUS, L	11 3N 36E	LW	1/ 3/1993	RUNOFF/RES 5	0.200 AFT
							32.082 CFS
							3.490 AFT
			UNN STR > WILDHORSE CR				
30532	S 22129	FRANCES SAMPSON	SWNE 22 4N 34E	IR	2/16/1953	UNN STR	0.090 CFS
							0.090 CFS
			UNN STR > WILDHORSE CR				
48087	S 39929	ROSENBERG	SESE 24 3N 32E	IR	12/30/1975	UNN STR	0.100 CFS
							0.100 CFS
			SPRING CR > WILDHORSE CR				
22949	S 20801	PAHL	NWSE 21 3N 33E	IR	10/ 8/1951	SPRING CR	0.030 CFS
29914	S 27487	CRESSWELL	NENE 17 3N 33E	IR	7/12/1961	UNN STR	0.050 CFS
							0.080 CFS
			MCCORMMACH CR > WILDHORSE CR				
11770	S 12313	RICHARDS	NENW 23 3N 33E	IR	8/17/1936	MCCORMMACH CR	0.050 CFS
45830	S 30399	EMERY C GENTRY & SON	NWNW 11 3N 33E	IR	4/27/1965	MCCORMMACH CR	0.550 CFS
							0.600 CFS
			LITTLE GREASEWOOD CR > WILDHORSE CR				
23550	S 19842	ROTHROCK	SENW 13 3N 33E	IR	9/12/1950	LITTLE GREASEW	0.110 CFS
47097	S 33877	ESTATE OF	SENW 13 3N 33E	DO	9/10/1968	A SPR	0.010 CFS
							0.120 CFS
			GREASEWOOD CR > WILDHORSE CR				
40942	S 32404	B L DAVIS RANCH INC.	SENE 6 3N 34E	IR	6/ 1/1967	GREASEWOOD CR	1.360 CFS
40947	S 33648	ROTHROCK	NENW 18 3N 34E	IR	6/ 4/1968	GREASEWOOD CR	0.330 CFS
							1.690 CFS
			SAND HOL > WILDHORSE CR				
8207	S 7123	WINN	NENE 4 3N 34E	IR	1/ 8/1926	SAND HOL	0.130 CFS
							0.130 CFS
			SPRING HOL CR > WILDHORSE CR				
3799	S 5046	ROGERS	SENE 11 3N 34E	IR	4/ 8/1921	SPR HOL	0.760 CFS
28736	S 23114	BARNETT	NWSW 21 3N 35E	IR	5/24/1954	SPING HOL CR	0.150 CFS
56279	S 44744	STANLEY	SWNW 12 3N 34E	IR	6/14/1979	SPRING HOL CR	0.100 CFS
							1.010 CFS
			W FK SPRING HOL CR > SPRING HOL CR				
6118	S 5049	BETTS	NENW 13 3N 34E	IR	5/ 7/1921	W FK SPR HOL C	0.130 CFS
							0.130 CFS
			UNN STR > WILDHORSE CR				
40818	S 35671	SAMPSON JR	SENW 29 4N 35E	IR	10/28/1970	UNN STR	0.090 CFS
							0.090 CFS

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
			EAGLE CR > WILDHORSE CR				
69169	R 100381	JOHN ADAMS INC.	NW 15 3N 35E	LW	1/ 3/1993	RUNOFF/RES	2.500 AFT
							2.500 AFT
			UNN STR > WILDHORSE CR				
69967	R 101179	SMOCK	SWNW 8 3N 36E	LW	1/ 3/1993	RUNOFF/RES 1	1.900 AFT
69967	R 101179	SMOCK	NWSW 8 3N 36E	LW	1/ 3/1993	RUNOFF/RES 6	0.030 AFT
69967	R 101179	SMOCK	NESW 8 3N 36E	LW	1/ 3/1993	RUNOFF/RES 8	0.100 AFT
							2.030 AFT

Totals
======
Total CFS: 36.12
Total AFT: 8.02

Acres summary for Wildhorse Creek > Umatilla River 5-29-96

Cert #	Permit	Primary	Supplemental
0	CD 2628	15.00	
0	CS 32298	52.60	
1927	E 17	7.50	
2520	D 2520	80.00	
2536	D 2536	4.00	
2613	D 2613	25.00	
3799	S 5046	61.00	
6118	S 5049	10.00	
8207	S 7123	10.00	
10151	S 7159	118.00	
11770	S 12313	4.00	
13377	S 13757	1.00	
13685	S 10823	27.30	
22949	S 20801	2.40	
23550	S 19842	10.60	
28611	S 24848	2.20	
28736	S 23114	12.00	
29914	S 27487	4.20	
30532	S 22129	7.04	
34733	S 30558	14.40	
35505	S 29148	17.20	
40816	S 32168	8.08	
40818	S 35671	12.40	
40936	S 31394	73.30	
40937	S 31557	80.00	
40938	S 31637	159.51	
40939	S 31644	55.80	
40941	S 32133	182.00	
40942	S 32404	125.80	
40947	S 33648	26.20	
41032	S 31499	32.73	
41259	S 30580	159.60	
41260	S 30581	158.40	
41261	S 32322	39.39	
41262	S 32323	673.70	
41263	S 32324	120.00	
41390	S 29557	125.00	
41391	S 31039	529.48	
45086	S 34324	5.90	
45441	S 38766	183.20	
45830	S 30399	43.60	
45832	S 33097	19.53	
48087	S 39929	8.00	
49479	S 2430	1.22	
49480	S 2430	0.50	
49569	S 43398	0.90	
53397	S 43255	8.30	
53644	S 2430	0.79	
53645	S 2430	1.56	
53646	S 2430	4.56	
53647	S 2430	1.44	
53648	S 2430	0.80	
53649	S 2430	0.50	

Cert #	Permit		Primary	Supplemental
53650	S	2430	0.75	
53651	S	2430	2.23	
55964	S	5705	10.00	
56278	S	2430	0.50	
56279	S	44744	8.00	
60787	S	43723	80.80	

Water Rights Information System (WRIS)
Data Considerations

When using data and information from the WRIS system be aware of the following considerations:

- The WRIS data base is a representation of the information contained in the legal rights of record. More complete information is contained in the paper records associated with a water right.
- The data in WRIS does not reflect actual use of a water right.
- The data does not reflect transfers associated with irrigation districts.
- The Department has issued water rights using a variety of measurements methods. With the exception of acre-feet and gallons per minute, all units were converted to cubic feet per second prior to entry in the database. In summary reports gallons per minute are converted to cubic feet second and acre-feet summaries are listed separate.
- Many adjudicated rights do not list a maximum rate of diversion or locations on the certificate. In these cases the database may not include rate or location information.
- When multiple uses are listed on a right, often the Department did NOT associate a particular rate with each use. In those cases all of the rate is listed with one use and the other uses are listed as alternate with the same rate.
- For summary reports, groundwater diversions are grouped together according to the nearest stream and are not necessarily based on hydraulic connection.

5/31/1996

Summary of quantities for miscellaneous tributaries of the Umatilla River

/ Non-Canceled rights only \
/ Primary diversions only \
/ Groundwater rights not included \
/ Surface water rights included \
/ Reservoir rights included \

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
			ROCK CR > UMATILLA R				
53195	S	39369 BONNEY	NENW 21 5N 28E	IR	9/30/1974	POND	1.800 CFS
53196	S	39379 BONNEY	NENW 21 5N 28E	IR	7/29/1975	POND	0.420 CFS
							2.220 CFS
			UNN STR > UMATILLA R				
62161	S	46378 FORDICE	NWSE 12 4N 28E	LV	8/ 7/1981	UNN STR	0.005 CFS
							0.005 CFS
			LOST L > UMATILLA R				
0	CS	24069 TRI-SET INC.	SENE 9 3N 27E	IR	10/27/1955	WESTLAND DRAIN	0.545 CFS
0	CS	27731 TRI-SET INC.	SENE 9 3N 27E	IR	11/28/1961	WASTE & DRAINA	1.540 CFS
34388	S	28411 KASEBERG	NENE 2 3N 27E	IR	9/27/1962	WASTE WATER L	0.600 CFS
42861	S	31351 ANDERSON	SWNW 10 3N 27E	IR	2/16/1966	WASTE WATER	2.500 CFS
49218	S	31266 ANDERSEN	SENW 3 3N 27E	IR	2/21/1966	A POND	0.780 CFS
53200	S	35712 TRI-SET INC.	SENW 3 3N 27E	IR	4/30/1971	A POND	0.780 CFS
55003	S	37296 HANSELL	NWNW 2 3N 27E	IR	4/11/1974	A POND	1.340 CFS
52671	S	43652 HANSELL	SENE 9 3N 27E	IR	8/29/1978	SEEPAGE FM LOS	0.690 CFS
							8.775 CFS
			ROBINS SL > DILLON SL				
14346	S	13306 DILLON IRRIGATION CO.	SWSW 6 3N 29E	IR	10/ 1/1938	ROBINS SPR BR	6.000 CFS
							6.000 CFS
			UNN STR > ROBINS SL				
10556	S	9451 SMITH	NWSW 1 3N 28E	IR	12/23/1929	SPRS	0.750 CFS
							0.750 CFS
			UNN STR > ROBINS SL				
36919	S	28053 CORREA	SWSE 11 3N 28E	IR	5/ 4/1962	UNN DRAIN DITC	0.900 CFS
							0.900 CFS
			STAGE G > UMATILLA R				
3962	S	5303 REEVES	NWSE 31 4N 29E	IR	12/ 7/1921	STAGE G	0.310 CFS
11010	S	10650 STANFIELD IRRIGATION DISTRIC	NESE 32 4N 29E	IR	7/26/1932	STANFIELD DRAI	0.250 CFS
12164	S	12433 MCDERMOTT	NWSW 32 4N 29E	IR	11/ 5/1936	STATE G	0.420 CFS
0	CS	18122 LAMPKIN	NESE 31 4N 29E	IR	11/18/1947	STANFIELD DR	0.940 CFS
52831	S	18122 BOISE CASCADE CORP.	NESE 31 4N 29E	IR	11/18/1947	STANFIELD DRAI	0.080 CFS
38868	S	31223 SEIBEL	NWSW 32 4N 29E	IR	9/29/1965	STANFIELD DRAI	2.760 CFS
48483	S	36058 STANFIELD SCHOOL DISTRICT 61	NWSW 32 4N 29E	IR	6/16/1971	STANFIELD DRAI	0.160 CFS
53073	S	43323 A E STALEY MFG CO.	NESE 31 4N 29E	IR	4/26/1978	STANFIELD DRAI	0.030 CFS
66247	S	45370 LAMPKIN	NWSE 31 4N 29E	IC	12/ 7/1979	STAGE G	0.710 CFS
0	S	49487 A E STALEY MFG CO.	NESE 31 4N 29E	IR	6/24/1985	STANFIELD DRAI	0.030 CFS
0	S	49487 A E STALEY MFG CO.	NESE 31 4N 29E	IR	8/ 5/1985	STANFIELD DRAI	0.068 CFS
							5.758 CFS
			UNN STR > STAGE G				
3266	S	4543 COTANT	NWSW 33 4N 29E	IR	3/16/1920	DRAIN DITCH	0.080 CFS
							0.080 CFS

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
			UNN STR > STAGE G				
53201	S	39893 LORENZEN	NESW 14 4N 29E	IR	3/13/1975	POND	0.130 CFS
							0.130 CFS
			ALKALI CAN > UMATILLA R				
2523	D	2523 FIX	0 0 0	I*	12/31/1903	ALKALI CAN	0.080 CFS
10125	S	10358 SCHMIDT	NWSE 26 1N 30E	DS	9/15/1931	UNN SPR	0.050 CFS
							0.130 CFS
			UNN STR > UMATILLA R				
53192	S	42122 ARISTEQUI	SWNW 9 2N 30E	LV	6/ 3/1977	UNN STR	0.010 CFS
							0.010 CFS
			COOMBS CAN > UMATILLA R				
2494	D	2494 BROWN	NWSW 1 1N 31E	I*	12/31/1895	A SPR	0.070 CFS
28487	S	24060 BEILKE	SWSW 1 1N 31E	IR	10/ 5/1955	COOMBS CANYON	0.210 CFS
							0.280 CFS
			UNN STR > COOMBS CAN				
9012	S	9483 J E SMITH LIVESTOCK CO.	SESW 23 2S 31E	DO	1/13/1930	UNN SPR	0.010 CFS
70649	R	101860 MUD SPRINGS RANCHES	SWNW 23 2N 31E	LW	1/ 3/1993	A SPR/RES	4.820 AFT
							0.010 CFS
							4.820 AFT
			UNN STR > COOMBS CAN				
70831	R	102042 KLINTWORTH	NENW 12 1N 31E	IL	1/ 3/1993	SPRS/RESERVOIR	1.510 AFT
70831	R	102042 KLINTWORTH	NWNW 12 1N 31E	IL	1/ 3/1993	SPRS/RESERVOIR	1.510 AFT
							3.020 AFT
			UNN STR > UMATILLA R				
24256	S	22853 JONES	NESE 9 2N 33E	IR	3/ 8/1954	UNN STR	0.250 CFS
28488	S	24610 DUFF	SESE 5 2N 33E	IR	11/21/1956	UNN STR	0.500 CFS
39466	S	30574 GRAY	NENE 8 2N 33E	IR	6/21/1965	S SPR STR	0.030 CFS
39466	S	30574 GRAY	NENE 8 2N 33E	IR	7/ 6/1965	S SPR STR	0.060 CFS
39467	S	30603 GRAY	NENE 8 2N 33E	IR	7/12/1965	UNN SPR	0.050 CFS
65294	S	42257 MAYBERRY	NWNE 9 2N 33E	IR	5/ 6/1977	UNN STR	0.045 CFS
							0.935 CFS
			UNN STR > UMATILLA R				
2597	D	2597 PARR	NESE 3 2N 33E	I*	12/31/1895	WILLOW SPR CR	0.060 CFS
5098	S	5859 SWEARINGEN	SESE 3 2N 33E	FI	4/26/1923	UNN SPR CR	1.500 CFS
7365	S	7729 YOUNG	SWSW 2 2N 33E	FI	1/ 5/1927	UNN SPR CR	2.000 CFS
							3.560 CFS
			UNN STR > UMATILLA R				
6798	S	6009 SCOTT	NWNW 11 2N 33E	ID	8/13/1923	A SPR	0.230 CFS
6777	S	6895 YOUNG	NWNW 11 2N 33E	FI	7/21/1925	SPRS	2.000 CFS
							2.230 CFS
			SPRING CR > UMATILLA R				
42276	S	33808 HART	NWNW 8 2N 33E	IR	8/ 8/1968	SPRING CR	0.050 CFS
45093	S	37739 PERRY	SESE 3 2N 33E	IR	1/23/1974	SPRING CR	0.430 CFS
49142	S	40031 KREGER	NWNW 8 2N 33E	IR	4/25/1975	SPRING CR	0.040 CFS
							0.520 CFS

Cert #		Permit	Name	Location	Use	Priority	Source	Quantity
			COTTONWOOD CR > UMATILLA R					
42353	S	36179	BOLTZ	NESW 3 1N 34E	LV	4/23/1971	UNN STR	0.010 CFS
42353	S	36179	BOLTZ	NESW 3 1N 34E	FI	4/23/1971	UNN STR	0.010 CFS
42352	R	5868	BOLTZ	NESW 3 1N 34E	FI	6/30/1971	UNN STR	0.700 AFT
42352	R	5868	BOLTZ	NESW 3 1N 34E	LV	6/30/1971	UNN STR	0.500 AFT
70571	R	101782	KLICKER	NWNE 19 6N 38E	LW	1/ 3/1993	REYNOLDS SPR/R	0.040 AFT
								0.020 CFS
								1.240 AFT
			MOONSHINE CR > UMATILLA R					
6083	S	6059	MONESE	SWNE 16 2N 34E	IR	10/17/1923	TWP SPRS	0.190 CFS
								0.190 CFS
			UNN STR > UMATILLA R					
3927	S	472	CITY OF PENDLETON	SENE 6 2N 35E	MU	11/28/1910	UNN STR	4.000 CFS
								4.000 CFS
			SADDLE HOL > UMATILLA R					
69795	R	101007	REINHART	NWNE 13 3N 35E	LW	1/ 3/1993	RUNOFF/RES 1	0.040 AFT
69795	R	101007	REINHART	NWNE 13 3N 35E	LW	1/ 3/1993	RUNOFF/RES 2	0.030 AFT
70010	R	101222	HANSELL	NWNW 19 3N 36E	LW	1/ 3/1993	UNN STR/RES 3	0.500 AFT
70010	R	101222	HANSELL	SWSW 18 3N 36E	LW	1/ 3/1993	UNN STR/RES 4	0.400 AFT
70010	R	101222	HANSELL	NWNE 24 3N 35E	LW	1/ 3/1993	UNN STR/RES 5	0.100 AFT
								1.070 AFT
			MEACHAM CR > UMATILLA R					
2495	D	2495	BROWN	0 0 0	I*	12/31/1904	MEACHAM CR	0.020 CFS
0	S	37389	DOHERTY	NESE 35 1S 35E	DI	7/19/1973	A SPRING	0.010 CFS
70941	R	102152	PENDLETON RANCHES	SWNE 5 1S 36E	LW	1/ 3/1993	RUNOFF/RES 25	0.900 AFT
								0.030 CFS
								0.900 AFT
			CAMP CR > MEACHAM CR					
2645	D	2645	WILBUR	SWNW 9 1N 36E	I*	12/31/1891	CAMP CR	0.290 CFS
								0.290 CFS
			UNN STR > MEACHAM CR					
63923	S	48780	U.S. UMATILLA NATIONAL FORES	NWSW 28 1N 36E	LW	6/17/1982	HORSESHOE SPR	0.002 CFS
								0.002 CFS
			HOSKINS CR > BEAR CR					
61290	R	9352	U.S. UMATILLA NATIONAL FORES	NWSW 3 1S 37E	LW	3/ 1/1982	HOSKINS CR	0.340 AFT
								0.340 AFT
			UNN STR > BEAR CR					
14503	S	14433	U.S. UMATILLA NATIONAL FORES	SWNE 17 1S 37E	DO	6/17/1940	SUMMIT SPR	0.010 CFS
								0.010 CFS
			UNN STR > N FK MEACHAM CR					
61287	R	9349	U.S. UMATILLA NATIONAL FORES	NESE 29 1N 37E	LW	3/ 1/1982	UNN STR	0.002 AFT
								0.002 AFT
			UNN STR > POT CR					
63922	S	48779	U.S. UMATILLA NATIONAL FORES	NWSE 26 1N 37E	LW	10/14/1983	DEADHORSE SPR	0.005 CFS
								0.005 CFS

Cert #		Permit	Name	Location				Use	Priority	Source	Quantity
				HELLHOLE CR > N FK MEACHAM CR							
61282	R	9332	U.S. UMATILLA NATIONAL FORES	SENW	7	1N	37E	LW	3/ 1/1982	HELLHOLE CR	0.010 AFT
										0.010 AFT	
				UNN STR > MEACHAM CR							
42350	S	34892	HOSKINS JR	SWNW	7	1S	37E	DO	6/30/1970	A SPR	0.010 CFS
										0.010 CFS	
				E MEACHAM CR > MEACHAM CR							
71496	R	102707	U.S. WALLOWA WHITMAN NATIONA	SENW	1	2S	36E	LW	1/ 3/1993	A SPR/NUNAMAKE	0.250 AFT
71496	R	102707	U.S. WALLOWA WHITMAN NATIONA	SENW	1	2S	36E	LW	1/ 3/1993	A SPR/NUNAMAKE	0.080 AFT
71496	R	102707	U.S. WALLOWA WHITMAN NATIONA	SENW	1	2S	36E	LW	1/ 3/1993	RUNOFF/NUNAMAK	0.230 AFT
71507	R	102718	U.S. WALLOWA WHITMAN NATIONA	NESW	1	2S	36E	LW	1/ 3/1993	RUNOFF/RAILROA	0.200 AFT
71507	R	102718	U.S. WALLOWA WHITMAN NATIONA	NESE	32	1S	37E	LW	1/ 3/1993	A SPR/ROCK SP	0.040 AFT
										0.800 AFT	
				OWSLEY CR > E MEACHAM CR							
63519	R	10563	U.S. UMATILLA NATIONAL FORES	SWNE	31	1S	37E	LV	8/15/1983	UNN STR	0.032 CFS
0	S	50493	U.S. UMATILLA NATIONAL FORES	SWNE	35	1S	35E	LV	10/ 3/1983	FOX SPR	0.004 CFS
										0.036 CFS	
				UNN STR > OWSLEY CR							
61288	R	9350	U.S. UMATILLA NATIONAL FORES	SENW	22	1S	36E	LW	3/ 1/1982	UNN STR	0.000 AFT
0	R	11112	U.S. UMATILLA NATIONAL FORES	SWSE	35	1S	36E	LV	10/ 3/1983	UNN STR	0.016 AFT
63918	S	48774	U.S. UMATILLA NATIONAL FORES	NWSW	27	1S	36E	LW	10/14/1983	WELLS SPR	0.003 CFS
0	R	10611	U.S. UMATILLA NATIONAL FORES	NWNW	27	1S	36E	LV	1/17/1986	UNN STR	0.034 AFT
71506	R	102717	U.S. WALLOWA WHITMAN NATIONA	SWNW	2	2S	36E	LW	1/ 3/1993	RUNOFF/FOWLER	0.320 AFT
										0.003 CFS	
										0.370 AFT	
				UNN STR > OWSLEY CR							
63917	S	48773	U.S. UMATILLA NATIONAL FORES	SENE	31	1S	37E	LW	10/14/1983	HUGH SPR	0.003 CFS
										0.003 CFS	
				UNN STR > E MEACHAM CR							
63916	S	48772	U.S. UMATILLA NATIONAL FORES	NENE	24	1S	36E	LW	6/17/1982	NORTH FLAT SPR	0.005 CFS
										0.005 CFS	
				UNN STR > E MEACHAM CR							
42351	S	34893	HOSKINS	NWSE	30	1S	37E	DO	6/30/1970	A SPR	0.007 CFS
63518	R	10562	U.S. UMATILLA NATIONAL FORES	NWNW	30	1S	37E	LV	8/15/1983	UNN STR	0.035 CFS
										0.042 CFS	
				UNN STR > BUTCHER CR							
70942	R	102153	PENDLETON RANCHES	SWNE	31	1S	36E	LW	1/ 3/1993	RUNOFF/RES 10	1.080 AFT
70942	R	102153	PENDLETON RANCHES	SWNE	31	1S	36E	LW	1/ 3/1993	RUNOFF/RES 11	1.250 AFT
70942	R	102153	PENDLETON RANCHES	NENW	31	1S	36E	LW	1/ 3/1993	RUNOFF/RES 12	1.000 AFT
										3.330 AFT	
				UNN STR > MEACHAM CR							
70941	R	102152	PENDLETON RANCHES	SENE	4	1S	36E	LW	1/ 3/1993	A SPR/RES 26	0.900 AFT
										0.900 AFT	
				UNN STR > MEACHAM CR							
70943	R	102154	PENDLETON RANCHES	SWNW	18	1S	36E	LW	1/ 3/1993	SPRING CR/RES	0.740 AFT
										0.740 AFT	

Cert #	Permit	Name	Location	Use	Priority	Source	Quantity
			UNN STR > MEACHAM CR				
70941	R 102152	PENDLETON RANCHES	SWSE 36 1S 35E	LW	1/ 3/1993	RUNOFF/RES 15	1.730 AFT
70957	R 102168	LOUISIANA PACIFIC CORP.	SESW 22 1S 35E	LW	1/ 3/1993	RUNOFF/RES 5	0.100 AFT
						==========	
						1.830 AFT	
			UNN STR > UMATILLA R				
70010	R 101222	HANSELL	NESE 17 3N 36E	LW	1/ 3/1993	UNN STR/RES 1	0.300 AFT
70010	R 101222	HANSELL	NWSE 17 3N 36E	LW	1/ 3/1993	UNN STR/RES 2	0.230 AFT
						==========	
						0.530 AFT	
			UNN STR > UMATILLA R				
69977	R 101189	GENTRY	9 3N 36E	LW	1/ 3/1993	WILDHORSE CR/R	1.500 AFT
69977	R 101189	GENTRY	9 3N 36E	LW	1/ 3/1993	A SPR/RES 2	0.250 AFT
69977	R 101189	GENTRY	9 3N 36E	LW	1/ 3/1993	A SPR/RES 3	0.200 AFT
69977	R 101189	GENTRY	9 3N 36E	LW	1/ 3/1993	A SPR/RES 4	0.150 AFT
70233	R 101444	LARSON	NE 9 3N 36E	LV	1/ 3/1993	RUNOFF/RES	0.180 AFT
						==========	
						2.280 AFT	
			ROCK CR > UMATILLA R				
53197	R 4916	CARTER	0 0 0	FP	12/ 7/1966	ROCK CR	1.100 AFT
53198	S 32214	CARTER	NWNE 5 3N 37E	FP	12/ 7/1966	ROCK CR	0.010 CFS
0	S 44748	MURPHY	SWSE 32 4N 37E	DO	11/ 7/1979	SPRING	0.005 CFS
70192	R 101403	BROGOITTI	NESW 12 3N 36E	LV	1/ 3/1993	RUNOFF/RES 11	0.200 AFT
70192	R 101403	BROGOITTI	NWNW 12 3N 36E	LV	1/ 3/1993	RUNOFF/RES 12	0.020 AFT
70192	R 101403	BROGOITTI	NESW 12 3N 36E	LV	1/ 3/1993	RUNOFF/RES 13	0.020 AFT
70192	R 101403	BROGOITTI	SESW 12 3N 36E	LV	1/ 3/1993	RUNOFF/RES 14	0.020 AFT
70192	R 101403	BROGOITTI	NWSW 12 3N 36E	LV	1/ 3/1993	RUNOFF/RES 15	0.020 AFT
						==========	
						0.015 CFS	
						1.380 AFT	

Totals
======
Total CFS: 36.96
Total AFT: 32.92

Acres summary for miscellaneous creeks > Umatilla River 5-29-96

Cert #	Permit	Primary	Supplemental
0	CS 18122	26.30	34.90
0	CS 24069	21.80	45.40
0	CS 27731	61.50	
0	S 49487	2.70	
2494	D 2494	5.00	
2495	D 2495	1.00	
2523	D 2523	6.00	
2597	D 2597	4.40	
2645	D 2645	23.00	
3266	S 4543	6.00	
3962	S 5303	25.00	
6083	S 6059	15.00	
6798	S 6009	9.00	
10556	S 9451	60.00	
11010	S 10650	20.00	
12164	S 12433	32.60	
14346	S 13306	120.00	1675.10
24256	S 22853	27.00	
28487	S 24060	19.00	
28488	S 24610	40.00	

Cert #		Permit	Name	Location			Use	Priority	Source	Quantity
				KLONDIKE CR > MEACHAM CR						
70944	R	102155	PENDLETON RANCHES	NESW 18	1N	36E	LW	1/ 3/1993	RUNOFF/RES 27	0.230 AFT
70944	R	102155	PENDLETON RANCHES	NESW 18	1N	36E	LW	1/ 3/1993	A SPR/RES 28	0.070 AFT
										0.300 AFT
				MILL CR > MEACHAM CR						
70940	R	102151	PENDLETON RANCHES	SWNW 24	1N	35E	LW	1/ 3/1993	A SPR/MEACHAM	0.220 AFT
70941	R	102152	PENDLETON RANCHES	NESW 24	1N	35E	LW	1/ 3/1993	A SPR/RES 24	0.390 AFT
70944	R	102155	PENDLETON RANCHES	NENW 19	1N	36E	LW	1/ 3/1993	A SPR/RES 29	0.430 AFT
70944	R	102155	PENDLETON RANCHES	SENW 19	1N	36E	LW	1/ 3/1993	RUNOFF/RES 30	0.070 AFT
70944	R	102155	PENDLETON RANCHES	SWNE 19	1N	36E	LW	1/ 3/1993	RUNOFF/RES 31	0.250 AFT
70944	R	102155	PENDLETON RANCHES	SWNW 19	1N	36E	LW	1/ 3/1993	A SPR/RES 32	0.670 AFT
										2.030 AFT
				SHEEP CR > MEACHAM CR						
70940	R	102151	PENDLETON RANCHES	SENW 1	1S	35E	LW	1/ 3/1993	RUNOFF/MEACHAM	0.010 AFT
70940	R	102151	PENDLETON RANCHES	NESW 1	1S	35E	LW	1/ 3/1993	RUNOFF/MEACHAM	0.880 AFT
70940	R	102151	PENDLETON RANCHES	SWNE 12	1S	35E	LW	1/ 3/1993	RUNOFF/MEACHAM	0.210 AFT
70940	R	102151	PENDLETON RANCHES	NWSE 12	1S	35E	LW	1/ 3/1993	RUNOFF/MEACHAM	0.010 AFT
70940	R	102151	PENDLETON RANCHES	NWSE 35	1N	35E	LW	1/ 3/1993	A SPR/MEACHAM	0.330 AFT
70943	R	102154	PENDLETON RANCHES	SESW 12	1S	35E	LW	1/ 3/1993	RUNOFF/RES 1	1.290 AFT
70943	R	102154	PENDLETON RANCHES	SWNE 2	1S	35E	LW	1/ 3/1993	RUNOFF/RES 2	1.350 AFT
70943	R	102154	PENDLETON RANCHES	SENE 12	1S	35E	LW	1/ 3/1993	A SPRING/RES 4	0.520 AFT
70944	R	102155	PENDLETON RANCHES	SWNE 1	1S	35E	LW	1/ 3/1993	RUNOFF/RES 2	0.120 AFT
70944	R	102155	PENDLETON RANCHES	NWSE 1	1S	35E	LW	1/ 3/1993	RUNOFF/RES 5	0.210 AFT
70944	R	102155	PENDLETON RANCHES	NESE 12	1S	35E	LW	1/ 3/1993	RUNOFF/RES 7	0.210 AFT
										5.140 AFT
				UNN STR > MEACHAM CR						
49570	S	38281	HARRIS	NWSE 27	1N	35E	DO	6/15/1973	A SPR	0.005 CFS
										0.005 CFS
				TOD CR > MEACHAM CR						
70940	R	102151	PENDLETON RANCHES	NWSW 13	1S	35E	LW	1/ 3/1993	RUNOFF/MEACHAM	0.180 AFT
70944	R	102155	PENDLETON RANCHES	SWNE 13	1S	35E	LW	1/ 3/1993	RUNOFF/RES 8	0.160 AFT
70957	R	102168	LOUISIANA PACIFIC CORP.	SWSW 11	1S	35E	LW	1/ 3/1993	RUNOFF/RES 2	0.300 AFT
										0.640 AFT
				BEAVER CR > MEACHAM CR						
70957	R	102168	LOUISIANA PACIFIC CORP.	SESW 10	1S	35E	LW	1/ 3/1993	A SPR/RES 1	0.100 AFT
										0.100 AFT
				UNN STR > LITTLE BEAVER CR						
70957	R	102168	LOUISIANA PACIFIC CORP.	SENE 16	1S	35E	LW	1/ 3/1993	RUNOFF/RES 4	0.300 AFT
										0.300 AFT
				UNN STR > MEACHAM CR						
70943	R	102154	PENDLETON RANCHES	NENW 14	1S	35E	LW	1/ 3/1993	SPRING CR/RES	0.040 AFT
70943	R	102154	PENDLETON RANCHES	NWNE 14	1S	35E	LW	1/ 3/1993	UNN STR/RES 7	0.070 AFT
70943	R	102154	PENDLETON RANCHES	SWNE 14	1S	35E	LW	1/ 3/1993	UNN STR/RES 8	0.140 AFT
70957	R	102168	LOUISIANA PACIFIC CORP.	SWNW 14	1S	35E	LW	1/ 3/1993	RUNOFF/RES 3	0.100 AFT
										0.350 AFT
				UNN STR > MEACHAM CR						
70957	R	102168	LOUISIANA PACIFIC CORP.	SENW 27	1S	35E	LW	1/ 3/1993	RUNOFF/RES 6	0.400 AFT
70957	R	102168	LOUISIANA PACIFIC CORP.	SENW 27	1S	35E	LW	1/ 3/1993	RUNOFF/RES 7	0.100 AFT
										0.500 AFT

Cert #	Permit		Primary	Supplemental
34388	S	28411	30.00	
36919	S	28053	45.40	
38868	S	31223	29.30	
39466	S	30574	6.80	
39467	S	30603	4.00	
42276	S	33808	3.60	
42861	S	31351	158.20	
45093	S	37739	34.00	
48483	S	36058	11.60	
49142	S	40031	3.40	
49218	S	31266	37.40	
52671	S	43652	27.50	
52831	S	18122	5.80	
53073	S	43323	3.22	
53195	S	39369	77.60	
53196	S	39379	23.90	
53200	S	35712	41.48	
53201	S	39893	5.00	37.70
55003	S	37296	38.70	
65294	S	42257	3.60	
66247	S	45370	8.20	

Water Rights Information System (WRIS)
Data Considerations

When using data and information from the WRIS system be aware of the following considerations:

- The WRIS data base is a representation of the information contained in the legal rights of record. More complete information is contained in the paper records associated with a water right.
- The data in WRIS does not reflect actual use of a water right.
- The data does not reflect transfers associated with irrigation districts.
- The Department has issued water rights using a variety of measurements methods. With the exception of acre-feet and gallons per minute, all units were converted to cubic feet per second prior to entry in the database. In summary reports gallons per minute are converted to cubic feet second and acre-feet summaries are listed separate.
- Many adjudicated rights do not list a maximum rate of diversion or locations on the certificate. In these cases the database may not include rate or location information.
- When multiple uses are listed on a right, often the Department did NOT associate a particular rate with each use. In those cases all of the rate is listed with one use and the other uses are listed as alternate with the same rate.
- For summary reports, groundwater diversions are grouped together according to the nearest stream and are not necessarily based on hydraulic connection.

UMATILLA COMPILED LISTINGS (AFTER OWRD, 5/30/96):				
				PRIORITY
CERT	#	PERM	NAME	DATE
AESTHETIC				
71932	R	103143	ARGO	1/3/1993
DOMESTIC, DOMESTIC INCLUDING LAWN/GARDEN, AND DOMESTIC/STOCK				
2701	D	2701	VEY	12/31/1886
2609	D	2609	ROACH	12/31/1891
2609	D	2609	ROACH	12/31/1892
2624	D	2624	ST ANDREWS MISSION	03/31/1893
64233	D	127	MORRELL	12/31/1895
2633	D	2633	BY J. VERT, RIPARIAN	
2588	D	2588	MORRISON	12/31/1902
2629	D	2629	TEEL	8/5/1903
883	S	327	PIONEER EDUCATIONAL SOC	6/8/1910
990	S	885	SPARKS	10/4/1911
783	S	730	OREGON-WASHINGTON RR	6/23/1911
9012	S	9483	JE SMITH LIVESTOCK CO	1/13/1930
11064	S	9487	J.E. SMITH LIVESTOCK CO.	1/18/1930
10125	S	10358	SCHMIDT	9/15/1931
11486	S	11214	U.S. UNFS	12/26/1934
11878	S	12549	O'GRADY	2/5/1937
12288	S	13073	OREGON DEPT OF TRANSPORTA	6/13/1938
12497	S	13828	US UNFS	6/19/1939
14503	S	14433	U.S. UNFS	6/17/1940
13820	S	14652	HASCALL	10/19/1940
22156	S	16268	KATHLEEN K. SCHRODER	4/11/1945
24812	S	25334	HISKEY	2/5/1958
39465	S	28813	GRAY	4/15/1963
45829	S	29046	HUMPHREYS	8/14/1963
44117	S	31390	ESTATE OF ELWIN S MCAHREN	3/23/1966
45831	S	32804	HOSKINS	11/30/1967
38392	S	33718	THOMPSON	2/2/1968
47097	S	33877	ESTATE OF	9/10/1968
42350	S	34892	HOSKINS JR.	6/30/1970
42351	S	34893	HOSKINS	6/30/1970
47098	S	38127	LIVESAY	5/18/1973
0	S	37389	DOHERTY	7/19/1973
49570	S	38281	HARRIS	6/15/1973
0	S	40301	COLCORD	4/9/1975
0	S	44748	MURPHY	11/7/1979
69136	R	100349	GASS	1/3/1993

CERT	#	PERM	NAME	PRIORITY DATE
69136	R	100349	GASS	1/3/1993
69136	R	100349	GASS	1/3/1993
2506	D	2506	CROW	
FISH AND FISH/WILDLIFE				
5098	S	5859	SWEARINGEN	4/26/1923
8749	S	9188	OREGON DEPT. OF FISH & WILDL	7/20/1925
6777	S	6895	YOUNG	7/21/1925
7365	S	7729	YOUNG	1/5/1927
34390	S	29084	OREGON DEPT. OF FISH & WILDL	8/14/1963
34390	S	29084	OREGON DEPT. OF FISH & WILDL	8/14/1963
42353	S	36179	BOLTZ	4/23/1971
42352	R	5868	BOLTZ	6/30/1971
0	S	51676	US BUREAU OF RECLAMATION	6/21/1993
70334	R	101545	CLARKE	1/3/1993
FIRE PROTECTION				
53197	R	4916	CARTER	12/7/1966
53198	S	32214	CARTER	12/7/1966
GROUNDWATER RECHARGE				
0	S	41512	MCDOLE (CLWID)	1/31/1972
IRRIGATION; IRRIGATION/DOMESTIC; IRRIGATION, DOMESTIC & STOCK; AND IRRIGATION/STOCK				
2490	D	2490	BOWMAN	12/31/1860
2699	D	2699	VEY	12/31/1862
2690	D	2690	STANFIELD	12/31/1864
2696	D	2696	THOMSON	12/31/1864
51357	D	2668	HAMILTON	12/31/1864
2508	D	2508	CUMMINGHAM SHEEP & LAND CO	12/31/1865
2679	D	2679	MOORE	12/31/1866
53666	D	2692	AMMON BROTHERS INC.	12/31/1866
63802	D	2692	HALE BROTHERS FARMS	12/31/1866
2565	D	2565	JINKINS	12/31/1867
54769	D	2579	MALE	12/31/1867
2687	D	2687	SAYLOR	12/31/1867
2697	D	2697	THOMSON	12/31/1867
2652	D	2652	BARTHOLOMEW	12/31/1868
2667	D	2667	FRENCH	12/31/1869
60952	D	2683	ROGERS	12/31/1869
2537	D	2537	FOR WARD SMITH	12/31/1870

CERT	#	PERM	NAME	PRIORITY DATE
2543	D	2543	HEMPHILL	12/31/1870
2550	D	2550	HORN	12/31/1870
32152	D	2486	BAKER	12/31/1870
49213	D	2530	CONDRA	12/31/1870
2674	D	2674	MATTHEWS	12/31/1870
2681	D	2681	NELSON	12/31/1870
2682	D	2682	RHEA	12/31/1870
53666	D	2692	AMMON BROTHERS INC.	12/31/1870
63802	D	2692	HALE BROTHERS FARMS	12/31/1870
2684	D	2684	ROSS	12/31/1870
0	DN	319501	ALLEN DITCH CO.	12/31/1870
38658	D	2486	BAKER	12/31/1870
2556	D	2556	INGRAM	12/31/1872
2657	D	2657	CHAPMAN	12/31/1872
2657	D	2657	CHAPMAN	12/31/1872
49217	D	2678	MOORE	12/31/1872
60012	D	2710	HUGHES	12/31/1872
61998	D	2705	IRMA DORENE WATTENBERGER	12/31/1872
63814	D	2678	PEDRO	12/31/1872
2566	D	2566	JENSEN	12/31/1873
47434	D	2627	STURTEVANT	12/31/1873
56171	D	2534	GUDERIAN	12/31/1873
2665	D	2665	DOHERTY	12/31/1873
2704	D	2704	WARNER	12/31/1873
40397	D	2695	SUNDERMAN	12/31/1873
44542	D	2695	DOHERTY	12/31/1873
2647	D	2647	WILLSON	03/30/1874
2664	D	2664	CURRIN	12/31/1874
2528	D	2528	GIBSON	12/31/1875
32154	D	2575	ESTATE OF ALONZO KNOTTS, AG	12/31/1875
32403	D	2531	GILLIAM	12/31/1875
53012	D	2531	ESTATE OF C/O WILLIAM CAMPB	12/31/1875
2626	D	2626	STRAUGHAN	12/31/1876
2499	D	2499	BYRD	12/31/1877
2660	D	2660	CORNETT	12/31/1877
2685	D	2685	ROSS	12/31/1877
49074	D	2702	CORREA	12/31/1877
63270	D	2702	CORREA	12/31/1877
2488	D	2488	BELTS	12/31/1878
2663	D	2663	CUMMINGHAM SHEEP & LAND CC	12/31/1878
2676	D	2676	MCCARTY	12/31/1878

CERT	#	PERM	NAME	PRIORITY DATE
2485	D	2485	BAIN	12/31/1879
2932	D	2532	GILLILAND	12/31/1879
2508	D	2508	CUMMINGHAM SHEEP & LAND CO	12/31/1880
2508	D	2508	CUMMINGHAM SHEEP & CATTLE (	12/31/1880
2516	D	2516	EDWARDS	12/31/1880
2585	D	2585	MCBEE	12/31/1880
2592	D	2592	OGILVY	12/31/1880
2639	D	2639	WAUGH	12/31/1880
0	CD	2651	VEY	12/31/1880
2654	D	2654	BROSNAN	12/31/1880
2673	D	2673	JARMAN	12/31/1880
2688	D	2688	SHERIDAN	12/31/1880
2708	D	2708	W.E. WIGGLESWORTH	12/31/1880
2709	D	2709	WIGGLESWORTH	12/31/1880
60952	D	2683	ROGERS	12/31/1880
2504	D	2504	CHENEY	12/31/1880
2641	D	2641	WENAHA SPRINGS CO.	12/31/1880
0	DN	324113	LIVESTOCK CO.	12/31/1881
2576	D	2576	KNOTTS	12/31/1882
47434	D	2627	STURTEVANT	12/31/1882
2675	D	2675	MCCARTY	12/31/1882
2567	D	2567	JOHNSON	12/31/1883
0	RD	2653	JOHNSON	12/31/1883
2659	D	2659	COLE	12/31/1883
2535	D	2535	GULLIFORD	12/31/1883
0	CD	2653	CORREA	12/31/1883
67877	D	2653	BOWMAN	12/31/1883
2637	D	2637	WARNER	05/31/1884
2507	D	2507	CUNHA	07/01/1884
2567	D	2567	JOHNSON	12/31/1884
53666	D	2692	AMMON BROTHERS INC.	12/31/1884
63802	D	2692	HALE BROTHERS FARMS	12/31/1884
0	CD	2628	TACHELLA JR.	06/30/1884
0	RD	2661	CORRIGAL	12/31/1884
2540	D	2540	HASCALL	03/01/1885
2541	D	2541	HASCALL	03/01/1885
2650	D	2650	AYERS	12/13/1885
2553	D	2553	HOUSER	12/31/1885
2562	D	2562	JANES	12/31/1885
2643	D	2643	WHITAKER	12/31/1885
2658	D	2658	CLARK	12/31/1885

CERT	#	PERM	NAME	PRIORITY DATE
2662	D	2662	COX	12/31/1885
2670	D	2670	HINKLE	12/31/1885
2680	D	2680	L.D. NEILL	12/31/1885
2689	D	2689	SHERIDAN	12/31/1885
2700	D	2700	VEY	12/31/1885
49217	D	2678	MOORE	12/31/1885
56395	D	2677	KL RANCHES, INC.	12/31/1885
63814	D	2678	PEDRO	12/31/1885
2636	D	2636	WARNER	06/30/1886
2542	D	2542	HASCALL	12/31/1886
2563	D	2563	JANES	12/31/1886
2703	D	2703	VINSON	12/31/1886
2493	D	2493	BOYLEN	12/31/1887
2671	D	2671	ALEX LINDSEY	12/31/1887
2681	D	2681	NELSON	12/31/1888
2697	D	2697	THOMSON	12/31/1888
2512	D	2512	DICK	12/31/1889
56170	D	2497	BUSH	12/31/1889
2529	D	2529	GIENGER	02/20/1890
2488	D	2488	BELTS	12/31/1890
2647	D	2647	WILLSON	12/31/1890
46937	D	2623	SPARKS	12/31/1890
53121	D	2581	MANNING	12/31/1890
0	CD	2651	VEY	12/31/1890
2693	D	2693	STRAIGHT	12/31/1890
2582	D	2582	CITY OF PENDLETON	12/31/1890
0	DN	324113	LIVESTOCK CO.	02/28/1890
61998	D	2705	IRMA DORENE WATTENBERGER	12/31/1890
0	DN	321704	OREGON STATE HOSP. FROM	12/31/1890
2571	D	2571	KANE	06/16/1891
2545	D	2545	A.C. HENDERSON & SONS	12/31/1891
2605	D	2605	PERRIN	12/31/1891
2503	D	2503	CARNEY	12/31/1891
2612	D	2612	ROTHLIN	12/31/1891
41634	D	2517	MILLER	12/31/1891
2645	D	2645	WILBUR	12/31/1891
2500	D	2500	CABLE	12/31/1892
2567	D	2567	JOHNSON	12/31/1892
2639	D	2639	WAUGH	12/31/1892
32154	D	2575	ESTATE OF ALONZO KNOTTS, AG	12/31/1892
53013	D	2575	ESTATE C/O WILLIAM CAMPBE	12/31/1892

CERT	#	PERM	NAME	PRIORITY DATE
2649	D	2649	AYERS	12/31/1892
2666	D	2666	FRENCH	12/31/1892
2672	D	2672	HUFFORD	12/31/1892
52817	D	2669	HAYES	12/31/1892
2549	D	2549	HOPPER	12/31/1892
2538	D	2538	HARRISON	12/31/1892
68115	D	2615	SHAW	12/31/1892
2619	D	2619	SLOAN	12/31/1892
0	DN	324214	STEPHENS	12/31/1892
0	DN	321303	WEID	04/14/1893
0	DN	322705	BROWNELL DITCH CO.	11/08/1893
2706	D	2706	WATTENBURGER	12/31/1893
2572	D	2572	KEMLER	12/31/1893
2515	D	2515	DUNN	12/31/1893
2580	D	2580	MANNING	12/31/1893
2513	D	2513	DOHERTY	12/31/1893
2617	D	2617	SIMON	04/30/1894
56172	D	2610	ROCKWELL	12/31/1894
2656	D	2656	CHAPMAN	12/31/1894
2631	D	2631	COUNTY OF UMATILLA	12/31/1894
55608	D	2573	R&B BYER, JIM & L. GUGIN, L	12/31/1894
53297	D	29799	R.L. SMITH & H. BARTSCH	12/31/1894
51877	D	2606	DOHERTY	12/31/1894
0	DN	324215	HID	11/14/1894
0	CD	2610	PENDLETON CC	12/31/1894
2563	D	2563	JANES	04/30/1895
2483	D	2483	A-LE-TE-LA	05/23/1895
2561	D	2561	JACOBS	05/31/1895
55602	D	2583	MAXWELL IRR CO.	09/11/1895
2524	D	2524	FLETCHER	11/30/1895
53264	D	2567	MCBROOM	12/13/1895
2622	D	2622	HEIRS of JOHN SOUTHWELL	12/31/1895
47434	D	2627	STURTEVANT	12/31/1895
54765	D	2614	WEINKE	12/31/1895
2502	D	2502	CARD	12/31/1895
2496	D	2496	BROWN	12/31/1895
36470	D	2634	GILLILAND	12/31/1895
2482	D	2482	ADAMS	12/31/1895
2494	D	2494	BROWN	12/31/1895
2597	D	2597	PARR	12/31/1895
2501	D	2501	CALDWELL	12/31/1895

CERT	#	PERM	NAME	PRIORITY DATE
2570	D	2570	CAYUSE #248, TO-YAT HEIR OF U	12/31/1895
2600	D	2600	PAT-SI-AK	12/31/1895
29165	D	2498	GLENN	12/31/1895
0	CD	2569	MORRELL	04/30/1895
0	CD	2653	CORREA	12/31/1895
0	RD	2653	JOHNSON	12/31/1895
0	RD	2661	CORRIGAL	12/31/1895
67877	D	2653	BOWMAN	12/31/1895
2640	D	2640	WA-WA-NE	05/23/1896
2687	D	2687	SAYLOR	12/31/1896
53666	D	2692	AMMON BROTHERS INC.	12/31/1896
63802	D	2692	HALE BROTHERS FARMS	12/31/1896
68114	D	2625	STONEBREAKER	12/31/1896
2607	D	2607	REED	12/31/1896
53515	D	2491	BOWMAN	12/31/1896
55603	D	2583	OBERSON	09/11/1896
60455	D	2655	COCHRAN	12/31/1896
61998	D	2705	IRMA DORENE WATTENBERGER	12/31/1896
2646	D	2646	WHITE BULL	05/23/1897
0	DN	323108	DILLON IRR DIST.	11/17/1897
2553	D	2553	HOUSER	12/31/1897
55604	D	2583	MILLS MINT FARM INC.	09/11/1897
2591	D	2591	O'BRIEN	02/28/1898
2522	D	2522	FIEDLER	04/30/1898
2521	D	2521	FIEDLER	05/31/1898
2487	D	2487	BEITEL DITCH CO.	12/01/1898
2576	D	2576	KNOTTS	12/31/1898
2594	D	2594	BY H BOYLEN, GUARDIAN	12/31/1898
2596	D	2596	OWINGS	12/31/1898
2652	D	2652	BARTHOLOMEW	12/31/1898
2690	D	2690	STANFIELD	12/31/1898
2694	D	2694	SUISTE	12/31/1898
2696	D	2696	THOMSON	12/31/1898
49207	D	2707	WILCOX	12/31/1898
60011	D	2707	HUGHES	12/31/1898
2642	D	2642	WESTGATE	12/31/1899
2697	D	2697	THOMSON	12/31/1899
2698	D	2698	THOMSON	12/31/1899
2621	D	2621	SNYDER	12/31/1899
0	DN	324113	LIVESTOCK CO.	12/31/1899
2602	D	2602	ASSIGNEE OF J PELMULDER	1/1/1900

