

BEFORE THE WATER RESOURCES DIRECTOR OF OREGON  
UMATILLA COUNTY

IN THE MATTER OF CANCELLATION )  
OF A PORTION OF A WATER RIGHT ) ORDER  
IN THE NAME OF W.F. ZIMMERMAN, )  
R.L. SMITH AND HAROLD BARTSCH )

On February 13, and June 21, 1985 Forest L. and Katherine E. Baker, George L. Hoisington, Leroy R. and Marylee Farley of Sundale Water Co-op Association by Corey, Byler and Rew, 222 SE Dorion Avenue, Pendleton, Oregon 97801, submitted affidavits that they are the owners of a certain water right and the lands to which the water right is appurtenant; that they have abandoned any and all interest in and to the said water right and request the same be canceled.

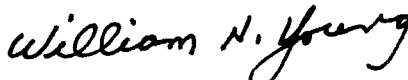
The water right in question is a portion of the right described by the certificate recorded at page 29800, Volume 21, State Record of Water Right Certificates, in the name of Zimmerman, Smith and Bartsch, , and is for the use of not to exceed 0.02 cubic foot per second of water from McKay Creek, with a date of priority of April 13, 1940, for irrigation of 1.15 acres in SE 1/4 NW 1/4 Section 21, Township 2 North, Range 32 East, W.M..

ORS 540.621 provides that: "Whenever the owner of a perfected and developed water right certifies under oath to the Water Resources Director that the water right has been abandoned by him and that he desires cancellation thereof, the Water Resources Director shall enter an order canceling the water right."

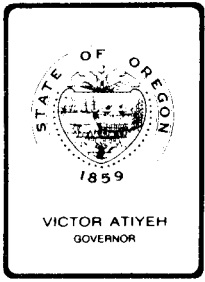
NOW, THEREFORE, it hereby is ORDERED that the said water right, being a portion of the right described by the certificate recorded at page 29800, Volume 21, State Record of Water Right Certificates, is canceled.

It is FURTHER ORDERED that the said certificate of water right is canceled, and in lieu thereof a new certificate be issued to describe the balance of water right NOT involved in this proceeding.

Dated at Salem, Oregon, this 5th day of July, 1985.

  
WILLIAM H. YOUNG <sup>mhb</sup>  
Director

0056/r  
9293C



## *Water Resources Department*

### MILL CREEK OFFICE PARK

555 13th STREET N.E., SALEM, OREGON 97310

PHONE 378-3066

July 10, 1985

All parties having received notice of record in the matter of determination of a critical ground water area in the Butter Creek Area of Morrow and Umatilla Counties, Oregon

Attached is the amended proposed order in the above proceeding together with corrected Plate 3. All parties receiving notice in this proceeding may file written objections and exceptions to the proposed order with the Water Resources Director. Such objections and exceptions must be received in the office of the Director, Water Resources Department, Salem, Oregon 97310, on or before August 26, 1985.

Each party filing written objections and exceptions may present a 15-minute oral argument to the Director personally on Thursday, August 29, 1985 at 10:00 a.m. in Room 114 of the Umatilla County Courthouse in Pendleton, Oregon. Parties are reminded that the public hearing record is closed and that no new facts can be considered. The record is available for inspection at the Salem office of the Water Resources Department.

NOTE: The enclosed amended proposed order and corrected Plate 3 supersede and take the place of the proposed order dated June 25, 1985 and the accompanying Plate 3 and letter of transmittal. PLEASE DISREGARD THE JUNE 25, 1985 MAILING IN ITS ENTIRETY.

Sincerely,

  
JAMES W. CARVER, JR.  
Hearing Officer

JWC:wpc

8764C

BEFORE THE WATER RESOURCES DIRECTOR OF OREGON

IN THE MATTER OF DETERMINATION OF A ) AMENDED PROPOSED ORDER  
CRITICAL GROUND WATER AREA IN THE )  
BUTTER CREEK AREA IN MORROW AND ) (Statement, Evidentiary Ruling, )  
UMATILLA COUNTIES, OREGON ) (Findings of Fact, Ultimate )  
) (Findings of Fact, Conclusions )  
) (of Law, and Order )

STATEMENT

This proceeding for determination of a critical ground water area in the Butter Creek area in Morrow and Umatilla Counties, Oregon, was initiated by the State Engineer of Oregon (predecessor to the Water Resources Director) pursuant to the provisions of ORS 537.730 to 537.740 based on water level measurement data showing a trend of continuing substantial decline of the water level in wells producing ground water from basalts underlying the area.

Pursuant to the Director's Notice of Continued Public Hearing dated October 1, 1984, given in accordance with the provisions of ORS 183.335, 183.415 and 537.730 and the requirements of OAR 137-01-010, 137-03-001, 690-01-000 and 690-01-005, the matter was brought to hearing in Hermiston, Oregon on December 5, 1984, before James W. Carver, Jr., an employee of the Water Resources Department, authorized to preside in behalf of the Director.

Fritz Cutsforth, a holder of certain rights to appropriate ground water within the subject area, was represented in the hearing by Robert E. O'Rourke and Stephen M. Bloom, Attorneys at Law of the law firm of Kottkamp and O'Rourke, Pendleton, Oregon.

Paul Taylor and William Doherty, both being holders of certain rights to appropriate ground water within the subject area, were represented in the hearing by Dennis D. Doherty, Attorney at Law, Hermiston, Oregon.

All other parties who participated in the hearing appeared pro se.

Testimony and evidence received into the hearing record at two previous hearings in this matter, held on February 18, 1976 and June 28, 1977, were made a part of the record of the December 5, 1984 hearing by notice.

The Water Resources Director was present throughout the December 5, 1984 hearing, and now, based on the record in this matter, makes and enters the following evidentiary rulings, findings of fact, ultimate findings of fact, conclusions of law, and proposed order.

## EVIDENTIARY RULINGS

Paul Taylor and Wiliam Doherty object to the Water Resources Department's Exhibit 84-A, "Update of Ground Water Conditions and Declining Water Levels in the Butter Creek Area, Morrow and Umatilla Counties, Oregon", on the ground that they were not provided with adequate time to fully consider the said exhibit prior to the hearing on December 5, 1984.

