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Dear Mr. Gregoire

Introduction:

The following report deals with certain aspects of the matter styled **State of Louisiana *v* The Louisiana Land and Exploration Company, et al.** In particular, this report deals with oil and gas operations conducted by Union Exploration Partners, LTD, Union Producing Company and Union Oil Company of California on the Vermilion Parish School Board property in the East White Lake Field. For purposes of this report the various Union entities will be referred to as Unocal. It also contains comments on the general industry practices and the regulations affecting oil and gas production operations in the State of Louisiana over the time period in question. I have also reviewed the following expert reports: Charles Norman, dated March 28, 2010 and John Kilpatrick, dated April 15, 2010. The following initial comments are based on the information and data reviewed to date, and my education, training and experience.

Information and Data:

The information and data that has been provided to date is listed on Attachment "A", which is attached to and made a part of this report.

Narrative:

East White Lake Field

The East White Lake (EWL) Field is located in the western part of Vermilion Parish, Louisiana. The field is located +/- 40 miles south, southwest of Lafayette. Louisiana. White Lake is located +/- 1 mile west of the field, which is +/- 13 miles inland from the Gulf of Mexico (GOM). Louisiana State Highway 82 passes +/- 1 mile east of the EWL Field. The old intra-coastal waterway (Schooner Bayou) passes through the northern edge of the field, running in a northeast / southwest direction. Access to the EWL field is by boat through the old intra-coastal waterway.

The EWL Field is an old oil and gas field that has an aerial extent that covers several sections of marsh land, predominately in Township 15 South (T15S) and Range 1 East (R1E). To date +/- 140 wells have been permitted in the field since oil and gas operations began in the late 1930s. The information available to date indicates that the EWL Field was developed early on in a centralized manner. Various operators have operated in the EWL Field over its productive life.

The initial well permitted in the EWL Field from the Louisiana Department of Natural Resources (La-DNR) records was the VPSB #1 well (VPSB #1) serial number (SN) 22847. VPSB #1 was permitted by the Louisiana Land & Exploration Company (LL&E) in August of 1939. The well was to be located in Section (Sec) 16, T15S, R1E. However it appears the well's permit was allowed to expire without the well being drilled. LL&E also permitted a second well in August 1939, the Louisiana Furs, Inc. (LFI) # 2 well, which was to be located in Sec 15, T15S, R1E. The LFI # 2 well apparently was not drilled either as it is listed as having its permit expire.

The initial well drilled in the area designated the EWL Field was the Heirs of Walter White #1 well (Well W1), SN 23537. The well was located in Sec 17, T15S,

R1E. Well W1 was permitted in mid December 1939 by Unocal and was spudded in March 1940. It was drilled to a total depth (TD) of 11,098 feet by mid July 1940. Well W1 was completed and tested as a Miocene producer through perforations from 10,536 feet to 10,542 feet by September 13, 1940. It was the discovery well for the field. The well initially tested a limited amount of water, +/- 6 BWPD out of +/- 233 BFPD. The lower part of the productive interval was squeezed off in early 1941 and the well tested water free. Well W1 was plugged and abandoned (P&A'd) by Unocal in June of 1975.

The latest well drilled in the EWL field was the VPSB A 52 well (Well A52), SN 240770, drilled earlier this year. The well was drilled by Peak Operation Company (POC) in Sec 16, T15S, R1E to a TD of 7,400 feet. Well A52 is listed as an active producer from the SB sand through perforations from 7,276 feet to 7,286 feet.

The East White Lake Field is a large, anticlinal structure formed on the upthrown side of a very large, regional down to the coast fault. Reflection and refraction surveys run in the area identified the structure prior to drilling. This anticline is elliptical in shape and is dissected by several parallel southeast dipping faults. Production is from Lower Miocene and Upper Oligocene sands ranging in depth from 5,300'-12,000'. East White Lake Field has produced a cumulative of 53 million barrels of oil and 95 billion cubic feet of gas.

As is common with many oil and gas fields, formation water was produced in association with the oil and gas produced at the EWL Field during a portion of the life of the field. Various production process, handling and storage facilities were constructed in the EWL Field to process the hydrocarbons for sale and to separate the produced water for disposal. The information reviewed refers to various SWD wells utilized during the life of the EWL Field.

Development of the EWL Field included some usage of earthen pits. It appears it also included the discharge of some amounts of produced water into

surface water bodies during the very early life of the field. The information available to date indicates that SWD wells were utilized in the EWL Field early on. The use of earthen pits was an accepted, common and routine part of oil and gas field operations in South Louisiana for a substantial period of the time that the EWL Field has existed. Discharge of produced water into surface water bodies was also an accepted, common and routine part of oil and gas field operations in coastal Louisiana for a substantial period of the time that the EWL Field has existed. Earthen pits and surface discharge operations were open and observable to the various state inspectors with site responsibility, as well as others who would be onsite. Both were allowed by the applicable governmental agencies, which had oversight responsibility for oil and gas operations, for a significant portion of the time that oil and gas operations have been conducted in the field.

Unocal Operations on the VPSB Property:

The Vermilion Parish School Board (VPSB) property in EWL Field consist of all of the acreage in Sec 16, T 15S, R1E, which was noted to be comprised of +/- 1180 acres. The subject oil and gas exploration and production operations were conducted on the VPSB property under the rights granted by Oil and Gas Mineral (OG&M) lease number 57081, which was held 50% by Wilson Brothers and 50% by Unocal. Wilson Brothers Drilling Company is listed in the information provided as a wholly owned subsidiary of LL&E. The VPSB lease was granted to LL&E in April 1935. The VPSB lease was noted to cover +/- 927 acres. It appears that the VPSB lease was subdivided into "Area A" and "Area B". Area A covered +/- 640 acres and carried a 1/8 royalty. Area B covered 287 acres immediately south of Area A and carried a 1/8 royalty and a 1/32 over-riding royalty interest (ORRI). No damage provision was noted in the VPSB lease but the lease did grant the rights to test, prospect, drill, produce, treat and take care of oil and gas. It also gave the right to

construct certain items to include tanks but did not specify the type of tanks, either earthen or wood or steel.

An agreement was executed between LL&E and Unocal dated March 27, 1940 that named Unocal as the operator for the joint account for the EWL Field. The VPSB property was part of the leasehold affected by that agreement. Unocal operated on the VPSB property from 1940 until mid 1995, when Resources Acquisition Corporation (RAC) acquired the interest and became the operator of record. In January 2003 the operator of record was changed to Peak Operating Company (POC). It appears that the OG&M rights have been maintained in force and effect on the property through the years by production and unit operations.

