BEFORE THE WATER RESOURCES DIRECTOR OF OREGON

IN THE MATTER OF DETERMINATION OF A CRITICAL GROUND WATER AREA IN THE BUTTER CREEK AREA IN MORROW AND UMATILLA COUNTIES, OREGON	))))	Statement, Evidentiary Ruling, Findings of Fact, Opinion 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 ground water level in wells producing 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 hearing held on December 5, 1984 in Hermiston, Oregon. Based on the record, on July 10, 1985 the Director served all parties with his proposed evidentiary rulings, findings of fact, ultimate findings of fact, conclusions of law, and order.

Written objections and exceptions to the said July 10, 1985 amended proposed order were filed by:

1) Paul Taylor and William H. Doherty, through their attorneys, Schroeder, Hutchens & Sullivan, Vale, Oregon.

2) Fritz Cutsforth, through his attorneys, Kottkamp & O'Rourke, Pendleton, Oregon.

3) Turner Ranch, Inc./Ken and Jean Ann Turner, through Dennis D. Doherty, Attorney at Law, Hermiston, Oregon.

4) Interfaith Christian Center, by Ronald R. Baker.

Oral arguments in support of the written objections and exceptions were heard by William H. Young, Water Resources Director, on August 29, 1985 at Pendleton, Oregon.

All exceptions have been considered and responsive changes have been made in the findings, conclusions and order where appropriate.

On September 20, 1985, pursuant to the provisions of chapter 673, Oregon Laws 1985, Section 175, this proceeding became a proceeding before the Water Resources Commission. On September 23, 1985 the Water Resources Commission, under the provisions of chapter 673, Oregon Laws 1985, Section 4(2), delegated to the Water Resources Director the authority to issue a final order in this proceeding.

Based on the record, the Water Resources Director now makes and enters his evidentiary rulings, findings of fact, opinion, conclusions of law, and final order.

EVIDENTIARY RULINGS

Paul Taylor and Wiliam Doherty object to the Water Resources Department's Exhibit 84-A, (Ground Water Report No. 30 - "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.

Ground Water Report No. 30 reiterates data and presents technical opinion as to the significance of those data. However, the original data were open to inspection in the records of the Water Resources Department pursuant to the provisions of ORS 192.410 to 192.500, and were not withheld from objectors as a result of any delay in the availability of the final draft of Report No. 30. The differences between the preliminary draft of Report No. 30, which was available for inspection beginning October 1, 1984, and the final draft of Report No. 30, which was available for inspection beginning December 5, 1984, were the correction of errors made in copying data from original sources, and the reiteration of additional data which were available for inspection on or before October 1, 1984. These differences were fully described by Marc Norton during his testimony in the December 5, 1985 hearing. There was no material difference in the technical opinion presented in the final draft of Report No. 30, as compared to the preliminary draft of Report No. 30.

Objectors have not demonstrated that they were disadvantaged as to discovery as a result of any delay in the publication of the final draft of Report No. 30.

FINDINGS OF FACT

The proposed Butter Creek Critical Ground Water Area (shown on vicinity map, 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; thence 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 southerly 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 south along the center of Range 28 East, WM, to the Willamette baseline; thence south to the southeast corner of Section 3, Township 1 South, Range 28 East, WM; thence along the anticlinal axis connecting Morris Butte, Gleason Butte, and Swaggart Buttes, being a line extending southwesterly 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 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 management boundaries, located in recognition of geologic structural influences on the movement of ground water in the basalts, distance between wells such that interference is negligable, the response of wells to the development of the resource, and the boundaries of the adjoining Ordnance Critical Ground Water Area.

The said boundaries are designated as "management boundaries" because the locations of naturally occurring impediments to ground water movement within the basalts underlying the area are not known with precision. The boundaries have been drawn to approximate, to the best of current knowledge, the locations of these naturally occurring impediments to ground water movement.

