

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
 - Engineering Bureau -
 1220 South St. Francis Drive, Santa Fe, NM 87505



Enervest

WLH Unit #45

ADMINISTRATIVE APPLICATION CHECKLIST 30-015-37025

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

- [NSL-Non-Standard Location]** **[NSP-Non-Standard Proration Unit]** **[SD-Simultaneous Dedication]**
- [DHC-Downhole Commingling]** **[CTB-Lease Commingling]** **[PLC-Pool/Lease Commingling]**
- [PC-Pool Commingling]** **[OLS - Off-Lease Storage]** **[OLM-Off-Lease Measurement]**
- [WFX-Waterflood Expansion]** **[PMX-Pressure Maintenance Expansion]**
- [SWD-Salt Water Disposal]** **[IPI-Injection Pressure Increase]**
- [EOR-Qualified Enhanced Oil Recovery Certification]** **[PPR-Positive Production Response]**

IPI-381

- [1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]
- [A] Location - Spacing Unit - Simultaneous Dedication
 NSL NSP SD
- Check One Only for [B] or [C]
- [B] Commingling - Storage - Measurement
 DHC CTB PLC PC OLS OLM
- [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
 WFX PMX SWD IPI EOR PPR
- [D] Other: Specify _____

IPI
377
880
SWD 853

- [2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or Does Not Apply
- [A] Working, Royalty or Overriding Royalty Interest Owners
- [B] Offset Operators, Leaseholders or Surface Owner
- [C] Application is One Which Requires Published Legal Notice
- [D] Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
- [E] For all of the above, Proof of Notification or Publication is Attached, and/or,
- [F] Waivers are Attached

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Shirley Galik Print or Type Name	<u>Shirley Galik</u> Signature	Sr. Regulatory Tech Title	10/19/2010 Date
		<u>sgalik@enervest.net</u> e-mail Address	<u>713-495.1514</u>



October 19, 2010

New Mexico Oil Conservation Division
Attention Mr. Terry Warnell
1220 South St. Francis Drive
Santa Fe, NM 87505

RE: Injection Pressure Increase Request
West Loco Hills G4S Unit #45 (R-13128),
Loco Hills; Queen-Grayburg-San Andres Pool (39520)
Eddy County, New Mexico

RECEIVED OGD
2010 OCT 20 PM 3:55

Dear Mr. Warnell,

Enverest Operating, LLC, (OGRID 143199) is requesting an exception to the approved injection pressure of 880 psi for the **WLHU #45** injection well, (API #30-015-37025, perfs 2670-94). Based on the attached Step Rate Test data, Enverest requests that the allowable surface injection pressure be raised to 1150 psi. This increase is needed to balance injection and withdrawal rate in order to optimize waterflood operations.

At the current injection pressure limit, we are not able to inject enough water into the formation to effectively drain the reservoir through the producers.

The sections of the unit where the well is located have higher oil saturations which imply return for higher oil recovery.

Sincerely,

A handwritten signature in black ink, appearing to read 'Josh Caldwell', written over a white background.

Josh Caldwell
Production Engineer

Attachment

ENERVEST, LTD.

1001 FANNIN STREET, SUITE 800 • HOUSTON, TEXAS 77002-6707 • 713.659.3500 • FAX 713.659.3556

Step Rate Test



Cardinal Surveys Company

15-Oct-10

Enervest Operating LLC

Well: W.L.H. Unit No. 45

Field;

County: Eddy County, New Mexico

SC 59380

File No. 20???

