State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RIGHTS

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Dear Water User:

We want to take this opportunity to thank you for your continued interest in the water resources of Pahvant Valley. Since our meeting in Fillmore on September 30, 1993, we have received comments from a number of water users concerning the material presented. Rather than address each person's comments individually, we felt you would be best served by our sharing the responses to the comments.

At said meeting, we outlined five actions we felt were needed to address the problem of ground-water overdraft in Pahvant Valley. These were:

1) Survey acreages to determine if any lands are being irrigated without a water right; then make certain that those lands are removed from production, or that a valid water right is transferred to them;

2) Update the water appropriation and change policy;

3) Limit total withdrawals from wells to an average of 60,000 acre-feet per year (AF/yr) over a five year moving average;

4) Cut water rights by priority date to meet the 60,000 AF/yr limitation; and

5) Meter wells and appoint a water commissioner.

The comment received from all respondents concerned those lands being irrigated without a water right. As mentioned at the meeting, steps are already being taken to rectify this problem. Mapping and acreage surveys are being compiled to identify suspect lands. Lands so identified, are field checked to verify irrigation. After field checking, letters are sent to the landowner or operator requesting a meeting with division personnel on this issue. To date, suspect lands ranging in size from 10 to 630 acres have been identified, and 26 letters have been sent out. Most of these landowners or operators have met with division personnel and are moving to resolve their problems. This effort will continue as rapidly as our mapping and survey efforts permit.

Four comments were received concerning our interpretation of the hydrologic data that has been collected in connection with this project. Some stated that they did not believe a problem exists, while others felt that our studies were incomplete and that the data on water level trends did not reflect the true situation in the valley. Those who commented were thorough enough to cite their reasons and logic for such statements. While we respect their opinions, we feel the need to further delineate our thinking on this issue.

Of course, we do feel that a problem exists or we would not have embarked on this effort. Data collected by the U.S. Geological Survey (USGS) since the 1960's indicates that recharge to the ground-water reservoir averages about 70,000 AF/yr. Currently, discharge from the ground-water reservoir is averaging about 109,000 AF/yr; about 80,000 AF/yr being discharged through wells. This imbalance is reflected in declining water levels in the principal aquifer. The accompanying chart (Fig. 1) shows water levels in the USGS observation well located just east of Flowell. Some areas of the valley have experienced greater declines than others and some specific locations have seen their water levels rise. Given the data available to us, we feel the declines are indicative of water levels generally throughout the valley. These declining water levels, and the deficit of discharge over recharge, indicate that ground water is being mined. As part of his duties, the State Engineer seeks to protect the state's aquifers from harm. Ground-water mining causes harm in several ways. As aquifers are dewatered, the aquifer materials are compacted which permanently impairs their ability to store and transmit water. Such aquifer compaction can also lead to land subsidence and the problems attendant thereto. Continued ground-water mining also causes water levels to decline to the point where the cost of bringing the water to the surface becomes uneconomical and presents a threat to the economic viability of the whole valley. For these and other hydrologic reasons, the State Engineer believes that harm is being done and seeks to restore the balance between aquifer recharge and discharge.

Some who commented felt that the studies upon which this project is based are incomplete and that more studies are required before any management plan is implemented. We recognize that no study is perfect and additional data is always welcome. However, we feel that the ground-water problem in Pahvant Valley is serious enough to warrant action and that currently available data is more than sufficient to support such action. While further studies may prove useful, the situation will continue to worsen while such studies are being made.

One person disputed our contention of declining water levels and offered specific data to support his contention. While we do not dispute the accuracy of his numbers, our interpretation of the data is different. He cites the 1963-1983 water level change map in Cooperative Investigations Report No. 23, page 61, to show that water levels in the valley have risen in all but the McCornick area. Next, he presented water level readings from his own wells for the years 1978 through 1992. His contention was that water levels in his wells were fairly constant, not declining as we allege.

Our analysis, using a longer term approach, is based on water level data in USGS observation wells going back to 1929 and precipitation data at the Fillmore weather station going back to 1930. Please refer to the accompanying charts showing ground-water levels (Fig. 1), well pumpage (Fig. 2), and the cumulative departure of precipitation from normal (Fig.3), which are presented as an example.