CERT	#	PERM	NAME	PRIORITY DATE
2603	D	2603	ASSIGNEE OF JAY PELMULDER	1/1/1900
2567	D	2567	JOHNSON	12/31/1900
2673	D	2673	JARMAN	12/31/1900
2686	D	2686	RUST	12/31/1900
2687	D	2687	SAYLOR	12/31/1900
0	DN	322806	COURTNEY IRR CO.	1/9/1900
0	DN	323810	PIONEER IRR CO.	1/9/1900
0	DN	1443229	PIONEER IRR CO.	1/9/1900
65146	D	2492	BOWMAN	12/31/1900
0	DN	1442517	ALLEN DITCH CO.	12/31/1900
0	DN	1442518	ANDREWS	12/31/1900
0	DN	1442921	COURTNEY IRR CO.	12/31/1900
0	DN	1443125	CORREA MACHADO	12/31/1900
2508	D	2508	CUMMINGHAM SHEEP & CATTLE (	12/31/1901
2659	D	2659	COLE	12/31/1901
65492	D	2611	SUTHERLAND	4/30/1902
57568	D	2611	SUTHERLAND	4/30/1902
2618	D	2618	SLOAN	10/31/1902
0	DN	322705	BROWNELL DITCH CO.	12/31/1902
0	DN	324113	LIVESTOCK CO.	12/31/1902
0	CD	2611	SAXTON	4/30/1902
68052	D	2611	FARIS	4/30/1902
0	DN	324012	SLUSHER	12/31/1902
0	DN	1443023	CUNNINGHAM SHEEP CO.	12/31/1902
0	DN	1443126	MCCLINTOCK	12/31/1902
2499	D	2499	BYRD	12/31/1903
2675	D	2675	MCCARTY	12/31/1903
2523	D	2523	FIX	12/31/1903
2577	D	2577	KOONTZ	12/31/1903
46363	D	2574	KENNISON	12/31/1903
2520	D	2520	FEE	12/31/1903
2613	D	2613	RUGG	12/31/1903
0	DN	324616	WESTERN LAND & IRR CO.	3/14/1903
0	DN	1442518	ANDREWS	3/14/1903
0	DN	1443732	WID	3/14/1903
0	DN	1444133	J. L. MURRAY	3/14/1903
0	CD	2653	CORREA	12/31/1903
0	RD	2653	JOHNSON	12/31/1903
67877	D	2653	BOWMAN	12/31/1903
55330	D	2560	ELDER	1/31/1904
55329	D	2552	HORSESHOE IRR. DIST.	12/26/1904

CERT	#	PERM	NAME	PRIORITY DATE
2544	D	2544	HEMPHILL	12/31/1904
2564	D	2564	JACQUES	12/31/1904
2616	D	2616	SHERMAN	12/31/1904
2665	D	2665	DOHERTY	12/31/1904
2697	D	2697	THOMSON	12/31/1904
68115	D	2615	SHAW	12/31/1904
2495	D	2495	BROWN	12/31/1904
0	DN	319902	CRAYNE-LISLE IRR CO.	3/7/1904
0	CD	2560	MCKAY	1/31/1904
0	DN	324215	HID	2/25/1904
0	DN	324215	HID	2/25/1904
0	DN	1443022	CRAYNE-LISLE IRR CO.	3/7/1904
0	CD	2552	LEWIS LIVESTOCK	12/26/1904
0	DN	1443127	MCGOWAN	12/31/1904
0	CD	2661	MADISON	12/31/1904
0	RD	2661	CORRIGAL	12/31/1904
0	DN	1443228	MILLER	12/31/1904
2551	D	2551	HORN	3/31/1905
2519	D	2519	EVANS	12/5/1905
49213	D	2530	CONDRA	12/31/1905
2482	D	2482	ADAMS	12/31/1905
51218	D	2489	UKIAH LUMBER CO. INC.	12/31/1905
0	DN	323309	FURNISH DITCH CO.	3/8/1905
0	DN	1443330	SID	3/8/1905
0	DN	324215	HID	9/6/1905
10151	S	7159	ALLEN	11/27/1905
2536	D	2536	HANNA	4/8/1906
2620	D	2620	F.M. SMITH	4/30/1906
2549	D	2549	HOPPER	12/31/1906
2510	D	2510	DAVIS	12/31/1906
2484	D	2484	ASHWORTH	12/31/1906
2527	D	2527	FURNISH	12/31/1906
2644	D	2644	WHITE	12/31/1906
12678	D	12678	FIELDS	12/31/1906
0	DN	1443631	WEID	12/31/1906
2566	D	2566	JENSEN	12/31/1907
32152	D	2486	BAKER	12/31/1907
2681	D	2681	NELSON	12/31/1907
2580	D	2580	MANNING	12/31/1907
0	DN	323108	DILLON IRR. DIST.	12/31/1907
0	DN	324616	WESTERN LAND & IRR. CO.	7/31/1907

CERT	#	PERM	NAME	PRIORITY DATE
0	DN	1443732	WID	7/31/1907
0	DN	1443024	DILLON IRR. DIST.	12/31/1907
2533	D	2533	GRITMAN	3/28/1908
2513	D	2513	DOHERTY	3/31/1908
2563	D	2563	JANES	4/30/1908
2521	D	2521	FIEDLER	5/31/1908
2590	D	2590	NEWQUIST	5/31/1908
2638	D	2638	WARNER	5/31/1908
2505	D	2505	CLINE	12/31/1908
2630	D	2630	THOMAS	12/31/1908
2510	D	2510	DAVIS	12/31/1908
54766	D	2579	WEINKE	12/31/1908
54767	D	2579	HOEFT	12/31/1908
54768	D	2579	HOEFT	12/31/1908
2934	D	2525	MCLEAN	5/31/1909
53122	D	2587	APPLEBURG WATER CO.	5/31/1909
2639	D	2639	WAUGH	12/31/1909
0	DN	324011	ROBERTS	1/4/1909
10142	S	408	U.S. BUREAU OF RECLAMATION	3/28/1909
434	S	137	HOUSER	6/7/1909
1408	S	138	HOUSER	7/9/1909
1927	E	17	TROXEL	10/8/1909
2547	D	2547	HOEFT	4/30/1910
53264	D	2567	MCBROOM	12/31/1910
2554	D	2554	HURLBURT	12/31/1910
54313	D	2555	HURLBURT	12/31/1910
706	E	46	BOYLEN	4/23/1910
474	S	346	COOK	5/23/1910
1634	S	367	WYNN	5/31/1910
885	S	360	SCHMIDT	6/7/1910
64211	S	396	BIRCH CK DITCH CO	7/28/1910
64212	S	396	PETERSON	7/28/1910
64213	S	396	MCDANIEL	7/28/1910
1637	S	562	WRIGHT	1/28/1911
0	CS	652	BAFUS, V P TRUSTEE; P	5/3/1911
68339	S	652	GRAHAM, E.M.	5/3/1911
798	S	891	CABLE	8/31/1911
1645	S	1071	PIONEER EDUCATIONAL SOC	2/5/1912
932	S	1022	STRAUGHN	1/2/1912
55836	S	1540	MARION JACK IRR. CO.	1/3/1912
1655	S	1361	CAMPBELL	4/17/1912

CERT	#	PERM	NAME	PRIORITY DATE
68390	S	1234	VEY	6/14/1912
2120	S	1296	HAYES	7/20/1912
50536	S	1568	HOBBY	4/26/1913
41635	S	1850	ESTATE OF CARL WILSON	12/24/1913
2847	S	2102	SAVELY	7/3/1914
53651	S	2430	CHAMBERLAIN	4/20/1915
49479	S	2430	FARMER	4/20/1915
49480	S	2430	APPLEGATE	4/20/1915
53644	S	2430	THOMAS	4/20/1915
53645	S	2430	OLIVER	4/20/1915
53646	S	2430	ELDER	4/20/1915
53647	S	2430	SCHELL	4/20/1915
53648	S	2430	REIMAN	4/20/1915
53649	S	2430	ROACH	4/20/1915
53650	S	2430	WEBER	4/20/1915
56278	S	2430	HARRIS	4/20/1915
1680	S	3303	MILLER	3/10/1917
60951	S	3694	THOMAS RICHARDS & SONS	5/17/1917
3853	S	3860	ESTATE OF BY JOHN ROSS	7/19/1918
3500	S	3877	WARNER	7/30/1918
3259	S	4323	GIRTON	12/1/1919
3262	S	4418	J.E. SMITH LIVESTOCK CO	1/30/1920
10148	S	4482	DOHERTY	3/12/1920
3266	S	4543	COTANT	3/16/1920
2915	S	4646	JENNINGS	5/3/1920
4958	S	4957	DEVORE	2/17/1921
54764	S	5067	WEINKE	3/30/1921
3799	S	5046	ROGERS	4/8/1921
6118	S	5049	BETTS	5/7/1921
8407	S	5261	SMITH	7/2/1921
3962	S	5303	REEVES	12/7/1921
4808	S	5722	SCHLEGEL	11/29/1922
55964	S	5705	DON	11/28/1922
6798	S	6009	SCOTT	8/13/1923
5157	S	5819	RAMOS	3/28/1923
6331	S	5921	YOUNG	7/5/1923
5100	S	5996	TULLIS, JR.	8/16/1923
6083	S	6059	MONESE	10/17/1923
7328	S	6149	BOYD	1/9/1924
5168	S	6150	MILLER	1/9/1924
7329	S	6151	BOESCH	1/9/1924

CERT	#	PERM	NAME	PRIORITY DATE
5169	S	6180	RAMOS	1/21/1924
7536	S	6179	RAMOS	1/21/1924
7537	S	6183	CORREA	2/2/1924
7092	S	6464	KOEPPEN	8/4/1924
32392	S	6444	PEOPLES WAREHOUSE	8/11/1924
48553	S	6444	STANHOPE	8/11/1924
5806	S	6558	OWEN	10/7/1924
8418	S	6637	HOEFT	1/8/1925
8784	S	6683	ECKLES	3/11/1925
8207	S	7123	WINN	1/8/1926
8795	S	7550	AMERICAN NATIONAL BANK	8/28/1926
9495	S	8372	PORTER	10/25/1927
9779	S	8842	FALCONER	12/16/1928
10162	S	9116	ESTATE OF	8/2/1929
10109	S	9226	ROBINSON	8/30/1929
10556	S	9451	SMITH	12/23/1929
11010	S	10650	STANFIELD IRR DIST	7/26/1932
13685	S	10823	HOLT	2/18/1933
11548	S	11576	HOEFT	2/22/1935
11563	S	12000	EASTERN OR STATE HOPSPITAL	10/25/1935
11564	S	12001	EASTERN OR STATE HOSPITAL	10/25/1935
11565	S	12026	HOEFT	1/7/1936
12380	S	12045	STRAUGHAN	1/22/1936
12148	S	12261	OREGON DEPT. OF FISH & WILDL	7/13/1936
13489	S	12262	MILLER	7/14/1936
0	CS	12309	BALLOU	8/14/1936
11770	S	12313	RICHARDS	8/17/1936
12164	S	12433	MCDERMOTT	11/5/1936
15571	S	12562	TEMPLE	1/1/1937
12406	S	12629	HOEFT	5/4/1937
15572	S	12663	PORTER	5/25/1937
13399	S	12666	ELLENBERGER	5/27/1937
14346	S	13306	DILLON IRR CO	10/1/1938
13377	S	13757	ADAMS	5/22/1939
15583	S	13910	MERKLING	7/6/1939
53298	S	14294	R.L. SMITH & H. BARTSCH	4/13/1940
14029	S	14853	JONES	3/31/1941
28484	S	16393	E.F. BURLINGHAM & SONS	7/3/1945
20843	S	17457	CHRISTLEY	1/2/1947
0	CS	18122	LAMPKIN	11/18/1947
52831	S	18122	BOISE CASCADE CORP	11/18/1947

CERT	#	PERM	NAME	PRIORITY DATE
68762	S	18659	J.R. SIMPLOT CO.	3/23/1949
20861	S	18787	HORN	6/17/1949
28734	S	18911	MADISON	7/29/1949
23550	S	19842	ROTHROCK	9/12/1950
23757	S	19771	FARO	9/28/1950
21559	S	20240	KELLEY	2/26/1951
0	CS	20389	LEWIS LIVESTOCK CO.	6/18/1951
24221	S	20388	MOORE	6/18/1951
22949	S	20801	PAHL	10/8/1951
24221	S	20388	MOORE	7/1/1952
24221	S	20388	MOORE	7/1/1952
28608	S	21628	CUNNINGHAM SHEEP CO.	7/21/1952
30532	S	22129	FRANCES SAMPSON	2/16/1953
23675	S	22362	KOPP	3/19/1953
24340	S	22267	KORVOLA	5/6/1953
0	CS	22288	LEWIS LIVESTOCK CO.	5/25/1953
30136	S	22289	LEWIS LIVESTOCK CO.	5/25/1953
24498	R	1530	OREGON FIBRE PRODUCTS INC.	10/30/1953
24499	S	22473	OREGON FIBRE PRODUCTS INC.	10/30/1953
28609	S	22769	WYLAND	1/4/1954
24256	S	22853	JONES	3/8/1954
28736	S	23114	BARNETT	5/24/1954
31809	S	25222	FARO	5/25/1954
0	S	25920	TEEL IRR. DIST.	4/22/1955
24354	S	23469	WYLAND	3/29/1955
30137	S	23589	LEWIS LIVESTOCK CO.	4/26/1955
28487	S	24060	BEILKE	10/5/1955
28486	S	23954	THOMPSON	10/21/1955
0	CS	24069	TRI-SET, INC	10/27/1955
23821	S	24144	OREGON DEPT OF CORRECTIONS	4/5/1956
26171	S	24146	SAYLOR	4/11/1956
31293	S	26320	SAYLOR	4/30/1956
28488	S	24610	DUFF	11/21/1956
51169	S	24830	HOEFT	1/29/1957
54119	S	24830	HOEFT	1/29/1957
28611	S	24848	BAUMEISTER	4/17/1957
0	S	25924	TEEL IRR. DIST.	6/27/1958
28612	R	2127	DOHERTY	3/17/1958
28613	S	25471	DOHERTY	3/17/1958
0	CS	26097	LEWIS LIVESTOCK CO.; LEWIS,	3/30/1959
32699	S	26122	LEWIS LIVESTOCK CO.	3/30/1959

CERT	#	PERM	NAME	PRIORITY DATE
32597	S	26265	MADISON	7/13/1959
31295	S	26991	MOORE	6/6/1960
31295	S	26991	MOORE	6/6/1960
32349	S	27002	HOEFT	8/29/1960
32349	S	27002	HOEFT	10/17/1960
0	S	27583	WID	4/12/1961
42343	S	27481	ANDREWS	6/29/1961
29914	S	27487	CRESSWELL	7/12/1961
0	CS	27731	TRI-SET INC	11/28/1961
52829	S	27941	ANDEREGG	3/6/1962
36919	S	28053	CORREA	5/4/1962
38483	S	28206	KOPP	7/18/1962
34388	S	28411	KASEBERG	9/27/1962
36677	R	3163	DOHERTY	10/10/1962
36678	S	28449	DOHERTY	10/10/1962
35174	S	29198	SIRES	4/26/1963
35505	S	29148	PAYNE	10/25/1963
44226	S	29261	LOW	12/9/1963
36921	S	29156	WALCHLI	1/15/1964
36921	S	29156	WALCHLI	1/27/1964
41258	S	29330	JOHNS, SMITH & BEAMER	3/11/1964
41258	S	29330	JOHNS SMITH & BEAMER	3/11/1964
41258	S	29330	JOHNS SMITH & BEAMER	3/11/1964
41390	S	29557	JAMES/HELEN SMITH, LAWRENCE	4/13/1964
38865	S	29867	HENDRICKSON	7/15/1964
38866	S	29916	BAKER	8/3/1964
36922	S	29537	THOMSEN	10/1/1964
68763	S	30078	J.R. SIMPLOT CO.	10/5/1964
36246	S	29960	SHOCKMAN	10/5/1964
54725	S	30101	SUTHERLAND	10/23/1964
0	S	30789	SID	6/23/1965
36679	S	30114	SPIKE BROTHERS	2/23/1965
45830	S	30399	EMERY C GENTRY & SON	4/27/1965
34733	S	30558	JOHNS	6/11/1965
39466	S	30574	GRAY	6/21/1965
41259	S	30580	JOHNS SMITH & BEAMER	6/23/1965
41260	S	30581	JOHNS SMITH & BEAMER	6/23/1965
41031	S	30588	DAVIS	6/25/1965
39466	S	30574	GRAY	7/6/1965
39467	S	30603	GRAY	7/12/1965
38868	S	31223	SEIBEL	9/29/1965

CERT	#	PERM	NAME	PRIORITY DATE
35598	S	31030	BACUS	11/15/1965
41391	S	31039	JAS/HELEN SMITH, LAWRENCE/AL	1/26/1966
42861	S	31351	ANDERSON	2/16/1966
49218	S	31266	ANDERSEN	2/21/1966
44117	S	31390	ESTATE OF ELWIN S MCAHREN	3/23/1966
44117	S	31390	ESTATE OF ELWIN S MCAHREN	3/23/1966
38863	S	31490	CAMPBELL	4/7/1966
41032	S	31499	WHITACRE	4/12/1966
40937	S	31557	B.L. DAVIS RANCH, INC.	5/3/1966
40938	S	31637	B.L. DAVIS RANCH, INC.	6/6/1966
40939	S	31644	B.L. DAVIS RANCH, INC.	7/8/1966
40936	S	31394	OREGON BANK TRUSTEE	7/11/1966
38290	S	32086	STRAND	10/19/1966
40940	S	32132	PETERSON	11/7/1966
40941	S	32133	B.L. DAVIS RANCH, INC.	11/7/1966
40816	S	32168	SHEARD	11/16/1966
42275	S	31593	DUFF	11/29/1966
38871	S	32136	GALLOWAY	1/9/1967
0	CS	32298	ALBERTY, JOYCE	1/17/1967
42344	S	32314	HACHLER	1/24/1967
41261	S	32322	JOHNS SMITH & BEAMER	1/30/1967
41262	S	32323	JOHNS SMITH & BEAMER	1/30/1967
41263	S	32324	JOHNS SMITH & BEAMER	1/30/1967
38391	S	32329	RALLS	2/2/1967
41152	S	32400	ROHDE	3/9/1967
41035	S	32571	MILLER	5/1/1967
68761	S	32631	J.R. SIMPLOT CO.	5/25/1967
40942	S	32404	B.L. DAVIS RANCH, INC.	6/1/1967
40944	S	32653	GRIFFEN	6/5/1967
38874	S	32917	FREDRICKSON	9/8/1967
38875	S	32973	HENDRICKSON	10/12/1967
41264	S	33050	JOHNS SMITH & BEAMER	11/13/1967
45832	S	33097	TACHELLA JR.	12/11/1967
42345	S	33142	RICE	1/4/1968
38392	S	33718	THOMPSON	2/2/1968
49083	S	33258	JANIECE H. STANHOPE	2/8/1968
46101	S	33257	JANIECE HELEN STANHOPE	2/8/1968
42346	S	33298	PENDLETON READY-MIX CO.	4/29/1968
40947	S	33648	ROTHROCK	6/4/1968
42276	S	33808	HART	8/8/1968
45085	R	5352	DOHERTY	8/16/1968

CERT	#	PERM	NAME	PRIORITY DATE
45085	R	5352	DOHERTY	8/16/1968
68323	S	33883	WEID	9/12/1968
45834	S	33966	DALLMAN	11/7/1968
54755	S	34072	HENNEKE	11/22/1968
45220	S	33931	PETERSON	2/7/1969
40949	S	34194	RAMOS	2/28/1969
45086	S	34324	KARREN	4/18/1969
44025	S	34360	UMBARGER	5/2/1969
41265	S	34381	NEWSOME	5/13/1969
46359	S	34897	WILSON	2/9/1970
44227	S	34906	LOW	2/13/1970
53199	S	34976	WID	4/15/1970
42349	S	34664	RICE	5/22/1970
40818	S	35671	SAMPSON JR.	10/28/1970
54758	S	35811	ANDREWS	2/5/1971
41042	S	36128	BRIGHT	4/9/1971
53200	S	35712	TRI-SET, INC	4/30/1971
48483	S	36058	STANFIELD SCHOOL DIST	6/16/1971
55605	S	36410	MILLS MINT FARM INC.	3/1/1972
47962	S	36997	CLARK	6/15/1972
53491	S	37612	BORCK	2/6/1973
45091	S	37619	MORROW	2/13/1973
45092	S	37639	SUTHERLAND	2/27/1973
52906	S	38119	MONAGHAN	5/16/1973
55004	S	38161	LOREE TUCKER - MCKENNA	5/29/1973
45441	S	38766	JOHNS SMITH & BEAMER	12/13/1973
52410	S	38899	BORK	12/19/1973
54555	S	39173	CORREA	1/10/1974
45093	S	37739	PERRY	1/23/1974
53732	S	38943	J. CLARENCE WATSON AND SONS	2/7/1974
55003	S	37296	HANSELL	4/11/1974
68760	S	37853	J.R. SIMPLOT CO.	5/7/1974
45000	S	37406	ECHO CEMETERY DIST.	5/15/1974
46936	S	39209	LERFALD JR.	6/5/1974
52682	S	39341	HEMPHILL	8/9/1974
0	S	39444	DAHL	9/24/1974
53195	S	39369	BONNEY	9/30/1974
48084	S	39224	CURL JR.	10/22/1974
46103	S	39653	BEALER	11/1/1974
48085	S	39883	TANGEY	3/10/1975
53201	S	39893	LORENZEN	3/13/1975

CERT	#	PERM	NAME	PRIORITY DATE
48086	S	39920	GEORGE G. MOORE	3/27/1975
0	S	39971	BARTELL	4/7/1975
0	S	40301	COLCORD	4/9/1975
0	S	40301	COLCORD	4/9/1975
49142	S	40031	KREGER	4/25/1975
0	CS	40035	LEWIS LIVESTOCK CO.; LEWIS,	4/28/1975
53196	S	39379	BONNEY	7/29/1975
61801	S	40118	BORK	9/12/1975
46612	S	40167	C/O WELDON WITHERRITE	12/15/1975
48087	S	39929	ROSENBERG	12/30/1975
64049	S	40201	ARISTEQUI	1/26/1976
51294	S	40238	WALKER	2/23/1976
54836	S	40707	J.R. SIMPLOT CO.	2/27/1976
46360	S	40423	LEWIS LIVESTOCK CO.	3/22/1976
56717	S	40629	EUDORA L. WILSON	5/10/1976
53202	S	40849	LANGE	6/30/1976
61697	S	41446	SAYLOR	10/13/1976
0	S	41362	LEWIS LIVESTOCK CO.	12/16/1976
0	S	44378	EDNA J. LOVEGROVE & RONALD	6/17/1977
0	S	44378	EDNA J. LOVEGROVE & RONALD	6/17/1977
0	S	41823	HOEFT	3/9/1977
53395	S	41710	RICHARDS	4/14/1977
62358	S	41887	ALBERTA L CLARK	5/4/1977
65294	S	42257	MAYBERRY	5/6/1977
63285	S	42032	ANDERSON LAND & LIVESTOCK	8/5/1977
63285	S	42032	ANDERSON LAND & LIVESTOCK	8/5/1977
63285	S	42032	ANDERSON LAND & LIVESTOCK	8/5/1977
55607	S	42712	BETTY GENE SWEEK	11/3/1977
53073	S	43323	AE STALEY MFG CO	4/26/1978
53397	S	43255	BYFORD	5/18/1978
49569	S	43398	FARMER	7/12/1978
60787	S	43723	JOHNS SMITH & BEAMER	8/1/1978
52671	S	43652	HANSELL	8/29/1978
66247	S	45370	LAMPKIN	12/7/1979
0	S	49869	DOHETY	3/1/1979
0	S	49869	DOHETY	3/1/1979
0	S	44220	LEWIS	4/20/1979
0	S	44221	KLEINMAN	5/11/1979
58494	S	44219	HETTINGA	5/17/1979
56279	S	44744	STANLEY	6/14/1979
55323	S	44614	QUICK	8/23/1979

CERT	#	PERM	NAME	PRIORITY DATE
0	S	44615	BAILEY	9/24/1979
61616	S	44747	DUFF	11/5/1979
65825	S	45648	KREGER	3/20/1980
62058	S	45086	BURNS	4/28/1980
55006	S	46058	FLINK	10/1/1980
54976	S	45825	CARPENTER	11/21/1980
0	S	48450	PRIOR	8/3/1981
0	S	48968	AMSTAD	8/10/1981
53733	S	46560	BEEF CITY INC.	3/6/1981
0	S	45799	PETERSON	3/27/1981
0	S	45865	MCKAQUE	4/29/1981
0	S	49337	TRI-SET INC.	5/21/1981
0	S	46567	LGW RANCH INC.	6/25/1981
58915	S	46568	WID	7/31/1981
61116	S	47673	SPIKE RANCH INC.	7/1/1982
0	S	47406	CASE	1/4/1983
64698	S	47621	DOHERTY	3/11/1983
53734	S	47820	WID	5/19/1983
0	S	49487	AE STALEY MFG CO	6/24/1985
0	S	49487	AE STALEY MFG CO	8/5/1985
0	R	11700	CITY OF STANFIELD	9/14/1992
0	S	52029	CITY OF STANFIELD	9/14/1992
70831	R	102042	KLINTWORTH	1/3/1993
70831	R	102042	KLINTWORTH	1/3/1993
72075	R	103286	SCHEELER	1/3/1993
2632	D	2632	M.F. UMBARGER	
INDUSTRIAL/MANUFACTURING				
11093	D	2595	OREGON-WASHINGTON RR &	12/31/1893
51218	D	2489	UKIAH LUMBER CO. INC.	12/31/1905
14014	S	14222	PILOT ROCK LUMBER CO	3/5/1940
13675	R	750	HARRIS PINE MILLS	5/31/1940
42346	S	33298	PENDLETON READY-MIX CO.	4/29/1968
0	S	47723	HERMISTON ROCK PRODUCTS LL	4/8/1983
0	S	52021	JONES - SCOTT CO. INC.	8/20/1993
LIVESTOCK AND LIVESTOCK/WILDLIFE				
8428	S	7209	HUMPHREY	2/24/1926
31292	S	26114	SNYDER	1/26/1959
45829	S	29046	HUMPHREYS	8/14/1963
44117	S	31390	ESTATE OF ELWIN S MCAHREN	3/23/1966

CERT	#	PERM	NAME	PRIORITY DATE
45085	R	5352	DOHERTY	8/16/1968
45085	R	5352	DOHERTY	8/16/1968
42353	S	36179	BOLTZ	4/23/1971
42352	R	5868	BOLTZ	6/30/1971
0	S	37177	GWENDOLYN SMITH	8/28/1972
0	S	37177	GWENDOLYN SMITH	8/28/1972
53192	S	42122	ARISTEQUI	3/6/1977
0	S	44682	ADAMSON	10/12/1979
0	S	45799	PETERSON	3/27/1981
62161	S	46378	FORDICE	8/7/1981
0	R	11112	U.S. UNFS	3/1/1983
63518	R	10562	US UNFS	8/15/1983
63519	R	10563	US UNFS	8/15/1983
0	R	11020	U.S. UNFS	10/3/1983
0	R	11020	U.S. UNFS	10/3/1983
0	R	11020	U.S. UNFS	10/3/1983
0	R	11020	U.S. UNFS	10/3/1983
0	R	11021	U.S. UNFS	10/3/1983
0	R	11021	U.S. UNFS	10/3/1983
0	R	11022	U.S. UNFS	10/3/1983
0	R	11023	U.S. UNFS	10/3/1983
0	R	11024	U.S. UNFS	10/3/1983
0	R	11110	U.S. UNFS	10/3/1983
0	R	11110	U.S. UNFS	10/3/1983
0	R	11110	U.S. UNFS	10/3/1983
0	R	11111	U.S. UNFS	10/3/1983
0	R	11111	U.S. UNFS	10/3/1983
0	R	10965	U.S. UNFS	10/3/1983
0	R	10966	U.S. UNFS	10/3/1983
0	R	11108	U.S. UNFS	10/3/1983
0	R	11108	U.S. UNFS	10/3/1983
0	R	11109	U.S. UNFS	10/3/1983
0	R	11109	U.S. UNFS	10/3/1983
0	S	50676	U.S. UNFS	10/3/1983
0	S	50493	U.S. UNFS	10/3/1983
0	R	10611	U.S. UNFS	1/17/1986
0	R	10613	US UNFS	1/17/1986
69783	R	100994	KROSTING	1/3/1993
69783	R	100994	KROSTING	1/3/1993
69783	R	100994	KROSTING	1/3/1993
70264	R	101475	BEAR CR GRAZING ASSOC.	1/3/1993

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72022	R	103233	HACHLER	1/3/1993
72022	R	103233	HACHLER	1/3/1993
72022	R	103233	HACHLER	1/3/1993
72022	R	103233	HACHLER	1/3/1993
69783	R	100994	KROSTING	1/3/1993
69783	R	100994	KROSTING	1/3/1993
70005	R	101217	JENSEN	1/3/1993
70174	R	101385	ANDERSEN	1/3/1993
70677	R	101888	ANDERSEN	1/3/1993
70821	R	102032	DOHERTY	1/3/1993
70821	R	102032	DOHERTY	1/3/1993
70821	R	102032	DOHERTY	1/3/1993
70821	R	102032	DOHERTY	1/3/1993
70821	R	102032	DOHERTY	1/3/1993
70821	R	102032	DOHERTY	1/3/1993
70821	R	102032	DOHERTY	1/3/1993
70821	R	102032	DOHERTY	1/3/1993
70821	R	102032	DOHERTY	1/3/1993
70821	R	102032	DOHERTY	1/3/1993
70822	R	102033	DOHERTY	1/3/1993
70822	R	102033	DOHERTY	1/3/1993
70822	R	102033	DOHERTY	1/3/1993
70822	R	102033	DOHERTY	1/3/1993
70822	R	102033	DOHERTY	1/3/1993
70822	R	102033	DOHERTY	1/3/1993
70822	R	102033	DOHERTY	1/3/1993
70822	R	102033	DOHERTY	1/3/1993
70822	R	102033	DOHERTY	1/3/1993
70822	R	102033	DOHERTY	1/3/1993
70822	R	102034	DOHERTY	1/3/1993
70822	R	102034	DOHERTY	1/3/1993
70823	R	102034	DOHERTY	1/3/1993
70823	R	102034	DOHERTY	1/3/1993
70823	R	102034	DOHERTY	1/3/1993
70823	R	102034	DOHERTY	1/3/1993
70823	R	102034	DOHERTY	1/3/1993
70823	R	102034	DOHERTY	1/3/1993
70823	R	102034	DOHERTY	1/3/1993
70823	R	102034	DOHERTY	1/3/1993
70824	R	102035	DOHERTY	1/3/1993
70824	R	102035	DOHERTY	1/3/1993

CERT	#	PERM	NAME	PRIORITY DATE
70824	R	102035	DOHERTY	1/3/1993
70824	R	102035	DOHERTY	1/3/1993
70824	R	102035	DOHERTY	1/3/1993
70824	R	102035	DOHERTY	1/3/1993
70824	R	102035	DOHERTY	1/3/1993
70824	R	102035	DOHERTY	1/3/1993
70824	R	102035	DOHERTY	1/3/1993
70824	R	102035	DOHERTY	1/3/1993
70904	R	102115	OWEN RANCHES	1/3/1993
70939	R	102150	PENDLETON RANCHES	1/3/1993
70939	R	102150	PENDLETON RANCHES	1/3/1993
70192	R	101403	BROGOITTI	1/3/1993
70192	R	101403	BROGOITTI	1/3/1993
70192	R	101403	BROGOITTI	1/3/1993
70192	R	101403	BROGOITTI	1/3/1993
70192	R	101403	BROGOITTI	1/3/1993
70233	R	101444	LARSON	1/3/1993
70191	R	101402	BROGOITTI	1/3/1993
70191	R	101402	BROGOITTI	1/3/1993
70191	R	101402	BROGOITTI	1/3/1993
70191	R	101402	BROGOITTI	1/3/1993
70191	R	101402	BROGOITTI	1/3/1993
70191	R	101402	BROGOITTI	1/3/1993
61271	R	9320	U.S. UNFS	3/1/1982
61272	R	9321	U.S. UNFS	3/1/1982
61289	R	9351	U.S. UNFS	3/1/1982
63482	R	10021	U.S. NFS	3/1/1982
61276	R	9326	U.S. UNFS	3/1/1982
61282	R	9332	US UNFS	3/1/1982
61287	R	9349	US UNFS	3/1/1982
61288	R	9350	US UNFS	3/1/1982
61290	R	9352	US UNFS	3/1/1982
63916	S	48772	US UNFS	6/17/1982
63923	S	48780	US UNFS	6/17/1982
61188	R	8646	U.S. UNFS	2/24/1983
63457	R	9976	U.S. UNFS	2/24/1983
0	S	48768	U.S. UNFS	2/28/1983
0	R	11025	U.S. UNFS	10/3/1983
0	R	11026	U.S. UNFS	10/3/1983
0	R	11027	U.S. UNFS	10/3/1983
0	R	11027	U.S. UNFS	10/3/1983
0	R	11207	U.S. UNFS	10/3/1983

CERT	#	PERM	NAME	PRIORITY DATE
63919	S	48775	U.S. UNFS	10/14/1983
63917	S	48773	US UNFS	10/14/1983
63918	S	48774	US UNFS	10/14/1983
63922	S	48779	US UNFS	10/14/1983
70055	R	101267	U.S. UNFS	1/3/1993
70064	R	101276	U.S. UNFS	1/3/1993
70275	R	101486	CHRISTENSEN MGR	1/3/1993
70275	R	101486	CHRISTENSEN MGR	1/3/1993
70568	R	101779	CUNNINGHAM SHEEP & LAND CO	1/3/1993
70569	R	101780	CUNNINGHAM SHEEP & LAND CO	1/3/1993
70614	R	101825	PETERSON	1/3/1993
70615	R	101826	PETERSON	1/3/1993
70615	R	101826	PETERSON	1/3/1993
70615	R	101826	PETERSON	1/3/1993
70615	R	101826	PETERSON	1/3/1993
70819	R	102030	WENDLER	1/3/1993
70819	R	102030	WENDLER	1/3/1993
70819	R	102030	WENDLER	1/3/1993
70819	R	102030	WENDLER	1/3/1993
70827	R	102038	MCKAGUE	1/3/1993
70270	R	101481	CURRIN RANCH	1/3/1993
70270	R	101481	CURRIN RANCH	1/3/1993
70270	R	101481	CURRIN RANCH	1/3/1993
70270	R	101481	CURRIN RANCH	1/3/1993
70270	R	101481	CURRIN RANCH	1/3/1993
70270	R	101481	CURRIN RANCH	1/3/1993
70270	R	101481	CURRIN RANCH	1/3/1993
70271	R	101482	CURRIN RANCH	1/3/1993
70271	R	101482	CURRIN RANCH	1/3/1993
70271	R	101482	CURRIN RANCH	1/3/1993
70271	R	101482	CURRIN RANCH	1/3/1993
70507	R	101718	DOHERTY	1/3/1993
70568	R	101779	CUNNINGHAM SHEEP & LAND, CO	1/3/1993
70568	R	101779	CUNNINGHAM SHEEP & LAND, CO	1/3/1993
70568	R	101779	CUNNINGHAM SHEEP & LAND, CO	1/3/1993
70568	R	101779	CUNNINGHAM SHEEP & LAND, CO	1/3/1993
70568	R	101779	CUNNINGHAM SHEEP & LAND, CO	1/3/1993
70569	R	101780	CUNNINGHAM SHEEP & LAND, CO	1/3/1993
70569	R	101780	CUNNINGHAM SHEEP & LAND, CO	1/3/1993
70569	R	101780	CUNNINGHAM SHEEP & LAND, CO	1/3/1993
70569	R	101780	CUNNINGHAM SHEEP & LAND, CO	1/3/1993

CERT	#	PERM	NAME	PRIORITY DATE
70569	R	101780	CUNNINGHAM SHEEP & LAND, CC	1/3/1993
70570	R	101781	CUNNINGHAM SHEEP & LAND, CC	1/3/1993
70570	R	101781	CUNNINGHAM SHEEP & LAND, CC	1/3/1993
70570	R	101781	CUNNINGHAM SHEEP & LAND, CC	1/3/1993
70570	R	101781	CUNNINGHAM SHEEP & LAND, CC	1/3/1993
70570	R	101781	CUNNINGHAM SHEEP & LAND, CC	1/3/1993
70570	R	101781	CUNNINGHAM SHEEP & LAND, CC	1/3/1993
70581	R	101792	KL RANCHES, INC.	1/3/1993
70581	R	101792	KL RANCHES, INC.	1/3/1993
70581	R	101792	KL RANCHES, INC.	1/3/1993
70581	R	101792	KL RANCHES, INC.	1/3/1993
70581	R	101792	KL RANCHES, INC.	1/3/1993
70581	R	101792	KL RANCHES, INC.	1/3/1993
70581	R	101792	KL RANCHES, INC.	1/3/1993
70581	R	101792	KL RANCHES, INC.	1/3/1993
70581	R	101792	KL RANCHES, INC.	1/3/1993
70581	R	101792	KL RANCHES, INC.	1/3/1993
70582	R	101793	KL RANCHES, INC.	1/3/1993
70582	R	101793	KL RANCHES, INC.	1/3/1993
70582	R	101793	KL RANCHES, INC.	1/3/1993
70582	R	101793	KL RANCHES, INC.	1/3/1993
70582	R	101793	KL RANCHES, INC.	1/3/1993
70582	R	101793	KL RANCHES, INC.	1/3/1993
70582	R	101793	KL RANCHES, INC.	1/3/1993
70582	R	101793	KL RANCHES, INC.	1/3/1993
70582	R	101793	KL RANCHES, INC.	1/3/1993
70582	R	101793	KL RANCHES, INC.	1/3/1993
70583	R	101794	KL RANCHES, INC.	1/3/1993
70583	R	101794	KL RANCHES, INC.	1/3/1993
70583	R	101794	KL RANCHES, INC.	1/3/1993
70583	R	101794	KL RANCHES, INC.	1/3/1993
70583	R	101794	KL RANCHES, INC.	1/3/1993
70583	R	101794	KL RANCHES, INC.	1/3/1993
70583	R	101794	KL RANCHES, INC.	1/3/1993
70583	R	101794	KL RANCHES, INC.	1/3/1993
70583	R	101794	KL RANCHES, INC.	1/3/1993
70583	R	101794	KL RANCHES, INC.	1/3/1993
70584	R	101795	KL RANCHES, INC.	1/3/1993
70584	R	101795	KL RANCHES, INC.	1/3/1993
70584	R	101795	KL RANCHES, INC.	1/3/1993
70584	R	101795	KL RANCHES, INC.	1/3/1993

CERT	#	PERM	NAME	PRIORITY DATE
70584	R	101795	KL RANCHES, INC.	1/3/1993
70584	R	101795	KL RANCHES, INC.	1/3/1993
70584	R	101795	KL RANCHES, INC.	1/3/1993
70584	R	101795	KL RANCHES, INC.	1/3/1993
70646	R	101857	DOHERTY	1/3/1993
70646	R	101857	DOHERTY	1/3/1993
70646	R	101857	DOHERTY	1/3/1993
70646	R	101857	DOHERTY	1/3/1993
70646	R	101857	DOHERTY	1/3/1993
70646	R	101857	DOHERTY	1/3/1993
70775	R	101986	HUGHES RANCH	1/3/1993
70775	R	101986	HUGHES RANCH	1/3/1993
70775	R	101986	HUGHES RANCH	1/3/1993
70775	R	101986	HUGHES RANCH	1/3/1993
70775	R	101986	HUGHES RANCH	1/3/1993
70775	R	101986	HUGHES RANCH	1/3/1993
70775	R	101986	HUGHES RANCH	1/3/1993
70775	R	101986	HUGHES RANCH	1/3/1993
70776	R	101987	HUGHES RANCH	1/3/1993
70776	R	101987	HUGHES RANCH	1/3/1993
70776	R	101987	HUGHES RANCH	1/3/1993
70776	R	101987	HUGHES RANCH	1/3/1993
70776	R	101987	HUGHES RANCH	1/3/1993
70776	R	101987	HUGHES RANCH	1/3/1993
70776	R	101987	HUGHES RANCH	1/3/1993
70776	R	101987	HUGHES RANCH	1/3/1993
70776	R	101987	HUGHES RANCH	1/3/1993
70777	R	101988	HUGHES RANCH	1/3/1993
70777	R	101988	HUGHES RANCH	1/3/1993
70777	R	101988	HUGHES RANCH	1/3/1993
70777	R	101988	HUGHES RANCH	1/3/1993
70777	R	101988	HUGHES RANCH	1/3/1993
70777	R	101988	HUGHES RANCH	1/3/1993
70777	R	101988	HUGHES RANCH	1/3/1993
70777	R	101988	HUGHES RANCH	1/3/1993
70777	R	101988	HUGHES	1/3/1993
70778	R	101989	HUGHES RANCH	1/3/1993
70778	R	101989	HUGHES RANCH	1/3/1993
70778	R	101989	HUGHES RANCH	1/3/1993
70778	R	101989	HUGHES RANCH	1/3/1993
70778	R	101989	HUGHES RANCH	1/3/1993

CERT	#	PERM	NAME	PRIORITY DATE
70778	R	101989	HUGHES RANCH	1/3/1993
70778	R	101989	HUGHES RANCH	1/3/1993
70778	R	101989	HUGHES RANCH	1/3/1993
70965	R	102176	LOUISIANA PACIFIC CORP.	1/3/1993
70987	R	102198	HEALY	1/3/1993
70987	R	102198	HEALY	1/3/1993
70987	R	102198	HEALY	1/3/1993
70987	R	102198	HEALY	1/3/1993
70987	R	102198	HEALY	1/3/1993
70987	R	102198	HEALY	1/3/1993
70987	R	102198	HEALY	1/3/1993
70987	R	102198	HEALY	1/3/1993
70987	R	102198	HEALY	1/3/1993
70987	R	102198	HEALY	1/3/1993
70988	R	102199	HEALY	1/3/1993
70988	R	102199	HEALY	1/3/1993
70988	R	102199	HEALY	1/3/1993
70988	R	102199	HEALY	1/3/1993
70988	R	102199	HEALY	1/3/1993
70989	R	102200	HEALY	1/3/1993
70989	R	102200	HEALY	1/3/1993
70989	R	102200	HEALY	1/3/1993
70989	R	102200	HEALY	1/3/1993
70989	R	102200	HEALY	1/3/1993
70989	R	102200	HEALY	1/3/1993
70989	R	102200	HEALY	1/3/1993
70990	R	102201	HEALY	1/3/1993
70990	R	102201	HEALY	1/3/1993
70990	R	102201	HEALY	1/3/1993
70990	R	102201	HEALY	1/3/1993
70990	R	102201	HEALY	1/3/1993
70990	R	102201	HEALY	1/3/1993
70990	R	102201	HEALY	1/3/1993
70990	R	102201	HEALY	1/3/1993
70990	R	102201	HEALY	1/3/1993
70990	R	102201	HEALY	1/3/1993
70992	R	102203	HEALY	1/3/1993
70992	R	102203	HEALY	1/3/1993
70992	R	102203	HEALY	1/3/1993
70992	R	102203	HEALY	1/3/1993
70992	R	102203	HEALY	1/3/1993

CERT	#	PERM	NAME	PRIORITY DATE
70992	R	102203	HEALY	1/3/1993
70992	R	102203	HEALY	1/3/1993
70993	R	102204	BUCKNUM	1/3/1993
70993	R	102204	BUCKNUM	1/3/1993
70993	R	102204	BUCKNUM	1/3/1993
70993	R	102204	BUCKNUM	1/3/1993
70993	R	102204	BUCKNUM	1/3/1993
70993	R	102204	BUCKNUM	1/3/1993
70993	R	102204	BUCKNUM	1/3/1993
69629	R	100840	BOISE CASCADE CORP	1/3/1993
70073	R	101285	SKILLMAN	1/3/1993
70073	R	101285	SKILLMAN	1/3/1993
70073	R	101285	SKILLMAN	1/3/1993
70073	R	101285	SKILLMAN	1/3/1993
70073	R	101285	SKILLMAN	1/3/1993
70073	R	101285	SKILLMAN	1/3/1993
70274	R	101485	LOUISIANA PACIFIC	1/3/1993
70274	R	101485	LOUISIANA PACIFIC	1/3/1993
70274	R	101485	LOUISIANA PACIFIC	1/3/1993
70274	R	101485	LOUISIANA PACIFIC	1/3/1993
70274	R	101485	LOUISIANA PACIFIC	1/3/1993
70274	R	101485	LOUISIANA PACIFIC	1/3/1993
70274	R	101485	LOUISIANA PACIFIC	1/3/1993
70274	R	101485	LOUISIANA PACIFIC	1/3/1993
70274	R	101485	LOUISIANA PACIFIC	1/3/1993
70301	R	101512	MARTIN	1/3/1993
70301	R	101512	MARTIN	1/3/1993
70301	R	101512	MARTIN	1/3/1993
70301	R	101512	MARTIN	1/3/1993
70301	R	101512	MARTIN	1/3/1993
70301	R	101512	MARTIN	1/3/1993
70301	R	101512	MARTIN	1/3/1993
70301	R	101512	MARTIN	1/3/1993
70301	R	101512	MARTIN	1/3/1993
70301	R	101512	MARTIN	1/3/1993
70302	R	101513	MARLIN	1/3/1993
70302	R	101513	MARLIN	1/3/1993
70302	R	101513	MARLIN	1/3/1993
70302	R	101513	MARLIN	1/3/1993
70302	R	101513	MARLIN	1/3/1993
70302	R	101513	MARLIN	1/3/1993

CERT	#	PERM	NAME	PRIORITY DATE
70302	R	101513	MARLIN	1/3/1993
70302	R	101513	MARLIN	1/3/1993
70302	R	101513	MARLIN	1/3/1993
70302	R	101513	MARLIN	1/3/1993
70303	R	101514	MARTIN	1/3/1993
70303	R	101514	MARTIN	1/3/1993
70303	R	101514	MARTIN	1/3/1993
70303	R	101514	MARTIN	1/3/1993
70560	R	101771	ANDERSON LAND & LIVESTOCK	1/3/1993
70560	R	101771	ANDERSON LAND & LIVESTOCK	1/3/1993
70560	R	101771	ANDERSON LAND & LIVESTOCK	1/3/1993
70560	R	101771	ANDERSON LAND & LIVESTOCK	1/3/1993
70560	R	101771	ANDERSON LAND & LIVESTOCK	1/3/1993
70560	R	101771	ANDERSON LAND & LIVESTOCK	1/3/1993
70560	R	101771	ANDERSON LAND & LIVESTOCK	1/3/1993
70560	R	101771	ANDERSON LAND & LIVESTOCK	1/3/1993
70945	R	102156	PENDLETON RANCHES	1/3/1993
70967	R	102178	LOUISIANA PACIFIC	1/3/1993
70967	R	102178	LOUISIANA PACIFIC	1/3/1993
70967	R	102178	LOUISIANA PACIFIC	1/3/1993
70967	R	102178	LOUISIANA PACIFIC	1/3/1993
70967	R	102178	LOUISIANA PACIFIC	1/3/1993
70967	R	102178	LOUISIANA PACIFIC	1/3/1993
70967	R	102178	LOUISIANA PACIFIC	1/3/1993
70967	R	102178	LOUISIANA PACIFIC	1/3/1993
70968	R	102179	LOUISIANA PACIFIC CORP	1/3/1993
70968	R	102179	LOUISIANA PACIFIC	1/3/1993
71515	R	102726	U.S. WW NFS	1/3/1993
69795	R	101007	REINHART	1/3/1993
69795	R	101007	REINHART	1/3/1993
69977	R	101189	GENTRY	1/3/1993
69977	R	101189	GENTRY	1/3/1993
69977	R	101189	GENTRY	1/3/1993
69977	R	101189	GENTRY	1/3/1993
70010	R	101222	HANSELL	1/3/1993
70010	R	101222	HANSELL	1/3/1993
70010	R	101222	HANSELL	1/3/1993
70010	R	101222	HANSELL	1/3/1993
70010	R	101222	HANSELL	1/3/1993
70571	R	101782	KLICKER	1/3/1993
70649	R	101860	MUD SPRINGS RANCHES	1/3/1993

CERT	#	PERM	NAME	PRIORITY DATE
70940	R	102151	PENDLETON RANCHES	1/3/1993
70940	R	102151	PENDLETON RANCHES	1/3/1993
70940	R	102151	PENDLETON RANCHES	1/3/1993
70940	R	102151	PENDLETON RANCHES	1/3/1993
70940	R	102151	PENDLETON RANCHES	1/3/1993
70940	R	102151	PENDLETON RANCHES	1/3/1993
70940	R	102151	PENDLETON RANCHES	1/3/1993
70941	R	102152	PENDLETON RANCHES	1/3/1993
70941	R	102152	PENDLETON RANCHES	1/3/1993
70941	R	102152	PENDLETON RANCHES	1/3/1993
70941	R	102152	PENDLETON RANCHES	1/3/1993
70942	R	102153	PENDLETON RANCHES	1/3/1993
70942	R	102153	PENDLETON RANCHES	1/3/1993
70942	R	102153	PENDLETON RANCHES	1/3/1993
70943	R	102154	PENDLETON RANCHES	1/3/1993
70943	R	102154	PENDLETON RANCHES	1/3/1993
70943	R	102154	PENDLETON RANCHES	1/3/1993
70943	R	102154	PENDLETON RANCHES	1/3/1993
70943	R	102154	PENDLETON RANCHES	1/3/1993
70943	R	102154	PENDLETON RANCHES	1/3/1993
70943	R	102154	PENDLETON RANCHES	1/3/1993
70944	R	102155	PENDLETON RANCHES	1/3/1993
70944	R	102155	PENDLETON RANCHES	1/3/1993
70944	R	102155	PENDLETON RANCHES	1/3/1993
70944	R	102155	PENDLETON RANCHES	1/3/1993
70944	R	102155	PENDLETON RANCHES	1/3/1993
70944	R	102155	PENDLETON RANCHES	1/3/1993
70944	R	102155	PENDLETON RANCHES	1/3/1993
70944	R	102155	PENDLETON RANCHES	1/3/1993
70944	R	102155	PENDLETON RANCHES	1/3/1993
70944	R	102155	PENDLETON RANCHES	1/3/1993
70957	R	102168	LOUISIANA PACIFIC CORP	1/3/1993
70957	R	102168	LOUISIANA PACIFIC CORP	1/3/1993
70957	R	102168	LOUISIANA PACIFIC CORP	1/3/1993
70957	R	102168	LOUISIANA PACIFIC CORP	1/3/1993
70957	R	102168	LOUISIANA PACIFIC CORP	1/3/1993
70957	R	102168	LOUISIANA PACIFIC CORP	1/3/1993
70957	R	102168	LOUISIANA PACIFIC CORP	1/3/1993
71496	R	102707	US WW NFS	1/3/1993
71496	R	102707	US WW NFS	1/3/1993
71496	R	102707	US WW NFS	1/3/1993

