HOLLAND&HART LLP

William F. Carr
Phone 505-954-7285
Fax 505-983-6043
wcarr@hollandhart.com

March 1, 2011

VIA HAND DELIVERY

Mr. Daniel Sanchez
Acting Director
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

Case 14616

Re: Application of Shell Exploration & Production Co. for approval of a salt water disposal well, Guadalupe County, New Mexico.

Dear Mr. Sanchez:

Enclosed is an original and one copy of the application of Shell Exploration & Production Co. in the above-referenced case (Oil Conservation Division Form C-108) as well as a copy of a legal advertisement.

Shell Exploration & Production Co. requests that this matter be placed on the docket for the March 31, 2011 Examiner Hearings.

Very truly yours,

William F. Carr
Ocean Munds-Dry
Attorneys for Shell Exploration & Production Co.

cc: Oil Conservation Division
District IV
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

Shell Exploration & Production Co.
Regulatory Affairs-EP Americas
4582 S. Ulster Street Parkway
Suite 1400
Denver, Colorado 80237

State of New Mexico
Energy, Minerals and Natural Resources Dept.
Oil Conservation Division
Engineering and Geological Services Bureau
1220 South St. Francis Drive
Sante Fe, New Mexico 87505
Attn.: Will Jones

Case 14616

December 7, 2010

Subject: Application for Authorization to Inject
Shell Exploration & Production Co., Latigo Ranch 3-5 (API No. 30-019-20137)
Guadalupe County, New Mexico

Dear Mr. Jones:

Shell Exploration & Production Company (Shell), as service provider to SWEPI LP in New Mexico, is submitting our Application for Authorization to Inject (Form C-108) for the subject well to New Mexico Oil Conservation Division- Engineering and Geological Services Bureau (OCD) for your review and approval. Shell proposes to conduct a one-time disposal of flowback and produced water from our exploration project into the subject well, which is currently in temporary abandonment pending further evaluation of this wildcat prospect.

Shell has initiated notification of the surface owner and publication of a legal advertisement. Proof of notice will be provided upon completion.

If you have any questions or require any additional information regarding this application, please contact me at (303) 222-6347, or David Janney at AMEC in Albuquerque at (505) 821-1801.

Regards,

Michael L. Bergstrom
Senior Regulatory Advisor
Shell Exploration & Production Company

Attachments: Form C-108
Appendices

Cc: Ed Martin, District 4 Supervisor

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-108
Revised June 10, 2003

Case 14 616

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____ Secondary Recovery _____ Pressure Maintenance __X__ Disposal _____ Storage
Application qualifies for administrative approval? __X__ Yes _____ No

II. OPERATOR: **SWEPI LP**

ADDRESS: **P.O. Box 576, Houston, Texas 77001**

CONTACT PARTY: **Michael L. Bergstrom, Senior Regulatory Advisor** PHONE **(303) 222-6347**

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? _____ Yes __X__ No
If yes, give the Division order number authorizing the project: _____

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

The Latigo Ranch 3-3 gas well is within a two mile radius of the proposed injection well (Latigo Ranch 3-5, API No. 30-019-20137), and their locations are shown on Figure 1(Appendix A).

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

Other than the proposed injection well, the Latigo Ranch 3-5, no wells of public record within the one-half mile Area of Review (AOR) that penetrate the proposed injection zone. Please refer to OCD Online for detailed construction and completion data for the Latigo Ranch 3-5 (API No. 30-019-20137) gas well.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;

The proposed avg. daily rate is 3 barrels per minute (bpm), and the proposed avg. daily volume is 4,300 barrels per day (bpd). The proposed maximum daily rate is 6 bpm, and the maximum daily volume is 8,640 bpd.

2. Is the system open or closed?

The system is closed.

3. Proposed average and maximum injection pressure;

The proposed avg. injection pressure is 4,500 pounds per square inch (psi) and the proposed maximum injection pressure is 8,900 psi.

4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water;

The injection fluid will be produced and stimulation water generated from the Latigo Ranch 3-5, Latigo Ranch 3-3 and Latigo Ranch 2-34 gas wells. This water has been commingled in the completion pit on the Latigo Ranch 3-5 location. Laboratory analytical results for the chemistry of the injection fluid are presented in Appendix B.