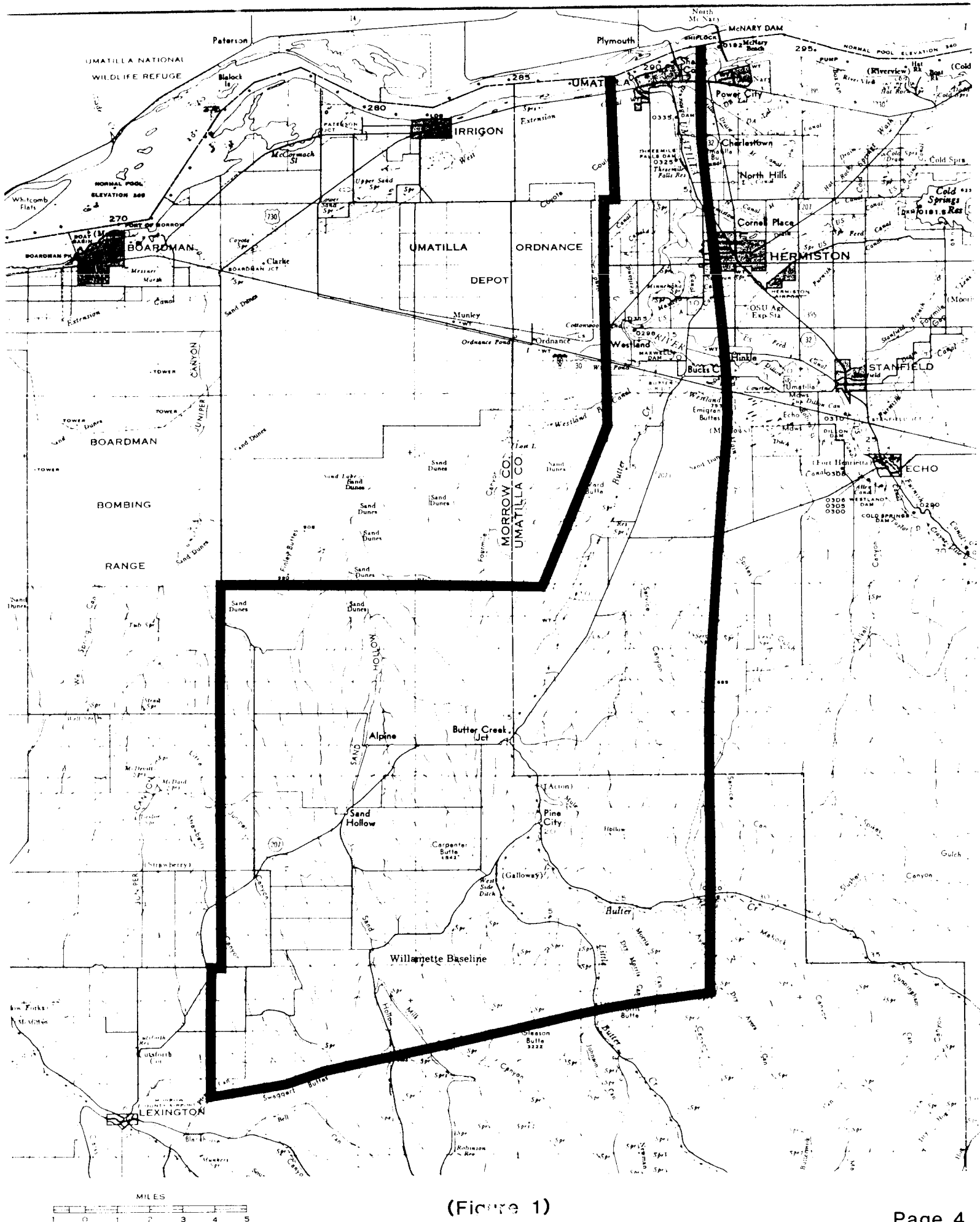
The objection is overruled. The said Ground Water Report No. 30 is a reprint of Ground Water Report No. 24, together with additional text and data to present added measurements and information generated within the time period between the hearing of June 28, 1977 and the hearing of December 5, 1984. An "Executive Summary of Ground Water Report No. 30" was mailed to each person served with the Notice of Continued Public Hearing dated October 1, 1984. The "Executive Summary" included the Preface, Conclusions, and Recommendations from the preliminary draft of Ground Water Report No. 30. A complete copy of the preliminary draft was made available upon request in the Notice of Continued Public Hearing. Any difference between the information presented in the "Executive Summary of Ground Water Report No. 30", the preliminary draft of Ground Water Report No. 30 and the published "Ground Water Report No. 30" were the subjects of direct and cross-examination in the December 5, 1984 hearing.

## FINDINGS OF FACT

The proposed Butter Creek Critical Ground Water Area as shown on Figure 1, encompasses approximately 274 square miles of land area in north-central Oregon, near the city of Hermiston. The boundaries of the subject area are shown on Corrected Plate 3 and are specifically described as follows:

Beginning at the center of Section 9, Township 5 North, Range 28 East, WM, at the Columbia River and running southerly through Umatilla Butte in the east half of Section 28, Township 5 North, Range 28 East, WM; thence continuing southerly through Hermiston Butte within the northeast quarter of the northwest quarter, Section 10 Township 4 North, Range 28 East, WM and continuing southerly through Emigrant Buttes in the east half of Section 3, Township 3 North, Range 28 East, WM; thence southward through the center of Section 22, Township 3 North, Range 28 East, WM and continuing southerly through Service Buttes to the northwest corner of Section 27, Township 2 North, Range 28 East, WM; thence southerly along the center of Range 28 East, WM, to the Willamette baseline; thence southerly to the southeast corner of Section 3, Township 1 South, Range 28 East, WM; thence along the anticlinal axis connecting Swaggart Buttes, Gleason Butte, and Morris Butte and being a line extending from the southeast corner of Section 3, Township 1 South, Range 28 East, WM, to the southwest corner of the proposed critical area at the south quarter corner of Section 19, Township 1 South, Range 26 East, WM; thence north along the center of Sections 19, 18, 7, and 6 of Township 1 South, Range 26 East, WM to the Willamette baseline; thence east along the baseline to the southwest corner of Township 1 North, Range 26 East, WM; thence north along the west boundaries of Townships 1 and 2 North, Range 26 East, WM to the northwest corner of Section 6, Township 2 North, Range 26 East, WM; thence east along the Township line common to Township 2 North, and Township 3 North, to the southwest corner of Section 35, Township 3 North, Range 27 East, WM; thence northeast along a straight line connecting said corner to the southwest corner of Section 6, Township 3 North, Range 28 East, WM; thence north along the west boundary of Range 28 East to the northwest corner of Township 4 North, Range 28 East, WM; thence east along the Township line to the southwest corner of Section 31, Township 5 North, Range 28 East, WM; thence north along the west boundary line of Range 28 East to the Columbia River; thence along the south edge of the Columbia River to the point of beginning.