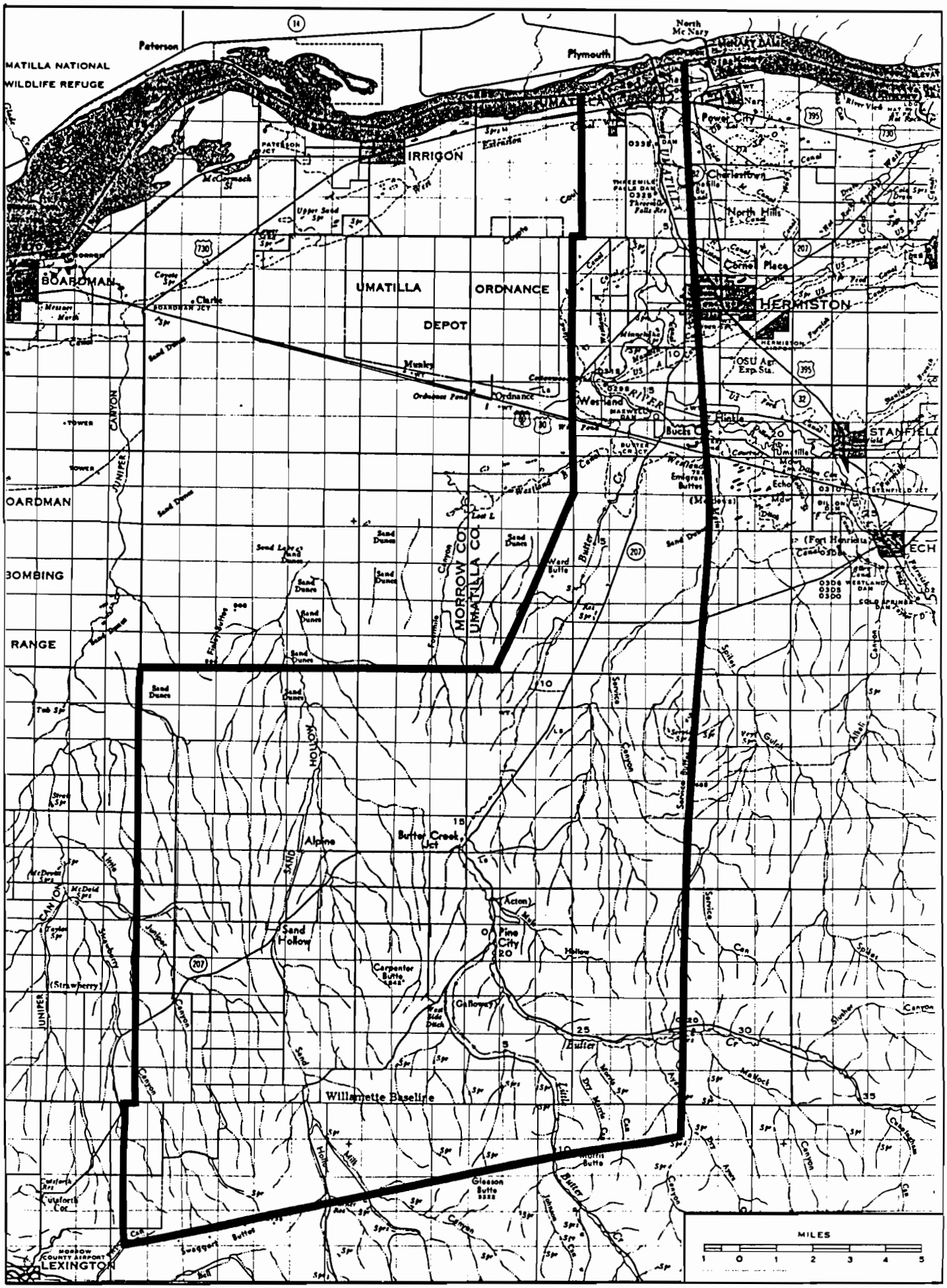

Figure 1. VICINITY MAP

The proposed Butter Creek Critical Ground Water Area which lies adjacent to the east and south boundaries of the Ordnance 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 Ordnance 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 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 2.8 inches per year above normal.