CERT	#	PERM	NAME	PRIORITY DATE
71506	R	102717	US WW NFS	1/3/1993
71507	R	102718	US WW NFS	1/3/1993
71507	R	102718	US WW NFS	1/3/1993
70061	R	101273	US UNFS	1/3/1993
70061	R	101273	US UNFS	1/3/1993
70060	R	101272	US UNFS	1/3/1993
69169	R	100381	JOHN ADAMS, INC.	1/3/1993
69967	R	101179	SMOCK	1/3/1993
69967	R	101179	SMOCK	1/3/1993
69967	R	101179	SMOCK	1/3/1993
69967	R	101179	SMOCK	1/3/1993
69967	R	101179	SMOCK	1/3/1993
69967	R	101179	SMOCK	1/3/1993
69967	R	101179	SMOCK	1/3/1993
69967	R	101179	SMOCK	1/3/1993
70011	R	101223	WEIGEL	1/3/1993
70123	R	101334	DORRAN	1/3/1993
70123	R	101334	DORRAN	1/3/1993
70123	R	101334	DORRAN	1/3/1993
71872	R	103083	PETERSEN, SARA N; NARKAUS, L	1/3/1993
71872	R	103083	PETERSEN, SARA N; NARKAUS, L	1/3/1993
71872	R	103083	PETERSEN, SARA N; NARKAUS, L	1/3/1993
71872	R	103083	PETERSEN, SARA N; NARKAUS, L	1/3/1993
71872	R	103083	PETERSEN, SARA N; NARKAUS, L	1/3/1993
70062	R	101274	US UNFS	3/1/1993
MUNICIPAL				
2584	D	2584	MAXWELL LAND & IRR CO.	12/31/1864
2604	D	2604	CITY OF PENDLETON	11/11/1885
55602	D	2583	MAXWELL IRR CO.	09/11/1894
0	S	458	CITY OF PENDLETON	11/12/1910
3927	S	472	CITY OF PENDLETON	11/28/1910
7993	S	1197	CITY OF PENDLETON	5/20/1912
8051	S	9006	CITY OF PENDLETON	4/22/1929
8052	S	9007	CITY OF PENDLETON	4/22/1929
0	S	40601	CITY OF HERMISTON	1/2/1976
POWER				
816	S	704	HURLBURT	6/30/1911
20190	E	189	PACIFIC POWER & LIGHT CO.	8/7/1913
20313	E	220	PACIFIC POWER & LIGHTS CO.	6/18/1914

CERT	#	PERM	NAME	PRIORITY DATE
STORAGE				
0	DN	324215	HID	9/6/1905
0	DN	323309	FURNISH DITCH CO. (SID)	2/25/1909
WILDLIFE				
0	S	48804	U.S. WALLOWA-WHITMAN NF	9/10/1982
70694	R	101905	BARBER	1/3/1993
70763	R	101974	ENGELSTAD, PATRICIA E	1/3/1993
ABSENT FROM RECORD BUT MANAGED BY STATE WATERMASTER				
	R	7400	US Bureau of Reclamation	1923
		LICENSE	BOYD HYDRO	1985

USE	SUB-BASIN, TRIB, TRIB	PRIM AC	SUP'L AC	CFS	CUM CFS	AFT	GPM
AS	BUTTER, JOHNSON, UNN SPR, DORN CR/RES					5	
		0.00	0.00	0.00		5.00	0.00
DS	BUTTER CR			0	0.00		
DS	MCKAY, N FK MCKAY CR			0	0.00		
DS	MCKAY, N FK MCKAY CR			0	0.00		
DS	MISSION, UNN STR, SPRS			0.1	0.10		
DS	BIRCH, EAST FK				0.10		
DS	WILDHORSE CR				0.10		
DO	WILDHORSE CR			0.00	0.10		
DS	UMATILLA RIVER			0	0.10		
DO	MISSION, A SPR			0.2	0.30		
DO	BIRCH, UNN STR, A SPR			0.130	0.43		
DS	BIRCH, UNN SPR			0.013	0.44		
DO	MISC, COOMBS, UNN SPR			0.01	0.45		
DO	BIRCH, WEST, BEAR, OWINGS, UNN STR			0.020	0.47		
DS	MISC, ALKALI CAN, UNN SPR			0.05	0.52		
DO	UMATILLA, UNN SPR			0.01	0.53		
DO	UMATILLA, SULLIVAN SPR			0.01	0.54		
DO	BUTTER, EAST, ALEXANDER CR, UNN SPR 1			0.005	0.55		
DO	NORTH FORK, SPOUT SPR			0.015	0.56		
DO	MISC, MEACHAM, BEAR, UNN STR, SUMMIT SPR			0.01	0.57		
DO	BIRCH, WEST, A SPR			0.010	0.58		
DS	UMATILLA, A SPR			0.01	0.59		
DI	UMATILLA, SULLIVAN R/RES			0.01	0.60		
DO	UMATILLA, UNN SPR	11.8		0.01	0.61		
DO	BIRCH, EAST, UNN STR			0.005	0.62		
DO	UMATILLA, A SPR			0.005	0.62		
DO	UMATILLA, A SPR			0.001	0.62		
DO	UMATILLA, A SPR			0.01	0.63		
DO	WILDHORSE, LITTLE GREASEWOOD, A SPR			0.01	0.64		
DO	MISC, MEACHAM, A SPR			0.01	0.65		
DO	MISC, MEACHAM E FK, UNN STR, A SPR			0.007	0.66		
DI	UMATILLA, UNN STR			0.01	0.67		
DI	MISC, MEACHAM, A SPR			0.01	0.68		
DO	MISC, MEACHAM, BEAVER CR, A SPR			0.005	0.69		
DI	BIRCH, WEST, SPR #2			0.020	0.71		
DO	MISC, ROCK, SPRING CR			0.005	0.71		
DS	UMATILLA, SPR1/POND1				0.71	0.8	

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
DS	UMATILLA, SPR2/POND2				0.71	0.2	
DS	UMATILLA, SPR3/POND3				0.71	9.6	
DS	MCKAY CR			0	0.71		
		11.80	0.00	0.711		10.600	0.00
FI	MISC, UNN STR, UNN SPR CR			1.5	1.50		
FI	UMATILLA RIVER			3	4.50		
FI	MISC, UNN STR, SPRS			2	6.50		
FI	MISC, UNN STR, UNN SPR CR			2	8.50		
FI	UMATILLA RIVER			20	28.50		
FI	UMATILLA RIVER			6	34.50		
FI	MISC, COTTONWOOD CR, UNN STR			0.01	34.51		
FI	MISC, COTTONWOOD CR, UNN STR				34.51	0.7	
FI	MCKAY CR RES				34.51	12000	
FW	BIRCH, EAST, WEGNOR, UNN STR				34.51	0.96	
		0.00	0.00	34.51		12001.66	0.00
FP	MISC, ROCK CR					1.1	
FP	MISC, ROCK CR			0.01	0.01		
		0.00	0.00	0.01		1.10	0.00
GR	UMATILLA RIVER			75.00	75.00		
		0.00	0.00	75.00		0.00	0.00
I*	UMATILLA RIVER	22.5		0.28	0.28		
I*	BUTTER CR	113.5		1.89	2.17		
I*	BUTTER CR			0.17	2.34		
I*	BUTTER CR			1.03	3.37		
I*	BUTTER CR	89.7		1.498	4.87		
I*	BIRCH, WEST FK			0.070	4.94		
I*	BUTTER CR	166.5		2.78	7.72		
I*	BUTTER CR			0.216	7.93		
I*	BUTTER CR			0.284	8.22		
I*	BIRCH CR	6		0.080	8.30		
I*	BIRCH CR	54		0.685	8.98		
I*	BUTTER CR			3.13	12.11		
I*	BUTTER CR			2.67	14.78		
I*	BUTTER, LITTLE			0.59	15.37		
I*	BUTTER CR	25		0.42	15.79		
I*	BUTTER CR			2	17.79		
I*	BIRCH, STEWART CR	7		0.090	17.88		

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
I*	BIRCH CR	58		0.730	18.61		
I*	BIRCH, STEWART CR	12		0.150	18.76		
I*	BIRCH, EAST FK			0.000	18.76		
I*	BIRCH CR			0.760	19.52		
I*	BUTTER CR	234.7		3.91	23.43		
I*	BUTTER CR			0.43	23.86		
I*	BUTTER CR	96.5		1.6	25.46		
I*	BUTTER CR			0.432	25.90		
I*	BUTTER CR			0.568	26.46		
IL	BUTTER, HOG HOL, SPRS				26.46		
IL	UMATILLA RIVER	942		11.78	38.24		
IR	BIRCH, EAST FK	10		0.125	38.37		
I*	BIRCH CR	20		0.250	38.62		
I*	BUTTER CR			0.6	39.22		
I*	BUTTER, JOHNSON CR	36.5			39.22		
I*	BUTTER CR			0.73	39.95		
IR	BUTTER, LITTLE	20		0.32	40.27		
IR	BUTTER, LITTLE			0.1	40.37		
IR	BUTTER CR			0.52	40.89		
I*	BIRCH CR			0.370	41.26		
I*	BIRCH, EAST FK			0.250	41.51		
I*	BIRCH CR	70	47	1.450	42.96		
I*	BUTTER CR			0.66	43.62		
I*	BUTTER CR	31		0.51	44.13		
I*	BUTTER CR	14.3		0.24	44.37		
IR	BUTTER CR	164.1		2.74	47.11		
I*	BIRCH, WEST FK			0.130	47.24		
I*	BUTTER, LITTLE	114		1.9	49.14		
I*	BIRCH, EAST FK	22		0.270	49.41		
I*	BIRCH, EAST FK			0.370	49.78		
I*	BIRCH, EAST FK	5		0.060	49.84		
I*	BIRCH, EAST FK	26		0.330	50.17		
I*	BIRCH CR	74		0.940	51.11		
I*	BIRCH CR			0.500	51.61		
I*	BUTTER, LITTLE	36.5		0.6	52.21		
I*	BUTTER CR	42		0.7	52.91		
I*	BUTTER CR	107		1.77	54.68		
IR	BUTTER CR	105.5		1.74	56.42		
I*	BIRCH, EAST FK	26		0.260	56.68		
I*	BUTTER, CUNNINGHAM CAN, UNN STR	31		0.51	57.19		
I*	BUTTER CR	149.5		2.49	59.68		

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
I*	BIRCH, GEO CAN, UNN STR, A SPR	5		0.070	59.75		
I*	BIRCH, STEWART CR	37		0.460	60.21		
I*	BIRCH, WEST FK			0.610	60.82		
I*	BIRCH, EAST, SPRING HOL			0.020	60.84		
I*	BIRCH, BEAR, OWINGS	58		0.730	61.57		
I*	BIRCH CR	85		1.060	62.63		
I*	BIRCH, EAST, CALIFORNIA G	25		0.310	62.94		
I*	BIRCH, WEST FK			0.250	63.19		
I*	BUTTER CR			0.5	63.69		
I*	BUTTER, LITTLE	85		1.41	65.10		
I*	BUTTER CR			0.86	65.96		
I*	BUTTER CR	20		0.33	66.29		
I*	BUTTER, LITTLE	103.5		2.07	68.36		
I*	BUTTER, LITTLE	79		1.31	69.67		
I*	BUTTER CR	202.5		1.4	71.07		
I*	MCKAY CR	60.00		0.75	71.82		
I*	UMATILLA RIVER	15		0.19	72.01		
IL	BIRCH, WEST, BEAR			1.570	73.58		
I*	BIRCH, EAST, CALIFORNIA G			0.050	73.63		
I*	BIRCH, EAST FK			0.625	74.25		
I*	BUTTER CR			0.83	75.08		
I*	BIRCH, EAST FK			0.080	75.16		
I*	BUTTER CR			2.75	77.91		
I*	BUTTER CR			0.01	77.92		
I*	UMATILLA RIVER	37		0.46	78.38		
IR	BUTTER CR			2.33	80.71		
IR	BUTTER CR			5.01	85.72		
I*	BIRCH, WEST, STANLEY	15.5		0.200	85.92		
I*	UMATILLA RIVER	166		2.07	87.99		
I*	BIRCH, EAST FK			0.060	88.05		
I*	BUTTER CR			0.216	88.27		
I*	BUTTER CR			0.284	88.55		
IR	WILDHORSE CR	15		0.19	88.74		
IR	BUTTER CR SPR			1.33	90.07		
I*	BIRCH CR	25.5		0.320	90.39		
I*	BIRCH CR	13.5		0.170	90.56		
I*	BUTTER, LITTLE	60.5		1.21	91.77		
I*	BIRCH, EAST FK			0.130	91.90		
I*	BIRCH, WEST, STANLEY	3		0.040	91.94		
I*	BIRCH, WEST, BEAR, OWINGS, WILLOW SPR CAN	1.5		0.020	91.96		
I*	BUTTER CR	13		0.26	92.22		

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
I*	BUTTER, LITTLE	49.5		0.99	93.21		
I*	BUTTER CR	178		3.56	96.77		
I*	BUTTER CR	91		1.82	98.59		
I*	BUTTER CR	140		2.33	100.92		
I*	BUTTER CR	34		0.7	101.62		
I*	BUTTER CR	98.4		1.09	102.71		
IL	BUTTER, EAST FK	64.2		1.28	103.99		
IR	BUTTER CR	70.6		0.79	104.78		
I*	BIRCH, WEST FK	31.5		0.340	105.12		
I*	BIRCH CR	16		0.200	105.32		
I*	BIRCH CR			0.050	105.37		
I*	BUTTER, LITTLE	15		0.3	105.67		
I*	BIRCH, WEST FK	55.5		0.690	106.36		
I*	BUTTER CR	107.5		2.17	108.53		
I*	BUTTER CR			0.34	108.87		
I*	BUTTER CR			1.6	110.47		
I*	BIRCH, EAST FK	24		0.300	110.77		
I*	BIRCH CR	35		0.434	111.21		
I*	BIRCH CR	60		0.750	111.96		
I*	BIRCH, WEST FK			0.060	112.02		
I*	BIRCH, WEST FK	82		0.900	112.92		
I*	BIRCH CR	1		0.010	112.93		
I*	BIRCH CR	17.5		0.220	113.15		
I*	BUTTER CR	221.57		3.85	117.00		
I*	BUTTER, LITTLE	83.3		1.66	118.66		
I*	UMATILLA RIVER	10		0.5	119.16		
IL	UMATILLA RIVER	323.75		0.94	120.10		
IR	BUTTER, LITTLE			0.34	120.44		
IR	UMATILLA RIVER	9		0.11	120.55		
I*	MCKAY CR	43.00		0.54	121.09		
I*	BIRCH, EAST FK	105.5		1.320	122.41		
I*	MCKAY CR	12.00		0.15	122.56		
I*	MCKAY CR	14.00		0.17	122.73		
I*	MCKAY CR	15.00		0.19	122.92		
I*	MCKAY CR	62.00		0.69	123.61		
I*	MISC, CAMP CR	23		0.29	123.90		
I*	BIRCH, WEST FK	29		0.360	124.26		
I*	BIRCH, EAST FK			0.050	124.31		
I*	BIRCH, WEST FK			0.250	124.56		
I*	BIRCH, EAST FK	66		0.460	125.02		
I*	BIRCH, EAST FK	5		0.050	125.07		

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
I*	BUTTER CR	89		1.78	126.85		
I*	BUTTER CR	12		0.24	127.09		
I*	BUTTER, JOHNSON CR	28			127.09		
I*	BUTTER CR	109.9		2.19	129.28		
I*	MCKAY CR			0.13	129.41		
I*	MCKAY, LITTLE MCKAY CR	4.00		0.05	129.46		
I*	MCKAY CR			1.08	130.54		
I*	UMATILLA RIVER	22		0.27	130.81		
IR	MCKAY CR	30.00		0.38	131.19		
I*	UMATILLA RIVER	2066		25.83	157.02		
I*	UMATILLA RIVER	374.5		0.39	157.41		
I*	BUTTER CR	8.33		0.17	157.58		
I*	MCKAY CR	33.00		0.41	157.99		
I*	MCKAY CR	5.00		0.06	158.05		
I*	MCKAY CR			0.13	158.18		
I*	UMATILLA, SPRINGS	25		0.13	158.31		
I*	MCKAY CR	1.50		0.02	158.33		
I*	BIRCH CR	21	1.9	0.270	158.60		
I*	BUTTER CR	31.5		0.63	159.23		
I*	MCKAY CR	97.40		1.22	160.45		
I*	MCKAY CR	13.00		0.16	160.61		
I*	MCKAY CR	95.66		1.19	161.80		
IL	MCKAY CR	5.80		0.08	161.88		
IR	UMATILLA RIVER	2080		1	162.88		
IR	BIRCH CR		2.1	0.030	162.91		
I*	BIRCH, WEST FK			0.090	163.00		
I*	UMATILLA RIVER	24		0.3	163.30		
I*	TUTUILLA CR	22.5		0.29	163.59		
I*	UMATILLA RIVER			2.01	165.60		
I*	BIRCH, WEST FK	19.5		0.250	165.85		
I*	BIRCH CR			1.000	166.85		
I*	BIRCH CR	30.5		0.380	167.23		
I*	BIRCH, EAST FK	99.2		0.365	167.59		
I*	BIRCH CR	25		0.310	167.90		
I*	MCKAY CR	99.00		1.2	169.10		
I*	MCKAY CR	8.00		0.1	169.20		
I*	MCKAY CR	20.00		0.25	169.45		
I*	MCKAY CR			0.05	169.50		
I*	MISC, COOMBS CAN, A SPRA	5		0.07	169.57		
I*	MISC, UNN STR, WILLOW SPR CR	4.4		0.06	169.63		
I*	UMATILLA RIVER	13.6		0.17	169.80		

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
I*	UMATILLA RIVER	1		0.01	169.81		
I*	UMATILLA RIVER	30		0.38	170.19		
IL	UMATILLA RIVER	29.4		0.36	170.55		
IR	BIRCH, EAST	4		0.050	170.60		
IR	BUTTER CR			2.94	173.54		
IR	BUTTER CR			3.46	177.00		
IR	BUTTER CR SPR			1.17	178.17		
IR	BUTTER CR			6.4	184.57		
I*	UMATILLA RIVER	57		0.71	185.28		
I*	BUTTER CR			3.5	188.78		
I*	BUTTER CR	326		5.484	194.27		
I*	BUTTER CR	429		7.216	201.48		
I*	MCKAY CR	35.00		0.44	201.92		
I*	UMATILLA RIVER	5		0.06	201.98		
I*	UMATILLA RIVER	50.85		0.63	202.61		
IR	UMATILLA RIVER	10		0.13	202.74		
IR	BUTTER CR	58		1.16	203.90		
IR	BUTTER, LITTLE	118.4		1.91	205.81		
I*	UMATILLA RIVER	23.5		0.3	206.11		
I*	UMATILLA RIVER	790		4.75	210.86		
I*	BIRCH, EAST FK	58		0.600	211.46		
IR	UMATILLA RIVER	33		0.41	211.87		
I*	UMATILLA, O'BRIEN SPRINGS	5		0.06	211.93		
I*	BIRCH, WEST FK	8		0.100	212.03		
I*	BIRCH, WEST FK			0.050	212.08		
I*	UMATILLA RIVER	56		0.7	212.78		
I*	BIRCH, EAST, CALIFORNIA G	12		0.100	212.88		
I*	BIRCH, WEST, BEAR, OWINGS, WILLOW SPR CAN	40		0.380	213.26		
I*	BIRCH, WEST, BEAR, OWINGS, WILLOW SPR CAN	20		0.250	213.51		
I*	BUTTER, LITTLE	144		2.18	215.69		
I*	BUTTER CR	148		2.76	218.45		
I*	BUTTER CR	17.5		0.35	218.80		
I*	BUTTER CR	214		3.04	221.84		
I*	BUTTER, LITTLE	9.2		0.18	222.02		
IR	BUTTER, LITTLE	20.3		0.41	222.43		
I*	BIRCH, EAST FK	5		0.060	222.49		
I*	BUTTER CR			1.6	224.09		
I*	BUTTER CR	6		0.12	224.21		
I*	UMATILLA RIVER	31		0.39	224.60		
IL	BIRCH, WEST FK			0.780	225.38		
I*	UMATILLA RIVER	3.25		0.04	225.42		

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
I*	UMATILLA RIVER	4.9		0.06	225.48		
I*	BIRCH, EAST FK	25		0.130	225.61		
I*	BUTTER CR	178.1		3.15	228.76		
I*	BUTTER CR	49.5		1.24	230.00		
I*	BUTTER CR	486		3.07	233.07		
IR	UMATILLA RIVER	517		6.46	239.53		
IR	UMATILLA RIVER	672		8.4	247.93		
IR	UMATILLA RIVER			0	247.93		
IR	TUTUILLA CR	33		0.406	248.34		
IR	UMATILLA RIVER			0	248.34		
IR	UMATILLA RIVER			0	248.34		
IR	UMATILLA RIVER			0	248.34		
IR	UMATILLA RIVER			0	248.34		
I*	BIRCH, EAST, SPRING HOL	67		0.110	248.45		
I*	BUTTER CR	26		0.48	248.93		
I*	MCKAY CR	12.40		0.157	249.09		
I*	MCKAY CR	15.90		0.201	249.29		
I*	BIRCH CR	65		0.810	250.10		
I*	UMATILLA RIVER			4.29	254.39		
IL	UMATILLA RIVER			0.77	255.16		
IR	MCKAY CR	3.50		0.044	255.20		
IR	MCKAY CR	3.10		0.039	255.24		
IR	UMATILLA RIVER	88		1.1	256.34		
IR	UMATILLA RIVER			0	256.34		
IR	UMATILLA RIVER			0	256.34		
I*	BIRCH CR	119.5		0.990	257.33		
I*	BUTTER CR	142.5		2.31	259.64		
I*	ALKALI	6		0.08	259.72		
I*	UMATILLA RIVER	4		0.05	259.77		
I*	UMATILLA RIVER	17.68		0.22	259.99		
I*	WILDHORSE CR	80		1.01	261.00		
I*	WILDHORSE CR	25		0.31	261.31		
IR	UMATILLA RIVER			17.2	278.51		
IR	UMATILLA RIVER			0	278.51		
IR	UMATILLA RIVER			0	278.51		
IR	UMATILLA RIVER			0	278.51		
IR	BUTTER CR	315		0.69	279.20		
IR	BUTTER CR	368.5		0.81	280.01		
IR	BUTTER CR	681.9		1.5	281.51		
I*	MCKAY CR	42.89		0.55	282.06		
I*	UMATILLA RIVER	65		0.81	282.87		

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
I*	BIRCH CR	62		0.780	283.65		
I*	BIRCH CR	23		0.290	283.94		
I*	BIRCH CR	57.5		0.720	284.66		
I*	BUTTER CR	87.6		1.19	285.85		
I*	BUTTER CR	375		1.37	287.22		
I*	MCKAY CR	85.00		1.08	288.30		
I*	MISC, MEACHAM CR	1		0.02	288.32		
IL	UMATILLA RIVER	226		2.82	291.14		
IR	MCKAY CR	5.00		0.06	291.20		
IR	UMATILLA RIVER			115	406.20		
IR	UMATILLA RIVER			25	431.20		
IR	UMATILLA RIVER			0	431.20		
IR	UMATILLA RIVER	36		0.45	431.65		
IR	BIRCH CR	34.2		0.000	431.65		
IR	BUTTER CR SPR	18.4		0.46	432.11		
IR	BUTTER CR SPR	159.7		0.65	432.76		
IR	MCKAY CR	26.4		0	432.76		
I*	BIRCH, EAST FK	7		0.090	432.85		
I*	BIRCH, EAST FK	36		0.450	433.30		
I*	BIRCH CR	61		0.000	433.30		
I*	MCKAY CR	16.00		0.15	433.45		
I*	UMATILLA RIVER	20		0.25	433.70		
IR	UMATILLA RIVER			40.51	474.21		
IR	UMATILLA RIVER			0	474.21		
IR	UMATILLA RIVER			350	824.21		
IR	WILDHORSE CR	118		1.48	825.69		
I*	WILDHORSE CR, A WELL	4		0.05	825.74		
I*	BIRCH, EAST FK	2		0.030	825.77		
I*	MCKAY CR	40.00		0.38	826.15		
I*	MCKAY CR			0.06	826.21		
I*	UMATILLA RIVER	5		0.2	826.41		
I*	UMATILLA RIVER	30		0.06	826.47		
I*	UMATILLA RIVER	3046		0.38	826.85		
ID	BIRCH, UNN STR	3		0.112	826.96		
IR	UMATILLA RIVER	15		0	826.96		
I*	BIRCH CR	70		0.500	827.46		
I*	BIRCH, EAST FK	8.5		0.000	827.46		
I*	BUTTER CR	59		0.4	827.86		
I*	MCKAY CR	21.85		0.15	828.01		
I*	UMATILLA RIVER	130		5	833.01		
IR	UMATILLA RIVER			20.9	853.91		

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
IR	UMATILLA RIVER			0	853.91		
IR	UMATILLA RIVER	60		0	853.91		
I*	UMATILLA RIVER			0.75	854.66		
I*	TUTUILLA CR	25		0.19	854.85		
I*	BIRCH, WEST, STANLEY	12		0.010	854.86		
I*	BIRCH, WEST FK	13		0.120	854.98		
I*	BIRCH CR	50		0.630	855.61		
I*	BIRCH, WEST FK	6		0.080	855.69		
I*	BIRCH, WEST FK	8		0.100	855.79		
I*	BIRCH, WEST FK	4		0.050	855.84		
I*	MCKAY CR	26.00		0.26	856.10		
IR	BIRCH CR	10		0.125	856.23		
IR	BIRCH CR	20		0.250	856.48		
IR	BIRCH CR	31		0.380	856.86		
I*	BIRCH CR	2		0.030	856.89		
I*	BIRCH, EAST FK	195.8		2.450	859.34		
I*	BIRCH, WEST FK	58		0.220	859.56		
ID	UMATILLA RIVER	28.3		0.36	859.92		
IR	UMATILLA RIVER	4832.2		346.65	1206.57		
IR	BIRCH, EAST FK	60		0.750	1207.32		
IR	BIRCH, EAST, PEARSON CR	73		0.920	1208.24		
IR	WILDHORSE CR	7.5		0.09	1208.33		
I*	MCKAY, LITTLE MCKAY CR	5.00		0.06	1208.39		
I*	BIRCH CR	80.6		1.000	1209.39		
I*	UMATILLA RIVER	105		1.32	1210.71		
I*	UMATILLA RIVER	19		0.24	1210.95		
IR	BIRCH, WEST FK	100		1.250	1212.20		
IR	MCKAY CR	10.00		0.125	1212.32		
IR	MCKAY CR	15.00		0.2	1212.52		
IR	MCKAY CR	10.00		0.13	1212.65		
IR	BIRCH CR	55.4		0.695	1213.35		
IR	BIRCH CR	17.5		0.220	1213.57		
IR	BIRCH CR	28.3		0.355	1213.92		
ID	MCKAY, SEVENMILE CR	10.00		0.23	1214.15		
IR	MCKAY CR	4.00		0.05	1214.20		
IR	MCKAY CR	4.50		0.06	1214.26		
IR	BIRCH, WEST FK	24		0.300	1214.56		
IL	MISSION CR	7		0.19	1214.75		
IR	BIRCH CR	12.08		0.150	1214.90		
IR	MCKAY CR	181.1		2.26	1217.16		
IR	BIRCH, WEST, UNN STR	46		0.580	1217.74		

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
IR	UMATILLA RIVER	44.85		0.56	1218.30		
IR	BUTTER, JOHNSON, FRISCO CAN, UNN BR	18		0.23	1218.53		
ID	TUTUILLA, A SPR	1		0.11	1218.64		
IR	MCKAY CR	15.00		0.19	1218.83		
ID	BUTTER CR	105		1.41	1220.24		
IL	WILDHORSE CR	2.23		0.03	1220.27		
IR	WILDHORSE CR	1.22		0.02	1220.29		
IR	WILDHORSE CR	0.5		0.01	1220.29		
IR	WILDHORSE CR	0.79		0.01	1220.30		
IR	WILDHORSE CR	1.56		0.02	1220.32		
IR	WILDHORSE CR	4.56		0.06	1220.38		
IR	WILDHORSE CR	1.44		0.02	1220.40		
IR	WILDHORSE CR	0.8		0.01	1220.41		
IR	WILDHORSE CR	0.5		0.01	1220.41		
IR	WILDHORSE CR	0.75		0.01	1220.42		
IR	WILDHORSE CR	0.5		0.01	1220.43		
IR	MCKAY CR	59.00		0.74	1221.17		
IR	BUTTER CR	51		0.64	1221.81		
IR	BUTTER CR	18		0.23	1222.04		
IR	BUTTER CR	33		0.38	1222.42		
IR	BIRCH, WEST, STANLEY	3		0.040	1222.46		
IR	BIRCH, WEST FK	15		0.190	1222.65		
IR	BUTTER, EAST FK	70		0.88	1223.53		
IR	MISC, STAGE G, UNN STR, DR DIT	6		0.08	1223.61		
IR	BIRCH, STEWART CR	25		0.310	1223.92		
IR	TUTUILLA CR	2		0.03	1223.95		
IR	BIRCH CR	10		0.130	1224.08		
IR	WILDHORSE, SPRING HOL CR, SPR HOL	61		0.76	1224.84		
IR	WILDHORSE, SPRING HOL, W FK SPR HOL	10		0.13	1224.97		
IR	UMATILLA, CH GARDINER SPR	53		0.66	1225.63		
IR	MISC, STAGE GULCH	25		0.31	1225.94		
ID	BIRCH, EAST FK	5.45		0.150	1226.09		
IR	WILDHORSE CR	10		0.13	1226.22		
ID	MISC, UNN STR, A SPR	9		0.23	1226.45		
IR	UMATILLA RIVER	2		0.03	1226.48		
IR	UMATILLA, SPRING BR	5.5		0.08	1226.56		
IR	MCKAY CR	24.00		0.3	1226.86		
IR	MISC, MOONSHINE CR, TWP SPRS	15		0.19	1227.05		
IR	BIRCH, WEST, BEAR CR	20		0.250	1227.30		
IR	MCKAY CR	22.20		0.28	1227.58		
IR	MCKAY CR	22.00		0.27	1227.85		

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
IR	UMATILLA RIVER	7		0.09	1227.94		
IR	UMATILLA RIVER	12.15		0.15	1228.09		
IR	UMATILLA RIVER	15		0.19	1228.28		
IR	MISSION, THREE UNN SPRS	10		0.13	1228.41		
IR	MCKAY CR	18.80		0.23	1228.64		
IR	MCKAY CR	22.20		0.28	1228.92		
IR	BIRCH, GEO C, UNN SPRS	8		0.100	1229.02		
IR	BIRCH, WEST FK	20.7		0.300	1229.32		
IR	MCKAY CR	21.00		0.26	1229.58		
IR	WILDHORSE, SAND HOL	10		0.13	1229.71		
IR	BUTTER CR	45		0.56	1230.27		
IR	TUTUILLA CR, SPRINGS	3		0.04	1230.31		
IR	BIRCH, WEST FK	98		1.230	1231.54		
IR	UMATILLA, SPRS	2.3		0.021	1231.56		
IR	UMATILLA, O'BRIEN SPR	4		0.05	1231.61		
IR	MISC, DILLON, ROBINS, UNN STR	60		0.75	1232.36		
IR	MISC, STAGE G, STANFIELD DR	20		0.25	1232.61		
IR	WILDHORSE CR	27.3		0.34	1232.95		
IR	BIRCH CR	18.2		0.230	1233.18		
IR	BIRCH CR	20.1		0.500	1233.68		
IR	UMATILLA RIVER	34.6	65	0.86	1234.54		
IR	BIRCH CR	14.7		0.200	1234.74		
IR	BIRCH CR	23.5		0.300	1235.04		
IR	UMATILLA RIVER	10		0.17	1235.21		
IR	MCKAY CR	1.90		0.025	1235.24		
IR	MCKAY CR	8.00		0.1	1235.34		
IR	WILDHORSE, MCCORMMACH CR	4		0.05	1235.39		
IR	MISC, STAGE G, STATE GULCH	32.6		0.42	1235.81		
IR	BIRCH, WEST FK	34.2		0.860	1236.67		
IR	BIRCH CR	15.3		0.260	1236.93		
IR	BIRCH, EAST, PEARSON CR	6		0.100	1237.03		
IR	BIRCH CR	27.4		0.470	1237.50		
IR	MISC, DILLON SL, ROBINS SL, SPR BR	120	1675.1	6	1243.50		
IR	WILDHORSE CR	1		0.01	1243.51		
IR	BIRCH, WEST, 2 SPRS	1.6		0.040	1243.55		
IR	MCKAY CR	24.85		0.47	1244.02		
IR	BIRCH, WEST, KENNY G.	21		0.270	1244.29		
IR	UMATILLA RIVER/MCK	191.6		4.79	1249.08		
IR	UMATILLA, UNN SPR	10.6		2.515	1251.59		
IR	MISC, STAGE G, STANFIELD DR	26.3	34.9	0.94	1252.53		
IR	MISC, STAGE G, STANFIELD DR	5.8		0.08	1252.61		

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
IR	UMATILLA RIVER	15.2		0.29	1252.90		
IR	BIRCH, STEWART CR	15		0.380	1253.28		
IR	BUTTER CR	157.6		3.15	1256.43		
IR	WILDHORSE, LITTLE GREASEWOOD CR	10.6		0.11	1256.54		
IR	UMATILLA RIVER	17.35		0.22	1256.76		
IR	UMATILLA RIVER	2.2		0.055	1256.82		
IR	UMATILLA RIVER	17.48		0.437	1257.26		
IR	UMATILLA, A SPR			0.25	1257.51		
IR	WILDHORSE, SPRING CR	2.4		0.03	1257.54		
IR	UMATILLA, A SPR	10		0.035	1257.57		
IR	UMATILLA, SEEPAGE			0.215	1257.79		
IR	UMATILLA RIVER	21.7		0.17	1257.96		
IR	WILDHORSE, UNN STR	7.04		0.09	1258.05		
IR	MCKAY CR	4.40		0.06	1258.11		
IR	BIRCH CR	77.5		1.320	1259.43		
IR	UMATILLA RIVER	7.1		0.09	1259.52		
IR	UMATILLA RIVER	3.4		0.04	1259.56		
IR	WASTE WATER				1259.56	350	
IR	WASTE WATER	260.2			1259.56	700	
IR	MCKAY, A SPR	19.70		0.25	1259.81		
IR	MISC, UNN STR	27		0.25	1260.06		
IR	WILDHORSE, SPRING HOL CR	12		0.15	1260.21		
IR	UMATILLA RIVER/MCK	10		0.13	1260.34		
IC	UMATILLA RIVER/MCK	4853		60	1320.34		
IR	MCKAY, A SPR	0.40	8.4	0.005	1320.34		
IR	UMATILLA RIVER	37.2		0.63	1320.97		
IR	MISC, COOMBS CAN	19		0.21	1321.18		
IR	UMATILLA, A SPR	7.8		0.1	1321.28		
IR	MISC, LOST LK, WESTLAND DR	21.8	45.4	0.545	1321.83		
IR	BIRCH CR	6.17		0.150	1321.98		
IR	BUTTER CR	48		0.65	1322.63		
IR	BUTTER, UNN SPR	4.4		1	1323.63		
IR	MISC, UNN STR	40.0		0.5	1324.13		
IR	BIRCH CR	101.9		1.960	1326.09		
IR	BIRCH CR	20		0.380	1326.47		
IR	WILDHORSE CR	2.2		0.03	1326.50		
IC	UMATILLA RIVER/MCK			30	1356.50		
IR	BUTTER, GURDANE CR				1356.50	1.3	
IR	BUTTER, GURDANE CR/RES	19.4		0.29	1356.79		
IR	UMATILLA RIVER	19.1		0.39	1357.18		
IR	UMATILLA RIVER	65.3		0.78	1357.96		

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
IR	BUTTER, UNN SPR	0.4	31.5	0.63	1358.59		
IR	UMATILLA, A SPR	5.3		0.13	1358.72		
IR	UMATILLA, SEEPAGE			0.14	1358.86		
IR	BIRCH, WEST FK			1.000	1359.86		
IR	BIRCH, WEST FK	86.1		0.770	1360.63		
IR	UMATILLA RIVER/RES	7851.5		35.12	1395.75		
IR	UMATILLA, UNN SL	5.2		0.07	1395.82		
IR	WILDHORSE, SPRING CR, UNN STR	4.2		0.05	1395.87		
IR	MISC, LOST LK, WASTE & DRAINAGE	61.5		1.54	1397.41		
IR	UMATILLA RIVER	20		0.5	1397.91		
IR	MISC, DILLON, ROBINS, UNN STR, UNN DR DIT	45.4		0.9	1398.81		
IR	MCKAY, UNN SL	6.60		0.08	1398.89		
IR	MISC, LOST LK, WASTE WATER LOSS	30		0.6	1399.49		
IR	BUTTER, GURDANE CR				1399.49	2	
IR	BUTTER, GURDANE CR/DOH	24		0.36	1399.85		
IR	UMATILLA RIVER	1.6		0.04	1399.89		
IR	WILDHORSE CR	17.2		0.21	1400.10		
IR	BIRCH, WEST, A SPR	17.9		0.220	1400.32		
IR	UMATILLA, UNN SPR 1			1.81	1402.13		
IR	UMATILLA, UNN SPR 2	1525		0.33	1402.46		
IR	BIRCH CR			0.780	1403.24		
IR	UMATILLA RIVER			1.81	1405.05		
IR	UMATILLA RIVER	348		0.99	1406.04		
IR	WILDHORSE CR	125		1.37	1407.41		
IR	UMATILLA RIVER	18.5		0.32	1407.73		
IR	BIRCH, EAST FK	2.8		0.070	1407.80		
IR	UMATILLA, LAKE X	4.7		0.75	1408.55		
IR	UMATILLA RIVER	72.5		1.14	1409.69		
IR	UMATILLA RIVER	42.8		1.07	1410.76		
IR	MCKAY CR	31.00		0.4	1411.16		
IC	UMATILLA RIVER	13331		170	1581.16		
IR	UMATILLA RIVER	12.8		0.32	1581.48		
IR	WILDHORSEMCCORMMACH CR	43.6		0.55	1582.03		
IR	WILDHORSE CR	14.4		0.16	1582.19		
IR	MISC, UNN SPR STR			0.03	1582.22		
IR	WILDHORSE CR	159.6		2.00	1584.22		
IR	WILDHORSE CR	158.4		1.87	1586.09		
IR	UMATILLA, UNN SL	4		0.05	1586.14		
IR	MISC, UNN SPR STR	6.8		0.06	1586.20		
IR	MISC, UNN STR	4		0.05	1586.25		
IR	MISC, STAGE G, STANFIELD DR	29.3		2.76	1589.01		

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
IR	UMATILLA RIVER	49.6		1.24	1590.25		
IR	WILDHORSE CR	529.48		5.70	1595.95		
IR	MISC, LOST LK, WASTE WATER	158.2		2.5	1598.45		
IR	MISC, LOST LK, A POND	37.4		0.78	1599.23		
IR	UMATILLA, A SPR			0.18	1599.41		
IR	UMATILLA, DRAINAGE DITCH			0.5	1599.91		
IR	TUTUILLA CR	7.2		0.13	1600.04		
IR	WILDHORSE CR	32.73		0.41	1600.45		
IR	WILDHORSE CR	80		1.00	1601.45		
IR	WILDHORSE CR	159.51		2.00	1603.45		
IR	WILDHORSE CR	55.8		0.70	1604.15		
IR	WILDHORSE CR	73.3		0.68	1604.83		
IR	UMATILLA RIVER	2.3		0.06	1604.89		
IR	BIRCH CR	81.3		0.580	1605.47		
IR	WILDHORSE CR	182		1.67	1607.14		
IR	WILDHORSE CR	8.08		0.10	1607.24		
IR	UMATILLA RIVER	35.9		0.45	1607.69		
IR	UMATILLA RIVER	54		0.68	1608.37		
IR	WILDHORSE CR	52.6		0.66	1609.03		
IR	BIRCH CR	11.5		0.290	1609.32		
IR	WILDHORSE CR	39.39		0.49	1609.81		
IR	WILDHORSE CR	673.7		4.00	1613.81		
IR	WILDHORSE CR	120		1.50	1615.31		
IR	UMATILLA RIVER	15.3		0.33	1615.64		
IR	UMATILLA RIVER	58		0.73	1616.37		
IR	MCKAY CR	36.90		0.46	1616.83		
IR	UMATILLA RIVER	15		0.2	1617.03		
IR	WILDHORSE, GREASEWOOD CR	125.8		1.36	1618.39		
IR	TUTUILLA CR	2.4		0.03	1618.42		
IR	UMATILLA RIVER	188.7		2.1	1620.52		
IR	UMATILLA RIVER	20.2		0.45	1620.97		
IR	UMATILLA RIVER	23.4		0.29	1621.26		
IR	WILDHORSE CR	19.53		0.24	1621.50		
IR	MCKAY CR	14.00		0.21	1621.71		
IR	UMATILLA, A SPR	8.3		0.19	1621.90		
IR	MCKAY, A SPR	8.00		0.22	1622.12		
IR	MCKAY CR	16.40		0.31	1622.43		
IR	UMATILLA RIVER	13.6		0.17	1622.60		
IR	WILDHORSE, GREASEWOOD CR	26.2		0.33	1622.93		
IR	MISC, SPRING CR	3.6		0.05	1622.98		
IR	BUTTER, GURDANE CR/RES				1622.98	0.99	

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
IR	BUTTER, GURDANE CR/RES				1622.98	2.39	
IR	UMATILLA RIVER	3249.01		82.22	1705.20		
IR	UMATILLA RIVER	14.1		0.35	1705.55		
IR	UMATILLA, A SPR	1.2		0.03	1705.58		
IR	TUTUILLA, PATAWA CR	70.7		0.34	1705.92		
IR	UMATILLA RIVER	11.2		0.28	1706.20		
IR	WILDHORSE CR	5.9		0.07	1706.27		
IR	TUTUILLA, PATAWA CR	61.3	194.9	1.82	1708.09		
IR	UMATILLA, UNN DR WASTE	5		0.06	1708.15		
IR	TUTUILLA, PATAWA, UNN SPR	6.5		0.05	1708.20		
IR	BIRCH, WEST, BEAR CR	29.2		0.480	1708.68		
IR	UMATILLA RIVER	3.8	197.6	0.095	1708.77		
IR	MCKAY CR	8.00		0.1	1708.87		
IR	WILDHORSE, UNN STR	12.4		0.09	1708.96		
IR	UMATILLA RIVER	78.1		1.45	1710.41		
IR	UMATILLA RIVER	2.4		0.05	1710.46		
IR	MISC, LOST LK, A POND	41.48		0.78	1711.24		
IR	MISC, STAGE G, STANFIELD DR	11.6		0.16	1711.40		
IR	UMATILLA RIVER	0.13		0.33	1711.73		
IR	MISSION CR	2		0.025	1711.76		
IR	UMATILLA RIVER	1.1		0.02	1711.78		
IR	UMATILLA RIVER	4.2		0.05	1711.83		
IR	MCKAY CR	4.30		0.11	1711.94		
IR	UMATILLA RIVER	1.5		0.02	1711.96		
IR	MCKAY, TWO SPR STRS	6.40		0.15	1712.11		
IR	WILDHORSE CR	183.2		2.29	1714.40		
IR	UMATILLA RIVER	82		1.14	1715.54		
IR	UMATILLA RIVER	329.1		5.79	1721.33		
IR	MISC, SPRING CR	34		0.43	1721.76		
IR	UMATILLA RIVER	49		0.75	1722.51		
IR	MISC, LOST LK, A POND	38.7		1.34	1723.85		
IR	UMATILLA RIVER	29.7		0.58	1724.43		
IR	UMATILLA RIVER	6.1		0.15	1724.58		
IR	UMATILLA, A SPR	2.8		0.07	1724.65		
IR	BIRCH CR	21		0.450	1725.10		
IR	UMATILLA RIVER	103.82		1.3	1726.40		
IR	MISC, ROCK CR, POND	77.6		1.8	1728.20		
IR	TUTUILLA, PATAWA CR	27.4		0.25	1728.45		
IR	UMATILLA RIVER	17.89		0.22	1728.67		
IR	UMATILLA RIVER	7.1		0.09	1728.76		
IR	MISC, POND	5	37.7	0.13	1728.89		

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
IR	UMATILLA RIVER	52.4		0.66	1729.55		
IR	UMATILLA RIVER	6.05		0.07	1729.62		
IR	BIRCH, WEST, UNN STR1			0.500	1730.12		
IR	BIRCH, WEST, UNN STR2	50.26		0.500	1730.62		
IR	MISC, SPRING CR	3.4		0.04	1730.66		
IR	UMATILLA RIVER	12.8		0.32	1730.98		
IR	MISC, ROCK CR, POND	23.9		0.42	1731.40		
IR	UMATILLA RIVER	58.4		0.97	1732.37		
IR	BUTTER CR	5		0.1	1732.47		
IR	WILDHORSE, UNN STR	8		0.10	1732.57		
IR	UMATILLA RIVER	11.2		0.28	1732.85		
IR	UMATILLA RIVER	160		2	1734.85		
IR	UMATILLA RIVER	96		2.4	1737.25		
IR	UMATILLA RIVER	7.1		0.18	1737.43		
IR	BIRCH, EAST, SPRING HOL	6.6		0.140	1737.57		
IR	UMATILLA, A SLOUGH	7		0.09	1737.66		
IR	BUTTER CR	26.1		0.52	1738.18		
IR	UMATILLA RIVER	37.1		0.93	1739.11		
IC	UMATILLA, POND A			2.85	1741.96		
IC	UMATILLA, POND B	25		2.5	1744.46		
IR	BIRCH CR	29.2		0.730	1745.19		
IR	UMATILLA, O'BRIEN SPR	1		0.01	1745.20		
IR	UMATILLA RIVER	3.6		0.05	1745.25		
IR	MISC, UNN STR	3.6		0.045	1745.29		
IR	MCKAY CR			0.48	1745.77		
IR	MCKAY CR			0.32	1746.09		
IR	MCKAY, N FK MCKAY CR	64.10		0.01	1746.10		
IR	MCKAY CR	2.20		0.03	1746.13		
IR	MISC, STAGE G, STANFIELD DR	3.22		0.03	1746.16		
IR	WILDHORSE CR	8.3		0.10	1746.26		
IR	WILDHORSE CR	0.9		0.01	1746.27		
IR	WILDHORSE CR	80.8		1.01	1747.28		
IR	MISC, LOST LK, SEEPAGE FROM LOSS	27.5		0.69	1747.97		
IC	MISC, STAGE GULCH	8.2		0.71	1748.68		
IR	BUTTER, GURDANE, RES 1				1748.68	0.99	
IR	BUTTER, GURDANE, RES 2	5.1			1748.68	2.39	
IR	UMATILLA RIVER	24.5		0.61	1749.29		
IR	UMATILLA, UNN STR	9		0.11	1749.40		
IR	MCKAY, UNN POND	20.00		0.5	1749.90		
IR	WILDHORSE, SPRING HOL CR	8		0.10	1750.00		
IR	UMATILLA RIVER	14.75		3.68	1753.68		

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
IR	BUTTER, LITTLE	20			1753.68		180
IR	UMATILLA RIVER	17.5		0.22	1753.90		
IC	UMATILLA, A SPR	0.8		0.025	1753.93		
IR	TUTUILLA, PATAWA CR	2.8		0.07	1754.00		
IR	UMATILLA RIVER	9.2		0.23	1754.23		
IR	UMATILLA, DRAIN DITCH	71.5	147.7	5.48	1759.71		
IC	UMATILLA RIVER	1124.3		88	1847.71		
IC	UMATILLA RIVER	2089.04		50	1897.71		
IR	UMATILLA RIVER	68		1.11	1898.82		
IR	UMATILLA, MUD SPRS			1	1899.82		
IR	BIRCH, EAST FK	4.4		0.050	1899.87		
IR	UMATILLA RIVER	51		1.28	1901.15		
IR	UMATILLA, UNN STR	205.2		5.12	1906.27		
IR	UMATILLA RIVER	67		1.68	1907.95		
IR	UMATILLA RIVER	144.49		3.62	1911.57		
IR	UMATILLA RIVER	35.66		0.449	1912.02		200
IR	UMATILLA RIVER	30.3		0.76	1912.78		
IR	UMATILLA RIVER	17		0.43	1913.21		
IR	MISC, STAGE G, STANFIELD DR			0.03	1913.24		
IR	MISC, STAGE G, STANFIELD DR	2.7		0.068	1913.30		
IR	UMATILLA, WASTEWATER/RES				1913.30	10.1	
IR	UMATILLA, WW TRTMENT RES	42			1913.30	107	
IL	MISC, COOMBS, UNN STR, SPRS/RES				1913.30	1.51	
IL	MISC, COOMBS, UNN STR, SPRS/RES				1913.30	1.51	
IR	MCKAY, SPRS/RES				1913.30	2	
I*	TUTUILLA CR	80		1	1914.30		
		74376.21	2489.2	1914.30		1182.18	380.00
IM	UMATILLA RIVER			0	0.00		
IM	UMATILLA RIVER			0.59	0.59		
IM	BIRCH CR			1.000	1.59		
IM	UMATILLA RIVER				1.59	9	
IM	UMATILLA RIVER			0.3	1.89		
IM	UMATILLA RIVER			1	2.89		
IM	UMATILLA RIVER			1.5	4.39		
		0.00	0.00	4.39		9.00	0.00
LV	TUTUILLA, A SPR			0.05	0.05		
LV	UMATILLA, UNN SPR		6.8	0.01	0.06		
LV	BIRCH, EAST, UNN STR			0.005	0.07		
LV	UMATILLA, A SPR	48.8		0.005	0.07		

USE	SUB-BASIN, TRIB, TRIB	PRIM AC	SUP'L AC	CFS	CUM CFS	AFT	GPM
LV	BUTTER, GURDANE CR/RES				0.07	0.01	
LV	BUTTER, GURDANE CR/RES				0.07	0.01	
LV	MISC, COTTONWOOD CR, UNN STR			0.01	0.08		
LV	MISC, COTTONWOOD CR, UNN STR				0.08	0.5	
LV	TUTUILLA, PATAWA, SPR 1			0.004	0.08		
LV	TUTUILLA, PATAWA, SPR 2			0.006	0.09		
LV	MISC, UNN STR			0.01	0.10		
LV	WILDHORSE CR, A SPR			0.01	0.11		
LV	UMATILLA, MUD SPRS CA	40		0.01	0.12		
LV	MISC, UNN STR			0.005	0.13		
LV	MISC, MEACHAM, E FK, OWSLEY CR, UNN STR				0.13	0.016	
LV	MISC, MEACHAM E FK, UNN STR, UNN STR			0.035	0.16		
LV	MISC, MEACHAM, E FK, OWSLEY CR, UNN STR			0.032	0.19		
LV	BIRCH, WEST, UNN STR/POND 7				0.19	0.06	
LV	BIRCH, WEST, UNN STR/POND 8				0.19	0.05	
LV	BIRCH, WEST, SOUTH CAN, STR/POND 5				0.19	0.07	
LV	BIRCH, WEST, SOUTH CAN, STR/POND 6				0.19	0.15	
LV	BIRCH, WEST, UNN STR/POND 9				0.19	0.03	
LV	BIRCH, WEST, SOUTH CAN, STR/POND 1				0.19	0.14	
LV	BIRCH, EAST, PEARSON, UNN STR				0.19	0.05	
LV	BIRCH, WEST, UNN STR				0.19	0.17	
LV	BIRCH, EAST, PEARSON, UNN STR				0.19	0.13	
LV	BIRCH, WEST, SOUTH CAN, STR/POND 1				0.19	0.079	
LV	BIRCH, WEST, SOUTH CAN, STR/POND 2				0.19	0.108	
LV	BIRCH, WEST, SOUTH CAN, STR/POND 4				0.19	0.074	
LV	BIRCH, WEST, SOUTH CAN, STR/POND 4				0.19	0.09	
LV	BIRCH, WEST, UNN STR/POND 1				0.19	0.054	
LV	BUTTER, EAST, UNN STR				0.19	0.09	
LV	BUTTER, EAST, UNN STR				0.19	0.15	
LV	BUTTER, EAST, UNN STR/SPRUCE				0.19	0.064	
LV	BUTTER, EAST, UNN STR/TOMS P				0.19	0.122	
LV	BUTTER, UNN STR/BOMBER				0.19	0.237	
LV	BUTTER, UNN STR/MATLOCK				0.19	0.062	
LV	BUTTER, EAST, GULLIFORD SPR			0.003	0.20		
LV	MISC, MEACHAM, E FK, OWSLEY CR, FOX SPR			0.004	0.20		
LV	MISC, MEACHAM, E FK, OWSLEY CR, UNN STR				0.20	0.034	
LV	SO FORK, SPRING CR, UNN STR				0.20	0.036	
LV	BIRCH, WEST, BEAR, OWINGS, WILLOW SC, RUNOFF/RES 1				0.20	0.09	
LV	BIRCH, WEST, BEAR, OWINGS, WILLOW SC, RUNOFF/RES 2				0.20	0.37	
LV	BIRCH, WEST, BEAR, OWINGS, WILLOW SC, RUNOFF/RES 3				0.20	0.31	
LV	BIRCH, WEST, BEAR, UNN STR, RESERVE				0.20	0.42	

