State Water Resources Control Board

Division of Water Rights
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Mailing Address: P.O. Box 2000 ♦ Sacramento, California 95812-2000
FAX: 916.341.5400 ♦ www.waterrights.ca.gov

Alan C. Lloyd, Ph.D.
Agency Secretary

Arnold Schwarzenegger
Governor

APPLICATION NO. _____
(Leave blank)

UNDERGROUND STORAGE SUPPLEMENT to APPLICATION TO APPROPRIATE WATER BY PERMIT

1. State amount of water to be diverted to underground storage from each point of diversion in item 5a of form APP. Please see Attachment 1 of the Application for list of diversion flow rates.

   a. Maximum Rate of diversions (1) _____ (2) _____ (3) _____ cfs
   b. Maximum Annual Amount (1) _____ (2) _____ (3) _____ acre-feet

2. Describe any works used to divert to offstream spreading grounds or injection wells not identified in item 7 of form APP.
Attachments 3 and 6 of the Application describes all diversion works.

3. Describe spreading grounds and identify its location and number of acres or location of upstream and downstream limits if onstream.
Please see the map in Attachment 7 to the Application, which depict the spreading grounds, channels and project names. Please also see the table in Attachment A hereto, which describes the spreading grounds' acreages by project and channel name and limits.

4. State depth of groundwater table in spreading grounds or immediate vicinity:
   _____ feet below ground surface on _____ 19 __ measured at a point located within the _____ ¼ of _____ ¼ of Section _____, T _____, R _____, _____ B&M
The depth of the groundwater table is highly variable. Please see the hydrographs, included as Attachment B, for a depiction of representation of historical groundwater table depths.

5. Give any historic maximum and or minimum depths to the groundwater table in the area.
   Location _____ Maximum _____ feet below ground surface on _____ (date)
   Location _____ Maximum _____ feet below ground surface on _____ (date)
Please see Attachment B.

6. Describe proposed spreading operation.
Water orders for diversions off the Kern River are placed with the City of Bakersfield Water Resources Department who coordinates releases from Lake Isabella with the Kern River Water Master and the US Army Corps of Engineers. Individual spreading ponds are operated by Kern County Water Agency staff by opening gates or adjusting weir boards to control the elevation of

the water in each pond and the flow rate between ponds. The water in the spreading ponds then percolates into the aquifer.

7. Describe location, capacity and features of proposed pretreatment facilities and/or injected wells.

N/A

8. Reference any available engineering reports, studies, or data on the aquifer involved.

See Attachment C

9. Describe underground reservoir and attach a map or sketch of its location.

Please see the Soil and Aquifer Parameter description provided as Attachment D from the Kern County Water Agency, Kern County Groundwater Storage and Water Conveyance Infrastructure Improvement Program Grant Application.

10. State estimated storage capacity of underground reservoir.

The Kern County Water Agency estimates that the entire basin's available storage capacity is approximately 11 million acre-feet, as described in Table C-4.1 of Attachment D.

11. Describe existing use of the underground storage reservoir and any proposed change in its use.

The groundwater basin is already used for conjunctive use. Kern County Water Agency does not propose to change this use, but simply to continue and expand the existing conjunctive use of the groundwater basin.

12. Describe the proposed method and location of measurement of water placed into and withdrawn from underground storage.

All diversions into underground storage are measured by weir, meter, and rated gate structures at each point of diversion listed in Attachment 1. Up stream of the Kern Water Bank Canal Diversion Point, the City of Bakersfield in coordination with the Kern River Water Master and the Kern County Water Agency operate and measure each diversion point. Downstream of the Kern Water Bank Canal, the Buena Vista Water Storage District operates and measures each diversion point, except the Kern River-California Aqueduct Intertie which is operated and measured by the State of California Department of Water Resources. Withdrawls from underground storage reservoir are measured by individual pipeline meters near the well discharge head into either the Kern River Canal, Kern Water Bank Canal or Cross Valley Canal. Flows from the kern Water Bank canal and the Cross Valley canal into the California Aqueduct are measured by pipeline meters by the California Department of Water Resourcx

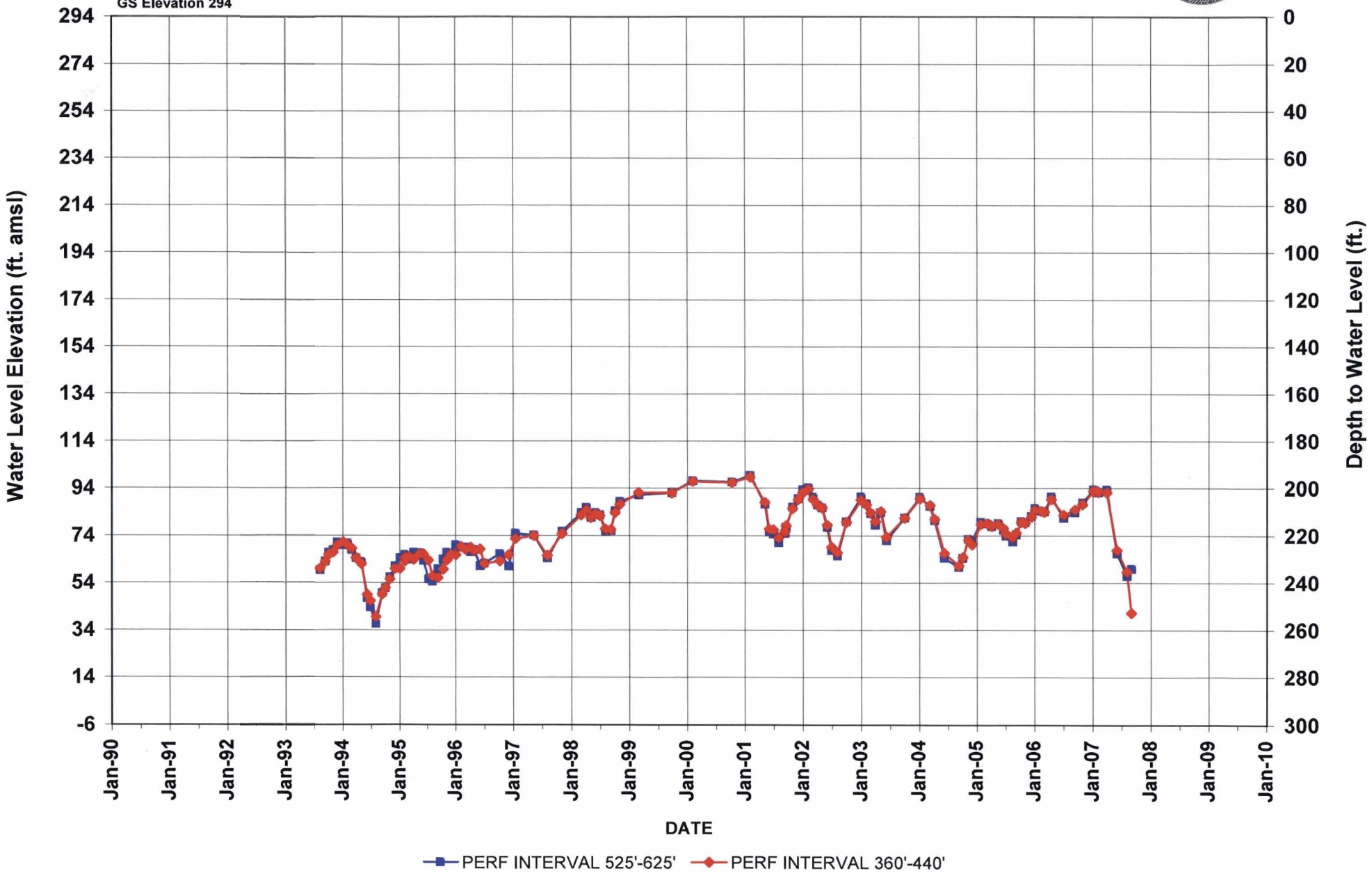
Kern County Water Agency
Kern Fan Recharge Areas

