-	2.4
• .	***
Low	3160-3
LOH	2100-2
(Sente	ember 2001)

FORM APPROVED
OMB No. 1004-0136
Expires January 31, 200

Form 3160-3 (September 2001)				FORM APPF OMB No. 10 Expires Januar	04-0136
UNITED STATES)	5. Lease Serial No.	, - 1, - 0 - 1
DEP ARTMENT OF THE IN BUREAU OF LAND MANAC	NMNM-113429				
	6. If Indian, Allottee or	Tribe Name			
APPLICATION FOR PERMIT TO DE	ALL OR REEN	NTER		Federal	
la. Type of Work: 🛛 DRILL 🔲 REENTEI	₹			7. If Unit or CA Agreeme	ent, Name and No.
			ļ	Federal 21-6-28 8. Lease Name and Well 1	Vo.
1b. Type of Well: Oil Well Gas Well Other	⊠ Single	Zone Multip	ole Zone	-3 3 EWD	¥33
2. Name of Operator				9. API Well N9/2	21054
SG Interests I, I ID	101 Pt N 6	, , ,		00-090	0100
3a. Address	3b. Phone No. (inc	•		10. Field and Pool, or Exp	loratory
P.O. Box 2677 Durango, CO 81302	(970) 259-				
4. Location of Well (Report location clearly and in accordance with any	State requirements.	*)		11. Sec., T., R., M., or Bl	c. and Survey or Area
At surface 660' FSL & 660' FWL			ì		
At proposed prod. zone			-	Section 28, 21N, 6	W
14. Distance in miles and direction from nearest town or post office*				12. County or Parish	13. State
approximately 18.6 miles southwest of Counselor Trading F	ost, New Mexico			Sandoval	NM
15. Distance from proposed*	16. No. of Acres	in lease	17. Spacing	Unit dedicated to this well	
location to nearest property or lease line, ft.			İ	RCVD	OCT 2'07
(Also to nearest drig. unit line, if any) 660'	1,161.35				ONC DIE
18. Distance from proposed location* to nearest well, drilling, completed.	19. Proposed De	pth	20. BLM/B	IA Bond No. on file	The Acres Tarks
applied for, on this lease, ft.	0.000			D	IST. 3
See attached map 21. Elevations (Show whether DF, KDB, RT, GL, etc.)	6,600'	e date work will s		003277 23. Estimated duration	
6,862 GR	1	s permitted	uu t	1 month	
0,002 010	24. Attachm			1 monar	
The following, completed in accordance with the requirements of Onshor			ached to this	CPP ATTA	N
The following, completed in accordance with the requirements of Olishor				APP VIIV	CHED FOR
1. Well plat certified by a registered surveyor.	4.	. Bond to cover th	e operations	oonditions.	in bond and later
2. A Drilling Plan.	6	Item 20 above). Operator certification			
 A Surface Use Plan (if the location is on National Forest System SUPO shall be filed with the appropriate Forest Service Office). 	Lanus, uic	•		rmation and/or plans as m	ay be required by the
Sol o shan be fred with the appropriate rolest service office).		authorized office	r.	·	
25. Signature	Name (Prin	ited/Typed)		Da	te
Ald I k down	Willi	am Schwab III		8	130107
Title					
Agent for SG Interests LTD					
Approved by (Signature)	Name (Prin	nted/Typed)		Da	te 9/27/C
Title)	Office			i	11-11-
AFU	7				
Application approval does not warrant or certify that the applicant holds	legal or equitable tit	tle to those rights in	the subject l	ease which would entitle the	e applicant to conduct
operations thereon.					
Conditions of approval, if any, are attached.					
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it States any false, fictitious or fraudulent statements or representations as to			d willfully to	make to any department or	agency of the United
*(Instructions on reverse)	any maner within	ns jurisdiction.			
(xiisii uciioiis oli reveise)					
SG Interests I, LTD. proposes to drill a salt water disposal (SWD)	well to dispose of	of Basin Fruitland	coalbed me	ethane produced water in	to the Entrada, Bluff,

Morrison, and Dekota formations at the above described location in accordance with the attached drilling and surface use plans. 100

The surface is under jurisdiction of the Bureau of Land Management, Farmington Field Office.