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
LV	BIRCH, EAST, UNN STR, RUNOFF/RES A				0.20	0.144	
LV	BIRCH, EAST, UNN STR, RUNOFF/RES B				0.20	0.27	
LV	BIRCH, EAST, UNN STR, RUNOFF/RES C				0.20	0.057	
LV	BIRCH, EAST, UNN STR, RUNOFF/RES D				0.20	0.674	
LV	BUTTER, EAST, ALEXANDER, UNN STR, A SPR/RES 4				0.20	0.03	
LV	BUTTER, EAST, ALEXANDER, UNN STR, RUNOFF/RES 5				0.20	0.48	
LV	BUTTER, UNN STR, A SPR/RES 1				0.20	0.002	
LV	BUTTER, EAST, BUCKHORN CR, RUNOFF/RES				0.20	6	
LV	BUTTER, EAST, RUNOFF/RES 2				0.20	0.041	
LV	BUTTER, HOG HOL, DRY HOG HOL, A SPR/RES 5				0.20	0.275	
LV	BUTTER, HOG HOL, DRY HOG HOL, A SPR/RES 6				0.20	0.025	
LV	BUTTER, HOG HOL, DRY HOG HOL, A SPR/RES 7				0.20	0.025	
LV	BUTTER, HOG HOL, DRY HOG HOL, A SPR/RES 8				0.20	0.025	
LV	BUTTER, HOG HOL, DRY HOG HOL, A SPR/RES 9				0.20	0.674	
LV	BUTTER, HOG HOL, DRY HOG HOL, A SPR/RES 10				0.20	0.405	
LV	BUTTER, UNN STR, A SPR/RES 1				0.20	0.026	
LV	BUTTER, UNN STR, A SPR/RES 2				0.20	0.144	
LV	BUTTER, UNN STR, A SPR/RES 3				0.20	0.077	
LV	BUTTER, CUNHA, A SPR/RES 4				0.20	0.843	
LV	BUTTER, DIXIE CAN, A SPR/RES 13				0.20	0.213	
LV	BUTTER, DIXIE CAN, A SPR/RES 14				0.20	0.219	
LV	BUTTER, DIXIE CAN, A SPR/RES 15				0.20	0.169	
LV	BUTTER, HOG HOL, A SPR/RES 12				0.20	0.155	
LV	BUTTER, HOG HOL, DRY HOG HOL, A SPR/RES 11				0.20	0.039	
LV	BUTTER, HOG HOL, NELSON, A SPR/RES 16				0.20	0.05	
LV	BUTTER, UNN STR, A SPR/RES 20				0.20	0.223	
LV	BUTTER, UNN STR, A SPR/ RES 17				0.20	1.012	
LV	BUTTER, UNN STR, A SPR/ RES 18				0.20	0.169	
LV	BUTTER, UNN STR, A SPR/ RES 19				0.20	0.47	
LV	BUTTER, HOG HOL, NELSON, RUNOFF/RES 26				0.20	0.234	
LV	BUTTER, HOG HOL, NELSON, RUNOFF/RES 27				0.20	0.674	
LV	BUTTER, UNN STR, RUNOFF/RES 21				0.20	0.26	
LV	BUTTER, UNN STR, RUNOFF/RES 22				0.20	0.459	
LV	BUTTER, UNN STR, RUNOFF/RES 23				0.20	0.383	
LV	BUTTER, UNN STR, RUNOFF/RES 24				0.20	0.025	
LV	BUTTER, UNN STR, RUNOFF/RES 25				0.20	0.555	
LV	BUTTER, UNN STR, RUNOFF/RES 28				0.20	0.456	
LV	BUTTER, UNN STR, RUNOFF/RES 29				0.20	0.082	
LV	BUTTER, UNN STR, RUNOFF/RES 30				0.20	0.675	
LV	BUTTER, MATLOCK, UNN STR, RUNOFF/RES 37				0.20	0.034	
LV	BUTTER, DIXIE CAN, RUNOFF/RES 38				0.20	0.004	

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
LV	BUTTER, DIXIE CAN, RUNOFF/RES 39				0.20	0.025	
LV	BUTTER, WEBB SL, RUNOFF/RES 31				0.20	0.155	
LV	BUTTER, EAST, RUNOFF/RES 32				0.20	0.309	
LV	BUTTER, SPR HOL, UNN STR, RUNOFF/RES 33				0.20	0.05	
LV	BUTTER, SPR HOL, UNN STR, RUNOFF/RES 34				0.20	0.138	
LV	BUTTER, SPR HOL, UNN STR, RUNOFF/RES 35				0.20	0.143	
LV	BUTTER, UNN STR, RUNOFF/RES 36				0.20	0.215	
LV	BUTTER, SLUSHER, UNN STR, RUNOFF/RES 10				0.20	0.162	
LV	BUTTER, SLUSHER CAN, RUNOFF/BECHNER				0.20	0.145	
LV	BUTTER, SLUSHER, UNN STR, RUNOFF/MCCUTCH				0.20	0.33	
LV	MISC, ROCK, RUNOFF/RES 11				0.20	0.2	
LV	MISC, ROCK, RUNOFF/RES 12				0.20	0.02	
LV	MISC, ROCK, RUNOFF/RES 13				0.20	0.02	
LV	MISC, ROCK, RUNOFF/RES 14				0.20	0.02	
LV	MISC, ROCK, RUNOFF/RES 15				0.20	0.02	
LV	MISC, UNN STR, RUNOFF/RES				0.20	0.18	
LV	WILDHORSE CR, A SPR/RES 1				0.20	0.02	
LV	WILDHORSE CR, RUNOFF/RES 2				0.20	0.02	
LV	WILDHORSE CR, A SPR/RES 7				0.20	0.02	
LV	WILDHORSE CR, RUNOFF/RES 8				0.20	0.02	
LV	WILDHORSE CR, RUNOFF/RES 9				0.20	0.02	
LV	WILDHORSE CR, RUNOFF/RES 10				0.20	0.02	
LW	BIRCH, WEST, UNN STR				0.20	0.01	
LW	BIRCH, WEST, SOUTH CAN				0.20	0.13	
LW	BIRCH, BEAR, UNN STR				0.20	0.08	
LW	BIRCH, WEST, BEAR CR			0.020	0.22		
LW	BUTTER, EAST, UNN STR				0.22	0.05	
LW	MISC, MEACHAM, N FK, HELLHOLE CR				0.22	0.01	
LW	MISC, MEACHAM, N FK, UNN SPR				0.22	0.002	
LW	MISC, MEACHAM, E FK, OWSLEY CR, UNN STR				0.22	0	
LW	MISC, MEACHAM, BEAR, HOSKINS CR				0.22	0.34	
LW	MISC, MEACHAM E FK, UNN STR, NORTH FLAT SPR			0.005	0.22		
LW	MISC, MEACHAM, UNN STR, HORSESHOE SPR			0.002	0.23		
LW	BIRCH, WEST, UNN STR				0.23	0.015	
LW	BIRCH, EAST, PEARSON, UNN STR			0.020	0.25		
LW	BIRCH, WEST, BRIDGE, BRADY FLAT			0.003	0.25		
LW	BIRCH, EAST, PEARSON, UNN STR				0.25	0.09	
LW	BIRCH, EAST, PEARSON, UNN STR				0.25	0.14	
LW	BIRCH, WEST, UNN STR/POND 6				0.25	0.07	
LW	BIRCH, WEST, UNN STR/POND 6				0.25	0.05	
LW	BIRCH, EAST, PEARSON, UNN STR				0.25	0.08	

USE	SUB-BASIN, TRIB, TRIB	PRIM AC	SUP'L AC	CFS	CUM CFS	AFT	GPM
LW	BUTTER, JOHNSON, UNN STR, HAPPY HOME SPR			0.004	0.25		
LW	MISC, MEACHAM, E FK, OWSLEY CR, UNN STR, HUGH SPR			0.003	0.26		
LW	MISC, MEACHAM, E FK, OWSLEY CR, UNN STR, WELLS SPR			0.003	0.26		
LW	MISC, MEACHAM, N FK, POT CR, DEADHORSE SPR			0.005	0.26		
LW	BIRCH, EAST, S CAN, A SPR/CUNNINGHAM				0.26	0.41	
LW	BIRCH, WEST, BEAR, RUNOFF/L STRIK				0.26	0.16	
LW	BIRCH, EAST, LONG CAN, A SPR/RES 5A				0.26	0.04	
LW	BIRCH, EAST, UNN STR, A SPR/RES 6A				0.26	0.022	
LW	BIRCH, BEAR, ARLIE CAN, RUNOFF/CARNEY				0.26	0.2	
LW	BIRCH, JACK CAN, RUNOFF/CASTEEL				0.26	1.07	
LW	BIRCH, UNN STR, SPRS/KORVOLA R.				0.26	1.6	
LW	BIRCH, GEO CAN/RES 1				0.26	0.27	
LW	BIRCH, GEO CAN/RES 2				0.26	3.2	
LW	BIRCH, GEO CAN/RES 3				0.26	0.52	
LW	BIRCH, GEO CAN/RES 4				0.26	0.32	
LW	BIRCH, GEO CAN, SPRS/RES 1				0.26	1.25	
LW	BIRCH, GEO CAN, SPRS/RES 2				0.26	1.25	
LW	BIRCH, GEO CAN, SPRS/RES 3				0.26	1.25	
LW	BIRCH, GEO CAN, SPRS/RES 4				0.26	1.25	
LW	BIRCH, EAST, UNN STR, E. BIRCH STR/U				0.26	0.4	
LW	BUTTER, LITTLE, A SPR/RES 16				0.26	0	
LW	BUTTER, LITTLE, A SPR/RES 17				0.26	0.001	
LW	BUTTER, LITTLE, A SPR/RES 12				0.26	0.003	
LW	BUTTER, LITTLE, A SPR/RES 18				0.26	0.03	
LW	BUTTER, MORRIS, DRY MORRIS, A SPR/RES 14				0.26	0.03	
LW	BUTTER, MORRIS, DRY MORRIS, A SPR/RES 15				0.26	0.001	
LW	BUTTER, MORRIS, DRY MORRIS, A SPR/RES 13				0.26	0.008	
LW	BUTTER, LITTLE, A SPR/RES 10				0.26	0.003	
LW	BUTTER, LITTLE, NEWMAN CAN, A SPR/RES 5				0.26	0	
LW	BUTTER, LITTLE, NEWMAN CAN, A SPR/RES 6				0.26	0.001	
LW	BUTTER, AYERS, UNN STR, A SPR/RES 11				0.26	0.008	
LW	BUTTER, RUNOFF/RES 1				0.26	0.06	
LW	BUTTER, EAST, RUNOFF/CORLEY				0.26	0.1	
LW	BUTTER, EAST, ALEXANDER, UNN STR, RUNOFF/BATTLE				0.26	0.3	
LW	BUTTER, EAST, TUNNEL CAN, RUNOFF/TUNNEL				0.26	0.2	
LW	BUTTER, EAST, TUNNEL CAN, RUNOFF/CORLEY				0.26	0.1	
LW	BUTTER, EAST, TUNNEL CAN, RUNOFF/CORLEY				0.26	0.2	
LW	BUTTER, EAST, RUNOFF/HLDNG				0.26	0.2	
LW	BUTTER, EAST, RUNOFF/ANNA				0.26	0.4	
LW	BUTTER, EAST, ALEXANDER, UNN STR, RUNOFF/HLDNG POND				0.26	0.2	
LW	BUTTER, EAST, ALEXANDER, UNN STR, RUNOFF/HLDNG POND				0.26	0.2	

USE	SUB-BASIN, TRIB, TRIB	PRIM AC	SUP'L AC	CFS	CUM CFS	AFT	GPM
LW	BUTTER, EAST, TUNNEL CAN, RUNOFF/BATTLE				0.26	0.2	
LW	BUTTER, WEBB, ROBERTS CAN, RUNOFF/UPR				0.26	0.013	
LW	BUTTER, WEBB, UNN STR, RUNOFF/WEBB				0.26	1.58	
LW	BUTTER, WEBB, UNN STR, RUNOFF/WEBB				0.26	0.1	
LW	BUTTER, WEBB, UNN STR, RUNOFF/WEBB				0.26	0.128	
LW	BUTTER, WEBB, UNN STR, RUNOFF/WEBB				0.26	1.488	
LW	BUTTER, EAST, ALEXANDER, UNN STR, RUNOFF/BATTLE				0.26	0.1	
LW	BUTTER, A SPR/RES 1				0.26	0.007	
LW	BUTTER, WEBB, CARNEY CR/RES				0.26	0.02	
LW	BUTTER, WEBB, CARNEY, LONE PINE, A SPR/RES 3				0.26	0.03	
LW	BUTTER, WEBB, CARNEY, LONE PINE, A SPR/RES 7				0.26	0.06	
LW	BUTTER, EAST, CORLEY CR, A SPR/RES 5				0.26	0.006	
LW	BUTTER, EAST, CORLEY, HARRINGTON CR/RES				0.26	0.02	
LW	BUTTER, EAST, ELY, MONAHAN CR/RES 10				0.26	0.006	
LW	BUTTER, SPR HOL, A SPR/RES 2				0.26	0.03	
LW	BUTTER, SPR HOL, UNN STR, A SPR/RES 4				0.26	0.04	
LW	BUTTER, SPR HOL, UNN STR, A SPR/RES 6				0.26	0.04	
LW	BUTTER, EAST, CORLEY, HARRINGTON, CORLEY CR/RES				0.26	0.02	
LW	BUTTER, EAST, CORLEY, HARRINGTON, CORLEY CR/RES				0.26	0.04	
LW	BUTTER, EAST, CORLEY, HARRINGTON, CORLEY CR/RES				0.26	0.7	
LW	BUTTER, EAST, CORLEY, HARRINGTON, CORLEY CR/RES				0.26	0.02	
LW	BUTTER, EAST, CORLEY, HARRINGTON CR/RES				0.26	0.05	
LW	BUTTER, EAST, CORLEY, HARRINGTON CR/RES				0.26	0.05	
LW	BUTTER, EAST, CORLEY, HARRINGTON CR/RES				0.26	0.06	
LW	BUTTER, EAST, ELY, HARRINGTON CR/RES				0.26	0.09	
LW	BUTTER, EAST, ELY, MONAHAN, HARRINGTON CR/RES				0.26	0.04	
LW	BUTTER, SPR HOL, UNN STR, CORLEY CR/RES				0.26	0.02	
LW	BUTTER, EAST, ELY, CORLEY CR/RES				0.26	0.03	
LW	BUTTER, EAST, ELY, HARRINGTON CR/RES				0.26	0.06	
LW	BUTTER, EAST, ELY CR/RES 23				0.26	0.03	
LW	BUTTER, EAST, ELY CR/RES 24				0.26	0.06	
LW	BUTTER, EAST, ELY, MONAHAN CR/RES				0.26	0.006	
LW	BUTTER, EAST, ELY, MONAHAN CR/RES				0.26	0.006	
LW	BUTTER, EAST, ELY, MONAHAN, CATES CAN, MONAHAN CR/RES				0.26	0.04	
LW	BUTTER, EAST, ELY, MONAHAN, CATES CR/RES				0.26	0.04	
LW	BUTTER, EAST, ELY, MONAHAN, CATES CAN, MONAHAN CR/RES				0.26	0.04	
LW	BUTTER, EAST, POTTS CAN, CATES CR/RES 2				0.26	0.04	
LW	BUTTER, EAST, CORLEY, HARRINGTON, CORLEY CR/RES				0.26	0.06	
LW	BUTTER, EAST, CORLEY, HARRINGTON CR/RES				0.26	0.03	
LW	BUTTER, EAST, ELY, MONAHAN, CATES CAN, MONAHAN CR/RES				0.26	0.04	
LW	BUTTER, EAST, ELY, MONAHAN, CATES CAN, MONAHAN CR/RES				0.26	0.13	

USE	SUB-BASIN, TRIB, TRIB	PRIM AC	SUP'L AC	CFS	CUM CFS	AFT	GPM
LW	BUTTER, EAST, ELY, MONAHAN, CATES CAN, MONAHAN CR/RES				0.26	0.07	
LW	BUTTER, EAST, ELY, MONAHAN, CATES CAN, MONAHAN CR/RES				0.26	0.07	
LW	BUTTER, EAST, ELY, MONAHAN, CATES CAN, MONAHAN CR/RES				0.26	0.008	
LW	BUTTER, EAST, ELY, MONAHAN, CATES CAN, MONAHAN CR/RES				0.26	0.03	
LW	BUTTER, EAST, ELY RUNOFF/RES 1				0.26	0.617	
LW	BUTTER, EAST, ELY, MONAHAN, RUNOFF/RES 4				0.26	0.617	
LW	BUTTER, EAST, BUCKHORN CR, RUNOFF/RES 2				0.26	0.617	
LW	BUTTER, EAST, BUCKHORN CR, RUNOFF/RES 3				0.26	0.899	
LW	BUTTER, EAST, BUCKHORN CR, RUNOFF/RES 5				0.26	0.055	
LW	BUTTER, EAST, BUCKHORN CR, RUNOFF/RES 6				0.26	0.026	
LW	BUTTER, LITTLE, RUNOFF/RES 12				0.26	0.01	
LW	BUTTER, LITTLE, RUNOFF/RES 14				0.26	0.01	
LW	BUTTER, LITTLE, UNN STR, RUNOFF/RES 11				0.26	0.01	
LW	BUTTER, LITTLE, JONES CAN, UNN STR, RUNOFF/RES 15				0.26	0.01	
LW	BUTTER, LITTLE, JONES CAN, UNN STR, RUNOFF/RES 16				0.26	0.02	
LW	BUTTER, AYERS CAN, RUNOFF/RES 13				0.26	0.01	
LW	BUTTER, AYERS, UNN STR, RUNOFF/RES 9				0.26	0.01	
LW	BUTTER, AYERS, UNN STR, RUNOFF/RES 10				0.26	0.01	
LW	BUTTER, RUNOFF/RES 9				0.26	0.05	
LW	BUTTER, JOHNSON, FRISCO, RUNOFF/RES 6				0.26	0.01	
LW	BUTTER, JOHNSON, FRISCO, RUNOFF/RES 7				0.26	0.02	
LW	BUTTER, JOHNSON, FRISCO, RUNOFF/RES 8				0.26	0.02	
LW	BUTTER, JOHNSON, EDWARDS CAN, RUNOFF/RES 1				0.26	0.39	
LW	BUTTER, JOHNSON, EDWARDS CAN, RUNOFF/RES 3				0.26	0.1	
LW	BUTTER, JOHNSON, EDWARDS CAN, RUNOFF/RES 4				0.26	0.12	
LW	BUTTER, JOHNSON, UNN STR, RUNOFF/RES 2				0.26	0.25	
LW	BUTTER, JOHNSON, UNN STR, RUNOFF/RES 5				0.26	0.01	
LW	BUTTER, MATLOCK, RUNOFF/RES 22				0.26	0.01	
LW	BUTTER, MATLOCK, RUNOFF/RES 23				0.26	0.01	
LW	BUTTER, MATLOCK, BUTERMILK CAN, RUNOFF/RES 17				0.26	0.01	
LW	BUTTER, MATLOCK CAN, UNN STR, RUNOFF/RES 18				0.26	0.02	
LW	BUTTER, MATLOCK, UNN STR, RUNOFF/RES 20				0.26	0.03	
LW	BUTTER, MATLOCK, UNN STR, RUNOFF/RES 19				0.26	0.04	
LW	BUTTER, MATLOCK, UNN STR, RUNOFF/RES 21				0.26	0.1	
LW	BUTTER, UNN STR, RUNOFF/RES 25				0.26	0.01	
LW	BUTTER, CUNHA CAN, RUNOFF/RES 24				0.26	0.02	
LW	BUTTER, LITTLE, NEWMAN CAN, RUNOFF/RES 1				0.26	0.03	
LW	BUTTER, LITTLE, NEWMAN CAN, RUNOFF/RES 2				0.26	0.03	
LW	BUTTER, LITTLE, NEWMAN CAN, RUNOFF/RES 3				0.26	0.01	
LW	BUTTER, LITTLE, JONES CAN, UNN STR, RUNOFF/RES 4				0.26	0.01	
LW	BUTTER, LITTLE, JONES CAN, UNN STR, RUNOFF/RES 5				0.26	0.01	

USE	SUB-BASIN, TRIB, TRIB	PRIM AC	SUP'L AC	CFS	CUM CFS	AFT	GPM
LW	BUTTER, LITTLE, JONES CAN, UNN STR, A SPR/RES 6				0.26	0.02	
LW	BUTTER, LITTLE, JONES CAN, UNN STR, A SPR/RES 7				0.26	0.01	
LW	BUTTER, LITTLE, JONES CAN, UNN STR, RUNOFF/RES 8				0.26	0.03	
LW	BUTTER, EAST, RUNOFF/RES 31				0.26	0.2	
LW	BUTTER, LITTLE, JOHNSON CAN, RUNOFF/RES				0.26	0.029	
LW	BUTTER, LITTLE, JOHNSON CAN, RUNOFF/RES				0.26	0.003	
LW	BUTTER, LITTLE, JOHNSON CAN, RUNOFF/RES				0.26	0.003	
LW	BUTTER, LITTLE, JOHNSON CAN, RUNOFF/RES				0.26	0.024	
LW	BUTTER, LITTLE, JOHNSON CAN, RUNOFF/RES				0.26	0.001	
LW	BUTTER, LITTLE, JOHNSON CAN, RUNOFF/RES				0.26	0.003	
LW	BUTTER, LITTLE, JOHNSON CAN, RUNOFF/RES				0.26	0.002	
LW	BUTTER, LITTLE, JOHNSON CAN, RUNOFF/RES				0.26	0.003	
LW	BUTTER, LITTLE, JOHNSON CAN, RUNOFF/RES				0.26	0.006	
LW	BUTTER, LITTLE, JOHNSON CAN, RUNOFF/RES				0.26	0.009	
LW	BUTTER, LITTLE, UNN STR, RUNOFF/RES				0.26	0.005	
LW	BUTTER, LITTLE, UNN STR, RUNOFF/RES				0.26	0.003	
LW	BUTTER, LITTLE, UNN STR, RUNOFF/RES				0.26	0.002	
LW	BUTTER, LITTLE, UNN STR, RUNOFF/RES				0.26	0.002	
LW	BUTTER, LITTLE, UNN STR, RUNOFF/RES				0.26	0.007	
LW	BUTTER, LITTLE, JOHNSON CAN, RUNOFF/RES 1				0.26	0.001	
LW	BUTTER, LITTLE, JOHNSON CAN, RUNOFF/RES 2				0.26	0.004	
LW	BUTTER, LITTLE, JOHNSON CAN, RUNOFF/RES 3				0.26	0.003	
LW	BUTTER, LITTLE, JOHNSON CAN, RUNOFF/RES 4				0.26	0.002	
LW	BUTTER, LITTLE, JOHNSON CAN, RUNOFF/RES 5				0.26	0.003	
LW	BUTTER, LITTLE, JOHNSON CAN, A SPR/RES 6				0.26	0	
LW	BUTTER, LITTLE, JOHNSON CAN, RUNOFF/RES 7				0.26	0.008	
LW	BUTTER, PAGET, RUNOFF/RES 2				0.26	0.03	
LW	BUTTER, PAGET, A SPR/RES 3				0.26	0.003	
LW	BUTTER, PAGET, RUNOFF/RES 4				0.26	0.002	
LW	BUTTER, PAGET, RUNOFF/RES 5				0.26	0.003	
LW	BUTTER, PAGET, RUNOFF/RES 6				0.26	0.06	
LW	BUTTER, PAGET, RUNOFF/RES 8				0.26	0.003	
LW	BUTTER, PAGET, RUNOFF/RES 10				0.26	0	
LW	BUTTER, JOHNSON, HOODLUM CAN, RUNOFF/RES 1				0.26	0.005	
LW	BUTTER, JOHNSON, HOODLUM CAN, RUNOFF/RES 7				0.26	0.003	
LW	BUTTER, JOHNSON, HOODLUM CAN, RUNOFF/RES 9				0.26	0.03	
LW	BUTTER, LITLE, RUNOFF/RESV				0.26	0.011	
LW	BUTTER, LITTLE, RUNOFF/RESV				0.26	0.04	
LW	BUTTER, LITTLE, A SPR/RES				0.26	0.005	
LW	BUTTER, LITTLE, RUNOFF/RES				0.26	0	
LW	BUTTER, LITTLE, A SPR/RES				0.26	0	

USE	SUB-BASIN, TRIB, TRIB	PRIM AC	SUP'L AC	CFS	CUM CFS	AFT	GPM
LW	BUTTER, LITTLE, RUNOFF/RES				0.26	0.008	
LW	BUTTER, LITTLE, JOHNSON CAN, UNN STR, RUNOFF/RES				0.26	0.002	
LW	BUTTER, LITTLE, A SPR/RES 2				0.26	0.002	
LW	BUTTER, LITTLE, RUNOFF/RES 3				0.26	0.003	
LW	BUTTER, LITTLE, RUNOFF/RES 4				0.26	0	
LW	BUTTER, LITTLE, RUNOFF/RES 6				0.26	0.003	
LW	BUTTER, LITTLE, A SPR/RES 7				0.26	0.002	
LW	BUTTER, LITTLE, JOHNSON CAN, RUNOFF/RES 5				0.26	0.003	
LW	BUTTER, LITTLE, NEWMAN CAN, A SPR/RES 1				0.26	0.007	
LW	MCKAY, SPRING CR/RES				0.26	1.3	
LW	MCKAY, LAWLER CAN, RUNOFF/RES 1				0.26	0.01	
LW	MCKAY, LAWLER CAN, 'RUNOFF/RES 5				0.26	0.01	
LW	MCKAY, RAIL CR, RUNOFF/RES 3				0.26	0.01	
LW	MCKAY, RAIL CR, RUNOFF/RES 4				0.26	0.01	
LW	MCKAY, RAIL, LITTLE RAIL CR, 'RUNOFF/RES 1				0.26	0.01	
LW	MCKAY, RED SPRING CAN, COYOTE CAN, RUNOFF/RES 6				0.26	0.01	
LW	MCKAY, WOOD HOL, RUNOFF/RES 6				0.26	0.002	
LW	MCKAY, WOOD HOL, RUNOFF/RES 8				0.26	0.008	
LW	MCKAY, WOOD HOL, RUNOFF/RES 11				0.26	0.011	
LW	MCKAY, WOOD HOL, LAKE CR, RUNOFF/RES 24				0.26	0.007	
LW	MCKAY, WOOD, LITTLE WOOD HOL, UNN STR, RUNOFF/RES 18				0.26	0.008	
LW	MCKAY, WOOD, LITTLE WOOD HOL, UNN STR, RUNOFF/RES 20				0.26	0.005	
LW	MCKAY, GIBSON CAN, RUNOFF/RES 35				0.26	0.066	
LW	MCKAY, BASSEY CR, RUNOFF/RES 27				0.26	0.009	
LW	MCKAY, BASSEY CR, RUNOFF/RES 40				0.26	0.013	
LW	MCKAY, N FK MCKAY CR, RUNOFF/RES 8				0.26	0.23	
LW	MCKAY, N FK MCKAY CR, RUNOFF/RES 9				0.26	0.012	
LW	MCKAY, N FK MCKAY CR, RUNOFF/RES 10				0.26	0.002	
LW	MCKAY, N FK, UNN STR, RUNOFF/RES 1				0.26	0.002	
LW	MCKAY, N FK, UNN STR, RUNOFF/RES 2				0.26	0.012	
LW	MCKAY, N FK, UNN STR, RUNOFF/RES 5				0.26	0.01	
LW	MCKAY, N FK, UNN STR, RUNOFF/RES 6				0.26	0.012	
LW	MCKAY, N FK, UNN STR, RUNOFF/RES 7				0.26	0.008	
LW	MCKAY, N FK, UNN STR, RUNOFF/RES 3				0.26	0.012	
LW	MCKAY, N FK, UNN STR, RUNOFF/RES 4				0.26	0.012	
LW	MCKAY, N FK, CALAMITY, UNN STR, 'RUNOFF/RES 11				0.26	0.008	
LW	MCKAY, N FK, BELL COW CR, RUNOFF/RES 12				0.26	0.033	
LW	MCKAY, N FK, BELL COW CR, RUNOFF/RES 13				0.26	0.012	
LW	MCKAY, N FK, BELL COW CR, RUNOFF/RES 14				0.26	0.05	
LW	MCKAY, N FK, BELL COW , UNN STR, RUNOFF/RES 15				0.26	0.002	
LW	MCKAY, N FK, BELL COW , UNN STR, RUNOFF/RES 16				0.26	0.05	

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
LW	MCKAY, N FK, BELL COW , UNN STR, RUNOFF/RES 17				0.26	0.05	
LW	MCKAY, N FK, BELL COW , UNN STR, RUNOFF/RES 18				0.26	0.06	
LW	MCKAY, N FK, BELL COW , UNN STR, RUNOFF/RES 19				0.26	0.02	
LW	MCKAY, N FK, BELL COW , UNN STR, RUNOFF/RES 20				0.26	0.003	
LW	MCKAY, N FK, UNN STR, RUNOFF/RES 24				0.26	0.05	
LW	MCKAY, N FK, BELL COW , UNN STR, RUNOFF/RES 21				0.26	0.04	
LW	MCKAY, N FK, BELL COW , UNN STR, RUNOFF/RES 22				0.26	0.005	
LW	MCKAY, N FK, DARR CR, RUNOFF/RES 23				0.26	0.014	
LW	MCKAY, N FK, CALAMITY CR, A SPR/RES 6				0.26	1.47	
LW	MCKAY, N FK, CALAMITY, UNN STR, 'SPR/RES 7				0.26	0.06	
LW	MCKAY, N FK, UNN STR, RUNOFF/RES 8				0.26	0.06	
LW	MCKAY, UNN STR, RUNOFF/RES 1				0.26	0.15	
LW	MCKAY, LAWLER CAN, A SPR/RES 2				0.26	0.09	
LW	MCKAY, RAIL CR, A SPR/RES 4				0.26	0.07	
LW	MCKAY, RAIL CR, A SPR/RES 5				0.26	0.4	
LW	MCKAY, RAIL, LITTLE RAIL CR, 'A SPR/RES 3				0.26	0.07	
LW	MCKAY, UNN STR, A SPR/RES 22				0.26	0.68	
LW	MCKAY, UNN STR, A SPR/RES 23				0.26	0.3	
LW	MCKAY, UNN STR, RUNOFF/RES 24				0.26	0.3	
LW	MCKAY, UNN STR, RUNOFF/RES 26				0.26	0.8	
LW	MCKAY, SNIPE CR, RUNOFF/RES 21				0.26	0.3	
LW	MCKAY, SNIPE CR, RUNOFF/RES 22				0.26	0.5	
LW	MCKAY, SNIPE CR, RUNOFF/RES 25				0.26	0.2	
LW	MCKAY, UNN STR, A SPR/RES 19				0.26	0.1	
LW	MCKAY, UNN STR, A SPR/RES 20				0.26	0.2	
LW	MCKAY, RUNOFF/RES 14				0.26	0.1	
LW	MCKAY, UNN STR, A SPR/RES 13				0.26	0.1	
LW	MCKAY, JOHNSON CR, A SPR/FERRIN P				0.26	5	
LW	MISC, SADDLE HOL, RUNOFF/RES 1				0.26	0.04	
LW	MISC, SADDLE HOL, RUNOFF/RES 2				0.26	0.03	
LW	MISC, UNN STR, WILDHORSE CR/RES				0.26	1.5	
LW	MISC, UNN STR, A SPR/RES 2				0.26	0.25	
LW	MISC, UNN STR, A SPR/RES 3				0.26	0.2	
LW	MISC, UNN STR, A SPR/RES 4				0.26	0.15	
LW	MISC, SADDLE HOL, UNN STR/RES 3				0.26	0.5	
LW	MISC, SADDLE HOL, UNN STR/RES 4				0.26	0.4	
LW	MISC, SADDLE HOL, UNN STR/RES 5				0.26	0.1	
LW	MISC, UNN STR, UNN STR/RES 1				0.26	0.3	
LW	MISC, UNN STR, UNN STR/RES 2				0.26	0.23	
LW	MISC, COTTONWOOD CR, REYNOLDS SRP/RES				0.26	0.04	
LW	MISC, COOMBS, A SPR/RES				0.26	4.82	

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
LW	MISC, MEACHAM, MILL CR, A SPR/MEACHAM				0.26	0.22	
LW	MISC, MEACHAM, SHEEP CR, RUNOFF/MEACHAM				0.26	0.01	
LW	MISC, MEACHAM, SHEEP CR, RUNOFF/MEACHAM				0.26	0.88	
LW	MISC, MEACHAM, SHEEP CR, RUNOFF/MEACHAM				0.26	0.21	
LW	MISC, MEACHAM, SHEEP CR, RUNOFF/MEACHAM				0.26	0.01	
LW	MISC, MEACHAM, SHEEP CR, A SPR/MEACHAM				0.26	0.33	
LW	MISC, MEACHAM, TOD CR, RUNOFF/MEACHAM				0.26	0.18	
LW	MISC, MEACHAM, RUNOFF/RES 25				0.26	0.9	
LW	MISC, MEACHAM, UNN STR, A SPR/RES 26				0.26	0.9	
LW	MISC, MEACHAM, MILL CR, A SPR/RES 24				0.26	0.39	
LW	MISC, MEACHAM, UNN STR, RUNOFF/RES 15				0.26	1.73	
LW	MISC, MEACHAM, BUTCHER CR, UNN STR, RUNOFF/RES 10				0.26	1.08	
LW	MISC, MEACHAM, BUTCHER CR, UNN STR, RUNOFF/RES 11				0.26	1.25	
LW	MISC, MEACHAM, BUTCHER CR, UNN STR, RUNOFF/RES 12				0.26	1	
LW	MISC, MEACHAM, UNN STR, SPRING CR/RES				0.26	0.74	
LW	MISC, MEACHAM, SHEEP CR, RUNOFF/RES 1				0.26	1.29	
LW	MISC, MEACHAM, SHEEP CR, RUNOFF/RES 2				0.26	1.35	
LW	MISC, MEACHAM, SHEEP CR, A SPR/RES 4				0.26	0.52	
LW	MISC, MEACHAM, UNN STR, SPRING CR/RES				0.26	0.04	
LW	MISC, MEACHAM, UNN STR, UNN STR/RES 7				0.26	0.07	
LW	MISC, MEACHAM, UNN STR, UNN STR/RES 8				0.26	0.14	
LW	MISC, MEACHAM, KLONDIKE CR, RUNOFF/RES 27				0.26	0.23	
LW	MISC, MEACHAM, KLONDIKE CR, A SPR/RES 28				0.26	0.07	
LW	MISC, MEACHAM, MILL CR, A SPR/RES 29				0.26	0.43	
LW	MISC, MEACHAM, MILL CR, RUNOFF/RES 30				0.26	0.07	
LW	MISC, MEACHAM, MILL CR, RUNOFF/RES 31				0.26	0.25	
LW	MISC, MEACHAM, MILL CR, A SPR/RES 32				0.26	0.67	
LW	MISC, MEACHAM, SHEEP CR, RUNOFF/RES 2				0.26	0.12	
LW	MISC, MEACHAM, SHEEP CR, RUNOFF/RES 5				0.26	0.21	
LW	MISC, MEACHAM, SHEEP CR, RUNOFF/RES 7				0.26	0.21	
LW	MISC, MEACHAM, TOD CR, RUNOFF/RES 8				0.26	0.16	
LW	MISC, MEACHAM, TOD CR, RUNOFF/RES 2				0.26	0.3	
LW	MISC, MEACHAM, BEAVER, A SPR/RES 1				0.26	0.1	
LW	MISC, MEACHAM, LITTLE BEAVER, UNN STR, RUNOFF/RES 4				0.26	0.3	
LW	MISC, MEACHAM, UNN STR, RUNOFF/RES 3				0.26	0.1	
LW	MISC, MEACHAM, UNN STR, RUNOFF/RES 6				0.26	0.4	
LW	MISC, MEACHAM, UNN STR, RUNOFF/RES 7				0.26	0.1	
LW	MISC, MEACHAM, UNN STR, RUNOFF/RES 5				0.26	0.1	
LW	MISC, MEACHAM, E MEACHAM CR, A SPR/NUNAMAKE				0.26	0.25	
LW	MISC, MEACHAM, E MEACHAM CR, A SPR/NUNAMAKE				0.26	0.08	
LW	MISC, MEACHAM, E MEACHAM CR, RUNOFF/NUNAMAKE				0.26	0.23	

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
LW	MISC, MEACHAM, E FK, OWSLEY CR, UNN STR, RUNOFF/FOWLER				0.26	0.32	
LW	MISC, MEACHAM, E MEACHAM CR, RUNNOFF/RR				0.26	0.2	
LW	MISC, MEACHAM, E MEACHAM CR, A SPR/ROCK SPR				0.26	0.04	
LW	SO FORK, THOMAS CR, SPRS/RUNOFF/RE				0.26	0.06	
LW	SO FORK, THOMAS CR, UNN STR, SPRS/RUNOFF/RE				0.26	0.26	
LW	SO FORK, THOMAS CR, UNN STR, RUNOFF/RES 5				0.26	0.029	
LW	WILDHORSE, EAGLE CR, RUNOFF/RES				0.26	2.5	
LW	WILDHORSE CR, RUNOFF/RES 2				0.26	0.03	
LW	WILDHORSE CR, RUNOFF/RES 3				0.26	0.07	
LW	WILDHORSE CR, RUNOFF/RES 4				0.26	0.04	
LW	WILDHORSE CR, RUNOFF/RES 5				0.26	0.03	
LW	WILDHORSE CR, RUNOFF/RES 7				0.26	0.03	
LW	WILDHORSE, UNN STR, RUNOFF/RES 1				0.26	1.9	
LW	WILDHORSE, UNN STR, RUNOFF/RES 6				0.26	0.03	
LW	WILDHORSE, UNN STR, RUNOFF/RES 8				0.26	0.1	
LW	WILDHORSE, UNN STR/RES				0.26	0.73	
LW	WILDHORSE CR/RES				0.26	0.57	
LW	WILDHORSE CR/RES				0.26	0.36	
LW	WILDHORSE CR, PINE CR/RES 3				0.26	0.06	
LW	WILDHORSE CR, RUNOFF/RES 1				0.26	0.5	
LW	WILDHORSE CR, RUNOFF/RES 2				0.26	0.2	
LW	WILDHORSE CR, RUNOFF/RES 3				0.26	0.3	
LW	WILDHORSE CR, RUNOFF/RES 4				0.26	0.25	
LW	WILDHORSE CR, RUNOFF/RES 5				0.26	0.2	
LW	NORTH FORK, RUNOFF/WEST				0.26	0.2	
		88.80	6.80	0.26		98.05	0.00
MU	UMATILLA, MINNEHAHA SPR			3	3.00		
MU	UMATILLA RIVER			2	5.00		
MU	UMATILLA RIVER	161		11.5	16.50		
MU	NORTH FORK UMATILLA			8	24.50		
MU	MISC, UNN STR			4	28.50		
MU	UMATILLA, SHAPLISH SPRS			3	31.50		
MU	UMATILLA, LONG HAIR SPR			2	33.50		
MU	UMATILLA, THREE SIMON SPR			2.7	36.20		
MU	UMATILLA, MINNEHAHA SPR			7	43.20		
		161.00	0.00	43.20		0.00	0.00
PW	UMATILLA RIVER			29.3	29.30		
PW	UMATILLA RIVER			28.7	58.00		
PW	UMATILLA RIVER			50	108.00		

		PRIM	SUP'L		CUM		
USE	SUB-BASIN, TRIB, TRIB	AC	AC	CFS	CFS	AFT	GPM
		0.00	0.00	108.00		0.00	0.00
ST	UMATILLA RIVER				0.00	50000	
ST	UMATILLA RIVER	3230.7			0.00	5500	
		3230.70	0.00	0.00		55500.00	0.00
WI	BIRCH, EAST, PEARSON, UNN STR, TWIN SPR				0.00		1
WI	BUTTER, LITTLE, UNN STR, HINTON CR/RES				0.00	4	
WI	MCKAY, N FK, UNN STR, RUNOFF/RES				0.00	1	
		0.00	0.00	0.00		5.00	1.00
IR	MCKAY, MCKAY RESERVOIR					61540	
	UMATILLA RIVER						

WATER RIGHTS WRIS CODES
Oregon Water Resources Department

Water Right Database User's Guide
W.R.I.S. CODE EXPLANATIONS

AGRICULTURE (1)
AG - Agriculture
CH - Cranberry harvest
CF - Flood harvesting
CR - All cranberry uses
TC - Temperature control
DB - Dairy barn
FR - Frost protection
GH - Greenhouse
MS - Mint still
NU - Nursery use

INDUSTRIAL (4)
GT - Geothermal
IM - /Manufacturing
SM - Sawmill
SH - Shop
LD - Log deck
CM - Commercial
LA - Laboratory

FISH (7)
AQ - Aquaculture
FI - Fish
FW - /Wildlife

STATUS CODES

C - canceled
M - misfiled
P- part canceled
R - rejected
V - non-canceled
W - withdrawn
DLC - Donation Land Claim
LOT - Government Lot

P/A/S/C
A - alternate
C - primary and supplemental
P - primary
S - supplemental

DOMESTIC (2)
DO - Domestic
DI - /Inc lawn and garden
DN - /Inc non-commercial
DS - /Stock
GD - Group domestic
RR - Rest room
SC - School

RECREATION (5)
CS - Campground
RC - Recreation
SW - Swimming

POWER (6)
PW - Power
RM - Ram

LIVESTOCK (8)
LV - Livestock
LW - /Wildlife

WILDLIFE (W)
WI - Wildlife

SOURCE TYPE

DR - drain
L - lake
RS - reservoir
SE - sewage effluent
SP - spring
ST - stream
SU - sump
WE - well
WR - winter runoff
WW - waste water

CERTIFICATE TYPES
CF - confirming
CR - correcting
OR - original
RR - remaining
RG - remaining groundwater

IRRIGATION (3)
IC - Primary&Supplemental
IR - Irrigation
IS - Supplemental
CI - Cranberries
I* - Irr.,domestic & stock
ID -Irrigation&domestic
IL - Irrigation & stock

MISCELLANEOUS (M)
AH - Air conditioning
AS - Aesthetic
FM - Forest management
FP - Fire protection
GR - Groundwater recharge
PA - Pollution abatement
RW - Road construction
ST - Storage

MUNICIPAL (9)
MU - Municipal
QM - Quasi-municipal

MINING (0)
MI - Mining

PERMIT/APPLICATION CHARACTERS
E - enlargement
DN - decree, no certificate
G - groundwater
GR - groundwater registration
IS - instream water right
MF - converted minimum flow
R - reservoir
S - surface
T - transfer
U - underground

PENDING TRANSFER RIGHTS
CD - confirming decreed right
CG - confirming groundwater
CS - confirming surface water
CR - confirming reservoir
RD - remaining decreed
RS - remaining surface water
RR - remaining reservoir

OWRD Web Mapping Data Dictionary

Base Layers

The base layers provide basic geographical reference information.

Township

The Public Land Survey (PLS) township lines for the state (from 100K source maps).

Township	
Column Name	**Description**
township	Township
twp_char	Township character; N=North S= South
range	Range
rng_char	Range character; E=East W=West

Sections

Shows the Public Land Survey (PLS) section lines for the state (from 100K source maps).

Sections	
Column Name	**Description**
township	Township
twp_char	Township character; N=North S= South
range	Range
rng_char	Range character; E=East W=West
section	Section number (1-36)

Cities

City and town names (from 500K source maps).

Cities	
Column Name	**Description**
city	Name of city
population	Population (1980 Census)
county	County the city is located within

Roads

Major roads (from 100K source maps).

Roads	
Column Name	**Description**
hwyname	Name of road
alt1_name	Alternate road name
type	Road type i.e. Interstate, US Hwy, State Hwy, Secondary road etc.

Counties

Oregon counties.

Counties	
Column Name	**Description**
county	Name of County
fips	Federal Information Processing System code

Watermaster Districts

OWRD Watermaster districts.

Watermaster Districts	
Column Name	**Description**
waterdist	OWRD Administrative Watermaster Districts (1-21, except 7)
region	OWRD Administrative Regions E-Eastern Region NC - North Central Region NW- Northwest Region SC - South Central Region SW- Southwest Region

WRD Basins

OWRD administrative basins (from 24K source maps).

Basins	
Column Name	**Description**
basin_num	OWRD administrative basin number (1-18) assigned to Oregon's major

	drainage basins
basin_name	OWRD administrative basin name

Quad Maps

Scanned USGS 1:24,000-scale quadrangle maps for the area that you're zoomed into.

Aerial Photos

Scanned USGS and USFS Digital Orthophotoquad (DOQ). They aren't currently available statewide. The complete data set will be completed in June 2001.

Topography

The shaded elevation relief map shows the major geographical features (90-meter resolution).

Water Right Layers

Layers dealing specifically with water rights in Oregon

Points of Diversion

The points of diversion for water rights in the active basin.

Points of Diversion	
Column Name	**Description**
pod-id	Unique sequential number assigned to each POD for all water rights within a township. This number should not be confused with the POD-NUM as defined below.
app	OWRD application identifier; a combination of the application character and application number
certificat	(CERTIFICATE) OWRD certificate number
permit	OWRD permit identifier; combination of the permit character and the permit number
pod_num	The number assigned to each physical point of appropriation for a specific water right
source	The source of water for the point of appropriation
use	Use code; for further information refer to: http://www.wrd.state.or.us/waterrights/wrisuse.html

priority	Date of appropriation, listed as year/month/day
stream_cod	(STREAM CODE)- OWRD identifier for a particular body of water
category	Use categories; for further information refer to: http://www.wrd.state.or.us/waterrights/wrisuse.html
rate	The instantaneous amount of water that may be applied at any time
div_units	Rate unit of measurement C- Cubic feet per second G- Gallons per minute A- Acre-Feet
duty	The overall limit per season; the total volume of water allowed per season for irrigation
limit	The total volume of water in acre-feet per season that may be diverted
status	The legal standing of a water right; for further information refer to: http://www.wrd.state.or.us/waterrights/wrisuse.html
p_a_s_	(P_A_S_C)- A code further describing the rate as it relates to multiple uses, multiple points of diversion, multiple priority dates and primary or supplemental uses. For further information refer to: http://www.wrd.state.or.us/waterrights/wrisuse.html
stream1_na	(STREAM1_NAME)- The name of the source
stream2_na	(STREAM2_NAME)-The name of the body of water that the source is a tributary of
source_typ	(SOURCE _TYPE)-A one or two letter code which describes the source; for further information refer to: http://www.wrd.state.or.us/waterrights/wrisuse.html
cert_num	OWRD certificate number
permit_cha	(PERMIT CHARACTER) - A one or two letter permit code that designates the type of water right according to the water source; for further information refer to: http://www.wrd.state.or.us/waterrights/wrisuse.html
permit_num	OWRD permit number
other_limi	(OTHER LIMITS)- Additional limitations of the water right and/or general comments concerning the right

Places of Use

The places of use for water rights in the active basin.

Places of Use

Column Name	Description
applicatio	OWRD application number
category	Use categories; for further information refer to: http://www.wrd.state.or.us/waterrights/wrisuse.html
cert-num	OWRD certificate number (7-digit integer)
certificat	(CERTIFICATE) - OWRD certificate number
category	Use categories; for further information refer to: http://www.wrd.state.or.us/waterrights/wrisuse.html
permit_num	OWRD permit number
permit	OWRD permit identifier; combination of the permit character and permit number
priority	Date of appropriation; appears as year/month/day
use	Use code; for further information refer to: http://www.wrd.state.or.us/waterrights/wrisuse.html
permit_cha	(PERMIT CHARACTER) - A one or two letter permit code that designates the type of water right according to the water source.
status	The legal standing of a water right; for further information refer to: http://www.wrd.state.or.us/waterrights/wrisuse.html

Groundwater Layers

Layers dealing specifically with groundwater features in Oregon

Observation Wells

Description

Groundwater Restricted Areas

Ground water restricted areas as defined by the OWRD.

Ground Water Restricted Areas	
Column Name	**Description**
name1	Name of ground water classified, critical, or withdrawn area
name2	Sub-unit names
sub_area	Sub-units of ground water restricted areas
status	Status of ground water restricted area CLASS -Classified CRIT-Critical

	WITH-Withdrawn
sq_mi	Ground water restricted area in square miles

Depth to Groundwater

Description

ASR Potential

Description

Surface Water Layers

Layers dealing specifically with surface water features in Oregon

Gages

Description

Water Availability Basins

Water Availability Basins (WABs) are areas defined for the purposes of water availability modeling by the OWRD. Compiled on 1:24,000-scale(24K) source maps.

303D Lakes

Description

303D Streams

Description

Threatened & Endangered Species Rules

Layers dealing specifically for rules regarding threatened and endangered species.

4D Rules

Description

Division 33

Description

DISTRIBUTION LIST FOR THE UMATILLA RIVER, Updated June 11, 2001. List does not include tributaries.