Information and data from the La DNR indicate that over the 70 years of productive life in the EWL Field 91 wells were permitted on the VPSB property. Of the wells permitted on the VPSB property: 5 permits were allowed to lapse; 5 wells were dry holes, 6 wells are active producers; 3 wells are active SWD wells; 11 wells are shut in with future utility (SIFU); 56 wells produced and have been P&A'd; and 5 wells have been converted from dual wells to single wells. Initially there were 19 wells completed as dual producers. This would yield a total of 67 wellbores on the VPSB property accounting for dual completions and expired permits over the producing life of the property. The 56 productive wells that have been P&A'd include the 5 P&As which converted a dual producer back to a single producer and 51 P&A'd wellbores. Currently the available information indicates there are 18 wellbores on the VPSB property. These 18 wellbores house 6 active wells, 3 active SWD injectors and 11 wells SIFU. The remaining numbers indicate that there are 2 dual wells among the remaining wellbores. POC is listed as the current operator of record by the LA DNR.

Unocal permitted +/- 77 of the wells located on the VPSB property during its tenure as operator. Of the 77 wells, 17 were duals and 3 permits were allowed to

expire, yielding 57 wellbores installed by Unocal. Unocal drilled and P&A'd the 5 dry holes and P&A'd 35 of the producing wells on the VPSB property during its tenure as operator. RAC permitted 5 wells after it took over operations on the VPSB lease. These were the wells numbered 44, 45, 46, 47 and 47D. RAC had 1 permit expire and P&A'd 9 of the producing wells on the VPSB property. POC permitted 5 wells after they took over operations. These were the wells numbered 49, 49D, 50, 51 and 52. POC P&A'd 12 of the producing wells on the VPSB property to date.

The initial well drilled on the VPSB property was the VPSB B-1 well (Well B1), SN 24764. Well W1 was permitted in mid September 1940 by Unocal. It was drilled to a TD of 12,116 feet. Well B1 was completed and tested through perforations from 9,863 feet to 9,880 feet by February 1941. It was the discovery well for the VPSB property. The well's IP was 274 BOPD and 420 MCFPD, with no BS&W. Well B1 was P&A'd by RAC in December 1999.

The last well drilled by Unocal on the VPSB property was the VPSB A-41 well (Well A41), SN 209103, drilled in the fall of 1988. The well was drilled to a TD of 7,200 feet. Well A41 was completed through perforations from 6,340 feet to 6,377 feet in the R sand. The well's IP was 280 BOPD and 219 MCPPD, with 0% BS&W. POC deepened the well in 2010 to a TD of 11,895 feet but made a shallow completion in the S-4 sand through perforations from 7,435 feet to 7,441 feet. The well's IP was 157 BOPD and 390 MCFPD, with 0% BS&W. Well A41 is listed as an active producer and is being currently operated by POC.

The information available indicates that Unocal's oil and gas operations were centralized. Centralized operations were often employed in marsh operations in South Louisiana. By centralizing operations fewer facilities were required resulting in less disruption to the surrounding areas. There were 2 Unocal tank batteries (TB) on the VPSB property. TB-A was located in Area A and TB-B was located in

Area B. The Unocal production facilities included production process equipment, production test equipment, production storage equipment and a SWD system.

SWD

The available information indicates a centralized SWD system was developed by Unocal for its oil and gas operations in the EWL Field. The information reviewed to date indicates that Unocal utilized two different methods of SWD during its tenure as operator. It appears that initially the produced water was released to surface waterways followed by the installation of a SWD injection disposal system.

It appears that between the start of production in February 1941 and the installation of the first SWD well in early 1948 any produced water associated with Unocal oil and gas operations was retained, treated and likely discharged into the surface waterways available to the field. Retention and treatment of the produced water for disposal would have been accomplished through the use of some type of temporary containment system: pit; steel/fiberglass tank; barge; etc. The volume of water produced in association with the oil and gas operations varied based on productive zone, well configuration and production operations. Estimates of the cumulative water production from the VPSB property over this time interval, based on available well test and production data, yields a produced water volume of +/- 470.3 M Bbls.

The available information and data indicates that the first SWD well in the EWL field was installed in early 1948. It was located near the western boundary of Sec 15, T15S, R1E. This well was indicated to be part of a closed SWD system that Unocal employed at that time. Unocal followed this first well with 6 subsequent SWD wells. The subsequent wells were all located in Sec16, T15S, R1E. subsequent operators added 2 additional SWD wells on the VPSB property. The information available to date indicates that the Unocal SWD wells were capable of

handling the volume of water Unocal produced either on the VPSB property or for the EWL Field during the time periods they were in service. The vast majority of water produced by Unocal's oil and gas operations was injected into subsurface salt water aquifers through its SWD well system.

SWD Wells

As stated above, Unocal installed a closed SWD system utilizing injection wells starting in early 1948. At that time the field was producing approximately +/- 375 barrels of water per day. Subsequent reports indicated that the initial SWD well was capable of taking a significant volume of water per day at low injection pressures.

The information available to date indicates that Unocal converted a former producing well, the Louisiana Furs No. 4-A (LF #4A), SN 24642, to be the initial SWD well. The well was located near the western boundary of Sec 15, T15S, R1E. The LF #4A was spudded September 27, 1940 and was drilled to 9,028 feet. It was then sidetracked to a total depth of 8,903 feet in January 1941. The well had 18-5/8" conductor casing set at 207 feet and cemented to the surface with 400 sacks of cement. Surface casing (11-3/4") was set at 2,857 feet and also cemented to surface with 1,100 sacks of cement. Production casing (7-5/8") was set and cemented at 8,890 feet. The well was perforated from 7,342 feet to 7,355 feet. The well's initial production (IP) was 154 BOPD, 221 MCF/day, with 0.2% BS&W. The well was unsuccessfully sidetracked in early 1943 and subsequently plugged in June 1943. The 7-5/8" casing was cut at 3,060 feet and pulled. A 150 sack cement plug was set from 2,810 feet to 3,060 feet.

On February 6, 1948 the Louisiana Department of Conservation (La DOC) granted Unocal approval to convert the LF #4A to a SWD well. The 11-3/4" casing was perforated from 1,557 feet to 1,570 feet for injection in February 1948 and 1,570 feet to 1,580 feet in 1953. In April 1969, Unocal applied to the La DOC to

recomplete the well to a deeper sand for injection. As part of the work, Unocal ran 7" casing to 1,700 feet and cemented it to the surface with 660 sacks of cement. The well was then drilled out and perforated in the 11-3/4" casing from 1,895 feet to 1,965 feet. A 2-3/8" tubing string was run to 1,729 feet with a packer set at 1,700 feet. The LF SWD #4A was shut-in on April 30, 1974 and P&A'd by Unocal in April 1987.