This location has been archaeologically surveyed by Aztec Archaeological Consultants. Copies of their report have been submitted directly to the BLM. 1 isposing to water inthis well

DRILLING OPERATIONS AUTHORIZED: ARE SUBJECT TO COMPLIANCE WITH ATTACHED

"GENERAL REQUIREMENTS".

This action is subject to technical and procedural review pursuant to 43 CFR 3165 3 and appeal pursuant to 43 CFR 3165.4

NOTIFY AZTEC OCD 24 HRS.

PRIOR TOMOGONG & CEMENT

OCT 1 8 2007 - CW

Ž = District I

1625 N. French Dr., Hobbs, NM 88240

1301 W. Grand Avenue, Artesic, NM 68210

District III

1000 Rio Brazos Rd., Aztec, NW 87410

State of New Mexico

Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.

Form C-102 Revised October 12, 2005

Submit to Appropriate District Office

State Lease - 4 Copies Fee Lease - 3 Copies

District IV					Santa Fe, N	M 87505				PM :
1220 S. St. Francis	Dr., Santa F	e, NM 875	15		ŕ			_ [] ÂME	NDED RÉPORT
			WELL LO	CATIO	N AND ACR	EAGE DEDIC	ATION PLA	T 210	01-00	EVED
30 043	PI Number	054	9	Pool Code	2 SW1	si Mourisou	Blugg E	trade	**************************************	Brown
*Property (Property Name FEDERAL 21-6-28 SW &						**	Well Number / 9	
	OGRED No. Operator Name OS72 SG INTERESTS I, LTD.						Elevation 862			
					¹⁰ Surface	Location				
UL or lot no.	Section	Township	Range	Lot Idn		North/South line	Feet from the	Cast	West line	County
М	28	21N	6W		660	South	660	Wes	st	Sandoval
			¹¹ Bo	ottom Ho	le Location I	f Different Fron	n Surface			
UL or lot no.	Section	Township				North/South line	Feet from the	East	West line	County
¹² Dedicated Acres	" Joint or	Infil)	Consolidation (Code ²⁵ Or	der No.					

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the

80/20 Ch. 91	89°14' W Sec.	80.0	9 Ch.	17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working tracest or unleased mineral interest in the land trubuling the proposed bottom hole location or has a right to drill this well at this location partiant to a contract with an owner of such a mineral ar working interest, or to a voluntary pooling agreement or a compulsory pooling order histologies engoed by the difficion. Signature Date Printed Name
89 N 0°12′E 660′	Lat.36.01614° N Long.107.48189° W 89°17' W	79.9	∃,91.0N	18 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 relief One of Survey Signature and Seal of Professional Surveyor William Emmahrike II Certificato Number 8466