Prior to the beginning of heavy well development in about 1945, water levels in this USGS monitoring well were fairly constant and tended to reflect climatic conditions, rarely varying by more than 10 or 15 feet. This constancy occurred in spite of the driest period on record between 1931 and 1935. With the development of the ground-water basin, water levels began to be affected by well pumping and consequently declined by 80 feet between 1950 and 1965. This decline reflects drier than normal, but not extreme, climatic conditions and an increase in well pumping from 25,000 AF/yr to 70,000 AF/yr.

From 1965 to 1980, water levels in this observation/monitoring well recovered by about 20 feet. During this time, precipitation was wetter than normal, but not overly so; well pumping remained near constant at about 75,000 AF/yr.

From 1981 to 1985, the valley experienced its wettest period on record. During this time, the 2nd, 1st, 4th, and 10th wettest years of record occurred consecutively. Events of this kind occur, at a minimum, once every 250 years. Well pumpage declined from 75,000 AF/yr to about 40,000 AF/yr and water levels recovered to their predevelopment levels.

Since 1985, climatic conditions have been somewhat drier than normal, pumpage has increased to about 80,000 AF/yr, and water levels have declined 40 feet. Ground-water levels have declined to 50% of their historic low in just the last eight years.

To compare 1963 water levels with those of 1983, we feel, is inaccurate. In 1963, water levels were at their historic low; comparing 1963 with any other year will show a rise in water levels. Similarly, comparing 1978 water levels to those in 1992 will yield nearly the same result.

Some people mentioned the proposed withdrawal limit of 60,000 AF/yr. Most of those felt the limit was too low and preferred a limit of about 80,000 AF/yr. In light of an average annual ground-water recharge of 70,000 AF/yr, we feel that any increase in allowable withdrawal above the 60,000 AF/yr limit would be highly imprudent.

On the matter of water rights policy for the valley, comments varied widely. We feel that modifying the current policy on appropriation and changing of water rights will serve to more evenly distribute ground-water withdrawals throughout the valley. By more closely matching the rate and location of well withdrawals with the rate and location of recharge, it is felt that the long term productivity of the aquifer can be maintained.

Most did not look favorably upon the proposal for the larger wells to be metered and the possibility of appointing a commissioner to read those meters. We realize that the water users will bear the expense involved with the installation of meters and the funding of a commissioner's salary; it is our hope that other steps can be taken to remedy the ground-water problems before metering and a commissioner become necessary. Should those other steps fail, then metering and a commissioner would become a strong option.

The prospect of cutting water rights by their priority date drew the greatest negative reaction. We realize that this is a drastic step and hope it would only be used as a last resort. However, if a workable management plan can not be agreed upon, then cutting water rights by priority would be the only legal recourse left to solve the problem.

Two people urged a "go slow" approach to solving the ground-water problems and implementing a management plan. We understand their fear of actions being taken. Our belief is that something needs to be done - the problem has been put off too long already. Be assured that we are doing all that we can to assure that any management plan is "done right the first time".

One said that the valley should remain open to small appropriations of ground water for the "home in the country". Currently, no decision has been made on this matter; we continue to study this option.

Another person stated that we should take no action because the increases in electric power rates will serve as a self regulating mechanism with the valley's pumpers. We wish that the solution were that easy. Our experience with past power rate increases gives us little hope that such an option will be viable.

Finally, one person stated that the problem can be solved through increasing water use efficiency. He said that he had gone to sprinkler irrigation to improve his efficiency and, therefore, was able to bring more land under cultivation. We believe that most irrigators are being as efficient as their circumstances allow. However, this only sidesteps the fundamental issue, which is: water is being withdrawn from the aquifer faster than it can be replaced. Until withdrawals are brought in line with recharge, water levels will continue their downward trend. Also, being more efficient does not allow one to use the "saved" water to expand their acreage. Section 73-1-3 of the Utah Code Annotated states: "Beneficial use shall be the basis, the measure and the limit of all rights to the use of water in this state." In other words, a water right is defined and measured by its use, not its rate of diversion. This is true, regardless of the method by which the water is applied. Plus, throughout most of the valley, any irrigation water applied to the land and which is not consumed through evapotranspiration is return flow to the water table. This is demonstrated by the 50,000 AF/yr shown as recharge from unconsumed irrigation water.

