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February 5, 1997

Hand Delivered

David Catanach  
New Mexico Oil Conservation Division  
2040 South Pacheco Street  
Santa Fe, New Mexico 87505

Re: Case No. 11696 (Devon Energy)

Dear Mr. Catanach:

Enclosed, as requested at hearing, are graphs of oil production, water production, and numbers of injection and producing wells, for each of the six waterflood projects, from January 1989 to date. Also enclosed is a brief summary of each project. Please call me if you need any additional data on this matter.

Very truly yours,



James Bruce

## **Discussion of Devon Energy's Grayburg Jackson Waterflood Projects**

### **KEEL-WEST WATERFLOOD PROJECT**

In January, 1994 the Keel-West project was producing about 600 bopd and 3000 bwpd from 75 wells. The 20 active injection wells were merely reinjecting the produced water. Wells were on 40-acre spacing with a very irregular waterflood pattern because many of the injection wells were inactive. Devon began drilling 20-acre infill wells in late 1994 and in March, 1995 began expanding the waterflood to a 5-spot pattern by converting wells to injection and reactivating old injection wells (which included perforating additional pay zones and/or deepening to expose the entire pay section to water injection). Current production is about 1900 bopd and 12,000 bwpd from 136 wells. The number of injection wells has increased to 81 and we are now injecting not only all of the produced water but also an additional 10,000 bwpd of make-up water from the caprock via our Keel-West water supply system. We are currently negotiating with offset operators to establish cooperative lease-line injection so that we can proceed to our ultimate goal of a complete 5-spot pattern covering all eight sections. Complete development would be 105 production wells and 128 injection wells capable of injecting 51,200 bwpd.

### **C. A. RUSSELL WATERFLOOD PROJECT**

The Russell lease was producing less than 10 bopd from 6 wells until early 1996 when Devon drilled 10 infill wells increasing production to over 300 bopd. There has been no water injection on this lease since 1986. Within the last month Devon has converted 4 producers to water injection and reactivated 2 old injection wells, so there are now 6 active injection wells in this project injecting about 1600 bwpd. Two more injection conversions which would complete the development are dependent on a cooperative lease-line injection agreement with the offset operator.

### **HUDSON FEDERAL WATERFLOOD PROJECT**

The Hudson Federal lease was producing less than 10 bopd from 4 wells until early 1996 when Devon drilled 6 infill wells increasing production to over 200 bopd. There has been no water injection on this lease since 1978. The six injection conversions are scheduled for 1997.

### **TURNER 'A' WATERFLOOD PROJECT**

In January, 1994 the Turner 'A' lease was producing about 20 bopd from 7 wells. The 3 active injection wells were merely reinjecting the produced water. Wells were on 40-acre spacing with a very irregular waterflood pattern because many of the injection wells were inactive. Devon began drilling 20-acre infill wells in early 1996 which increased production to over 800 bopd. Within the past 2 months Devon has converted additional wells to water injection so that there are now 12 active injection wells in the project injecting 1500 bwpd, 1500 bwpd of produced water plus an additional 3000 bwpd of make-up water.

## **TURNER 'B' WATERFLOOD PROJECT**

The Turner 'B' lease was infill drilled to 20-acre spacing in 1991. However, the waterflood installed was an inverted 9-spot pattern in which there is 1 injection well surrounded by 9 production wells. This pattern has been found to be much less efficient than a 5-spot pattern in Permian Basin Grayburg-San Andres waterfloods because the ratio of injectors to producers is only 1:3 while the ratio of injectors to producers in a 5-spot pattern is 1:1. During 1997 Devon plans to drill 10 wells to develop previously undrilled acreage in the S/2 of Section 30-17S-31E and also to fill in several undrilled 20-acre locations. During January, 1997 Devon began converting wells to change the waterflood pattern from the existing inverted 9-spot to the more efficient 5-spot. Full development would increase the number of injection wells from 14 to 45. The Turner 'B' waterflood plant, which serves the five waterflood projects other than the Keel-West, is being totally rebuilt.