In May 1965 Unocal received approval to convert the VPSB A-12 (Well A12), SN 30046, to a SWD well. The well was a producing well that was spudded January 31, 1945. Well A12 was initially perforated at 6,735 feet to 6,737 feet and tested at 115 BOPD, 428 MCF/day with no water. Conductor casing (16") was set at 198 feet and cemented to the surface with 250 sacks of cement. Surface casing (10-3/4") was set at 1,243 feet and cemented with 750 sacks of cement. Production casing (5-1/2") was set at 6,797 feet and cemented with 500 sacks of cement. On May 19, 1965 a cast iron bridge plug (CIBP) was set at 1,890 feet and 3-1/2 feet of cement was set on top. The well was perforated from 1,830 feet to 1,880 feet for injection. A 2-7/8" injection tubing string was run to 1,849 feet. In June and July 1974 the 5-1/2" casing was cut at 1,475 feet and pulled. A new string of 5-1/2" casing was run to 1,475 feet and cemented with 300 sacks of cement. The 5-1/2" casing was perforated at 1,430 feet to 1,458 feet for water injection. Injection tubing (2-3/8") was run to 1,288 feet. Well A12 was shut-in July 1983 and the well was P&A'd by Unocal in July 1986.

In February 1973 Unocal received approval from the LA DOC to convert the VPSB A-16 (Well A16), SN 40010 to a SWD well. Well A16 was spudded January 18, 1950 and completed at perforations 5,970 feet to 6,000 feet with an IP rate of 102 BOPD, 598 MCF/day, with 0.1% BS&W. Conductor casing (16") was set at 140 feet and cemented to surface with 100 sacks cement. Surface casing (10-3/4") was set at 972 feet and cemented with 525 sacks of cement. Production casing (7") was

set at 6,316 feet and cemented with 400 sacks. A cement retainer was set at 2,014 feet and the 7" casing was blocked squeezed at 2,040 feet to 2,042 feet and 1,870 feet to 1,872 feet with 250 sacks and 150 sacks respectively. The well was then perforated from 1,980 feet to 2,014 feet for water injection. Well A16 was P&A'd by Unocal in October 1980.

In April 1974 Unocal received approval from the La DOC to convert the VPSB A-30 (Well A30), SN 89035, to a SWD well. Well A30 was spudded March 11, 1962 and completed at perforations 5,383 feet to 5,390 feet with an IP rate of 151 BOPD, 1192 MCF/day, with 0% BS&W. Conductor casing (16") was run to 120 feet. Surface casing (10-3/4") was set at 656 feet and cemented with 400 sacks of cement. Production casing (5-1/2") was set at 5,519 feet and cemented with 500 sacks of cement. During April 1974 a 250 sack cement squeeze was placed at 2,660 feet to 2,662 feet, a 250 sack cement squeeze was placed at 2,550 feet to 2,552 feet and a 400 sack cement squeeze was placed at 1,041 feet to 1,043 feet. The 5-1/2" casing was then perforated at 2,580 feet to 2,620 feet for water injection. Injection tubing (2-3/8") was run open ended to 2,598 feet. The initial injection test was reported as 10,000 barrels per day at 250 psi injection pressure. In October 1980 a 12 sack cement plug was set from 2,400 feet to 2,300 feet to isolate the original injection perforations. The well was then perforated from 1,880 feet to 1,920 feet for water injection. Tubing was run to 2,594 feet without a packer. The last reported injection volumes for Well A30 well were in 1981. Well A30 was P&A'd by Unocal in August 1981.

In April 1981 Unocal received approval from the La DNR to drill SWD well VPSB SWD A-37 (Well A37), SN 970723. The well was spudded April 4, 1981 and drilled to a total depth of 2,040 feet. Conductor pipe (16") was driven to 118 feet. A 10-3/4" casing string was run to 1,888 feet and cemented with 660 sacks of cement. The 10-3/4" casing was then perforated and squeezed with 200 sacks cement from

1,850 feet to 1,852 feet. The well was then drilled to 2,040 feet and under-reamed to a 16" diameter. A 7" screen was run from 1,793 feet to 2,039 feet and a 7" liner was run from surface and stung into a packer at 1,773 feet. A 2-7/8" backwash string was run to 1,729 feet. Water injection began on April 12, 1981. On August 9, 1990 the 7" liner was cut at 1,715 feet and pulled. On March 13, 1991 Unocal submitted a work permit to change the disposal zone to perforations from 1,470 feet to 1,500 feet. The Injection and Mining Division of the Office of Conservation required Unocal to supply data for a migration potential (Mig Pot) test. Unocal submitted the required information as well as perforating the proposed injection zone in an offset idle well (VPSB A-27D). The fluid level in the proposed injection zone was found at 198 feet. The well received a successful Mig Pot test and Injection and Mining approved the recompletion on March 25, 1991. In April 1991 the zone at 1,898 feet to 2,033 feet was cemented. A string of 7" casing was run to 1,518 feet and cemented with 340 sacks cement. A CIBP was set at 1,505 feet and the well was perforated and gravel packed from 1,470 feet to 1,500 feet. A 3-1/2" injection string was run to 1,352 feet and was set on a packer. The last reported water injection was during 1992. There was no water injection reported for 1993 and 1994. On September 9, 1994 Well A37 failed a mechanical integrity pressure test (MIPT). Unocal P&A'd the well in October 1994.

In May 1981 Unocal received approval from the La DNR to drill SWD well VPSB SWD A-38 (Well A38), SN 970681. The well was drilled to 1,867 feet in August 1982 and P&A'd by Unocal on September 2, 1982. State well files do not report the reason for not finishing the well and the well was never used for water injection.

