

**STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION**

**IN THE MATTER OF THE HEARINGS
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:**

**APPLICATION OF ENERVEST OPERATING LLC
TO AMEND THE UNIT AGREEMENT AND THE
UNIT OPERATING AGREEMENT FOR THE
WEST LOCO HILLS GRAYBURG NO. 4 SAND
UNIT, AND FOR STATUTORY UNITIZATION,
EDDY COUNTY, NEW MEXICO.**

Case No. 14242

**APPLICATION OF ENERVEST OPERATING LLC
FOR EXPANSION OF THE WATERFLOOD
PROJECT FOR THE WEST LOCO HILLS GRAYBURG
NO. 4 SAND UNIT, EDDY COUNTY, NEW MEXICO.**

Case No. 14243

**APPLICATION OF ENERVEST OPERATING LLC
TO QUALIFY THE WATERFLOOD PROJECT FOR
THE WEST LOCO HILLS GRAYBURG NO. 4 SAND
UNIT FOR THE RECOVERED OIL TAX RATE,
EDDY COUNTY, NEW MEXICO.**

Case No. 14270

**APPLICATION OF ENERVEST OPERATING LLC
TO AMEND THE UNIT AGREEMENT AND THE
UNIT OPERATING AGREEMENT FOR THE
WEST LOCO HILLS GRAYBURG NO. 4 SAND
UNIT, AND FOR STATUTORY UNITIZATION,
EDDY COUNTY, NEW MEXICO.**

Case No. 14317

ORDER NO. R-13128

ORDER OF THE DIVISION

BY THE DIVISION:

These cases came on for hearing at 8:15 a.m. on December 18, 2008, February 5, 2009, and May 14, 2009 at Santa Fe, New Mexico before Examiners William V. Jones, David K. Brooks, and Richard Ezeanyim.

NOW, on this 3rd day of June, 2009, the Division Director, having considered the testimony, the record, and the recommendations of the Examiners,

FINDS THAT:

(1) Due public notice has been given, and the Division has jurisdiction of these cases and of their subject matters.

(2) Case Nos. 14242 and 14243 were consolidated at hearing for the purposes of testimony. Evidence presented in those cases was incorporated in the record of Case No. 14270. Because the three cases involve the same property and subject matter, a single order is being issued for all cases.

(3) In Case No. 14242, Enervest Operating LLC ("applicant") [OGRID 143199] seeks to amend the existing Unit Agreement and Unit Operating Agreement for the West Loco Hills Grayburg No. 4 Sand Unit (the "Unit Area") by the approval of the amended Unit Agreement and Unit Operating Agreement for the Unit Area, which were submitted at hearing as Exhibit Nos. 6 and 7. Applicant also seeks to statutorily unitize all interests in the unitized Grayburg formation underlying 5,307.73 acres of state, federal, and fee lands pursuant to the Statutory Unitization Act, NMSA 1978 §§70-7-1 *et seq.*

(4) In Case No. 14243, applicant seeks approval to expand the waterflood project for the West Loco Hills Grayburg No. 4 Sand Unit by the injection of produced water into the unitized Grayburg formation through sixteen (16) initial injection wells (Phase One) and up to 131 (Full Development) injection wells.

(5) In Case No. 14270, applicant seeks to qualify the waterflood project as an "Enhanced Oil Recovery Project" pursuant to the Enhanced Oil Recovery Act, NMSA 1978 §§7-29A-1 *et seq.*

(6) In Case No. 14317, applicant seeks to statutorily unitize the record title owners of state and federal leases within the Unit Area. Commitment of the record title owners to the amended Unit Agreement, either voluntarily or by statutory unitization, is necessary before the New Mexico State Land Office ("Land Office") and the Bureau of Land Management ("BLM") will grant their final approval of the amended Unit Agreement. Case No. 14317 supplements the application filed in Case No. 14242.