The aforesaid boundaries are administrative boundaries, located in recognition of structural influences on the movement of ground water in the basalts and other factors such as distance from producing wells.



(Figure 1)

The proposed Butter Creek Critical Ground Water Area which lies adjacent to the east and south boundaries of the Ordance Basalt Critical Ground Water Area as determined by the Water Resources Director's Order dated April 2, 1976, extends southward from the Columbia River toward the foothills of the Blue Mountains east of the town of Lexington. The shallow alluvial aquifer included in the Ordance Critical Ground Water Area extends into the northerly "panhandle" portion of the proposed Butter Creek Critical Ground Water Area.

The surface topography within the proposed critical ground water area rises from approximately 265 feet above mean sea level (msl), the average pool elevation of Lake Umatilla formed by John Day Dam, to 2739 feet msl, 3222 feet msl and 2931 feet msl at the summits of Swaggert Buttes, Gleason Butte and Morris Butte respectively. Butter Creek and its tributaries, together with an intermittant stream in Sand Hollow, form the main surface drainage system within the boundaries of the subject area.

The Columbia River Basalt Group of Tertiary Age is the dominant geologic unit within the proposed Butter Creek Critical Ground Water Area. Overlying the basalts are three sedimentary units of Quaternary Age. The oldest sediment is a fanglomerate of silt and conglomerate with the conglomerate composed of eroded basalt fragments that were deposited as surface slope debris. Below an elevation of approximately 750 feet msl, the fanglomerate is overlain by glacial lake deposits made up of poorly sorted sand, gravel, and interbedded silt which were deposited by floodwaters of the Columbia River. The youngest alluvial deposit is composed of poorly sorted, medium-grained sand and gravel that cover the flood plain along Butter Creek.

There are at least two ground water reservoirs within the proposed Butter Creek Critical Ground Water Area: 1) Alluvial materials overlying the basalts, consisting of small local deposits of sand and gravel that occur along the flood plains of Butter Creek and the Umatilla River as well as the fanglomerate and the glacial lake deposits, provide limited supplies of ground water; and 2) the Columbia River Basalt Group with many saturated zones connected to varying degrees by fractures and by wells, is the major ground water reservoir and is the subject of this proceeding.

The Columbia River Basalt Group is composed of a thick series of accordantly layered basaltic lavas that form a broad plain covering more than 50,000 square miles of Oregon, Washington and Idaho. The Umatilla Structural Basin occupies approximately 2500 square miles of the Columbia River basalts from Arlington east to Athena-Weston and from the Columbia River south to the crest of the Blue Mountains. The proposed Butter Creek Critical Ground Water Area lies in the north central portion of the Umatilla Structural Basin. The thickness of individual lava flows vary from 10 to 150 feet, with a combined thickness that may exceed 5000 feet near the Columbia River. As the Blue Mountains were being uplifted, the volume of lava extruded decreased with time, resulting in thinner flows of smaller areal extent. In addition, periods of quiet between flows became longer allowing for more weathering to take place on the younger basalts.

The increased time between individual flows allowed more extensive sediments to be deposited. These sediments or interbeds constitute 4 to 30 percent of the total thickness of the Columbia River Basalt Group.

The dense central portion of the individual flows restricts vertical movement of ground water except where it has been fractured. Ground water moves freely in the lateral direction through the interflow zones. The porous vesicular top and bottom of individual flows, combined with coarse sediments deposited between flows, account for the higher permeability. Stratigraphic changes such as pinchouts, overlaps, and channel filling can disrupt the continuity of the porous interflow zones. Structural deformation of the basalts influence the rate of movement and storage of ground water in the Columbia River Basalt Group.

The dense centers of the basalt flows act as confining layers. Most of the basalt ground water reservoir is confined. Ground water levels measured in wells represent the potentiometric head or pressure head of the confined system. The measurements are usually expressed as an elevation above sea level so that comparisons between water levels in wells with varying locations can be made. Ground water flows from areas with high head toward areas of lower head. Ground water in the basalts moves down the hydraulic gradient through the porous interflow zones. In the Butter Creek area heads are greater in the foothills to the south and lower in the north near the Columbia River, indicating ground water movement from south to north.

Carbon-14 age dating of ground water contained in the basalts indicates ages varying from modern to approximately 24,000 years old. The extreme age of ground water indicates a very slow rate of movement.

Hydrogeologic data collected in Oregon and Washington indicates that natural discharge from the basalt ground water reservoir occurs mainly to the Columbia River, to the north. Also, there is some discharge to Butter Creek and the other streams that drain the area.

The climate in the proposed Butter Creek Critical Ground Water area is semi-arid with hot, dry summers and cold winters. Climatological data is collected at Hermiston, Oregon. The average number of frost-free days varies from 158 to 184 days. The average annual direct surface evaporation measured at Hermiston is 31.5 inches per year. Winter evaporation records at Hermiston indicate a rate of 4 inches or less per year. The mean annual precipitation at the Hermiston site is 8.7 inches, based on a period of record from 1907 through 1982. The precipitation usually occurs during the winter and spring months.

Precipitation at the Hermiston climatological station has been above the mean annual rate from 1978 through 1983, averaging 2.84 inches per year above normal.



Limited ground water recharge occurs to the basalt formations. In some areas where tilted beds of basalt outcrop at land surface, they may allow infiltration of water from rainfall, saturated surface gravels, or streams that cross porous contact zones. An unconfirmed estimate of natural recharge, developed during the calibration of a ground water model of the Umatilla Structural Basin by the United States Geological Survey, suggests a natural recharge approximating 50,000 acre-feet per year for the entire Umatilla Structural Basin. The proposed Butter Creek Critical Ground Water Area occupies approximately 274 square miles of the 2,500 square mile area encompassed by the Umatilla Structural Basin. Therefore, only a portion of the estimated 50,000 acre-feet of natural recharge benefits the proposed Butter Creek Critical Ground Water Area. Also, part of the estimated 50,000 acre-feet of recharge enters the shallow ground water reservoir and is withdrawn or discharged into streams, further reducing the amount of natural recharge reaching the basalt formations.