5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

The New Mexico Office of the State Engineers iWATERS database was searched for water quality results for wells in the area that penetrate the proposed injection zone, and none were listed. ***Water Resources of Guadalupe***

***County, New Mexico*, New Mexico Bureau of Mines and Mineral Resources (NMBMMR), Hydrologic Report No. 8 was also reviewed, and it did not list any wells that penetrate the proposed injection zone. *Petroleum geology of Pennsylvanian and Lower Permian Strata, Tucumcari Basin, east-central, New Mexico*, NMBMMR, Bulletin 119 was also reviewed, and no water quality data was reported for the proposed injection zone.**

Mr. Ron Broadhead, petroleum geologist with the NMBMMR, provided water quality data on the Trans Pecos Latigo Ranch No. 1 C and the Trans Pecos Riley 35. These wells are located in Section 4 Twp. 9N; Rng. 23E and Section 35 Twp.10N; Rng. 24E, respectively. Data from the Trans-Pecos Latigo Ranch No. 1C is from swab runs in the Pennsylvanian and the data from the Riley 35 is from swab runs in the San Andres Formation. The laboratory analytical results indicate that water in the San Andres and Pennsylvanian have total dissolved solids concentrations (TDS) above 10,000 mg/l, and water from swab runs in the Pennsylvanian have TDS concentrations ranging from 36,454 mg/l to 191,179 mg/l and chloride concentrations ranging from 16,000 mg/l to 132,000 mg/l. The laboratory analytic results for these wells are presented in Appendix C.

*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth.

The geologic name of the formation in the proposed injection zone is the Pennsylvanian Magdalena Group, which is composed of three series of rocks which include, from oldest to youngest, the Atokan, Strawn, and Canyon Series. Only the Atokan and Strawn Series rocks are included in the proposed injection zone. The Atokan Series consists of gray mudstone and minor fine-grained sandstone and may be up to 100 feet thick. The Strawn Series consists of marine limestone, coarse-grained conglomeratic arkosic to quartzose sandstone and gray mudstone and may be up to 1,136 feet thick. Depth to the top of the Pennsylvanian is estimated to be 8,000 feet.

Please refer to OCD Online for detailed mud logs for the Latigo Ranch 3-5 (API No. 30-019-20137) gas well.

Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with TDS concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

Relatively shallow fresh water occurs in some of the upper sandstone units of the Chinle Formation within the general area of the proposed injection well, shallow fresh water was not encountered in the Chinle Formation when the Latigo Ranch 3-5 water supply well was drilled approximately 600 feet southeast of the proposed injection well (Latigo Ranch 3-5 gas well), nor was fresh water encountered in the Chinle Formation when the Latigo Ranch 3-3 water supply well was drilled approximately 1.6 miles southeast of the proposed injection well. If shallow water does occur in the Chinle formation, within a one-half mile radius of the proposed injection well and overlying the proposed injection zone, it is very doubtful that it occurs in useable quantities (flow rates greater than 1 gallon per minute). No useable fresh water is identified within one-half mile of the proposed injection well until the upper sandstone bed of the Santa Rosa Formation is encountered at approximately 1,065 feet. The Santa Rosa Formation is the deepest fresh water-bearing formation overlying the proposed injection zone. The Santa Rosa Formation consists of an upper sandstone member, middle shale member, and lower sandstone member. The upper sandstone is brown to gray to white, fine-grained, and locally calcareous. The shale member is red to gray. The lower sandstone is brown to gray to white, fine to med-grained and locally calcareous. Thicknesses of these members are variable, but the Formation as a whole may be up to 355 feet thick in eastern New Mexico. The depth to the bottom of the Santa Rosa Formation is estimated to be approximately 1,260 feet within one-half mile of the proposed injection well; therefore, the Santa Rosa Formation in this location is approximately 195 feet thick. Freshwater bearing formations have not been identified below the Santa Rosa Formation in the general area. It is assumed that all formations encountered below the Santa Rosa Formation contain water with TDS concentrations above 10,000 mg/l.

IX. Describe the proposed stimulation program, if any.

No stimulation program is proposed.

*X. Attach appropriate logging and test data on the well.

Please refer to OCD Online for logging and test data for Latigo Ranch 3-5 well (API No. 30-019-20137).

*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

No chemical analysis exists for the Latigo Ranch 3-5 or the Latigo Ranch 3-3 water supply wells located approximately 600 feet and 8,448 feet southeast of the proposed injection well, respectively. The Webb CD-1 water supply well (CR 04512) is located approximately 4 miles northeast of the Latigo Ranch 3-5 gas well and approximately 1,300 feet northwest of the Webb CD-1 gas well shown on Figure 1.

The Webb CD-1 water supply well is completed in the Santa Rosa Formation, as are the Latigo Ranch 3-5 and Latigo Ranch 3-3 water supply wells; therefore, the water chemistry should be very similar. Laboratory analytical results for the Webb CD-1water well, sampled on April 10, 2006, are included in Appendix D. The Webb CD-1 water supply well is the deepest fresh water well in the general area of the proposed injection well for which there exists laboratory analytical results. The construction details of each of these wells are presented in Appendix E, Table 1.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

Shell Exploration & Production Company (Shell), as service provider to SWEPI LP, has examined the available geologic and geophysical logs, and available engineering data and find no evidence of open faults or any other hydrogeologic connection between the proposed disposal zones and any underground sources of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: **Michael L. Bergstrom** TITLE: **Senior Regulatory Advisor**