(7) The vertical extent of the Unitized Formation is that interval underlying the Unit Area, the top of which is found at 2767 feet, and the base of which is found at 2792 feet, on the Gamma Ray Neutron Log of the Newmont-Ballard Well No. B-6 located in the SE/4 SW/4 NE/4 of Section 1, Township 18 South, Range 29 East, NMPM, Eddy County, New Mexico, together with Grayburg Sand Stringers encountered at varying intervals between the depths from 100 feet above the top and 50 feet below the bottom of the principal sand body shown by said log, insofar as the same lies within the

Unit Area. The unitized formation includes all subsurface points throughout the Unit Area correlative to these depths.

(8) The West Loco Hills Grayburg No. 4 Sand Unit is wholly located within the Loco Hills-Queen-Grayburg-San Andres Pool. The Loco Hills-Grayburg-San Andres Pool was created by the Oil Conservation Commission (the "Commission") on January 1, 1950 in Order Number 850. On June 1, 1972, in Order No. R-4304, the Commission expanded this pool vertically to include the Queen formation and redesignated it as the Loco Hills-Queen-Grayburg-San Andres Pool. Wells drilled and completed in this pool and in the Unit Area are developed on the Division's statewide rules, which provide for 40-acre well units, with wells to be located no closer than 330 feet to a quarter-quarter section boundary.

(9) No other interest owner or offset operator entered an appearance at the hearings or otherwise opposed these applications.

(10) Applicant presented land, geological, and engineering testimony as follows:

(a) By Order No. R-2166, dated January 17, 1962, the Commission approved the unitization of state, federal, and fee lands described below, containing 5307.73 acres, more or less, designated the West Loco Hills Grayburg No. 4 Sand Unit:

Township 17 South, Range 29 East, N.M.P.M.

Section 36: S/2 SW/4

Township 18 South, Range 29 East, N.M.P.M.

Section 1: W/2 and S/2 SE/4
Section 2: All
Section 3: All
Section 4: E/2 SE/4
Section 9: E/2
Section 10: All
Section 11: All
Section 12: All
Section 13: NE/4
Section 15: N/2 NE/4, SW/4 NE/4, NW/4

Township 18 South, Range 30 East, N.M.P.M.

Section 7: Lots 1-4 and E/2 W/2 (W/2 equivalent)
Section 7 continued: W/2 SE/4, SE/4 SE/4
Section 18: Lots 1, 2 and W/2 NW/4 (NW/4 equivalent)
Section 18 continued: E/2 NE/4, NE/4 SW/4, N/2 SE/4

(b) By Order No. R-2178, dated January 30, 1962, as amended, the Commission approved injection operations in the West Loco Hills Grayburg No. 4 Sand Unit. The Unit has been under constant injection since then – currently only two wells are active, both in Section 7.

(c) The West Loco Hills Grayburg No. 4 Sand Unit was a voluntary unit formed before the Statutory Unitization Act was enacted. Approximately 10% of the working interest owners and 10% of the royalty interest owners in the Unit Area did not ratify the original Unit Agreement.

(d) Under the original Unit Agreement, tracts within the Unit Area participated in unit operations by the formation of participating areas. Pursuant to the Second Expansion of the Participating Area, approved by the United States Geological Survey, the Commissioner of Public Lands, and the Commission, submitted at this hearing as Exhibit No. 4, all of the above-described lands were included within the participating area of the Unit Area.

(e) Applicant purchased its interests in the Unit Area with the intent of redeveloping the waterflood project in the unit. There are currently 28 active producing wells and 2 active injection wells in the Unit Area – all recently operated by Yates Petroleum Corporation. The redevelopment could potentially encompass 131 injection wells, 102 producing wells, and the expenditure of over \$85,000,000. Because of the expense of this project, applicant wants to ensure that all interest owners are subject to one unit agreement, and all working interest owners are subject to an updated operating agreement. As a result, it seeks to amend both the existing Unit Agreement and Unit Operating Agreement, submitted at hearing as Exhibit Nos. 2 and 3, with the modern forms submitted at hearing as Exhibit Nos. 6 and 7.

(f) The Unit Area contains 54 separate tracts of land, all of which are now operated by applicant.