Submit 3 Copies To Appropriate District	State of New Me	exico		Form C-103
Office District I	Energy, Minerals and Natu	ral Resources	MENT ADINO	May 27, 2004
1625 N. French Dr , Hobbs, NM 88240 District II			WELL API NO. 30.43	-21054
1301 W. Grand Ave., Artesia, NM 88210	OIL CONSERVATION	ſ	5. Indicate Type of	
<u>District III</u> 1000 Rio Brazos Rd., Aztec, NM 87410	1220 South St. Fran	1	STATE 🗌	FEE FED X
<u>District IV</u> 1220 S. St. Francis Dr., Santa Fe, NM	Santa Fe, NM 87	/505	6. State Oil & Ga	
87505			Federal NMNM-1	g verified with NMSO
SUNDRY NOTI	CES AND REPORTS ON WELLS			Unit Agreement Name
(DO NOT USE THIS FORM FOR PROPOS				Ū
DIFFERENT RESERVOIR. USE "APPLIC PROPOSALS.)	ATION FOR PERMIT (FORM C-101) FC	JK SUCH	Federal 21-6-28	UO O CITED
	Gas Well 🛛 Other		8. Well Number	
2. Name of Operator SG Inter	ests I, Ltd		9. OGRID Numb	er
3. Address of Operator			10. Pool name or	Wildcat
C/O Nika Energy Operating,	PO Box 2677, Durango, CO,	81303		
4. Well Location				······································
Unit Letter: M660	feet from thesouth_ line and6	660 feet from the	west_line	
	ship 21N Range 6W	NMPM	County S	andoval
	11. Elevation (Show whether DR,	RKB, RT, GR, etc.)		
Pit or Below-grade Tank Application ⊠ o	6, 862 ft		M. San	
	ndwater_>1,00(Distance from nearest t	front water wall >1 000?	Distance from nearest	curfo as motor, approx 500?
Pit Liner Thickness: 12 mil			nstruction Material	
<u> </u>				
12. Check A	Appropriate Box to Indicate N	ature of Notice, I	Report or Otner	Data
NOTICE OF IN	TENTION TO:	SUBS	SEQUENT REI	PORT OF:
PERFORM REMEDIAL WORK	PLUG AND ABANDON 🔲	REMEDIAL WORK		ALTERING CASING 🔲
TEMPORARILY ABANDON	CHANGE PLANS	COMMENCE DRIL	<u> </u>	P AND A
PULL OR ALTER CASING	MULTIPLE COMPL	CASING/CEMENT	JOB 📙	
OTHER: Pit Application	\boxtimes	OTHER:		
	leted operations. (Clearly state all I			
- • • • •	rk). SEE RULE 1103. For Multip	le Completions: Att	ach wellbore diagra	m of proposed completion
or recompletion.				
See attached Drilling Program and Be	OP			"
Drilling/Completion pit to be located	(approximately 25 feet from wellh	and Dit multi use de	illing and completi	on to avoid additional site
disturbance and pit will be considere				
to be constructed, operated and close				
,				
				4.
				•
				ì
			/	
I hereby certify that the information				
grade tank has been/will be constructed or	closed according to NMOCD guidelines [×, a general permit □ 0	or an (attached) aitern:	ative OCD-approved plan
SIGNATURE TO WAS	TITLE A	Agent for SG Inte	erests I, Ltd.	DATE \$ 30 07
Type or print name William Schwa	ıb III E-mail address: trip	pp@nikaenergy.com	Telepho	one No. 970-259-2701
For State Use Only		Deputy Oil & G	as Inspector.	∩ CT 1 0 2007€
APPROVED BY:	TITLE	Distric		OCT 1 8 2007
Conditions of Approval (if any):	7. //			

SG Interests I, Ltd.
(Agent: Nika Energy Operating, LLC)
PO Box 2677
Durango, CO 81302
(970) 259-2701

Federal 21-6-28 #3-3 SWD SW Sec 28-21N-R6W 660' FSL & 660' FWL Sandoval County, New Mexico

EIGHT POINT DRILLING PROGRAM

1.	Estimated Formation Tops:	<u>Depth</u>
	Ojo Alamo	285'
	Pictured Cliffs	800'
	Bentonite	1000'
	LaVentana	1500'
	Cliff House	1900'
	Point Lookout	3100'
	Mancos	3200'
	['] Gallup	4200'
	Dakota	5150'
	Morrison	5350'
	Entrada	6250'

2. Estimated Depth of Anticipated Minerals:

Gas	Fruitland	775'
Oil	Menefee	2200'
Oil	Entrada	6250'

Eight Point Drilling Program – Federal 21-6-28 #3-3 SWD Page 2

J 😘.

3. Minimum Specifications for Pressure Control Equipment:

BOP equipment and accessories will meet or exceed BLM requirements outlined in 43 CFR Part 3160.

A 2000 psig double ram hydraulic BOP will be used (see attached diagram). Accessories to the BOP will meet BLM requirements for a 2000 psig system. The accumulator system capacity will be sufficient to close all BOPE with a 50% safety factor. Fill line, kill line and line to choke manifold will be 2". BOP's will be function tested every 24 hours and will be recorded on IADC log.

Surface casing will be tested to 1500 psig for 30 minutes. Accessories to BOPE will include upper and lower Kelly cocks with handles, stabbing valve to fit drill pipe on floor at all times, string float at bit, 2000 psig choke manifold with 2" adjustable, 2" positive chokes, and pressure gauge.