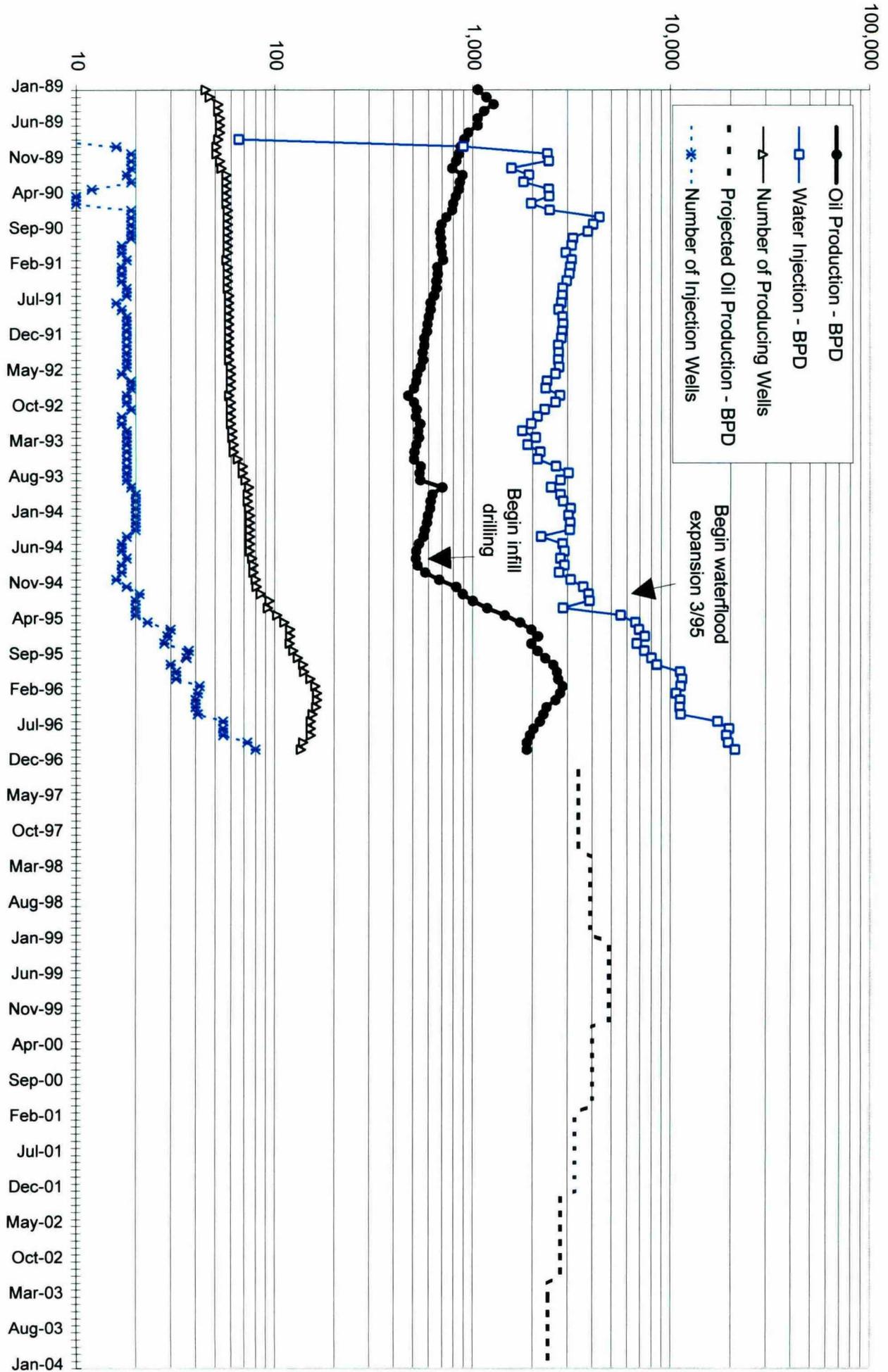
## **FRIESS-FREN WATERFLOOD PROJECT**

This project encompasses the Friess Federal, Fren Oil, and Max Friess leases. Several development wells were drilled by the previous operator in 1991 and 1992. By January, 1994 the 10 wells were making about 50 bopd and the 2 injection wells were disposing of 200-300 bwpd of produced water. Devon drilled 3 infill wells in 1996 and increased production to 150 bopd. During 1997 eight wells will be converted to injection to fully implement the waterflood at which time injection capacity will be 4000 bwpd.