Ground water uses within the proposed Butter Creek Critical Ground Water Area generally fall into three categories: 1) domestic and stock water, 2) irrigation uses, and 3) municipal uses.

There are 467 wells which were constructed for domestic purposes within the subject Butter Creek area, for which water well reports have been filed with the Water Resources Department. There are other domestic wells which predate the requirement for the filing of a water well report, and some irrigation wells have been converted to domestic use.

It is estimated that each domestic well withdraws 1.0 acre-foot of water annually for household uses and irrigation of lawn and garden. The exact number of domestic wells now in use is not known. However, it appears that approximately 600 acre-feet per year is withdrawn from the basalts for domestic purposes.

As of October 1984, there are 22,962.80 acres with permits or rights for primary irrigation with ground water and 9,782.98 acres with supplemental permits or rights to irrigate with ground water. If the maximum allowable water use per year were exercised, it would require over 98,000 acre-feet of water annually.

Irrigation water uses are by far the largest water uses affecting the total changes in ground water storage within the proposed critical ground water area.

In early 1976, the Oregon Water Resources Department required that irrigation wells be installed with operating totalizing flow meters. Data collected in 1976, 1977, and 1978 are only a partial representation of the pumpage in the Butter Creek area as it took that time interval for the flow meters to be installed on all of the wells. The maximum number of wells with flow meters that showed usage during both 1979 and 1980 was 52 wells. In 1983 there were 42 metered wells in use.

During the period from years of 1979 to 1983, for those times that flowmeters were not functioning properly or were missing, power consumption records were used to calculate the amounts of water pumped but not metered.

For the years of 1976, 1977 and 1978, power consumption records were not available. The total amounts of water withdrawn for each of those years was estimated on the assumption that the average withdrawal for unmetered wells was the same as for the metered wells.

The estimated withdrawal of water from the proposed Butter Creek Critical Ground Water Area basalt ground water reservoir for irrigation purposes during the years of 1976 through 1983 is as follows: (Exhibit WRD 84-A, page 38 and Figure 3, herein)

1976 - 24,000 acre-feet	1980 - 20,124 acre-feet
1977 - 27,000 acre-feet	1981 - 20,985 acre-feet
1978 - 23,000 acre-feet	1982 - 18,933 acre-feet
1979 - 20,663 acre-feet	1983 - 14,948 acre-feet

In 1977, 38 metered wells pumped a total of 20,220 acre-feet from the basalt aquifers. It is estimated that nearly 7,000 acre-feet of ground water was pumped from other wells without operating meters. (The estimate assumes that at least 13 wells were operated without being monitored and that the average yield from the 13 wells was the same as the average yield from the 38 metered wells.) Therefore, it is believed that the total amount of water withdrawn in 1977 approximated 27,000 acre-feet.

During the 1982 irrigation season, 18,933 acre-feet of ground water was pumped for non-exempt irrigation.

Non-exempt pumpage for irrigation for 1983 was 14,948 acre-feet, the lowest annual total since flowmeters were installed on all of the wells.

Of the 26 wells measured in February of 1983 and 1984, 12 of the wells showed a water level rise while 14 wells showed water level declines. In the preceding year when 18,933 acre-feet were withdrawn, 17 of the 20 wells with water level measurements in February of 1982 and 1983 showed declines.

An analysis of water level data presented in Ground Water Report No. 30 establishes that water level rises in several wells during the last few years do not indicate an increase in the amount of ground water in storage in the basalt ground water reservoir within the proposed Butter Creek Critical Ground Water Area. These rises are in response to a leveling of the water surface in the ground water reservoir due to an overall reduction in pumpage and the reduction or elimination of pumpage from the individual well where the water level rise was measured.

There have been several major changes in the irrigation practices used in the Butter Creek Area. The change that probably has had the most effect was the reduction in the length of the irrigation season. Pumping used to be year-round except during harvest and for a short period in December. Irrigation does not currently begin until late April or May and ends generally in October. When grain is being irrigated, the pumps are generally shut down by late June or early July and then start up again in late August or September. Some of the water users are applying less water when they are irrigating. Most of the systems have been converted to low pressure rather than high pressure. This saves mainly on power consumption, but there is also some savings on water due to a reduction in the amount of water being applied. These changes have lowered the rate of ground water withdrawals.

Many of the hydrographs have exhibited a decreasing rate of water level decline. This may be an indication that the ground water system in the Butter Creek Area is starting to reach an equilibrium. However, the declines which continue are an indication that, for the 1983 irrigation season, at least in some areas the capacity of resource is exceeded. Attainment of stability may require further reduction in annual pumpage in some areas.

Water levels within the boundaries of the proposed Butter Creek Critical Ground Water Area have declined excessively. The following is a list of the number of wells by the total amount of water level decline.

<u>Number of Wells</u>	<u>Water Level Decline (feet)</u>
3	Greater than 300
5	200 to 300
19	100 to 200
11	50 to 100
13	0 to 50

Of the 53 wells with long-term water level data, 51 of the wells have average annual water level declines varying from 0.22 feet to 17.24 feet. Thirty wells have average annual water level declines greater than five (5) feet.

The testimony and evidence in the record has established that the average annual withdrawal of water from the proposed Butter Creek Critical Ground Water Area basalt ground water reservoir for the period of years of record, together with any natural discharge from the said ground water reservoir, has been in excess of the average annual natural recharge to the said ground water reservoir. In other words, the proposed Butter Creek Critical Ground Water Area basalt ground water reservoir has been the subject of ground water overdraft during the period of years of record.

Overdrafting of the proposed Butter Creek Critical Ground Water Area basalt ground water reservoir has resulted in a continuing year-to-year decline (lowering) of the static water level within the ground water reservoir, dewatering upper reaches of the ground water reservoir substantially in excess of what could be considered necessary to accommodate available annual recharge to permit full development of the potential sustained yield of the ground water reservoir. The testimony and evidence has established that the continuing decline of the static water levels in the proposed Butter Creek Critical Ground Water Area experienced during the years of record has been an excessive decline.

In the previous two Orders concerning the Butter Creek Critical Ground Water Area (April 2, 1976 and May 23, 1978), the area was divided into four subareas for the purpose of management of the available ground water resource. The boundaries of these subareas were administrative boundaries. However, the previous subarea boundary that separated the Sand Hollow and Butter Creek Junction Subareas (Plate 2, Ground Water Report No. 30) was based on a north/south trending fold in the basalts that was believed to be a barrier to ground water flow. Current ground water levels presented in Figure 10, Ground Water Report No. 30 do not confirm the existence of a barrier at that location.