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 above 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 proposd 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 aproximately 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.

Limited ground water recharge occurs to the basalt formations. In some areas, tilted beds of basalt outcrop at land surface and allow infiltration of water from rainfall, saturated surface gravels, or streams that cross porous interflow zones. Ground water contours for the Umatilla Structural Basin are shown in Exhibit 84-J. Ground water flows from areas of recharge (high potentiometric head) to areas of discharge (low potentiometric head). The contours indicate that recharge occurs in the Blue Mountains along the southern boundary of the basin and that a portion of the basin recharge flows northward through the Butter Creek area.

The amount of naturally occurring annual recharge to the Butter Creek Critical Ground Water Area basalt reservoir, or to any subarea therein, is not subject to determination by direct measurement but can be approximated by indirect methods. The amount of annual recharge can be inferred by water level fluctuations in response to annual ground water withdrawal from the basalt reservoir or from the subarea in question.

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. What portion of the estimated 50,000 acre-feet of natural recharge would benefit the proposed Butter Creek Critical Ground Water Area has not been calculated. 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 deeper basalt formations. Carbon 14 age dating of water samples confirm the occurrence of recharge.

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

There are 467 wells which were constructed for domestic purposes within the Butter Creek Critical Ground Water 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. The record indicates that approximately 500 wells serve as the source of water needed for domestic and stock water use by residents within the subject area. Although the volume of water withdrawn from the Butter Creek Critical Ground Water Area basalt reservoir for domestic and stock water needs is not large in comparison to the amount withdrawn for irrigation and other permitted uses, maintaining adequate and safe supplies of ground water in the subject reservoir for continuing these necessary uses is of considerable signficance to the health, safety and welfare of the residents of the area.

As of October 1984, there were 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.

Pumpage for irrigation is by far the largest water use affecting the ground water reservoir within the proposed critical ground water area.

In early 1976, the Oregon Water Resources Department required that operating totalizing flow meters be installed on irrigation wells. 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.

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 1978 and the measured and calculated withdrawals for irrigation purposes during the years of 1979 through 1983 are as follows: (Exhibit WRD 84-A, page 38)

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

For the years of 1976, 1977 and 1978, the amount of water withdrawn was estimated on the assumption that the average withdrawal for unmetered wells was the same as for the metered wells.

Pumpage data from 1979 through 1983 was more heavily relied upon as a basis for regulation of the ground water resource.

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

As shown, 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 at the beginning and end of the 1983 irrigation season (February of 1983 and 1984), 12 of the wells showed a water level rise while 14 wells showed a water level decline. In the preceding year when 18,933 acre-feet were withdrawn, 17 of the 20 wells with water level measurements at the beginning and end of the 1982 irrigation season (February of 1982 and 1983) showed declines.

Analysis of water level data presented in Ground Water Report No. 30 and in Exhibits 84B-11, 12 and 13 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. Analysis of the data from the wells where these apparent rises were measured shows that the rises were due to one or more of the following: 1) the reduction or elimination of pumpage from the individual well where the water level rise was measured; 2) the times of the year when the water levels were measured; or 3) deepening of the well.