4. Casing and Cementing Program:

<u>Hole Size</u>	<u>Interval</u>	<u>Csg Size</u>	<u>Wt, Grd, Jt</u>
12-1/4"	0-1100'	9-5/8"	36#, J-55, STC
8-3/4"	0-6600'	7"	26#, N-80, LTC

Surface Casing will be cemented with 584 sx (689 cu ft) Type 5 w/2% CaCl and 1/4#/sx of superflake (Yield = 1.18 cuft/sx, Weight = 15.6 #/gal). Cement volumes include 100% excess to circulate cement to surface. A guide shoe, float collar and 12 centralizers will be used. WOC time is 8 hours. The casing will be pressure tested to 1000 psig.

Production Casing will be cemented in two (2) stages. Stage tool will be placed at 4000'. First stage will be cemented with 500 sx (590 cu ft) Type 5 with 1/4#/sx superflake (Yield = 1.18 cu ft/sx, Weight = 15.6 #/gal). Cement volume includes excess to circulate cement past stage tool. After the stage tool has been opened circulation will be established and continue for 4 hours. The Second stage will be cemented with 265 sx (567cu ft) 65/35 STD/POZ with 8% Bentonite, 10% Gypsum-60, 5# Gilsonite and ½#/sx Superflake (Yield = 2.14 cu ft/sx, Weight = 12.5 #/gal). The second stage will be tailed in with 100 sx Type 5 with ½# Superflake and 3# Gilsonite to cover the stage tool. In the event cement is not circulated a temperature survey will be run to determine the actual cement top. Cementing equipment will include a guide shoe, differential float collar, stage tool, and 22 centralizers. Class B cement in lieu of Type 5 will be used in the event it is available.

5. Mud Program:

A native water based mud system (FW) will be used initially followed by a low-solids, non-dispersed gel system (LSND) as needed to condition the hole for logs. Adequate amounts of lost circulation and weighting material will be on location if needed as well as sorbitive agents to handle potential spills of fuel or lubricants.

<u>Depth</u>	<u>Type</u>	Wt (ppg)	Vis (sec)	Wtr loss
0-1100'	FW & LSND	± 8.5	30-33	NC
1100'-TD	FW & LSND	± 8.7-9.1	30-50	8-10 cc

6. Testing, Coring and Logging Program:

No DST's or cores are planned. Openhole logs will include GR, Induction, Density and Caliper Logs. The GR-Density logs and GR-Induction-Caliper logs will be run from TD to the bottom of the surface casing.

7. Anticipated Abnormal Pressures and Temperatures:

No abnormal pressures or temperatures are expected in this well. Maximum anticipated Fruitland reservoir pressure is 300 psig with a normal temperature gradient. Maximum anticipated Menefee reservoir pressure is 1000# with a normal temperature gradient.

8. Operations:

Anticipated spud date is October 2007 or as soon as permits are received and work can be scheduled. Estimated drilling time is 20 days. The Dakota, Morrison, Bluff and Entrada will be completed as a cased hole completion, perforated and hydraulically fracture stimulated. Completion operations are expected to take 10 to 15 days and will commence as soon after completion of drilling operations and scheduling allow.

SG INTERESTS I, Ltd. c/o NIKA ENERGY OPERATING, LLC SALT WATER DISPOSAL for FRUITLAND COAL FIELD DRILLING PROCEDURE

WS

WELL NAME:

Federal 21-6-28 #3-3 SWD

FIELD NAME:

Salt Water Disposal Basin Fruitland Coal

LOCATION:

SWSW Section 28-T21N-R6W Sandoval County, New Mexico

PROPOSED TD:

6600'

DATE:

August 2007

NOTE: Review APD Stipulations before moving on location. Review regulatory notification requirements and notify accordingly. Comply with all safety and environmental requirements.

NOTIFY: BLM Field Office Manager (Inspection and Enforcement Section) 24 hours before SPUD, CEMENTING OR PLUGGING OPERATIONS at (505) 599-8907.

