

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

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

**CASE NO. 14122
ORDER NO. R-12978**

**APPLICATION OF PECOS OPERATING COMPANY, LLC FOR
APPROVAL OF A SALT WATER DISPOSAL WELL, LEA COUNTY,
NEW MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on May 15, 2008, at Santa Fe, New Mexico, before Examiners William V. Jones and David K. Brooks.

NOW, on this 4th day of August, 2008, 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 this case and its subject matter.

(2) The applicant, Pecos Operating Company, LLC ("Pecos"), seeks authority to utilize its Caudill SWD Well No. 1, formerly called the State GA Well No. 7 (API No. 30-025-03688) located 1980 feet from the South line and 1980 feet from the West line, Section 16, Township 15 South, Range 36 East, NMPM, Lea County, New Mexico, to dispose of produced water into the Devonian formation through perforations and openhole from 13495 feet to 13900 feet.

(3) On March 25, 2008, Pecos submitted an administrative application (pKVR0808542019) to the Division asking for approval of this well for salt water disposal. In its application, Pecos said the plugged and abandoned State GA Well No. 7 is located on the downdip eastern flank of the local Devonian formation structure. The well was drilled in 1956, produced oil from the Caudill Devonian Pool and was plugged in 1965. The well is being targeted for re-entry and use as a downdip disposal well to handle Devonian waters being produced from Pecos'

nearby operations. Pecos currently has one high volume water producer and plans on adding more if this well is permitted for injection. The Devonian reservoir in this area has a strong water drive and is normally pressured (fluid levels at 3000 feet from surface) and has a relatively high capacity for withdrawal or injection rates.

(4) On April 10, 2008 prior to issuing a permit, the Division received a letter of protest from Mr. Donald M. Harrod of H & M Disposal, OGRID 9569 (H & M) located in Lovington, New Mexico. The letter gave the following reasons for this objection:

(a) The proposed disposal well is only 1320 feet away from H & M's commercial Devonian disposal well that has been able to inject for years at zero surface pressure;

(b) Pecos proposed 4000 to 8000 barrels per day of injection will likely be possible only by injection under pressure – and this may adversely affect H & M's operation; and

(c) H & M is concerned about the installation of a nearby competing commercial injection operation.

(5) H & M is the current operator of the Mayme W Graham Well No. 1 (API No. 30-025-03673), a commercial Devonian disposal well located in Unit N of Section 9, Township 15 South, Range 36 East. The Commission approved the Mayme W Graham Well No. 1 for disposal into the Devonian (from 13474 to 13564) with Order No. R-7960 in Case No. 8591 on June 12, 1985. That order limited injection to "lease-only" after objection was raised by the surface owner over a right of way issue. Subsequently, on May 26, 1986, administrative order SWD-300 modified that hearing order by approving this well for "commercial" injection into the Devonian from 13600 feet to 13900 feet.

(6) On April 14, 2008, Pecos responded to H & M's objection in a letter to the Division, stating that:

(a) Pecos' application for injection is only for handling waste water from Pecos' own operations. Pecos' net effect due to its re-injection of produced water on the reservoir pressure in the Devonian reservoir should be zero.

(b) Conversely, H & M's long term injection operations have added additional water volumes to this Devonian reservoir and have likely boosted Devonian reservoir pressures – yet Pecos has not yet seen an adverse effect on its nearby production operations.

(7) On April 15, 2008, the Division received a request from Pecos to place this application on the May 15, 2008, hearing docket. On May 8 and again on May 13, 2008, Pecos filed motions to dismiss the objections of H & M on the grounds that the objection from H & M was untimely filed. The motion to dismiss objections was itself overruled at the beginning of the May 15, 2008 hearing.

(8) H & M Disposal appeared at the hearing in opposition to this application and presented testimony from one witness. No other parties entered an appearance in this case or otherwise opposed this application.

(9) Prior to the hearing, the Division's engineering bureau evaluated the administrative application from Pecos and expressed concern in a letter sent on April 21 (sent to both Pecos and H & M) of a plugged well within the ½ mile area of review. The Graham Well No. 1 (API No. 30-025-03672) was drilled to a depth at which the Devonian is normally encountered and yet was not plugged in a manner sufficient to isolate the lower wellbore from movement up into the Mississippian and Pennsylvanian. Several gas pools within the Mississippian and Pennsylvanian have been extended into this area in recent years. Pecos showed through evidence presented at the hearing that the Graham Well No. 1 actually did not encounter the Devonian due to the presence of a fault located directly to the East. Therefore this plugged Graham Well No. 1 cannot provide a conduit for injected waters to invade these upper gas producing intervals. In fact H & M's injection well is much closer to the Graham Well No. 1 than is the proposed Pecos disposal well and H & M has been injecting for many years.

(10) Pecos presented exhibits and testimony at the hearing, re-iterating previously communicated intentions, and also showing that:

(a) The surface acreage under this well is owned by Wanda Alexander. Pecos has an agreement with Ms. Alexander covering injection into this well from wells located on this lease. Pecos realizes it must notify Ms. Alexander prior to accepting waters from other leases into this well.

