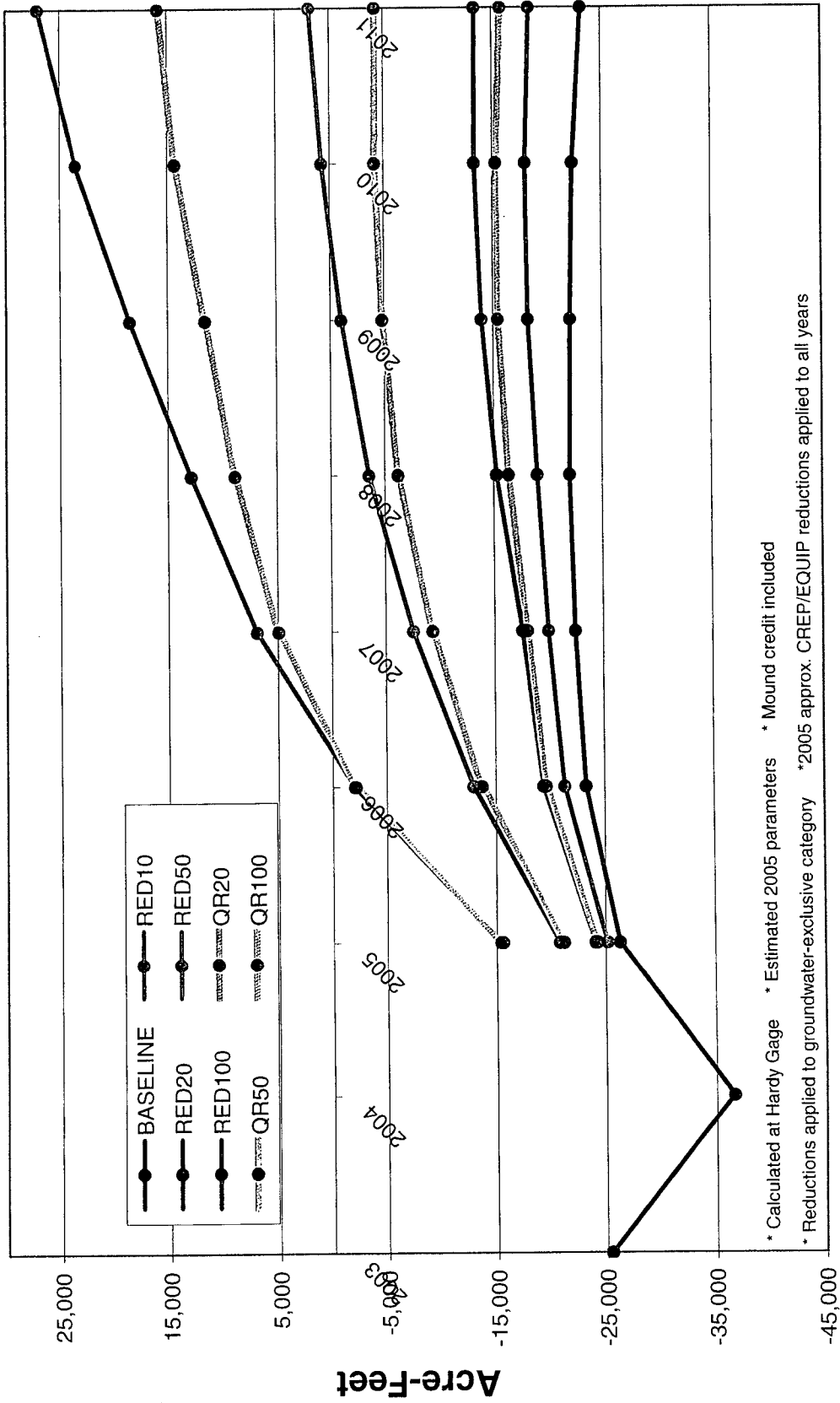


**NE Allocation Minus Consumptive Use, Average-Year Climate Conditions;
Reductions for Lower, Middle and Upper Republican NRDs**