(g) Notice was provided to all owners of interests in the Unit Area who had not ratified the Unit Agreement, including record title owners. Record title owners are not liable for any costs of unit operations.

(h) Notice was also provided to all operators or working interest owners within the one-half mile area of review surrounding the Phase One injection wells, as required by Division Rules, of applicant's intent to inject into the Unitized Formation.

(i) The Land Office and the BLM have preliminarily approved applicant's amended unitization proposal.

(j) As of the date of hearing, 98.88% of the working interest owners and 70.99% of the royalty owners (including the Land Office and the BLM) had ratified or consented to the amended Unit Agreement. The ratifying working

interest owners had also signed or ratified the amended Unit Operating Agreement.

(k) The amended Unit Operating Agreement contains a provision for carrying working interest owners.

(l) The Grayburg formation within the Unit Area has been reasonably defined by development, and is continuous across the Unit Area.

(m) The tract participation formula used in the original Unit Agreement was based on cumulative production to December 1, 1960, and the formula allocates unitized substances to all tracts on a fair, reasonable, and equitable basis. Under NMSA 1978 §70-7-9 an established plan of unitization may be amended, but the previously approved allocation of production shall remain unchanged. Therefore, the tract participation formula used in the original Unit Agreement is also used in the amended Unit Agreement.

(n) The expansion of the waterflood project will be instituted with initially 16 injection wells. As the project continues, additional injection wells may be added.

(o) Production within the Unit Area is in an advanced state of depletion. Cumulative (primary and secondary) production from the Unitized Formation within the Unit Area, as of January 1, 2008, was 24,089,000 barrels of oil.

(p) The estimated total capital costs associated with initiating the expanded waterflood project are \$3,000,000.00 during Phase One, and \$5,040,000.00 for Full Development. Total project costs are \$10,665,000.00 during Phase One, and \$85,115,000.00 for Full Development.

(q) Based on the performance of other waterflood projects, an analysis of variable secondary recovery to date within the Unit Area, and using a 1.68:1 secondary to primary recovery ratio, the projected additional secondary recovery from the expanded waterflood project is estimated to be approximately 9,805,000 barrels of oil, with estimated net revenues of \$225,000,000.00 to the working interest owners.

(r) Each proposed injection well is expected to take up to 400 barrels of produced and cycled water per day, with makeup water from other wells in the area. Initial injection pressures will conform to the Division's requirement of 0.2 psi per foot of depth to the top injection perforations, or approximately 510 psi. If applicant desires higher injection pressures, it will conduct step rate tests and seek Division approval.

(s) The deepest fresh water in this area is at 350 feet subsurface. Wells in the Unit Area have surface casing and cement across any fresh water zones.

(t) There are 146 plugged wellbores within the Unit area and approximately 83 more plugged wellbores within ½ mile surrounding the Unit area. Applicant identified several wells out of these, listed in its application, in which it is possible that the proposed injection interval is not adequately isolated with casing, cement, or cement plugs.

(11) Amendments D, E, and F of Order No. R-2178, authorized Yates Petroleum Corporation (as operator of this Unit) to conduct a pilot CO₂/Water injection project by injection into two new wells (to be located in Unit E of Section 7 and Unit H of Section 12) with surrounding producing wells configured into two inverted five spot patterns. Both of these wells were drilled in 1992 and 1993 and reported injection (not specified if CO₂) for 5 to 6 years then plugged and abandoned in 2003 and 2004.

(12) Division records indicate fresh water exists down to approximately 350 feet and the Salt interval begins about 400 feet down and extends at a maximum to 1200 feet deep. It is preferable on plugged wells to have both top and bottom cement plugs placed in and out of casing so as to isolate the injection interval, the salt interval, and the fresh water interval. There is a mixture of federal, state, and fee wells in this area and wells have been abandoned since the 1940's using various procedures.