(b) The minerals under the location of the proposed well are owned by the State of New Mexico. Cities Service obtained the L-214 lease (shown on Pecos exhibit 1) from the State Land Office. Pecos obtained a farmout from Cities of all portions of this lease located in the NW/4 of Section 16 and Cities retained an override. Oxy is the successor to Cities and therefore has the override on the Pecos operated acreage and owns the remainder of the lease (in the NE/4 of Section 16) which covers the location of the proposed injection well. Oxy has been noticed of this intent to inject and of this hearing and has not objected. However, Pecos had NOT obtained a written agreement from Oxy allowing Pecos to inject

into the Devonian in this well. The only well currently producing and therefore holding the L-214 lease is Well No. 1 located in Unit F.

(c) The re-activation of production in this Caudill-Devonian Pool requires adequate and inexpensive water disposal in order to be economic. Current water production is being piped to H & M's commercial disposal well – mostly at night when trucks are not off-loading water into H & M's facility.

(d) The H & M well will not be able to handle the volumes of water that will soon be produced from Pecos' nearby operations and Pecos needs the additional injection capacity this well will provide. Pecos' planned expansion of Devonian production operations are limited by the currently existing injection capacity in this area.

(e) Pecos has not obtained a business license from the State Land Office to operate this well for commercial purposes and does not currently intend to do so. However, Pecos does want the future option of using this well for commercial operations if or when its primary purpose no longer exists.

(f) Pecos also does not wish to voluntarily agree to limit injection into this well to 4000 barrels of water per day – as H & M is asking – but does agree to notice surrounding operators prior to applying to amend the injection permit – if such permit is granted.

(g) Notices of this application and of this hearing have been provided and newspaper notice of this hearing was published in the Lovington newspaper.

(h) The H & M operated well has injected over 10 million barrels of water into this Devonian reservoir over the last 20 years, yet the reservoir pressure has not seemed to change.

(i) Pecos' proposed injection well likely has the capacity to take 8000 barrels of water per day on a vacuum – if friction of tubulars were not present. Therefore the majority of surface injection pressure will actually be tubing friction and the net pressure on the reservoir due to injection will be very low.

(j) Devonian reservoirs are being re-activated due to higher oil prices, improved electric submersible pumps, and the evidence that oil and water in long abandoned reservoirs have re-segregated.

(k) The proposed injection well is located at a structurally low position and will have a long open hole interval – therefore should be

capable of large injection rates into the Devonian without harming Devonian production.

(l) This well is plugged and casing was recovered. To utilize the well, Pecos must be successful in re-entering the hole and re-installing casing. Pecos intends to install a tapered casing string with the existing 5-1/2 inch casing near the bottom of the well and will probably install tapered injection tubing.

(11) H & M presented the following testimony at the hearing:

(a) H & M stated it does not oppose the permitting of Pecos' proposed disposal well – but wishes conditions to be imposed on any issued permit.

(b) The H & M's disposal system has accepted water by pipeline for 15 years from CW Trainer – successor Pecos Operating. The H & M Disposal handles approximately 2000 barrels of waste water per day.

(c) H & M is concerned that the existence of Pecos' disposal well located approximately 1/4 mile away and injecting high volumes will cause H & M's disposal to require the addition of injection pumps which prior to this have not been needed.

(d) H & M is also concerned that raising injection pressure on these two injection wells will cause problems from poorly cemented wells in the vicinity.

The Division Director Finds:

(12) H & M has requested the proposed injection well be limited to 4000 barrels of water per day and has also requested H & M be noticed prior to any future conversion of Pecos' injection well to commercial service. These requests should be denied.

(13) H & M has been operating the Mayme W Graham Well No. 1 as a commercial disposal well within this Caudill-Devonian Pool for over 20 years. Currently Pecos has plans to re-enter additional wells in this pool and recover additional oil and will be required to handle large volumes of produced water in order to produce this oil. The structure map submitted as Exhibit No. 7 by Pecos shows the Devonian in H & M's well to be higher on structure than in Pecos' proposed well. Commercial injection well permits should be accompanied by a list of all types of waters being injected into that well and water analysis for those waters.

(14) H & M has not provided a list of waters being injected into its disposal well or analysis of those waters. H & M has also never provided an update of conditions within the reservoir being used for injection. Within 6 months of this order, H & M should provide to the Division in Santa Fe:

(a) A complete list of all pools from which waters are being injected into its Mayme W Graham Well No. 1 and a water analysis from each of those waters; and

(b) An analyzed fall-off test, utilizing bottom hole gauges run prior to shutin, designed to yield results such as current reservoir pressure, permeability, skin damage, and reservoir barriers.

(15) Pecos Operating Company, LLC has recently met the requirements of Rule 40 and has made application for saltwater disposal pursuant to all requirements within Rule 701B.

(16) The evidence presented shows that all wells within the ½ mile Area of Review are cased and cemented adequately in order to confine the injected fluid to the injection interval.