DIRECTIONS: From Counselor Trading Post on US Hwy 550, travel south on Hwy 550 +/-0.1 miles, turn right on dirt road with sign: "Star Lake Compressor-26 miles". This is the 0 miles point for this description. Follow dirt road:

AT: 4.3 miles - Turn left at "Ojo Encino School" sign,

- " 11.0 miles Transition to pavement with sign N 474.
- " 14.5 miles Turn right off pavement through cattle guard onto dirt road,
- " 17.8 miles Turn right off main road and follow existing North El Pintado Compressor sight access road to Compressor site,
- " 18.5 miles Travel NE through Compressor site to NE Corner of site,
- " 18.6 miles Location is NE <u>+</u> 70'.

BLOWOUT PREVENTION EQUIPMENT REQUIREMENTS:

<u>Description</u>	Rating
Double Ram Type Preventer	2000 psi
Rotating Head	2000 psi

BOPE testing will be done by a third party tester in accordance with Onshore Order No. 2. The test must be performed and recorded using a test pump, calibrated test gauges and properly calibrated strip or chart recorder. The test gauges and recorders must be of the proper range and resolution commensurate with the authorized test pressure. The test must be recorded in the driller's log and will include a low pressure test requirement of 250 psig held for 5 minutes and a high pressure test requirement of 1000 psi held for 10 minutes. Casing and manifold pressure tests must be held for 30 minutes with no more than 10 percent pressure drop during the test.

GEOLOGIC PROGNOSIS:

Formation Tops	<u>Depth</u>
Ojo Alamo	285'
Pictured Cliffs	800'
Bentonite	1000'
LaVentana	1500'
Cliff House	1900'
Point Lookout	3100'
Mancos	3200'
Gallup	4200'
Dakota	5150'
Morrison	5350'
Entrada	6250'
Total Depth	6600'

Note: TD will be 100' below the bottom of the Entrada. A mud logger will be on location from drilling of the surface shoe to TD to monitor drilling breaks and to insure that 100' of rathole is drilled.

MUD PROGRAM:

A fresh water native mud (using lime, benex & gel additions) will be used to drill the surface hole. The 8-3/4" hole should be drilled with native mud and a LSND mud as necessary for hole stability from the surface shoe to TD.

At the top of the Fruitland, and Mesa Verde formations mud weights should be sufficient to control pressures; viscosity should be in the 30 - 50 sec range with a water loss of 8 - 10 cc, as needed.

The Fruitland Coal and Mesa Verde are expected to be under-pressured to normal-pressured and may encounter lost circulation. LCM should be stored on location and used as needed in the event of lost circulation. Barite should also be on location in the event an over-pressured zone is encountered and a kick is taken.

CASING AND CEMENTING PROCEDURE:

Note: Notify BLM 24 hours prior to spud, testing of BOP's and cementing. 505-599-8907. Note the new (June 1, 2005) Federal (BLM) requirements for the testing and test recording of the Blow-out Preventer Equipment. A copy is attached to the approved APD. NMOCD needs to be notified 24 hrs in advance of cementing.

Surface Casing:

- 1. Drill to a minimum of 1130' to accommodate tallied 9-5/8" casing plus 3'. Casing tally to be taken on location.
- 2. Use a landing joint of 9-5/8" casing to set casing at ground level. Guide shoe on casing should be not more than 10 feet off bottom. Casing head flange to be set at ground level.
- 3. Roll casing off truck with thread protectors in place.
- 4. Visually inspect, rabbit, number, and tally casing on racks. Remove thread protectors and clean threads. Use quick release protectors while running casing. Do not move or roll casing without thread protectors in place.
- 5. Bakerlok 9-5/8" guide shoe to bottom of first joint of casing.
- 6. Bakerlok 9-5/8" differential float collar to top of first joint of casing. Bakerlok second joint of casing into top of float collar
- 7. Casing should be made up to proper torque using an API thread compound (9-5/8" J55 36# minimum torque is 2960 ft lbs and maximum torque is 4930 ft lbs).
- 8. Casing should be run no faster than 2 feet per second (20 seconds per 40 foot joint). At the first indication of mud loss, the running time should be doubled to 40 seconds per joint (1 foot per second).
- 9. Break circulation at 450 feet, and 880 feet and circulate each a minimum of 15 minutes. Make sure that the hole is not flowing. Adjust mud properties as necessary. Circulate the last joint of casing to TD. Kick pumps in slowly to minimize surge pressures.