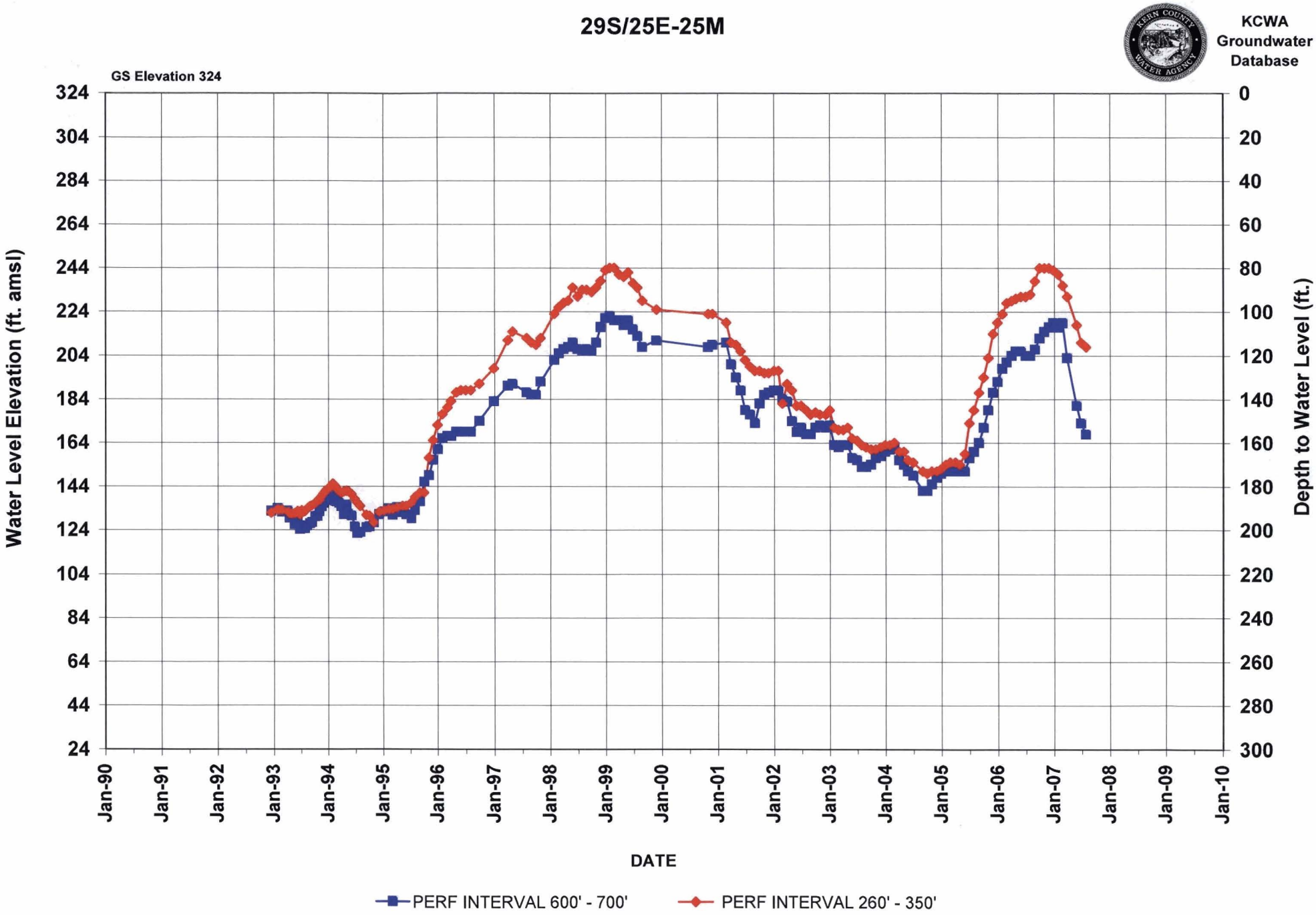
Project	Recharge Area (Acres)	Instantaneous Flow (cfs)	Acre-Feet Per Day (AF/Day)	Maximum Annual Recharge* (AF)
Berrenda Mesa	250	90	180	38,000
City of Bakersfield 2800 Acres	1,800	600	1,200	250,000
Kern Water Bank	7,446	1,200	2,400	500,000
Pioneer	1,458	500	1,000	208,000
West Kern WD/Buena Vista WSD	525	225	450	94,000
Rosedale-Rio Bravo WSD	1,160	450	900	188,000
North Ponds	20	15	30	6,000
Kern River Channel (Rocky Pt to Allen Rd.)	240	120	240	50,000
Calloway Canal (Kern River to 7th Standard)	24	12	24	5,000
Total	12,923	3,212	6,424	1,339,000

* Maximum Annual Recharge is adjusted for potential declines in recharge rates due to sustained recharge at about 57% of the instantaneous rate.

29S/24E-08L

KCWA Groundwater Database




29S/25E-25M
KCWA
Groundwater
Database
GS Elevation 324
Water Level Elevation (ft. amsl)
Depth to Water Level (ft.)
324
304
284
264
244
224
204
184
164
144
124
104
84
64
44
24
0
20
40
60
80
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120
140
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260
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Jan-90
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Jan-92
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Jan-01
Jan-02
Jan-03
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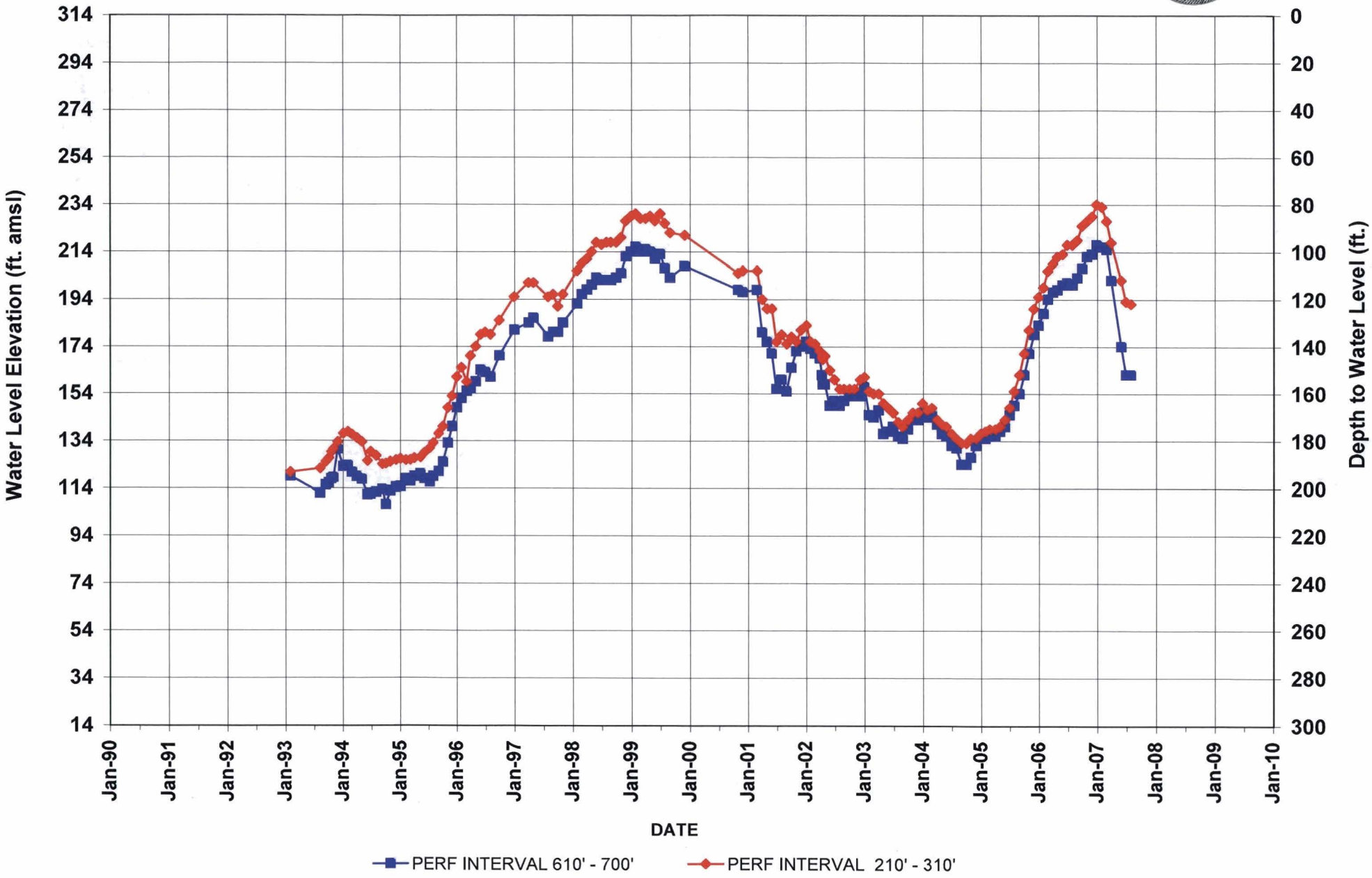
Jan-10
DATE
PERF INTERVAL 600' - 700'
PERF INTERVAL 260' - 350'