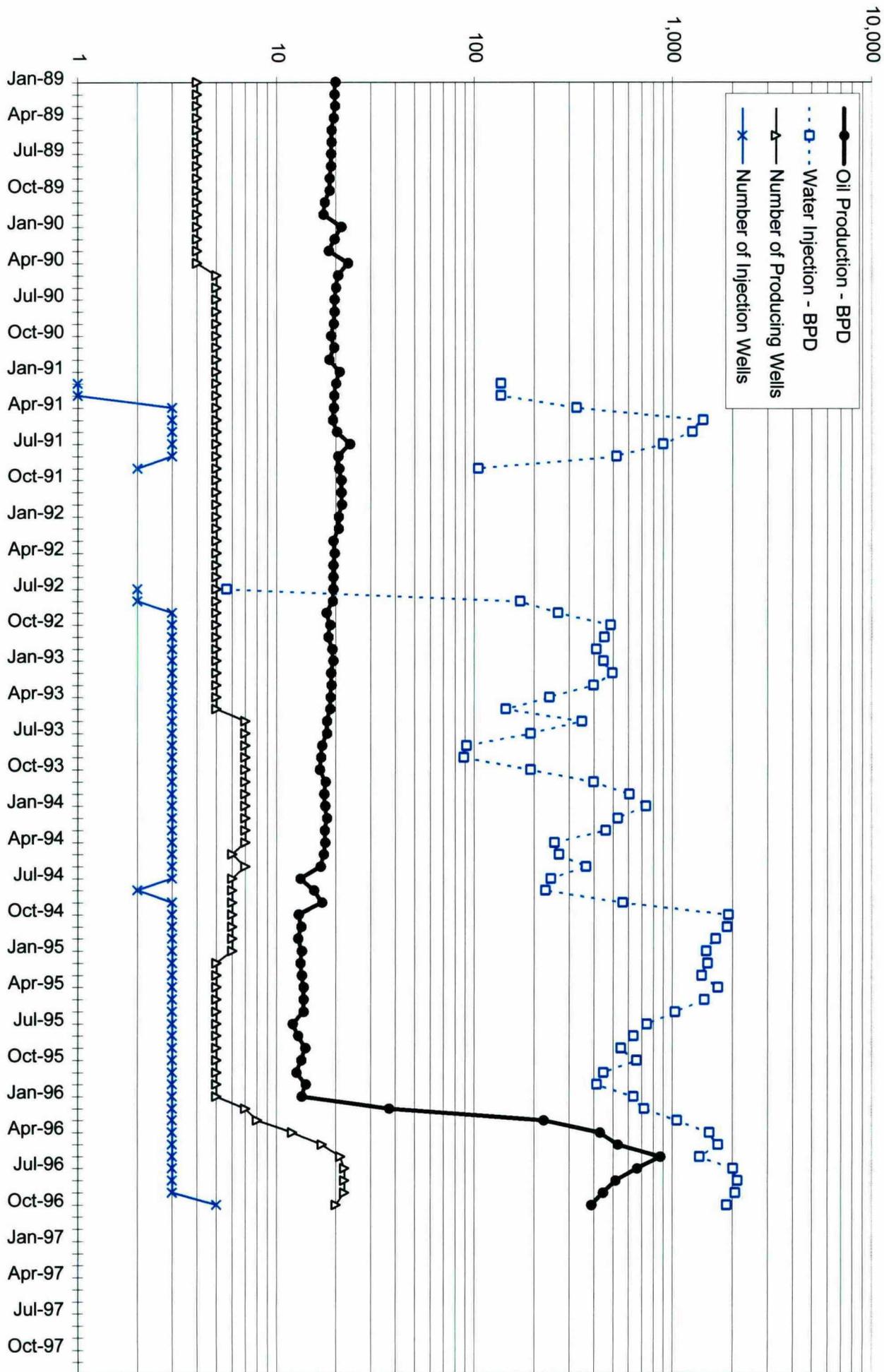
## **WATER SUPPLY**

Because of the large increase in the number of injection wells and the volume of make-up water needed to more efficiently flood the six Devon projects, Devon recently acquired additional water rights on the caprock. We are in the process of drilling additional water wells and designing a new water supply system which will be capable of delivering 70,000 bwpd to our projects.