W.R. #	MAP	PERMIT#	CERT.#	PRESENT/OPERATOR	NAME/CERT.	PRIORITY/DATE	YEAR	ACRES	USE	LOCATION	Q /CFS	TAX/LOT	RMI.	NOTES
W.R. #	MAP	PERMIT#	CERT.#	PRESENT/OPERATOR	NAME/CERT.	PRIORITY/DATE	YEAR	ACRES	USE	LOCATION	Q /CFS	TAX/LOT	RMI.	NOTES
U1	1	0	2490	Umatilla School	Bowman	12/31	1860	22.6	I*	S17,T5n,R28e	0.28		1.4	.8ac SWNE, 1.8ac SENE, 8.0ac NESW, 6.0ac NESE, 6ac NWSE
U2	5	0	0	Westland Ir. Dist.	Allen Ditch Co.	12/31	1870	942	Ir.	S7+,T3n.R29e	11.78		27.8	
U3	5	0	2648	Wilson Ditch	Wilson Ditch	12/31	1881	10	Ir.	S16,T3n,R29e	0.13		33.2	new p.o.d. @ Furnish Canal
U4a	5	0	T7950	Dick Snow	C.J. Gullford	12/31	1883	34.8	Ir.	S16,T3n,R29e	0.43		33.2	Orig. C2535, A.P.O.D. @ Furnish Canal, V52P583
U4b	5	0	75728	Dick Snow	C.J. Gullford	12/31	1883	2.2	Ir.	S16,T3n,R29e	0.03		29	Remaining Right, P.O.D. Feed Canal
U5	5	0	T7950	Dick Snow	Lucinda Mcullough	12/31	1883	2	Ir.	S21,T3n,R29e	0.03		33.2	Orig. C2586 A.P.O.D. @ Furnish Canal, V52P583
U6a	5	0	75837	Ron Holeman	Jos Cuhna	07/01	1884	121.4	Ir.	S27,T3n,R29e	1.51		29	T7156 44.6 Ac. Orig 166Ac (Pending Transfer # T8431) P.O.D. Infil. gallery
U6b	5	0	T7456	Ron Holeman	Jos Cuhna	07/01	1884	44.6	Ir.	S27,T3n,R29e	0.56		29	T7156 44.6 Ac., Sp. order V.52 pg. 832, P.O.D. = infiltr. gallery
U7	8	0	2604	City of Pendleton	City of Pendleton	11/11	1885	0	M	City	2		53.6	
U8	8	0	0	EOCI, ?State of Or	Geo. Roberts	12/31	1890	9	IR.	S10,T2n,R33e	0.11		54.4	In decree T2n,R32e,S9
U9	8	0	2582	City of Pendleton	W.F. Matlock	12/31	1890	10	I.S.D.	S10,T2n,R33e	0.5		54.9	In decree S10,T2n.R32e
U10	7	0	0	Dean Forth	J.E. Smith	12/31	1890	75	I.S.	S14,T2n,R31e	0.94		43.2	3.8 Ac. T.6368-V.45p.13
U11	8	0	2619	Vivian Taylor	Geo. C. Sloan	12/31	1892	22	Ir.	S13,T2n,R31e	0.27		50.5	
U12	1	0	0	W.E.I.D.	Or Land&Water	04/14	1893	1687.6	Ir.	West EX. I.D.	21.095		3.7	Orig. 2066 Ac.Q-25.83
U13	1	0	0	Brownell Ditch	Brownell Ditch	11/08	1893	31	I.S.D.	S9+,T5n,R28e	0.39		2	11/8/1893 is listed in decree as priority date
U14a	4	0	75454	Maxwell Ir. Dist.	Maxwell Ir. Dist.	09/11	1894	161	Ir.	S5,T3n,R29e	2.01		25.2	Orig. 204 Ac. T.#5699
U14b	4	0	T 7527	City of Stanfield	Maxwell Ir. Dist.	09/11	1894		Municipal	City of Stanfield	11.5		22.5	Sp. Or. Vol. 53 Pg.930, Municipal and Domestic use
U15	4	0	55603	?	J.J. Oberson	09/11	1894	10	Ir.	S5,T3n.R29e	0.13		23.7	Cert. 2/11/1987
U16	4	0	55604	Mills MintFarm (Don)	Mills Mint Farm	09/11	1894	33	Ir.	S5,T3n.R29e	0.41		15.3	Supercedes #2583 Max.I.D.
U48A	3	0	0	Hermiston Ir. Dist.	U.S.A.	11/14	1894	76.93	Ir.	S10,T4n,R28e	0.96		15.3	Orig. 80 Ac.-V.38pg.448
U17	10	0	2483	Phelps & B.I.A.	A-Le-Te-La	05/23	1895	24	Ir.	S2,T2n,R33e	0.3		64.5	Indian, Paramount,Decree
U18	10	0	2640	B.I.A.	Wa-WA-Ne	05/23	1895	57	Ir.	S1&2T2n,R33e	0.71		64.5	Indian, Paramount,Decree
U19	10	0	2646	B.I.A.	Mrs. Whitebull	05/23	1895	23.5	Ir.	S2,T2n,R33e	0.3		64.5	Indian, Paramount,Decree
U20	9	0	29165	Jack Club	Lillian Glenn	12/31	1895	29.4	Ir.	S12,T2n,R32e	0.36		57.5	P.O.D. V.11pg.294
U170	9	D2598	7610	B.I.A.	Joe Parr	12/31	1895	14.5	Ir.	S2T2nR33e	0.18		63.4	Indian, Paramount,Decree - NW1/4 of SW1/4 of SEC. 2
U21	10	0	2501	B.I.A.	Wm. Caldwell	12/31	1895	13.6	Ir.	S2T2nR33e	0.17		64.5	Indian, Paramount,Decree,Cayuse#339
U22	10	0	2507	B.I.A.	Pete Kalyton	12/31	1895	1	Ir.	S12,T2n,R33e	0.01		64.5	Indian, Paramount,Decree,Cayuse#248
U23	10	0	2600	B.I.A.	Pat-Si-Ak	12/31	1895	30	Ir.	S12,T2n,R33e	0.38		64.5	Indian, Paramount, Decree,by Wm. Caldwell
U24	4	0	53515	Mike Yunkers	D.W. Bowman	12/31	1896	50.9	Ir.	S8,T2n,R29e	0.63		26	Orig. Cert.#2491 cancelled,58.7Ac.,.73Q
U25	12	0	2607	McCurry&Parsons	L.W. Reed	12/31	1896	5	Ir.	S22,T3n,R36e	0.06		83.2	
U26	12	0	0	Dillon Irr. Co.	Dillon Irr. Co.	11/17	1897	380	Ir.	S31+,T4n,R28e	4.75		25	Decree,vested
U27	2	0	2487	L.M. Russel	Beitle Ditch Co.	12/01	1898	56	Ir.	S4,T4n,R28e	0.7		6.4	Chged. P.O.D. - V.7, Pg. 372
U28	8	0	2621	Conrad Wyss	Elmer Snyder	12/31	1899	31	Ir.	S7,T2n,R28e	0.39		51.7	Decree, Pg. 219
U31	5	0	0	Courtney Irr. Co.	Courtney Irr. Co.	01/09	1900	517	Ir.	S7,T4n,R29e	6.46		27.8	
U32a	5	0	T7766	Darwin Netherda	Pioneer Irr. Co.	01/09	1900	27	Ir.	S5,T3n,R29e	0.34		24.5	Sp. Or. V51, pg. 118
U32b	5	C	75154	Pioneer Irr. CO.	Pioneer Irr. Co.	01/09	1900	11	Ir.	S21,T3n,R29e	0.14		27.8	T-7766, P.O.D. Westland Canal, C.J. Ward & G.J. Newman
U32c	5	Decree	Pg. 238	Pioneer Irr. CO.	Pioneer Irr. Co.	01/09	1900	824.4	Ir.	S6,T3n,R29e	10.31		27.8	decreed vested 672 acres, Inchoate 196.4 acres V.16 pg. 457
U33	5	DN1442517		Spike, Bros.	Allen Ditch Co.	12/31	1900	133	Ir.	S7+T3n.R29e	1.66		27.8	S17,S18,S6
U34	5		T.5763	W.I.D.	Andrews Bros.	12/31	1900	30	Ir.	?S24+T3n,R28e	0.38		27.8	Sp. Or. V. 41 pg. 465
U35	5	0	0	Courtney Irr. Co.	Courtney Irr. Co.	12/31	1900	595.9	Ir.	S12+T3n,R28e	7.45		27.8	
U36	5	DN	1443125	Westland Ir. Dist.	J. Correa Machado	12/31	1900	76.7	Ir.	S11,T3n,R28e	0.96		27.8	could not confirm Q
U37	5	0	0	Brownell Ditch	Brownell Ditch	12/31	1902	343.5	I.S.D.	S9,T5n,R28e	4.29		2	
U38a	7	0	T6368	Dean Forth	Browns Dairy	12/31	1902	10.1	Ir.	S16,T2n,R31e	0.13		44.6	Sp.Or.V.45Pg.13 - U38a+U38b= 23.65acres.
U38b	7	0	0	Dean Forth	Brown's Dairy	12/31	1902	13.55	Ir.	S14,15,16T2nR31e	0.17		48.2	Decree, Supp. findings pg.428
U39a	*7*	*Transfer #*	*C-111*	*Dean Forth*	*J.E.Smith*	*12/31*	*1902*	*44*	*Ir.*	*S16,T2n,R31e*	*0.55*		*44.6*	*Sp.Or.V.8Pg.205 - U39a+U39b= 61.25 acres*
U39b	*7*		*0*	*0 Dean Forth*	*J.E. Smith*	*12/31*	*1902*	*17.25*	*Ir.*	*S14+,T2n,R31e*	*0.22*		*48.2*	*UM. Riv. Decree Pg. 241*
U40a	7	0	0	Dean Forth	L.A. Mcclintock	12/31	1902	20.9	Ir.	S16+,T2n,R30e	0.01		51.7	Decree, Supp. findings Vol. 15 Pg. 431 decree V.16 pg. 457
U40b	7	Transfer #	C-111	Dean Forth	L.A. Mcclintock	12/31	1902	24.3	Ir.	S16,T2n,R31e	0.3		44.6	Sp.Or.V.8Pg.205 - U40a+U40b= 252acres. U38ab+U39ab+U40ab=110.1
U41	6	0	0	Cunningham Sheep	Wm. Slusher	12/31	1902	131.9	Ir.	S5+T2n,R30e	1.65		35.5	Sp. order, Vol. 41 Pg. 465
U42	5	0	0	W.I.D.	Andrews Bros.	03/14	1903	22.5	Ir.	S24,T3n,R28e	0.28		27.8	T. 5763, Sp. Or. Vol.41 Pg. 465
U43	5	0		Westland Ir. Dist.	Lester Murray	03/14	1903	1.5	Ir.	S13,T3n,R28e	0.02		27.8	Supp. finding decree, page441
U44	5	0	0	W.I.D.	Westland Irr. Dist.	03/14	1903	2709.7	Ir.	Westland Ir. Dist.	33.9		27.8	1350 Ac. vested. 1359.7 Ac.Sup.findings p.418 2648.1ac. +61.6ac. (S)
U45	1	0	0	Brownell Ditch	Brownell Ditch	12/31	1903	168.1	Ir.	S8+T5n.R28e	2.1		27.8	1/80th - Supp. Findings decree pg. 425
U46	4	0	2577	Tim Smith	J.H. Koontz	12/31	1903	4	Ir.	S16,T3n,R28e	0.05		26.6	SE1/4NW1/4 S16,T3n,R28e
U47	4		46363	Boise Cascade	L.T. Kennison	12/31	1903	17.7	I.S.D.	S31,T4n,R29e	0.22		22.7	T. 3943&3944 canceled 4.32 Ac. from orig.
U48	3	0	0	Hermiston Ir. Dist.	U.S.A.	02/25	1904	2000	Ir.	Herm. Ir. Dist.	25		15.3	
U49	5	0	0	Crayne Lilsle	Crayne Lisle	03/07	1904	350.5	I.S.	S26,T3n,R29e	4.38		33.2	226 acres vested decree pg.199, 124.5 acres decree supp. findings pg.430
U50a	5	0	75452	Wilson Ditch	Wilson Ditch	12/15	1904	2.2	Ir.	S16,T3n,R29e	0.03		29	468.5 total acres Wilson Ditch 1904 a,b,c,d

1894 0.10 75.7 cfs
1904 3,896.2 Ac 75.7

DISTRIBUTION LIST FOR THE UMATILLA RIVER, Updated June 11, 2001. List does not include tributaries.

W.R. #	MAP	PERMIT#	CERT.#	PRESENT/OPERATOR	NAME/CERT.	PRIORITY/DATE	YEAR	ACRES	USE	LOCATION	Q /CFS	TAX/LOT	RMI.	NOTES
U50b	5		75448	Wilson Ditch	Wilson Ditch	12/15	1904	7	Ir.	S16,T3n,R29e	0.09		29	
U50c	5		T7577	Wilson Ditch	Wilson Ditch	12/15	1904	27.8	Ir.	S16,T3n,R29e	0.35		29	Sp.Or.V.52 pg. 27
U50d	5	0	T7577	Wilson Ditch	Wilson Ditch	12/15	1904	131.5	Ir.	S16,T3n,R29e	1.64		29	C.#2648canceled-T.7577-Sp.Or.V.7Pg.26
U51a	6		*55329*	*Skillman*	*Horseshoe Irr. Co.*	*12/26*	*1904*	*40*	*Ir.*	*S10,T2n,R30e*	*0.5*		*36.9*	*Sp. Or. V.8 Pg.431 &V. 7 Pg.598*
51b	6	0	*55329*	*Hendrickson*	*Horseshoe Irr. Co.*	*12/26*	*1904*	*25*	*Ir.*	*S10,T2n,R30e*	*0.31*		*36.9*	*Sp. Or. V.8 Pg.431 &V. 7 Pg.598*
U52	7	0	35280	Lewis Livestock	Horseshoe Irr. Co.	12/26	1904	36	Ir.	S10,T2n,R30e	0.45		45.5	under name John Doherty
U54a	6		76319	Stanfield Ir. Dist.	Stanfield Ir. Dist.	03/08	1905	115.9	Ir. D. S.	S13,T4n,R28e	1.45		33.2	New Cert. Issued after HB 3111, 76319 Total acres (a,b,c=6407.2)
U54b	6		74662	Stanfield Ir. Dist.	Stanfield Ir. Dist.	03/08	1905	6142.8	Ir.D.S.	S13,T4n,R28e	76.78		33.2	New Cert. Issued after HB 3111, 74662
U54c	6	0	74663	Stanfield Ir. Dist.	Stanfield Ir. Dist.	03/08	1905	148.5	Ir.D.S.	S13,T4n,R28e	1.86		33.2	New Cert. Issued after HB 3111, 74663
U55	3	0	0	Hermiston Ir. Dist.	U.S.A. 50 K A.F.	09/06	1905	14637	Ir.	St.&Herm. Ir. Dist.	350		15.3	
U56	8	0	51218	Conrad Wyss	J.W. Lindstrom	12/31	1905	20	Ir.	S7,T2n,R32e	0.25		51.7	Ukiah Lbr.,J.K. Bott-Sp. Or. V.8Pg. 272 dated 11/24/1954
U57	8	0	51218	Conrad Wyss	J.W. Lindstrom	12/31	1905	Log Pond	float / logs ?	S7,T2n,R32e	0.59		51.7	Cert. 51218 dated 9/3/1982
U58	12	0	2527	Duane Beers	W.J. Furnish	12/31	1906	5	I.S.	S13,T3n,R36e	0.06		85.4	
U59	6	0	2484	Cunningham Sheep	Jos C. Ashworhty	12/31	1906	15	Ir.	T2n,R30e	0.2		35.5	Sec. 5 14-Ac. Sec.8-1Ac.-Sp.O. V.34P.228-38
U60	4	0	2644	O.W.R.R. & Nav.	Susan A. White	12/31	1906	30	Ir.	S31,T4n,R30e	0.38		21.7	30 acres in SE1/4ofNW1/4
U61	2	0	0	West Ext. Ir. Dist.	West Ext. Ir. Dist.	12/31	1906	722.8	Ir.	West EX. I.D.	9.035		3.7	
U62	5	0	0	Westland Ir. Dist.	Westland Ir. Dist.	07/31	1907	4255.1	Ir.	Westland Ir. Dist.	53.2		27.8	
U63	4	0	0	Dillon Irr. Co.	Dillon Irr. Co.	12/31	1907	410	Ir.	S31T4n,R28e	5.13		25.2	Vested decree Pg. 231 shows 399ac. Tabulation = 410
U64	4	0	0	Dillon Irr. Co.	Dillon Irr. Co.	12/31	1907	1042	Ir.	S34,T4n,R28e	13.03		25.2	Inchoate, Decree Supp. Findings Pg.430
U65	8	D2533	2533	Not Used	F.H. Gritman	03/28	1908	60	Ir.	S8+T2n,R32e	0.75		53	Sec.8 & Sec.9, Sp.Or. V. 34 Pg.228-238
U66a	7		74104	?	George R. Roberts	01/04	1909	18.3	Ir. & Dom.	S11,T2n,R31e	0.11		48.6	Remaining Right Cert. 74104 entered Feb. 18, 1997
U66b	7	0	T. 6658	Dan Mills	George R. Roberts	01/04	1909	20	Ir.	S11,T.2n,R31e	0.25		48.6	T.6658, Vol. 51 p91 (POD) , 20ac Ir.
U67	2	0	10142	West Ext. Ir. Dist.	U.S.B.R.	03/28	1909	4853	Ir.	West EX. I.D.	350		3.7	
U68	8	458	0	City of Pendleton	City of Pendleton	11/12	1910	0	M.		8		55.6	Municipal Right
U69	3	D2554	2554	Quick & Boyd	H.G. Hurlburt	12/31	1910	105	I*	S16,T4n,R28e	1.32		10.3	
U70	2	D2555	54313	Loper	H.G. Hurlburt	12/31	1910	19	Dom. & Stock	S4,T4n,R28e	0.24		8.1	C.54313 cacelled remaining acres.
U72a	9	1234	74807	Multi-Ownership	Joseph Vey	06/14	1912	40.57	Ir.	S6,T2n,R33e	0.51		58.7	Orig. Cert. for 101 Acres. Remaining Right Cert. 74807
U72b	9	1234	T.7379	Lowell Spiess	Lowell Spiess	06/14	1912	4.28	Ir.	2N,R33,S7	0.05		58.5	T.7379,Vol 51p924. one-eightieth cfs/ac.
U72c	9	1234	T.6953	Lowell Spiess	Lowell Spiess	06/14	1912	20.8	Ir.	2N,R33,S7	0.26		58.5	T.6953, Sp.Or. Vol.48pg.924
U72d	9	1234	T.6961	Clyde Hunt	Clyde Hunt	06/14	1912	12.75	Ir.	2N,R33,S7	0.16		57.5	T.6961, Sp.Or. Vol.48Pg. 231
U72e	9	1234	T.6967	Lee Telford	Lee Telford	06/14	1912	12	Ir.	2N,R33,S7	0.15		58.7	T.6967, Sp.Or.Vol.48pg.233
U72e	9	1234	T.7116	Randy &Vickie Leonarc	Randy Leonard	06/14	1912	10.6	Ir.	2N,R33,S7	0.13		57.8	T.7116, Sp.Or.Vol.48pg.235
U75	5	5819	T.7577	John Ramos	Joseph Ramos	03/28	1923	1.25	Ir.	S22,T3n,R29e	0.02		29	T.7577, .75ac cancelled V.52p31 (abandoned)
U76	5	6179	T.7577	John Ramos	Joseph Ramos	01/21	1924	2.5	Ir.	S21,22,T3n,R29e	0.03		29	T.7577, 9.65ac cancelled. V. 52p30,31. 3af/ac duty.
U77	6	6180	5169	John Ramos	Joseph Ramos	01/21	1924	7	Ir.	S22,23T3n,R29e	0.09		33.2	3af/ac duty
U78a	5	6183	T.7577	John Correa	John Correa	02/02	1924	13.4	Ir.	S22,23T3n,R29e	0.17		29	V. 52p29
U78b	5	6183	75453	Wilson Ditch	John Correa	02/02	1924	1.6	Ir.	S21,T3n,R29e, Wilson Ditcl	0.02		29	T.7577, .3af/ac duty. Remaining Right
U79	13	9188	8749	O.D.F.&W	OR Game Comm.	07/20	1925		Hatchery Ponds	S18,T3n,R37e	3		86.9	
U80	9	6895	6777	B.I.A.	Thos. Young	07/21	1925		Fish Hatchery	S10,T2n,R33e	2		62.5	
U81	8	12001	11564	Vivian Taylor	E.O. State Hospital	10/25	1935	99.6	Ir., and Suppl. Ir.	S13+T2nR31e	2.49		50.5	one fourtieth cfs/ac=6af/ac duty.
U82	9	12261	12148	George Moore	OR Game Comm.	07/13	1936	10	Ir. of pheasant pens	S10,T2n,R33e	0.17		61.2	one-sixtieth cfs/ac=4af/ac duty.
U83	8	14412	75133	School Dist. 16R	Harris Pine Mills	05/31	1940	27.7	Ir.	S10,T2n,R32e	0.35		54.3	T.75133/27.7ac.
U84	6	16393	76631	B&G Resources	~~Burlington~~ & Sons Burlington	07/03	1945	31.6	Ir.	S1+,T2n,R30e	0.79		40.9	one-fourtieth cfs/ac=4.5af/ac duty. 160 Acres cancelled, non-use
U85a	3	18659	53261		Ernest Dumond	03/23	1949	16	Ir.	S33,T4n,R28e	0.31		15.8	T.5585-15.2ac .29cfs, 16ac-.31cfs. Both 4af/ac duty.
U85b	3	18659	C68762	J.R. Simplot	J.R. Simplot Co.	03/23	1949	15.2	Ir.	S33,T4n,R28e	0.29		15.3	T.5585-15.2ac .29cfs, 16ac-.31cfs. Both 4af/ac duty.
U86	6	19771	23757	Herbert Bork	Louis Faro	09/28	1950	17.35	Ir.	S1,T2n,R29e	0.22		33	one eightieth cfs/ac=3af/ac duty.
U87	8	20240	74103	Jackie Kelly	Jackie Lee Kelly	02/26	1951	1.9	Ir.	S1,T2n,R32e	0.05		57	cancelled .3ac V51p46. one fourtieth cfs/ac=3af/ac duty.
U88	7	20389	T5774	Lewis Livestock	Lewis Livestock	06/18	1951	17.48	Ir.	S16+,T2n,R31e	0.437		46.2	T.5774 V40p371changed POA,& POD,
U89	6	21628	28608	Cunningham Sheep	Cunningham Sheep	07/21	1952	21.7	Ir. & Suppl. Ir.	S5+,T2n,R30e	0.17		35.6	one fourtieth cfs/ac=4.5af/ac duty.
U90	6	22288	T5794	Lewis Livestock	Lewis Livestock	05/25	1953	7.1	Ir.	S16,T2n,R31e	0.09		45.6	T.5794 V40p377 changed POA, POD,C.21343 cancelled.
U91	7	22289	30136	Bill Anderson	Lewis Livestock	05/25	1953	3.4	Ir.	S2+,T2n,R30e	0.04		40.8	one fourtieth cfs/ac= 4.5af/ac duty.
U92	6	25222	31809	Herbert Bork	Frances Faro	05/25	1954	10	Ir.	S1+,T2n,R29e	0.13		33	one eightieth cfs/ac=3af/ac duty, & 30af from Mckay.
U93	5	25920	76050	Teel Ir. Dist.	Teel Ir. Dist.	04/22	1955	5011.5	Ir.	Teel I.D.	60		27.8	Superceded by C.76050. one-fourtieth cfs/ac=4.5af/ac duty.
U94	6	23589	30137	Bill Anderson	Lewis Livestock	04/26	1955	37.2	Ir.	S2+,T2n,R30e	0.63		39.1	one fourtieth cfs/ac= 4.5af/ac duty.
U95	7	24144	23821	Vivian Taylor	E.OR State Hosp.	04/05	1956	6.2	Ir.	S13,T2n,R31e	0.15		50.5	Birch Creek diversion if availabel, can use Um. Riv. shall not exceed 1/40th ac
U96	5	25924	0	Teel Ir. Dist.	Teel Ir. Dist.	06/27	1958	4471.3	Ir.	Teel I.D.	30		27.8	one fourtieth cfs/ac= 4.5af/ac duty.
U97	7	26097	T5775	Lewis Livestock	Lewis Livestock	03/03	1959	19.1	Ir.	S2,T2n,R30e	0.39		46.2	T.5775 Sp.Or.V40p373 (place of use), 3af/ac duty.
U98	6	26122	32699	Lewis Livestock	Lewis Livestock	03/30	1959	65.3	Ir.	S12,T2n,R30e	0.78		39.6	one eightieth cfs/ac=3af/ac duty.
U99	5	27583	0	Westland Ir. Dist.	Westland Irr. Dist.	04/12	1961	1404.5	Ir.	Westland I.D.	35.12		27.8	T.5698 V39p409, 6.4ac cancelled, 11ac. added. 4.5af/a duty.

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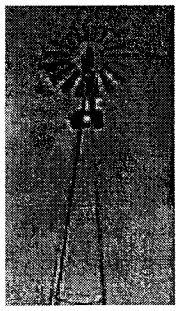
W.R. #	MAP	PERMIT#	CERT.#	PRESENT/OPERATOR	NAME/CERT.	PRIORITY/DATE	YEAR	ACRES	USE	LOCATION	Q /CFS	TAX/LOT	RMI.	NOTES
U100	2	27941	52829	West Ext. Ir. Dist.	C.A. Anderegg	03/06	1962	20	Ir.	S14,T4n,R25e	0.5		3.7	one fourtieth cfs/ac= 4.5af/ac duty.
U101	5	29198	35174	Westland Ir. Dist.	Ernest R. Sires	04/26	1963	1.6	Ir.	S5,T3n,R29e	0.04		27.8	one fourtieth cfs/ac= 4.5af/ac duty.
U102	2	29084	34390	O.D.F.&W	O.S.F.S	08/14	1963		Fish Water	S28,T5n,R28e	26		3.7	20cfs for left bank fishway & trap,6cfs for right bank fishway.
U103	7	29330	41258	Vivian Taylor	Johns,Smith, Beamer	03/11	1964	335.4	Ir.	S13,14,24,T2n,R31e	2.8		48.2	one fourtieth cfs/ac= 4.5af/ac duty. /also a 0.78cfs diversion allowed Birch Cr.
U104	6	29867	38865	Ted Hendrickson	Theo. Hendrickson	07/15	1964	18.5	Ir.	S10,11,T2n,R30e	0.32		37.3	one fourtieth cfs/ac= 4.5af/ac duty.
U105a	3	30078	53262	Irwin Mann Jr.	Irwin Mann Jr.	10/01	1964	20.7	Ir.	S34,35,36,T4n,R28e	0.32		17.5	one fourtieth cfs/ac= 4.5af/ac duty.
U105b	3	30078	68763	J.R. Simplot Co.	J.R. Simplot Co.	10/01	1964	72.5	Ir.	S,27,34,35,36,T4n,R28e	1.14		17.5	T.5586 one fourtieth cfs/ac=4.5af/ac duty
U106	2	29960	36246	J.J.J. Inc.	D. Shockman	10/05	1964	42.8	Ir.	S8,T4n,R28e	1.07		8	one fourtieth cfs/ac= 4.5af/ac duty.
U107	5	30114	36679	Westland Ir. Dist.	Spike Bros.	02/23	1965	12.8	Ir.	S21,T3n,R29e	0.32		27.8	one fourtieth cfs/ac= 4.5af/ac duty.
U108	6	30789	76113	Stanfield Ir. Dist.	Stanfield I.D.	06/23	1965	4465.2	Ir.	S31,T3n, R30e/ Furn. Canal	111.7		33.2	one fourtieth cfs/ac= 4.5af/ac duty. Season Jan. 1-Nov. 1
U109	3	31030	35598	Gary Turner	J.L. Bacus	11/15	1965	49.6	Ir.	S29,30,T4n,R28e	1.24		13.3	one fourtieth cfs/ac= 4.5af/ac duty.
U110	2	32086	38290	Charles Erickson	D.P. & B. Strand	10/19	1966	2.3	Ir.	S33,T5n,R28e	0.06		4.7	one fourtieth cfs/ac= 4.5af/ac duty.
U111	9	31593	42275	Duff & B.I.A.	William Duff	11/29	1966	35.9	Ir.	S4,5,T2n,R33e	0.45		60.1	one eightieth cfs/ac=3af/ac duty.
U112	6	32136	38871	Metha Gallaway	Sidney Gallaway	01/09	1967	54	Ir.	S9,T2n,R30e	0.68		36.3	one fourtieth cfs/ac= 4.5af/ac duty.
U113	3	32329	38391	Tim Mabry	R.M. Ralls	02/02	1967	15.3	Ir.	S17,T4n,R28e	0.33		10.7	one fourtieth cfs/ac= 4.5af/ac duty.
U114	10	32400	41152	Patricia Eckley	Walter Rhode	03/09	1967	58	Ir.	S3,T2n,R34e	0.73		68.4	one eightieth cfs/ac=3af/ac duty.
U115	3	32631	68761	J.R. Simplot	JR Simplot Co.	05/25	1967	15	Ir.	S34,T4n,R28e	0.2		16.8	T.3036 C.51354 cancelled V39p101. T.5583 C68761superc.
U116	3	32917	38874	O.W.R.R. & Nav.	C. Fredrickson	09/08	1967	204.7	Ir. & Suppl. Ir.	S28,29,T4n,R28e	2.1		14.4	Primary Ir.=188.7ac, Supl. Ir.=16ac, 4.5af/ac duty.
U117	6	32973	38875	Ted Hendrickson	Theo. Hendrickson	10/12	1967	20.2	Ir.	S10,T2n,R30e	0.45		37.3	one fourtieth cfs/ac= 4.5af/ac duty.
U118	8	33050	41264	Vivian Taylor	Johns, Smith, Beamer	11/13	1967	23.4	Ir.	S13,14,T2n,R31e	0.29		50.5	one fourtieth cfs/ac= 4.5af/ac duty.
U119	3	32799	76744	Howard Gass	L.W. Pollock	12/11	1967	67.1	Suppl. Ir.	S30,T4n,R28e	1.68		13.4	one fourtieth cfs/ac= 4.5af/ac duty.
U121	9	33298	42346	Boltz & Ready Mix	Pendleton Ready Mix	04/29	1968	13.6	gravel washing.	S7,8,T2n,R33e	0.47		59	Ir.= .17cfs, Industrial=.30, 3af/ac duty.
U122	1	33883	53086	West Ext. Ir. Dist.	W.E.I.D.	09/12	1968	3,289.01	Ir.	W.E.I.D.	82.22		3.7	T.6959, C.68323, 4.5af/ac duty.
U123	7	33966	45834	Darrel Mecham	Marvin Dallman	11/07	1968	14.1	Ir.	S8,17,T2n,R31e	0.35		43.7	one fourtieth cfs/ac= 4.5af/ac duty.
U170a	2	33883	T4993	West Ex. Ir. Dist.	West. Ex. Ir. Dist.	02/26	1969	37	Ir.	S17,T5n,R28e	0.92		3.7	one fourtieth cfs/ac= 4.5af/ac duty. Sp.Or. V.36pg65
U170b	2	33883	T4981	West Ex. Ir. Dist.	West. Ex. Ir. Dist.	02/26	1969	91	Ir.	S17,T5n,R28e	3.2		3.7	one fourtieth cfs/ac= 4.5af/ac duty. Sp.Or. V.36pg.70
U124	6	34194	40949	John Ramos	Joseph Ramos	02/28	1969	11.2	Ir.	S22,T3n,R29e	0.28		33.2	one fourtieth cfs/ac= 4.5af/ac duty.
U125	5	34976	53199	Tyler Hansell	Tri-Set	04/15	1970	201.4	Ir. & Supl. Ir.	S4,10,T3n,R27e	5.04		27.8	Ir.=3.8ac, Supl. Ir.=197.6ac, 4.5af/ac duty.
U126	5	35811	54758	Westland Ir. Dist.	F. Andrews Estate	02/05	1971	78.1	Ir.	S18,T3n,R29e	1.45		27.8	one fourtieth cfs/ac= 4.5af/ac duty.
U127	2	36128	41042	Gerald Boullester	Walter Bright	04/09	1971	2.4	Ir.	S33,T5n,R28e	0.05		4.5	one fourtieth cfs/ac= 4.5af/ac duty.
U128	5	41512	0	Co. Line Improv.	E.E. McDole	01/31	1972		Rechrg Ord CGWA	S3,T3n,R27e	75		27.8	Subordinate to surface rights except later recharge or storage. ORS 537.135
U129	4	36410	55605	Mills Mint Farm	Mills Mint Farms	03/01	1972	13	Ir.	S5,T3n,R29e/S32,T4n,R29e	0.33		23.1	C.55605 supercedes C.45088, T.5761 (Change in POD) 4.5af/ac duty.
U130	4	37612	53491	Olen Brock	O. & V. Brock	02/06	1973	1.1	Ir.	S31,T4n,R29e	0.02		22.8	one fourtieth cfs/ac= 4.5af/ac duty.
U131	10	37619	45091	James Morrow	James Morrow	02/13	1973	4.2	Ir.	S2,T2n,R34e	0.05		69.7	one eightieth cfs/ac=3af/ac duty.
U132	2	38119	52906	Gary Monaghan	Gary Monaghan	05/16	1973	1.5	Ir.	S33,T5n,R28e	0.02		4.7	one fourtieth cfs/ac= 4.5af/ac duty.
U133	6	38899	52410	Herbert Bork	Herbert C. Bork	12/19	1973	82	Ir.	S1,T2n,R29e/S6,T2n,R30e	1.14		33	one fourtieth cfs/ac= 4.5af/ac duty.
U134a	5	39173	54555	Westland Ir. Dist.	J.N. Correa	01/10	1974	329.1	Ir.	S10,15,22,T3n,R28e	5.79		27.8	one fourtieth cfs/ac= 4.5af/ac duty.
U134b	5	38943	53732	Westland Ir. Dist.	J.C. Watson & Sons	02/07	1974	49	Ir.	S21,T3n,R29e	0.75		27.8	one fourtieth cfs/ac= 4.5af/ac duty. added to List Westland diversion
U135	3	37853	68760	J.R. Simplot	J.R. Simplot Co.	05/07	1974	29.7	Ir.	S27,34,T4n,R28e	0.58		16.8	T.5583 (additional POD) C.68760 supercedes C.51479. 4.5af/ac duty.
U136a	6	37406	75501	Echo Cemetary Dist.	Echo Cemetary Dist.	05/15	1974	17	Ir.	S16,T3n,R29e	0.04	HB3111	35.2	C.45000 cancelled, C.75501-1.7ac primary & C.75502-4.4ac supl. supercedes
U136b	6	37406	75502	Echo Cemetary Dist.	Echo Cemetary Dist.	05/15	1974	4.4	Supplemental Ir.	S16,T3n,R29e	0.11	HB3111	35.2	C.45000 cancelled, C.75501-1.7ac primary & C.75502-4.4ac supl. supercedes
U137	6	39444	0	Bill Dick	Lewis Livestock	09/24	1974	103.82	Ir.	S1,2,11,12,T2n,R30e	1.3		39.6	one fourtieth cfs/ac= 4.5af/ac duty.
U138	10	39653	46103	Multi-Ownership	James Bealer	11/01	1974	17.89	Ir.	S4,T2n,R34e	0.22		66.4	one eightieth cfs/ac=3af/ac duty.
U139	9	39883	48085	Thomas Tangey	Thomas Tangey	03/10	1975	7.1	Ir.	S10,T2n,R33e	0.09		61.2	one eightieth cfs/ac=3af/ac duty.
U140	9	39920	48086	Multi-Ownership	W. Stark & G. Moore	03/27	1975	52.4	Ir.	S10,T2n,R33e	0.66		61.2	one eightieth cfs/ac=3af/ac duty.
U141	9	39971	0	Chambers/Quesenberry	William G. Bartell	04/07	1975	6.05	Ir.	S12,T2n,R32e	0.07		64.3	one eightieth cfs/ac=3af/ac duty.
U142	7	40035	T5776	Lewis Livestock	Lewis Livestock	04/28	1975	12.8	Ir.	S16,T2nR31e	0.32		45.6	C.47963 cancelled, T.5776 V40p375 changed POD & POA, 4.5af/ac duty.
U143	6	40118	61801	Herbert Bork	Herbert C.Bork	09/12	1975	58.4	Ir.	S1,T2n,R29e & S6,T2n,R30e	0.97		33.7	one fourtieth cfs/ac= 4.5af/ac duty.
U144	3	39381	52680	J.R. Simplot	J.R. Simplot Co.	10/07	1975	66.8	Suppl. Ir.	S28,T4n,R28e	1.1	-	15.8	one fourtieth cfs/ac= 4.5af/ac duty.
U145	6	40201	64049	Y.P. Anstequi	Y.P. Anstequi	01/26	1976	11.2	Ir.	S9,T2n,R30e	0.28		35.9	one fourtieth cfs/ac= 4.5af/ac duty.
U146	5	40238	76722	Westland Canal	Henry F. Walker	02/23	1976	160	Ir.	S8,T3nR28e	2		27.8	one fourtieth cfs/ac= 4.5af/ac duty.
U147	5	40707	54836	Westland Canal	J.R. Simplot Co.	02/27	1976	96	Ir.	S4,T3n,R28e	2.4		27.8	one fourtieth cfs/ac= 4.5af/ac duty.
U148	6	40423	46360	Bill Anderson	Lewis Livestock	03/22	1976	7.1	Ir.	S2,T2n,R30e	0.18		38.4	one fourtieth cfs/ac= 4.5af/ac duty.
U149	6	41362	0	Lewis Livestock	Lewis Livestock	12/16	1976	37.1	Ir.	S12,T2n,R30e	0.93		40.5	Umatilla R. & Mckay Res. R584. 4.5af/ac duty.
U151	12	41887	62358	Ed Clark	Edward Clark	05/04	1977	3.6	Ir.	S31,T3n,R36e	0.05		78.7	one eightieth cfs/ac=3af/ac duty.
U152	6	42786	53396	Margaret Skillman	Margaret Skillman	12/28	1977	14.7	Suppl. Ir.	S3,10,T2n,R30e	0.37		37.1	one fourtieth cfs/ac= 4.5af/ac duty.
U153	6	44220	0	Kent Beebe	Lewis Livestock	04/20	1979	24.5	Ir.	S2,T2n,R30e	0.93		40.5	Assigned 11/20/98 to Kent Beebe.
U154	3	44614	55323	Norma Quick	Norma Quick	08/23	1979	147.5	Ir.	S16,T4nR28e	3.68		10.3	one fourtieth cfs/ac= 4.5af/ac duty.
U155	9	44747	61616	Betty Duff	William R. Duff	11/05	1979	17.5	Ir.	S3,T2nR33e	0.22		61.2	one eightieth cfs/ac=3af/ac duty.

W.R. #	MAP	PERMIT#	CERT.#	PRESENT/OPERATOR	NAME/CERT.	PRIORITY/DATE	YEAR	ACRES	USE	LOCATION	Q /CFS	TAX/LOT	RMI.	NOTES
U156	2	46058	55006	Joe Flink	Joe Flink	10/01	1980	9.2	Ir.	S33,T5nR28e	0.23		4.8	one fourtieth cfs/ac= 4.5af/ac duty.
U157	5	53733	46560	Westland Ir. Dist.	Beef City	03/06	1981	68	Ir.	S4,T3nR28e	1.11		27.8	one fourtieth cfs/ac= 4.5af/ac duty.
U159	5	49337	0	Tyler Hansell	Tri-Set	05/21	1981	51.1	Ir.	S9,T3n,R27e	1.28		27.8	one fourtieth cfs/ac= 4.5af/ac duty. App#61696.
U160	5	46568	76723	Westland Ir. Dist.	Westland Irr. Dist.	07/31	1981	67	Ir.	S21,T3n,R29e	1.68		27.8	Sp. Or. V.43,Pg.125, Orig. Cert. Canceled
U161	5	48450	0	Teel Ir. Dist.	C.J. Prior	08/03	1981	3,524.30	Ir.	S9,T3n,R28e	88		27.8	Pri. 1124.3acres Nov. 15/June 15, Supp. 2400 acres Nov. 15/Feb.28
U162	5	48968	0	Teel Ir. Dist.	D.J. Brown	08/10	1981	2,089.04	Ir.	S4,T2nR28e	50		27.8	Pri. 1735.36 acres Nov. 15/June 15, Supp. 354.04 acres Nov. 15/Feb. 28
U163	9	R8375/46543	0	Ray Koch	Alvin Kreger	08/17	1981	5.1	Ir. & Supl. Ir.	S8,T2n,R33e	0.06		59.2	1/80th cfs. 3ac.ft. duty
U164	3	Hydro	License	Boyd Hydro	Boyd Hydro	10/21	1981		Power	S16,T4n,R28e	500		10.1	50 year license-expires 12/31/2035. not a regular water right
U165	5	47673	61116	Westland Ir. Dist.	Spike Bros. Ranch Inc.	07/01	1982	144.7	Ir.	S17,T3n,R29e	3.62		27.8	one fourtieth cfs/ac= 4.5af/ac duty.
U166	10	47406	0	Clinton C. Case	Clinton C. Case	01/04	1983	35.66	Ir.	S8,T2n,R34e	0.446		65.5	one eightieth cfs/ac=3af/ac duty.
U167	5	76769	76769	Westland Ir. Dist.	M.P. Doherty	03/11	1983	3.5	Ir.	S21,T3n,R29e	0.09		27.8	one fourtieth cfs/ac= 4.5af/ac duty.
U168	5	47723	0	Westland Canal	Herm. Rock Products	04/08	1983		Gravel Washing	S27,T4n,R27e	1		27.8	App.64999. Assigned to Herm. Rock Prod. 6/14/95
U169	5	47820	53734	Westland Canal	Coombs & Emert	05/19	1983	17	Ir.	S11,T3n,R28e	0.43		27.8	one fourtieth cfs/ac= 4.5af/ac duty.



GROUNDWATER RESOURCE INFORMATION DISTRIBUTION

Oregon Water Resources Department

The **G**roundwater **R**esource **I**nformation **D**istribution (GRID) is a system for archival and retrieval of information related to Groundwater Resources. GRID is currently limited to groundwater resources within the State of Oregon.

Information Available via GRID

Over 250,000 well reports for water wells, geotechnical holes, and monitoring wells are available in the GRID database. New well logs are being entered on a daily basis as well constructors submit well logs.

GRID ONLINE

GRID ONLINE is currently being phased out. The program will continue but will be limited to the electronic submital of well logs. GRID Online will largely be replaced by GRID Web

GRID WEB

A web based application called **GRID Web** allows users to query the well log database and view well images. It runs with a standard web browser. To view the images, you will need to have a TIFF viewer installed (typically provided in many operating systems such as Windows 95 and Windows98). This service is provided to the public at no cost.

GRID CD

GRID CD allows customers to order the GRID database on CD. This enables them to retrieve data and well report images without having to be connected to the internet. While it is not as current as the ONLINE product, it does provide a great deal of flexibilty and significantly faster performance for remote users.

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Groundwater Resources Information Distribution (GRID)
Oregon Water Resources Department (www.wrd.state.or.us)

New domestic only			yield gpm	179412.3
			yield cfs	400.4739
Rows	185-3336		blank cells	86
#Records		3151	average cfs	0.130618
			#blank*avg cfs	11.23312
			total cfs	**411.707**
New domestic and irrigation			yield gpm	29727
			yield cfs	66.35491
Rows	4-184		blank cells	11
#Records		180	average cfs	0.390323
			#blank*avg cfs	4.293553
			total cfs	**70.64846**
New domestic with irr, stk, com			yield gpm	209139.3
			yield cfs	466.8288
Rows	4-3336		blank cells	97
#Records		3332	average cfs	0.144261
			#blank*avg cfs	13.99332
			total cfs	**480.8221**
New irrigation			yield gpm	594024.8
Rows	4-644		yield cfs	1325.948
#Records		640	blank cells	194
			average gpm	153.5345
			average cfs	0.342711
			#blank*avg gpm	29785.68
			cfs	66.4859
			total gpm	623810.5
			total cfs	1392.434
New Water			yield gpm	594024.8
Rows	4-4066		yield cfs	1325.948
#Records		4062	blank cells	194
			average gpm	153.5345
			average cfs	0.342711
			#blank*avg gpm	29785.68
			cfs	66.4859
			total gpm	623810.5
			total cfs	1392.434

GRID search (Groundwater Resources Information Database, 8/2001)

"W" = Well logs for water only, minus monitoring wells, exploration wells, etc.
"Dom New" = Well logs for domestic wells that are "new" and not altered, deepened, or abandoned.
"Dom-Alt" = Well-log records for existing domestic wells that have been altered, deepend, etc.
"Dom" = All well-log records from domestic purposes
"Compiled" = Well-log records for all wells in the Umatilla Basin

OWRD WRIS system search, 8/13/01, instream water rights for Umatilla River, tributary to Columbia River, including all tributaries to the Umatilla River. A total of 34 instream water rights are recorded with OWRD. Information is copied directly from telnet screen.

1. Stream Name: UMATILLA R > COLUMBIA R
Priority : 3/31/1988 Upstream Mile: 90.0 Downstream Mile: 79.0
Stream Code: 072520

UMATILLA RIVER FROM BELOW THE CONFLUENCE OF THE FORKS TO THE CONFLUENCE OF MEACHAM CREEK.

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
25.0	25.0	60.0	60.0	97.0	97.0	97.0	97.0	60.0	40.0	40.0	40.0

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2. Stream Name: N FK UMATILLA R > UMATILLA R
Priority : 3/31/1988 Upstream Mile: 2.5 Downstream Mile: 0.0
Stream Code: 0725200940

NORTH FORK UMATILLA RIVER FROM BELOW THE CONFLUENCE OF COYOTE CREEK (SEC. 13, T 3N, R 37E, WM).

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
12.0	12.0	25.0	25.0	40.0	40.0	40.0	40.0	25.0	25.0	25.0	25.0

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3. Stream Name: S FK UMATILLA R > UMATILLA R
Priority : 3/31/1988 Upstream Mile: 3.0 Downstream Mile: 0.0
Stream Code: 0725200950

SOUTH FORK UMATILLA RIVER FROM BELOW THE CONFLUENCE OF THOMAS CREEK (SEC. 33, T 3N, R 37E, WM).

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
15.0	15.0	30.0	30.0	58.0	58.0	58.0	58.0	30.0	30.0	30.0	30.0

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4. Stream Name: BUCK CR > S FK UMATILLA R
Priority : 3/31/1988 Upstream Mile: 0.0 Downstream Mile: 0.0
Stream Code: 07252009500030

BUCK CREEK AT THE MOUTH (SEC. 22, T 3N, R 37E, WM).

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5.0	5.0	10.0	16.0	16.0	16.0	16.0	16.0	15.0	5.0	5.0	5.0

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5. Stream Name: THOMAS CR > S FK UMATILLA R
Priority : 3/31/1988 Upstream Mile: 2.0 Downstream Mile: 0.0
Stream Code: 07252009500110

THOMAS CREEK FROM BELOW THE CONFLUENCE OF SPRING CREEK (SEC. 10, T 2N, R 37E, WM) TO THE MOUTH.

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
3.0	3.0	15.0	15.0	25.0	25.0	25.0	25.0	15.0	8.0	3.0	3.0

6. Stream Name: N FK MEACHAM CR > MEACHAM CR
Priority : 3/31/1988 Upstream Mile: 2.0 Downstream Mile: 0.0
Stream Code: 07252007800470

NORTH FORK MEACHAM CREEK FROM BELOW THE CONFLUENCE OF BEAR CREEK (SEC. 30, T 1N, R 37E, WM).

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
10.0	10.0	40.0	40.0	70.0	70.0	70.0	70.0	40.0	25.0	10.0	10.0

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7. Stream Name: CAMP CR > MEACHAM CR
Priority : 3/31/1988 Upstream Mile: 0.0 Downstream Mile: 0.0
Stream Code: 07252007800290

CAMP CREEK AT THE MOUTH (SEC. 9, T 1N, R 36E, WM).

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5.0	5.0	11.0	11.0	11.0	11.0	11.0	11.0	5.0	5.0	5.0	5.0

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8. Stream Name: SQUAW CR > UMATILLA R
Priority : 3/31/1988 Upstream Mile: 8.0 Downstream Mile: 0.0
Stream Code: 0725200744

SQUAW CREEK FROM BELOW THE CONFLUENCE OF LITTLE SQUAW CREEk (SEC. 34, T 2N, R 35E, WM).

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
4.0	4.0	20.0	20.0	27.0	27.0	27.0	27.0	20.0	12.0	4.0	4.0

---

9. Stream Name: RYAN CR > UMATILLA R
Priority : 3/31/1988 Upstream Mile: 0.0 Downstream Mile: 0.0
Stream Code: 0725200800

RYAN CREEK AT THE MOUTH (SEC. 21, T 3N, R 36E, WM).

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	10.0	5.0	5.0

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10 Stream Name: W BIRCH CR > BIRCH CR
Priority : 3/31/1988 Upstream Mile: 5.0 Downstream Mile: 0.0
. Stream Code: 07252004000140

WEST FORK BIRCH CREEK FROM BELOW THE CONFLUENCE OF OWINGS CREEK (SEC. 36, T 1S, R 31E, WM).

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5.0	5.0	20.0	20.0	24.0	24.0	24.0	24.0	20.0	10.0	5.0	5.0

11. Stream Name: BRIDGE CR > W BIRCH CR
Priority : 3/31/1988 Upstream Mile: 0.0 Downstream Mile: 0.0
Stream Code: 07252004000140160

BRIDGE CREEK AT THE MOUTH (SEC. 12, T 2S, R 31E, WM).

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2.0	2.0	5.0	7.0	7.0	7.0	7.0	7.0	2.0	2.0	2.0	2.0

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12. Stream Name: STANLEY CR > W BIRCH CR
Priority : 3/31/1988 Upstream Mile: 0.0 Downstream Mile: 0.0
Stream Code: 07252004000140210

STANLEY CREEK AT THE MOUTH (SEC. 19, T 2S, R 32E, WM).

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2.0	2.0	5.0	6.0	6.0	6.0	6.0	6.0	2.0	2.0	2.0	2.0

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13. Stream Name: PEARSON CR > E BIRCH CR
Priority : 3/31/1988 Upstream Mile: 0.0 Downstream Mile: 0.0
Stream Code: 07252004000150180

PEARSON CREEK AT THE MOUTH (SEC. 18, T 2S, R 33E, WM).

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2.0	2.0	5.0	18.0	18.0	18.0	18.0	18.0	10.0	5.0	2.0	2.0

---

14. Stream Name: BIRCH CR > UMATILLA R
Priority : 11/ 3/1983 Upstream Mile: 16.0 Downstream Mile: 0.0
Stream Code: 0725200400
Condition Code: 23
Purpose: For SUPPORTING AQUATIC LIFE
To be maintained

IN BIRCH CREEK FROM THE CONFLUENCE OF THE EAST AND WEST FORKS OFBIRCH CREEK (SEC. 17, T 1S, R 32E, WM), TO THE MOUTH (SEC. 13, T 2N, R 32E, WM).

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
8.0	8.0	20.0	20.0	30.0	30.0	30.0	30.0	20.0	12.0	8.0	8.0

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15. Stream Name: UMATILLA R > COLUMBIA R
Priority : 11/ 3/1983 Upstream Mile: 51.0 Downstream Mile: 0.0
Stream Code: 072520
Condition Code: 03
Purpose: For SUPPORTING AQUATIC LIFE
To be maintained

IN THE UMATILLA RIVER FROM MCKAY CREEK (SEC. 8, T 2N, R 32E, WM), TO THE MOUTH (SEC. 18, T 5N, R 28E, WM).