29S/25E-27N

KCWA Groundwater Database

GS Elevation 314



29S/26E-31H

KCWA Groundwater Database

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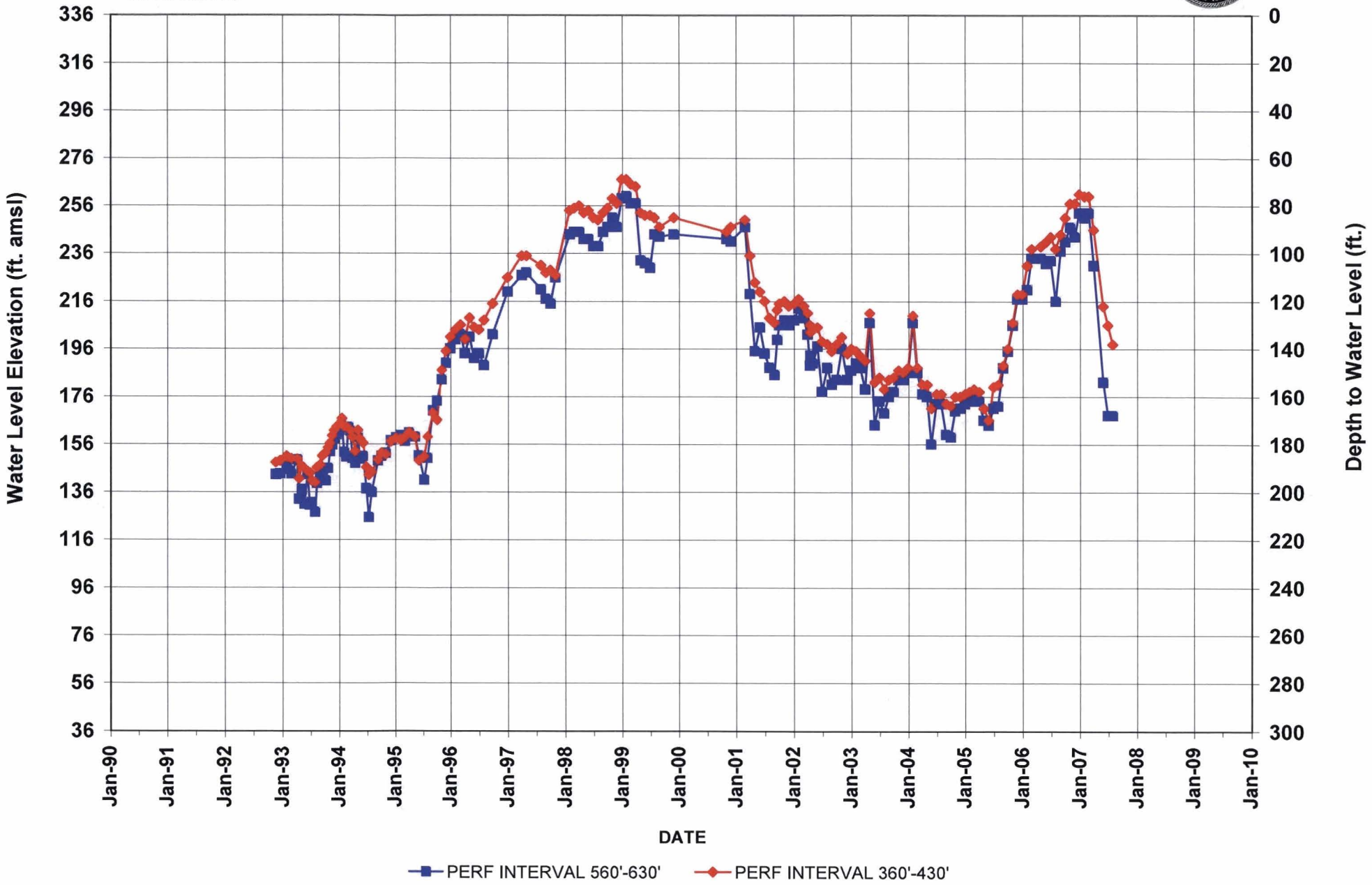
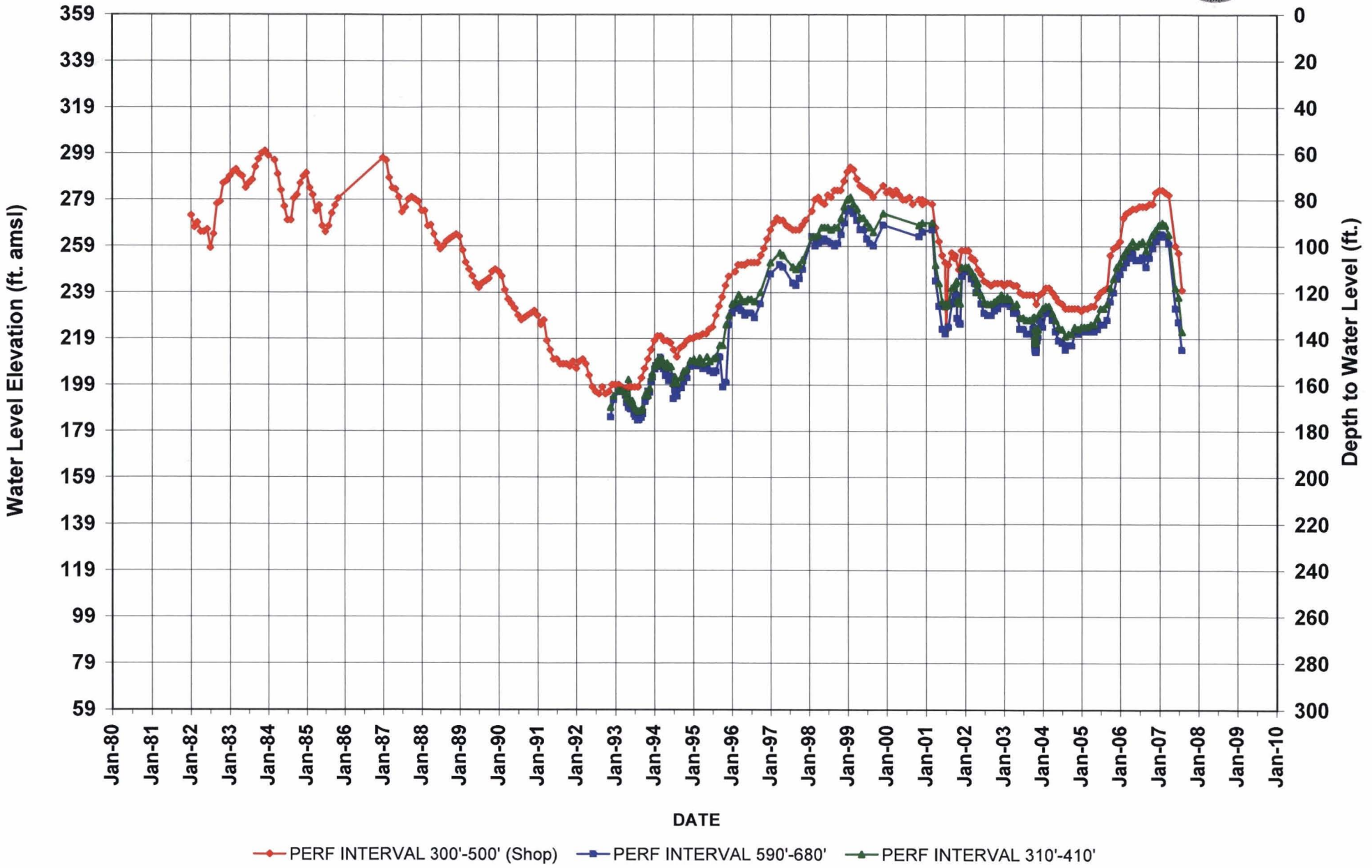