Intercept @ 414.4 BPD, 2,320.4 BH PSIA & Surface Intercept @ 1,152 PSIA

Downhole PSI Tool Ser. No. CSC2601
Surface PSI Gauge Ser. No. 10213
Tool @ 2,680'

	Start	End	Rate
1	1:15 PM	2:00 PM	0 2,680'
2	2:00 PM	2:30 PM	100
3	2:30 PM	3:00 PM	200
4	3:00 PM	3:30 PM	300
5	3:30 PM	4:00 PM	400
6	4:00 PM	4:30 PM	600
7	4:30 PM	5:00 PM	900
8	5:00 PM	5:15 PM	0
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			

RECEIVED OGD
2010 OCT 20 P 3:55

Step Rate Test
15-Oct-10

Enervest Operating LLC

Well: W.L.H. Unit No. 45

Field:

Location: Eddy County, New Mexico



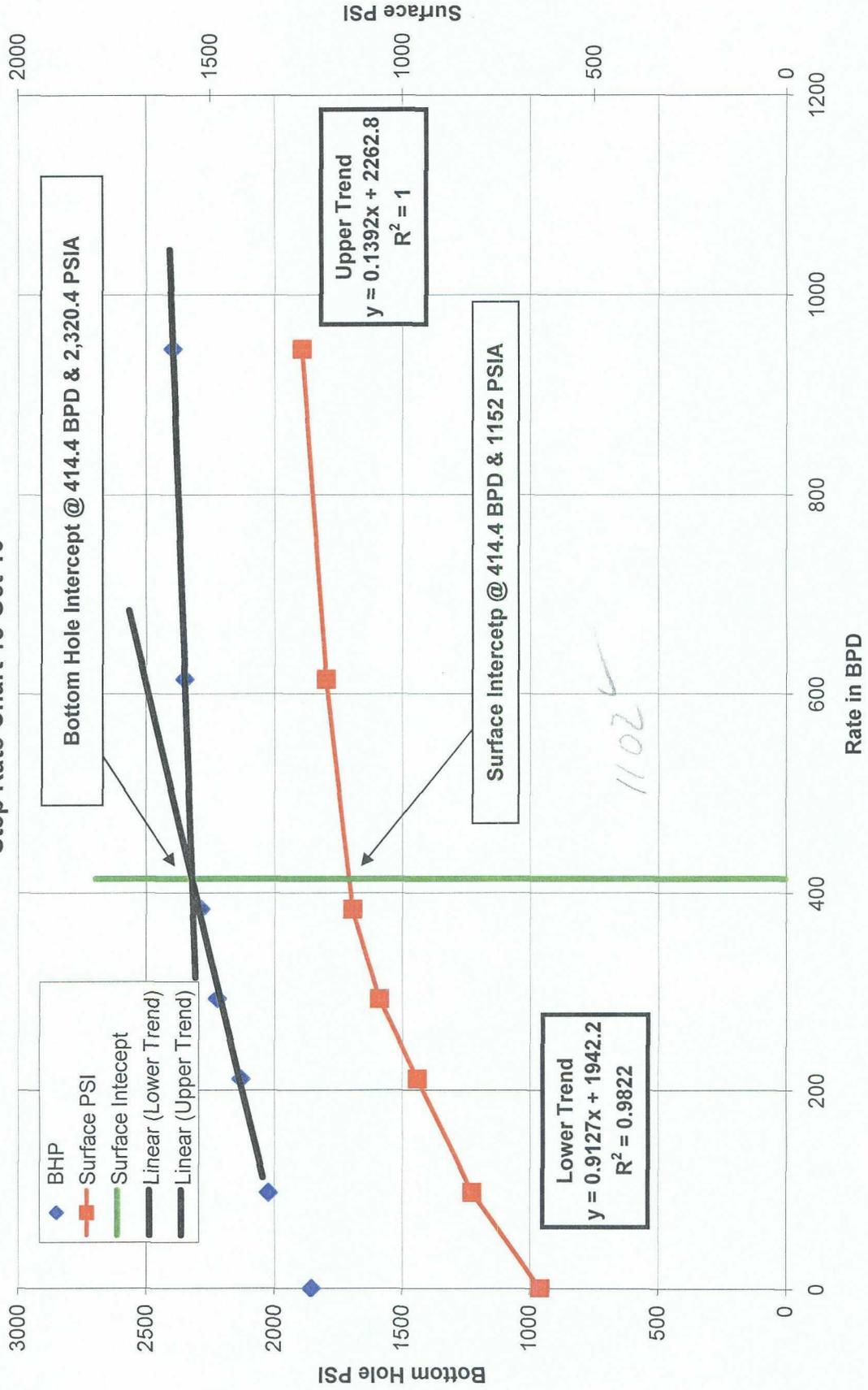
	S Time	E Time	D Time Min	Last Rate BPD	Step BPD	BHP PSIA	Surf PSIA	Cum BBL	Delta BBL	Avg. BPD	Lower Trend	Upper Trend
1	1:15 PM	2:00 PM	45	0	0	1855.5	639.2	0	0	0		
2	2:00 PM	2:30 PM	30	100	100	2021.6	816.8	2	2	96		
3	2:30 PM	3:00 PM	30	200	100	2128.5	960.1	6.4	4.4	211	2128.5	
4	3:00 PM	3:30 PM	30	300	100	2221.7	1058.7	12.5	6.1	293	2221.7	
5	3:30 PM	4:00 PM	30	400	100	2286.9	1129.9	20.5	8	384	2286.9	
6	4:00 PM	4:30 PM	30	600	200	2348.3	1198.7	33.3	12.8	614		2348.3
7	4:30 PM	5:00 PM	30	900	300	2394.4	1262	53	19.7	946		2394.4
8	5:00 PM	5:15 PM	15	0	0	2383.6	1242.3	53	0	0		