Also, the boundary that separated the South Subarea from the Sand Hollow/Butter Creek Junction Subareas to the north was based on ground water levels that indicated the presence of a barrier to flow. That barrier to ground water flow exists but is located 2.5 miles south of the original location. Data collected during the annual measurement rounds and an aquifer test indicated the semi-permeable barrier's actual location.

Based on geologic and hydrologic information presented at the December 4, 1984 Hearing, new subareas are proposed. (Exhibit 84-A)

Analysis of the hydrologic and geologic data received into evidence indicate different water level trends in various portions (subareas) of the Butter Creek Critical Ground Water Area. These subareas are all part of the same ground water reservoir, but administration of the resource is better served by addressing each subarea independently.

For administrative purposes, recognizing geologic and hydrologic data in the hearing record, the proposed Critical Ground Water Area can be more effectively managed by being divided into six subareas by administrative boundaries shown on Corrected Plate 3 and described as follows:

North Subarea - The eastern boundary is the trace of the Service Anticline from the Columbia River south to one mile north of Emigrant Buttes, then due west for approximately 3.5 miles to the western boundary along the Range line common to Range 27 East and Range 28 East. The western boundary roughly parallels a geologic feature in the basalts. The northern boundary is the Columbia River which occupies The Dalles-Umatilla Syncline.

The boundaries of the proposed North Subarea are more particularly described as:

Beginning at the center of Section 9, Township 5 North, Range 28 East, WM at the Columbia River and running southerly through Umatilla Butte in the east half of Section 28, Township 5 North, Range 28 East, WM; thence continuing southerly through Hermiston Butte within the northeast quarter of the northwest quarter, Section 10 Township 4 North, Range 28 East, WM and continuing southerly towards Emigrant Buttes in the east half of Section 3, Township 3 North, Range 28 East, until reaching the Township line common to Township 3 North and Township 4 North, Range 28 East, WM; thence west along the Township line common to Township 3 North and Township 4 North, to the Southwest corner of Township 4 North, Range 28 East, WM; thence north along the west boundary line of Range 28 East to the Northwest corner of Township 4 North, Range 28 East, WM; thence east along the Township line to the southwest corner of Section 31, Township 5 North, Range 28 East, WM; thence north along the west boundary line of Range 28 East to the Columbia River; thence easterly along the south edge of the Columbia River to the point of the beginning.

All the wells in the proposed North Subarea are in the upper basalt ground water reservoir, separated in part from the regional ground water reservoir by a confining layer. Ground water from the regional reservoir works its way upward through geologic structures into the upper reservoir. Ground water levels collected in this subarea indicate downward trends with minimal large scale irrigation. The major use over the past several years has been for domestic supplies, an exempted use.

Annual withdrawals of ground water are minimal and ground water levels in the basalt ground water reservoir in the proposed North Subarea have been nearly stable. Water levels in several of the wells had increased seasonal declines during the summer of 1984 indicating an increase in the useage of ground water. The increased seasonal declines appear to be the result of increased useage of water for exempted or non-permitted uses as flowmeter data indicated the lowest annual metered pumpage since 1976.

To maintain stable water levels in the basalt ground water reservoir, pumpage should be limited to 200 acre-feet annually for all uses requiring a water right of record.

Echo Junction Subarea - The eastern boundary is the Service Anticline from Emigrant Buttes to the northern part of Service Buttes, then west-southwest along the Willow Creek Monocline as expressed by a rapid drop in the potentiometric surface. The western boundary is the northern extension of a northwest-southeast trending fault that causes the Butter Creek channel to change directions. The northwestern boundary is the southeastern boundary of the Ordnance Basalt Critical Ground Water Area. The northern boundary is the southern boundary of the North Subarea.

The boundaries of the proposed Echo Junction Subarea are more particularly described as:

Beginning at a point approximately 3290 feet east of the northwest corner of Section 3, Township 3 North, Range 28 East, WM and running south through Emigrant Buttes in the east half of Section 3, Township 3 North, Range 28 East, WM; thence southerly through the center of Section 22, Township 3 North, Range 28 East, WM, and continuing southerly towards Service Buttes to a point approximately 1180 feet east of the southwest corner of Section 10, Township 2 North, Range 28 East, WM; thence westerly to the southwest corner of Section 10, Township 2 North, Range 28 East, WM; thence southwest along a straight line connecting said corner to the southwest corner of Section 21, Township 2 North, Range 27 East, WM; thence northwest along a straight line connecting said corner to the northwest corner of Section 1, Township 2 North, Range 26 East, WM; thence east along the Township line common to Township 2 North and Township 3 North, to the northwest corner of Section 2, Township 2 North, Range 27 East, WM; thence northeast along a straight line connecting said corner to the southwest corner of Section 6, Township 3 North, Range 28 East, WM; thence north along the west line of said Section 6 to the northwest corner of Township 3 North, Range 28 East, WM; thence east along the Township line to a point approximately 3290 feet east of the northwest corner of Section 3, Township 3 North, Range 28 East, WM, the point of beginning.

Two of the wells in the proposed Echo Junction Subarea are in the upper basalt ground water reservoir. One well has not been used for irrigation for several years because of pump and well problems and the second well provides domestic supply only. The rest of the wells in the subarea obtain water from the regional basalt ground water reservoir. The Willow Creek Monocline separates wells in the subarea from wells to the south.

Ground water pumpage for irrigation purposes within the proposed Echo Junction Subarea has been reduced from over 6500 acre-feet in 1979 and 1980 to 3895 acre-feet in 1983. As a result of the reduction in pumpage, ground water levels are approaching stability in this subarea. Limiting pumpage for all uses requiring a right of record to not more than 3800 acre-feet each year should stabilize the ground water levels in the basalt ground water reservoir in the proposed Echo Junction Subarea.

West Subarea - The eastern boundary lies along the northwest-southeast trending fault that offsets the drainage of Butter Creek. A rapid drop in the potentiometric surface across the Willow Creek Monocline forms the southern boundary. The west and north boundaries are administrative management boundaries.