In July 1983 Unocal received approval from the La DNR to drill SWD well VPSB SWD A-39 (Well A39), SN 971154. Conductor pipe (16") was driven to 169 feet. A 10-3/4" casing string was run to 2,152 feet and cemented with 1115 sacks of

cement. The 10-3/4" casing was perforated from 1,980 feet to 2,010 feet and gravel packed. A 7" fiberglass injection string was run on a packer set at 1,827 feet. In February 1984 the 7" fiberglass injection string was pulled and rerun on a new packer to 1,812 feet. On September 18, 1987 Unocal submitted a work permit to change the injection zone to 1,520 feet to 1,580 feet. UIC required Unocal to supply data for a Mig Pot test. The Mig Pot test showed that migration would not occur and approval to do the work was granted on November 18, 1987. During November 1987 the 7" fiberglass tubing was pulled, a CIBP was set at 1,800 feet and 10 feet of cement was placed on the CIBP. The 10-3/4" casing was perforated and gravel packed from 1,520 feet to 1,580 feet. A string of 7" internally coated casing was run as an injection string to 1,387 feet on a packer. During January 1994 the 7" injection string was pulled and Unocal found bad 10-3/4" casing from 1,295 feet to 1,220 feet. A string of 7" casing was run and cemented at 1,369 feet with 320 sacks cement. A 4-1/2" injection string was run on a packer set at 1,329 feet. On December 6, 1994 pressure was discovered on the 10-3/4" casing string and the well was shut in. No water was injected after that time. Unocal P&A'd the well in February 1995.

On March 31, 1994 Unocal received approval from the La DNR to convert the VPSB A-34 (Well A34), SN 162006 to a SWD well. Well A34 was spudded November 30, 1978 and was drilled to a total depth of 12,300 feet. Conductor pipe (16") was driven to 119 feet and 10-3/4" surface casing was run to 2,206 feet and cemented with 750 sacks of cement. A 7" intermediate casing string was run to 11,464 feet and cemented with 1500 sacks of cement. A 5" liner was run from 11,373 feet to 12,279 feet and cemented with 100 sacks of cement. The well was initially completed in the Siph Davisi Sand through perforations from 11,681 feet to 11,702 feet and tested at a rate of 60 BOPD, 3782 MCF/day with no water. In April 1994 Unocal set a plug in the 3-1/2" tubing at 10,986 feet. The 3-1/2" tubing was cut and pulled at 3,640 feet. The 7" casing was cement squeezed through perforations

from 3,564 feet to 3,566 feet and 3,090 feet to 3,092 feet with 150 sacks of cement for each set of perforations. The well was perforated from 3,190 feet to 3,230 feet for water injection. A 4-1/2" tubing string was run to 2,988 feet on a packer. A radioactive tracer survey (RTS) was run on December 21, 1994 for the purpose of increasing the maximum authorized surface injection pressure (MASIP). The survey showed that injected water was not moving upward to the shallower zones. Unocal sold to its interest RAC and operations were turned over to RAC effective April 1, 1995. The well's current status is as an active injector and it is currently operated by POC.

Two other wells were converted to SWD wells on the VPSB property after Unocal's tenure as an operator in EWL Field ended. The VPSB A-6, SN 28381 was converted in June 1995 and the VPSB A-35, SN 166402, was converted in January 2001.

The information available to date indicates that the Unocal SWD wells were shut down between June of 1966 and October of 1967. The necessity for the shut in was not noted in the information available to date. The method of handling the produced water during this time frame was also not noted. However, surface discharge was still a viable and accepted method of handling produced water in coastal Louisiana during this time frame.

Pits

The La DNR information reviewed to date indicates that there are no active pits located on the VPSB property. It was also noted that several closed loop systems were also used on the VPSB property. The La DNR records further indicate that 2 pits are listed as having been located on the VPSB property.

One of the pits on the VPSB property, Pit ID #57P235, was listed on the Production Pit Notification (PPN) form dated July 1986 as having been an emergency pit for the VPSB A TB. Pit ID #57P235 was shown to be 150' X 50' X 7',

with a natural clay liner. The Production Pit Inspection Report (PPIR) for pit #57P235, dated May 18, 1989, indicates the pit was closed, in January 1989, prior to the date of the inspection, and was in compliance.

The other pit on the VPSB property, Pit ID #57P236 was listed on the PPN form dated July 1986 as having been an emergency pit near the VUA; La Furs-VPSB #1 well. Pit ID #57P236 was shown to be 140' X 75' X 4.5', with a natural clay liner. The PPIR for pit ID #57P236, dated May 18, 1989, indicates the pit was closed in January 1989, prior to the date of the inspection, and was in compliance.

LFIR

A review of the Lease Facility Inspection Reports (LFIRs) provided to date for the VPSB property was performed. All of the LFIRs reviewed showed the various well sites on the VPSB property to be in compliance, with the exception of the POC VPSB SWD A-6/A-6D well. On June 10, 2008 the La DNR inspector found debris at the well site, such debris being cribbing and flowline left after the well was P&A'd. A compliance order (CO), CO-08-0430, was issued to POC to remove the debris by October 1 2008. POC complied and the well was re-inspected on October 8, 2008 by the La DNR inspector and was found to be in compliance.

Compliance Orders/Notices

The information available indicates that 2 COs were issued for the VPSB property. One CO was issued to Unocal involving its oil and gas operations on the VPSB property. It appears that the issue was resolved in a satisfactory manner. The CO was listed as CO E I&E 08-0422 which involved debris being left at the VPSB SWD A-39 well after Unocal P&A'd that well. The CO was issued in June 2008. As per agreement between POC and Unocal, POC complied with the CO and removed all debris by May 7, 2009. The site was re-inspected on July 29, 2009 by the La DNR inspector and was found to be in compliance.

The second was CO on the VPSB property was CO E-I&E-08-0430 that was discussed in the LFIR section above.

Compliance Notices (CNs) are typically issued by the La DNR or La DEQ to advise or instruct an operator on required issues such as the maximum amount of surface injection pressure allowed for a SWD well. Such types of CNs were noted among the available information.

Spills

Various spill reports and inspection reports were noted on the VPSB property. Some of these occurred during Unocal's tenure as an operator on the VPSB. However, it appears that the most significant spills occurred after Unocal's tenure as operator on the VPSB property.

The first incident report noted involving Unocal involved a report of possible reserve pit and flowline leakage into the marsh in Sec 16 and Sec 17, T15S, R1E. The matter was reported as a possible violation and given Possible Violation (PV) # V87067. This report was prepared by the LA DNR Coastal Management Division (CMD). The time frame noted was May and early June of 1987. It appears the matter was referred to the La DEQ's Office of Water Resources – Water Pollution Control Division for handling. The La DEQ inspected the site on June 5, 1987 and noted no problems observed at the time of inspection.