9
10
11
12
13
14
15
16

0.9127 1942.2
0.1392 2262.8
intersect 414.479638 BPD
BHP PSI 2320.49557 PSIA

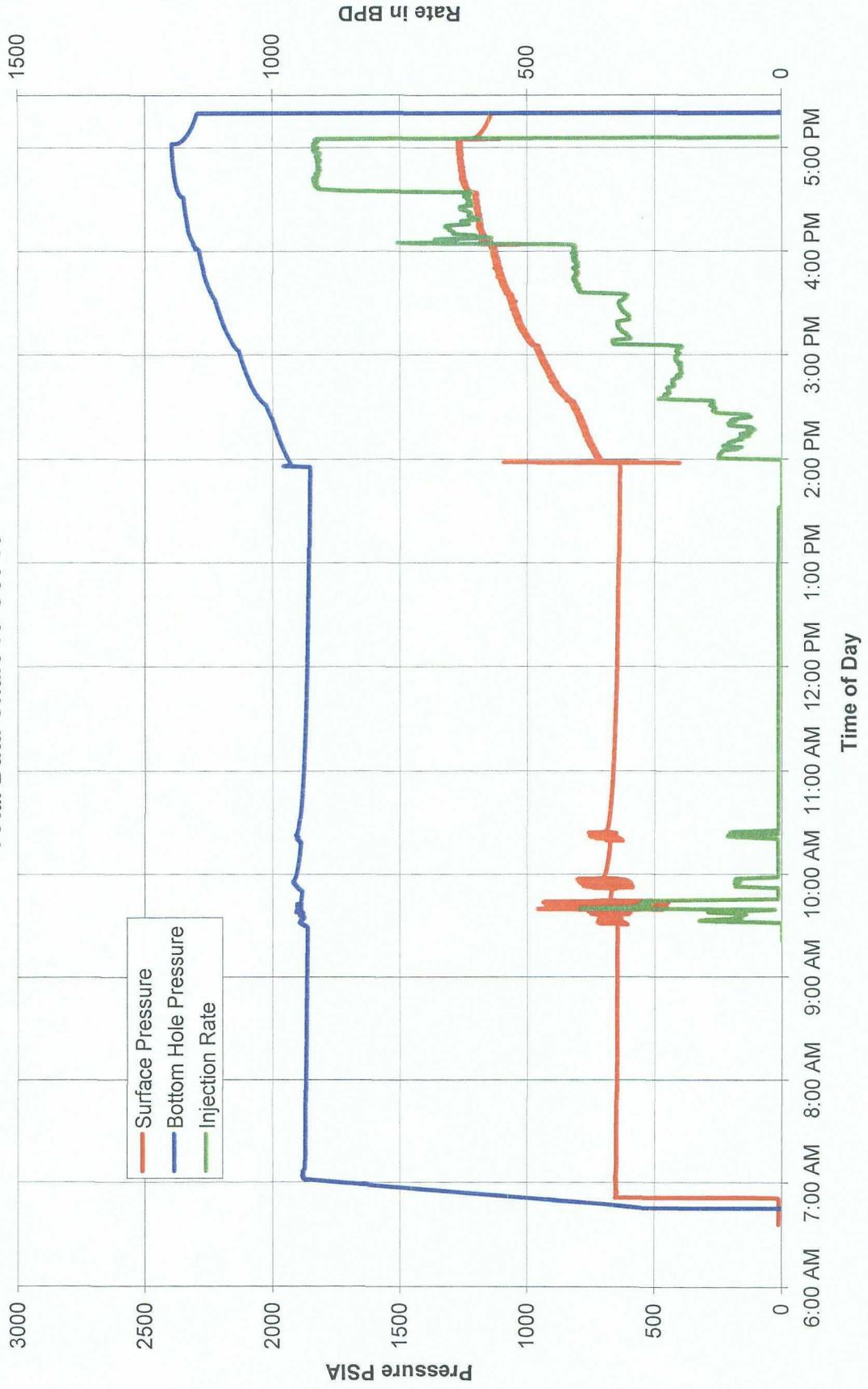


Enervest Operating LLC
W.L.H. Unit No. 45
Step Rate Chart 15-Oct-10





Enervest Operating LLC
W.L.H. Unit No. 45
Total Data Chart 15-Oct-10



WLHG4S #45
West Loco Field