SIGNATURE: _____ DATE: **December 7, 2010**

E-MAIL ADDRESS: Michael.Bergstrom@shell.com

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) The lease name is Singleton Properties, LLC. The well is located in Section 5, Twp. 10N, Rng. 23E, 1831 feet from the south line and 1768 feet from the west line of Section 5.
(2) See Injection Well Data Sheets on pages 6 and 7 of this application.
(3) The tubing to be used will be 2 3/8" diameter coiled tubing with no lining material and a max. setting depth of 13,835 feet (above the upper composite bridge plug [CBP]).
(4) Baker packer set at 12,693 feet, a solid CBP is set at 13,835 feet and another solid CBP capped with 10 feet of cement is set at 13,900 feet.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

(1) Injection formation or pool name is the Cuervo Hill Penn (pool code 97811) in the Latigo Ranch field.
(2) The injection intervals are perforated at 0.28" and 6 per foot in the interval.
(3) The original purpose of the well was for natural gas exploration/production.
(4) Depths of any the perforated intervals are presented below, and a well sketch is presented in Figure 2 (Appendix A).

Intervals	Size	Number
12,792'-12,910'	0.28"	6/foot
12,996'-13,200'	0.28"	6/foot
13,322'-13,416'	0.28"	6/foot
13,702'-13,810'	0.28"	6/foot
14,152'-14,217'	0.28"	6/foot
14,312'-14,410'	0.28"	6/foot

802 sx of cement used for 4 ½" production casing from 0-14,529'

(5) No other gas or oil-producing zones, either above or below the proposed injection zone, have been identified in the area of the proposed injection well.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include: The Public Notice will include the data below;

(1) The name, address, phone number, and contact party for the applicant is;

(2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;

(2) The formation name and depth with expected maximum injection rates and pressures; and,

(4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days. Looks like this is to be posted in the paper

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

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-108
Revised June 10, 2003

Side 1

INJECTION WELL DATA SHEET

OPERATOR: **SWEPI LP** LEASE NAME: **Singleton Properties, LLC**

WELL NAME & NUMBER: **Latigo Ranch 3-5, API No. 30-019-20137**

WELL LOCATION: 1831' from S. Line/1768' from W. Line (FOOTAGE LOCATION) | K (UNIT LETTER) | 5 (SECTION) | 10N (TOWNSHIP) | 23E (RANGE)

WELLBORE SCHEMATIC

See Figure 2 Appendix A

WELL CONSTRUCTION DATA

Hole Size: 14.75-inch

Casing Size: 10.75-inch

Cemented with: 660 sx. ***or*** _____ ft^3

Top of Cement: 4,714 feet msl Method Determined: _____

Intermediate Casing

Hole Size: 9.875-inch Casing Size: 7.625-inch

Cemented with: 1,172 sx. ***or*** _____ ft^3

Top of Cement: 3,409 feet msl Method Determined: _____

Production Casing

Hole Size: 6.5-inch Casing Size: 4.5-inch

Cemented with: 802 sx. ***or*** _____ ft^3

Top of Cement: 5,900 cbl Method Determined: _____

Total Depth: -1,541 feet msl

Injection Interval

12,792 feet To 14,410 feet (Perforated)

INJECTION WELL DATA SHEET

Tubing Size: 2.375-inch / 4.7 wt. Lining Material: L-80

Type of Packer: Baker, 1.930-inch bore

Packer Setting Depth: 12,693 feet

Other Type of Tubing/Casing Seal (if applicable): _____

Additional Data

1. Is this a new well drilled for injection? _____Yes ____X___No

   If no, for what purpose was the well originally drilled? Originally drilled as a wildcat well for natural gas exploration/production