The boundaries of the proposed West Subarea are more particularly described as:

Beginning at the northwest corner of Section 1, Township 2 North, Range 26 East, WM, and continuing in a southeast direction along a straight line from said corner to the southwest corner of Section 21, Township 2 North, Range 27 East, WM; thence southwest along a straight line from said corner to the west quarter-corner of Section 3, Township 1 North, Range 26 East, WM; thence west along a straight line from said corner to the west quarter-corner of Section 6, Township 1 North, Range 26 East, WM; thence north along the west boundary of Townships 1 and 2 North to the northwest corner of Section 6, Township 2 North, Range 26 East, WM; thence east along the north boundary of Range 26 East, WM, to the northwest corner of Section 1, Township 2 North, Range 26 East, WM, the point of beginning.

All of the wells in the proposed West Subarea obtain water from the regional basalt ground water reservoir. The Willow Creek Monocline separates the subarea from wells to the south and the extension of the fault that offsets the Butter Creek drainage separates the subarea from wells to the east.

Pumpage from the basalt ground water reservoir within the West Subarea for irrigation purposes in the late 1970's and 1980 ranged from 7129 acre-feet to 8033 acre-feet. Since 1981, when 8033 acre-feet were pumped, discharge has dropped to 5617 acre-feet in 1983. Ground water levels are fairly stable currently due to the reduced pumpage. Therefore, the ground water reservoir should remain stable by limiting discharge in the West Subarea not to exceed 5620 acre-feet annually for all uses requiring a water right of record.

Pine City Subarea - The eastern boundary lies along the northwest-southeast trending fault that offsets the Butter Creek drainage. A hydrologic boundary defined by aquifer test analysis and a rapid drop in the potentiometric surface forms the southern boundary. The western boundary is a management boundary along the western portion of Range 26 East. A rapid drop in the potentiometric surface across the Willow Creek Monocline forms the northern boundary.

The boundaries of the proposed Pine City Subarea are more particularly described as:

Beginning at the southwest corner of Section 21, Township 2 North, Range 27 East, WM, and continuing southeast along a straight line from said corner to the east quarter-corner of Section 33, Township 1 North, Range 28 East, WM; thence west along a straight line connecting said corner to the west quarter-corner of Section 31, Township 1 North, Range 26 East, WM; thence north along the west boundary of Township 1 North to the west quarter-corner of Section 6, Township 1 North, Range 26 East, WM; thence east along a straight line connecting said corner to the west quarter-corner of Section 3, Township 1 North, Range 26 East, WM; thence along a straight line connecting said corner to the southwest corner of Section 21, Township 2 North, Range 27 East, WM, the point of beginning.

The wells in the proposed Pine City Subarea obtain water from the regional basalt ground water reservoir. The fault that offsets the Butter Creek Drainage separates the subarea from wells to the northeast. The Willow Creek Monocline separates the subarea from wells to the north and a semi-permeable hydrogeologic barrier separates the subarea from wells to the south.

Pumpage from the basalt ground water reservoir in the proposed Pine City Subarea for irrigation purposes has been variable. Since the 1981 irrigation season, annual pumpage has been reduced from 5150 acre-feet to 3886 acre-feet. Ground water levels within the Pine City Subarea are still declining although not as rapidly as during the early 1970's. Wells located in the Little Butter Creek Drainage and wells in the Butter Creek Drainage above the confluence of Little Butter Creek and Butter Creek are fairly stable. To reduce the rate of decline and stabilize the water levels, withdrawals from the basalt ground water reservoir within the proposed Pine City Subarea should be limited to not more than 3600 acre-feet per year for all uses requiring a water right of record.

East Subarea - The eastern boundary of the triangle shaped subarea is the Service Anticline. The southwest boundary is the southern extension of the northwest-southeast trending fault that offsets the Butter Creek drainage; and the northern boundary is the Willow Creek Monocline expressed by a rapid drop in the potentiometric surface.

The boundaries of the proposed East Subarea are more particularly described as:

Beginning at a point approximately 1180 feet east of the southwest corner of Section 10, Township 2 North, Range 28 East, WM; and continuing southerly through Service Buttes to the northwest corner of Section 27, Township 2 North, Range 28 East, WM; thence southerly along the center of Range 28 East, WM to the east quarter-corner of Section 33, Township 1 North, Range 28 East, WM; thence northwest along a straight line connecting said corner to the southwest corner of Section 21, Township 2 North, Range 27 East, WM; thence northeast along a straight line connecting said corner to the southwest corner of Section 10, Township 2 North, Range 28 East, WM; thence east approximately 1180 feet, to the point of beginning.

The wells in the proposed East Subarea obtain water from the regional basalt ground water reservoir. The Willow Creek Monocline separates the area from wells to the north and the fault that offsets the Butter Creek drainage separates the subarea from the wells to the southwest.

Since 1979, withdrawals from the basalt ground water reservoir within the proposed East Subarea for irrigation purposes has been fairly constant, varying from 597 acre-feet to 777 acre-feet. The hydrographs presented in Ground Water Report No. 30 (Exhibit WRD 84-A) indicate a nearly stable ground water reservoir with water levels remaining constant or declining slightly. The ground water levels in the proposed East Subarea should be stabilized by limiting withdrawals for all uses requiring a water right of record to 700 acre-feet per year.



South Subarea - The eastern boundary is the Service Anticline and the southern boundary is an anticline connecting Morris Butte, Gleason Butte and Swaggart Buttes. The western boundary is one-half mile east of the Range line between Range 25 East and Range 26 East. A hydrologic boundary defined by aquifer test analysis and a rapid drop in the potentiometric surface forms the northern boundary.

The boundaries of the proposed South Subarea are more particularly described as:

Beginning at the east quarter-corner of Section 33, Township 1 North, Range 28 East, WM and continuing south along the center of Range 28 East, WM to the southeast corner of Section 3, Township 1 South, Range 28 East, WM; thence westerly along the anticline axis connecting Swaggart Buttes, Gleason Butte, and Morris Butte and being a line extending from the southeast corner of Section 3, Township 1 South, Range 28 East, WM to the south quarter-corner of Section 19, Township 1 South, Range 26 East, WM; thence north along the center of Sections 19, 18, 7, and 6 of Township 1 South, Range 26 East, WM to the Willamette baseline; thence east along the baseline to the southwest corner of Township 1 North, Range 26 East, WM; thence north along the west boundary of Township 1 North, Range 26 East, WM, to the west quarter-corner of Section 31, Township 1 North, Range 26 East, WM; thence east along a straight line connecting said corner to the east quarter-corner of Section 33, Township 1 North, Range 28 East, WM, the point of beginning.