(17) Injection of produced Devonian water into the Devonian reservoir down-dip from producing wells is unlikely to cause waste of oil and gas and is routinely done in other Devonian pools.

(18) The addition of nearby, adequate, and inexpensive disposal capacity should enable Pecos to produce additional high-water-cut oil from the Devonian formation and thereby prevent waste and protect correlative rights.

(19) Pecos' request to utilize the plugged State GA Well No. 7 (API No. 30-025-03688) as a saltwater disposal well in the Devonian formation through perforations and open hole from 13495 to 13900 feet should be granted.

(20) Prior to Pecos utilizing this well for off-lease injection or for disposal of waters from sources other than the Devonian formation:

(a) it should provide proof to the Division of formal written notice to (i) the Devonian mineral lessee (currently Occidental Petroleum) or to the State Land Office if the minerals lease is no longer valid; and (ii) the surface owner (currently Ms. Wanda Alexander); and

(b) it should provide a list of all pools from which waters are to be injected into this well and a water analysis from each of those waters.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Pecos Operating Company, LLC ("Pecos"), is hereby permitted to utilize its Caudill SWD Well No. 1 (formerly the State GA Well No. 7 with API No. 30-025-03688) located 660 feet from the North line and 2310 feet from the East line, Section 16, Township 15 South, Range 36 East, NMPM, Lea County, New Mexico, for injection of produced water for disposal purposes into the Devonian formation through perforations and open-hole from 13495 feet to 13900 feet and through plastic-lined tubing set with a packer located within 100 feet of the top of the injection interval.

(2) Prior to any use of the Caudill SWD Well No. 1 for off-lease injection or for injection of waste waters other than originating from the Devonian formation:

(a) the operator (Pecos or successor) shall provide proof to the Division of formal written notice to (i) the Devonian mineral lessee (currently Occidental Petroleum) or to the State Land Office if the minerals lease is no longer valid; and (ii) the surface owner (currently Ms. Wanda Alexander); and

(b) the operator shall also provide a list of all pools from which waters are to be injected into this well and a water analysis from each of those waters.

(3) Pecos' re-entry of the State GA Well No. 7 and re-installation of injection casing shall be done under guidance and only with the approval of the Hobbs district office. All known corrosive intervals shall be covered with cement. Pecos shall determine the initial reservoir pressure prior to injection and report this to the Division's district office by sundry report.

(4) H & M Disposal's request to limit the injection rate into this well to 4000 barrels of water per day is denied. In addition, H & M's request for special notice from Pecos prior to any future conversion of Pecos' injection well to commercial service is denied. By January 30, 2009, H & M shall provide the following in writing, referencing SWD-300, to the Division in Santa Fe:

(a) A complete list of all pools from which waters are being injected into its Mayme W Graham Well No. 1 and a water analysis from each of those waters; and

(b) An analyzed fall-off test utilizing bottom-hole gauges run prior to surface shutin. The test shall be designed to yield results such as

current reservoir pressure, permeability, skin damage, and detection of reservoir barriers.

IT IS FURTHER ORDERED THAT:

(5) The casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved *leak detection device* in order to detect any leakage of the casing, tubing, or packer.

(6) The casing-tubing annulus shall be pressure tested from the surface to the packer setting depth to assure mechanical integrity.

(7) The operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

(8) The wellhead injection pressure on the well shall be limited to **no more than 2700 psi**. In addition, the injection well or system shall be equipped with a *pressure limiting device* in workable condition which shall, at all times, limit surface injection pressure to the maximum allowable pressure for this well. The Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the injection formation. Such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

(9) Without limitation on the duties of the operator as provided in Division Rules 19 and 116, or otherwise, the operator shall immediately notify the Hobbs district office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

(10) The operator shall provide written notice of the date of commencement of injection. The operator shall submit monthly reports of injection volumes of waste water on Form C-115, in accordance with Division Rules 706 and 1115.

(11) In accordance with Rule No 705.C, the injection authority granted herein shall terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject well, provided however, the Division, upon written request by the operator received by the Division prior to the termination date, may grant an extension thereof for good cause shown.

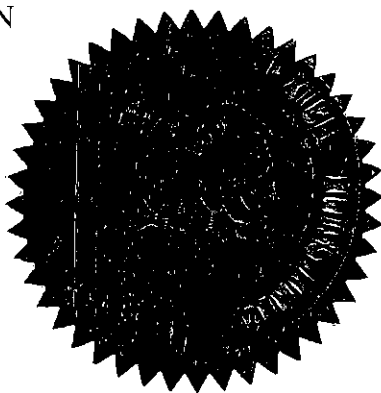
(12) Compliance with this order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or

to exercise due care for the protection of fresh water, public health and safety and the environment.

(13) Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the injection authority granted herein.

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

DIVISION



SEAL

STATE OF NEW MEXICO
OIL CONSERVATION

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

MARK E. FESMIRE, P.E.
DIRECTOR