Surface Casing cont.

- 10. Centralizers should be run on each of the first 10 joints, joint #12 and #14 (12 total). A stop-ring should be used to hold the first centralizer in place. Place the remaining centralizers on collars.
- 11. After casing is landed at TD, circulate hole until mud properties measured at the flowline are within the ranges given in the "Mud Program" of this drilling prognosis.
- 12. Rig up rotational cementing head and return lines. Chixson should be long enough to allow 25'-30' reciprocation.
- 13. Pump 10 barrels of fresh water. Pump 20 barrel chemical wash. Pump cement slurry. Wash lines.
- 14. Drop top plug and displace with water. Do <u>not</u> over-displace. Pipe should be rotated at 10-20 RPM or reciprocated at least 20 feet every two to three minutes throughout displacement.
- 15. Bump plug with 500 psi over final displacement pressure. Hold pressure for 5 minutes. If plug does not bump, hold initial shut down pressure on casing for 5 minutes. Then check to see that float is holding (flow back into cement pump tank).
- 16. Wait on cement a minimum of 8 hours or until surface samples are hard, whichever is longer **before** nippling up the BOP. The BLM requirement is a minimum of 250 psi @ 60degrees F compressive strength **before** BOP may be nippled up. Follow BOP test procedure outlined in the APD stipulations.

Production Casing:

- 1. Roll casing off truck with thread protectors in place.
- 2. Visually inspect, rabbit, number, and tally casing on racks. Remove thread protectors and clean threads. Use quick release protectors while running casing. Do not move or roll casing without thread protectors in place.
- 3. Change out pipe rams to accommodate 7" casing.
- 4. Bakerlok 7" differential float shoe to bottom of first joint of casing.
- 5. Bakerlok 7" differential float collar to top of first joint of casing. Bakerlok second joint of casing into top of float collar. Run "marker joint" 100' above Entrada as per mud log. Bakerlok above and below 2nd stage, "Cementing Stage Tool" located @ 4000'.
- 6. Casing should be made up to proper torque using an API thread compound (7" N80 26# minimum torque is 3890 ft lbs and maximum torque is 6490 ft lbs).
- 7. Casing should be run no faster than 2 feet per second (20 seconds per 40 foot joint). At the first indication of mud loss, the running time should be doubled to 40 seconds per joint (1 foot per second).
- 8. Break circulation at 1700 feet and 5000 feet and circulate a minimum of 15 minutes. Make sure that the hole is not flowing. Adjust mud properties as necessary. Circulate the last joint of casing to TD. Kick pumps in slowly to minimize surge pressures.
- 9. Centralizers should be run on each of the first 7 joints, every other joint for the next 30 joints, and every other joint from #86 to #118 (total 54 centralizers). A stop-ring should be used to hold the first centralizer in place. Place the remaining centralizers on collars.

Production Casing cont.

- 10. After casing is landed at TD, circulate hole until mud properties measured at the flowline are within the ranges given in the "Mud Program" of this drilling prognosis.
- 11. Rig up rotational cementing head and return lines. Chixson should be long enough to allow 25'-30' reciprocation.
 12. Pump 10 barrels of fresh water. Pump 20 barrel chemical wash. Pump 1st stage cement slurry.
- 13. Drop 1st plug and displace with water. Do not over-displace.
- 14. Bump plug with 500 psi over final displacement pressure. Hold pressure for 5 minutes. If plug does not bump, hold initial shut down pressure on casing for 5 minutes. Then check to see that float is holding (flow back into cement pump tank).
- 15. Drop trip bomb. When bomb is in the stage collar, bump bomb with 1000 psi until port holes are opened. Circulate minimum 4 hours with mud until 1st stage is set.
- 16. Pump 10 barrels of fresh water. Pump 20 barrel chemical wash. Pump 2nd stage cement slurry. Tail in with 100sx Type 5.
- 17. Drop closing plug and displace with water. Do <u>not</u> over displace.
- 18. Bump plug with 1000# over final displacement pressure to close stage collar. Hold pressure for 5 minutes. Then check to see if holes are closed (flow back into cement pump tank).
- 19. Set slips, nipple down BOP and cut off casing. Nipple up wellhead.