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
300.0	300.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0	120.0	85.0	85.0
	250.0										250.0

16. Stream Name: UMATILLA R > COLUMBIA R
Priority : 11/ 3/1983 Upstream Mile: 51.0 Downstream Mile: 0.0
Stream Code: 072520
Condition Code: 23
Purpose: For SUPPORTING AQUATIC LIFE
To be maintained

IN THE UMATILLA RIVER FROM MEACHAM CREEK (SEC. 30, T 3N, R 36E, WM), TO MCKAY CREEK (SEC. 8, T 2N, R 32E, WM).

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
200.0	200.0	200.0	200.0	240.0	240.0	240.0	240.0	200.0	100.0	60.0	60.0

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17. Stream Name: MEACHAM CR > UMATILLA R
Priority : 7/16/1990 Upstream Mile: 15.2 Downstream Mile: 0.0
Stream Code: 0725200780
Condition Code: 0
Purpose: For ANADROMOUS AND RESIDENT FISH REARING
To be maintained

MEACHAM CREEK FROM NORTH FORK MEACHAM CREEK RIVER MILE 15.2 (NE, SECTION 34, T1N, R36E); TO THE MOUTN RIVER MILE 0.0 (NENW, SECTION 31, T3N, R36E)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
14.4	33.1	120.0	120.0	225.0	225.0	225.0	225.0	68.8	18.9	10.9	11.3

---

18. Stream Name: E BIRCH CR > BIRCH CR
Priority : 9/24/1990 Upstream Mile: 10.5 Downstream Mile: 0.0
Stream Code: 07252004000150
Condition Code: 0
Purpose: For ANADROMOUS AND RESIDENT FISH REARING
To be maintained

EAST BIRCH CREEK FROM PEARSON CREEK MILE 10.5 (NENE, SECTION 18, T2S, R33E); TO THE MOUTH RIVER MILE 0.0 (NENE, SECTION 17, T1S, R32E)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
6.5	10.7	23.0	28.2	38.0	38.0	38.0	38.0	16.5	9.8	6.6	5.6

---

19. Stream Name: MCKAY CR > UMATILLA R
Priority : 9/24/1990 Upstream Mile: 22.2 Downstream Mile: 9.5
Stream Code: 0725200460
Condition Code: 0
Purpose: For ANADROMOUS AND RESIDENT FISH REARING
To be maintained

MCKAY CREEK FROM NORTH FORK MCKAY CREEK RIVER MILE 22.2(NESW, SECTION 1, T1S, R33E); TO MCKAY RESERVOIR RIVER MILE 9.5 (SECTION 14, T1N, R32E)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
439.0	17.2	54.0	65.0	80.0	130.0	130.0	87.1	18.4	8.1	5.4	4.2

20. Stream Name: W BIRCH CR > BIRCH CR
Priority : 9/24/1990 Upstream Mile: 7.5 Downstream Mile: 0.0
Stream Code: 07252004000140
Condition Code: 0
Purpose: For ANADROMOUS AND RESIDENT FISH REARING
To be maintained

WEST BIRCH CREEK FROM BRIDGE CREEK RIVER MILE 7.5 (SESE, SECTION 11, T2S, R31E); TO THE MOUTH RIVER MILE 0.0 (NENE, SECTION 17, T1S, R32E)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
3.5	5.6	16.7	21.7	30.2	32.0	32.0	32.0	14.8	12.0	9.7	5.9

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21. Stream Name: N FK MEACHAM CR > MEACHAM CR
Priority : 7/16/1990 Upstream Mile: 0.0 Downstream Mile: 0.0
Stream Code: 07252007800470
Condition Code: 0
Purpose: For ANADROMOUS AND RESIDENT FISH REARING
To be maintained

NORTH FORK MEACHAM CREEK FROM THE HEADWATERS (SECTION 11, T1N, R37E); TO THE MOUTH RIVER MILE 0.0 (NENE, SECTION 34, T1N, R36E)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
8.0	16.3	50.7	53.9	76.5	95.9	100.0	100.0	39.7	10.5	6.0	6.6

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22. Stream Name: MEACHAM CR > UMATILLA R
Priority : 7/16/1990 Upstream Mile: 35.0 Downstream Mile: 15.2
Stream Code: 0725200780
Condition Code: 0
Purpose: For ANADROMOUS AND RESIDENT FISH REARING
To be maintained

MEACHAM CREEK FROM THE HEADWATERS RIVER MILE 35 (SECTION 34, T1S, R35E); TO NORTH FORK MEACHAM CREEK RIVER MILE 15.2 (NE, SECTION 34, T1N, R36E)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
3.4	7.6	39.2	47.9	102.0	102.0	102.0	92.7	18.2	5.6	2.3	2.6

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23. Stream Name: RYAN CR > UMATILLA R
Priority : 8/21/1990 Upstream Mile: 7.0 Downstream Mile: 0.0
Stream Code: 0725200800
Condition Code: 0
Purpose: For ANADROMOUS AND RESIDENT FISH REARING
To be maintained

RYAN CREEK FROM THE HEADWATERS RIVER MILE 7.0 (SESE SECTION 22 T2N R36E); TO THE MOUTH RIVER MILE 0.0 (NWSE SECTION 21 T3N R36E)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
3.4	6.7	15.0	15.0	15.0	15.0	15.0	15.0	8.5	3.5	3.4	3.0

24. Stream Name: S FK UMATILLA R > UMATILLA R
Priority : 8/21/1990 Upstream Mile: 4.3 Downstream Mile: 0.0
Stream Code: 0725200950
Condition Code: 0
Purpose: For ANADROMOUS AND RESIDENT FISH REARING
To be maintained

SOUTH FORK UMATILLA RIVER FROM SHIMMIEHORN CREEK RIVER MILE 4.3 (SWSW SECTION 5 T2N R37E); TO CONFLUENCE WITH NORTH FORK UMATILLA RIVER RIVER MILE 0.0 (SENE SECTION 22 T3N R37 E)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
22.1	39.0	55.0	55.0	110.0	110.0	110.0	110.0	55.0	25.5	20.5	20.4

25.
Stream Name: N FK UMATILLA R > UMATILLA R
Priority : 8/21/1990 Upstream Mile: 6.0 Downstream Mile: 0.0
Stream Code: 0725200940
Condition Code: 0
Purpose: For ANADROMOUS AND RESIDENT FISH REARING
To be maintained

NORTH FORK UMATILLA RIVER FROM JOHNSON CREEK RIVER MILE (SESE SECTION 17 T3N R38E); TO UMATILLA RIVER RIVER MILE 0.0 (SECTIONS 21 AND 22 T3N R37E)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
24.7	27.0	40.0	40.0	68.0	68.0	68.0	68.0	40.0	26.5	22.5	24.5

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26. Stream Name: BUCK CR > S FK UMATILLA R
Priority : 8/21/1990 Upstream Mile: 3.0 Downstream Mile: 0.0
Stream Code: 07252009500030
Condition Code: 0
Purpose: For ANADROMOUS AND RESIDENT FISH REARING
To be maintained

BUCK CREEK FROM LAKE CREEK RIVER MILE 3.0 (NWSE SECTION 25 T3N R37E); TO THE MOUTH RIVER MILE 0.0 (SWSW SECTION 22 T3N R37E)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5.0	5.0	10.0	16.0	16.0	16.0	16.0	16.0	15.0	5.0	5.0	5.0

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27. Stream Name: THOMAS CR > S FK UMATILLA R
Priority : 8/21/1990 Upstream Mile: 2.3 Downstream Mile: 0.0
Stream Code: 07252009500110
Condition Code: 0
Purpose: For ANADROMOUS AND RESIDENT FISH REARING
To be maintained

THOMAS CREEK FROM SPRING CREEK RIVER MILE 2.3 (NESW SECTION 10 T2N R37E); TO THE MOUTH RIVER MILE 0.0 (SWSW SECTION 33 T3N R37E)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
8.8	14.3	24.6	25.0	43.0	43.0	43.0	43.0	23.7	10.8	8.1	8.4

28. Stream Name: CAMP CR > MEACHAM CR
Priority : 8/21/1990 Upstream Mile: 2.8 Downstream Mile: 0.0
Stream Code: 07252007800290 Cert#: 73281 Application:IS 70570
Condition Code: 0
Purpose: For ANADROMOUS AND RESIDENT FISH REARING
To be maintained

CAMP CREEK FROM CONFLUENCE WITH UNNAMED TRIBUTARY RIVER MILE2.8 (SENW, SECTION 3, T1N, R36E); TO THE MOUTH RIVER MILE 0.0 (SWSW, SECTION 9 T1N R36E)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1.1	2.3	5.0	11.0	11.0	11.0	11.0	11.0	5.0	1.2	0.9	0.8

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29. Stream Name: BRIDGE CR > W BIRCH CR
Priority : 9/19/1990 Upstream Mile: 0.0 Downstream Mile: 0.0
Stream Code: 07252004000140160 Cert#: 73283 Application:IS 70680
Condition Code: 0
Purpose: For ANADROMOUS AND RESIDENT FISH REARING
To be maintained

BRIDGE CREEK FROM THE HEADWATERS (SECTION 29, T3S, R32E); TO THE MOUTH, RIVER MILE 0.0 (SESE, SECTION 11, T2S, R31E)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
0.2	0.4	1.3	2.8	3.2	6.6	7.0	6.0	2.0	0.3	0.1	0.1

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30. Stream Name: N FK MCKAY CR > MCKAY CR
Priority : 9/19/1990 Upstream Mile: 0.0 Downstream Mile: 0.0
Stream Code: 07252004600470
Condition Code: 0
Purpose: For ANADROMOUS AND RESIDENT FISH REARING
To be maintained

NORTH FORK MCKAY CREEK FROM DARR CREEK (NWNW, SECTION 14, T1N, R34E); TO THE MOUTH RIVER MILE 0.0 (NESW, SECTION 1, T1S, R33E)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1.8	8.0	28.0	35.0	42.0	70.0	66.3	23.3	4.6	1.4	0.9	1.1

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31. Stream Name: PEARSON CR > E BIRCH CR
Priority : 9/19/1990 Upstream Mile: 0.0 Downstream Mile: 0.0
Stream Code: 07252004000150180
Condition Code: 0
Purpose: For ANADROMOUS AND RESIDENT FISH REARING
To be maintained

PEARSON CREEK FROM AN UNNAMED TRIBUTARY (SWSW, SECTION 20, T3S, R33E); TO THE MOUTH RIVER MILE 0.0 (NENE, SECTION 18, T2S, R33E)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1.2	2.0	5.0	8.3	16.2	12.8	18.0	12.9	3.2	1.5	0.9	0.9

32. Stream Name: SQUAW CR > UMATILLA R
Priority : 9/19/1990 Upstream Mile: 8.0 Downstream Mile: 0.0
Stream Code: 0725200744
Condition Code: 0
Purpose: For ANADROMOUS AND RESIDENT FISH REARING
To be maintained

SQUAW CREEK FROM LITTLE SQUAW CREEK RIVER MILE 8 (SWNE, SECTION 34, T2N, R35E); TO THE MOUTH RIVER MILE 0.0 (NWNE, SECTION 35, T3N, R35E)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1.4	4.0	27.0	27.0	40.0	40.0	40.0	27.4	2.3	0.6	0.5	0.6

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33 Stream Name: STANLEY CR > W BIRCH CR
Priority : 9/19/1990 Upstream Mile: 0.0 Downstream Mile: 0.0
Stream Code: 07252004000140210
Condition Code: 0
Purpose: For ANADROMOUS AND RESIDENT FISH REARING
To be maintained

STANLEY CREEK FROM THE HEADWATERS (SECTION 11, T3S, R32E);TO THE MOUTH RIVER MILE 0.0 (SESW, SECTION 19, T2S, R32E)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
0.4	0.4	0.7	1.6	2.0	3.8	4.7	6.0	2.0	0.7	0.5	0.4

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34. Stream Name: MCKAY CR > UMATILLA R
Priority : 6/18/1993 Upstream Mile: Downstream Mile:
Stream Code: 0725200460
Condition Code: 0
Purpose: For INSTREAM FISHERY ENHANCEMENT
To be maintained

MCKAY CREEK FROM MCKAY CREEK DAM (NWSE, SECTION 34, T2N, R32E WM) TO MOUTH OF MCKAY CREEK (SENW, SECTION 8, T2N, R32E WM) ANDUMATILLA RIVER FM MOUTH OF MCKAY CREEK TO MOUTH OF UMATILLA RIVER (NWNE, SECTION 18, T5N, R28E WM)

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
/	/	/	/	/	/	/	/	/	/	/	/

WATER AVAILABILITY TABLE

Water Availability as of 11/30/2001 for UMATILLA R > COLUMBIA R - AT MOUTH

Watershed ID #: 221 Basin: UMATILLA ID # Exceedance Level: 50

Item #	Watershed ID #	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	sto
1.	221	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO	YES

2. LIST Limiting Water Availability Subbasins
3. LIST Stream Names for Water Availability Subbasins
4. WRITE the Water Availability Table
5. WRITE ALL Tables Needed for a WATER RIGHT REVIEW
6. RETURN to Previous Menu or Table

LIMITING WATERSHEDS

Water Availability as of 11/30/2001 for UMATILLA R > COLUMBIA R - AT MOUTH
Watershed ID #: 221 Basin: UMATILLA Exceedance Level: 50
Time: 12:09 Date: 11/30/2001

Mnth	Limiting Watershed	Stream Name	Water Avail?	Net Water Available
1	221	UMATILLA R > COLUMBIA R - AT MOUTH	YES	21.5
2	221	UMATILLA R > COLUMBIA R - AT MOUTH	YES	411.0
3	221	UMATILLA R > COLUMBIA R - AT MOUTH	YES	534.0
4	221	UMATILLA R > COLUMBIA R - AT MOUTH	YES	442.0
5	221	UMATILLA R > COLUMBIA R -at MOUTH	NO	-357.0
6	221	UMATILLA R > COLUMBIA R - AT MOUTH	NO	-707.0
7	221	UMATILLA R > COLUMBIA R - AT MOUTH	NO	-421.0
8	221	UMATILLA R > COLUMBIA R - AT MOUTH	NO	-319.0
9	221	UMATILLA R > COLUMBIA R - AT MOUTH	NO	-400.0
10	221	UMATILLA R > COLUMBIA R - AT MOUTH	NO	-342.0
11	221	UMATILLA R > COLUMBIA R - AT MOUTH	NO	-307.0
12	221	UMATILLA R > COLUMBIA R - AT MOUTH	NO	-77.3
Stor	221	UMATILLA R > COLUMBIA R - AT MOUTH	YES	83500.0

Water Availability as of 11/30/2001 for UMATILLA R > COLUMBIA R - AT MOUTH
Watershed ID #: 221 Basin: UMATILLA Exceedance Level: 50
Time: 12:06 Date: 11/30/2001

Month	|Natural Stream Flow	CU + Stor Prior to 1/1/93	CU + Stor After 1/1/93	Expected Stream Flow	Reserved Stream Flow	Instream Water Rights	Net Water Available
1	648.00	376.00	0.25	272.00	0.00	250.00	21.50
2	1120.00	459.00	0.17	661.00	0.00	250.00	411.00
3	1380.00	594.00	1.18	784.00	0.00	250.00	534.00
4	1540.00	846.00	1.83	692.00	0.00	250.00	442.00
5	1020.00	1130.00	0.15	-107.00	0.00	250.00	-357.00
6	323.00	779.00	0.18	-457.00	0.00	250.00	-707.00
7	106.00	407.00	0.26	-301.00	0.00	120.00	-421.00
8	65.70	300.00	0.20	-234.00	0.00	85.00	-319.00
9	74.00	224.00	0.12	-150.00	0.00	250.00	-400.00
10	87.80	130.00	0.04	-42.20	0.00	300.00	-342.00
11	173.00	180.00	0.00	-6.70	0.00	300.00	-307.00
12	521.00	348.00	0.00	173.00	0.00	250.00	-77.30

DETAILED REPORT OF CONSUMPTIVE USES AND STORAGES
Water Availability as of 11/30/2001 for UMATILLA R > COLUMBIA R - AT MOUTH
Watershed ID #: 221 Basin: UMATILLA Exceedance Level: 50
Time: 12:06 Date: 11/30/2001

Mo	Storage	Irrig	Munic	Ind/Man	Commer	|Domest	Agricul	Other	Total
1	192.30	137.97	45.70	0.29	0.00	0.15	0.08	0.00	376.00
2	191.13	203.43	64.28	0.29	0.00	0.15	0.08	0.00	459.00
3	164.54	355.20	75.38	0.29	0.00	0.15	0.08	0.00	596.00
4	110.25	617.20	119.60	0.29	0.00	0.15	0.08	0.00	848.00
5	21.17	979.70	126.02	0.29	0.00	0.15	0.08	0.00	1130.00
6	0.28	720.02	58.76	0.29	0.00	0.15	0.08	0.00	780.00
7	0.09	377.31	29.26	0.29	0.00	0.15	0.08	0.00	407.00
8	0.06	274.07	25.54	0.29	0.00	0.15	0.08	0.00	300.00
9	0.06	197.25	26.28	0.29	0.00	0.15	0.08	0.00	224.00
10	2.88	103.42	23.17	0.29	0.00	0.15	0.08	0.00	130.00
11	40.25	107.37	31.57	0.29	0.00	0.15	0.08	0.00	180.00
12	141.94	161.12	44.72	0.29	0.00	0.15	0.08	0.00	348.00

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION
Water Availability as of 11/30/2001 for UMATILLA R > COLUMBIA R - AT MOUTH
Watershed ID #: 221 Basin: UMATILLA Exceedance Level: 50
Time: 12:06 Date: 11/30/2001

Month	Natural Stream Flow	CU + Stor Prior to 1/1/93	CU + Stor After 1/1/93	Expected Stream Flow	Reserved Stream Flow	Instream Water Rights	Net Water Available
1	648.00	376.00	0.25	272.00	0.00	250.00	21.50
2	1120.00	459.00	0.17	661.00	0.00	250.00	411.00
3	1380.00	594.00	1.18	784.00	0.00	250.00	534.00
4	1540.00	846.00	1.83	692.00	0.00	250.00	442.00
5	1020.00	1130.00	0.15	-107.00	0.00	250.00	-357.00
6	323.00	779.00	0.18	-457.00	0.00	250.00	-707.00
7	106.00	407.00	0.26	-301.00	0.00	120.00	-421.00
8	65.70	300.00	0.20	-234.00	0.00	85.00	-319.00
9	74.00	224.00	0.12	-150.00	0.00	250.00	-400.00
10	87.80	130.00	0.04	-42.20	0.00	300.00	-342.00
11	173.00	180.00	0.00	-6.70	0.00	300.00	-307.00
12	521.00	348.00	0.00	173.00	0.00	250.00	-77.30
Stor	424000	348000	263	154000	|0	169000	83500

DETAILED REPORT OF CONSUMPTIVE USES AND STORAGES
Water Availability as of 11/30/2001 for UMATILLA R > COLUMBIA R - AT MOUTH
Watershed ID #: 221 Basin: UMATILLA Exceedance Level: 50
Time: 12:06 Date: 11/30/2001

Month	Storage	Irrig	Munic	Ind/Man	Commer	Domest	Agricul|	Other	Total
1	192.30	137.97	45.70	0.29	0.00	0.15	0.08	0.00	376.00
2	191.13	203.43	64.28	0.29	0.00	0.15	0.08	0.00	459.00
3	164.54	355.20	75.38	0.29	0.00	0.15	0.08	0.00	596.00
4	110.25	617.20	119.60	0.29	0.00	0.15	0.08	0.00	848.00
5	21.17	979.70	126.02	0.29	0.00	0.15	0.08	0.00	1130.00
6	0.28	720.02	58.76	0.29	0.00	0.15	0.08	0.00	780.00
7	0.09	377.31	29.26	0.29	0.00	0.15	0.08	0.00	407.00
8	0.06	274.07	25.54	0.29	0.00	0.15	0.08	0.00	300.00
9	0.06	197.25	26.28	0.29	0.00	0.15	0.08	0.00	224.00
10	2.88	103.42	23.17	0.29	0.00	0.15	0.08	0.00	130.00
11	40.25	107.37	31.57	0.29	0.00	0.15	0.08	0.00	180.00
12	141.94	161.12	44.72	0.29	0.00	0.15	0.08	0.00	348.00

DETAILED REPORT OF RESERVATIONS FOR CONSUMPTIVE USE
Water Availability as of 11/30/2001 for UMATILLA R > COLUMBIA R - AT MOUTH
Watershed ID #: 221 Basin: UMATILLA Exceedance Level: 50
Time: 12:06 Date: 11/30/2001

Reservations APP #	0	0	0	0	0	0	0	TOTAL
Status Use								
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

UMATILLA R > COLUMBIA R - AT MOUTH
Monthly and Annual Consumptive Use in CFS and AC-FT

Month	Face Value Water Right	Estimated CU WAB cfs	Estimated CU RTN WAB cfs	WAB ac-ft	RTN WAB ac-ft
1	0.000	0.000	0.000	0.0	0.0
2	0.000	0.000	0.000	0.0	0.0
3	0.780	0.780	0.780	4.8	4.8
4	0.290	0.290	0.290	1.7	1.7
5	0.000	0.000	0.000	0.0	0.0
6	0.000	0.000	0.000	0.0	0.0
7	0.000	0.000	0.000	0.0	0.0
8	0.000	0.000	0.000	0.0	0.0
9	0.000	0.000	0.000	0.0	0.0
10	0.000	0.000	0.000	0.0	0.0
11	0.000	0.000	0.000	0.0	0.0
12	0.000	0.000	0.000	0.0	0.0
Total	-	-	-	6.5	6.5

DETAILED REPORT OF INSTREAM REQUIREMENTS
Water Availability as of 11/30/2001 for UMATILLA R > COLUMBIA R - AT MOUTH
Watershed ID #: 221 Basin: UMATILLA Exceedance Level: 50
Time: 12:06 Date: 11/30/2001

ISWRs APP # Status	221A Cert.	0	0	0	0	0	0	MAXIMUM
1	250.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
2	250.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
3	250.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
4	250.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
5	250.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
6	250.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
7	250.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
8	250.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
9	250.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
10	250.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
11	250.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00
12	250.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00

OREGON WATER RESOURCES DEPARTMENT
WATER AVAILABILITY REPORTING SYSTEM

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WATER AVAILABILITY

Water availability is the amount of water that can be appropriated from a given point on a given stream for new out-of-stream consumptive uses. It is obtained from the natural stream flow by subtracting existing in-stream water rights and out-of-stream consumptive uses.

$$WA = QNSF - CU - ISWR$$

Natural Stream Flow (QNSF) is the flow in a stream when there are no consumptive uses and there is no flow regulation. A consumptive use (CU) is any water use that causes a net reduction in stream flow and is usually associated with an evaporative or transpirative loss. An in-stream water right is a water right held in trust by the Water Resources Department for the benefit of the people of Oregon to maintain water in-stream for public use.

In this calculation CU may represent reserved water as well as existing out-of-stream uses. Similarly, ISWR may represent scenic waterways or Indian treaty rights as well as in-stream water rights.

WHERE CALCULATIONS ARE MADE

Ideally water availability would be calculated for every watershed associated with a point of diversion or an in-stream water right. Practically the number of watersheds must be limited. These selected watersheds are called Water Availability Sub-basins (WABs). The number and delineation of these WABs depends on the location of gages and in-stream water rights and the physiography of affected streams.

STREAM FLOW CHARACTERIZATION

Stream flow is variable. It is useful to characterize it in some way, usually by a statistic. Typical statistics are mean daily flow, mean monthly flow, mean annual flow, ten-year event, and median monthly flow. The statistic chosen should have meaning in the context in which it will be used.

OWRD limits appropriation from streams in the state in order to assure new applicants use of water a reasonable amount of the time and to minimize the regulatory effort by department staff. An appropriate statistic to use in this context is exceedance stream flow. Exceedance stream flow may best be defined by example. The 50% exceedance stream flow is the stream flow that occurs at least 50% of the time. Necessarily, the stream flow is also less than the 50% exceedance flow half the time. Similarly, the 20% exceedance stream flow is exceeded only 20% of the time. The 20% flow is larger than the 50% flow which is larger than an 80% flow.

Two such exceedance stream flow statistics are used by the Department to set the standard for over-appropriation: (1) the 50 percent exceedance flow for storage and (2) the 80 percent exceedance flow for other appropriations.

DETERMINING EXCEEDANCE STREAMFLOWS

Exceedance stream flows are determined directly from gage records or by estimation through modeling. When determined from gage records the exceedance flows must be corrected to a common base period and corrected to natural stream flow.

An exceedance flow is specific to the time period for which it is calculated. Different time periods give different results for the same stream. For example, the first part of this century was drier than average for the whole century, the middle part wetter, and the latter part (through about 1990) more or less average. OWRD selected 1958 to 1987 as a base period because it best represents the long term average conditions for this century and it is the period for which most stream flow information is available. All OWRD exceedance flows represent the base period.

Gaged stream lows are commonly affected by upstream consumptive uses. To obtain natural stream low an estimate of consumptive use is made and added to the gaged stream flow.

$$QNSF = QGAGE + CU$$

Exceedance flows for ungaged streams are estimated from exceedance stream flows for gaged streams corrected to the base period and natural flow. The interpolation is done using statistical models derived from multiple linear regressions.

DETERMINING CONSUMPTIVE USE

There are four major categories of consumptive use: irrigation, municipal, storage, and all others (e.g., domestic, livestock).

Consumptive use from irrigation is from estimates made by the USGS (Portland). This work is based on the 1987 Census of Agriculture, the Cooperative Extension Office at Oregon State University, the 1989-90 Oregon Agriculture and Fisheries Statistics, and an OSU Study of Crop Water Requirements. These uses are not 100 percent consumptive. Return flows are assumed in the watershed where diversion occurs except as noted below.

Consumptive use from other categories of use is based on the associated water rights. These uses also are less than 100 percent consumptive. Consumptive use is obtained by multiplying a consumptive use coefficient (e.g., for domestic use, the coefficient is 0.20) by the maximum diversion rate allowed for the water right.

It is assumed the non-consumed part of a diversion is returned to the stream from which it was diverted. The exception to this rule is when diversions are from one watershed to another. In this case, the use is considered to be 100 percent. The consumptive use is the diversion rate.

DEQ, Parks, or ODFW may apply for in-stream water rights. Uses include fish and wildlife, recreation, and pollution abatement. In-stream water right are limited to no more than the natural 50 percent exceedance stream flow. In-stream water rights are not additive. Where there are more than one right for a stream reach, the largest value for each month is used in calculating water availability.

Scenic waterway flows are treated like in-stream water rights in the water availability calculation. Stream flows associated with scenic water ways are proposed by OWRD subject to public hearing and review and are approved by the Water Resources Commission.

DETERMINING WATER AVAILABILITY

Typically water availability is calculated at the pour points (i.e., mouths) of 150 - 250 water WABs within each of the eighteen OWRD basins. For the entire state, water availability has been calculated for over 3000 WABs. In general, the calculation of water availability at one WAB cannot be considered in isolation from other WABs. Any upstream use subtracts from water availability at all points downstream as well as upstream. For water to be available at any given upstream point, it must be available at all points of calculation downstream.

OREGON WATER RESOURCES DEPARTMENT
WATER AVAILABILITY REPORTING SYSTEM

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USING THE WATER AVAILABILTY REPORTING SYSTEM (WARS)

Each screen presents a list of user options or a table of information. Options are numbered and are selected by typing the number of the option followed by the ENTER key. Entering '?' displays a help screen for the current menu.

When an option is entered, a new screen or prompt appears. Tables sometimes give the user numbered options to choose from, otherwise typing ENTER will exit the table. When prompted, type in required information followed by the ENTER key.

Generally, tables may be written to a file and downloaded or printed. File are written to a public directory. As the user names the file, care should be taken to select a name he or she will readily recognize and one unlikely to used by another user. Users writing to the same file will overwrite one another's work.

Files names may be up to 60 characters in length. There is no required format though some characters are illegal. The file name will be rejected if these characters are used.

The file may be down-loaded from the Department's FTP site:

By Internet Browser:
ftp://wrd.state.or.us/pub/wars/
From UNIX or Windows Command Line (run option):
ftp powder.wrd.state.or.us (login as anonymous and change directories to pub/wars)

or more conveniently by going to the Departments home page
http://wrd.state.or.us/ and clicking on file pick up and then on the folder WARS.

A note of caution: the files generated by WARS are in a UNIX format. They have a new line character at the end of each line but not an end of line character. DOS and Windows require both characters. Most word processors and spreadsheets will read UNIX files without difficulty. If, however, an application will not load the file because it reports a line is too long, the file will have to be converted to the DOS format to be used by that application.

THINGS TO KEEP IN MIND ABOUT WATER AVAIALBILITY

Water availability is dynamic. Its status changes as new uses for water are permitted. The water availability numbers presented in the following tables represent water availability today. These numbers are subject to change at any time.

The water availability numbers given here were calculated considering all relevant out of stream consumptive uses, in-stream water rights, and scenic waterway flows.

In some cases, water is shown to be NOT available, in part, because of an In-stream water right or scenic waterway flow. If the in-stream water right or scenic waterway flow is so conditioned, water may be available for some uses such as domestic and livestock though the tables given here show no water to be available.

The Water Availability Reporting System came on line in 1993. A base line water availablity was calculated at that time based on all permits, certificates, and decrees in existence on January 1, 1993. These water rights were lumped together to calculate the consumptive use associated with them. Since January 1, 1993 all water right applications reviewed by the Department are tracked individually in the database.

Detailed information may be obtained about these water rights. Whether a water right is tracked individually in the database depends on when it was processed, NOT its priority date. Some tracked water rights have priority dates before 1993.

NOTE: ALL in-stream water rights and converted minimum stream flows, scenic water way flows, reservations, and Indian treaty rights are tracked individually in the database.

OREGON WATER RESOURCES DEPARTMENT
WATER AVAILABILITY REPORTING SYSTEM

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DATABASE CHANGES AND MODIFICATIONS

06/23/2000 - The Water Availability Database has been modified to keep track of use by type rather than just in total. Tables are available showing use by Water Availability Basin for these categories of use: Irrigation, Municipal, Industrial-Manufacturing, Commercial, Domestic, General Agriculture (includes livestock, nursery, and cranberry operations), Storage, and all Other uses.

Reserved water use also is tracked separately and no longer is included with consumptive uses. Reserved water still is debited from water available as are in-stream water rights.

06/23/2000 - The Water Availability Reporting System has been modified slightly in form and function. The intent of these changes has been to make the interface easier to use and to provide more and clearer output tables.

Users with old maps identifying watersheds by WAB number may wish to order new maps identifying watersheds by ID number.

To obtain new maps please contact Ken Stahr at: (503) 378-8455 ext. 243

Questions or comments may be directed to

Rick Cooper

(503) 378-8455 ext. 253
Richard.M.COOPER@wrd.state.or.us

or
Ken Stahr

(503) 378-8455 ext. 243
Kenneth.L.STAHR@wrd.state.or.us

12/06/1994 - Scenic waterway flows are now considered in the calculation of water availability.

11/15/1999 - The 16 digit WAB number has been increased to 32 digits to accommodate deeper watershed nesting in the Klamath and Deschutes Basins. Because of difficulties in formatting the output tables, WARS now references a water availability basin by an ID number of eight digits or less.

While it is still possible to access a watershed by its WAB number, the WAB number will no longer appear in any output table.

SUMMARY OUTPUT FILES MENU

Select Any Option

SET UP
1. Select a Basin (UMATILLA)
2. Enter the Exceedance Level (0)

OUPUT OPTIONS FOR THE SELECTED BASIN
3. List of Water Availability Basins (WABs)
4. Tables of Natural Streamflow for All WABS
5. Table of Monthly Water Availability for All WABs
6. Tables of Water Availability Calculation Details for Each WAB
7. Water Availability Calculation Components and their Impact on NSF
8. Table of All Water Rights Processed Since 1/1993

OUTPUT Water Availability Tables to Printer
9. Output File for Tables (summary.out)
10. Look at Output File
11. Print the Output File

QUIT
12. Return to Previous Menu

OPTION 1 - Select a basin
The user is asked to select one of 18 regions in the state. Although these regions are referred to as basins or drainage basins, they may represent areas consisting of more than one watershed. This is especially true of the three coastal basins that are comprised of many watersheds. Water availability information will be available only Water Availability Basins (WABs) in the selected region.

This is required information.

OPTION 2 - Enter the Exceedance Level
The user is asked to enter an exceedance level. Only 50 and 80% exceedance are available. See the discussion on stream flow statistics in the Water Availability Abstract (accessible from the welcome page to WARS).

OPTION 3 - List of Water Availability Basins (WABs)
This option writes a list of all the WABs in the basin in upstream order. The list shows the watershed ID number, the WAB number, the stream name, the stream it is tributary to, and the location of the pour point (e.g., AT MOUTH, AB HECKARD CR, AB COOK CR AT GAGE 14301000).

OPTION 4 - Tables of Natural Stream Flow
This option writes a table showing natural stream flow for each WAB in the basin. These tables allow the user to check the reasonableness of the natural stream flow estimates. For example, comparisons between watersheds with similar characteristics should have similar streamflows and generally stream flow should increase going downstream.

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Not all watersheds behave reasonably, however. The point of these tables is to identify where watersheds do not behave as expected. Then, the unreasonable behavior can be investigated to determine whether the watershed really does behave that way or whether the model used to estimate the stream flow is in error.

The header on each table gives the stream name of the WAB and its ID number and the number of other WABs that are directly tributary to it. These tributary WABs are listed.

In the table, the far left hand column is the month. The other columns in the table are divided into three parts of three columns each. From left to right, part 1 represents the WAB identified in the header. Part 2, represents the sum of stream flows of the tributary WABs. Part 3 shows the difference between parts 1 and 2 and represents the part of the specified WAB not accounted for by the upstream WABs.

The columns in each part are headed 'Flow', 'CSM', and '% Ann', respectively. 'Flow' is simply the natural stream flow at the exceedance level specified at the top of the table. The units of flow are cubic feet per second (CFS).

'CSM' is cfs per square mile. Because these are exceedance stream flows, 'CSM' does not represent a true watershed yield, but it does provide a way to more directly compare stream flow from watersheds of different sizes.

'% Ann' is the percent of the annual flow in each month. As for 'CSM', these are exceedance stream flows and cannot be summed to get an annual stream flow. Still '% Ann' is a usefull tool for comparing the way monthly stream flows are distributed through the year.

OPTION 5 - Table of Monthly Water Availability for All WABS
This option writes a table showing the monthly stream flow available for appropriation for each WAB in the basin. The numbers in these tables represent actual water available and take into account all downstream requirements for water. See the Water Availability Abstract (accessible from the Welcome page) for a discussion on how water availability is calculated.

OPTION 6 - Tables of Water Availability Calculation Details for each WAB.
This option writes a table showing the water availability calculation for each WAB in the basin. The calculations shown are for the specified WAB ONLY. The numbers in these tables do NOT represent actual water available. They do NOT take into account downstream requirements for water. See the Water Availablity Abstract (accessable from the Welcome page) for a discussion on how water availablity is calculated.

OPTION 7 - Water Availability Calculation Components and their Impacts on NSF.
This option writes a series of tables showing the various components of the water availability calculation and their impact on natural stream flow.

These tables are included for the selected basin and exceedance level:

1. Natural Stream Flow
   Monthly values in cfs for each WAB
2. Consumptive Use from Water Rights
   Monthly values in cfs for each WAB
3. Impact of Consumptive Uses on Natural Stream Flow
   Monthly values as a percent of natural stream flow
4. Conumptive Use from Resevations and Treaties
   Monthly values in cfs for each WAB
5. Impact of Reservations and Treaties on Natural Stream Flow
   Monthly values as a percent of natural stream flow
6. In-stream Flow Requirement (includes scenic water flows and treaties for instream use)
   Monthly values in cfs for each WAB
7. In-stream Flow Requirement as a Percent of Natural Stream Flow
   Monthly values as a percent of natural stream flow
8. Stream Flow Required by all Uses (includes all in- and out-of-stream uses)
   Monthly values in cfs for each WAB
9. Impact of All Uses as a Percent of Natural Stream Flow
   Monthly values as a percent of natural stream flow
10. Results of Water Availability Calculation for Each WAB
    Monthly values in cfs for each WAB (These values do NOT represent water available. Downstream effects are not taken into account.)
11. Water Availabile at Each WAB as a Percent of Natural Stream Flow

Monthly values as a percent of natural stream flow (These values do NOT represent water available since downstream effects are not taken into account)

12. Water Availabile for Each WAB
    Monthly values in cfs for each WAB (These values represent water available. Downstream effects are taken into account.)
13. Water Availabile as a Percent of Natural Stream Flow
    Monthly values as a percent of natural stream flow (These values represent water available. Downstream effects are not taken into account)

OPTION 8 - Table of All Water Rights Processed Since 1/1993.

This option writes two tables:

1. the distribution of applications into these categories:
   - In-stream water rights
     - In-stream water rights
   - Applications NOT affecting water availablilty
     - Unsatisfactory intial reviews
     - Application withdrawn
     - NOT in a water availability basin
     - Non-consumptive use
     - NOT hydraulically connected groundwater
   - Applications affecting water availability
     - Surface water sources
     - Ground water sources
   - Summary Statistics
     - In-stream water rights
   - Applications NOT affecting water availability
     - Applications affecting water availability
     - Total applications
   - Water rights without applications or initial reviews
     - Converted minimum flows
     - Scenic water way flows
     - Reservations
     - Treaty rights
2. a list of all water rights in the basin in numercial order.

OPTION 9 - Output File for Tables

This option allows the user to specify the name of the output file where all selected tables will be written. Until this name is changed all selected tables will be appended to this file. See 'Using WARS' in the Welcome Menu for information about naming and down loading files.

OPTION 10 - Edit the Output File

This option is NOT available.

OPTION 11 - Print the Output file

This option is not available to the public.

For OWRD users in Salem, select the printer where you would like to have the output file printed.

Other users should download the file and print to a local printer.

Alluvial Groundwater Rights in the Stage Gulch Area, August 1990, by District
Diversions given in gpm excluded. Only Irrigation uses included unless noted.

	Allowed Diversion (cfs)									
Name	**Hermiston**	**Hermiston OB**	**Stanfield**	**Stanfield OB**	**Echo Meadows**	**Stage Gulch**	**Umatilla Meadows N**	**Southside**	**Westland**	**Westland OB**
VERNON	0.04									
FIFE						0.13				
DREYER				1.65						
MILTON/ CULP				1.01						
RILEY					0.34					
WIGHT						0.34				
WELCH	0.28									
WALCHI		9.09								
ROBERTSON	0.06									
KING	0.11									
DICK						0.15				
CRUM					0.41					
RHAE					1.1					
OR DEPT VET AFFAIRS					0.9					
MCFAUL					1.79					
HERRICK				0.27						
BOWMAN	0.02									
SIMPLOT							0.01			
TEMPLETON	0.09									
MCJUNKIN	0.1									
ABLE			1.34							
THOMPSON			0.21							
SCHULTZ	0.19									
EADES	0.16									
RYSER					0.02					
MILLS			3.27							
KOESTER			2.08							
STONE									0.82	
FOSTER					1.95					
POLSTON			0.16							
DAGGETT							0.08			
STANFIELD BAPTIST CHURCH							0.03			
WEIR			0.75							

	Allowed Diversion (cfs)									
Name	**Hermiston**	**Hermiston OB**	**Stanfield**	**Stanfield OB**	**Echo Meadows**	**Stage Gulch**	**Umatilla Meadows N**	**Southside**	**Westland**	**Westland OB**
COX	0.03									
MOUDY			0.08							
BALL	0.04									
FRANKS			0.24							
SPIKE					1.44					
RHINHART	0.04									
MUELLER					0.72					
ROFF	0.07									
CROUSE	0.24									
ANDREWS									0.95	
MILLS MINT FARM			8.45							
TAYLOR	0.14									
EMERT RANCHES									1.8	
SNOW					3.28					
ANDERSON LAND&LIVESTOCK			0.14							
BARE			0.9							
CORREA, J					2.94				1.34	1.63
BOWMAN				1.35						
HORN						0.44				
ALDRICH	0.03									
GILLESPIE	0.09									
TRAVELERS REI					4.86					
CHOWNING			1.78							
CORREA, F					1.15					
TRAVELERS INDEMNITY					2.96					
CORREA, C					0.32					
ISSEL	0.09									
CITY OF HERMISTON*	**11.04**									
BRAY	0.03									
MOLEMAN								0.46		
MAILLON	0.08									
WAKNER					0.04					
COOMBES									0.89	
TILDEN	0.35									
LEDBETTER	0.06									
MUELLER					1.64					

	Allowed Diversion (cfs)									
Name	**Hermiston**	**Hermiston OB**	**Stanfield**	**Stanfield OB**	**Echo Meadows**	**Stage Gulch**	**Umatilla Meadows N**	**Southside**	**Westland**	**Westland OB**
JONES	0.01									
HOLEMAN								9.2		
DODSON	0.03									
SCHELL	0.025									
FURRER			0.12							
PECK			0.03							
MM RANCH					4.93				1.2	
BRADY				0.19						
SADLER	0.04									
SPIKE RANCH					4.02					
STRATTON	0.95									
LANMAN	0.04									
KLIPPSTEIN	0.03									
CAMPBELL				0.06						
HAYES			0.4							
ALEXANDER			0.35							
TOTALS	14.51	9.09	20.30	4.53	34.81	1.06	0.12	9.66	7.00	1.63
GRAND TOTAL	102.71									

*** Municipal use**

Basalt Aquifer Pumping in Acre-Feet from Critical Groundwater Subbasins

	Butter Creek					Stage Gulch		Ordnance
	1983	1990	1991	1995	1996	Avg 1986 - 90	1995	All Years
PERLND								
Westland North	0.4	0	0	0	0	0	0	0
Westland Central	128	170.5	350	106	0	651	139	0
Westland South	0	0	0	0	0	0	0	0
Westland OB	2147.6	1589.6	725.8	0	0	6880	4976	0
Hermiston	31.6	38.8	15.3	10.2	16	64	4	0
Hermiston OB	0	0	0	0	0	62	47	0
Stanfield	0	0	0	0	0	443	58	0
Stanfield OB	0	0	0	0	0	2004	1458	0
CLWID	0	0	0	0	0	0	0	1090
Westside	564.3	1627.2	1885.1	1245	777	0	0	1534.6
Southside	0	0	0	0	0	2160	1904.9	0
Stage Gulch	0	0	0	0	0	11109	9269.8	0
Umatilla Meadows N	0	0	0	0	0	4389	3702	0

	Totals				
	1981	1990	1991	1995	1996
PERLND					
Westland North	0.4	0	0	0	0
Westland Central	779	822	1001	245	139
Westland South	0	0	0	0	0
Westland OB	9028	8470	7606	4976	4976
Hermiston	96	103	79	14	20
Hermiston OB	62	62	62	47	47
Stanfield	443	443	443	58	58
Stanfield OB	2004	2004	2004	1458	1458
CLWID	1090	1090	1090	1090	1090
Westside	2099	3162	3420	2780	2312
Southside	2160	2160	2160	1905	1905
Stage Gulch	11109	11109	11109	9270	9270
Umatilla Meadows N	4389	4389	4389	3702	3702

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BUTTER CREEK CRITICAL GROUNDWATER AREA

FEBRUARY WATER LEVEL, FLOWMETER, POWER METER AND DATA FOR 1995 AND 1996

NORTH SUBAREA - NON DOMESTIC

WELL LOCATION #		OWNER	WELL LOCATION		PERMIT	PRIORITY	ALLOCATED	1996	1997	W.L.	1996	1997	1996	1996	1997	REMARKS
COUNTY	NUMBER				NUMBER	DATE	PUMPAGE (AF)	WATER LEVEL	WATER LEVEL	CHANGE (FT)	FLOWMETER READING	FLOWMETER READING	PUMPAGE (AF)	POWERMETER READING	POWERMETER READING	
UMAT	2286	MIKAMI	4N/28E	-16abb	U-331	4/13/50	0	--		--	--	--	0	--	--	
UMAT	9993	CITY OFUMATILLA	5N/28E	-19aaa	G-2560	12/24/63	250	--		--	400483000		126	--	--	Airline Leaks
UMAT	2599	COLUMBIA SUN	4N/28E	-30ddd	G-3492	9/29/66	0	256.9	255.82	1.08	202230000	202230000	0	0	5	Pump pulled
UMAT	2614	MUELLER	4N/28E	-32acb	G-3541	12/8/66	0	39.00	41.13	-2.13			0	--	--	No Flowmeter
UMAT	9993	COLUMBIA SUN	4N/28E	-30ddd	G-3895	11/13/67	0							--	--	
UMAT	2609	COX	4N/28E	-31aca	G-3996	2/15/68	0	35.33	35.87	-0.54	126700	126600	0	--	--	
UMAT	9992	NOBLES	5N/28E	-21cdc	G-4059	3/27/68	0	12.32	8.92	3.40	75.0001	82.891	8	48419	61424	
UMAT	1959	KING	4N/28E	-8dcb	G-4493	1/21/69	0	185.94	186.01	-0.07	6.177	6.177	0	--	--	Irrigation & Domestic
UMAT	1963	BUSH	4N/28E	-8ddc	G-4525	2/28/69	0	171.16	170.14	1.02	--		0	--	--	No Flowmeter
UMAT	3384	WADEKAMPER	5N/28E	-21ccb	G-7358	5/22/72	0	6.73	4.72	2.01	65.7078	73.2279	8	85766	93862	
UMAT	2335	GETTLE	4N/28E	-17abd2	G-8229	5/1/73	0	--	--	--			0	--	--	No Flowmeter
UMAT	2285	INTERFAITH	4N/28E	-16bab	**		30	--	178.33	--			0	--	--	No Flowmeter
UMAT	9994	UMATILLA SCHOOL	5N/28E	-17cba	**		30	10.27	10.51	-0.24	0	30.4094	30		9464	UMATILLA SCHOOL DIST.
							310		AVERAGE WL CHANGE	0.57	Ft./Yr.	ANNUAL PUMPAGE	171			Acre Feet
SUSTAINABLE ANNUAL YIELD IS 250 AF																

** NOTE: SCHOOLS IN CRITICAL GROUNDWATER AREAS ARE ALLOWED TO IRRIGATE UP TO 10 ACRES OF PLAYFIELDS WITHOUT A PERMIT

ECHO JUNCTION SUBAREA

WELL LOCATION #		OWNER	WELL LOCATION		PERMIT	PRIORITY	ALLOCATED	1996	1997	W.L.	1996	1997	1996	1996	1997	REMARKS
COUNTY	NUMBER				NUMBER	DATE	PUMPAGE (AF)	WATER LEVEL	WATER LEVEL	CHANGE (FT)	FLOWMETER READING	FLOWMETER READING	PUMPAGE (AF)	POWERMETER READING	POWERMETER READING	
UMAT	456	McCARTY	2N/27E	-14ccb	U-425	3/4/52	0	463.54	462.04	1.50	--	--	0	--	--	Domestic
UMAT	456	McCARTY	2N/27E	-14ccb	U-536	4/9/53	0	--	--	--	--	--	0	--	--	Domestic
UMAT	441	HALE	2N/27E	-2daa2	G-434	1/21/57	950	--	--	--	866225000	919997000	165	9608	18155	Flow Meter Buried-1996
UMAT	450	HALE	2N/27E	-12bbb	G-1227	1/21/59	310	--	--	--	600.705	212.608	612	16346	31807	New Power Meter
UMAT	1204	SIMPLOT	3N/28E	-18dbd	G-1685	9/2/60	0	361.94	324.13	37.81	145.39	195.864	50			No Pump
UMAT	1166	MADISON	3N/27E	-25ddc	G-1688	9/21/60	0	453.50	448.90	4.60	665.7	665.788	0			Other Pumps on PM
UMAT	461	McCARTY	2N/27E	-22bbd	G-3558	3/21/67	0	--		--						
UMAT	1220	L & L	3N/28E	-28cab	G-3635	5/24/67	0	--	--	--	246.286	246.286	0	4320	4400	
UMAT	1183	SIMPLOT	3N/28E	-6dcc	G-3530	5/24/67	0	346.48	360.3	-13.82	195.87	195.87	0	12473		
UMAT	1203	SIMPLOT	3N/28E	-18abd	G-3530	5/24/67	0	351.4	--	--	112.22	112.22	0	50550		
UMAT	1219	L & L	3N/28E	-28ada	G-4048	12/18/67	0	380.32	405.40	-25.08	--	--	0			Domestic Pump Installed
UMAT	472	HALE	2N/28E	-7aad2	G-4049	9/3/68	0	--	--	--	426.481	426.481	0		--	Moter Removed/PM blank
UMAT	445	HALE	2N/27E	-11add*				434.20	434.60	-0.40	--	--	0	--	--	Unused
UMAT	474	HALE	2N/28E	-7aad1				431.80	434.07	-2.27	--	--	0	--	--	Unused
UMAT	443	HALE	2N/27E	2daa1				481.45	487.40	-5.95	--	--	0	--	--	Domestic
							1260		AVERAGE WL CHANGE	-0.45	Ft./Yr.	ANNUAL PUMPAGE	827			Acre Feet
SUSTAINABLE ANNUAL YIELD IS 1260 AF																

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TURMIL NYON SUBAREA

WELL LOCATION # COUNTY	NUMBER	OWNER	WELL LOCATION		PERMIT NUMBER	PRIORITY DATE	ALLOCATED PUMPAGE (AF)	1996 WATER LEVEL	1997 WATER LEVEL	W.L. CHANGE (FT)	1996 FLOWMETER READING	1997 FLOWMETER READING	1996 PUMPAGE (AF)	1996 POWERMETER READING	1997 POWERMETER READING	REMARKS
UMAT	449	MADER	2N/27E	-7aab	G-4325	9/18/68	1300	590.6	590.6	0.00	448929000	859795000	1261	5778	7938	
UMAT	557	MADER	2N/27E	-8dab				--		--	--	--	0	--	--	Domestic-Lost E-Tape
							1300		AVERAGE	0.00	Ft./Yr.	ANNUAL	1261			Acre Feet
SUSTAINABLE ANNUAL YIELD IS 1300 AF									WL CHANGE			PUMPAGE				

EAST SUBAREA

WELL LOCATION # COUNTY	NUMBER	OWNER	WELL LOCATION		PERMIT NUMBER	PRIORITY DATE	ALLOCATED PUMPAGE (AF)	1996 WATER LEVEL	1997 WATER LEVEL	W.L. CHANGE (FT)	1996 FLOWMETER READING	1997 FLOWMETER READING	1996 PUMPAGE (AF)	1996 POWERMETER READING	1997 POWERMETER READING	REMARKS
UMAT	465	CORREA	2N/27E	-27bcc1	U-441	4/18/52	0	132.10	138.13	-6.03	--	--	0	--		Domestic
UMAT	9995	MADER	2N/27E	-28add	U-450	5/7/52	100	--	--	--	26210500	48366000	220	979	5564	?Surface water included in FM?
UMAT	491	VEY	1N/28E	-28baa	G-823	2/11/58	10	30.39	34.14	-3.75	643.202	697.479	54	3626	5168	West Flowmeter
					G-823	2/11/58					115161000	117833000	8			East Flowmeter
UMAT	492	VEY	1N/28E	-28bbc	G-823	2/11/58	84	26.51	30.55	-4.04	675067000	712110000	114	2762	4554	
UMAT	462	HAWKINS	2N/27E	-26cbd	G-2276	10/8/62	400	377.90	381.30	-3.40	726902000	864190000	421		16979	
UMAT	465	CORREA	2N/27E	-27bcc1	G-2809	1/22/65	0		138.13		--	--	0			
UMAT	463	ASHBECK	2N/27E	-27cbc	G-4073	9/11/67	38	125.88	--	--	0.5317	38.5315	38	66758	96998	
							632		AVERAGE	-4.31	Ft./Yr.	TOTAL	855			Acre Feet
SUSTAINABLE ANNUAL YIELD IS 720 AF									WL CHANGE			PUMPAGE				