The regional basalt ground water reservoir is the source of water for the wells in the proposed South Subarea. A semi-permeable hydrogeologic barrier that runs east-west separates wells in the subarea from the north. The location of the semi-permeable barrier was defined by an aquifer test and by closely spaced potentiometric contours. (Exhibits 84-H and WRD 84-A, page 32)

The estimated withdrawal of water from the basalt ground water reservoir within the proposed South Subarea for irrigation purposes was in excess of 1750 acre-feet in 1977. By 1983, the rate of annual withdrawal for irrigation purposes was reduced to 619 acre-feet. The evidence (Exhibit WRD 84-A) indicates that stability of the ground water levels in the subject ground water reservoir should be achieved by limiting the annual withdrawal to 900 acre-feet for all uses requiring a water right of record.

The wells that withdraw water from the proposed Butter Creek Critical Ground Water Area basalt ground water reservoir within each of the above described subareas, for all uses not set forth in ORS 537.545, are listed in Figure 2, herein.

A summation of the amount of water withdrawn for irrigation purposes, from the proposed Butter Creek Critical Ground Water Area basalt ground water reservoir within each of the above describe subareas for each of the years from 1976 to 1983, is presented in Figure 3, herein.

South Subarea

Priority Number	Well Location
11	1S/26E-1DCD
23	1S/26E-1DCD
26	1S/26E-9DBD
63	1N/26E-35DCB
64	1N/26E-36CDB
71	1S/26E-1DCD

West Subarea

Priority Number	Well Location
35	1N/26E-4BAA
35	1N/26E-5BBA
36	2N/26E-20DBB
36	2N/26E-18DAA
41	1N/26E-4BAA
41	1N/26E-5BBA
48	2N/26E-6ACC
52	2N/27E-20CAA
54	2N/26E-17ABA
57	2N/26E-3BCC
57	2N/26E-10CDB
57	2N/26E-23CAD
62	2N/26E-15ACC

Pine City Subarea

Priority Number	Well Location
1	2N/27E-34BDC
6	1N/27E-10AAB
7	1N/26E-29BDD
9	1N/26E-18DDD2
12	1N/27E-24DDD
17	1N/27E-10ACA
19	1N/26E-26CAB
20	1N/27E-3DBB
24	1N/27E-23DAD
27	1N/27E-3DBB
28	1N/27E-10DCC
32	1N/26E-10AAB
43	1N/27E-21DDD
44	1N/27E-26BCD
45	1N/27E-21ACC
46	1N/26E-26CAB
46	1N/26E-26CCC
47	1N/27E-27BDD
51	1N/27E-5CCB
51	2N/27E-32DBA
56	1N/27E-26CBA
59	1N/26E-8DBD

East Subarea

Priority Number	Well Location
4	2N/27E-27BCC
5	2N/27E-28ADD
13	1S/28E-28BAA
13	1S/28E-28BBC
18	2N/27E-26CBD
25	2N/27E-27BCC1
37	2N/27E-27CBC

Echo Junction Subarea

Priority Number	Well Location
3	2N/27E-14CCB
8	2N/27E-14CCB
10	2N/27E-18DDB
10	2N/27E-2DAA2
14	2N/27E-12BBB
15	3N/28E-18DBD
16	3N/27E-25DDC
31	2N/27E-22BBD
33	3N/28E-28CAB
34	3N/28E-6DCC
34	3N/28E-18ABD
39	3N/28E-28ADA
49	2N/28E-7AAD2
50	2N/27E-7AAB
50	2N/27E-8DAB

North Subarea

Priority Number	Well Location
2	4N/28E-16ABB
21	5N/28E-19AAA
22	4N/28E-10CCA
29	4N/28E-30DDD
30	4N/28E-32ACB
38	4N/28E-30DDD
40	4N/28E-31ACA
42	5N/28E-21CDC
53	4N/28E-8DCB
55	4N/28E-8DDC
66	5N/28E-21CCB
67	4N/28E-17ABD2
68	5N/28E-33ADB

(Figure 2)

TABLE Annual ground water pumpage in acre-feet from the proposed Butter Creek Critical Ground Water Area by Subarea with estimated pumpage values (by Subarea for the three years with missing flowmeter data)

<u>SUBAREA</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
NORTH	476. (1476)	338. (868)	232. (232)	287.	289.	281.	471.5	199.
ECHO JUNCTION	5448. (6980)	6431. (7708)	6092. (6304)	6510.	6577.	5715.	5934.	3895.
EAST	820. (6925)	1017. (7197)	1010. (7672)	597.	677.	777.	659.	732.
SOUTH	476. (1320)	1764. (1547)	1158. (1480)	994.	899.	1029.	1011.	619.
PINE CITY	2480. (976)	4528.4 (1764)	3953.5 (1158)	4820.	4553.	5150.	4802.	3886.
WEST	3925. (6448)	6137. (8021)	7202. (6562)	7455.	7129.	8033.	6055.	5617.
Totals	13,625	20,215.4	19,647.5	20,663	20,124	20,985	18,932.5	14,948
Est. Totals*	(24,000)	(27,000)	(23,000)					

\*Estimated pumpage for years with missing flowmeter data as discussed on page 38 of Ground Water Report No. 30.

(Figure 3)

## ULTIMATE FINDINGS OF FACT

The record of testimony and evidence clearly establishes that the water levels in the basalt ground water reservoir in the proposed Butter Creek Critical Ground Water Area have declined excessively.

The record of testimony and evidence also clearly establishes that the available ground water supply in the basalt ground water reservoir in the proposed Butter Creek Critical Ground Water Area has been overdrawn.

The overdrafting of the ground water supply available in the basalt ground water reservoir in the proposed Butter Creek Critical Ground Area has been cumulative over the past fifteen and more years of record.

The continued withdrawal of water from storage in the basalt ground water reservoir in the proposed Butter Creek Critical Ground Water Area (together with any natural discharge from the said ground water reservoir) in excess of the natural recharge to storage in the ground water reservoir has resulted in a cumulative, excessive decline of the water levels in the subject ground water reservoir.

In the interest of the public welfare, health and safety it is necessary that adequate and safe supplies of ground water be maintained in the basalt ground water reservoir in the proposed Butter Creek Critical Ground Water Area for domestic and livestock and other beneficial uses of water, within the capacity of the resource. Therefore, it is necessary that corrective controls be adopted and enforced to obtain stable water levels in the subject ground water reservoir by limiting withdrawal of water to the sustained yield capacity of the resource.