The La DEQ re-inspected the site on July 7, 1987. The La DEQ inspection report (IR) for that date addressed the 3 Impact Areas listed in the La DNR report. The pit listed in the La DNR report as Impact Area #2 was noted in the La DEQ IR as actually being a small flare pit that was not in use and was to be closed. The La DNR report's Impact Area #1 was noted to have been caused by a small oil leak from Well A9's flowline. The LA DEQ IR indicates that very little evidence of the spill was visible at the time of the La DEQ inspection. The La DNR report's Impact Area #3 was noted to have been caused by a small oil leak from Well LF #11's

flowline. The LA DEQ IR indicated that a small area around the leak had some oil stained vegetation and a slight sheen was still visible at the time of the La DEQ inspection. The La DEQ IR indicated that no further action was recommended.

A La DEQ IR for the Unocal operations in the EWL Field was noted for March 18, 1991. The La DEQ inspection report (IR) for that date indicated no problems were found.

A La DEQ spill report, log number 1-91-1045, dated December 9, 1991 was noted for the Unocal operations in the EWL Field. The spill report indicates that a 2" flowline had a small leak that led to +/- 3-4 barrels of oil being spilled. The affected area was noted as 100 feet X 100 feet. The well was shut in. The recommendation appeared to be to burn off the oil. No field data reviewed indicated that the reported spill was on the VPSB property.

A La DEQ spill report, log number 1-92-0451, dated June 15, 1992 was noted for the Unocal operations in the EWL Field. The spill report indicates that a flowline had a small leak that led to +/- 2-3 barrels of oil being spilled. The well was shut in and the leak repaired. The oil was burned off. No field data reviewed indicated that the reported spill was on the VPSB property.

A La DEQ spill report, log number 1-93-0513, dated July 2, 1993 was noted for the Unocal operations in the EWL Field. The spill report indicates that a flowline had a pinhole leak that led to +/- 4 barrels of oil being spilled. Well B-6 was shut in and the leak repaired. The oil was cleaned up.

A National Response Center (NRC) spill report, Incident Report Number 253599, dated August 4, 1994 was noted for the Unocal operations in the EWL Field. The spill report indicates that a 2" flowline had a small leak that led to +/- 3/4 barrel of oil being spilled. The leak was secured. No field data reviewed indicated that the reported spill was on the VPSB property.

As noted above various significant spills were noted during both RAC's and POC's tenure as operators on the VPSB property.

Site Inspection

I inspected the VPSB property was along with the EWL Field in general. The VPSB property area appeared to be in reasonably good condition. Several times during the inspection canal bottoms were prop washed and disturbed, with no sheens being noted.

Report Comments

Charles Norman

The Norman report reportedly addresses engineering and operational issues regarding the EWL Field that Mr. Norman opines resulted in contamination on the VPSB property. His report also opines on lease issues and clean up requirements.

Early on in the report Mr. Norman states that very high volumes of produced saltwater were discharged overboard on the VPSB property. He later attempts to quantify the volume. Mr. Norman sites volumes for 2 different time periods. First, he cites a volume of 78.5 million barrels. This volume appears to be based on his assertion that produced water discharge continued from initial production in the early 1940s until 1973 when he contends the first SWD well was installed by Unocal. The volume stated by Mr. Norman is half of the entire volume of water he contends was produced on the VPSB property over its entire productive life. Mr. Norman later contends that another 5 million barrels were discharged between 1973 and 1989 when he contends the surface pits were closed. This discharge appears to be the result of SWD system capacity. It appears he gives no discharge volumes post 1989.

These volumes are not supported by the information available to date. As discussed earlier in the report the first Unocal SWD well was installed in 1948. It

appeared to be capable of handling the produced water volumes estimated from the available data for the time. In Mid 1965 a second Unocal SWD was placed in service, as was a 3rd well in 1973. Other Unocal SWD wells followed apparently as needed. Mr. Norman has presented no work that demonstrates that the SWD system was not capable of handling the produced water volumes or that the SWD system was not modified as needed or the productive wells modified as needed to keep the system in balance over the productive life of the field since 1948.

Mr. Norman states that 159 million barrels of produced water has been handled at the EWL facilities. The support data or calculations for these numbers were not provided. Actual water production data has not been noted for a significant portion of the productive life under discussion. Any estimated discharged water volumes put forward by Mr. Norman could and very likely would vary significantly from actual produced water volumes. Produced water rates can and do vary significantly over the life of a field, particularly when the time frame is as long as the one cited. This variation can be the result of operational, mechanical, reservoir or production zone changes that can and do occur over the life of a field. However in any event, as stated elsewhere in this report, the available information and data indicates that the vast majority (high 90 percentile) of the water produced by Unocal was injected into subsurface saltwater strata that contained the same type native salt water as produced with the oil and gas.

Mr. Norman opines that the Unocal SWD wells were not adequately designed and were not operated in accordance with safe operating practices. I disagree. The configuration of the SWD wells was discussed earlier in this report. Likewise, the operations of those wells only appeared to have the types of issues that would routinely be encountered in normal operations. When issues arose with the wells it appears those issues were dealt with in an appropriate fashion.

Mr. Norman is critical of the use of earthen pits and the practice of discharging produced water to surface water bodies. The use of earthen pits to impound/retain water and the practice of discharging water to surface water bodies in coastal areas such as the EWL Field was an accepted and approved of method of operation for a significant part of the time period Mr. Norman is addressing. In fact, it was an accepted and approved of methodology during its use by Unocal on the VBSP property. Furthermore, the information and data available indicates that Unocal in fact injected their produced water into state approved SWD wells for the vast majority of the time they operated in the EWL Field.

Mr. Norman further states that the oil and gas industry early on was well aware that earthen pits would leak produced brine and waste waters and that water injection wells and pit liners were common practice and must be used. This is simply not the case. While there was a realization that a potential could exist for pits to seep, given all the factors to consider and the understanding at the time of the potential impact, using earthen pits was an accepted and viable solution. As discussed above during this time frame Louisiana was active in protecting its sources of fresh water and allowed impounding and release or injection. Using surface storage of water in earthen pits was an understood and very visible means of dealing with produced water. State inspectors and other persons familiar with surface water storage and/or release to surface water bodies would have understood how the produced water was being handled in areas where this was being done.

He further states that the design and operation of the pits utilized earthen bottoms that were not designed and tested for leakage as required by good engineering practice. However, he does not cite the reference he is quoting or the timing of that reference. At the time of the construction of the subject pits there was no requirement for such design or testing. The state requirements for earthen pits and water discharges have changed over the time frame Unocal operated on the

VPSB property. State pit regulation came in to play in 1986 and developed from that date forward. Curtailment of coastal water discharges were allowed until the mid 1990s. The information available indicates that Unocal's operations on the VPSB was in compliance with state requirements during its tenure as operator on the VPSB property,

Mr. Norman also opined on what he referenced as violations of mechanical integrity. A review of the information available to date has shown relatively few instances of mechanical problems. Oil and gas operations are mechanical operations. Equipment problems, pressure communication issues, leaks and spills can and on occasion do occur as part of normal and routine operations. Nothing unusual or out of the ordinary was noted on the area under discussion.