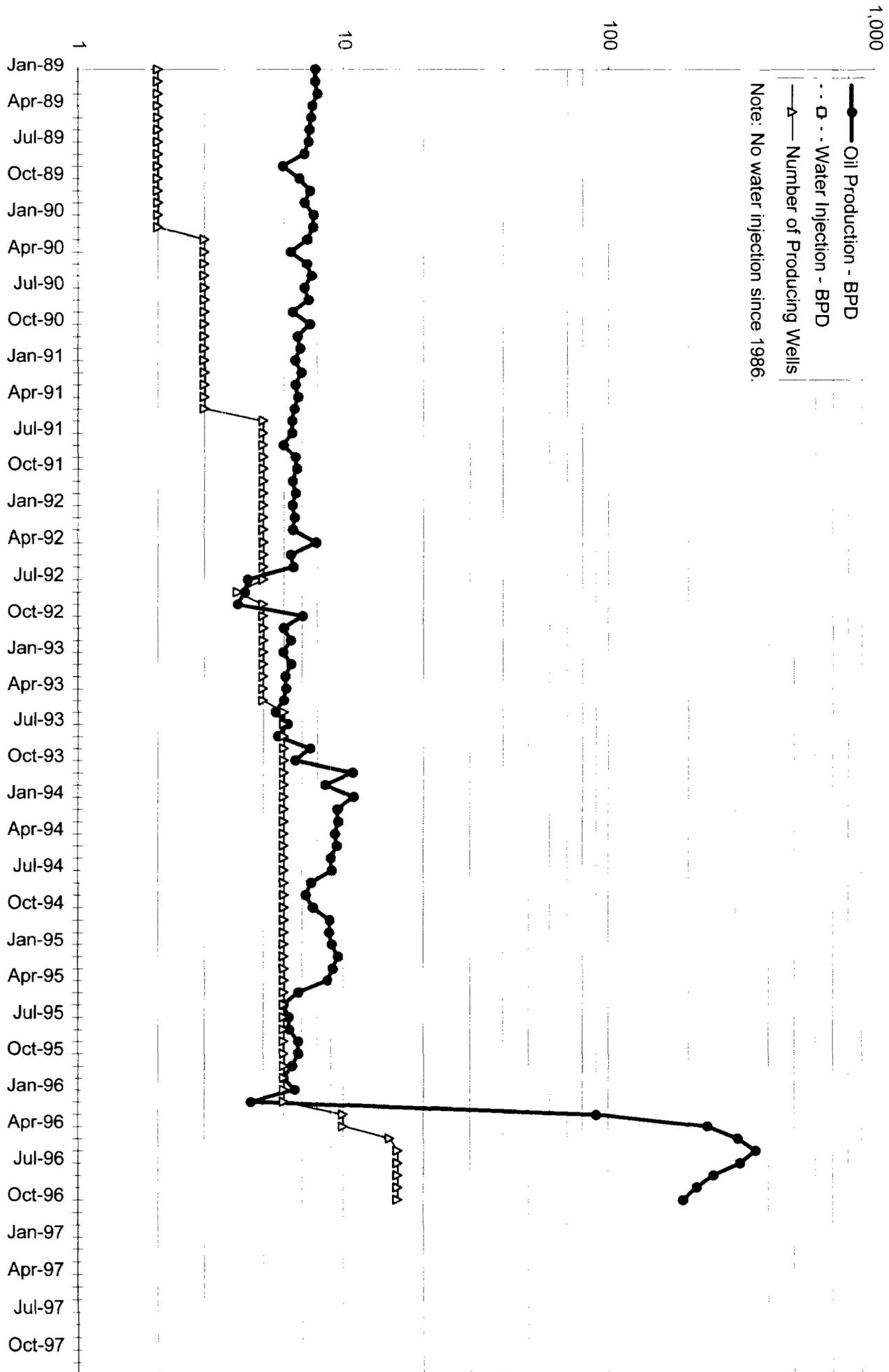
# DEVON ENERGY KEEL-WEST WATERFLOOD PROJECT



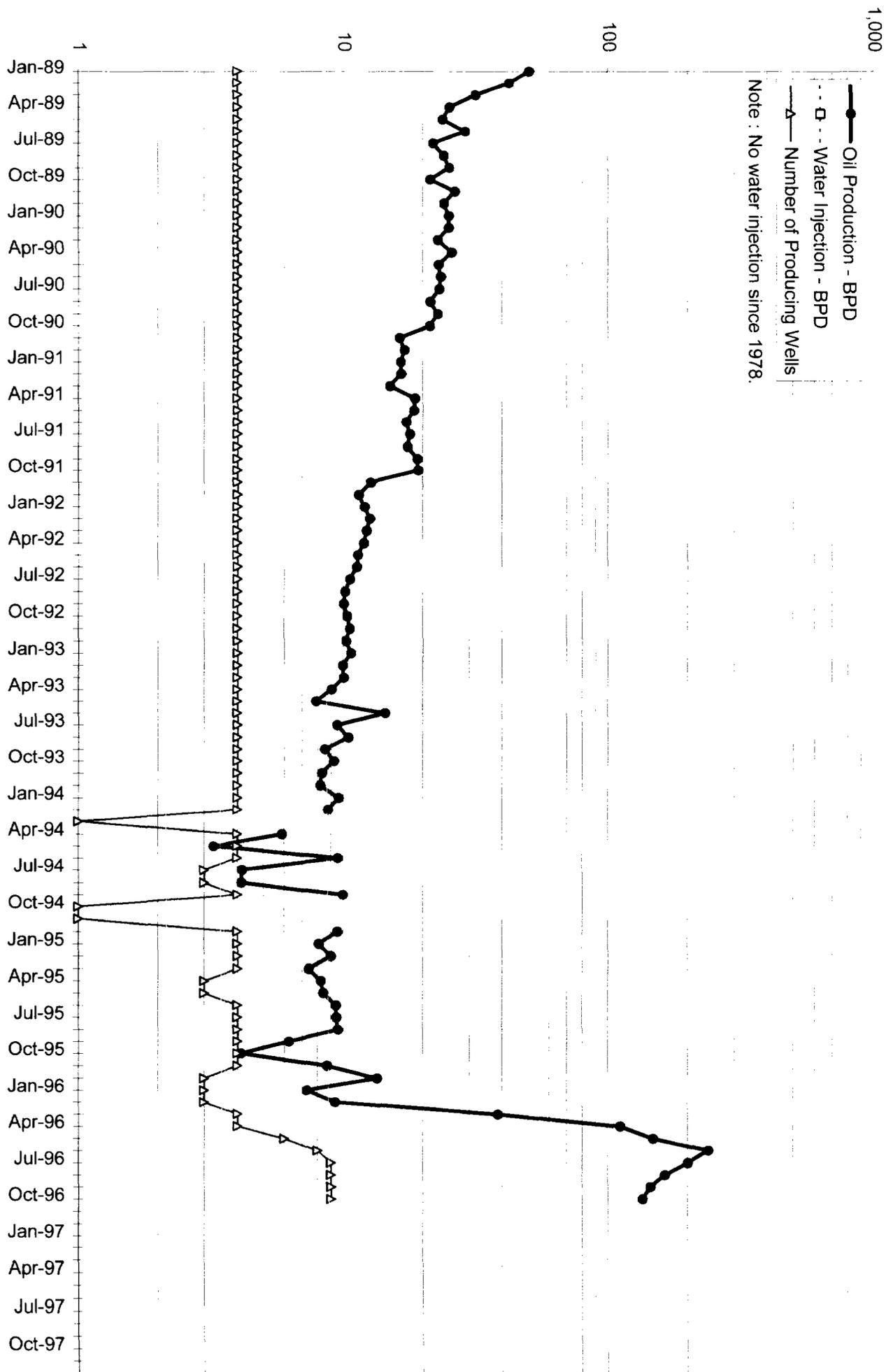