Again, I thank those who took the time to offer their comments and suggestions. These comments and suggestions are being thoughtfully considered as we proceed with the development of the ground-water management plan for Pahvant Valley. As promised in September, we will be holding another public meeting in early 1994 to present the management plan to the water users. I look forward to your continued input and support in this process.

Sincerely,

Robert L. Morgan

Robert L. Morgan, P.E.
State Engineer

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Pahvant Valley Ground-water Levels

Well (C-21-5)21aba-1

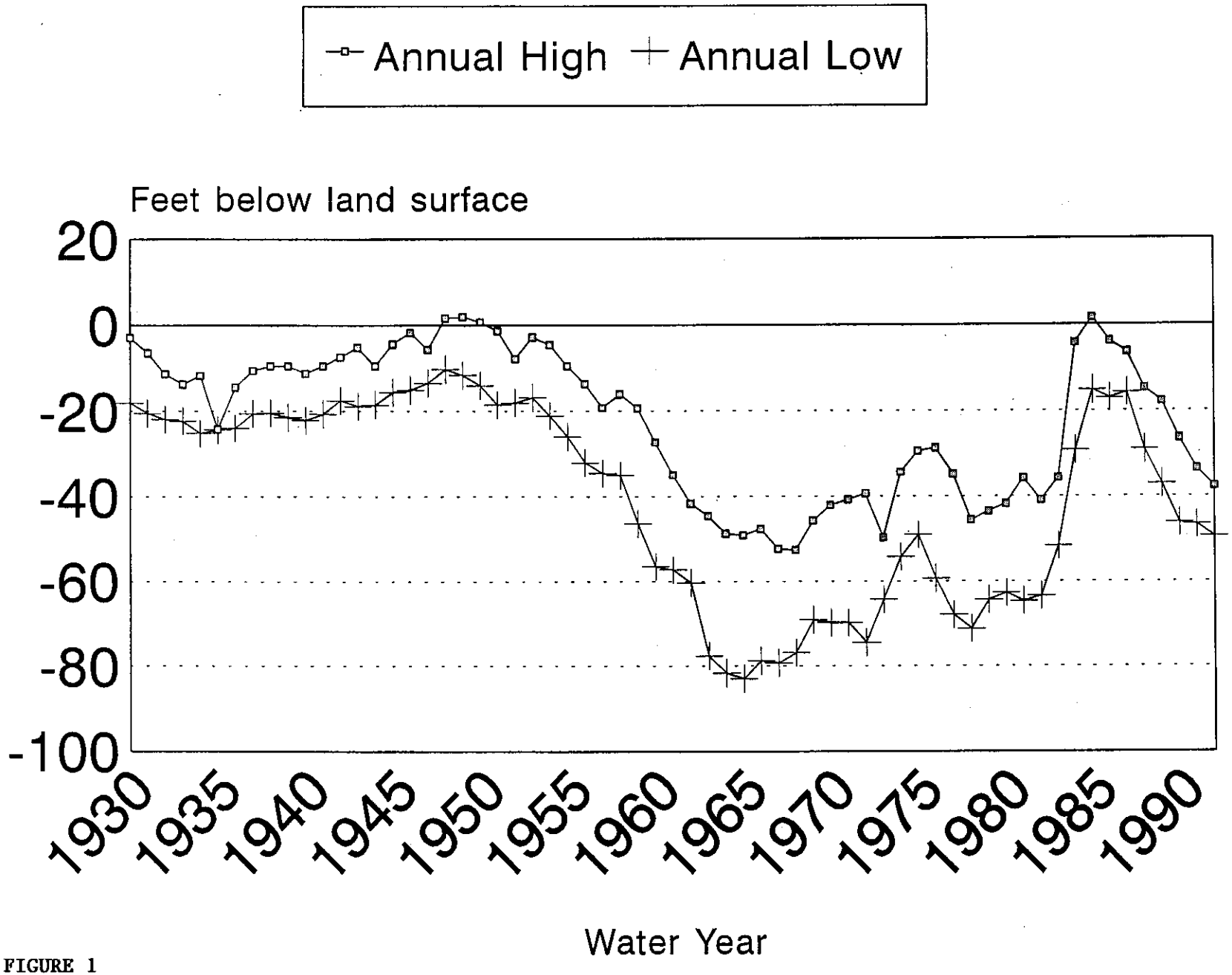