(13) After reviewing available well data in Division records and in the C-108 portion of this application, the Division has identified wells which are likely inadequately plugged or equipped so as to preclude movement of fluids (due to waterflooding) out of the intended injection interval. The first three wells on the attached Exhibit "B" are located within or nearby the Phase I injection area and should all be addressed by re-entering and re-plugging prior to injection into any of the Phase I wells. The remainder of these inadequately plugged wells should be individually re-entered and re-plugged prior to injection within ½ mile. The re-plugging well work should be supervised by the Division's district office and, on federal wells, by the BLM; but the re-plugging procedures should each be designed so as to ensure isolation of the injection interval and prevent movement of reservoir fluids vertically up or down in each well.

(14) Some wells within this geographic area were drilled over 50 years ago. Division records of primary cementing and of cement placement while plugging are sparse and may not be accurate. Waterflooding under high pressure injection may highlight additional problems with poorly cemented old wells – in which event the Division may require additional well work.

(15) Operations should be limited to the Unitized interval: Injection perforations or open-hole intervals should be limited within this waterflood project to only within the Unitized injection interval. The applicant should supply the Division with the marked type log wherein this unitized interval is defined (or log on an offsetting

well at the same structural location) so that log can be scanned and be available on the Division's imaging site. Records show that many older wells in this area have been deepened to include the San Andres or lower Grayburg and production tested in those intervals. Any well producing from within this Unitized interval shall not also produce from intervals above or below this unitized interval unless permission for downhole commingling is obtained from the Division.

The Division concludes that:

(16) The proposed amended Unit Agreement and Unit Operating Agreement, Exhibit Nos. 6 and 7 respectively, should be incorporated by reference in this order.

(17) Applicant has made a good faith effort to secure voluntary unitization within the Unit Area.

(18) The tract participation formula contained in the original Unit Agreement, and incorporated in the amended Unit Agreement, allocates costs, revenues, and unitized substances to all separately owned tracts in the Unit Area on a fair, reasonable, and equitable basis.

(19) The amended Unit Agreement and Unit Operating Agreement prescribe a plan for unit operations which is necessary in order to efficiently manage the unitized Grayburg reservoir within the Unit Area.

(20) Statutory unitization and the adoption of applicant's proposed unitized method of operation is necessary to effectively carry on expanded secondary recovery operations, to substantially increase the ultimate recovery of oil and gas from the Unit Area, will benefit the working interest and royalty interest owners within the Unit Area, and will prevent waste and protect the correlative rights of all interest owners.

(21) Applicant is in compliance with Division Rule 5.9 and should be approved as operator of the West Loco Hills Grayburg No. 4 Sand Unit.

(22) The West Loco Hills Grayburg No. 4 Sand Unit should be approved for statutory unitization, conditioned on final approval by the Land Office and the BLM, and voluntary approval by 75% of the royalty interest owners in the Unit Area.

(23) Applicant proposes to expand the waterflood or secondary recovery project within the Unit Area. The Grayburg reservoir within the Unit Area has been depleted to stripper status by primary and secondary operations, and it is prudent to apply expanded waterflood operations to extend the life of the reservoir and maximize the ultimate recovery of crude oil from the reservoir.

(24) The "project area" should comprise the entire Unit Area approved for statutory unitization.

(25) The expanded waterflood project within the project area is feasible and will, with reasonable probability, result in the recovery of substantially more oil and gas than will otherwise be recovered.

(26) The estimated additional costs of the expanded waterflood project will not exceed the estimated value of the additional oil and gas recovered by unit operations, plus a reasonable profit.

(27) The proposed expanded waterflood project will prevent waste and protect correlative rights, and should be approved.

(28) The project should be governed by Division Rules 26.8 through 26.15. The 16 injection wells listed on Exhibit "A" should be approved for use as injection wells conditional upon remedial work on the first three wells listed on Exhibit "B". The permission to inject should terminate one year from the date of this order if at least one of these wells has not been converted to injection. Provision should be made for the operator of the Unit Area to apply administratively for additional injection wells as needed.

(29) To prevent fracturing and damage to the formation, applicant should be allowed an initial maximum surface injection pressure of 510 psi for each injection well. Injection pressure increases should be approved only after a proper showing that such increase would not fracture the formation.