Annual water level trends demonstrated by data collected from within the proposed Butter Creek Critical Ground Water Area are mainly in response to pumpage for irrigation. When a pump is turned on, the ground water reservoir responds in the following manner: as water is removed from the well, the water level drops which causes a hydraulic gradient to develop toward the well within the reservoir. This causes a cone of depression to form within the ground water reservoir around the well. Ground water flows from areas of higher head (the reservoir) to the area of lower head (the well). The rate of flow within the reservoir increases as this head difference (gradient) increases. The cone of depression continues to expand and grow deeper until a source of water is encountered that can satisfy the pumping demand. At this point an equilibrium may be established between the production from the well and the supply of water encountered within the cone of depression. Some wells may not reach an equilibrium in which case drawdown would continue to increase until the pump is shut down. If the well does not reach equilibrium, then the longer the well is pumped, the deeper the cone of depression becomes. If a well is used less than in previous years, the drawdown generated in the year of reduced pumpage will not be as great and a longer period of time will be available for recovery of the water level. This will allow the water level to recover a greater amount than from previous years of use and may result in a higher water level at the well than was measured in previous years. However, this does not represent an increase in the available supply of water. When the pump is shut off, ground water continues to flow towards the well trying to fill the cone of depression. Ground water levels (potentiometric head in confined reservoirs) in the area surrounding the pumped well are lowered to supply water to fill the cone of depression.

The water level in the cone of depression begins to drop when a pump is turned on in the spring and, in the Butter Creek area, continues to decline until the pump is shut down. Then the water level begins to rise as the cone of depression fills and continues to rise until the pump is turned back on. The data from within the Butter Creek area indicate that when the pumps are turned on in the spring, water levels are still rising. Therefore, if water levels measured in December are compared to water levels measured in February several years later, a water level rise may be suggested by the data. However, this is an apparent rise due to the different times of the year when measurements are taken. It does not reflect additional water available for appropriation. When possible, water level fluctuations with time are calculated with data collected during the same month.

As an example, the well located at 1N/26E-35DCB on Exhibit 84B-11 showed a water level rise. On November 30, 1971, the water level was measured at 91.58 feet below land surface. In 1972, the well was deepened from 246 feet to 508 feet. On December 5, 1972 and on December 6, 1973, the water level was above land surface and the well was flowing. The change in water levels in this well during the period of record for Exhibit 84B-11 is accounted for by the deepening in 1972.

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 occur year-round except during harvest and for a short period of time 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. During recent years, 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 basalt 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, the capacity of resource was exceeded in some areas. The following is a list of the number of wells by the total amount of water level decline for the period of record for each well.

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

The 51 wells with long-term water level data have average annual water level declines varying from 0.22 feet to 17.24 feet. Thirty wells have average annual water level declines larger than five (5) feet. In areas where pumpage has been reduced, the rate of ground water level decline has diminished. Historical data suggest that the rate of decline would again increase if pumpage were allowed to increase above the 1983 rate.

Two wells with long-term water level data have shown rises. A well located at 5N/28E-32BDC rose 9.15 feet from January 1977 to February 1984. The well is not used for domestic or irrigation purposes. The second well is located 1N/26E-35DCB. The water level in this well rose 6.95 feet from June 1968 to February 1984. The well was deepened in 1972 and the water level rose to above ground surface. Since that time the water level has declined.

The sustained yield of a ground water basin is the amount of water that can be withdrawn from it annually without exceeding the long-term mean annual water supply to the reservoir. Withdrawals exceeding this supply must come from storage within the reservoir which results in long-term water level declines.

Any draft in excess of the sustained yield of the basalt ground water reservoir in the proposed Butter Creek Critical Ground Water Area is overdraft.

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 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 record.

Overdrafting of the proposed Butter Creek Critical Ground Water Area basalt ground water reservoir has resulted in a continuing decline (lowering) of the static water level within the ground water reservoir, lowering the potentiometric surface or dewatering upper reaches of the Butter Creek basalt ground water reservoir substantially in excess of what could be considered necessary to accomodate available annual recharge permitting 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 have been an excessive decline.

No voluntary agreement among the ground water users as provided by ORS 537.525(9) and 537.745(1) was offered for the record.

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 (management) 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. 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 indicated location. Water level data collected during the annual measurement rounds and the results of an aquifer test more accurately indicated the semi-permeable barrier's actual location.