Mr. Norman also discusses various other issues to include permit violations, DEQ violations, handleing of spills and chemicals, other sources of contaminations and prudent operations. Many of these issues were discussed previously in this report. Mr. Norman briefly mentions some of the other types of chemical he believes could have been used. He gives no specific cites as to the areas under discussion. Mr. Norman opines that the operations on the subject property were performed unreasonably and inadequately in certain areas of operation and protection of the environment and that there is clear evidence that Unocal did not act in a reasonable prudent manner. I disagree. It appears that Unocal acted in a manner that was generally consistent with the then current industry practices and then current regulations.

Mr. Norman appears to suggest that the wording in the 1994 surface lease somehow establishes some form of prior obligation. It appears the wording cited by Mr. Norman makes it clear that the restoration should return the property as nearly as practicable to its 1994 condition, not some prior condition. The 1994

surface lease appears to recognize the fact that a prior history for the area existed and acknowledges that future usage will potentially have an affect on the property.

John Kilpatrick

Dr. Kilpatrick attempts to calculate various damage values. One of the damage values is a storage or disposal value for the alleged volume of produced salt water disposed on the areas under discussion. Any salt water disposed of on the areas under discussion was non-hazardous native fluid that was associated with the oil and gas operations being conducted on those areas. These oil and gas operations were allowed under the lease and various other agreements and governmental regulation that existed at the time. As the native fluid for the area, the salt water existed under the area long before oil and gas operations were conducted. The oil and gas production process simply separated the native salt water from the produced oil and gas and returned the non-hazardous native salt water to the area.

He also attempted to calculate a trespass value apparently based on Mr. Norman's alleged volume of produced salt water discharged for contamination on or under the properties. As noted earlier, Mr. Norman's volumes are unsubstantiated and problematic and do not reflect, with any degree of accuracy, what actually occurred on the areas under discussion. Therefore, any calculations Dr. Kilpatrick did based on those numbers would be equally or more speculative.

Observations and Conclusions

Based on a review of the information and data available to date, it appears that the oil and gas exploration and production operations performed by Unocal on the VPSB property were reasonable, routine and necessary operations for the exploration and development of the oil and gas reserves on the property and for the production, processing and sale of the oil and gas.

The information and data available to date indicates that Unocal conducted its operations in a manner that was consistent with the normal and customary way oil and gas operations were conducted for coastal, rural, marsh based operations in the region, for the time periods the operations were performed. Furthermore, it appears that Unocal conducted its oil and gas operations on the VPSB in a reasonably prudent manner, generally in keeping with applicable industry standards and governmental regulations.

Centralized operations were employed in marsh operations in South Louisiana. By centralizing operations fewer facilities were required resulting in less disruption to the surrounding areas. The centralized oil and gas operations conducted by Unocal on the VPSB property included some usage of earthen pits and some discharge and/or the injection of produced salt water. These operations were known of and accepted by the appropriated regulatory agencies with oversight of the oil and gas industry and were within accepted industry standards for coastal Louisiana during the time periods they were used.

The vast majority of water produced by Unocal's oil and gas operations at EWL Field was injected into subsurface salt water aquifers through its SWD well system. The Unocal SWD wells under discussion appeared to be constructed in a proper fashion. They were all approved by the state and no unresolved issues were noted to have been raised by the state.

During normal drilling and production operations, leaks and other mechanical problems can and sometimes do occur. Often times such situations can allow releases of oil, gas, salt water and/or other fluids at well sites, production facilities and along flowline or pipeline right of ways. The simple fact that such incidents may or may not occur is not indicative of unreasonable or imprudent operations. Likewise the issuance of COs and CNs does not in and of itself imply that unreasonable or imprudent operations occurred. The information and data

available to date does not indicate that Unocal had an unusual number of incidents or occurrences on the VPSB property. Several leak issues were noted but they appeared to be addressed by Unocal. One CO was noted for the VPSB property related to Unocal that involved left over materials at a P&A'd well, which again was addressed by Unocal.

Oil and gas operations are industrial type operations and will leave some type of indication or foot print that they were conducted. However, any areas adversely impacted above the applicable, appropriate, regulatory requirements, that create a real risk of harm, should be restored in a reasonable and practical manner by the responsible party. If there are areas on the VPSB property attributable to oil and gas operations that require special attention the party responsible for those problems should address such areas in a common sense fashion that does not create more interruption and damage to the area's environment. Any restoration should be done at the appropriate time based on the situation and the agreements and regulations in place.

The salt water produced in association with the oil and gas operations on the tracts under discussion was native fluid. As such, it came out of the ground with the oil and gas, was separated from the oil and gas and was either returned to subsurface strata that contained the same type of native fluid or discharged to surface water bodies. Any retention of the produced water would be limited to the temporary surface retention in tanks and/or pits. This type of temporary retention would be part of normal, routine and customary production operations and would be covered under normal OG&M lease agreements or other operational type agreements. It would also be necessary for the production, processing and sale of the oil and gas.

Produced water rates can and do vary significantly over the life of a field, particularly when the time frame is as long as the one cited. This variation can be

the result of operational, mechanical, reservoir or production zone changes that can and do occur over the life of a field. Actual water production data has not been noted for a significant portion of the productive life under discussion. Without actual water production data the estimated discharged water volumes put forward by Mr. Norman could and very likely would vary significantly from actual produced water volumes.

Dr Kilpatrick attempted to calculate certain damage values apparently based on Mr. Norman's alleged volume of produced salt water discharged for contamination on or under the properties. As noted earlier, Mr. Norman's volumes are unsubstantiated and may not reflect, with any degree of accuracy, what actually occurred on the areas under discussion. Therefore, any calculations Dr. Kilpatrick did based on those numbers would be equally or more speculative.

These remarks and conclusions are based on the information furnished to date and my education, training, knowledge and experience in the oil and gas industry. I am a Registered Professional Petroleum Engineer with two (2) degrees in Petroleum Engineering and 30 plus hours of graduate level environmental science course work. Over the course of the past +/- 41 years, I have worked in many aspects of the oil and gas industry, including time spent designing wells, drilling and completing wells, working over and maintaining wells; producing wells; operating properties, designing and installing facilities, negotiating leases, agreements and contracts, P&A'ing wells and restoring sites.