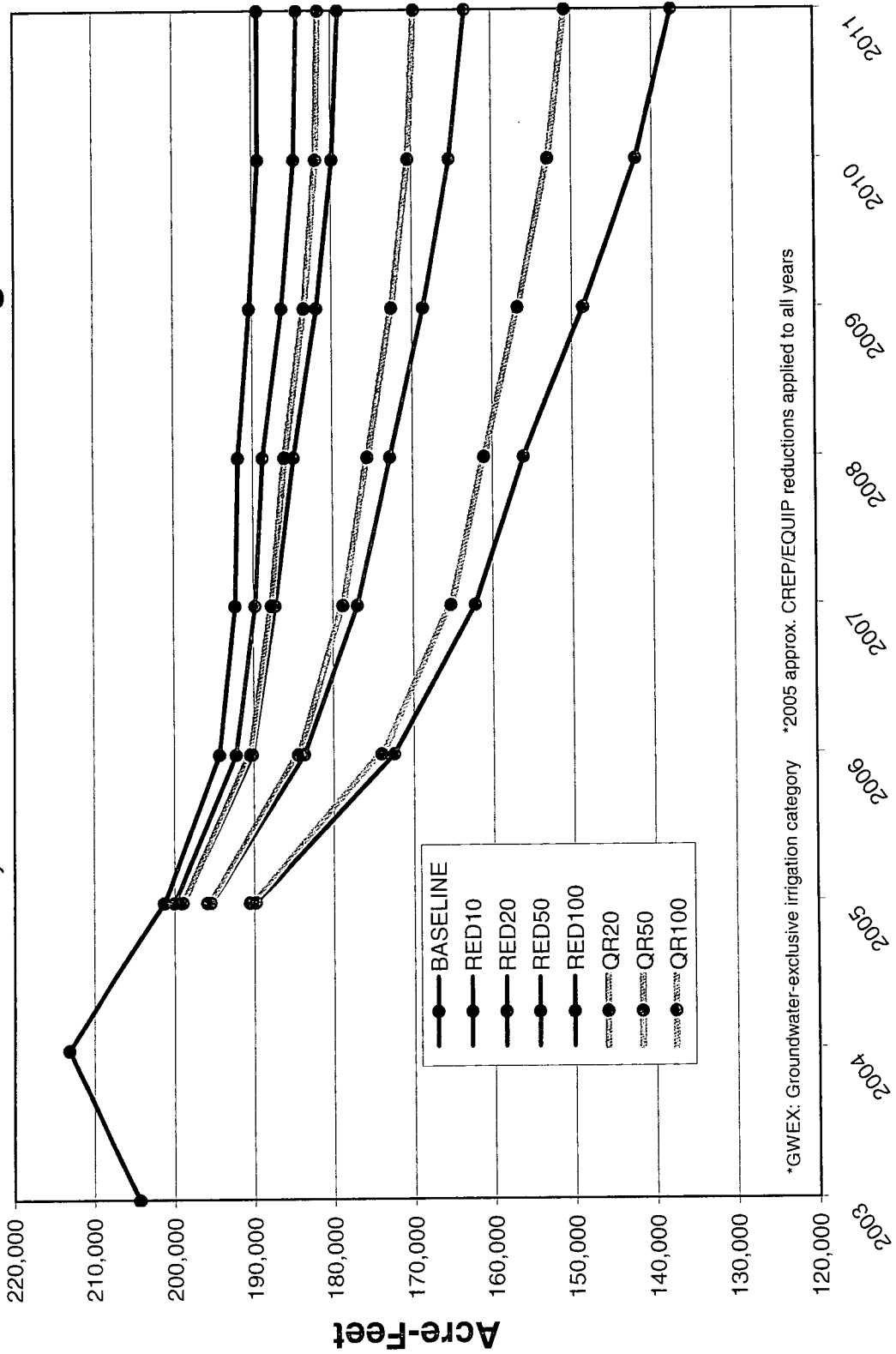


* Calculated at Hardy Gage * Estimated 2005 parameters * Mound credit included

* Reductions applied to groundwater-exclusive category *2005 approx. CREP/EQUIP reductions applied to all years