Eddy County
30-015-37025

Ground Level 3,493'
KB 13
Spud Date 10/23/2009
Rig Release 10/30/09

Current Wellbore Schematic

Injector

12 1/4" Hole

TOC @ Surface

8 5/8" 24# J-55 Csg @ 419'
Cmt w/ 425 Sx to Surface

7 7/8" Hole

2 3/8 " 4.7# J-55 Tbg @ 2,650'PCID

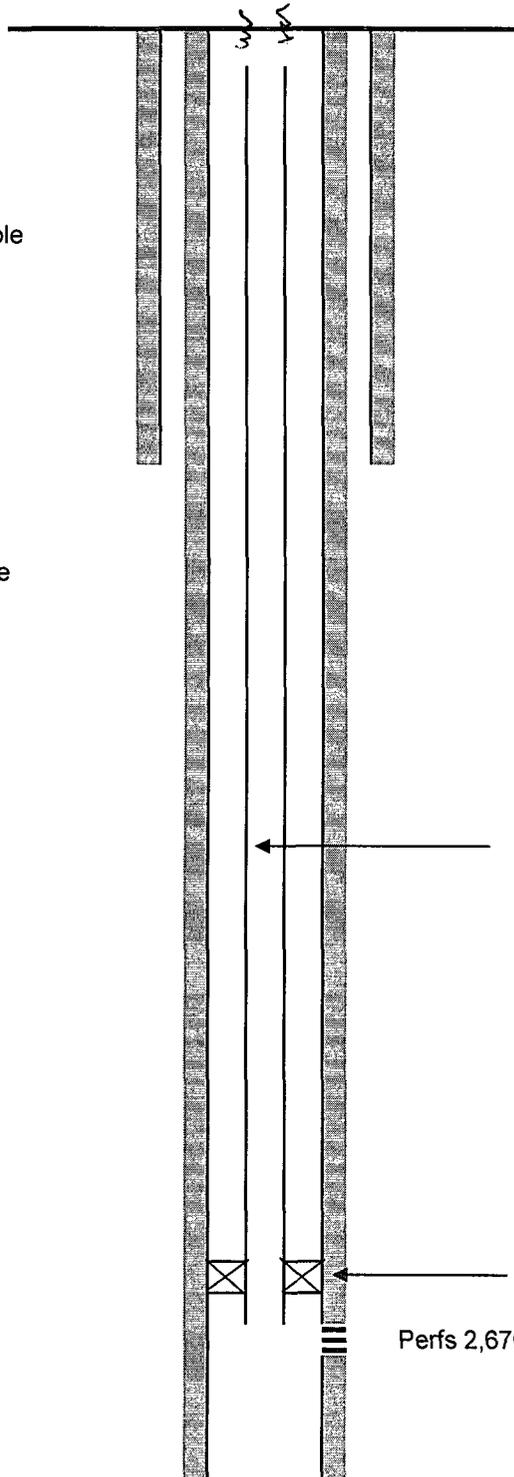
G6 Packer @ 2,645'