29S/26E-35H

KCWA Groundwater Database

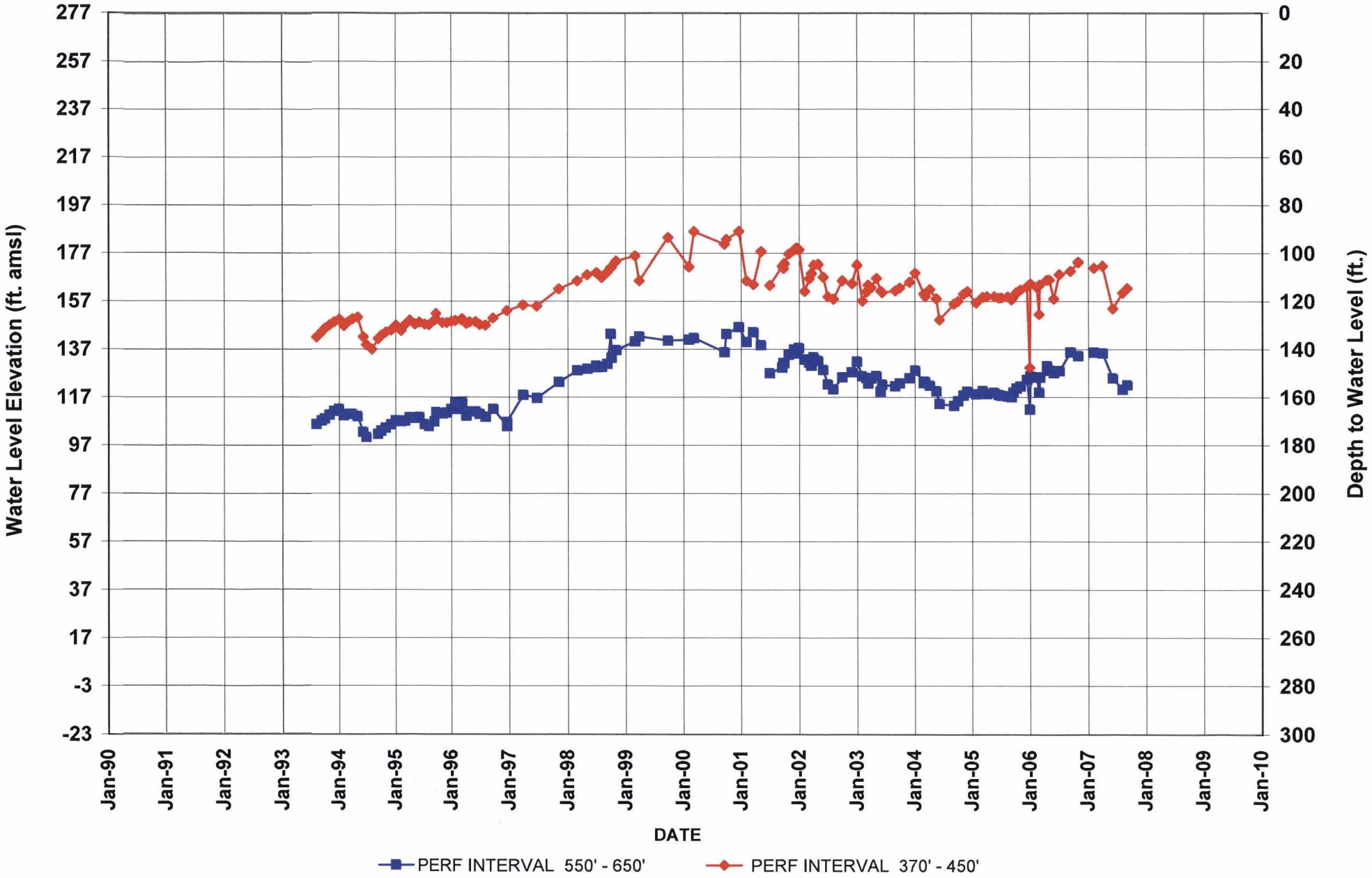
GS Elevation 359



30S/24E-06B

KCWA Groundwater Database

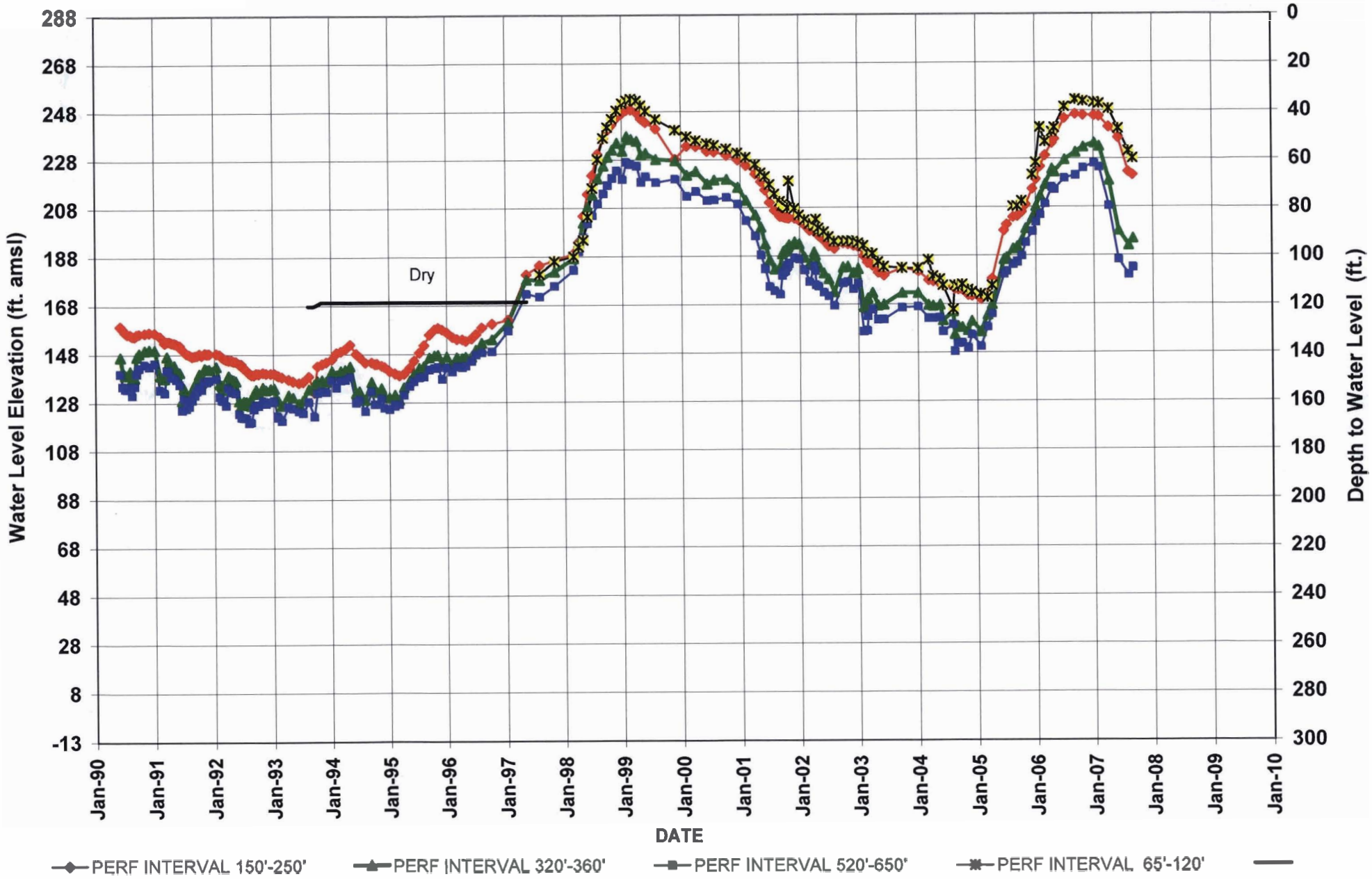
GS Elevation 277.4

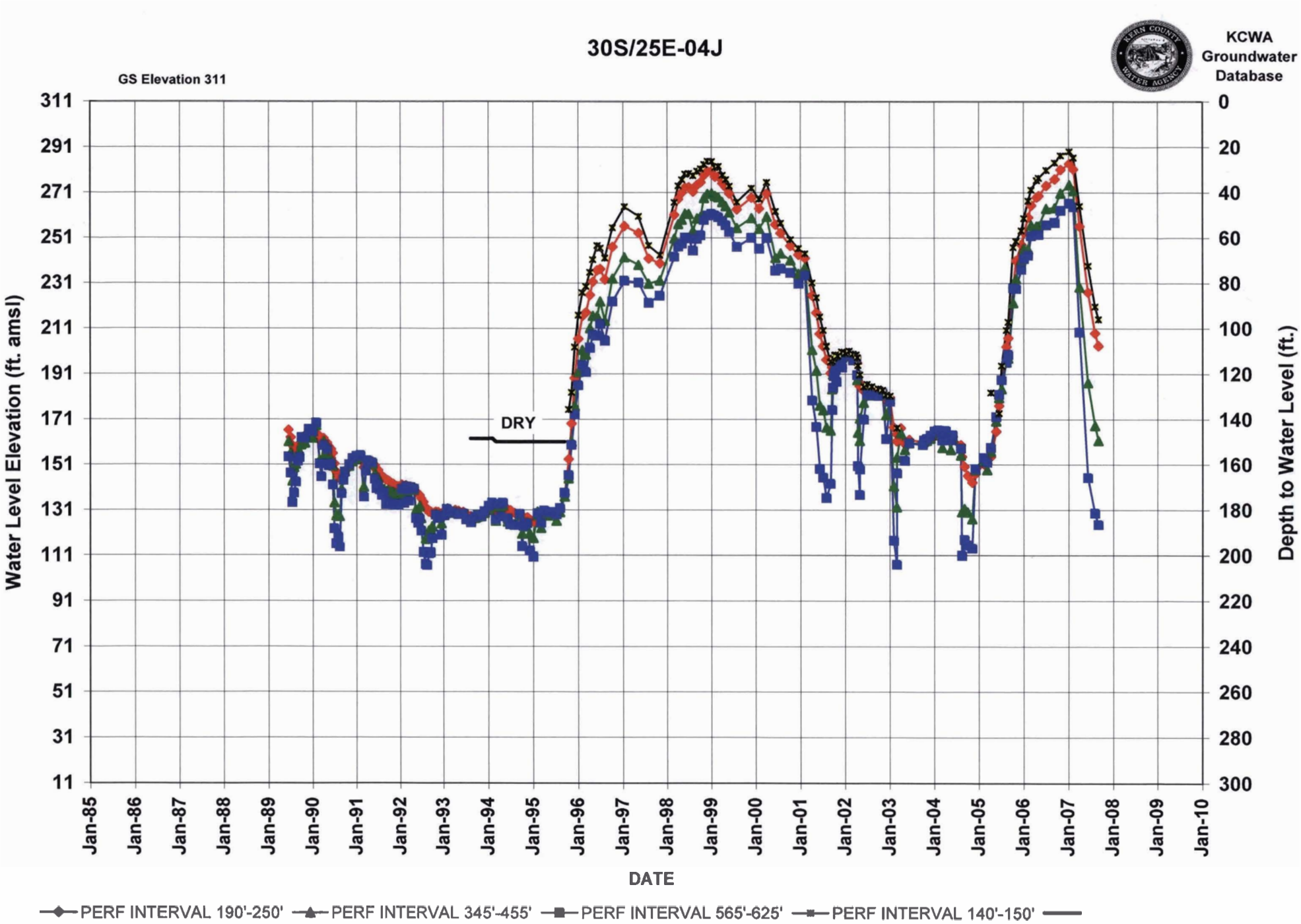


30S/24E-13D

KCWA Groundwater Database

GS Elevation 287.5




30S/25E-04J
KCWA
Groundwater
Database
GS Elevation 311
DRY
Water Level Elevation (ft. amsl)