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. Although the several subareas are all portions of the same ground water reservoir, the naturally occurring impediments to ground water movement tend to minimize the hydraulic effects between wells located within different subareas.

To manage the ground water available in any subarea of the Butter Creek Critical Ground Water Area equitably among those entitled to its use, and to maintain adequate and safe supplies of water for domestic and stock water uses, it is necessary to impose controls on the withdrawal of water in each of the six subareas. However, because of the isolating effect of the impediments to ground water movement between subareas, controlling withdrawal of water from within any one subarea would not have a significant effect on the volume of water available to the users in other subareas.

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

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 3.6 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; thence 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, to a point on 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 portion of the basalt ground water reservoir, separated in part from the lower portion of the ground water reservoir by a dense layer of basalt. Ground water moves upward through geologic structures and through wells penetrating upper and lower portions of the basalt reservoir. Ground water level measurements collected in this subarea indicate downward trends even though there is only limited large scale irrigation withdrawing minimal volumes of ground water annually. The major use over the past several years has been for domestic supplies.

Of the nine wells with water level records, six indicate declines, two had rises and one showed no change. Declines range from 2.89 feet over a four year period to 44.8 feet over an 11 year period. The well (4N/28E-8DCB) that showed a decline of 2.89 feet over 4 years (February 1980 to February 1984) was used only for domestic purposes during that time. The same well has shown an increase in drawdown of 54.43 feet during the irrigation season over a 16 year period from July 1968 to June 1984. This has occurred during a period when flow meter data (1976 to 1984) indicate a diminished permitted use of ground water in the area. This increased seasonal depth to water is probably the result of increased appropriation of water for exempted or non-permitted uses.

Water levels are low enough that the normal gradient toward the Columbia River can be reversed as evidenced by data for well 5N/28E-19AAA in 1971.

During the 1983 water year, 199 acre-feet of measured withdrawal was pumped from the basalt ground water reservoir within the North Subarea for nonexempt uses.

Analysis of the annual withdrawals and the resulting fluctuations of the static water levels in the subject reservoir show that the existing developments have reached or exceeded the sustained yield capacity of the reservoir.

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; thence southerly 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 750 feet east of the southwest corner of Section 10, Township 2 North, Range 28 East, WM; thence west to the southwest corner of Section 10,

Township 2 North, Range 28 East, WM; thence southwest along a straight line to the southwest corner of Section 21, Township 2 North, Range 27 East, WM; thence northwest along a straight line 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 southwest corner of Section 35, Township 3 North, Range 27 East, WM; thence northeast along a straight line 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 a 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 declines of more than 275 feet have been measured at five wells in the Echo Junction Subarea. The largest decline in the Butter Creek Critical Ground Water Area, 389.9 feet, was measured at a well located at 2N/27E-27DAA1,

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.

Based on an analysis of the annual withdrawal of ground water and the resulting fluctuations of the static water levels, the annual recharge for the Echo Junction Subarea, is not more than 3800 acre-feet per year.

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; thence in a southeast direction along a straight line to the southwest corner of Section 21, Township 2 North, Range 27 East, WM; thence southwest along a straight line to the west quarter corner of Section 3, Township 1 North, Range 26 East, WM; thence west 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, 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 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 the early 1980's ranged from 7129 acre-feet to 8033 acre-feet. Since 1981 when 8033 acre-feet were pumped, pumpage has dropped to 5617 acre-feet in 1983. Ground water levels are fairly stable currently due to the reduced pumpage.

Based on an analysis of the annual withdrawal of ground water and the resulting fluctuations of the static water levels, the annual recharge for the West Subarea, is not more than 5620 acre-feet per year.

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 boundary of Township 1 North, 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; thence in a southeast direction along a straight line to the east quarter corner of Section 33, Township 1 North, Range 28 East, WM; thence west 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, Range 26 East, WM to the west quarter corner of Section 6, Township 1 North, Range 26 East, WM; thence east to the west quarter corner of Section 3, Township 1 North, Range 26 East, WM; thence northwest along a straight line 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. The hydraulic gradient between the monocline and the semi-permeable barrier is fairly constant, indicating a continuity of ground water movement within the Pine City Subarea.