A copy of my resume is attached as Attachment "B" and made a part of this report. If called to testify at trial, I would expect to testify as to the agreements and operations involved in this situation, the roles and responsibilities of the various personnel, the equipment involved and any applicable recommended practices, guidelines or regulations. Possible trial exhibits may include the information furnished and reviewed to date.

Please be advised this is an initial report based on the work performed to date. As additional information is received and/or reviewed I will adjust my findings if necessary. If you have any questions or if I can be of any further assistance please let me know. With kind regards, I remain

Sincerely,

Calvin Barnhill

Calvin Barnhill, P.E.

Attachment A

Information Reviewed

A. La DNR documents

1. Well files for the wells on Vermilion Parish School Board Lease.
2. Sonris interactive maps covering Vermilion Parish School Board Lease.
3. Engineering files for the wells on Vermilion Parish School Board Lease.
4. UIC well files and compliance notices
5. Wells by Field data.
6. Wells by Field by Operator data.
7. Wells by Section, Township and Range data.
8. Acts, Rules and Regulations.
9. MIG POT Calculations.
10. Mechanical Integrity Tests.
11. Sonris online compliance query.
12. Sonris online pit query.
13. EI&E Compliance Orders
14. DM1Rs for East White Lake
15. Pit Files
16. LFIRs

B. Louisiana DEQ

1. Spill reports.

C. CDs

1. Documents provided by Mike Veazey
2. Roy Briggs Deposition/Kilpatrick Report
3. KM East White Lake 5784 – 8216

4. KM East White Lake 8479 - 13476
5. KM file: 12224.15 DEQ EDMS Documents. Unocal NORM documents
6. KM file: 12224.15 SONRIS documents
7. Documents produced by plaintiffs 4/29/10
8. Steve Miller deposition 4/27/10
9. March 2010 ICON report (2 CDs)
10. CD from Mary Barrett

D. Reports

1. Icon;
2. Charles Norman;
3. John Kilpatrick;
4. Paul Templet.

Attachment B

RESUME AND PERSONAL DATA

Calvin Charles Barnhill
200 Travis Street, Suite 103
P. O. Box 5-A (70505)
Lafayette, Louisiana 70503

Telephone:
Office: (337) 233-0830
Fax: (337) 233-9772
Home: (337) 989-8075

PERSONAL DATA

Date of Birth:	September 13, 1950
Height:	5'10"
Weight:	200 Lbs.
Health:	Excellent

PROFESSIONAL EDUCATION

High School:	Graduated 1968. Curriculum - College Preparatory
College:	B.S. in Petroleum Engineering - L.S.U., 1975 M.S. in Petroleum Engineering L.S.U., 1977, with an additional 33 hours of graduate level environmental course work

INDUSTRY EDUCATION

I.A.D.C. Blowout School (L.S.U.)
U.S.L. Blowout School
Bariod Basic Mud School
Bariod Advanced Mud School
Preston Moore Drilling Practices
Hughes Bit and Hydraulics School
Halliburton Sand Control School
Wilson Fishing Tools and Fishing Practices
B-J Seminar on Gravel Packing
Baker Seminar on Gravel Packing
Tenneco Oil Company Economics School
First Aid School

Pal Mix Workover and Completion Fluids School
Drilling Problems and Practical Solutions
Well Planning School
Drilling Optimization School
Abnormal Pressure Detection School
Hydrogen Sulfide School
Well Planning II
Advanced Casing Design

HONORS

Pi Epsilon Tau - The Petroleum Engineering Honor Society

L.L.&E. Scholarship - Awarded for Petroleum Engineering Studies

R.C. Baker Scholarship - Awarded for Petroleum Engineering Studies

W.A.A.I.M.E. National Scholarship and Grant - Awarded for Petroleum Engineering Studies

FELLOWSHIP

Louisiana Water Resource Research Institute - Awarded for Graduate Work in Petroleum Engineering Studies at L.S.U. - Duties: Research work for Miscible Storage Processes

ORGANIZATIONS AND BOARDS

National Society of Professional Engineers
Louisiana Engineering Society
Society of Petroleum Engineers
American Association of Drilling Engineers
Society of Independent Professional Earth Scientists
National Association of Corrosion Engineers
Acadiana Safety Association
American Society of Safety Engineers
I.A.D.C.
Who's Who Registry of Business Leaders
University Of Texas PETEX Advisory Board
Chairman of PETEX Publications Committee
PETEX Well CAP Representative
Episcopal School of Acadiana

PROFESSIONAL STATUS

Registered Professional Engineer
State of Louisiana
Number 18851

PUBLICATIONS

The Effect of Mixed Zone Length on the Growth of Viscous Fingers during a Miscible Displacement. (Masters thesis L.S.U.)

Blowouts - Wasteful of Time, Money and Natural Resources - Presented at the Congress of Petroleum Engineers - Mexico City, Mexico, March, 1979.

Underground Blowouts in Deep Well Drilling - S.P.E. Paper 7855 - Presented at the Deep Drilling Symposium - Amarillo, Texas, April, 1979.

EMPLOYMENT HISTORY

Current: Northstar Exploration Company – Lafayette Louisiana
Company President:

Exploration/Production Operations
Work with geologists and geophysicists generating and developing prospects in south Louisiana, offshore Louisiana, southeast Texas and southwest Mississippi. My duties involve the management, engineering, geological, land, legal and funding aspects of oil and gas exploration. This includes overseeing operations for Northstar and its associated partners while developing various prospects.

Engineering/Safety/Consulting Operations
Registered Professional Engineer - duties include: Reservoir engineering studies including lease evaluations, reservoir analysis and economic forecast on properties; designing drilling, completion and workover operations; designing surface production process facilities, including pumping units and salt water disposal systems; on-site rig supervision work; office and field supervision of drilling, completion and workover operations; office and field supervision of production operations; teaching various schools to include: Deep water drilling operations and well control courses; Rig Inspection Courses; drilling and production phase of Petex Offshore Operations School; and an accident investigation course; incident investigation for both litigation and non-litigation purposes; presentation of investigative results to State and Federal agencies; pre-job rig inspection surveys on both offshore and onshore drilling, completion and workover rigs; certification of offshore production platform safety systems to comply with 30 CFR 250 as per API 14C; University of Texas Petroleum

Extension Service's (Petex) representative for IADC Well Cap committee; University of Texas' Petroleum Extension Service (Petex) Advisory Board Member and Chair of the Petex Publications Committee.