Depth to Water Level (ft.)
311
291
271
251
231
211
191
171
151
131
111
91
71
51
31
11
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
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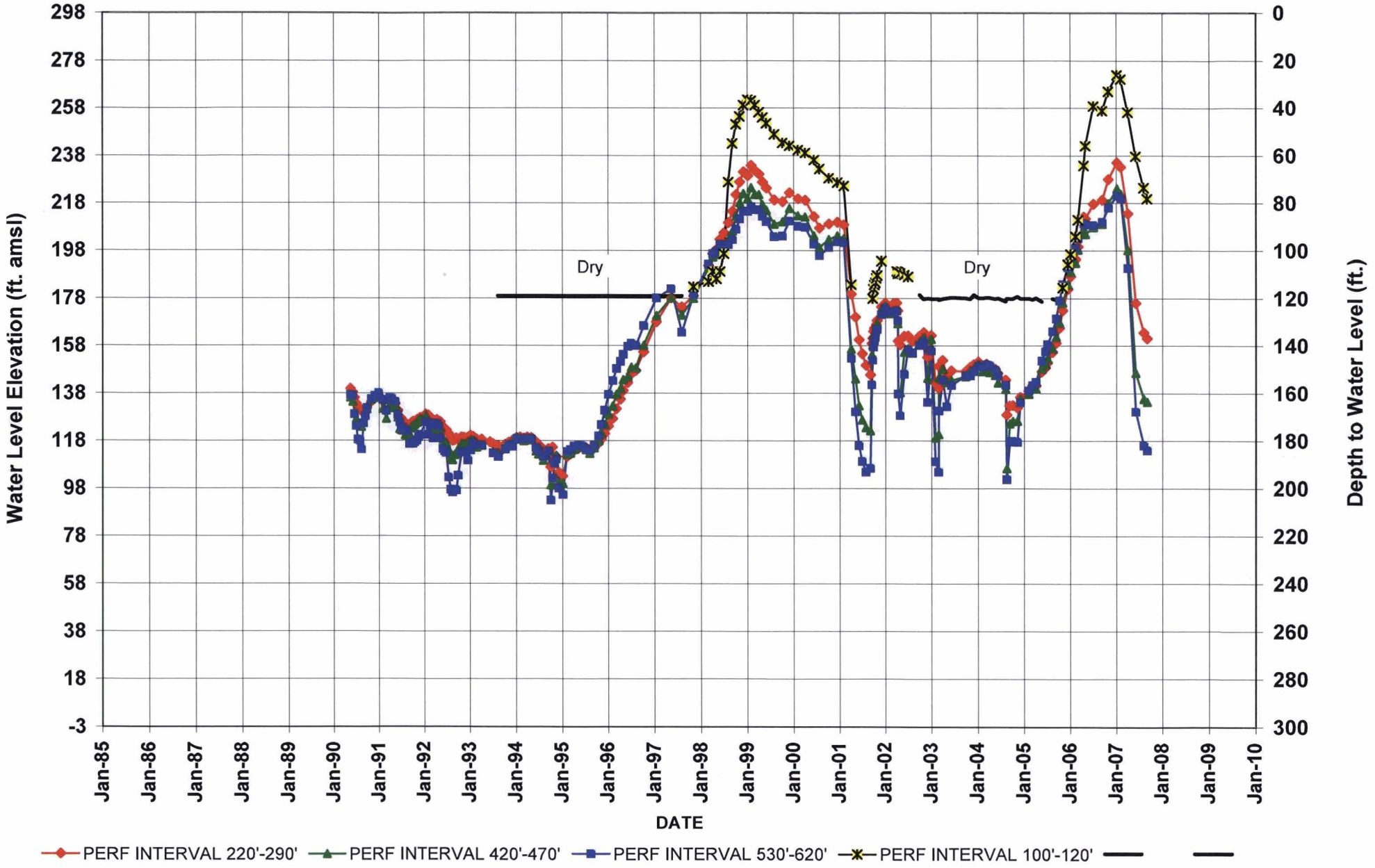
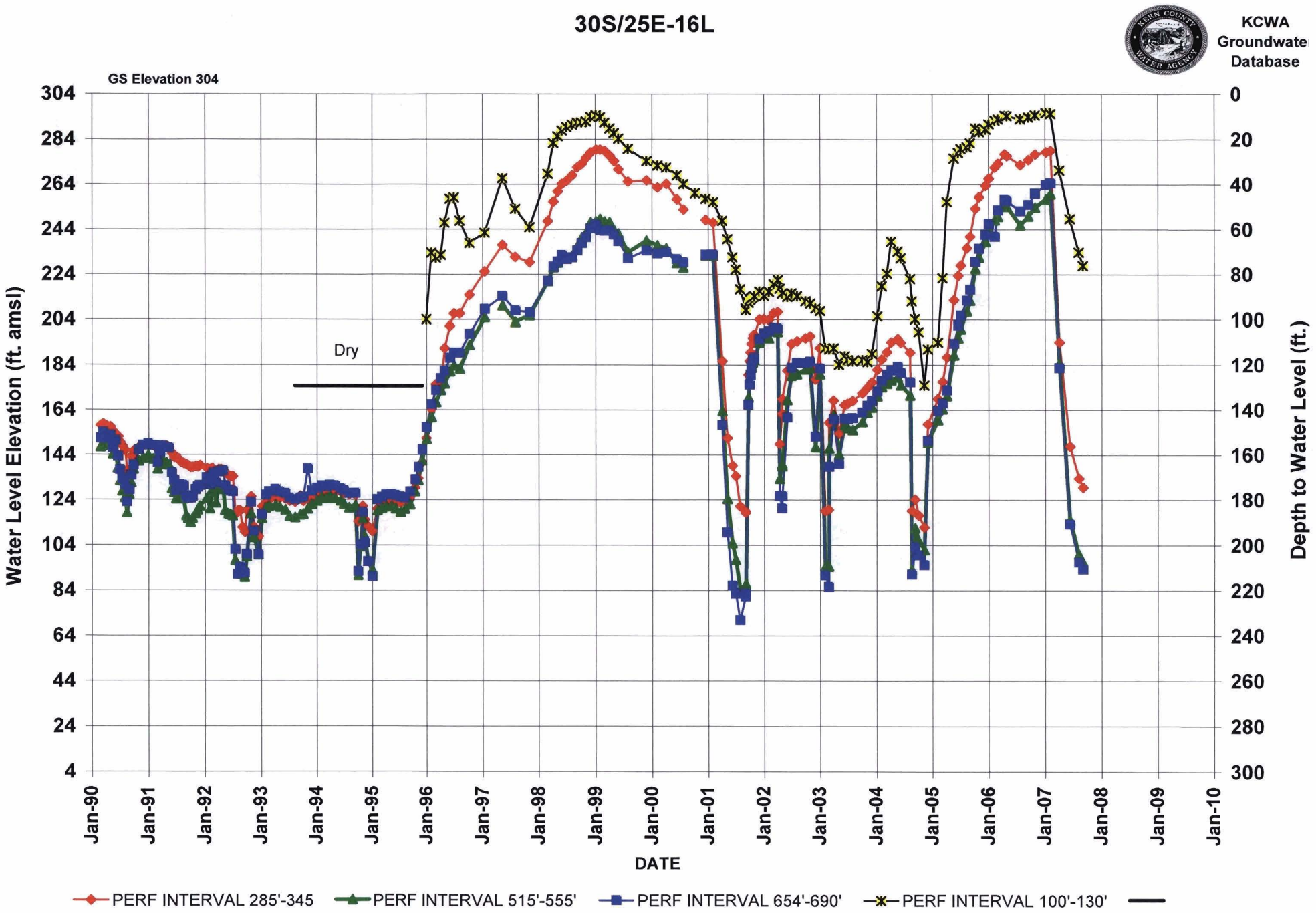
Jan-07
Jan-08
Jan-09
Jan-10
DATE
PERF INTERVAL 190'-250'
PERF INTERVAL 345'-455'
PERF INTERVAL 565'-625'
PERF INTERVAL 140'-150'