(30) The evidence establishes that the expanded waterflood project meets all the criteria for certification by the Division as a qualified "Enhanced Oil Recovery Project" pursuant to the Enhanced Oil Recovery Act, NMSA 1978 §§7-29A-1 *et seq.*

(31) To be eligible for the Enhanced Oil Recovery tax rate, the unit operator should advise the Division when water injection commences in the project area and at such time request the Division to review project performance and recommend certification of the project to the New Mexico Taxation and Revenue Department.

(32) The project area within the expanded waterflood project, and/or the producing wells within the area eligible for the recovered oil tax rate, may be contracted and reduced dependent upon the evidence presented by the operator of the Unit Area in its demonstration of the occurrence of a positive production response.

IT IS THEREFORE ORDERED THAT:

(1) The application of Enervest Operating LLC ("applicant") for the statutory unitization of 5307.73 acres of land, more or less, in the Loco Hills-Queen-Grayburg-San Andres Pool (pool code 39520), in Eddy County, New Mexico, known as the West Loco Hills Grayburg No. 4 Sand Unit (the "Unit Area"), is hereby approved for statutory unitization pursuant to the Statutory Unitization Act, NMSA 1978 §§70-7-1 *et seq.*

(2) The Unit Area shall be operated by Enervest Operating LLC (OGRID No. 143199), and shall comprise 5307.73 acres, more or less, of state, federal, and fee lands in Eddy County, New Mexico described below:

Township 17 South, Range 29 East, N.M.P.M.

Section 36: S/2 SW/4

Township 18 South, Range 29 East, N.M.P.M.

Section 1: W/2 and S/2 SE/4

Section 2: All

Section 3: All

Section 4: E/2 SE/4

Section 9: E/2

Section 10: All

Section 11: All

Section 12: All

Section 13: NE/4

Section 15: N/2 NE/4, SW/4 NE/4, NW/4

Township 18 South, Range 30 East, N.M.P.M.

Section 7: Lots 1-4 and E/2 W/2 (W/2 equivalent)

Section 7 continued: W/2 SE/4, SE/4 SE/4

Section 18: Lots 1, 2 and W/2 NW/4 (NW/4 equivalent)

Section 18 continued: E/2 NE/4, NE/4 SW/4, N/2 SE/4

(3) The Unitized Formation shall comprise that interval underlying the Unit Area, the top of which is found at 2767 feet, and the base of which is found at 2792 feet, on the Gamma Ray Neutron Log of the Newmont-Ballard Well No. B-6 (API No. 30-015-03245) located in the SE/4 SW/4 NE/4 of Section 1, Township 18 South, Range 29 East, NMPM, Eddy County, New Mexico, together with Grayburg Sand Stringers encountered at varying intervals between the depths from 100 feet above the top and 50 feet below the bottom of the principal sand body shown by said log, insofar as the same lies within the Unit Area. The unitized formation includes all subsurface points throughout the Unit Area correlative to these depths.

(4) The amended Unit Agreement and Unit Operating Agreement for the West Loco Hills Grayburg No. 4 Sand Unit, submitted to the Division at hearing as Exhibit Nos. 6 and 7, respectively, are hereby incorporated by reference.

(5) This order shall not become effective unless and until the owners of 75% of the royalty interest in the Unit Area approve the plan for unit operations, as required by NMSA 1978 §70-7-8.

(6) If the persons owning the required percentage of royalty interest in the Unit Area do not approve the plan for unit operations within a period of six months from

the date of this order, this order shall cease to be effective unless the Division shall extend the time for ratification for good cause.

(7) When the persons owning the required percentage of royalty interest in the Unit Area have approved the plan for unit operations, the interests of all persons in the Unit Area are unitized whether or not such persons have approved the plan of unitization.

(8) Applicant, as unit operator, shall notify the Division in writing of its removal or the substitution of any other working interest owner within the Unit Area as unit operator. In the event any entity other than applicant assumes operation of the Unit Area established hereby, such entity shall comply with the terms and provisions of this order.