The effect of large scale irrigation pumpage is seen at other wells in this subarea. A well located in 1N/26E-18DDD2 has declined an average of 5.1 feet per year from November 1977 to February 1984. During that period of time the well was used for domestic purposes and irrigation of less than 5 acres. The water level at well 1N/26E-29BDD has declined an average of 4.7 feet per year from November 1971 to February 1984. The withdrawal for that period has been less than 10 acre-feet annually. There are four irrigation wells (1N/26E-8DBD, 1N/26E-10AAB, 1N/26E-26CAB, and 1N/26E-26CCC) that range from 2 to 4 miles east to northeast from wells 1N/26E-18DDD2 and 1N/26E-29BDD.

Due to the location of these 6 wells in the geohydrologic framework of the Pine City Subarea, the declines in wells 1N/26E-18DDD2 and 1N/26E-29BBD are the result of the large irrigation developments to the east and northeast.

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 in 1983. Ground water levels within the Pine City Subarea are still declining although not as rapidly as during the early 1970's. Declines in the ground water levels in the Pine City Subarea have shown the largest declines and the most uniform decline rates of all the subareas in the Proposed Butter Creek Critical Ground Water Area from December 1979 to February 1984.

Based on an anaylsis of the annual withdrawal of ground water and the resulting fluctuations of the static water levels, the annual recharge for the Pine City Subarea is not more than 3600 acre-feet per year.

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 750 feet east of the southwest corner of Section 10, Township 2 North, Range 28 East, WM; thence in a southerly direction through Service Buttes to the northwest corner of Section 27, Township 2 North, Range 28 East, WM; thence south 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 to the southwest corner of Section 21, Township 2 North, Range 27 East, WM; thence northeast along a straight line to the southwest corner of Section 10, Township 2 North, Range 28 East, WM; thence east appoximately 750 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. Two wells discussed on page 46, lines 14-17 of the draft transcript from the December 4, 1984 hearing, are located at 1N/28E-28BAA and 28BBC. The data being discussed in this section of the draft transcript are in reference to slide 84B-12 which shows water level fluctuations from December 1979 to February 1984. These apparent water level rises are due to the differences in the times of the year when the measurements were made, and do not represent an increase in the amount of water available in the ground water reservoir from year to year.

Based on an analysis of the annual withdrawal of ground water and the resulting fluctuations of the static water levels, the annual recharge for the East Subarea is not more than 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 Swaggert Buttes. The western boundary is one-half mile east of the Range line between Range 25 East and Range 26 East, Township 1 South and is also the west line of Section 31, Township 1 North, 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; thence south along the center of Range 28 East, WM, to the Willamette baseline; thence south to the southeast corner of Section 3, Township 1 South, Range 28 East, WM; thence along the anticlinal axis connecting Morris Butte, Gleason Butte, and Swaggart Buttes, being a line extending southwesterly 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 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. Testimony by Mr. Anderson at the December 5, 1984 hearing indicated that the dip of the basalts was between 2° and 4° north and if projected from the bottom hole elevation of well 1N/26E-35DCB, the producing portion of the Cutsforth wells would be below essentially all of the wells in the remainder of the Butter Creek area. Well 1N/26E-26CCC, located one mile down dip from well 1N/26E-35DCB, penetrates 250 feet of basalt below the projected bottom hole elevation from 1N/26E-35DCB at a dip of 4° north. When the bottom hole elevation of well 1N/26E-35DCB is projected north at a 2° dip north, then well 1N/26E-4BAA, located 5 miles north, penetrates the entire producing zone of well 1N/26E-35DCB.