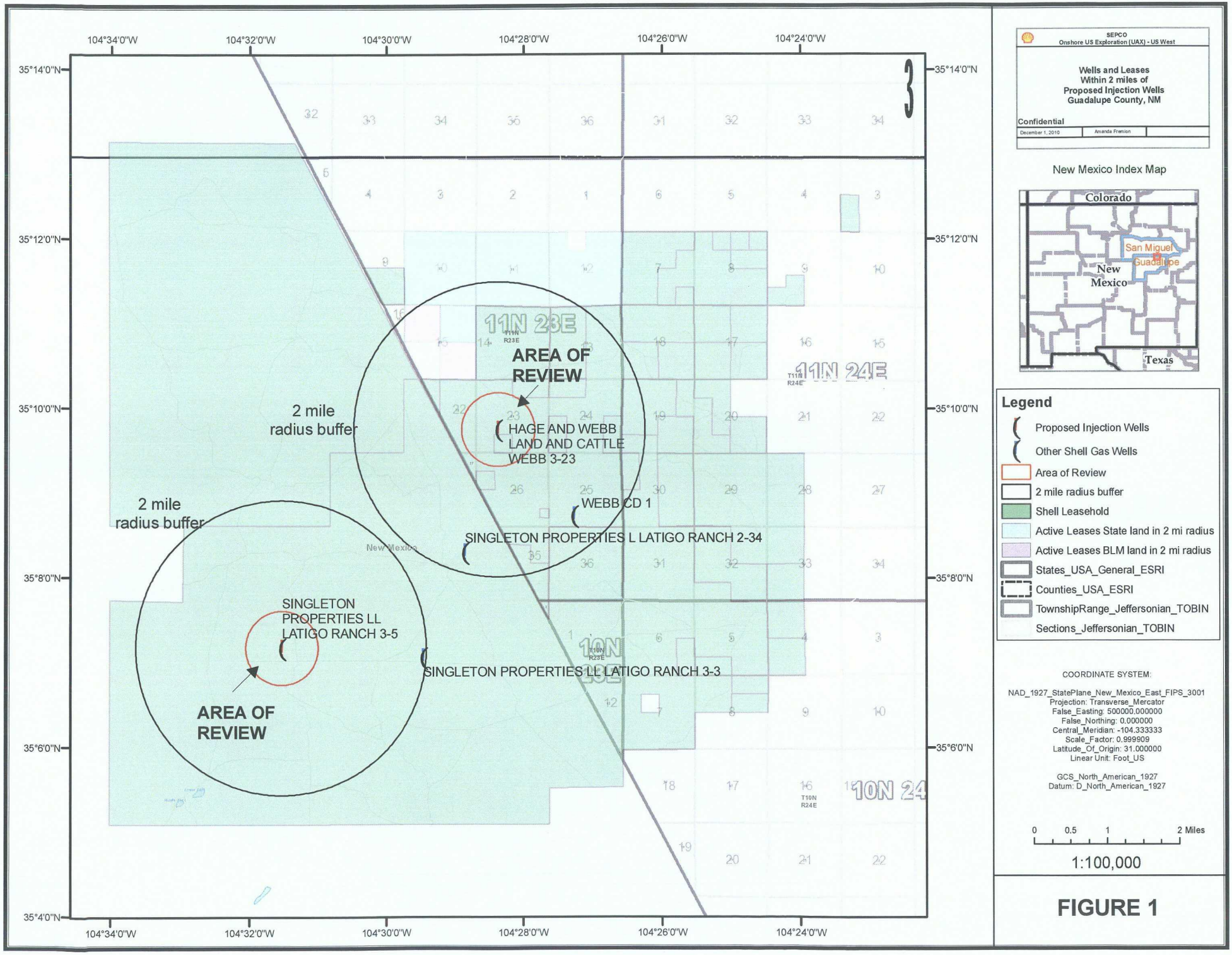
2. Name of the Injection Formation: Cuervo Hills Pennsylvanian

3. Name of Field or Pool (if applicable): Latigo Ranch Field, Tucumcari Basin pool code 97811

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. No, see item III B.4 above for the perforated intervals and details.

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: No oil or gas producing zones have been identified underlying or overlying the injection zone in this area.

APPENDIX A



SEPCO
Onshore US Exploration (UAX) - US West

Wells and Leases Within 2 miles of Proposed Injection Wells Guadalupe County, NM

Confidential

December 1, 2010	Amanda Fremion	

New Mexico Index Map

Legend

- Proposed Injection Wells
- Other Shell Gas Wells
- Area of Review
- 2 mile radius buffer
- Shell Leasehold
- Active Leases State land in 2 mi radius
- Active Leases BLM land in 2 mi radius
- States_USA_General_ESRI
- Counties_USA_ESRI
- TownshipRange_Jeffersonian_TOBIN
- Sections_Jeffersonian_TOBIN

COORDINATE SYSTEM:

NAD_1927_StatePlane_New_Mexico_East_FIPS_3001
Projection: Transverse_Mercator
False_Easting: 500000.000000
False_Northing: 0.000000
Central_Meridian: -104.333333
Scale_Factor: 0.999909
Latitude_Of_Origin: 31.000000
Linear Unit: Foot_US

GCS_North_American_1927
Datum: D_North_American_1927

0 0.5 1 2 Miles

1:100,000

FIGURE 1

11-Jan-10

FIGURE 2.