Perfs 2,670-2,694' (Total of 150 holes)

4 1/2" 10.5# J-55 Csg @ 2,785'
Cmt w/ 575 Sx to Surface'

TD 2,800'
PBD 2,741'

Sonia Miranda
4/19/2010



ATS-09-22 AM

OCD-ANIESIA
MAR 16 2009

Form 2160-3
(April 2004)

FORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NLM071060X LC-050429 B

6. If Indian, Allottee or Tribe Name

7. If Unit or CA Agreement, Name and No

8. Lease Name and Well No.
WLH G4S Unit #45

9. API Well No
30-019-37005

10. Field and Pool, or Exploratory
Loco Hills; QU-GB-SA

11. Sec., T., R. M. or Blk. and Survey or Area
Sec 12, T-18-S R-29-E

12. County or Parish
Eddy

13. State
NM

1a. Type of work. DRILL REENTER

1b. Type of Well Oil Well Gas Well Other Single Zone Multiple Zone

2. Name of Operator
EnerVest Operating, Ltd.

3a. Address 1001 Fannin, Suite 800
Houston, Texas 77002-6707

3b. Phone No (include area code)
713/495-6530

4. Location of Well (Report location clearly and in accordance with any State requirements *)
At surface 660' FSL AND 1980' FWL (UNIT N)
At proposed prod. zone

14. Distance in miles and direction from nearest town or post office*
7 miles Southwest of Loco Hills, New Mexico

15. Distance from proposed*
location to nearest
property or lease line, ft
(Also to nearest drig unit line, if any) 660'

16. No. of acres in lease
5307.73 (Unit Acreage)

17. Spacing Unit dedicated to this well
N/A 4D

18. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft 900'

19. Proposed Depth
2800'

20. BLM/BIA Bond No. on file
NFB:0010838 NM Bond 503

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
GL 3493.3'

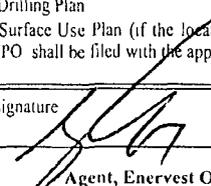
22. Approximate date work will start*
02/01/2009

23. Estimated duration
10 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, shall be attached to this form:

- 1. Well plat certified by a registered surveyor.
- 2. A Drilling Plan
- 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office)
- 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- 5. Operator certification
- 6. Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature 
Title Agent, Enervest Operating, Ltd.