30S/25E-07A

KCWA Groundwater Database

GS Elevation 297.5




30S/25E-16L
KCWA Groundwater Database
GS Elevation 304
Water Level Elevation (ft. amsl)
Depth to Water Level (ft.)
304
284
264
244
224
204
184
164
144
124
104
84
64
44
24
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280
300
Dry
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Jan-91
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Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
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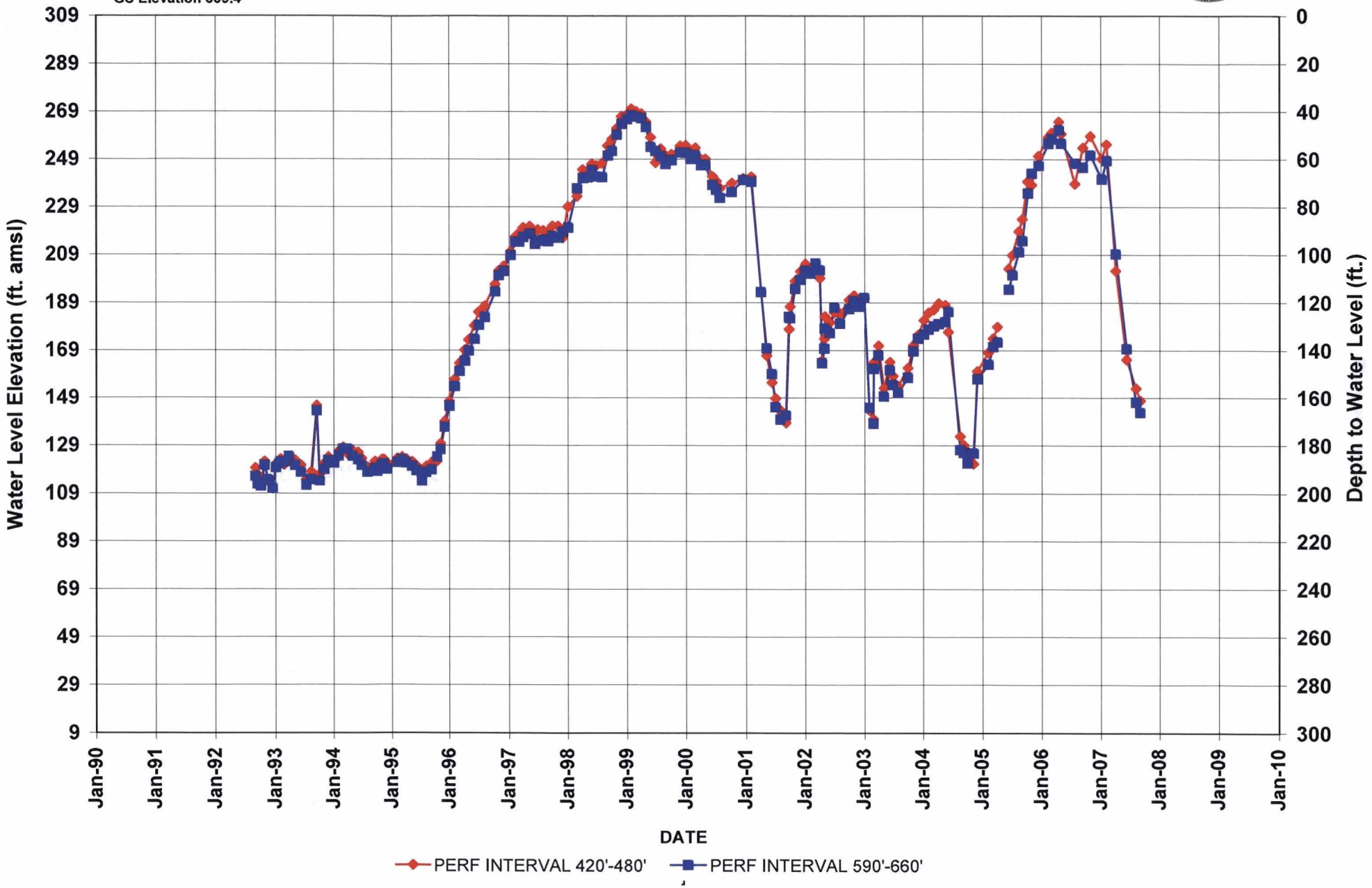
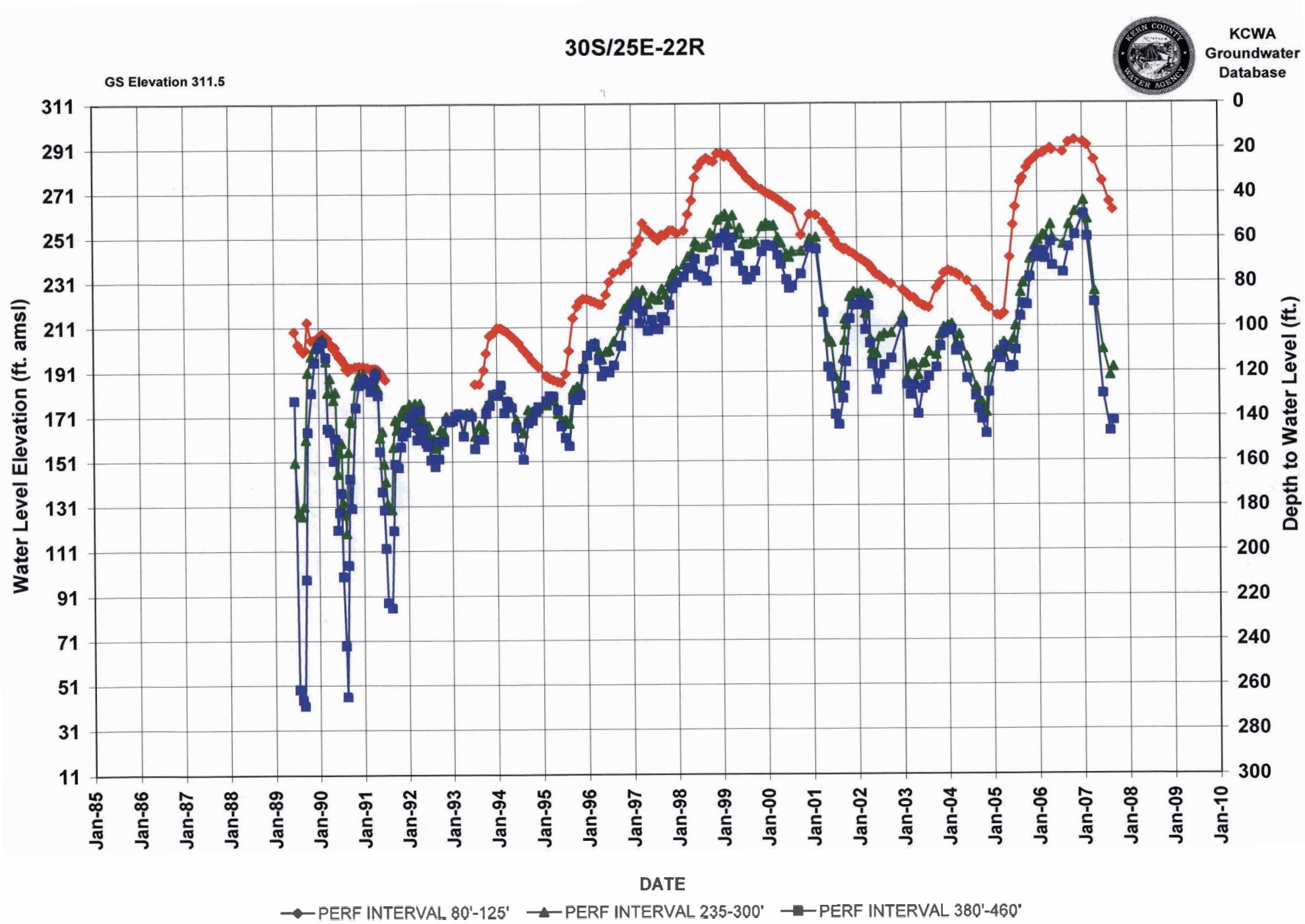
Jan-07
Jan-08
Jan-09
Jan-10
DATE
PERF INTERVAL 285'-345
PERF INTERVAL 515'-555'
PERF INTERVAL 654'-690'
PERF INTERVAL 100'-130'

30S/25E-21G

KCWA Groundwater Database

GS Elevation 309.4




30S/25E-22R
KCWA
Groundwater
Database
GS Elevation 311.5
Water Level Elevation (ft. amsl)
Depth to Water Level (ft.)
311
291
271
251
231
211
191
171
151
131
111
91
71
51
31
11
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300
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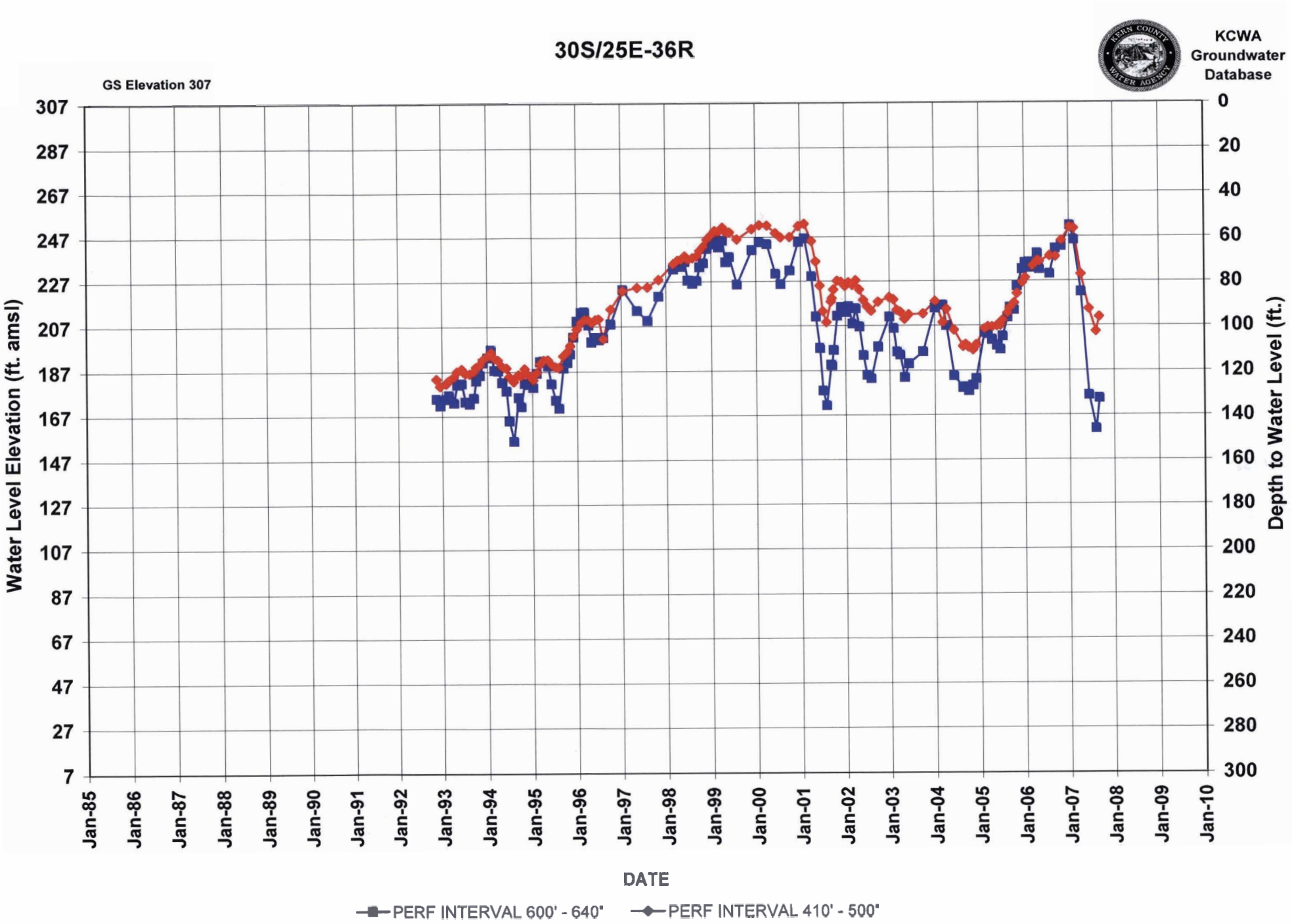
DATE
PERF INTERVAL 80'-125'
PERF INTERVAL 235-300'
PERF INTERVAL 380'-460'