An aquifer test (Exhibit 84-H) was conducted at well 1N/26E-26CCC and a response was measured in well 1N/26E-35DCB and 1N/26E-26BCC. The analysis of the test indicated a semi-permeable hydrogeologic barrier located between the wells located at 1N/26E-26CCC and 1N/26E-35DCB. Closely spaced potentiometric contours in the same area shown on Figure 10, page 32 of Ground Water Report No. 30 (Exhibit WRD 84-A) support the existence and location of the semi-permeable barrier. The dip of the basalts and the response of well 1N/26E-35DCB to pumpage from well 1N/26E-26CCC indicates that the basalt ground water reservoir in the South Subarea is the same basalt ground water reservoir that lies to the north of the South Subarea boundary. However, because of geologic changes between the wells, the connection between the wells is not as efficient as if they were on the same side of the subarea boundary.

A direct relationship exits between annual pumpage and the annual water level decline rate within the South Subarea. The well located at 1N/26E-35DCB shows this correlation. The following table presents annual pumpage and water level data.

TABLE 1: PUMPAGE AND WATER LEVEL DATA FOR WELL 1N/26E-35DCB

Irrigation Season	Annual Pumpage	Change In Pumpage	Date	Water Level	Change In Water Level
1978	505				
			3/79	5.96	
1979	486				
		-29	2/80	7.43	-1.47
1980	452				
		-34	2/81	8.30	-.87
1981	557				
		+103	2/82	10.52	-2.22
1982	379				
		-178	2/83	11.15	-0.63
1983	224				
		-155	2/84	9.05	+1.90

Over a five year period from 1979 to 1983, the change in water level shows a direct correlation to changes in annual pumpage. Four of the five years had a reduction in pumpage from the previous year and in all but one year continued to show annual water level declines. From 1980 to 1981, there was an increase in pumpage of 105 AF with a corresponding water level decline.

The same relationship is demonstrated at well 1N/26E-36CDB. The following table presents annual pumpage and water level data.

TABLE 2: PUMPAGE AND WATER LEVEL DATA FOR WELL 1N/26E-36CDB

Irrigation Season	Annual Pumpage	Change In Pumpage	Date	Water Level	Change In Water Level
1978	417				
			12/78	111.26	
1979	335				
		-82	12/79	112.80	-1.54
1980	293				
		-42			
1981	318				
		+25	3/82	109.9	
1982	479				
		+161	2/83	117.88	-7.98
1983	343				
		-136	2/84	111.45	+6.43

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 water levels in the basalt ground reservoir are fairly stable at the current level of development in the South Subarea. Based on an analysis of the relationship between annual withdrawal and the resulting fluctuations of the static water levels, no further nonexempt development should be allowed.

Wells and Pumpage

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 Table 3, 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 Table 4.

TABLE 3. Irrigation wells by priority number for each Subarea of the Proposed Butter Creek Critical Ground Water Area

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
	1N/26E-5BBA
36*	2N/26E-20DBB
	2N/26E-18DAA
41*	1N/26E-4BAA
	1N/26E-5BBA
48	2N/26E-6ACC
52	2N/27E-20CAA
54	2N/26E-17ABA
57*	2N/26E-3BCC
	2N/26E-10CDB
	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
	1N/26E-26CCC
47	1N/27E-27BDD
51*	1N/27E-5CCB
	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
	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-1BDD
	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
	3N/28E-18ABD
39	3N/28E-28ADA
49	2N/28E-7AAD2
50*	2N/27E-7AAB
	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

* Water Rights with two or more points of appropriation

TABLE 4. 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)

SUBAREA	1976	1977	1978	1979	1980	1981	1982	1983
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.

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OPINION

ORS 537.525(1) and (9) provide the declared policy of the Oregon Legislature to be that beneficial use of the available ground water resource be limited to the "capacity of the available sources" and that "whenever . . . overdrawing of the ground water supplies . . . exists or impends, controlled use of the ground water concerned be authorized and imposed . . ." This declared policy requires that the ground water be managed to provide for development and use of the resource within the sustained yield capacity of the ground water reservoir. The sustained yield concept of ground water management is further supported by ORS 537.525(7) which provides, "Reasonably stable ground water levels be determined and maintained."