Name (Printed/Typed)
Gary Miller

Date 12-31-08

Approved by (Signature) /s/ James Stovall

Name (Printed/Typed)

Date MAR 12 2009

Title FIELD MANAGER

Office

CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*(Instructions on page 2)

Roswell Controlled Water Basin

Approval Subject to General Requirements
& Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

DISTRICT I
1625 N. FRENCH DR., HOBBBS, NM 88240

DISTRICT II
1301 W. GRAND AVENUE, ARTESIA, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

AMENDED REPORT

API Number 30-015-37085	Pool Code 39520	Pool Name Coco Hills, QU-GB-5A
Property Code 305988	Property Name WLH G4S UNIT	Well Number 45
OCRID No. 143199	Operator Name ENERVEST OPERATING	Elevation 3493'

Surface Location

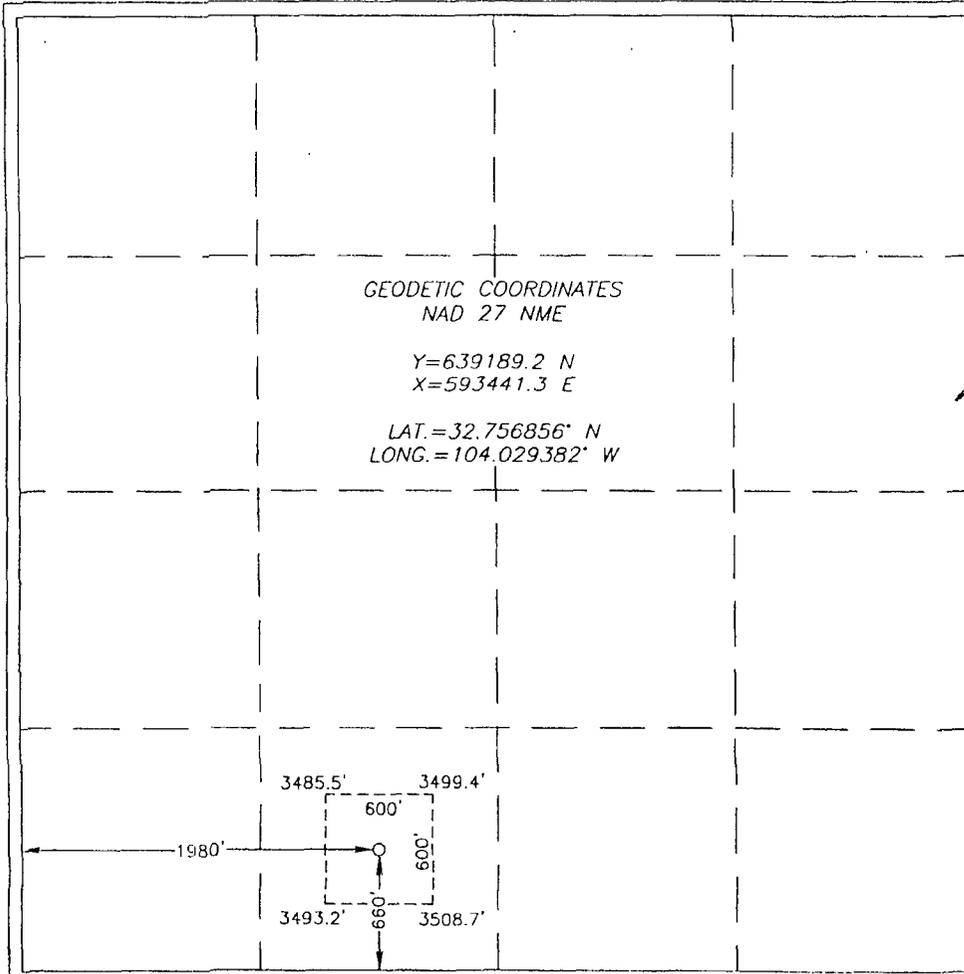
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	12	18-S	29-E		660	SOUTH	1980	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres 40 5307.73	Joint or Infill Yes	Consolidation Code U	Order No. R-2178
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature: *[Signature]* Date: 3-10-09
Printed Name: Gary Miller, Agent

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date Surveyed: OCTOBER 30, 2008
Signature & Seal of Professional Surveyor: *[Signature]*
Professional Surveyor: GARY G. EIDSON