PK

2005-2011 GW Impacts, LR, MR, and UR Region GWEX Reductions, 2005-2011 Estimated 'Average Years'



*GWEX: Groundwater-exclusive irrigation category *2005 approx. CREP/EQUIP reductions applied to all years

‘AVERAGE YEAR’ 2005 THROUGH 2011 MODEL SCENARIO WITH CREP/EQUIP REDUCTIONS

All parameters and results of the ‘Average Year’ model run performed on the weekend of October 15, 2005 are listed in the folder ‘05-11_OFFICIAL_AvYrGWEX2004AdjustedDownToAvPump_WithCREP_Reduc’. This run was performed to calculate and analyze the stream impacts of a series of years with average precipitation conditions. These model runs are based on an estimate of 2005 parameters, followed by six years of estimated ‘average year’ parameters.

In addition to the groundwater-exclusive (GWEX) acreage and volume estimates explained below, approximations were made of county-specific CREP and EQUIP program acreage reductions to date. The reductions were applied evenly to both the acreages and volumes of GWEX category irrigation in the quick-response areas of counties having acres registered in the CREP and EQUIP programs. The proportion of acres registered into these programs to the total irrigated acreages in the quick response area in each county was calculated. Then, the acres and volumes for all quick-response model grid cells (in counties where there were estimated CREP or EQUIP registered acreages) in the GWEX model input file were multiplied by (1 – this proportion). The adjustment was applied to all seven years of this model run. There were 70,000 acres reduced through this process. This estimation procedure was a best estimate using limited geographic data.

The 2005 parameters are as follows for the ‘average year’ model run:

- 1990 precipitation
- 2004 Kansas and Colorado pumping and surface-water files
- 2005 canal seepage files as calculated using preliminary canal data
- 2004 surface water files (exclusive and commingled categories)
- 2004 groundwater-commingled pumping files
- 2004 evapotranspiration file
- 2004 reservoir levels
- 2004 municipal pumping files
- 2004 groundwater-exclusive category acres
- 2004 groundwater-exclusive category pumping multiplied by a factor of .851. This factor was determined by multiplying the ratio of the irrigation-season rainfall (May through August) in 2004 to the irrigation-season rainfall in 2005 by the pumping volumes in 2004, then multiplying this ratio by .95 to account for the 5% decrease in pumping agreed to by the NRDs in their Integrated Management Plans:

$$12.1''(2004) / 13.5''(2005) * .95 = .851$$

- The 2006 through 2011 parameters are as follows for the ‘average year’ model run:
- 1990 precipitation multiplied by ratio of average year irrigation-season precipitation (13.2") to the 1990 irrigation-season precipitation (13.5")
 - 2004 Kansas and Colorado pumping and surface-water files
 - 2004 canal seepage
 - 2004 surface water files (exclusive and commingled categories)
 - 2004 groundwater-commingled pumping files
 - 2004 evapotranspiration file

2004 reservoir levels

2004 municipal pumping files

2004 groundwater-exclusive category acres

2004 groundwater-exclusive category pumping multiplied by a factor of .871. This factor was determined by multiplying the ratio of the irrigation-season rainfall (May through August) in 2004 to the average (1980 through 2005, excluding 1993) irrigation-season rainfall by the pumping volumes in 2004, then multiplying this ratio by .95 to account for the 5% decrease in pumping agreed to by the NRDs in their Integrated Management Plans:

$$12.1''(2004) / 13.2''(2005) * .95 = .871$$

Chart Definitions

QR20: 20% Quick-Response area reduction.

QR50: 50% Quick-Response area reduction.

QR100: 100% Quick-Response area reduction.

RED10: 10% Reduction across the defined region.

RED20: 20% Reduction across the defined region.

RED50: 50% Reduction across the defined region.

RED100: 100% Reduction across the defined region.

AllRegRed: Reduction across entire model region, including outside the Republican Basin.

LR: Lower Republican NRD.

MR: Middle Republican NRD.

TB: Tri-Basin NRD.

UR: Upper Republican NRD.

3NRD: The LR, MR and UR region.

* OFFICIAL_05-10AvYr_Base2004_WithCREP_RedEXP.doc, October 16, 2005