Cement Slurry Designs and Notes

Slurry C	Cement & Additives	Water <u>Requirements</u>	Weight	<u>Yield</u>
Surface	Type 5, 2% CaCl, w/ ¼# Superflake	5.2 gals/sk	15.6 ppg	1.18 cu ft/sk
Production				
1 st Stage	Type 5, 3# Gilsonite ½#/sx Superflake	5.2 gals/sk	15.6 ppg	1.18 cu.ft/sk
2 nd Stage	65/35 STD/POZ w/ 8% Bentonite, 10% Gypsum-60, 5# Gilsonite & ¼# Superflake	11.71 gals/sk	12.5# ppg	2.14 cu ft/sk
2 nd Stage tail	Type 5, 3# Gilsonite ½#/sx Superflake	5.2 gals/sk	15.6 ppg	1.18 cu.ft/sk

Cement Slurry Designs and Notes cont.

Figure slurry volume as follows:

Surface: Calculate slurry based on hole and casing size annular volumes plus 100%

excess.

Production: Calculate slurry using caliper volume + 30% excess cement. Volume shown in

this prognosis is based on hole and casing size annular volumes plus 30%

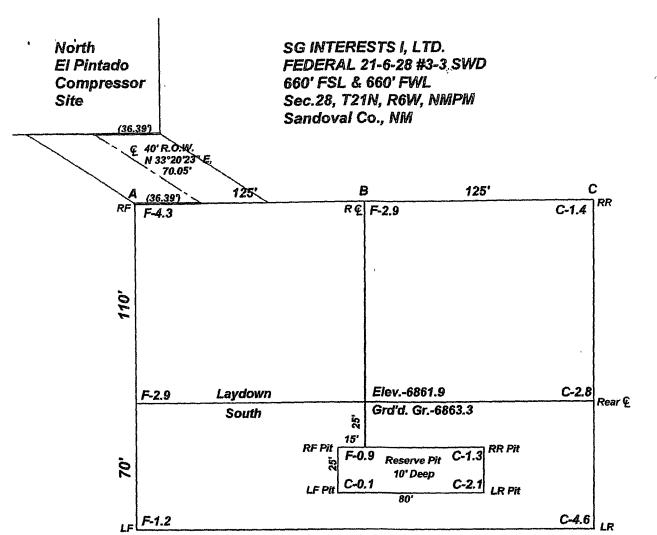
excess.

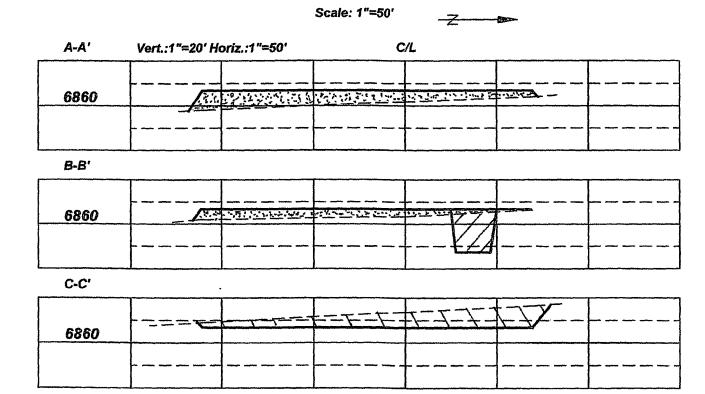
NOTES:

1. Pump rates should be a minimum of 4 BPM throughout displacement, **except** when displacing the 1st stage production string and the plug is moving thru the stage tool slow rate to 1BPM, then increase rate back to 4 BPM until plug is bumped.

Slurry weights should be measured using a mud balance at least every 10 minutes during mixing.

- 2. At least two samples of all three leads and one sample of the final tail should be caught and monitored at room temperature for thickening time.
- 3. Run Temperature Log if cement does not circulate.





B'