(9) The Unit Area established hereby shall terminate upon the plugging and abandonment of the last well in the Unit Area completed in the Unitized Formation.

(10) Applicant is hereby authorized to institute waterflood operations within the Unit Area by the injection of water into the Unitized Formation through the 16 injection wells listed in Exhibit "A" attached to this order.

(11) The waterflood project authorized by this order shall be known as the West Loco Hills Grayburg No. 4 Sand Unit Waterflood Project.

(12) Applicant shall take all steps necessary to ensure that the injected water enters only the permitted injection interval and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

(13) Injection into each of the injection wells listed on Exhibit "A" shall be accomplished through lined tubing installed in a packer located within 100 feet of the uppermost injection perforation. The casing-tubing annulus shall be filled with an inert fluid, and a gauge or approved leak detection device shall be attached to the annulus in order to determine leakage in the casing, tubing, or packer.

(14) The injection wells or pressurization system shall be equipped with a pressure control device or acceptable substitute that will limit the surface injection pressures to 510 psi.

(15) The Division Director may administratively authorize a pressure limitation in excess of the above upon a proper showing that such higher pressure will not result in the fracturing of the injection formation or confining strata.

(16) The Division Director may administratively authorize additional injection wells within the Unit Area as provided in Division Rule NMAC 19.15.26.8.G(6).

(17) Prior to commencing injection operations, casing shall be installed and cemented if not present in any well, and the casing in each well shall be pressure tested throughout the interval from the surface down to the proposed packer setting depth to insure the integrity of such casing.

(18) The unit operator shall give 72 hours advance notice to the supervisor of the Division's Artesia District Office of the date and time that (i) the injection equipment will be installed, and (ii) the mechanical integrity pressure test will be conducted on the proposed injection wells, so that these operations may be witnessed by Division personnel.

(19) The unit operator shall immediately notify the supervisor of the Division's Artesia District Office of any failure of tubing, casing, or packer in any injection well or of any leakage of water, oil, or gas from around any producing or plugged and abandoned well within the project area, and shall promptly take all steps necessary to correct such failure or leakage.

(20) The unit operator shall conduct injection operations in accordance with Division Rule Nos. NMAC 19.15.26.8 - 19.15.26.15, and shall submit monthly progress reports in accordance with Division Rule No. NMAC 19.15.26.13.

(21) The injection authority granted herein shall terminate one year after the date of this order if the unit operator has not commenced injection operations into at least one of the Phase I wells listed on Exhibit "A"; provided, however, that the Division, upon written request, may grant an extension for good cause if the request is received prior to the end of that year.

(22) The first three wells listed on the attached Exhibit "B" shall be re-entered and plugged and abandoned with a procedure approved by the Artesia District Office and sufficient to isolate the injection interval, the salt interval, and the fresh water sands. No injection shall be allowed within one-half mile of any well listed on Exhibit "B" until that well is properly plugged and abandoned. Notwithstanding the wells listed on Exhibit "B", the Division may require additional well cementing or remedial work if additional records or evidence becomes available showing a need for such work.

(23) Within one year of the date of this order, the operator of this Unit shall provide the geologist in the Division's Artesia office with a copy of the "type" log used to define the vertical depths of this Unit. If such log is not available, the operator shall work with a Division geologist to identify and supply a "type log" on an offsetting well at the same structural location.

(24) Injection perforations or open-hole injection intervals shall be limited within this waterflood project to only the Unitized injection interval. Any well producing from within this Unitized interval shall not also produce from intervals above or below this unitized interval unless permission for downhole commingling is obtained from the Division. Within one year of the date of this order, the operator of this Unit shall

inventory all open completions of all wells within this Unit, and report to the Division's engineering bureau in writing of the existence of any wells completed, both in this Unit and above or below the Unitized interval.