# TURNER 'A' WATERFLOOD PROJECT



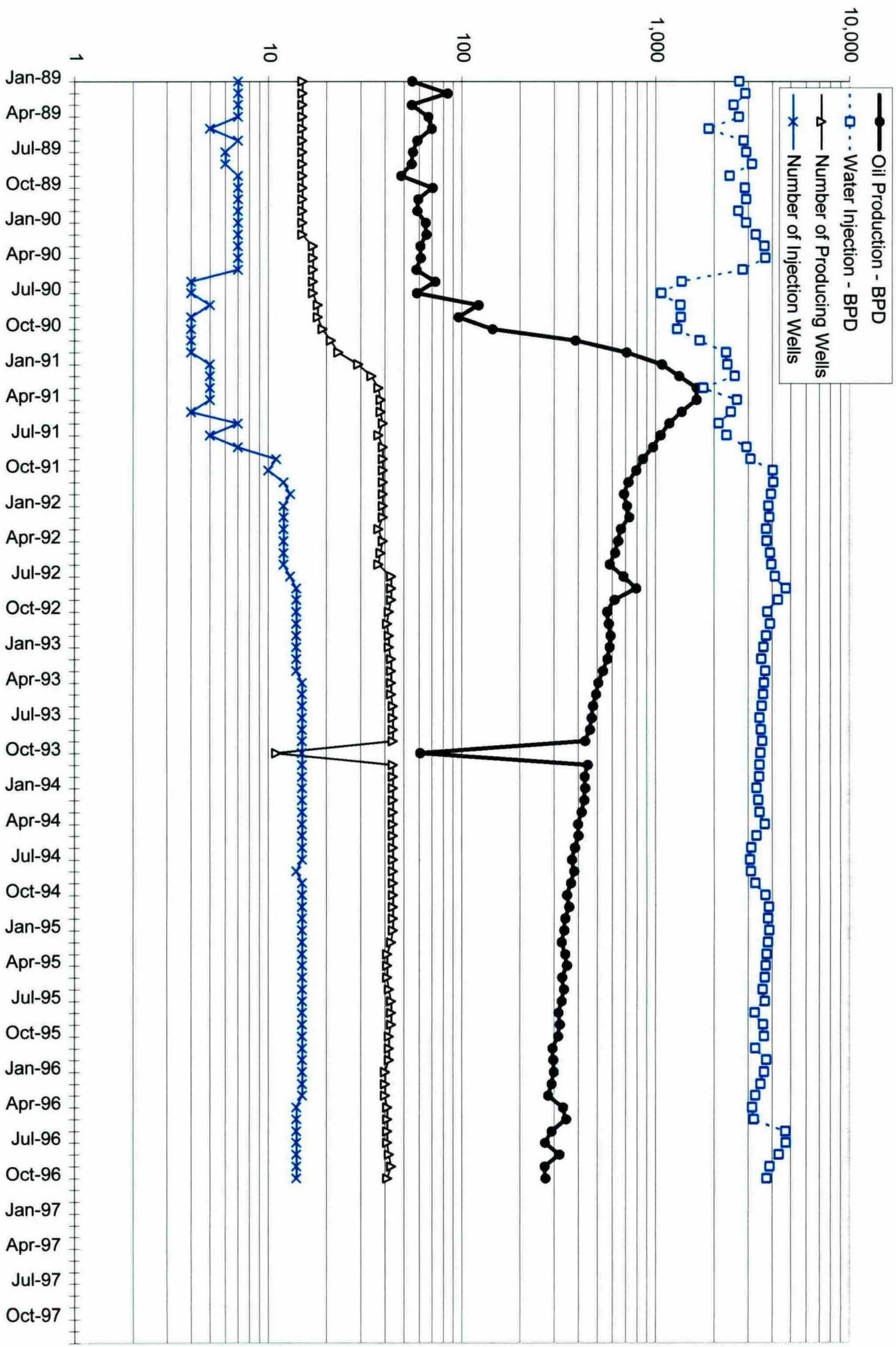
# C.A. RUSSELL WATERFLOOD