WEST SUBAREA

WELL LOCATION # COUNTY	NUMBER	OWNER	WELL LOCATION		PERMIT NUMBER	PRIORITY DATE	ALLOCATED PUMPAGE (AF)	1996 WATER LEVEL	1997 WATER LEVEL	W.L. CHANGE (FT)	1996 FLOWMETER READING	1997 FLOWMETER READING	1996 PUMPAGE (AF)	1996 POWERMETER READING	1997 POWERMETER READING	REMARKS
MORR	408	GRIEB	1N/26E	-1baa	G-3792	7/19/67	1000	586.50	588.80	-2.30	--	--	0	--	--	Unused
MORR	538	RIVERCREST	2N/26E	-18daa	G-3777	8/7/67	0	427.42	431.46	-4.04	--	--	0	--	--	Unused
MORR	541	RIVERCREST	2N/26E	-20dbb	G-3777	8/7/67	1103	529.20	533.80	-4.60	1891000000		766	1661	10834	Broken FM -- Posted
MORR	412	GRIEB	1N/26E	-5bba	G-3792	3/7/68	0	--	--	--	8594.79	9532.8	938	40450	0	New PM
MORR	529	TIDEWATER	2N/26E	-6acc	G-4281	8/15/68	100	299.43	302.19	-2.76	662.995	--	0	--	--	
MORR	547	BEAM	2N/26E	-26dcc	G-4477	12/16/68	19	273.36	280.73	-7.37	61.7032	66.6444	5	--	--	Domestic/Irrigation
MORR	560	CHRISTENSEN	2N/27E	-20caa	G-4477	12/16/68	677	689.90	721.00	-31.10	8760.54	9359.68	599			
MORR	537	RIVERCREST	2N/26E	-17aba	G-4782	2/10/69	855	410.20	416.00	-5.80	337.581	--	572	28695	33903	Flowmeter Removed
MORR	526	LINDSAY	2N/26E	-3bcc	G-4918	2/3/70	0	476.34	473.87	2.47	--	--	0			Unused- No Pump
MORR	532	LINDSAY	2N/26E	-10cdb	G-4918	2/3/70	1293	--	--	--	1389.5	2331.3	942	34925	71789	
MORR	9999	LINDSAY	2N/26E	-11cdd	G-4918	2/3/70	0	406.62	406.86	-0.24	--	--	0	--	--	Domestic
MORR	545	LINDSAY	2N/26E	-23cad	G-4918	2/3/70	623	487.60	492.20	-4.60	22009.6	22671.4	662	17474	*23685	
MORR	1504	TIDEWATER	2N/26E	-5acd	G-4918	2/3/70	0	339.40	344.00	-4.60	1059600	19662500	57	7534	8870	
MORR	533	TAYLOR	2N/26E	-15acc	G-8817	3/25/71	0	--	--	--	701.251	701.251	0	--	--	No Power Meter
MORR	551	GRIEB	2N/26E	-29ccd				558.26	559.52	-1.26	--	--	0	--	--	Unused
MORR	1660	CASCADE SPECIALITES	3N/26E	31DDC				189.65	188.28	1.37	--	--	0		--	Domestic
MORR	1778	CASCADE SPECIALITES	2N/26E	6BAA				--	228.86	--	0.0000	14.8555	15		65300	Industrial
							5670		AVERAGE	-4.99	Ft./Yr.	TOTAL	4556			Acre Feet
SUSTAINABLE ANNUAL YIELD IS 5670 AF									WL CHANGE			PUMPAGE				

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SOUTH SUBAREA

WELL LOCATION # COUNTY	NUMBER	OWNER	WELL LOCATION		PERMIT NUMBER	PRIORITY DATE	ALLOCATED PUMPAGE (AF)	1996 WATER LEVEL	1997 WATER LEVEL	W.L. CHANGE (FT)	1996 FLOWMETER READING	1997 FLOWMETER READING	1996 PUMPAGE (AF)	1996 POWERMETER READING	1997 POWERMETER READING	REMARKS
MORR	63	CUTSFORTH	1S/26E	-1dcd	G-541	4/29/57	100	57.24	58.17	-0.93	3007.17	3007.17	0	–	–	PM display blank
MORR	63	CUTSFORTH	1S/26E	-1dcd	G-2760	9/24/64	66									
MORR	69	CUTSFORTH	1S/26E	-9dbd	G-3012	3/30/65	0	38.92	37.47	1.45	–	–	0			Domestic
MORR	440	CUTSFORTH	1N/26E	-35dcb	G-6786	8/30/71	488	-2.50	-2.00	-0.50	67.91	521.03	453	0	0	
MORR	441	CUTSFORTH	1N/26E	-36cdb	G-6787	12/2/71	346	136.56	138.70	-2.14	214.811	712.844	498	7889	17964	
MORR	63	CUTSFORTH	1S/26E	-1dcd	G-6514	6/24/75	0									
MORR	67	CUTSFORTH	1S/26E	-1dad				54.72	49.25	5.47	–	–	0	–	–	Unused
							1000		AVERAGE	0.67	Ft./Yr.	TOTAL	951			Acre Feet
SUSTAINABLE ANNUAL YIELD IS 1000 AF									WL CHANGE			PUMPAGE				

PINE CITY SUBAREA

WELL LOCATION # COUNTY	NUMBER	OWNER	WELL LOCATION		PERMIT NUMBER	PRIORITY DATE	ALLOCATED PUMPAGE (AF)	1996 WATER LEVEL	1997 WATER LEVEL	W.L. CHANGE (FT)	1996 FLOWMETER READING	1997 FLOWMETER READING	1996 PUMPAGE (AF)	1996 POWERMETER READING	1997 POWERMETER READING	REMARKS
MORR	9998	GRAHAM	2N/27E	-34bdc	GR-4142	1925	0	–	–	–	–	–	–			
MORR	466	WATTENBERGER	1N/27E	-10aab	U-495	11/14/52	0	–	–	–	–	–	–			
MORR	426	HEIDEMAN	1N/26E	-21dbb	U-515	12/17/52	3	–	–	–	836060	44320	5		–	Flowmeter is in Cubic Feet
MORR	9997	KILKENNY	1N/26E	-29bdd	U-515	12/17/52	0	135.83	136.80	-0.97	–	–	0		–	Domestic
MORR	566	RAUCH	1N/26E	-18ddd2	G-40	6/24/54	1	–		–	–	–	0		–	
MORR	1601	RAUCH	1N/26E	19aaa	G-40	6/24/54		179.27	185.83	-6.56	62.266	62.27	0			
MORR	476	VEY/SCHILLER	1N/27E	-24ddd	G-681	10/14/57	107	–	–	–	665.4	796.56	131	15096	3897	West Flowmeter
MORR	476	VEY/SCHILLER	1N/27E	-24ddd	G-681	10/14/57					162.24	195.36	33			East Flowmeter
MORR	467	WATTENBERGER	1N/27E	-10aca	G-2047	2/5/62	0			–			–			
MORR	432	TURNER	1N/26E	-26cab	G-2409	4/24/63	129	201.35	214.31	-12.96	1139.99	1360.56	221	34548	45047	
MORR	454	WIGLESWORTH	1N/27E	-3dbb	G-2528	11/8/63	75	240.68	244.50	-3.82	397.444	567.33	170	79245	95366	
MORR	402	BRITT	1N/27E	-23dad	G-2797	12/17/64	101	87.95	83.60	4.35	2655.4	2655.4	0	98143	88562	
MORR	454	WIGLESWORTH	1N/27E	-3dbb	G-3101	4/1/66	50						27			
MORR	463	ASHBECK	1N/27E	-10dcc	G-3164	5/27/66	79	304.60	308.69	-4.09	558.472	708.084	150	29013	43220	
MORR	419	DOHERTY	1N/26E	-10aab	G-3474	3/13/67	0	–	–	–	94527000	94527000	0	0	0	Well Caved In?
MORR	471	TINGUE	1N/27E	-21ddd	G-4097	4/23/68	55	196.04	197.50	-1.46	1033.46	0	26	37904	61009	New Flowmeter
MORR	482	HEALY	1N/27E	-26bcd	G-4225	7/10/68	163	149.90	161.50	-11.60	1513.03	1666.07	153	2594	93289	Airline Leaks
MORR	473	MEYERS	1N/27E	-21acc	G-4248	7/24/68	158	181.70	182.90	-1.20	4708.64	4793.7	85	2615	3838	
MORR	434	TURNER	1N/26E	-26ccc	G-4255	7/25/68	792	307.56	319.71	-12.15	2172.76	2943.65	771	46274	62942	
MORR	485	HEALY	1N/27E	-27bdd	G-4226	7/29/68	0	120.41	123.05	-2.64	–	–	0	–	–	Domestic
MORR	455	PERKINS	1N/27E	-5ccb	G-4354	10/7/68	1250	–	–	–	6033.6	6405.1	372	29747	4313	West Flowmeter
MORR	455	PERKINS	1N/27E	-5ccb	G-4354	10/7/68					218.863	591.068	372			East Flowmeter
MORR	565	PERKINS	2N/27E	-32dba	G-4354	10/7/68	1187	392.82	394.45	-1.63	17209.6	18640.7	1431	13686	31147	
MORR	481	CURRIN	1N/27E	-26cba	G-4712	9/16/69	0	146.80	153.99	-7.19	10.9485	10.9485	0	31734	31734	
MORR	416	DOHERTY	1N/26E	-8dbd	G-5092	6/24/70	0	373.77	376.94	-3.17	270.136	270.136	0	6288	6288	
MORR	435	TURNER	1N/26E	-26bcc				–		–	–	–	–			Domestic
MORR	446	LUCIANI	1N/27E	-3acc2				313.0	317.6	-4.60	–	–	–			Domestic
MORR	1521	WIGLESWORTH	1N/27E	-3caa				249.70	255.52	-5.82	–	–	–			Domestic
MORR	1622	HEALY	1N/27E	27cca				205.77	210.20	-4.43	–	–	–	–	–	Stock
							4150		AVERAGE	-4.70	Ft./Yr.	TOTAL	3946			Acre Feet
									WL CHANGE			PUMPAGE				
SUSTAINABLE ANNUAL YIELD IS 4150 AF																

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NORTH SUBAREA - WELLS WITH DOMESTIC USE ONLY

WELL LOCATION #		OWNER	WELL LOCATION		1995	1996	W.L.		REMARKS
COUNTY	NUMBER				WATER LEVEL	WATER LEVEL	CHANGE		
UMAT	1810	MAAHS	4N/28E	-4acd	44.63	42.89	1.74		Domestic
UMAT	6298	FLAIZ	4N/28E	4cad	115.00	113.50	1.50		
UMAT	1875	WADEKAMPER	4N/28E	-7acc	63.98	58.60	5.38		Domestic
UMAT	1869	KETCHERSID	4N/28E	-7cdd1	39.04	38.96	0.08		Unused Gravel Well
UMAT	1863	KETCHERSID	4N/28E	-7cdd2	74.69	66.85	7.84		
UMAT	1895	STANLEY	4N/28E	8acd	128.51	131.64	-3.13		
UMAT	1864	LEWIS	4N/28E	-8cbc	187.53	198.65	-11.12		Domestic
UMAT	1953	RUHL	4N/28E	-8cda	25.41	23.50	1.91		Domestic
UMAT	1972	KEENE	4N/28E	9cca	158.31	157.32	0.99		
UMAT	1992	GEMELKE	4N/28E	-9ccb	--		--		Domestic
UMAT	5283	CHOWNING	4N/28E	9dcb	68.58	116.96	-48.38		
UMAT	2285	INTERFAITH	4N/28E	16BBB	--	178.33	--		
UMAT	2281	LUND	4N/28E	-16bad	--	67.64	--		Domestic
UMAT	2349	HARMON	4N/28E	-17abd1	--	182.05	--		Domestic
UMAT	2315	HARMON	4N/28E	17ABD2	--	183.08	--		Domestic
UMAT	2317	BISCHKE	4N/28E	-17bbc	26.68	26.65	0.03		Domestic
UMAT	5665	PITZER	4N/28E	17dcc	--	--	--		
UMAT	2322	BUCKLEY	4N/28E	17dcd	--	18.62	--		
UMAT	2394	SWEEK	4N/28E	-19daa	102.53	100.29	2.24		Domestic
UMAT	2573	C & B	4N/28E	-27bbb	--	240.90	--		Unused
UMAT	3471	STATE OF OREGON	5N/28E	-32bdc	--	--	--		Unused
UMAT	3512	JACOBS	5N/28E	-33adb	132.95	132.32	0.63		Unused
UMAT	3474	ZUMWALT	5N/28E	-33dab	91.37	90.01	1.36		Domestic
						AVERAGE WL CHANGE	-2.78	Ft./Yr.	

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BUTTER CREEK CRITICAL GROUNDWATER AREA

SUMMARY OF DATA FOR 1996 IRRIGATION SEASON

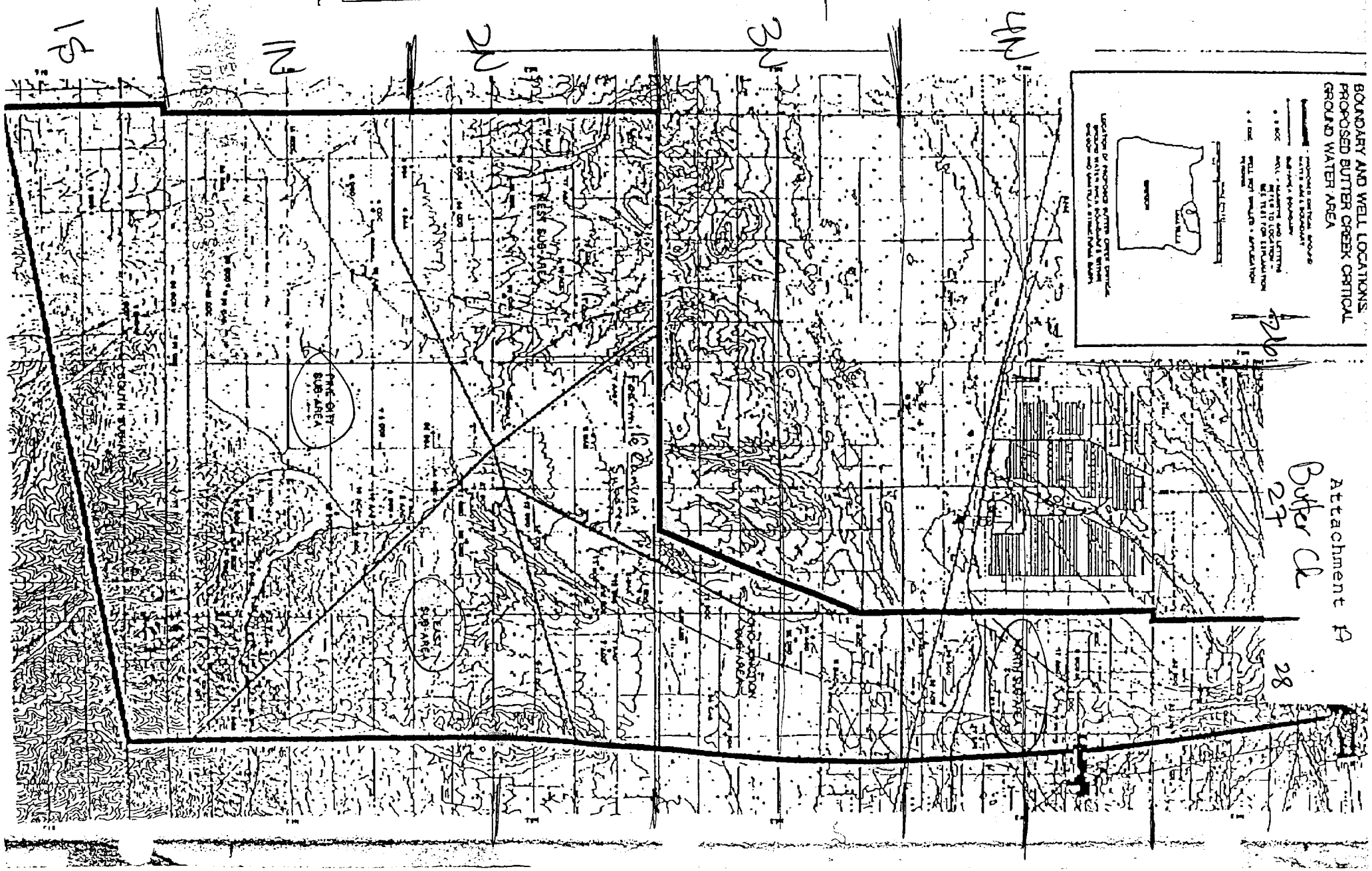
SUBAREA	AVERAGE WATER LEVEL CHANGE (FT)	TOTAL PUMPAGE (AF)	SUSTAINABLE ANNUAL YIELD (AF)	1996 ALLOCATED PUMPAGE(AF)
NORTH	0.6	171	250	340
ECHO JUNCTION	-0.5	827	1260	1260
FOURMILE CANYON	0.0	1261	1300	1300
EAST	-4.3	855	720	720
WEST	-5.0	4556	5670	5670
PINE CITY	-4.7	3946	4150	4150
SOUTH	0.7	951	1000	1000
	-1.9	12568	14350	14440

SUMMARY OF DATA FOR 1995 IRRIGATION SEASON

SUBAREA	AVERAGE WATER LEVEL CHANGE (FT)	TOTAL PUMPAGE (AF)	SUSTAINABLE ANNUAL YIELD (AF)	1995 ALLOCATED PUMPAGE(AF)
NORTH	4.7	297	250	340
ECHO JUNCTION	6.6	1479	1260	1260
FOURMILE CANYON	2.3	1132	1300	1300
EAST	-6.6	693	720	720
WEST	-2.2	5020	5670	5670
PINE CITY	-2.6	3775	4150	4150
SOUTH	-1.8	720	1000	1000
	0.1	13116	14350	14440

Post-it® Fax Note 7671	Date 8/5/97	# of pages ▶ 1
To Jim G.	From Marc N.	
Co./Dept.	Co. WRD	
Phone # 5	Phone #	
Fax # 503 779-3202	Fax #	

Kate



Attachment A

Mike Zwart - Stage Gulch
Marc Norton - Butter Ck
Dann Miller - Ordnance

STAGE GULCH CRITICAL GROUNDWATER AREA
1999 REPORT FOR SUBAREA A
Sustainable Annual Yield: 11450 acre-feet

Municipal water users are accorded a preference over other uses without regard to priority date. Therefore, they are not required to make annual requests for groundwater. It is assumed that the municipal water users intend to pump a quantity of water equivalent to the average for the previous three years. Allocations are made on this basis to the municipalities, not to the individual wells. Municipal allocations from the basalt groundwater reservoir are as follows:

	1994	1995	1996	1997	1998	1999
City of Hermiston:	900 acre-feet	1000 acre-feet	937 acre-feet	950 acre-feet	978 acre-feet	960 acre-feet
City of Stanfield:	380 acre-feet	386 acre-feet	351 acre-feet	375 acre-feet	385 acre-feet	393 acre-feet
City of Echo:	221 acre-feet	206 acre-feet	242 acre-feet	225 acre-feet	245 acre-feet	280 acre-feet

Owner or Water User	Well Location	Priority Date	Permit Number	February/March Water Levels 1994	1995	1996	1997	1998	1999	1999 Allocation
Hermiston#4	4N/28E-11bab	NA	NA	71.51	72.03	73.05	67.04	64.82	69.27	NA
Hermiston#2	4N/28E-11cad	NA	NA	--	80.16	80.92	74.81	72.60	76.90	NA
Hermiston#3	4N/28E-11ccd	NA	NA	86.69	88.06	88.90	82.44	80.16	84.03	NA
Hermiston#6	4N/28E-24bdd	NA	NA	--	--	--	--	--	--	NA
Echo #2	3N/29E-16aad	NA	NA	422.55	395.01	383.05	--	384.64	388.10	NA
Echo #3	3N/29E-16aca	NA	NA	307.54	287.91	272.89	270.58	272.89	269.43	NA
Echo #4	3N/29E-16ada	NA	NA	38.15	54.32	56.63	53.17	60.10	75.11	NA
Echo #5 (new)	3N/29E-16aad2	NA	NA	131.44	146.46	149.92	150.00	149.92	142.53	NA
Stanfield #4	4N/29E-32bbc	NA	NA	--	--	--	--	--	--	NA
Stanfield #3	4N/29E-32cac	NA	NA	--	--	307.39	355.9	--	--	NA
U.P.R.R.	4N/28E-27da1	2/3/50	U-324	--	--	--	--	--	--	100
U.P.R.R.	4N/28E-27da2	2/3/50	U-324	--	--	--	--	--	--	0
Herm. School	4N/28E-10ac	11/7/62	G-2290	--	--	--	--	--	--	4
Loyalta, Inc.	4N/29E-29bd	11/7/62	G-2291	--	--	--	--	--	--	250
		9/11/74	G-8036							0
Fowler	4N/28E-11ac	8/30/65	G-3000							5

Post-it® Fax Note 7671 | Date 3/2/00 | # of pages ▶ 8
To Kate Ely | From Mike Zwart
Co./Dept. Conf. Tribes Umatilla IR | Co. OWRD
Phone # 541-278-5297 | Phone # 503-378-8455 x207
Fax # 541-276-3317 | Fax # 378-2496

1999 REPORT FOR SUBAREA A (Continued)

Owner or Water User	Well Location	Priority Date	Permit Number	February/March Water Levels 1994	1995	1996	1997	1998	1999	1999 Allocation
C & B Liv. #3	4N/28E-22db1	3/14/68	G-4027	--	--	--	--	--	--	219.6
		6/16/77	G-7779							105
		6/26/81	G-9456							10
Chowning	4N/29E-18dc	12/28/70	G-5148	354.61*	359.61*	365.38*	351.52*	350.37*	346.90	45
Koester	4N/29E-17bc	3/24/71	G-5147	--	--	--	--	--	--	0
Weston	4N/29E-7ca	8/20/71	G-4935	--	--	--	--	--	--	4
Sparks	3N/28E-34db	6/12/72	G-5812	494.87	493.72	501.80	501.80	--	505.27	350
Prior #5	3N/28E-35ab	3/26/74	G-5275	494.17	495.32	501.48	489.85	490.85	494.08	470
		3/30/76	G-7078							0
Prior #6	3N/28E-35ca	3/26/74	G-5275	485.73	500.71	498.40	489.16	484.62	486.01	500
		3/30/76	G-7078							0
Burns	4N/29E-10ca	6/18/74	G-6170	--	--	--	374.11	--	--	225
Amstad #2	3N/29E-30dd	9/26/74	G-6010	--	--	545.80	538.30?	538.30?	533.68	294.8
		3/30/76	G-7078							100
Elfering	4N/28E-12dd	12/2/74	G-6268	--	--	--	--	--	--	50
Herm. Cem.	4N/28E-14cd	4/29/75	G-6439	--	--	--	--	--	--	50
Koester	4N/29E-29db	8/22/75	G-6555	--	--	33.47	--	31.78	34.39	3
Koester #3	4N/29E-29dd	8/22/75	G-6555	366.05	368.36	374.14	361.43	363.74	363.74	200
Amstad #4	3N/29E-19bd	3/30/76	G-7078	--	--	--	--	--	--	310
Amstad #1	3N/29E-20dc	3/30/76	G-7078	--	--	--	--	--	--	160
Amstad #3	3N/29E-30ad	3/30/76	G-7078	--	--	--	--	--	--	820
		3/14/77	G-7314							0
L & L #1	3N/28E-23dc	7/19/76	G-6893	382.95	396.81	394.50	385.26	385.26	381.8	490
		4/19/79	G-8570							0
L & L #2	3N/28E-26ab	7/19/76	G-6936	409.06	422.92	413.68	409.06	403.01	--	600
		4/19/79	G-8570							0
Andrews	3N/28E-2cd	8/25/76	G-6969	--	--	--	--	--	--	35
L & L #3	3N/28E-23bb	12/2/76	G-7036	342.86	346.72	344.41	--	--	--	700
		4/19/79	G-8570							0
Cook #1	4N/28E-23dc	2/25/77	G-7183	--	--	--	--	--	--	380

1999 REPORT FOR SUBAREA A (Continued)

Owner or Water User	Well Location	Priority Date	Permit Number	February/March Water Levels 1994	1995	1996	1997	1998	1999	1999 Allocation
Cook #3	4N/28E-23ac	2/25/77	G-7183	--	--	--	--	--	--	380
Cook #2	4N/28E-24dc	2/25/77	G-7183	--	--	--	--	--	--	0
Cook #4	4N/28E-24ad	2/25/77	G-7183	--	--	--	--	--	--	100
Perkins	4N/29E-7ac	2/25/77	G-7380	--	--	--	--	--	--	10
Koester/Mills	4N/29E-20dc	2/25/77	G-7182a	--	--	--	--	--	--	500
Cook		2/25/77	G-7182b							2.4
Koester		7/12/84	G-10429							0
Hale	3N/29E-9cd	3/14/77	G-7964	353.89	361.96	360.91	356.67	354.32	354.32	0
OSU Exp. Sta.	4N/28E-23bd	5/9/77	G-7489	338.68	340.46	343.92	336.99	339.30	335.83	50
Double M	4N/28E-34db	6/24/77	G-7614	--	--	--	--	--	--	120
Simplot #4	4N/28E-26dc1	3/22/78	G-8298	--	--	--	--	--	--	715
		6/12/72	G-5812							55
Mills	3N/29E-4dd	4/27/78	G-8126	--	--	488.21	--	--	--	250
Mikami	4N/28E-23cb	1/25/79	G-8548	--	--	--	--	--	--	15
Loyalta, Inc.	4N/29E-19bc	9/19/79	G-8802	--	--	--	--	--	--	150
Simplot #6	4N/28E-26dc2	4/23/80	G-9009	--	--	--	--	--	--	525
		6/12/72	G-5812							50
Herm. School	4N/28E-11dd	1/12/81	G-9189	--	--	--	--	--	--	15
Walchli	4N/29E-17ad	10/9/81	G-9809	341.92*	347.69*	348.15*	338.45*	350.0*	346.54*	190
Brown	4N/29E-7ca	5/31/83	G-10065	--	--	--	--	--	--	30
Lehman	4N/29E-30ab	7/14/83	G-10200	--	--	--	--	--	--	179.2
TOTAL:										11450.0***

* Measurement may be affected by hole in airline.
** Estimated from power use or other data.
*** Includes municipal allocations.
NA: Not Applicable
NR: Not Received

STAGE GULCH CRITICAL GROUNDWATER AREA
1999 REPORT FOR SUBAREA B
Sustainable Annual Yield: 200 acre-feet

Owner or Water User	Well Location	Priority Date	Permit Number	February/March Water Levels 1994	1995	1996	1997	1998	1999	1999 Allocation
Zabransky/ Golden Valley	4N/29E-24ac	3/8/65	G-2874	374.93	383.01	392.25	407.23	411.85	407.23	200
		6/13/83	G-10452							0
Zabransky #2	4N/29E-24dc	2/27/78	G-8209	--	--	--	--	--	--	0
		6/13/83	G-10452							0
Zabransky #1	4N/29E-25bb	2/27/78	G-8209	--	--	--	--	--	--	0
		6/13/83	G-10452							0
TOTAL:										200

1999 REPORT FOR SUBAREA C
Sustainable Annual Yield: 400 acre-feet

Owner or Water User	Well Location	Priority Date	Permit Number	February/March Water Levels 1994	1995	1996	1997	1998	1999	1999 Allocation
Mills	4N/29E-27ca	8/13/73	G-5753	--	--	--	--	--	--	55
Mills	4N/29E-26da	1/10/77	G-7095	--	--	--	--	--	--	5
Bertsch	4N/29E-25ba	4/10/78	G-8092	--	--	--	--	--	--	15
Zabransky #4	4N/29E-25ad	12/26/78	G-8446	53.47	83.71	92.07	113.95	128.80	130.47	325
		6/13/83	G-10452							0
TOTAL:										400

* Estimated from power use or other data
NR: Not Received

STAGE GULCH CRITICAL GROUNDWATER AREA
1999 REPORT FOR SUBAREA D
Sustainable Annual Yield: 3250 acre-feet

Owner or Water User	Well Location	Priority Date	Permit Number	February/March Water Levels 1994	1995	1996	1997	1998	1999	1999 Allocation
Hale #4	3N/29E-2ad	3/25/55	U-714	--	--	--	--	--	--	0
		6/8/71	G-4969							0
		2/16/73	G-5215							1025
Hale #6	3N/29E-11ac	3/25/55	U-714	--	--	--	--	--	--	0
Hale #7	3N/29E-12bb	3/25/55	U-714	--	--	--	--	182.83	186.39	0
		6/8/71	G-4969							0
		2/16/73	G-5215							865
Hale #1	3N/30E-7bb	4/8/63	G-2415	113.38	129.55	131.86	--	143.41	176.91	230
Hale #2	3N/30E-6cb	6/8/71	G-4969	132.77	148.32	149.17	155.97	165.28	207.32	725
Hale #5	3N/29E-11dd	2/16/73	G-5215	--	--	--	--	--	--	405
Zabransky #3	4N/29E-36da	2/27/78	G-8209	--	--	--	--	--	--	0
		6/13/83	G-10452							0
TOTAL:										3250

* Estimated from power use or other data

STAGE GULCH CRITICAL GROUNDWATER AREA
1999 REPORT FOR SUBAREA F
Sustainable Annual Yield: 200 acre-feet

Owner or Water User	Well Location	Priority Date	Permit Number	February/March Water Levels 1994	1995	1996	1997	1998	1999	1999 Allocation
Lehman	3N/29E-10ab	4/27/78	G-8126	425.84	429.73*	426.08*	421.46*	445.72*	452.65*	200

1999 REPORT FOR SUBAREA G
Sustainable Annual Yield: 2750 acre-feet

Owner or Water User	Well Location	Priority Date	Permit Number	February/March Water Levels 1994	1995	1996	1997	1998	1999	1999 Allocation
Prior #2	3N/28E-36ab	3/26/74	G-5275	225.93*	221.31*	205.14*	200.52*	509.81	511.53	325
		3/30/76	G-7078							0
Prior #3	3N/28E-36db	3/26/74	G-5275	--	--	--	--	--	--	800
		3/30/76	G-7078							0
Prior #4	2N/28E-1bd	9/5/74	G-6069	246.02*	312.47	300.92	293.99	305.54	299.77	800
		3/30/76	G-7078							0
Prior #8	2N/28E-2da	9/5/74	G-6069	228.27	225.96	207.48	204.02	216.72	206.90	500
		3/30/76	G-7078							0
Prior #7	2N/28E-2bd	9/5/74	G-6069	244.27	242.4	234.88	230.12	227.07	221.72	0
		3/30/76	G-7078							0
Schiller	2N/28E-10ab	10/15/75	G-6588	--	--	--	--	--	--	325
		10/15/76	G-7014							0
TOTAL:										2750

* Measurement may be affected by hole in airline or wrong reported airline length.
** Estimated from power use or other data.

STAGE GULCH CRITICAL GROUNDWATER AREA
1999 REPORT FOR SUBAREA H
Sustainable Annual Yield: 8850 acre-feet

Owner or Water User	Well Location	Priority Date	Permit Number	February/March Water Levels 1994	1995	1996	1997	1998	1999	1999 Allocation
Lorenzen	4N/30E-35dc	1/28/53	U-506	159.09	162.56	170.64	167.18	170.64	172.95	70.8
		3/28/83	G-10087							111.99
Reese	3N/30E-9cb	9/16/54	U-680	142.78	148.22	149.60	153.22	156.0	159.95	61.71
		11/30/73	G-5957							50
		5/10/79	G-8632							0
Hale #3	3N/30E-7cc	3/25/55	U-714	98.59	109.0	111.44	115.39	120.36	136.51	671.4
		6/8/71	G-4969							115
		2/16/73	G-5215							0
Rohde	3N/30E-17ad	10/4/66	G-3495	161.02	161.02	159.87	161.02	170.26	167.37	254.1
		12/6/77	G-7911							260
Reese	3N/30E-22cc	2/2/72	G-4955	341.42	346.04	348.35	350.66	357.59	356.44	205
		5/10/79	G-8633							0
Hale #8	3N/29E-14bc	2/16/73	G-5215	--	--	--	171.7	--	--	120
Rew	3N/31E-19cb	7/19/74	G-5334	--	--	--	--	--	--	10
Rew	3N/31E-30ab	7/19/74	G-5335	489.91	492.22	499.15	499.15	503.77	502.62	130
		10/21/74	G-5337							0
Brogoitti	3N/30E-30ca	11/12/75	G-6600	--	--	--	--	--	--	595
		2/21/78	G-8041							0
Hale/Copp.	3N/29E-24ac	12/29/75	G-6626	--	--	--	--	--	--	970
Hale/Copp.	3N/29E-24ad	12/29/75	G-6626	209.71	222.28	218.29	224.13	226.94	233.40	0
Branstetter	3N/30E-1ac	7/16/76	G-6932	304.2*	307.66*	309.97	312.28	314.59	318.06	555
		3/12/81	G-9285							0
Rew	3N/30E-23dd	9/9/76	G-6987	407.66	411.7	414.59	414.59	416.19	--	100
Hale	3N/29E-23aa	12/15/76	G-7041	132.21	141.45	139.14	143.76	142.19	199.20*	275
Kilgore	4N/30E-26cb	5/23/77	G-7965	233.22	242.46	242.46	244.77	247.08	251.70	540
Piercy #4	4N/30E-28ad	2/15/78	G-7929	118.68	128.67	128.54	131.77	133.38	142.77	800
		7/1/80	G-8907							0

1999 REPORT FOR SUBAREA H (Continued)

Owner or Water User	Well Location	Priority Date	Permit Number	February/March Water Levels 1994	1995	1996	1997	1998	1999	1999 Allocation
Piercy #3	4N/30E-29da	2/15/78	G-7929	17.25	27.07	28.28	31.50	35.09	42.97	2250
		7/1/80	G-8907							0
Piercy #2	4N/30E-32dc	2/15/78	G-7929	6.12	16.12	15.98	18.76	22.35	30.52	0
		7/1/80	G-8907							0
Piercy #1	4N/30E-33cd	2/15/78	G-7929	42.02	51.8	51.88	54.80	58.33	66.14	195
		7/1/80	G-8907							0
Brogoitti	3N/30E-20cc	8/2/78	G-8367	259.49*	266.42*	266.42*	267.57*	274.5*	273.35*	500
Isom	3N/31E-31ba	3/17/80	G-9404	--	--	--	--	--	--	10
TOTAL:										8850

* Measurement may be affected by hole in airline.
** Estimated from power use or other data.

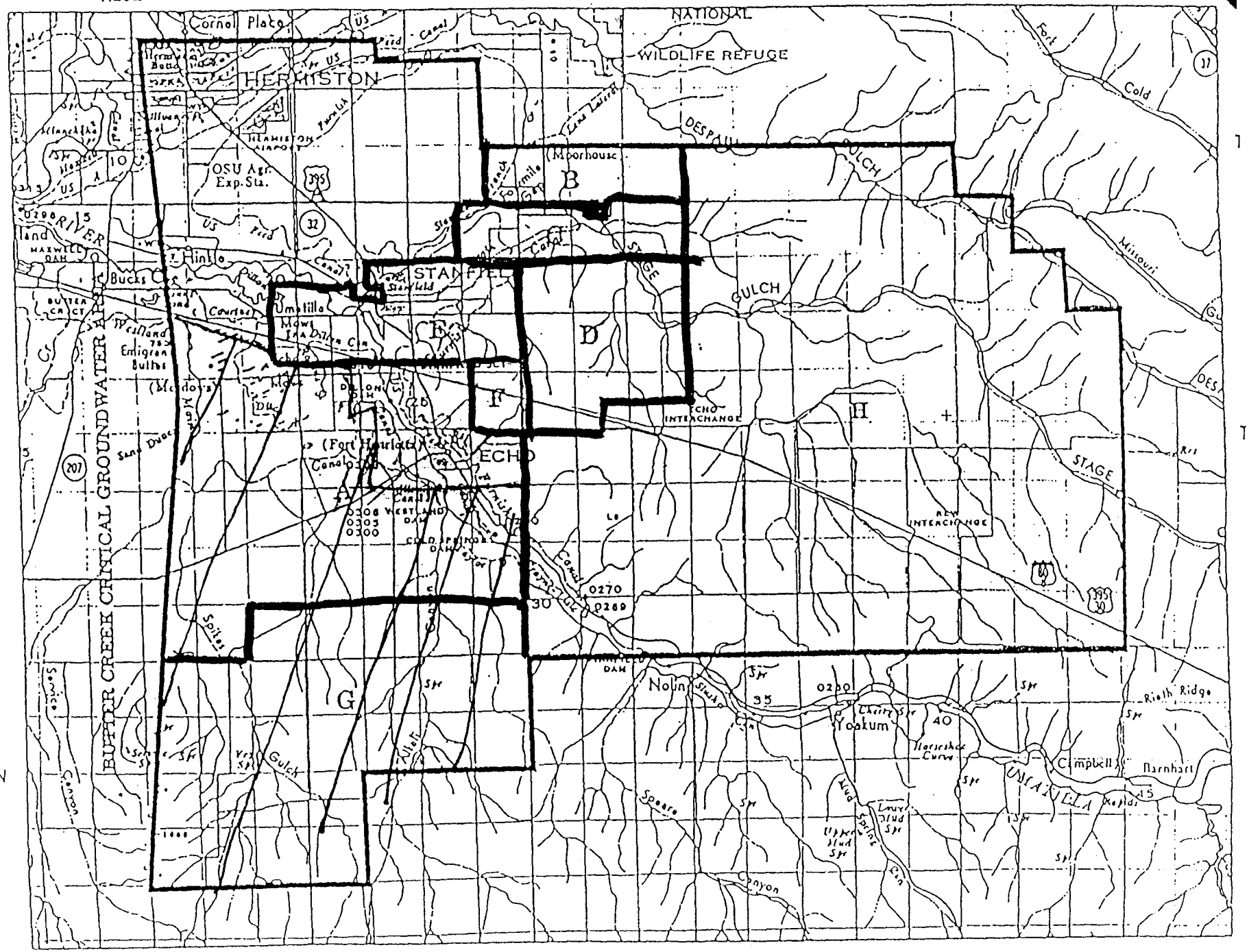


Figure 1

R 206 PAGE 447

ORDNANCE GROUND WATER AREA
ALLUVIAL AQUIFERS

TABLE I

No.	Record Holder	Priority Date	Appli. No.	Permit No.	Cert. No.	Well Location	Permitted Diversion cfs	Acreage	Max. Allow. ac. ft.	Cum. Rights ac. ft.	Well Depth	
1.	M. M. McDole	6/2/50	U-365	U-336	20685	4N/27E-33adc	1.0	79.9	239.7	239.7	96	
2.	E. F. McDole	11/1/50	U-398	U-363	20686	4N/27E-33dba	0.987	79.0	237.0	476.7	No Log	
3.	Scott Chapman	12/15/52	U-544	U-497	26073	4N/27E-28bdb	1.0	80.0	240.0	716.7	119	
4.	Sylvanus F. Hoyt	12/15/52	U-545	U-498	26192	4N/27E-28acd	1.0	80.0	240.0	956.7	126	
5.	Georgia B. Holzapfel	3/16/53	U-527	U-523	22888	4N/27E-32aca	0.61	49.0	147.0	1103.7	123	
5-A						4N/27E-32dxx					310	(Abn)
6.	Roy Gail Holzapfel	3/16/53	U-573	U-524	22889	4N/27E-32aca	0.61	49.0	147.0	1250.7	123	
6-A						4N/27E-32dxx					310	(Abn)
7.	Scott Chapman	5/2/55	U-819	U-725	30019	4N/27E-28bdb	2.25	180.3	540.9	1791.6	119	
7-A						4N/27E-28cbd					107	
8.	Georgia B. Holzapfel	7/5/55	U-858	U-750	22907	4N/27E-32aca	0.23	18.0	54.0	1845.6	123	
9.	Ronald Baker	8/26/55	G-111	G-73		4N/27E-24aca	3.40	272.2	816.6	2662.2	151	
10.	Sylvanus F. Hoyt	9/26/55	G-139	G-100	26193	4N/27E-28acd	0.81	64.6	193.8	2856.0	126	
11.	E. F. McDole	3/26/56	G-279	G-190	37054	4N/27E-33cbd	1.0	80.0	240.0	3096.0	111	(Abn)
12.	Georgia B. Holzapfel	12/27/56	G-534	G-466	30119	4N/27E-32aab	0.54	43.4	130.2	3226.2	106	
13.	Clarence W. Ruddell	6/19/58	G-1011	G-2952		4N/27E-30bca	4.19	335.25	1005.8	4232.0	79	
13-A						4N/27E-30abd					85	
14.	Enriqueta Ruddell	6/19/58	G-1012	G-2953		4N/27E-30cca	4.2	335.75	1007.3	5239.3	118	
14-A						4N/27E-30dca					115	
15.	Marvin M. McDole	8/28/58	G-1222	G-1069	30133	4N/27E-34bbb	0.95	76.2	228.6	5467.9	97	(Abn)
16.	Roy G. & Georgia B. Holzapfel	6/28/60	G-1777	G-1625	31098	4N/27E-32aca	3.08	111.0 Prim. 159.4 Supp.	333.0	5800.9	123	
16-A						4N/27E-32aab					106	
16-B						4N/27E-32aba					104	
17.	Hansell Bros., Inc.	1/10/63	G-2520	G-2335		4N/27E-26bcb	1.32	105.5	316.5	6117.4	108	
18.	Thomas E. Huddleston	1/21/64	G-2768	G-2592	34586	4N/28E-18cba	2.34	105.1 Prim. 82.1 Supp.	315.3	6555.9	93	
19.	Malcolm Skinner	3/20/64	G-2809	G-2620	35784	4N/27E-13dbd	1.93	154.3	462.9	7018.8	97	
20.	Hansell Bros., Inc.	3/31/64	G-2818	G-2694		4N/27E-26bcb	3.24	259.3	777.9	7796.7	108	

ORDINANCE GROUND WATER AREA
ALLUVIAL AQUIFERS

TABLE I

No.	Record Holder	Priority Date	Appli. No.	Permit No.	Cert. No.	Well Location	Permitted Diversion cfs	Acreage	Max. Allow. ac. ft.	Cum. Rights ac. ft.	Well Depth	
21.	Frances F. McDole	4/10/64	G-2831	G-2822		4N/27E-33adc	4.82	393.3	1179.9	8976.6	96	
21-A						4N/27E-34bbb					97	(Abn)
21-B						4N/27E-34bac					125	(Abn)
22.	E. F. McDole	2/4/65	G-3029	G-2782	34281	4N/27E-33cba	1.00	80.0	240.0	9216.6	97	
23.	Clark & Bernice Key	4/27/65	G-3092	G-2823	42526	3N/27E-4add	2.23	312.1	936.3	10152.9	80	
23-A						3N/27E-4acc					88	
23-B						3N/27E-4bdc					108	(Abn)
23-C						3N/27E-4bcc					112	(Abn)
23-D						3N/27E-5adc					400	
23-E						3N/27E-5acc					200	(Abn)
23-F						3N/27E-5bdc					145	
23-G						3N/27E-5bcx						(Abn)
24.	Hansell Bros., Inc.	5/16/66	G-3408	G-3197		4N/27E-28acd	2.60	136.8	410.4	10563.3	126	
24-A						4N/27E-28ddc					127	
25.	Roy Gail Holzapfel	3/20/67	G-3853	G-3629		4N/27E-32aab	2.0	160.0	480.0	11043.3	106	
25-A						4N/27E-32aba					104	
26.	David C. Ralston	7/13/67	G-3991	G-3745	38390	4N/28E-8acc	0.06	4.7 Supp.	14.1	11050.4		
27.	Edgar Bloom	9/13/67	G-4077	G-3868	41941	4N/28E-19ddb	0.145	11.6 Supp.	34.8	11067.8		
28.	Dwight H. Hulet	10/4/67	G-3945	G-3702		4N/27E-36abb	1.86	149.8	449.4	11517.2	117	
28-A						4N/27E-36abb					187	
28-B						4N/27E-36aab					213	
28-C						4N/27E-36adc					185	
29.	Woodrow Walker	10/9/67	G-4103	G-3851	39464	4N/28E-18dbd	2.88	230.0	690.0	12207.2	102	
30.	Roy Gail Holzapfel	11/22/67	G-4140	G-3889		4N/27E-32baa	2.0	160.0	480.0	12687.2	111	
31.	Marvin & Frances McDole	11/28/67	G-4144	G-3892		4N/27E-34bbb	4.85	389.5 Supp.			97	(Abn)
32.	Thomas E. Huddleston	1/23/68	G-4201	G-3966	38737	4N/28E-18cba	0.30	24.0	72.0	12759.2	93	
33.	Hansell Bros., Inc.	2/15/68	G-4231	G-3822		4N/27E-27dad	5.0	320.0 Prim. 260.7 Supp.	960.0	13791.2	140	
33-A						4N/27E-27bcd					121	
33-B						4N/27E-27cab					135	
33-C						4N/27E-35cxx					Not Drilled	
34.	Malcolm Skinner	2/23/68	G-4246	G-4006	38481	4N/28E-19bcd	2.46	196.5	589.5	14308.7	126	

ORDNANCE GROUND WATER AREA
ALLUVIAL AQUIFERS

TABLE I

No.	Record Holder	Priority Date	Appli. No.	Permit No.	Cert. No.	Well Location	Permitted Diversion cfs	Acreage	Max. Allow. ac. ft.	Cum. Rights ac. ft.	Well Depth
35.	Malcolm Skinner	3/25/68	G-4291	G-4039	38482	4N/27E-13dbd	0.17	13.8	41.4	14350.1	97
36.	Tom Quick	3/28/68	G-4306	G-4067	42339	4N/28E-20bdd	0.21	16.4	49.2	14399.3	14
37.	E. T. Johnson	6/3/68	G-4427	G-4171		4N/27E-25dab	0.50	47.7	143.1	14542.4	88
38.	Francis F. McDole	6/21/68	G-4452	G-4395		4N/27E-33aac	4.92	393.3	1179.9	15722.3	120
38-A						4N/27E-33bab					Not Drilled
38-B						4N/27E-33bdb					Not Drilled
39.	Howard Gass	11/21/68	G-4694	G-4413		4N/28E-17cbb	1.35	36.5 Prim. 71.8 Supp.	109.5 215.4	15939.5	105
10.	Marvin & Frances McDole	10/31/69	G-5026			4N/27E-33aac	3.0	239.0	717.0	16656.5	120
10-A						4N/27E-33bab					Not Drilled
10-B						4N/27E-33bdb					Not Drilled
11.	Thurman Martin	12/30/69	G-5065	G-4775		4N/28E-19caa	1.25	60.0	180.0	16836.5	99
12.	Hansell Bros., Inc.	1/9/70	G-5209			4N/27E-26bcb	19.88	697.0 Prim. 893.8 Supp.	2091.0	18927.5	108
2-A						4N/27E-27bcd					121
2-B						4N/27E-27cab					135
2-C						4N/27E-27bda					104
2-D						4N/27E-26bca					105
3.	Elroy F. McDole	2/20/70	G-5112	G-4821		4N/27E-33dba	0.88	70.0	210.0	19137.5	113 (Abn)
4.	W. M. Huddleston	3/10/70	G-5123	G-4861		4N/27E-13aad	0.96	77.0	231.0	19368.5	101
5.	Donald Clark Key	3/31/70	G-5145	G-4878		4N/27E-30ddd	6.68	313.7 Prim. 312.1 Supp.	941.1	20309.6	115
5-A						4N/27E-30ddd					121
6.	Thurman Martin	11/16/70	G-5362			4N/28E-19caa	0.5	40.0	120.0	20429.6	99
7.	LeRue W. Pollock	1/12/71	G-5397			4N/28E-30dcc	0.33	26.0	78.0	20507.6	40
8.	Georgia B. Holzapfel	3/8/71	G-5449			4N/27E-32aca	2.0	160.0 Supp.			123
9.	Lyle W. Smith	3/12/71	G-5460	G-4844		4N/27E-26acb	1.4	112.0	336.0	20843.6	No Log
0.	Clarence W. Ruddell	5/11/71	G-5413	G-4931		4N/27E-19ccb	2.7	219.2	657.6	21501.2	112
0-A						4N/27E-19cda					Not Drilled
1.	Fred Haskins, Jr.	7/9/71	G-5567			4N/27E-29aac	8.0	640.0	1920.0	23421.2	Not Drilled
1-A						4N/27E-29bac					Not Drilled
1-B						4N/27E-29cac					Not Drilled
1-C						4N/27E-29dac					Not Drilled

ORDNANCE GROUND WATER AREA
ALLUVIAL AQUIFERS

TABLE I

o.	Record Holder	Priority Date	Appli. No.	Permit No.	Cert. No.	Well Location	Permitted Diversion cfs	Acreage	Max. Allow. ac. ft.	Cum. Rights ac. ft.	Well Depth
2.	Arnold Braat	8/3/71	G-5590	G-4932		4N/27E-20ccc	6.58	526.6	1579.8	25001.0	173
2-A						4N/27E-20cdc					Not Drilled
3.	Hansell Bros., Inc.	8/12/71	G-5598			4N/27E-28acd	21.6	1724.2 Supp.			126
3-A						4N/27E-28ddc					127
3-B						4N/27E-28dad					107
1.	J. W. Aylett	11/16/71	G-5549	G-4929		4N/27E-28bab	0.90	72.18	216.6	25217.6	110
1-A		for 0.68 cfs				4N/27E-28bdb					119
		12/3/71									
		for 0.25 cfs									
5.	Elroy F. McDole	12/13/71	G-5684			4N/27E-28cdd	4.0	310.0	930.0	26147.6	124
5.	Lamb-Weston, Inc.	1/21/72	G-5681	G-4947		4N/28E-19caa	3.3				110
7.	Ronald Baker	1/25/72	G-5710	G-4944		4N/27E-24aca	0.48	39.4	118.2	26265.8	151
3.	Lamb-Weston, Inc.	2/3/72	G-5720	G-4948		4N/28E-19cac	3.02				137
).	Malcolm Skinner	2/25/72	G-5734	G-5034	42273	4N/28E-19bcd	0.125	10.0	30.0	26295.8	126
).	Bert H. Quick	3/1/72	G-5738	G-4972		4N/28E-20bbc	1.0	80.0	240.0	26535.8	
..	John L. King	3/24/72	G-5761			4N/27E-26ddx	0.91	72.5	217.5	26753.3	
!.	Lyle W. & Jane K. Smith	11/2/72	G-5932			4N/27E-26acb	1.44	115.0	345.0	27098.3	
!.	Bert H. Quick	11/7/72	G-5936			4N/28E-20bbc	0.5	26.0	78.0	27176.3	
..	Benjamin J. Newman	11/29/72	G-5947			4N/28E-20cab	0.4	31.7	95.1	27271.4	20
5.	LeRue W. Pollock	3/9/73	G-6023			4N/28E-31abb	0.5	18.0 Prim.	29.0	27496.6	
								114.1 Supp.	183.85		
5.	George H. Barton	3/15/73	G-6040			4N/28E-31bca	1.6	127.86	383.58	27880.2	Proposed 191
'.	Lamb-Weston, Inc.	4/12/73	G-6069			4N/28E-30bad	2.67				98
!.	Edgar S. & Elmo C. Bloom	6/12/73	G-6058			4N/28E-19dda	0.35	16.6 Prim.	49.8	27930.0	90
								10.4 Supp.			
.	Mrs. John W. Rice	6/29/73	G-6196			4N/28E-17bbd	0.84	67.0	201.0	28131.0	Proposed 115
!.	Woodrow Walker	7/12/73	G-6225			4N/28E-18dbd	0.7	55.0	165.0	28296.0	102