30S/25E-36R
KCWA
Groundwater
Database
GS Elevation 307
Water Level Elevation (ft. amsl)
307
287
267
247
227
207
187
167
147
127
107
87
67
47
27
7
Depth to Water Level (ft.)
0
20
40
60
80
100
120
140
160
180
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240
260
280
300
Jan-85
Jan-86
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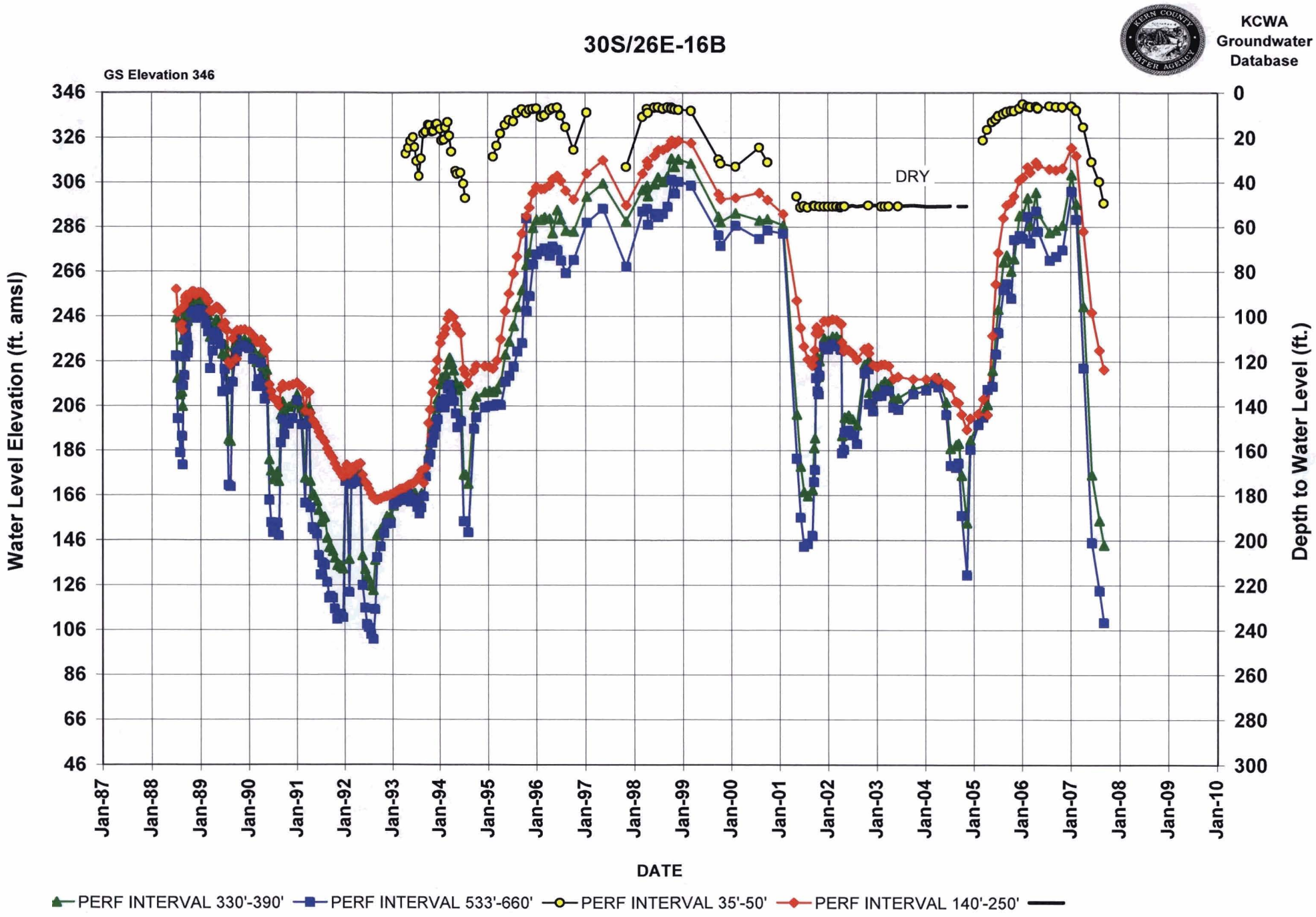
Jan-10
DATE
PERF INTERVAL 600' - 640"
PERF INTERVAL 410' - 500"


30S/26E-16B
KCWA
Groundwater
Database
GS Elevation 346
DRY
Water Level Elevation (ft. amsl)
Depth to Water Level (ft.)
346
326
306
286
266
246
226
206
186
166
146
126
106
86
66
46
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Jan-87
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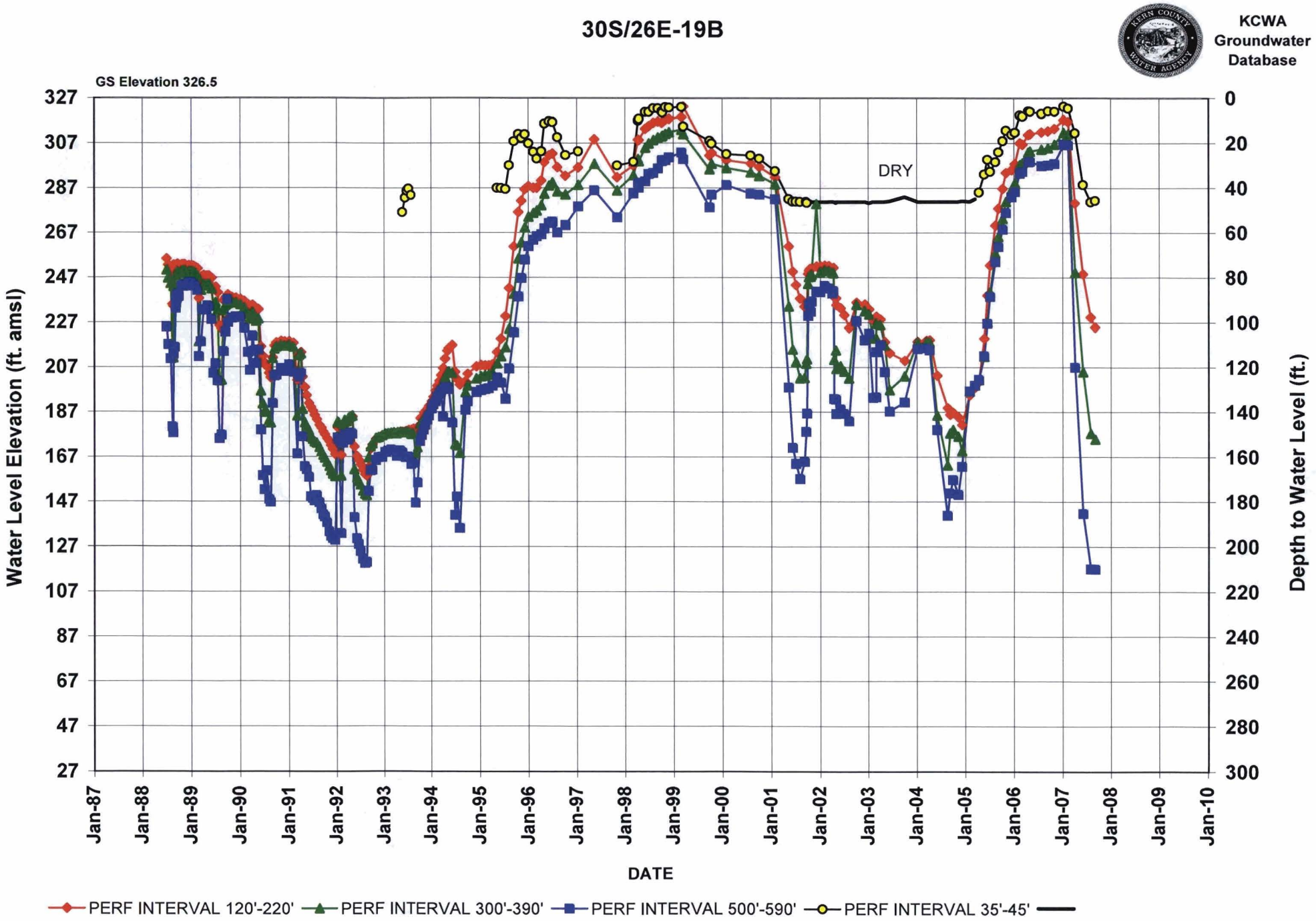
Jan-10
DATE
PERF INTERVAL 330'-390'
PERF INTERVAL 533'-660'
PERF INTERVAL 35'-50'
PERF INTERVAL 140'-250'


30S/26E-19B
KCWA
Groundwater
Database
GS Elevation 326.5
DRY
Water Level Elevation (ft. amsl)
Depth to Water Level (ft.)
327
307
287
267
247
227
207
187
167
147
127
107
87
67
47
27
0
20
40
60
80
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Jan-87
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Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
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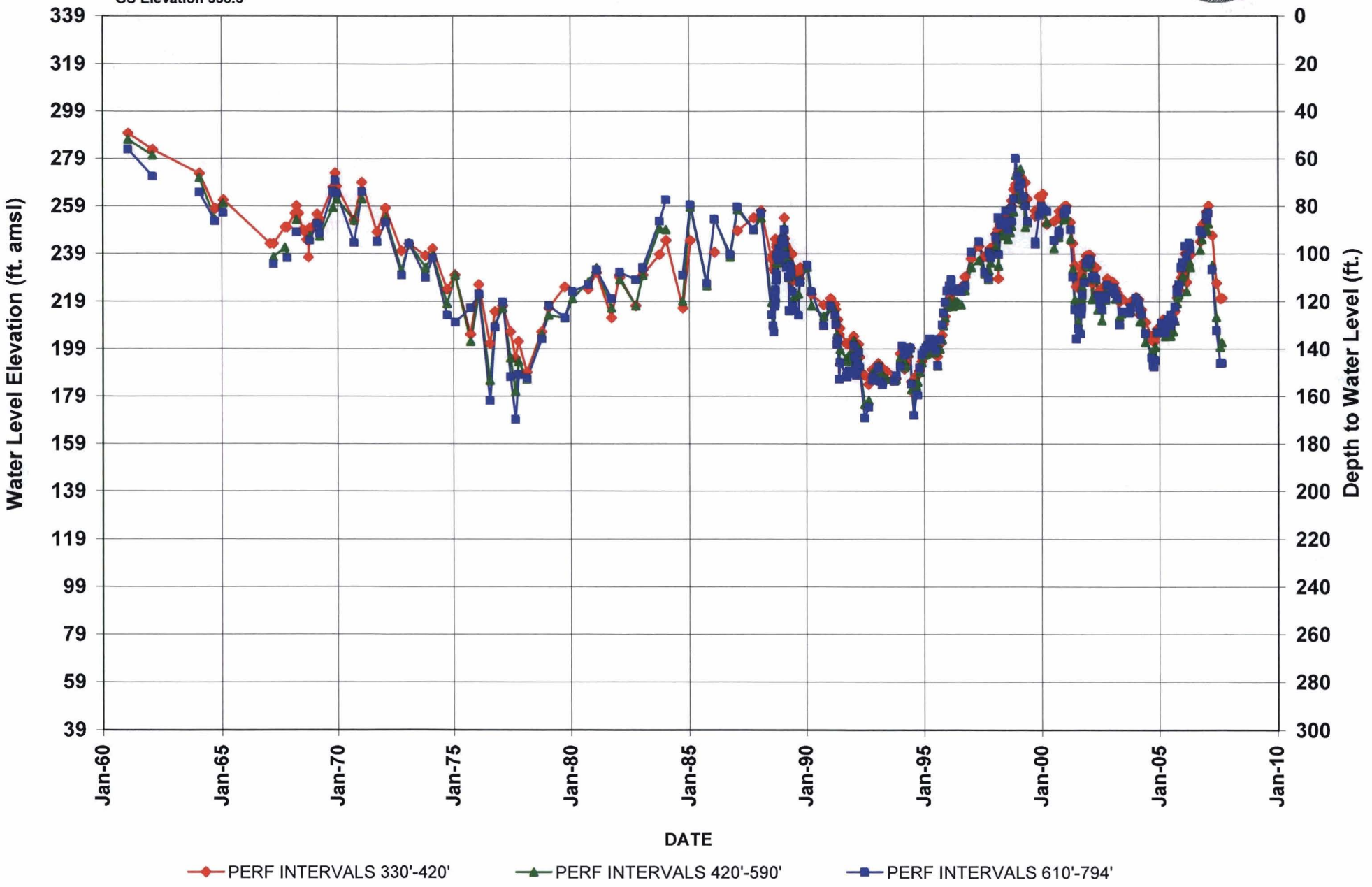
Jan-10
DATE
PERF INTERVAL 120'-220'
PERF INTERVAL 300'-390'
PERF INTERVAL 500'-590'
PERF INTERVAL 35'-45'