Latigo Ranch 3-5

Surface: 1810' FSL, 1801' FWL, Sec 5, T10N, R23E

Surface Elevation: 4684' KB: 22' to GL

API#: 30-019-20137

	Casing	Depth (From-To)		Size	Wt	Grade	Burst	Collapse	Collar	Drift	ID	bbl/ft	Hole	Mud	Cement	TOC	Comments
CSG. Info	Surf	0	1,308	10 3/4"	40.5#	K-55	3130	1580	STC R3	9.894	10.05	0.0981	14.75	8.9	660 sx	Surface	Bumped Plug, Floats Held, Full returns
	Prot	0	6,258	7 5/8"	29.7#	P-110	9470	5340	LTC	6.75	6.875	0.0459	9.875	9	1172 sx	6500'	Bumped Plug, Floats Held, Full returns
	Prod	0	14,529	4-1/2"	13.5#	P-110	12410	10670	DWC	3.795	3.92	0.0149	6	8.6	802 sx	5900' cbl	Bumped Plug, Floats Held, Full returns

NOTE: Per Casing Report: Flag Joints @ 9972, 12001, 12973 FC @ 14527' Per CBL: Flag Joints @ 12,984', 12,012', 9,985' FC @ 14,537'

TBG. Info.	Depth	Size	Wt.	Grade	Coupling	Drift	Burst	Collapse	ID	bbl/ft
	12,693	2 3/8"	4.7	L-80	EUE	1.901	11200	11780	1.995	0.00387
	12,701	2-3/8"	Wireline Re-Entry Guide						1.995"	

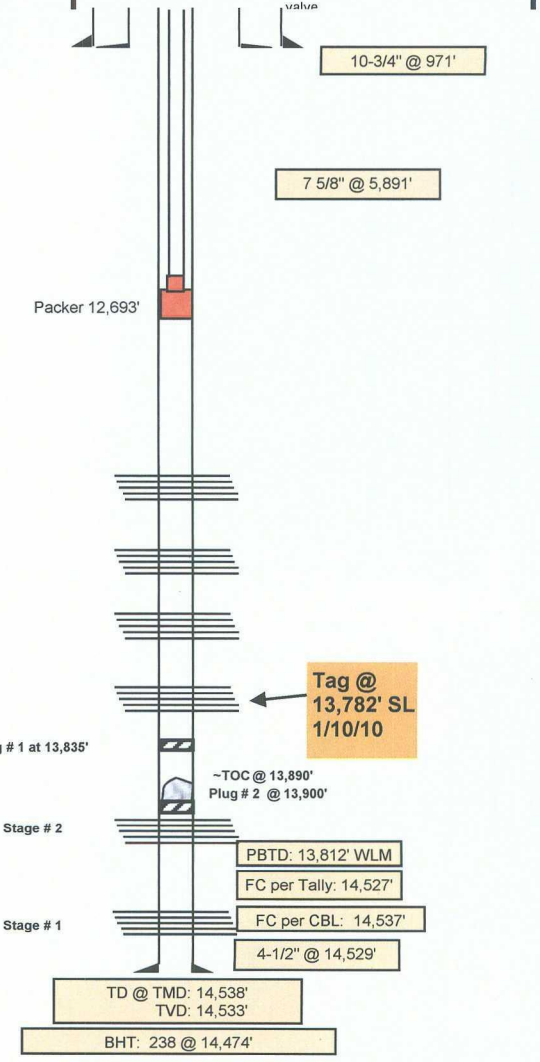
LNDG NIPPLE	Depth	Size	MFG	TYPE	Profile ID	NO GO ID
	12,657'	2-3/8"	Baker	BX	1.875"	N/A

PACKER DETAIL	Depth	Type	Bore
	12,693	Bkr	1.930"

	Upper Tree:	2-1/16", 5K
	Lower Tree:	2-1/16", 5K
	Tbg Spool:	5-1/8", 10k

Note: Casing hanger is prepared w/ threads for a 4" CIW backpressure valve

Stage	Perf Top	Perf Bot	Shots	Status	Rate (bbl/min)	Date Frac'ed	F.G.	Proppant Information size	Type	Lbs	mm/yy	BHP	BHT
	x	x											
	x	x											
6	12,792	12,794	12	Open	37	18-Nov-09	0.595	-	-	0	Sep-09	6,164	221
	12,810	12,812	12				by TVD	30/50	Bulk Sand 20/40	294000			
	12,824	12,826	12										
	12,848	12,850	12										
	12,872	12,874	12										
	12,908	12,910	12										
5	12,996	12,998	12	Open	33	15-Nov-09	0.584	-	-	0	Sep-09	6,333	223
	13,010	13,011	6				by TVD	30/50	Bulk Sand 20/40	194520			
	13,070	13,072	12										
	13,080	13,082	12										
	13,173	13,175	12										
	13,181	13,183	12										
	13,198	13,200	12										
4	13,322	13,323	6	Open	35	8-Nov-09	0.682	-	-	0	Sep-09	6,512	226
	13,339	13,341	12				by TVD	30/50	Bulk Sand 20/40	52500			
	13,366	13,368	12										
	13,382	13,384	12										
	13,394	13,395	6										
	13,414	13,416	12		Screened out with 23% placed								
3	13,702	13,704	12	Open	28	8-Nov-09	0.698	-	-	0	Sep-09	6,778	230
	13,734	13,736	12				by TVD	30/50	Bulk Sand 20/40	63500			
	13,760	13,762	12										
	13,788	13,790	12										
	13,808	13,810	12										
					Screened out with 23% placed								
2	14,152	14,154	12	Open	32	22-Sep-09	0.781	-	-	0	Sep-09	7,073	235
	14,170	14,172	12				by TVD	30/50	Econoprop	136,650			
	14,192	14,194	12										
	14,205	14,207	12										
	14,215	14,217	12	Screened out with 51% placed									
1	14,312	14,314	12	Open	30	22-Sep-09	0.708	-	-	0	Sep-09	7,195	237
	14,324	14,326	12				by TVD	30/50	Econoprop	215,758			
	14,360	14,362	12	Screened out with 67% placed									
	14,381	14,382	6										
	14,408	14,410	12										