ORDNANCE GROUND WATER AREA
BASALT AQUIFERS

TABLE II

Record Holder	Priority Date	Appli. No.	Permit No.	Cert. No.	Well Location	Permitted Diversion cfs	Acreage	Max. Allow. ac. ft.	Cum. Rights ac. ft.	Well Depth
Oregon-Washington RR	4/17/46	U-199	U-181	15174	4N/27E-20cbc	0.67				457
Umatilla Army Depot	12/19/52	U-571	U-522	30524	4N/27E-5abb	2.26				710
Georgia B. Holzapfel	3/16/53	U-572	U-523	22888	4N/27E-32aca	0.61	49.0	147.0	147.0	123
					4N/27E-32dxx					310
Roy Gail Holzapfel	3/16/53	U-573	U-524	22889	4N/27E-32aca	0.61	49.0	147.0	294.0	123
					4N/27E-32dxx					310
Leota Nell Martin	4/3/53	U-580	U-530	31097	3N/27E-8aad	0.25	20.0	60.0	354.0	725
Ernest R. Cramer	4/27/53	U-596	U-549	31194	3N/26E-10cca	0.25	20.0	60.0	414.0	666
Waldo H. Cramer	4/28/53	U-600	U-551	31195	3N/26E-10aca	0.25	20.0	60.0	474.0	544
G. W. Redwine	8/9/54	U-736	U-649	23740	4N/27E-36bca	0.50	40.0	120.0	594.0	194
Ernest J. Royster	8/3/55	G-94	G-48	26170	3N/27E-4ddb	0.93	74.6	223.8	817.8	185
Umatilla Army Depot	1/27/58	G-848	G-1017	30525	4N/27E-5baa	0.50				682
Waldo H. Cramer	8/27/58	G-1224	G-1070	34382	3N/26E-10aca	1.89	151.2	453.6	1271.4	544
Luther W. Cramer	3/2/59	G-1402	G-1319	41879	3N/26E-4cac	1.19 (3/2/59) 1.75 (4/7/59)	219.5	960.0	1778.0	623
					3N/26E-4dbc					Not Drilled
Mildred F. Cramer	3/6/59	G-1411	G-1284	41878	3N/26E-4aad	1.19	283.5 Prim. 4.5 Supp.	960.0	2276.7	680
					3N/26E-4bad					No Log
Ernest Cramer	3/11/59	G-1413	G-1322	34276	3N/26E-10cca	2.68	274.8	824.4	3101.1	666
Hansell Bros.	6/28/60	G-1778	G-1671	35395	4N/27E-27dad	2.02	1.8	5.4	3106.5	543
Frank L. Warren	12/19/60	G-1896	G-1738	34282	3N/26E-14acd	4.0	320.0	960.0	4066.5	551
Leota Nell Martin	10/2/61	G-2125	G-1965	34280	3N/27E-8aad	2.68	300.0	900.0	4966.5	725
Sabre Corporation	2/8/62	G-2229	G-2049	31196	3N/26E-5cbd	3.5	322.8	968.4	5934.9	950
Sabre Corporation	8/9/63	G-2678	G-2489	33864	3N/26E-5cbd	2.0	160.0	480.0	6414.9	950
Hansell Bros.	6/5/64	G-2881	G-2672	35396	4N/27E-27cad	3.34	267.0	801.0	7215.9	543
Umatilla Army Depot	1/5/65	G-3006	G-2825	33778	4N/27E-22dbc	0.78				360

ORDNANCE GROUND WATER AREA
BASALT AQUIFERS

TABLE II

No.	Record Holder	Priority Date	Appli. No.	Permit No.	Cert. No.	Well Location	Permitted Diversion cfs	Acreage	Max. Allow. ac. ft.	Cum. Rights ac. ft.	Well Depth	
90.	Umatilla Army Depot	1/5/65	G-3007	G-2826	33779	4N/27E-22cad	2.00 Fire Protec.				327	
							0.34	27.0	81.0	7296.9		
91.	Umatilla Army Depot	1/5/65	G-3008	G-2827	33988	4N/27E-18cdb	1.11 Fire Protec.				618	
92.	Umatilla Army Depot	1/5/65	G-3009	G-2828	33765	4N/27E-19abb	1.11 Fire Protec.				600	
93.	Umatilla Army Depot	1/5/65	G-3010	G-2829	33766	4N/27E-5baa	1.72 Fire Protec.				682	
94.	Umatilla Army Depot	1/5/65	G-3011	G-2830	33989	4N/27E-8dad	10 GPM Fire Protec.				453	
23.	Clark & Bernice Key	4/27/65	G-3092	G-2823	42526	3N/27E-4add	2.43	312.1	960.0	8233.2	80	
23-A						3N/27E-4acc					88	
23-B						3N/27E-4bdc					108	(Abn)
23-C						3N/27E-4bcc					112	(Abn)
23-D						3N/27E-5adc					400	
23-E						3N/27E-5acc					200	
23-F						3N/27E-5bdc					145	
23-G						3N/27E-5bcx						(Abn)
28.	Dwight H. Hulet	10/4/67	G-3945	G-3702		4N/27E-36abb	1.86	149.8			117	
28-A						4N/27E-36abb					187	
28-B						4N/27E-36aab					213	
28-C						4N/27E-36adc					185	
95.	C. E. Newquist	12/18/67	G-4162	G-3913	42842	5N/27E-30ccc	0.16	12.5	360.0	8720.1	400	
96.	City of Irrigon	8/5/68	G-4534	G-4269	42328	5N/27E-19ccb	0.27				317	
97.	Vern K. Evans	12/27/68	G-4744	G-4478	42252	5N/27E-20add	0.04	3.2	13.1	8729.7	300	
98.	R. W. Reppert	2/18/69	G-4795	G-4520		5N/26E-26bcd	0.46	36.5	109.5	8839.2	235	
99.	Fred Andrews	4/29/70	G-5099	G-4833		4N/27E-31aab	8.0	640.0	1920.0	10759.2	200	
100.	Avery Taylor	3/1/71	G-5437			5N/26E-25cdb	0.5	26.0	78.0	10837.2	173	
101.	Desert Farms, Inc.	7/6/71	G-5565			5N/26E-26cba	1.51	120.6	361.8	11199.0	250	
102.	Wayne H. Schnell	7/2/73	G-6201	G-5248		5N/27E-30cac	1.44	118.0	354.0	11553.0	300	

Oregon

WATER
RESOURCES
DEPARTMENT

May 16, 1997

Mr. Jim Key
County Line Water Improvement District
77126 County Line Road
Hermiston, OR 97838

RE: Relationship between the Lost Lake Depot subarea and the Westland Road subarea.

Dear Jim,

In your letter of April 15, 1997, you asked me to assess whether users other than those of the County Line Water Improvement District (CLWID) were benefiting from CLWID's recharge efforts. In particular you suspected that wells in the Westland Road subarea of the Ordnance Gravel Critical Ground Water Area had benefited. This letter is my response to that request.

The perceived benefits to wells due to CLWID's artificial recharge may vary considerably. For example, aquifer thickness may have been sufficient to always supply needed quantities of water at some wells. In that case the rise in water levels due to artificial recharge may not seem important. A test of significant benefit would be whether a well yielded enough water during the historic low water level year of 1977. I am aware that some wells were clearly not adequate during that year and that the artificial recharge water level rises of only a few feet provided a tremendous benefit to production.

The source that is recharged by the CLWID canal consists largely of coarse gravels that are frequently capable of large yields to wells. This aquifer is found both in the Lost Lake Depot subarea and the Westland Road subarea. I see no reason to conclude that there is a separation of that source between the subareas. There are finer-grained aquifers in these areas also. Wells in those aquifers displayed little or no response to the artificial recharge.

Following a review of the data, I've attempted to create an inclusive list of large, active wells that experienced water level improvements (benefits) from artificial recharge by the CLWID. Please consult the enclosed well listing for reference to the Ordnance well numbering system found in the critical ground water area order.

Westland Road Subarea

Ordnance Well #'s: 9, 18, 19, 29, 34, 39, 56, 58

Lost Lake Depot Subarea

Ordnance Well #'s: 1, 3, 4, 5, 7A, 12, 13, 13A, 14, 14A, 16B, 17, 24A, 30, 33A, 33AA, 38, 42C, 42D, 45, 45A, 52, 54, 55, 71, 89, 90

Commerce Building
158 12th Street NE
Salem, OR 97310-0210
(503) 378-3739
FAX (503) 378-8130

This listing needs some explanation. Well 33AA is a newer, replacement well for Well 33B which is east of 33A by a few hundred yards and did not appear in the critical area order. The order viewed Wells #89 and #90 as basalt aquifer wells per their construction but they display strong artificial recharge effects and act as gravel aquifer wells. Well #71 is an old railroad well that the order also viewed as a basalt well but it responds, in part, as a gravel aquifer well. In addition, some unspecified number of smaller wells for domestic and other exempted uses would have benefited and are not listed in this letter.

If you have questions, please call me.

Sincerely,

Donn Miller
Hydrogeologist

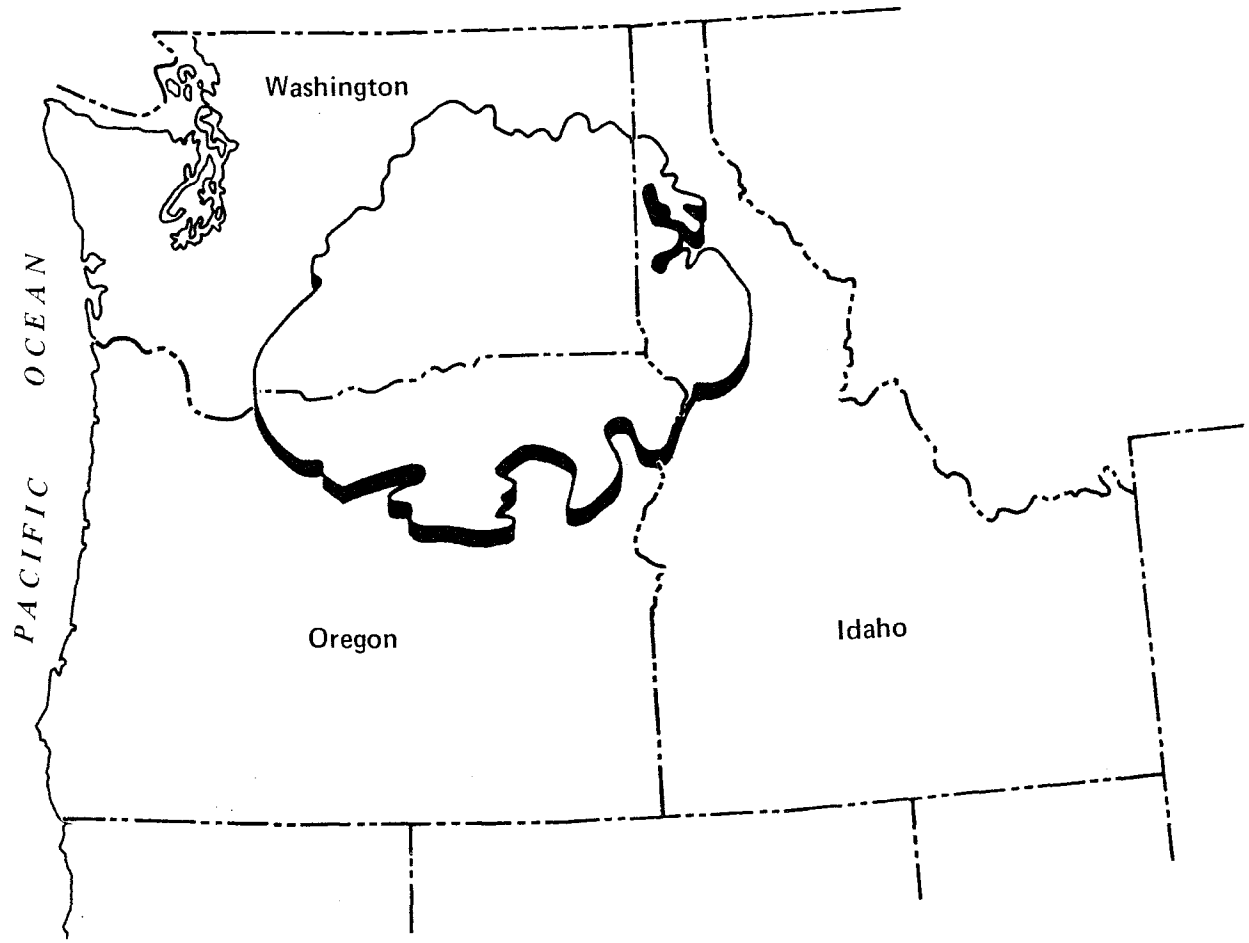
enclosure

cc: Tony Justus, Watermaster District 5

Ground-Water Flow Simulation of the Columbia Plateau Regional Aquifer System, Washington, Oregon, and Idaho

A contribution of the Regional Aquifer-System Analysis Program

U.S. GEOLOGICAL SURVEY
Water Resources Investigations Report 91-4187



Hansen (1994) etal

Table 9.--Calculated ground-water discharge within selected drainage basins for the time-averaged simulation

Reference number on plate 8, figure F	Basin name [1]	Drainage area (DA), in square miles [2]	Precipitation (P) [3]	Recharge (R) [4]	Leakage to: Drains	Leakage to: Rivers	Leakage to: GHBs	Total Discharge (D)	Streamflow: Base [5]	Streamflow: Annual (Q) [5]	Ratio of: R/D [6]	Ratio of: P/D [6]	Ratio of: D/DA [6]	Ratio of: D/Q [6]	Change in discharge cur-pre [7]
			(inches)	(all values in cubic feet per second)											
1	Rebel Flat Creek	79	16.0	92.8	17.6	0.0	0.0	0.0	1.2	--	NA	NA	0.0	NA	0.
2	Pine Creek	66	10.9	52.8	4.4	1.9	.0	.1	2.0	6.2	12.7	2.2	26.4	.03	.16	.4
3	Bowers Coulee	992	9.5	693.5	77.5	2.7	.0	.0	2.7	.0	9.8	28.7	257.0	.003	.28	-9.6
4	Glade Creek	427	8.3	261.3	22.1	7.9	.0	.0	7.9	1.3	6.4	2.8	33.1	.02	1.23	7.9
5	South Fork Palouse River	125	21.4	197.5	18.3	4.6	.0	4.0	8.6	18	36	2.1	23.0	.07	.24	-5.9
6	Alkali Flat Creek	158	13.8	159.9	26.9	6.5	.0	3.1	9.5	1.2	--	2.8	16.8	.06	NA	-.1
7	Alder Creek	254	9.7	181.5	21.7	9.3	.0	.3	9.6	1.2	17.0	2.3	18.9	.04	.56	-1.5
8	Dry Creek	52	23.9	91.1	14.7	4.6	.0	7.4	12.0	7.1	25.2	1.2	7.6	.23	.48	-2.3
9	Rock Creek, Washington	415	13.8	421.7	37.1	16.9	.0	4.6	21.5	37.0	107	1.7	19.6	.05	.20	-.5
10	Wilson Creek	437	11.2	360.1	51.2	20.5	.0	1.1	21.6	.0	14.5	2.4	16.7	.05	1.49	4.7
11	Cow Creek	543	12.6	504.0	80.9	20.7	2.2	.0	22.9	13	24	3.6	41.2	.02	.95	-18.0
12	Naneum Creek	83	24.5	149.3	52.7	23.8	.0	.0	23.8	46	78	2.2	6.3	.29	.30	.6
13	Hawk Creek	168	14.2	175.6	27.9	19.2	.0	4.6	23.8	8.8	--	1.2	7.4	.14	NA	-2.1
14	Union Flat Creek	172	19.8	250.7	39.1	22.7	.0	1.6	24.3	.0	35	1.6	10.3	.14	.69	.1
15	Crab Creek	1,015	13.3	994.5	106.3	17.5	7.1	.0	24.6	19	68	4.3	21.6	.05	.36	-38.2
16	Foster Creek	322	11.0	260.2	28.6	22.7	.0	4.7	27.4	2.0	--	1.04	9.5	.09	NA	-3.5
17	Douglas Creek	598	10.1	442.7	36.2	35.0	.0	2.1	37.1	.0	3.1	.98	11.9	.06	12.01	-6.7
18	Rock Creek, Oregon	515	12.7	481.3	58.5	51.0	.0	3.6	54.6	7.0	54	1.1	8.8	.11	1.01	-1.9
19	Willow Creek	837.3	11.7	720.3	104.0	61.3	.0	1.9	63.2	--	31	1.65	6.71	.10	2.04	-1.7
20	Asotin Creek	173	23.3	297.8	80.0	67.6	.0	7.6	75.3	44	78	1.1	3.95	.44	.97	-.2
21	Little Klickitat River	287	22.2	470.7	132.3	78.4	.0	.5	79.0	22	177	1.7	5.96	.28	.45	-21.8
22	Ahtanum Creek	126	26.3	243.5	108.6	94.5	.0	7.9	102.4	46	78	1.06	2.4	.81	1.31	2.8
23	Touchet River	725	18.0	959.3	148.0	121.7	21.4	8.8	109.1	.8	172	1.4	8.8	.15	.63	-15.2
24	North-South Fork Walla Walla River	132	38.0	369.0	152.3	155.8	.0	4.8	160.7	230	325	.95	2.3	1.22	.49	1.3
25	Satus Creek	577	17.1	726.3	231.4	117.9	.0	46.3	164.2	134	287	1.4	4.4	.28	.57	1.9
26	Tucannon River	430	21.5	679.2	203.5	166.5	.0	2.2	168.7	129	197	1.2	4.0	.39	.86	-6.2
27	Umatilla River	2,436	16.3	2,928.3	719.8	542.7	10.4	3.4	556.5	328	750	1.3	5.3	.23	.74	3.0

[1] Basins ranked by calculated discharge.

[2] Drainage area is not exact number due to size of model cells.

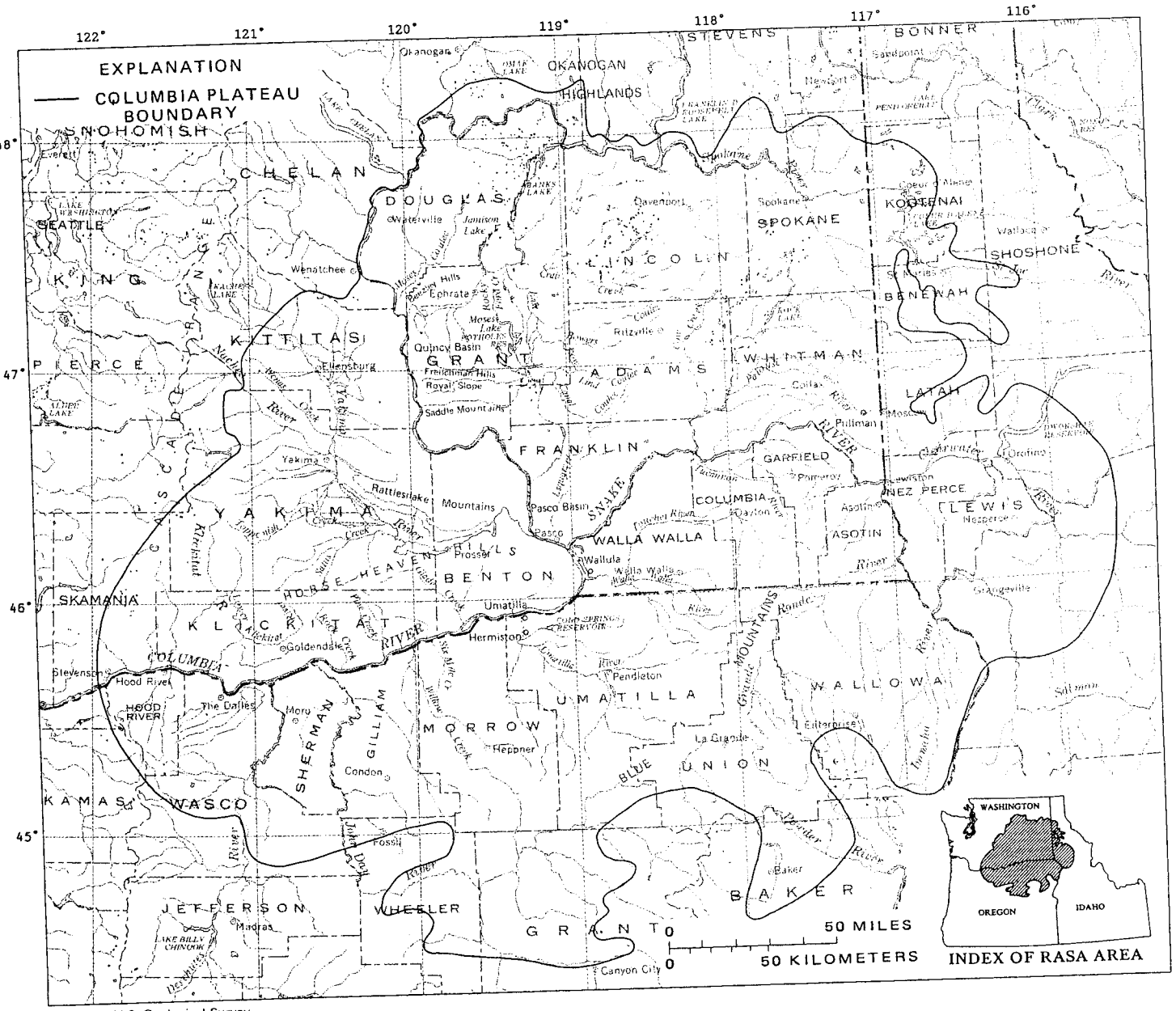
[3] Precipitation is presented in units of inches per year and cubic feet per second and does not include irrigation.

[4] Recharge includes contribution from irrigation.

[5] Values estimated by H. H. Bauer (U. S. Geological Survey, written commun., 1987); "--" means values could not be estimated.

[6] NA means one of the values is either 0.0 or could not be estimated.

[7] Change in calculated discharge from predevelopment (pre) to time-averaged (cur) conditions, cur-pre.



Base from U.S. Geological Survey
State base maps, 1:500 000

Figure 1.--Location of Columbia Plateau regional aquifer-system study.

Basalt, its intercalated sediments, and a small part of the Imnaha Basalt was compiled during the modeling effort. These combined rock materials are called the Grande Ronde unit, and the construction of this map is discussed below. Excluding the overlying sediments, the contours of thickness presented in plate 1 include all interbeds. Excluding the Grande Ronde unit, these thickness maps are based on gridded-averaged values of the tops of hydrogeologic units and thickness information of Drost and others (1990). The thickness maps on plate 1 are a good representation of average basalt unit thickness because the thickness of the interbeds is much smaller than the basalt thickness.

GEOLOGIC FRAMEWORK									HYDROLOGIC FRAMEWORK		MODEL LAYERS
BASALT STRATIGRAPHY								SEDIMENT STRATIGRAPHY	STUDY UNIT		
HOLOCENE to MIOCENE								Sediments of Miocene through Holocene age (glaciofluvial, fluvial, lacustrine, eolian, and ash fall materials). Locally includes sediments of the Palouse, Latah, Ringold, and Ellensburg Formations, and the Dalles Group. (Farooqui and others, 1981)	System	Overburden Aquifer	Layer 1
MIOCENE	Upper Miocene	COLUMBIA RIVER BASALT GROUP	YAKIMA RIVER BASALT GROUP	Saddle Mountains Basalt	Lower Monumental Member Ice Harbor Member Buford Member Elephant Mountain Member Pomona Member Esquatzel Member Weissenfels Ridge Member Asotin Member Wilbur Creek Member Umatilla Member				Aquifer	Saddle Mountains Unit	Layer 2
								Saddle Mountains-Wanapum Interbed		Confining Unit	
	Middle Miocene			Wanapum Basalt	Priest Rapids Member Roza Member Frenchman Springs Member Eckler Mountain Member				Plateau	Wanapum Unit	Layer 3
								Wanapum-Grande Ronde Interbed		Confining Unit	
	Lower Miocene			Grande Ronde Basalt		Magnetostratigraphic Units	N_2 R_2 N_1 R_1		Columbia	Grande Ronde Unit	Layer 4
				Picture Gorge Basalt			T				Layer 5
				Imnaha Basalt			N_0 R_0				
Precambrian to Lower Tertiary		Basement rocks (pre-Columbia River Basalt Group rocks)							Basement Confining Unit		

Figure 3.--Correlation chart of the geologic framework, hydrologic framework, and ground-water model layers for the Columbia Plateau. (Modified from Swanson and others, 1979c.)

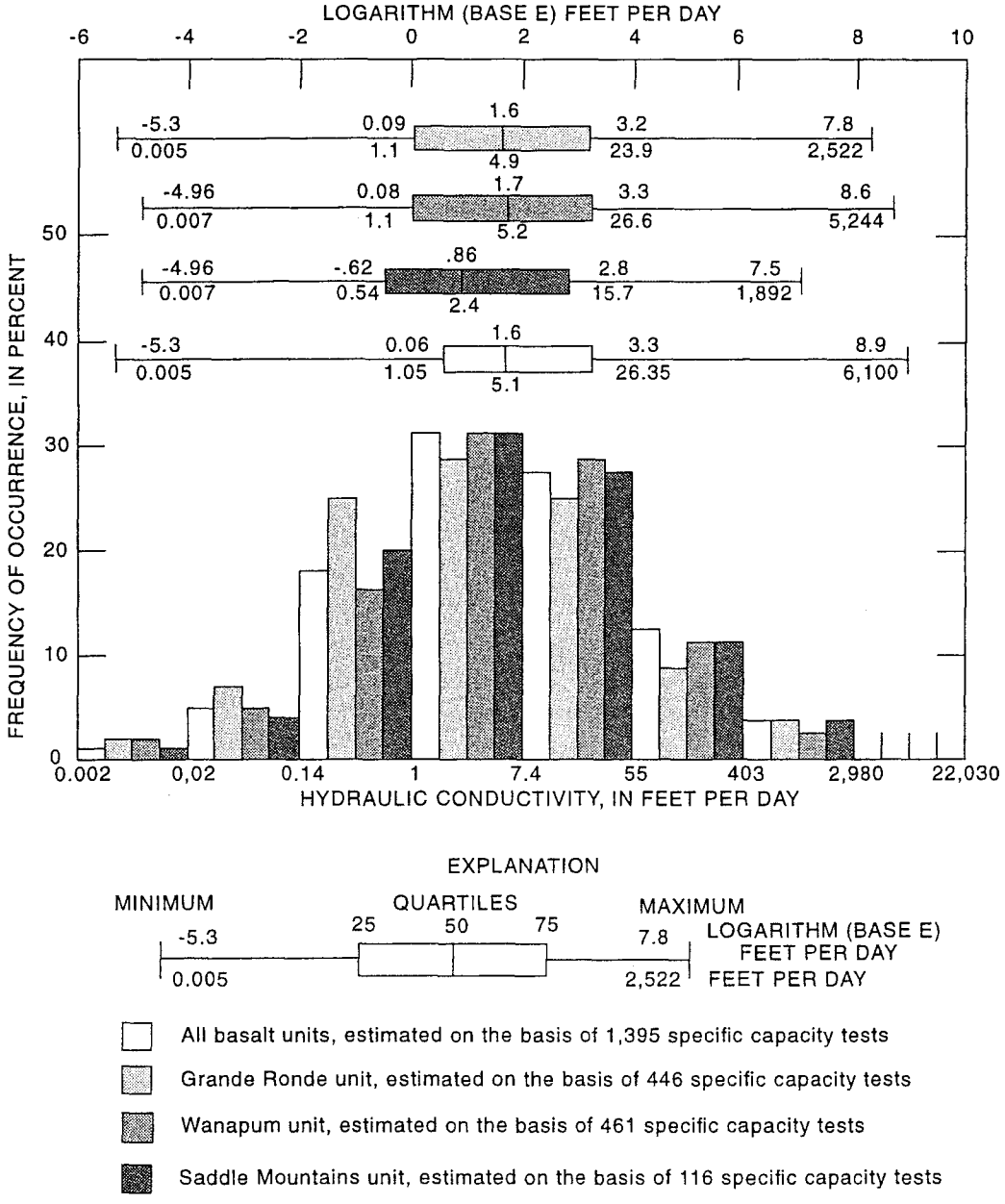


Figure 5.--Frequency distribution of hydraulic-conductivity data for the basalt units.

DISCUSSION OF THE REGIONAL FLOW SYSTEM ON THE BASIS OF MODEL SIMULATIONS

The following subsections describe the hydrology of the regional aquifer system by presenting the results of the predevelopment and time-averaged simulations, respectively. The changes in the flow system caused by water-development practices then are described. General hydrologic concepts learned about the regional aquifer operation are discussed throughout.

The discussions in the first two subsections first describe the regional water balance; next, flow within each unit is discussed; and last, flow between units is discussed. For the time-averaged simulation, discharge from the aquifer system also is described for selected basins and stream reaches. The discussions generally emphasize the Wanapum and Grande Ronde units because they make up about 98 percent of the volume of the aquifer system.

Consistent terminology is used in the following sections. Recharge refers to the long-term, average estimates from direct precipitation and irrigation practices, as described previously. This terminology will distinguish this water-budget component from ground water moving between units and stream leakage to the aquifer system. Local flow systems and short flow paths refer to lengths of scales less than about 10 mi, intermediate flow systems and flow paths refer to lengths ranging from about 10 to 30 mi, and long or regional length flow paths generally refer to lengths longer than about 30 mi. Local discharge is the model-calculated discharge to seepage faces (GHBs) and drains. Conceptually, most of the local flow occurs in the peripheral and upland areas and the overburden aquifer, whereas intermediate flow paths are found in those areas and also within the regional flow system. A diagrammatic section showing idealized ground-water flow patterns and the concept of local to regional flow systems is shown in figure 7.

Local Q ⇒ seepage faces and drains, ↑ rivers
Interm Q ⇒ rivers

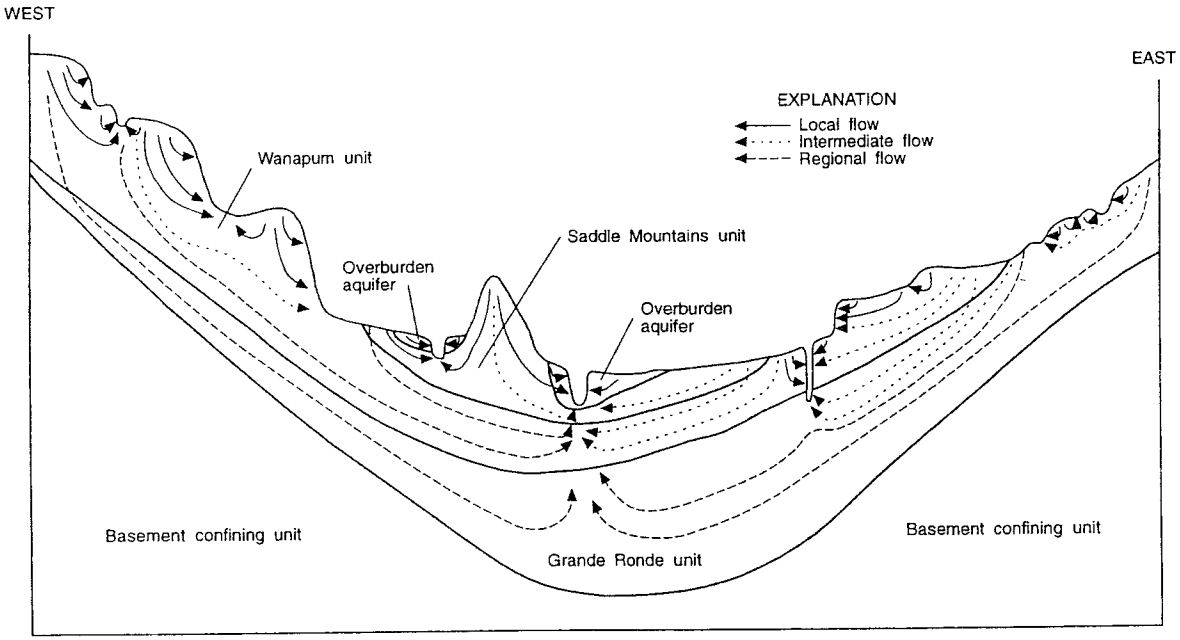


Figure 7.--Generalized diagrammatic hydrogeologic section showing idealized ground-water flow and the concept of local, intermediate, and regional flow systems.

Recharge and discharge occur throughout much of the area, and thus the terms recharge area and discharge area are not used. However, long flow paths generally terminate within certain areas on the plateau. These areas overlie that part of the aquifer described as the "regional discharge area." This area is typically where the upper Grande Ronde has higher heads than overlying units, where the sodium concentration (which increases with ground-water residence time; Steinkampf, 1989) in that unit is largest, and where all or most of the units in a vertical section have flow paths that terminate. This area generally is located in the lowest part of the Columbia Plateau and is in proximity to the major streams/drains within the study area: the Columbia, Snake, Yakima, Deschutes, and John Day Rivers.

Predevelopment Conditions

The calculated water budget of the regional aquifer system for the predevelopment simulation is presented in table 7; the calculated water budget for each layer is presented in tabular form (table 8) and in a schematic diagram (fig. 8), and the calculated discharge from the aquifer system is shown on plate 8d. Recharge to the ground-water system under predevelopment land-use conditions is shown on plate 4c.

Table 7.--Calculated water budget for the predevelopment and time-averaged simulations for the regional aquifer system
[Values in cubic feet per second]

Water-budget component	Predevelopment simulation (P)	Time-averaged simulation (TA)	Difference (TA-P)
Recharge	6,566.5	10,205.0	3,638.5
Leakage from rivers	553.6	556.7	3.1
Change in storage	.0	186.6	186.6
TOTAL IN	7,120.1	10,948.3	3,828.2
Leakage to rivers	2,753.9	3,804.5	1,050.6
Leakage to drains	3,944.8	5,595.5	1,650.7
Leakage to seepage faces	425.5	422.6	-2.9
Pumpage	.0	1,134.7	1,134.7
TOTAL OUT	7,124.2	10,957.3	3,833.1

Of the approximately 33,000 ft^3/s of precipitation (the average amount for the 22-year period of 1956-77) that falls within the ground-water model boundaries, about 6,570 ft^3/s (2.72 in/yr) becomes ground-water recharge. About 119 ft^3/s, 0.56 in/yr, (2 percent) enters the overburden aquifer, 133 ft^3/s, 0.59 in/yr, (2 percent) enters the Saddle Mountains unit, 2,185 ft^3/s, 2.0 in/yr, (34 percent) enters the Wanapum unit, and 4,131 ft^3/s, 4.7 in/yr, (62 percent) enters the upper Grande Ronde. Much of this recharging water (plate 4c) follows short flow paths within local flow systems and discharges to smaller streams and as seeps and springs along canyon and coulee walls (fig. 7 and plate 8d). For example, for model cells receiving more than about 3 in/yr of recharge, about 25 percent discharges locally, whereas for cells receiving less than about 3 in/yr and where there are no major rivers draining the regional system, less than 5 percent of the recharge discharges locally. Typically, some ground water moving along intermediate flow paths intermingles with water of short flow paths to become part of the local discharge.

Table 8.--Calculated water budget for the predevelopment and time-averaged simulations for the model layers
[Values in cubic feet per second]

Water-budget component	Predevelopment simulation Layer[1]					Time-averaged simulation Layer[1]				
	1	2	3	4	5	1	2	3	4	5
Recharge	119.3	132.6	2,184.7	4,131.1	0.0	3,202.4	576.7	2,267.8	4,160.6	0.0
Leakage from rivers	452.3	11.5	45.0	44.8	.0	407.0	8.7	69.5	71.5	.0
Leakage from overlying layers	.0	25.9	137.1	730.7	421.4	.0	224.6	574.6	936.4	423.1
Leakage from underlying layers	578.2	503.0	708.1	423.0	.0	733.8	560.9	685.4	425.8	.0
Change in storage	.0	.0	.0	.0	.0	.0	11.7	111.8	63.1	.0
TOTAL IN	1,149.8	673.0	3,074.9	5,329.6	421.4	4,343.2	1,382.6	3,709.1	5,657.4	423.1
Leakage to rivers	912.2	180.3	522.4	1,139.0	.0	1,882.5	274.9	531.4	1,115.8	.0
Leakage to drains	148.4	29.9	877.5	2,889.1	.0	1,670.1	225.2	812.3	2,888.5	.0
Leakage to GHBs	13.9	1.6	329.0	80.9	.0	16.2	14.4	312.2	79.8	.0
Leakage to overlying layers	.0	369.1	620.2	800.0	423.0	.0	503.9	685.6	790.5	425.8
Leakage to underlying layers	81.5	88.5	723.6	421.4	.0	499.9	320.8	914.9	423.1	.0
Pumpage	.0	.0	.0	.0	.0	285.1	39.7	449.2	360.8	.0
TOTAL OUT	1,156.0	669.4	3,072.7	5,330.4	423.0	4,353.8	1,378.9	3,705.6	5,658.5	425.8

[1] Layers identified in figure 11.

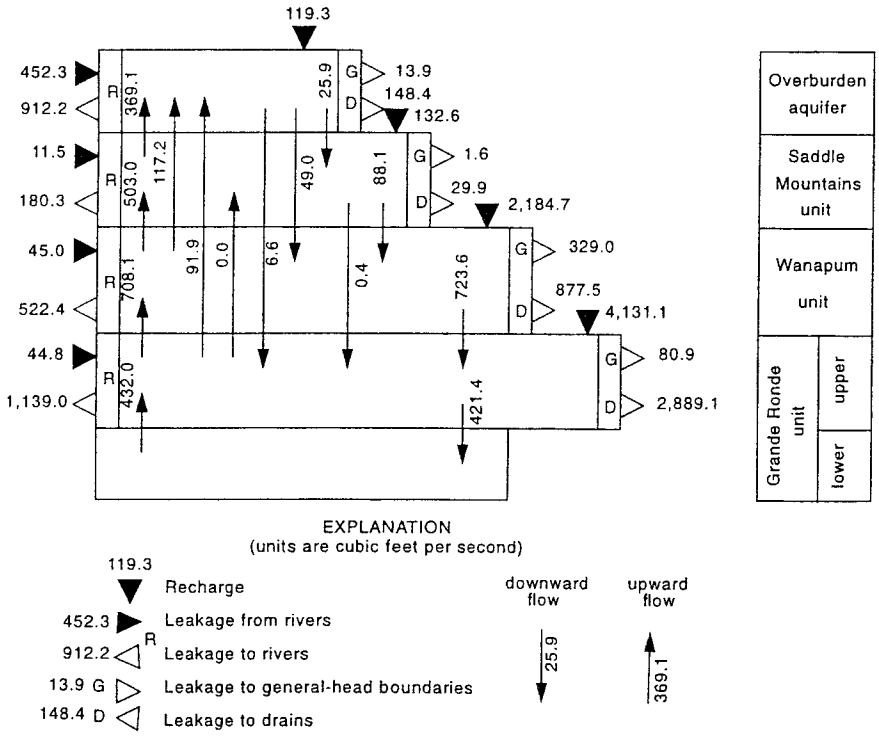


Figure 8.--Schematic diagram showing the model-calculated predevelopment (1850's) water buget.

Umatilla River: reach composite. Types of flows needed for both channel habitat and salmonids by life stage and species present in the mainstem Umatilla River. Local conditions vary depending on the species and the water-quality limiting parameters.

FLOW	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1. REARING Spawning Egg/Alevin Incubation Emergence Rearing Adult Holding	CHS CHF CO STS	CHS CHF CO STS	CHS CHF CO STS	CHS CHF CO STS	CHS CHF CO STS	CHS CHF CO STS	CHS CHF CO STS	CHS CHF CO STS	CHS CHF CO STS	CHS - CO STS	CHS CHF CO STS	CHS CHF CO STS
2. MIGRATION Juvenile Adult	- CHF CO STS	- CHF CO STS	- CHF CO STS	- - - STS	- - - STS	CHS - - STS	CHS CHF CO STS	CHS CHF CO STS	CHS CHF CO STS	CHS CHF - -	- CHF - -	- CHF CO STS
3. CHANNEL MAINTENANCE Habitat			X	X	X	X	X	X				
4. FLOW QUALITY CWA 303(d) Limited	Sed Flow Habitat	Sed Habitat	Sed Habitat	Sed Habitat	Sed Habitat	Sed Habitat	Sed Turb Habitat	Sed Turb Habitat	Temp Sed Turb Flow Habitat	Temp Sed Turb Flow Habitat	Temp Sed Flow Habitat	Temp Sed Flow Habitat

1. One or more of these life stages by species is present for the period noted. CHS = Spring Chinook; CHF = Fall Chinook; CO = Coho; STS = Summer Steelhead.
2. Juvenile and/or adult migration by species occurs for the period noted.
3. Seasonal, periodic high flow needed to move bedload and maintain channel/riparian habitat occur during the period noted.
4. CWA 303(d) = Clean Water Act 303(d); water-quality limited by parameter: Temp = Temperature; Sed = Sedimentation; Turb = Turbidity; Flow = Flow modification; Habitat = Habitat modification.

Types of flow needed for salmonids, lamprey and riparian/channel habitat.

Criteria	Flow Types		
	Rearing	Migration	Channel Maintenance
Life Stage or Condition	Spawning Egg incubation Fry emergence Rearing Adult holding	Adult immigration Juvenile emigration	Habitat for all stages Bedload transport Channel form/diversity
Season	All year	Oct – Jul (Salmonids) All year (Lamprey)	Winter/Spring
Water-Quality Limitation	Aquatic Weeds/Algae pH Temperature Sedimentation Turbidity Flow Modification Habitat Modification	Aquatic Weeds/Algae pH Temperature Turbidity Flow Modification Habitat Modification	Habitat modification
Flow Determination	Temperature/flow modeling for water-quality limitations	Temperature/flow Modeling for water-quality limitations	Field measurement of bankfull discharge by reach

Total Basalt pumpage by SubArea.

Assumption: Pumping occurs 3 years after permit-date issuance, eg, given a water-right priority date of 1976, pumpage under this permit begins in 1978. (A water-permit holder has three years to put the water to beneficial use stated on permit.)

SubArea Totals (1972)

SubArea	Total AF
0	1,532
3	1,954
4	190
7	3,773
8	3,070
10	9
Total	10,528

SubArea Totals (1973)

SubArea	Total AF
0	1,532
3	1,954
4	190
6	148
7	3,853
8	3,070
10	9
Total	10,756

SubArea Totals (1974)

SubArea	Total AF
0	1,532
3	2,201
4	190
6	148
7	4,135
8	3,070
10	24
Total	11,300

SubArea Totals (1975)

SubArea	Total AF
0	1,532
3	2,201
4	190
6	209
7	7,236
8	3,070
10	24
Total	14,462

SubArea Totals (1976)

SubArea	Total AF
0	1,957
3	4,985
4	190
6	209
7	6,972
8	3,070
10	24
Total	17,407

SubArea Totals (1977)

SubArea	Total AF
0	2,292
3	5,261
4	190
6	209
7	8,484
8	3,070
10	24
Total	19,530

SubArea Totals (1978)

SubArea	Total AF
0	2,451
3	7,978
4	270
6	209
7	9,363
8	3,070
10	24
Total	23,365

SubArea Totals (1979)

SubArea	Total AF
0	2,451
2	434
3	7,978
4	491
6	459
7	11,380
8	3,070
10	24
Total	26,287

SubArea Totals (1980)

SubArea	Total AF
0	2,533
2	434
3	8,737
4	569
6	225
7	19,034
8	3,070
10	24
Total	34,626

SubArea Totals (1981)

SubArea	Total AF
0	2,451
2	434
3	7,978
4	491
6	246
7	20,060
8	3,070
10	24
Total	34,754

SubArea Totals (1982)

SubArea	Total AF
0	2,451
2	434
3	7,978
4	491
6	246
7	20,785
8	3,070
10	24
Total	35,479

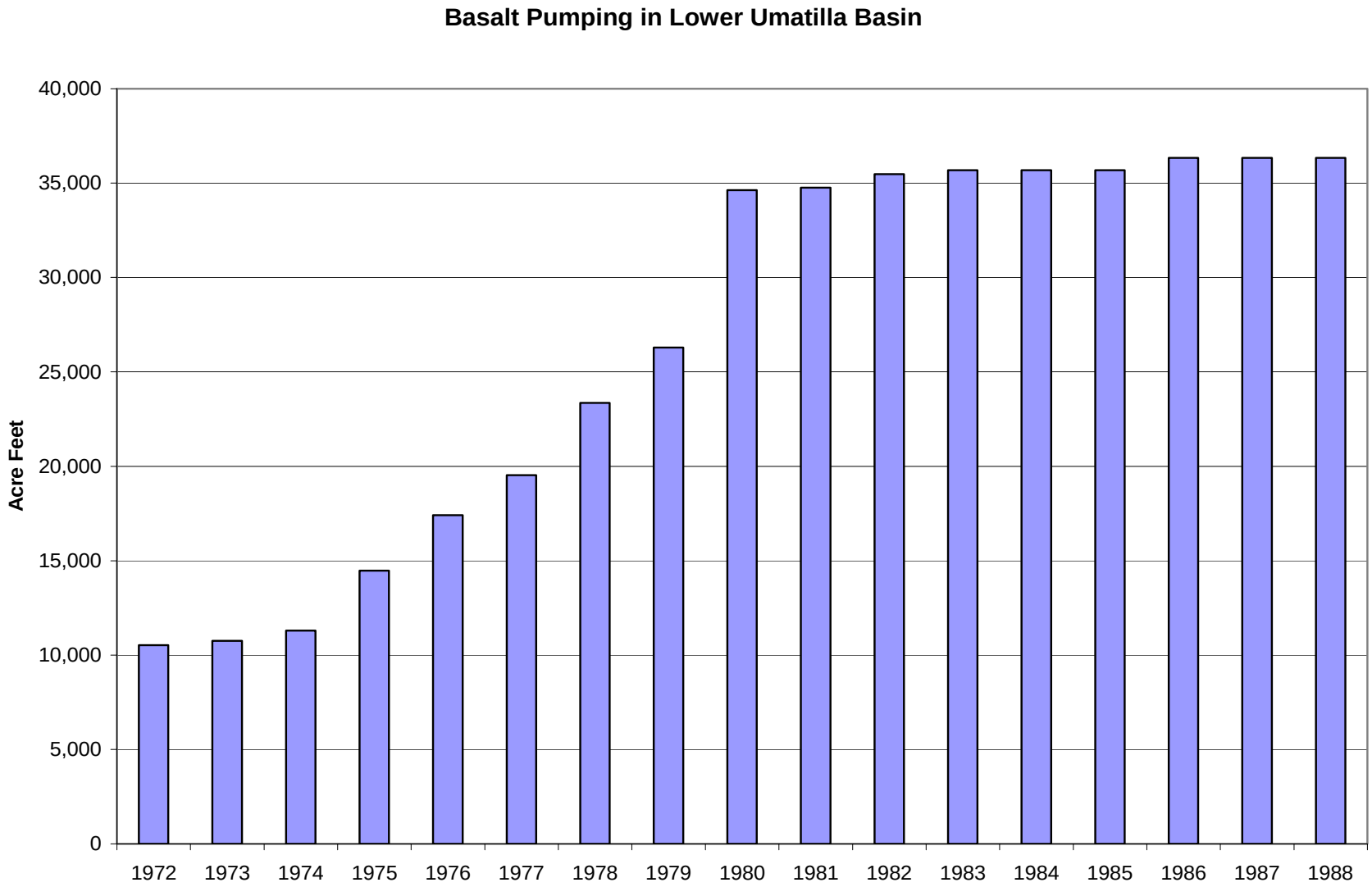
SubArea Totals (1983-85)

SubArea	Total AF
0	2,451
2	434
3	7,978
4	491
6	246
7	20,974
8	3,070
10	38
Total	35,682

SubArea Totals (1986-90)

SubArea	Total AF
0	2,451
2	434
3	7,978
4	491
6	661
7	21,192
8	3,070
10	55
Total	36,332

Year	Acre-Ft	Year	Acre-Ft
1972	10,528	1981	34,754
1973	10,756	1982	35,479
1974	11,300	1983	35,682
1975	14,462	1984	35,682
1976	17,407	1985	35,682
1977	19,530	1986	36,332
1978	23,365	1987	36,332
1979	26,287	1988	36,332
1980	34,626		


Basalt Pumping in Lower Umatilla Basin
Acre Feet
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988

USGS WRI 86-4211 9-section blocks (9-square miles)

	Quantity	Range		Total	
Overburden Unit	1	5000	5000 +	5000	5000 +
(Alluvial Material)	1	3000	4999	3000	4999
		1000	2999	0	0
	1	500	999	500	999
	1	100	499	100	499
		20	99	0	0
				8600	11497
				AVERAGE	**10049**

	Quantity	Range		Total	
Saddle Mountain		5000	5000 +	0	0
(CRBG)		3000	4999	0	0
		1000	2999	0	0
		500	999	0	0
	8	100	499	800	3992
	3	20	99	60	297
				860	4289
				AVERAGE	**2575**

	Quantity	Range		Total	
Wanapum		5000	5000 +	0	0
(CRBG)	2	3000	4999	6000	9998
	7	1000	2999	7000	20993
	5	500	999	2500	4995
	22	100	499	2200	10978
	8	20	99	160	792
				17860	47756
				AVERAGE	**32808**

	Quantity	Range		Total	
Grande Ronde		5000	5000 +	0	0
(CRBG)	2	3000	4999	6000	9998
	11	1000	2999	11000	32989
	9	500	999	4500	8991
	37	100	499	3700	18463
	10	20	99	200	990
				25400	71431
				AVERAGE	**48416**

	Quantity	Range		Total	
Combined Units	1	5000	5000 +	5000	5000 +
(Alluvium + CRBG)	7	3000	4999	21000	34993
	18	1000	2999	18000	53982
	16	500	999	8000	15984
	29	100	499	2900	14471
	9	20	99	180	891
				55080	125321
				AVERAGE	**90201**