30S/26E-22P

KCWA Groundwater Database

GS Elevation 338.5



30S/26E-25A

KCWA Groundwater Database

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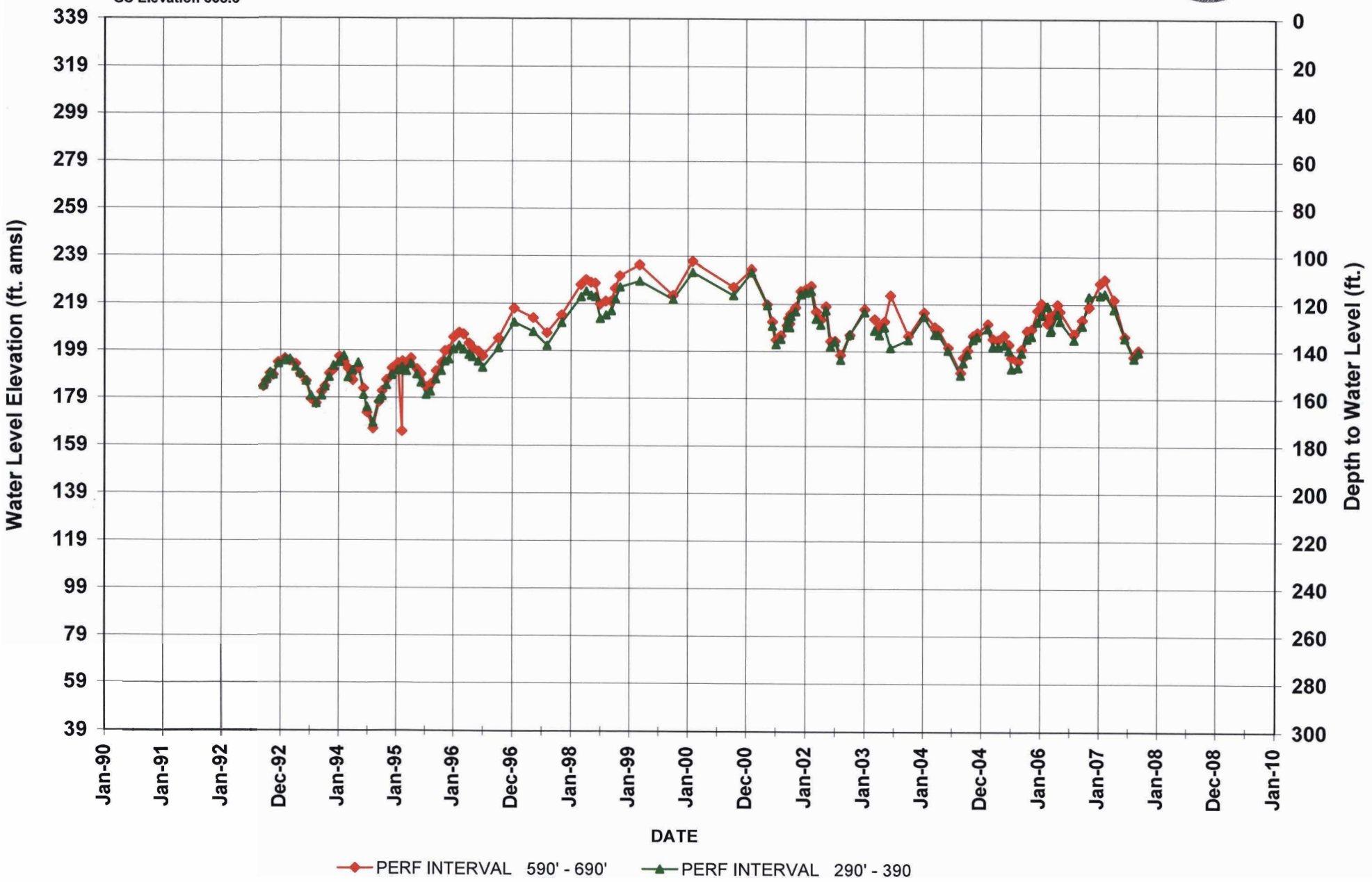

30S/26E-32N

KCWA Groundwater Database

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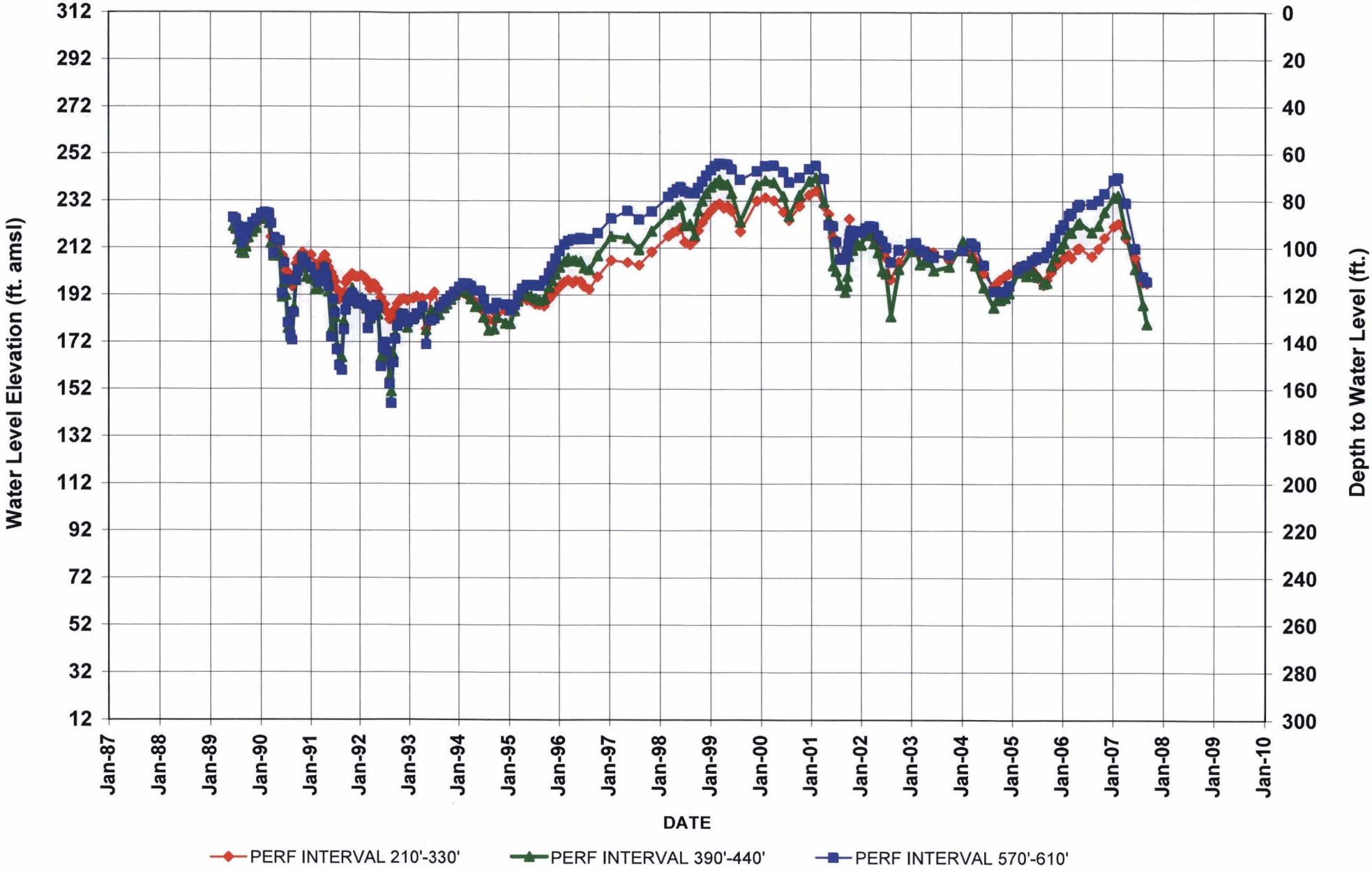

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