APPENDIX B

Hall Environmental Analysis Laboratory, Inc.

Date: *19-Nov-10*

CLIENT:	AMEC	**Client Sample ID:**	LR234-11210-1
Lab Order:	1011172	**Collection Date:**	11/2/2010 4:55:00 PM
Project:	Shell-Cuervo	**Date Received:**	11/3/2010
Lab ID:	1011172-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JB**
Diesel Range Organics (DRO)	15	1.0		mg/L	1	11/5/2010 11:51:05 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/5/2010 11:51:05 AM
Surr: DNOP	115	86.9-151		%REC	1	11/5/2010 11:51:05 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.50		mg/L	10	11/4/2010 12:07:29 PM
Surr: BFB	98.5	84.5-118		%REC	10	11/4/2010 12:07:29 PM
EPA METHOD 300.0: ANIONS						Analyst: **SRM**
Fluoride	ND	10		mg/L	100	11/5/2010 4:20:53 AM
Chloride	130000	10000		mg/L	20000	11/8/2010 7:19:25 PM
Nitrogen, Nitrite (As N)	ND	2000		mg/L	20000	11/5/2010 2:47:45 PM
Bromide	160	10		mg/L	100	11/5/2010 4:20:53 AM
Nitrogen, Nitrate (As N)	ND	10		mg/L	100	11/5/2010 4:20:53 AM
Phosphorus, Orthophosphate (As P)	ND	50		mg/L	100	11/5/2010 4:20:53 AM
Sulfate	2100	50		mg/L	100	11/5/2010 4:20:53 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **RAGS**
Calcium	4800	100		mg/L	100	11/4/2010 6:37:24 PM
Magnesium	690	100		mg/L	100	11/4/2010 6:37:24 PM
Potassium	21000	500		mg/L	500	11/4/2010 7:11:45 PM
Sodium	47000	500		mg/L	500	11/4/2010 7:11:45 PM
EPA METHOD 200.7: METALS						Analyst: **RAGS**
Cadmium	ND	0.10		mg/L	50	11/5/2010 4:53:16 PM
Chromium	ND	0.30		mg/L	50	11/5/2010 4:53:16 PM
Copper	ND	0.30		mg/L	50	11/5/2010 4:53:16 PM
Lead	ND	0.25		mg/L	50	11/5/2010 4:53:16 PM
Manganese	7.7	0.10		mg/L	50	11/5/2010 4:53:16 PM
Silica	70	8.0		mg/L	50	11/5/2010 4:53:16 PM
Zinc	ND	0.50		mg/L	50	11/5/2010 4:53:16 PM
EPA 200.8: METALS						Analyst: **SNV**
Arsenic	ND	0.050		mg/L	50	11/11/2010 6:41:37 PM
SM 2320B: ALKALINITY						Analyst: **IC**
Alkalinity, Total (As CaCO3)	1300	40		mg/L CaCO3	2	11/5/2010 3:52:00 PM
Carbonate	ND	4.0		mg/L CaCO3	2	11/5/2010 3:52:00 PM
Bicarbonate	1300	40		mg/L CaCO3	2	11/5/2010 3:52:00 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- B Analyte detected in the associated Method Blank
- E Estimated value
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- MCL Maximum Contaminant Level
- NC Non-Chlorinated
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitation Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *19-Nov-10*

CLIENT:	AMEC	**Client Sample ID:**	LR234-11210-1
Lab Order:	1011172	**Collection Date:**	11/2/2010 4:55:00 PM
Project:	Shell-Cuervo	**Date Received:**	11/3/2010
Lab ID:	1011172-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **IC**
Specific Conductance	310000	0.50		µmhos/cm	50	11/5/2010 3:38:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	187000	2000		mg/L	1	11/5/2010 11:36:00 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *19-Nov-10*