Overdrawing (overdrafting) of the ground water reservoir occurs when the annual withdrawal of water from the ground water reservoir, together with any natural discharge from the ground water reservoir, is in excess of the naturally occurring annual recharge to the ground water reservoir.

Overdrafting of the ground water reservoir on a year-to-year basis results in a progressive lowering of the static water level (or potentiometric head), measured at the time of the year that maximum recovery of the ground water reservoir has occurred.

Progressive lowering (decline) of the static water level (potentiometric head) in the ground water reservoir beyond the level necessary to provide the capacity to accept available annual natural recharge constitutes excessive decline.

Overdrafting and excessive decline have occurred in the Butter Creek Critical Ground Water Area basalt reservoir.

Failure to impose controls on the withdrawal of water from the Butter Creek Critical Ground Water Area basalt reservoir would allow the overdrafting and excessive decline to continue until water is no longer available for irrigation purposes or domestic and stock water uses, or any other use. Such failure to impose controls in the absence of a voluntary joint agreement among the affected ground water users would be contrary to the welfare, health and safety of the users and residents of the Butter Creek Critical Ground Water Area.

The "final order" herein is not expected to be the last order entered to effectuate management of the available ground water. It is true that the amount of ground water that may be withdrawn for beneficial use for each designated subarea is not known with precision. It is recognized that the amount of permissible withdrawal from each subarea may have to be adjusted at a future time, after notice and opportunity for hearing in accordance with the provisions of the Administrative Procedures Act and ORS 537.740(2).

CONCLUSIONS OF LAW

ORS 537.735(1) provides, in pertinent part, "If at the conclusion of the public hearing held under ORS 537.730, the Water Resources Commission finds that any of the circumstances set forth . . . 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 queston are declining or have declined excessively;" 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.

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 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.

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 as set forth in ORS 537.525, 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.

ORS 537.735(4)(b) provides, "The order of the commission may include . . . [a] provision determining the permissible total withdrawal of ground water in the critical area each day, month, or year, and, insofar as may be reasonably done, the commission shall apportion such permissible total withdrawal among the appropriators holding valid rights to the ground water in the critical area in accordance with the relative dates of priority of such rights." The Butter Creek Critical Ground Water Area basalt ground water reservoir is naturally divided into subareas by naturally ocurring impediments to ground water movement. Because of the isolating effect of these naturally occuring impediments to ground water movement between the subareas, enforced reduction of withdrawals of ground water in one subarea would not provide water to a more senior appropriator in another subarea. Therefore, to obtain equitable apportionment of the permissible withdrawal, it is necessary to establish the amount of permissible withdrawal on a subarea-by-subarea basis and then apportion the permissible subarea withdrawal amount among the holders of valid rights within the subarea, in accordance with the relative dates of priority of such rights, pursuant to ORS 537.735(4)(d).

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, 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).

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 annual withdrawal of water from the basalt ground water reservoir within the following subareas of the Butter Creek Critical Ground Water Area for all uses not set forth in ORS 537.545 shall not exceed:

3800 acre-feet for the Echo Junction Subarea, and
5620 acre-feet for the West Subarea, and
3600 acre-feet for the Pine City Subarea, and
700 acre-feet for the East 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 in writing of such intent prior to June 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, the place of the intended use, and the location of the well or wells to be used. On or before August 1, the Watermaster will determine and notify the appropriators in writing 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 27th day of January, 1986.

William H. Young

WILLIAM H. YOUNG
Director

NOTICE: You are entitled to judicial review of this order. Judicial review may be obtained by filing a petition for review within 60 days from the service (date of mailing) of this order. Judicial review is pursuant to the provisions of ORS 536.075 and 183.482.