Certificate No. GARY EIDSON 12841
RONALD J. EIDSON 3239



New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson

Governor

Jon Goldstein
Cabinet Secretary
Jim Noel
Deputy Cabinet Secretary

Mark Fesmire
Division Director
Oil Conservation Division



Administrative Order IPI-377
June 22, 2010

Enervest Operating, L.L.C.
1001 Fannin Street, Suite 800
Houston, Texas 77002-3500

Attention: Ms. Shirley Galik

RE: Injection Pressure Increase Request

West Loco Hills Grayburg No. 4 Sand Unit (R-13128)
Loco Hills; Queen-Grayburg-San Andres Pool (39520)
Eddy County, New Mexico

Reference is made to your request on behalf of Enervest Operating, L.L.C. (OGRID 143199) received by the Division June 9, 2010, to increase the surface injection pressure limit on the sixteen (16) injection wells (Exhibit "A").

The Phase I injection wells were permitted to inject produced water into the unitized Grayburg formation and governed by Division Order No. R-13128 Case No. 14243 issued in May, 2009, and the maximum surface injection pressure was limited to 510 psi.

It is our understanding the wells in Exhibit "A" need additional surface injection pressure to balance injection and withdrawal rates in order to optimize waterflood operations. The basis for granting these pressure increases are the sixteen step rate tests run by Cardinal Surveys Company in May and June 2010.

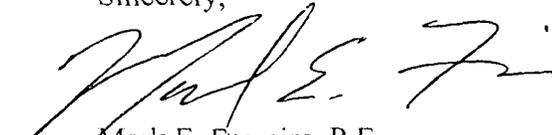
Enervest Operating, L.L.C. is hereby authorized to utilize the maximum surface injection pressures on the wells shown below in Exhibit "A", provided the tubing, size, type, setting depths and perforation depths do not change, but is prohibited from injecting at pressures that would induce fracturing in individual wells.



This approval is subject to your being in compliance with all other Division rules, including but not limited to Division Rule 5.9.

The Division Director may rescind this injection pressure increase if it becomes apparent that the injected fluid is not being confined to the injection zone or is endangering any fresh water aquifers, or is causing waste of oil and gas.

Sincerely,



Mark E. Fesmire, P.E.
Acting Director

MEF/tw

cc: Oil Conservation Division - Artesia
File: R-13128

Exhibit "A"
Enervest Operating, L.L.C.
West Loco Hills Grayburg No. 4 Sand
Unit Injection Wells Phase I
T8S, R30E, NMPM, Chaves County,
NM
Injection Pressure Increases

Well	API	Top Perf	Bottom Perf	Maximum Surface Injection Pressure(psi)
W.L.H. Unit No. 32	30-015-36772	2659	2686	1,100
W.L.H. Unit No. 33	30-015-37019	2614	2640	1,206
W.L.H. Unit No. 34	30-015-37017	2626	2645	870
W.L.H. Unit No. 35	30-015-36771	2630	2646	734
W.L.H. Unit No. 37	30-015-37021	2670	2696	1,404
W.L.H. Unit No. 38	30-015-37022	2654	2672	1,466
W.L.H. Unit No. 39	30-015-36769	2684	2714	996
W.L.H. Unit No. 41	30-015-37023	2680	2702	1,020
W.L.H. Unit No. 42	30-015-37026	2658	2684	804
W.L.H. Unit No. 44	30-015-37027	2678	2692	826
W.L.H. Unit No. 45	30-015-37025	2670	2694	880
W.L.H. Unit No. 48	30-015-37018	2653	2683	1,418
W.L.H. Unit No. 49	30-015-37015	2652	2676	1,104
W.L.H. Unit No. 50	30-015-37014	2639	2665	1,100
W.L.H. Unit No. 51	30-015-37013	2614	2640	1,398
W.L.H. Unit No. 53	30-015-37016	2642	2671	1,194

1102
1