CLIENT:	AMEC	**Client Sample ID:**	LR35-11210-1
Lab Order:	1011172	**Collection Date:**	11/2/2010 5:15:00 PM
Project:	Shell-Cuervo	**Date Received:**	11/3/2010
Lab ID:	1011172-04	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JB**
Diesel Range Organics (DRO)	6.6	1.0		mg/L	1	11/5/2010 12:24:58 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/5/2010 12:24:58 PM
Surr: DNOP	112	86.9-151		%REC	1	11/5/2010 12:24:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.50		mg/L	10	11/4/2010 12:38:40 PM
Surr: BFB	100	84.5-118		%REC	10	11/4/2010 12:38:40 PM
EPA METHOD 300.0: ANIONS						Analyst: **SRM**
Fluoride	ND	10		mg/L	100	11/5/2010 4:55:42 AM
Chloride	160000	10000		mg/L	20000	11/8/2010 8:29:05 PM
Nitrogen, Nitrite (As N)	ND	2000		mg/L	20000	11/5/2010 3:05:10 PM
Bromide	190	10		mg/L	100	11/5/2010 4:55:42 AM
Nitrogen, Nitrate (As N)	ND	10		mg/L	100	11/5/2010 4:55:42 AM
Phosphorus, Orthophosphate (As P)	ND	50		mg/L	100	11/5/2010 4:55:42 AM
Sulfate	2600	50		mg/L	100	11/5/2010 4:55:42 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **RAGS**
Calcium	7400	100		mg/L	100	11/4/2010 6:41:42 PM
Magnesium	830	100		mg/L	100	11/4/2010 6:41:42 PM
Potassium	8500	100		mg/L	100	11/4/2010 6:41:42 PM
Sodium	74000	1000		mg/L	1000	11/5/2010 3:30:08 PM
EPA METHOD 200.7: METALS						Analyst: **RAGS**
Cadmium	ND	0.10		mg/L	50	11/5/2010 4:57:46 PM
Chromium	ND	0.30		mg/L	50	11/5/2010 4:57:46 PM
Copper	ND	0.30		mg/L	50	11/5/2010 4:57:46 PM
Lead	ND	0.25		mg/L	50	11/5/2010 4:57:46 PM
Manganese	19	0.10		mg/L	50	11/5/2010 4:57:46 PM
Silica	16	8.0		mg/L	50	11/5/2010 4:57:46 PM
Zinc	0.74	0.50		mg/L	50	11/5/2010 4:57:46 PM
EPA 200.8: METALS						Analyst: **SNV**
Arsenic	ND	0.050		mg/L	50	11/11/2010 6:47:18 PM
SM 2320B: ALKALINITY						Analyst: **IC**
Alkalinity, Total (As CaCO3)	250	20		mg/L CaCO3	1	11/4/2010 6:10:00 PM
Carbonate	ND	2.0		mg/L CaCO3	1	11/4/2010 6:10:00 PM
Bicarbonate	250	20		mg/L CaCO3	1	11/4/2010 6:10:00 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- B Analyte detected in the associated Method Blank
- E Estimated value
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- MCL Maximum Contaminant Level
- NC Non-Chlorinated
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitation Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *19-Nov-10*

CLIENT:	AMEC	**Client Sample ID:**	LR35-11210-1
Lab Order:	1011172	**Collection Date:**	11/2/2010 5:15:00 PM
Project:	Shell-Cuervo	**Date Received:**	11/3/2010
Lab ID:	1011172-04	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **IC**
Specific Conductance	350000	0.50		µmhos/cm	50	11/5/2010 3:40:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	231000	2000		mg/L	1	11/5/2010 11:36:00 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *19-Nov-10*