## CONCLUSIONS OF LAW

ORS 537.735 provides: "If at the conclusion of the public hearing held under ORS 537.730, the Water Resources Director finds that any of the circumstances set forth in ORS 537.620(3) and (4) if the proceeding is initiated thereunder, or in ORS 537.730(1) if the proceeding is initiated thereunder, are true, and further finds that the public welfare, health and safety require that any one or more corrective controls be adopted, the director shall by order declare the area in question to be a critical ground water area."

ORS 537.730(1)(a) reads: "Ground water levels in the area in question are declining or have declined excessively;"

ORS 537.730(1)(d) reads: "The available ground water supply in the area in question is being or is about to be overdrawn;"

The proposed Butter Creek Critical Ground Water Area should be declared a critical ground water area, in reference to the basalt ground water reservoir, pursuant to the provisions of ORS 537.730 to 537.735.

In the interest of the public welfare, health and safety, to maintain adequate and safe supplies of ground water in the basalt ground water reservoir in the proposed Butter Creek Critical Ground Water Area for domestic and livestock and other beneficial uses of water, necessary corrective controls should be adopted pursuant to ORS 537.735 to provide stable water levels in the subject ground water reservoir and limit withdrawal of water to the sustained yield capacity of the resource.

ORS 537.620(3) provides, "When an application discloses the probability of wasteful use or undue interference with existing wells or that any proposed use or well will impair or substantially interfere with existing rights to appropriate surface water by others, the director may impose conditions or limitations in the permit to prevent the same or reject the same after hearing, or, in the director's discretion, initiate a proceeding for the determination of a critical ground water area under ORS 537.730 to 537.740.

There being no unappropriated water available in the basalt ground water reservoir in the proposed Butter Creek Critical Ground Water Area within the sustained yield capacity of the resource, any additional appropriation of water from the subject ground water reservoir would result in undue interference with existing rights. Therefore, all pending applications for permits to appropriate water from the basalt ground water reservoir in the proposed Butter Creek Critical Ground Water Area should be rejected pursuant to the provisions of ORS 537.620(3).

PROPOSED ORDER

NOW, THEREFORE, it is ORDERED that the basalt ground water reservoir underlying the area described herein above as the proposed Butter Creek Critical Ground Water Area be and the same hereby is declared to be a critical ground water area.

It is FURTHER ORDERED that appropriation of water from the basalt ground water reservoir within the Butter Creek Critical Ground Water Area for any use not set forth in ORS 537.545 shall be pursuant to the provisions of existing permits, certificates of water rights and/or ground water registration certificates, only.

It is FURTHER ORDERED that no new application for a permit to appropriate water from the basalt ground water reservoir within the Butter Creek Critical Ground Water Area be accepted for filing.

It is FURTHER ORDERED that the following listed applications for permits to appropriate water from the basalt ground water reservoir in the Butter Creek Ground Water Area:

- Application G-5023 in the name of V. James Stockard;
- Application G-5194 in the name of Far West Farms, Oregon Ltd.;
- Application G-5404 in the names of William J. and Mary A. Doherty;
- Application G-5407 in the names of William J. and Mary A. Doherty;
- Application G-5432 in the name of Marion R. Chaves;
- Application G-5594 in the name of Porter-Peringer, Inc.;
- Application G-5715 in the names of Merle Oliver Abney and Villa R. Abney;
- Application G-9854 in the name of Gary D. Wiley; and
- Application G-9917 in the name of Interfaith Christian Center

be and the same are hereby rejected.

It is FURTHER ORDERED that for ground water management purposes the Butter Creek Critical Ground Water Area be and the same hereby is subdivided into six subareas as described herein above and designated by the names:

- North Subarea,
- Echo Junction Subarea,
- West Subarea,
- Pine City Subarea,
- East Subarea and
- South Subarea.

It is FURTHER ORDERED that the total average annual withdrawal of water from the basalt ground water reservoir within each subarea of the Butter Creek Critical Ground Water Area for all uses not set forth in ORS 537.545 shall not exceed:

200 acre-feet for the North Subarea,  
3800 acre-feet for the Echo Junction Subarea,  
5620 acre-feet for the West Subarea,  
3600 acre-feet for the Pine City Subarea,  
700 acre-feet for the East Subarea and  
900 acre-feet for the South Subarea,

within the water year beginning October 1 and ending September 30.

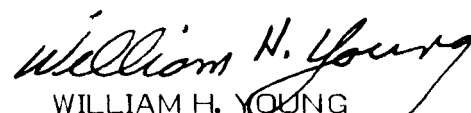
It is FURTHER ORDERED that withdrawal of water from the basalt ground water reservoir within a subarea of the Butter Creek Critical Ground Water Area for uses not set forth in ORS 537.545, as authorized herein, shall be in accordance with the relative priorities for appropriation within the subarea within which the well is located.

It is FURTHER ORDERED that all appropriators intending to withdraw water for a seasonal use (for any use not set forth in ORS 537.545) during the coming season shall notify the Watermaster of such intent prior to December 1. The notice to the Watermaster shall identify the water right, the quantity of water the appropriator intends to withdraw from the basalt ground water reservoir, and the place of the intended use. On or before February 15, the Watermaster will determine and notify the appropriators of the amount of water each such appropriator is authorized to withdraw from the basalt ground water reservoir.

NOTE: The above stated procedure is not intended to preclude the several appropriators within a subarea from entering into a rotational agreement to be administered by the Watermaster for distribution of the total annual withdrawal authorized for all uses not set forth in ORS 537.545 within the subarea.

It is FURTHER ORDERED that withdrawal of water from the basalt ground water reservoir within the Butter Creek Critical Ground Water Area for uses not set forth in ORS 537.545, as authorized herein, shall be conditional to all withdrawn water passing through an operating totalizing flowmeter. The appropriator shall make a record of all such withdrawals and furnish the record to the Water Resources Director within sixty days from the end of the water year.

Dated at Salem, Oregon, this 10th day of July, 1985.

  
WILLIAM H. YOUNG  
Director

NOTE: This proposed Order will become final after the 60th day following the date of service (date of mailing) of this proposed Order on the parties unless written exceptions are filed in the office of the Water Resources Director, Salem, Oregon 97310, on or before August 26, 1985.

**OVERSIZED MAP**

**SEE SPECIAL ORDER BOOK**