(25) The West Loco Hills Grayburg No. 4 Sand Unit Waterflood Project is hereby certified by the Division as an "Enhanced Oil Recovery Project" pursuant to the Enhanced Oil Recovery Act, NMSA 1978 §§7-29A-1 *et seq.* The project area shall comprise the entire Unit Area; provided that the area and/or the producing wells eligible for the recovered oil tax rate, may be contracted and reduced dependent upon the evidence presented by the operator of the Unit Area in its demonstration of the occurrence of a positive production response.

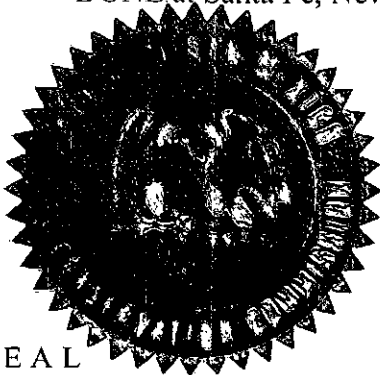
(26) To be eligible for the Enhanced Oil Recovery tax rate, the unit operator shall advise the Division of the date and time water injection commences in the project area, and at such time request the Division to certify the project to the New Mexico Taxation and Revenue Department.

(27) At such time as a positive production response occurs, and within five years from the date the project was certified to the New Mexico Taxation and Revenue Department, the unit operator shall apply to the Division for certification of a positive production response. The application shall identify the area benefiting from enhanced oil recovery operations and the specific wells eligible for the Enhanced Oil Recovery tax rate. The Division may review the application administratively or set it for hearing. Based upon the evidence presented, the Division will certify to the New Mexico Taxation and Revenue Department those wells that are eligible for the Enhanced Oil Recovery tax rate.

(28) This order does not relieve the unit operator of responsibility should its operations cause any damage or threat of damage to fresh water, human health or the environment, nor does it relieve the operator of responsibility for complying with applicable Division rules or other applicable federal, state, or local laws or regulations.

(29) Jurisdiction of these cases is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.



SEAL

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

A handwritten signature in dark ink, appearing to read "Mark E. Fesmire".

MARK E. FESMIRE, PE
Director

Exhibit "A"

Case No. 14243 - application for waterflooding

West Loco Hills Grayburg No. 4 Sand Unit Injection Wells

PHASE I INJECTION in the WLH G4S Unit

| API | Well | | FTG | NS | NS | FTG | EW | EW | Unit | Sec | Tsp | Rge | LAND | PHASE |
|-----------|------|--------|-----|------|----|-----|------|----|------|-----|-----|-----|---------|---------|
| | # | Status | | | | | | | | | | | | |
| 30-015-NA | 31 | New | | 1330 | S | | 2240 | E | J | 11 | 18S | 29E | State | Phase I |
| 30-015-NA | 32 | New | | 1980 | S | | 860 | E | I | 11 | 18S | 29E | State | Phase I |
| 30-015-NA | 33 | New | | 1980 | S | | 2380 | W | K | 11 | 18S | 29E | Federal | Phase I |
| 30-015-NA | 34 | New | | 560 | S | | 2495 | W | N | 11 | 18S | 29E | Federal | Phase I |
| 30-015-NA | 35 | New | | 660 | S | | 970 | E | P | 11 | 18S | 29E | State | Phase I |
| 30-015-NA | 36 | New | | 2628 | S | | 10 | E | I | 11 | 18S | 29E | State | Phase I |
| 30-015-NA | 37 | New | | 1990 | N | | 710 | W | E | 12 | 18S | 29E | Federal | Phase I |
| 30-015-NA | 38 | New | | 2000 | S | | 1000 | W | L | 12 | 18S | 29E | Federal | Phase I |
| 30-015-NA | 39 | New | | 1980 | N | | 660 | E | H | 11 | 18S | 29E | State | Phase I |
| 30-015-NA | 40 | New | | 2628 | S | | 1330 | W | F | 12 | 18S | 29E | Federal | Phase I |
| 30-015-NA | 41 | New | | 1980 | N | | 1980 | W | F | 12 | 18S | 29E | Federal | Phase I |
| 30-015-NA | 42 | New | | 1895 | S | | 2100 | W | K | 12 | 18S | 29E | Federal | Phase I |
| 30-015-NA | 43 | New | | 1360 | S | | 1405 | W | N | 12 | 18S | 29E | Federal | Phase I |
| 30-015-NA | 44 | New | | 660 | S | | 660 | W | M | 12 | 18S | 29E | Federal | Phase I |
| 30-015-NA | 45 | New | | 660 | S | | 1980 | W | N | 12 | 18S | 29E | Federal | Phase I |
| 30-015-NA | 46 | New | | 1310 | S | | 10 | E | P | 11 | 18S | 29E | State | Phase I |
| 30-015-NA | 47 | New | | 2555 | N | | 10 | E | H | 10 | 18S | 29E | Federal | Phase I |
| 30-015-NA | 48 | New | | 1980 | N | | 660 | W | E | 11 | 18S | 29E | Federal | Phase I |
| 30-015-NA | 49 | New | | 1940 | S | | 690 | W | L | 11 | 18S | 29E | Federal | Phase I |
| 30-015-NA | 50 | New | | 1980 | N | | 660 | E | H | 10 | 18S | 29E | Federal | Phase I |
| 30-015-NA | 51 | New | | 1780 | S | | 660 | E | I | 10 | 18S | 29E | Federal | Phase I |
| 30-015-NA | 52 | New | | 2620 | N | | 1360 | W | F | 11 | 18S | 29E | Federal | Phase I |
| 30-015-NA | 53 | New | | 1980 | N | | 1980 | W | F | 11 | 18S | 29E | Federal | Phase I |