CLIENT:	AMEC	**Client Sample ID:**	LR33-11210-1
Lab Order:	1011172	**Collection Date:**	11/2/2010 6:15:00 PM
Project:	Shell-Cuervo	**Date Received:**	11/3/2010
Lab ID:	1011172-05	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JB**
Diesel Range Organics (DRO)	9.3	1.0		mg/L	1	11/5/2010 12:58:50 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/5/2010 12:58:50 PM
Surr: DNOP	113	86.9-151		%REC	1	11/5/2010 12:58:50 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.50		mg/L	10	11/4/2010 1:07:36 PM
Surr: BFB	99.9	84.5-118		%REC	10	11/4/2010 1:07:36 PM
EPA METHOD 300.0: ANIONS						Analyst: **SRM**
Fluoride	ND	10		mg/L	100	11/5/2010 5:30:31 AM
Chloride	130000	10000		mg/L	20000	11/8/2010 9:03:55 PM
Nitrogen, Nitrite (As N)	ND	2000		mg/L	20000	11/5/2010 3:22:35 PM
Bromide	250	10		mg/L	100	11/5/2010 5:30:31 AM
Nitrogen, Nitrate (As N)	ND	10		mg/L	100	11/5/2010 5:30:31 AM
Phosphorus, Orthophosphate (As P)	ND	50		mg/L	100	11/5/2010 5:30:31 AM
Sulfate	570	50		mg/L	100	11/5/2010 5:30:31 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **RAGS**
Calcium	7300	100		mg/L	100	11/4/2010 6:46:07 PM
Magnesium	1200	100		mg/L	100	11/4/2010 6:46:07 PM
Potassium	6200	100		mg/L	100	11/4/2010 6:46:07 PM
Sodium	46000	500		mg/L	500	11/4/2010 7:21:28 PM
EPA METHOD 200.7: METALS						Analyst: **RAGS**
Cadmium	ND	0.10		mg/L	50	11/5/2010 5:00:40 PM
Chromium	ND	0.30		mg/L	50	11/5/2010 5:00:40 PM
Copper	ND	0.30		mg/L	50	11/5/2010 5:00:40 PM
Lead	ND	0.25		mg/L	50	11/5/2010 5:00:40 PM
Manganese	15	0.10		mg/L	50	11/5/2010 5:00:40 PM
Silica	80	8.0		mg/L	50	11/5/2010 5:00:40 PM
Zinc	ND	0.50		mg/L	50	11/5/2010 5:00:40 PM
EPA 200.8: METALS						Analyst: **SNV**
Arsenic	ND	0.050		mg/L	50	11/11/2010 6:52:59 PM
SM 2320B: ALKALINITY						Analyst: **IC**
Alkalinity, Total (As CaCO3)	500	20		mg/L CaCO3	1	11/4/2010 6:32:00 PM
Carbonate	ND	2.0		mg/L CaCO3	1	11/4/2010 6:32:00 PM
Bicarbonate	500	20		mg/L CaCO3	1	11/4/2010 6:32:00 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- B Analyte detected in the associated Method Blank
- E Estimated value
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- MCL Maximum Contaminant Level
- NC Non-Chlorinated
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitation Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *19-Nov-10*

CLIENT:	AMEC	**Client Sample ID:**	LR33-11210-1
Lab Order:	1011172	**Collection Date:**	11/2/2010 6:15:00 PM
Project:	Shell-Cuervo	**Date Received:**	11/3/2010
Lab ID:	1011172-05	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **IC**
Specific Conductance	300000	0.50		µmhos/cm	50	11/5/2010 3:42:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	188000	2000		mg/L	1	11/5/2010 11:36:00 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

Chain-of-Custody Record

Client: AMEC

Mailing Address: 8519 Jefferson NE
Albuquerque, NM 87113

Phone #: 505.821.1801

email or Fax#: david.janney@amec.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☒ EDD (Type) EXCel

Turn-Around Time:
☐ Standard ☒ Rush 48hr

Project Name: Shell-Cuervo

Project #: HOU10160210-Phase 04

Project Manager: David Janney

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 4.4°

HEAL No. 101172

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
11-2-10	1345	W	CO1-11210-4	40ml-V-G-4	HCl	-1
"	1425	"	W323-11210-1	40ml-V-G-4	HCl	-2
"	1655	"	LQ234-11210-1	40ml-V-G-4	HCl	-3
"	1715	"	LR35-11210-1	40ml-V-G-4	HCl	-4
"	1815	"	LQ33-11210-1	40ml-V-G-4	HCl	-5
			Trip Blank			-6
			AT 11/3/10			

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Cation/anion balance	TDS	Total/Diss. As, Ca, Cu, Pb, Zn, Cr, Mn, Si	Air Bubbles (Y or N)
		X									X	X	X	
		X									X	X	X	
		X									X	X	X	
		X									X	X	X	
		X									X	X	X	
		X												

Remarks: Need results before COB 11/5/10

Date	Time	Relinquished by:	Received by:	Date	Time
11/3/10	1358	David Janney		11/03/10	1358
Date:	Time:	Relinquished by:	Received by:	Date	Time

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

CASE 14766: **Application of Shell Exploration & Production Co. for approval of a salt water disposal well, Guadalupe County, New Mexico.** Applicant seeks approval to utilize its Latigo Ranch 3-5 Well (API No. 30-019-20137) located 1831feet from the South line and 1768 feet from the West line (Unit K) of Section 5, Township 10 North, Range 23 East, NMPM, to inject up to 8,640 barrels of water per day, at a maximum pressure of 8,900 psi, into the into the Cuervo Hills Pennsylvanian formation, Webb Ranch Pool, in the perforated interval from 12,792 feet to 14,410 feet. This well is located approximately 6 miles northwest of Cuervo, New Mexico and eight miles west of County Road CR1 (Mesa Del Gato Road).

NOTIFICATION LIST

APPLICATION OF SHELL EXPLORATION & PRODUCTION, CO. FOR SALT WATER DISPOSAL GUADALUPE COUNTY, NEW MEXICO

Latigo Ranch 3-5 Well
(API No. 30-019-20137)
Section 5, Township 10 North, Range 23 East

SURFACE OWNERSHIP:

Alex Carone
Singleton Properties, LLC
1194 Lazy Bar Road
Santa Rosa, New Mexico 88435