PROJECT



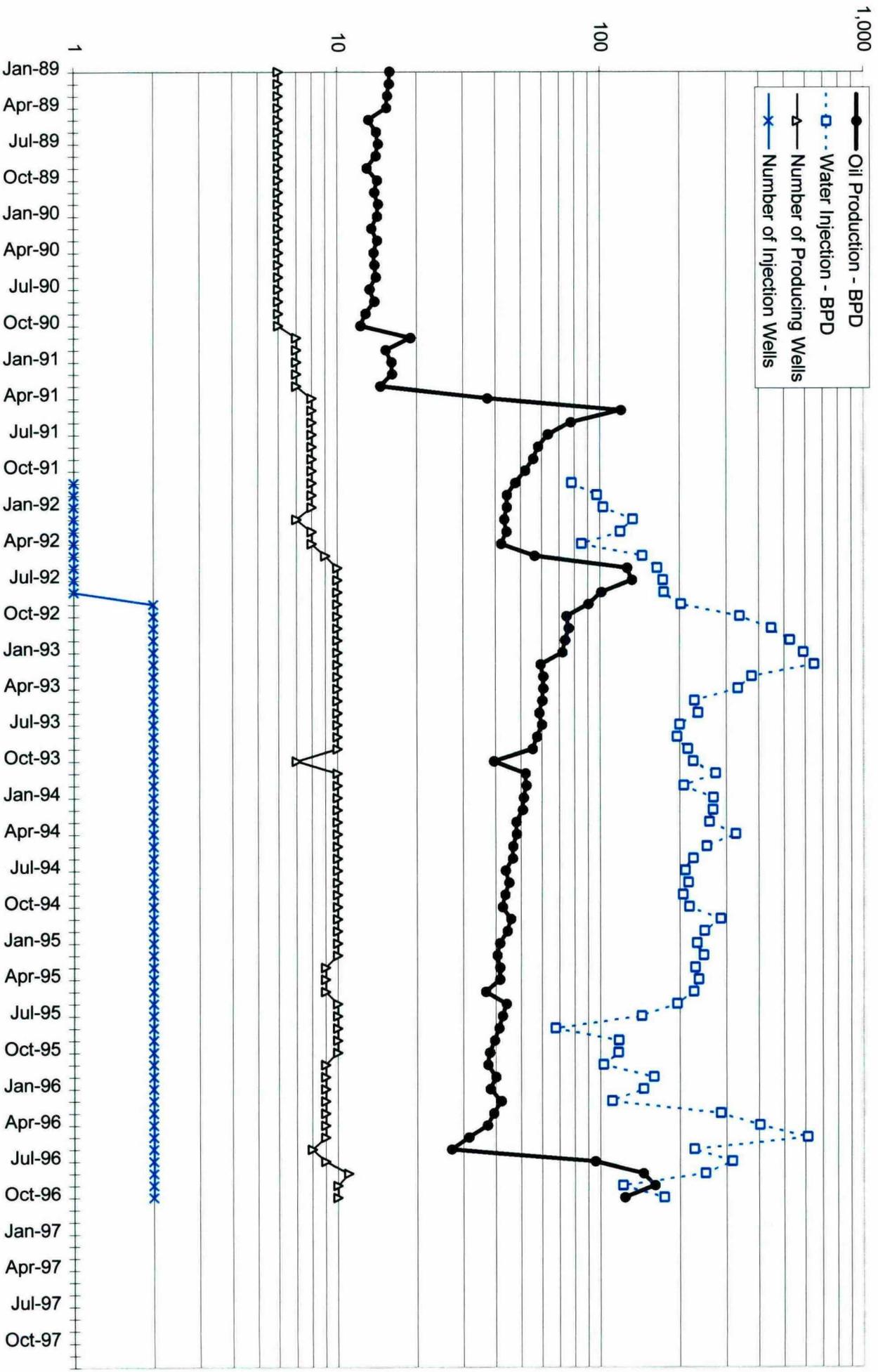
# HUDSON FEDERAL WATERFLOOD PROJECT



# TURNER 'B' WATERFLOOD PROJECT



# FRIESS-FREN WATERFLOOD PROJECT



LARGE FORMAT  
EXHIBIT HAS  
BEEN REMOVED  
AND IS LOCATED  
IN THE NEXT FILE