FIGURE 1

Annual Pumpage - Pahvant Valley

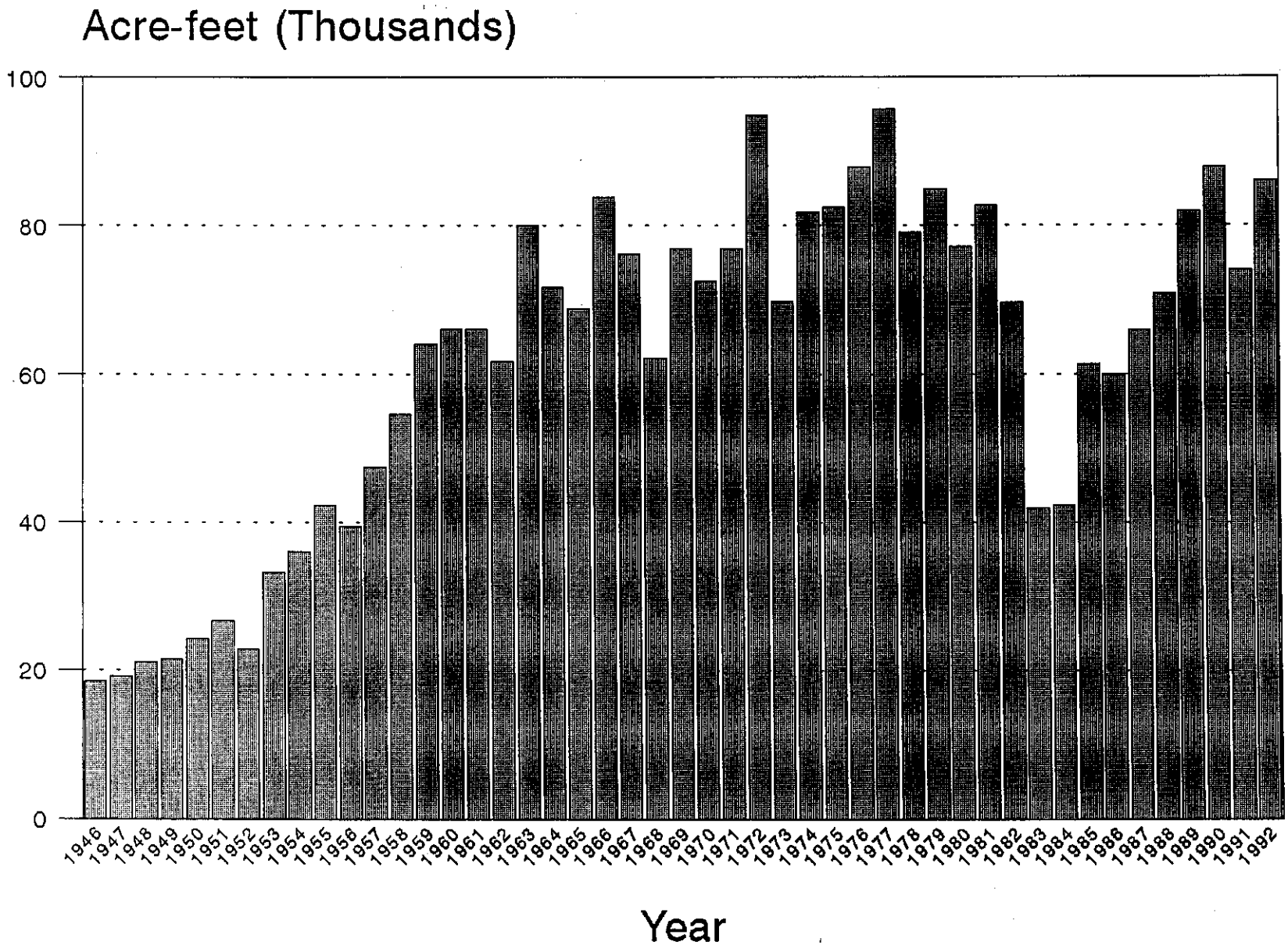

FIGURE 2

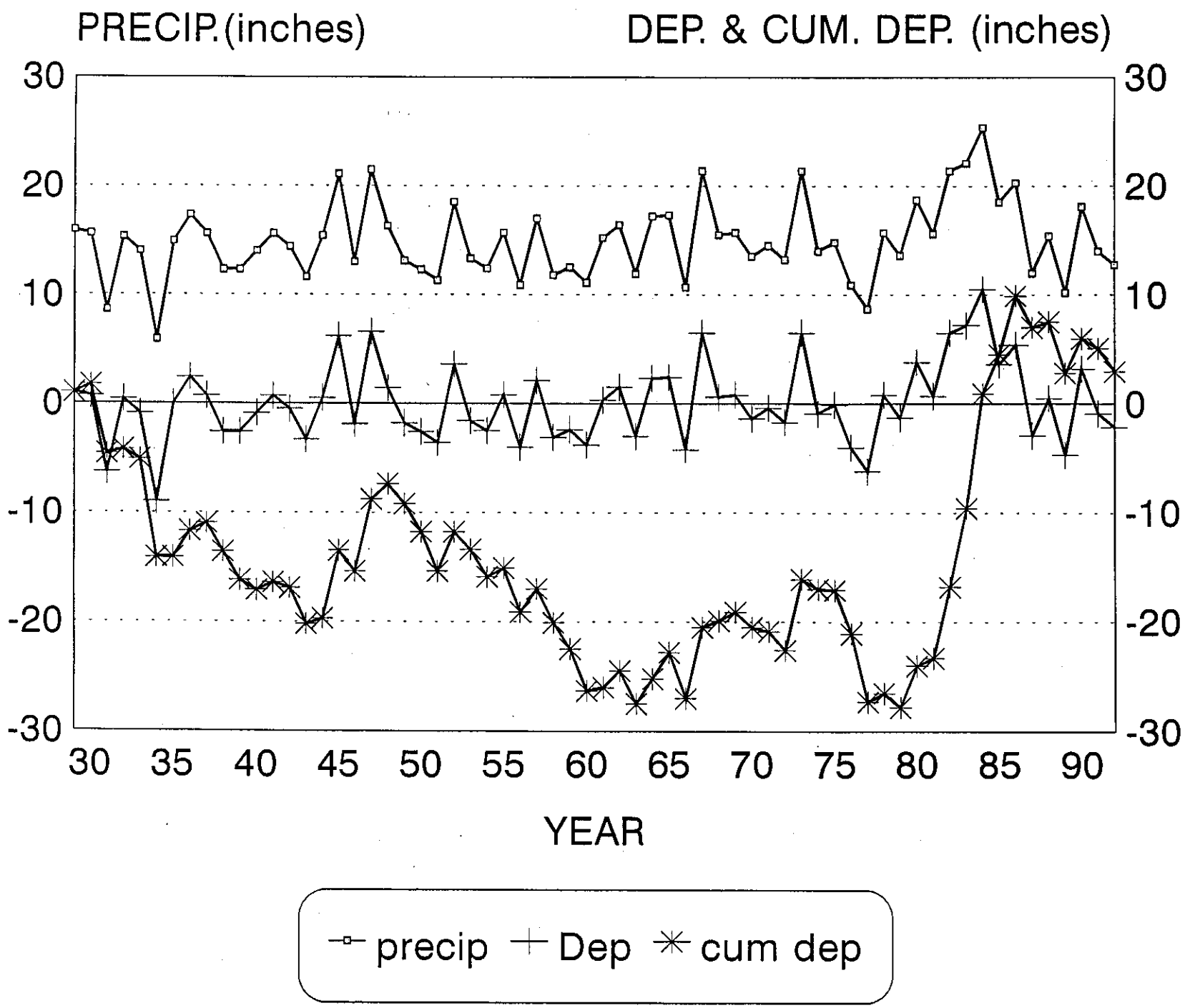
PRECIP.(inches)
DEP. & CUM. DEP. (inches)
30
20
10
0
-10
-20
-30
30 35 40 45 50 55 60 65 70 75 80 85 90
YEAR
precip
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FIGURE 3