EXISTING INJECTION WELLS

| | | | | | | | | | | | | | |
|------------|---|--------|------|---|--|------|---|------|---|-----|-----|---------|----------|
| 3001504493 | 4 | Active | 660 | S | | 660 | W | 4(M) | 7 | 18S | 30E | Federal | EXISTING |
| 3001504495 | 7 | Active | 1270 | N | | 1370 | W | C | 7 | 18S | 30E | Federal | EXISTING |

| | | | | | | | | | | |
|--|----------------------|--------|----|--------|----|------|-----|-----|-----|-----------|
| Exhibit "B" | | | | | | | | | | |
| Case No. 14243 - application for waterflooding | | | | | | | | | | |
| West Loco Hills Grayburg No. 4 Sand Unit | | | | | | | | | | |
| Records indicate these AOR wells, in or near the Unit, are inadequately cemented | | | | | | | | | | |
| API 30-015 | WELL_NAME | FTG_NS | NS | FTG_EW | EW | Unit | Sec | Tsp | Rge | LAND_TYPE |
| Phase I Area | | | | | | | | | | |
| 03254 | STATE X 001 | 990 | S | 990 | W | P | 2 | 18S | 29E | State |
| 03392 | W L H G4S UNIT 006N | 330 | S | 2310 | W | N | 11 | 18S | 29E | Federal |
| 03262 | W L H GB SAND 001 | 330 | S | 990 | W | M | 2 | 18S | 29E | State |
| Future Development | | | | | | | | | | |
| 03796 | State A 005 | 2310 | N | 330 | E | H | 36 | 17S | 29E | State |
| 03795 | State A 004 | 2310 | N | 990 | W | E | 36 | 17S | 29E | State |
| 03260 | WLHG4S UT TR 10B 004 | 990 | N | 330 | E | A | 3 | 18S | 29E | Federal |
| 03288 | Miller No. 5 | 990 | N | 1650 | E | B | 4 | 18S | 29E | Federal |
| 05963 | Guy N No. 1X | 990 | S | 2310 | E | O | 9 | 18S | 29E | Federal |
| 03424 | STATE O 16 001 | 330 | N | 1650 | E | B | 16 | 18S | 29E | State |
| 04521 | Southern Union 001 | 2310 | N | 330 | W | E | 17 | 18S | 29E | Federal |
| 04470 | Yates 001 | 1980 | S | 660 | W | L | 6 | 18S | 30E | Federal |