Analysis / Investigative Work

Worked with the United Stated Department of Justice, Texas Attorney General's office, various domestic and international insurance companies and various law firms in Louisiana, Texas, Mississippi, Oklahoma, Alabama, California, West Virginia, North Dakota, Utah, Kentucky and Alaska. Work performed included well control, drilling, completion, workover and production operations issues plus design issues, equipment failures, reservoir analysis and economic evaluation issues to include lost and/or deferred production claims, safety issues and environmental issues. I have testified in and have been accepted in Texas state and federal courts, Louisiana state courts, Louisiana Western District Federal Court, Middle District Federal Court and Eastern District Federal Court, Mississippi federal courts, California state courts and New Mexico state courts. Investigated incidents both domestically and internationally to include: offshore Egypt, offshore Spain, offshore Malaysia, offshore Italy, the North Sea and the South China Sea.

Blowout Investigation

Investigated over one hundred (100) major blowouts (both surface and underground) for various companies. These wells ranged in depth from a few thousand feet to wells in excess of 21,500 feet. This work included wells located both domestically and internationally. H2S was a major consideration in some of the deeper wells.

Arbitration

Worked as an arbitrator in resolving disputes between various companies involving drilling operations and/or equipment failures.

Environmental

Supervised drilling, completion and workover procedures to include waste management disposal, pit closures, salt water and hydrocarbon disposal and location clean up and restoration work. Managed production facilities to include waste management and fluids disposal. Supervised the P&A and site restoration of producing wells and production facilities, to include NORM contaminated sites.

1979 – 1985: C & B Exploration Co., Inc., (CBX) – Lafayette Louisiana
Company President, managed engineering, exploration and consulting operations.

Exploration/Production Operations
CBX maintained an exploration staff and operated its producing properties. I was involved in all phases of these operations. I worked with and managed geologist in determining prospects: raised funds for the prospects; acquired leases; worked with lawyers on title opinions; drilled and completed wells; put wells on line; worked with pipeline companies making distributions; managed production payments; managed field personnel and oversaw drilling and production operations.

Engineering Operations
Designed, drilled and completed wells (performed both in office and onsite operations); designed, installed and maintained surface equipment, production facilities, pipelines, pumping units, and salt water disposal systems; performed lease evaluations, reservoir analysis and economic forecast on properties.

Consultant/Safety/Operations
Designed wells and oversaw drilling operations from the office for several rigs simultaneously for major independents; worked on site as a company man for major independents; performed lease evaluation, reservoir analysis and economic forecast for individuals and small independent oil companies; wrote and taught U.S.G.S. Certified well control schools and wrote a drilling practices manual for a major international drilling contractor; taught U.S.G.S. certified well control schools for the University of Texas; performed expert witness work for various Law Firms in Louisiana, Mississippi and Texas.

Environmental
Supervised onshore and offshore drilling completion and workover operations to include waste management and disposal, pit closures, salt water and hydrocarbon disposal and location clean up and restoration.

1978 - 1979: Independent Self Employed Consultant
Worked for Prentice and Records Enterprises, Inc., of Lafayette, Louisiana as a Certified Well Control Instructor in the following schools: The U.S.L. Certified Well Control School; The U.S.L. Certified Well Control Refresher School; and the International Well Control School. (The certification is by the MMS). Instructor for the Prentice

and Records Drilling Practices and Practical Solutions Course. This course is a two week course which covers well control, drilling fluids, drilling optimization and well planning.

Worked for Louis Records & Associates of Lafayette Louisiana doing well planning and well history analysis.

1977 - 1978: Tenneco Oil Company - Lafayette, Louisiana
Worked as a Drilling Engineer in the Offshore Division. The duties performed consisted of the following: Well planning work for normal and abnormal pressured wells; well completion planning; rig site supervision of drilling, workover, and completion operations; bringing out new rigs; budget work and computer work. Duties included all safety and environmental aspects of drilling, completion and workover operations offshore.

1976 - 1977: I.A.D.C. Blowout School - L.S.U. Baton Rouge Louisiana
Instructed classroom sessions, well site sessions and simulator sessions in all phases of Well Control work.

Masters Degree Program - L.S.U. Baton rouge Louisiana
Work to obtain a Masters Degree in Petroleum Engineering consisted of the following: constructing a sandstone reservoir and determining its flow characteristics; performing fluid flow test through the model to determine the effects of fluid behavior in a reservoir using an unfavorable mobility ratio during a miscible displacement; analyzing all results to determine the most efficient method for conducting a miscible type secondary recovery project. Upon completion of the work, a thesis was prepared. This work was done in conjunction with the Civil Engineering Department.

Penrod Drilling Company - False River Field
Worked as derrickman and relief driller while attending L.S.U.

1974 - 1976: Louisiana Water Resource Research Institute - L.S.U.
Worked while attending L.S.U. for a B.S. in Petroleum Engineering. The work consisted of working with the larger reservoir flow models in the graduate laboratories. The studies consisted of the following: water storage and recovery in underground reservoirs; effects of bed dip on storage and recovery of fluid from reservoirs; effects of fluid characteristics in a homogeneous system; favorable and unfavorable mobility ratio studies; effects of boundary wells and image wells for fluid control and boundary effects. These studies were conducted through the Petroleum Engineering Department and the Civil Engineering Department.

Penrod Drilling Company, H&P Company, and Noble Drilling Company - False River
Worked as roughneck and derrickman while attending L.S.U. for B.S. in Petroleum Engineering.

Amoco Oil Company - New Orleans, Louisiana
Worked as a Reservoir Engineer in the division office in the special Reservoir Engineering section. Duties were to evaluate offshore reservoirs for the potential of conducting secondary recovery processes. This included determining which reservoirs were secondary recovery candidates and determining what processes would be used in which reservoir.

Getty Oil Company - Houston Texas Research Laboratory
Work consisted of conducting polymer based secondary recovery floods to determine the feasibility of actual polymer floods working in given West Texas fields.

1971 - 1973: Penrod Drilling Company; The Mayronne Company
Work consisted of all types of rig work from roughnecking to drilling. Worked on various new rigs. Worked on both offshore and onshore locations. Worked offshore Louisiana and Texas. Worked onshore in North Louisiana, South Alabama and North East Florida. Worked in normal and abnormal pressured environments and H2S environments.

Summers / Holidays
1968 - 1970: Chevron Oil Company - Gulf of Mexico
Worked as a contract production hand on offshore production platforms and bay facilities.