

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED

OMB No. 1004-0137

Expires March 31, 2007

5. Lease Designation and Serial No.  
NMNM-99740 (expiring 9/30/07)

6. If Indian, Allottee or Tribe Name

7. If Unit or CA: Agreement, Name and No

8. Lease Name and Well No.  
Synergy 22-7-31 # 144

9. API Well No.  
30-043-21053

10. Field and Pool, or Exploratory  
Basin Fruitland Coal

11. Sec., T., R., M., or Bk. and Survey or Area

P Sec 31, T-22-N, R-07-W

12. County or Parish, Sandoval 13. State New Mexico

17. Spacing Unit dedicated to this well  
320.00  
322.84 Acres - East Half

20. BLM/BIA Bond No. on file  
NM-2559  
RCVD SEP 10 '07

23. Estimated duration  
20 days  
DIST. 3

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

Size of Hole	Grade, Size of Casing	Weight per Foot	Setting Depth	Quantity of Cement
12-1/4"	8-5/8" K-55	24 #	120'	70 sxs, 99 ft3 - 100% Excess
7"	5-1/2" K-55	15.5#	950'	139 sxs, 194 ft3 - 100% OH Excess

LEASE EXPIRES 9/30/2007

SEE ATTACHED APD INFORMATION

Latitude: 36.09031 Deg N  
Longitude: 107.61151 Deg W

25. Signature *[Signature]* Name (Printed/Typed) Thomas E. Mullins Date 8-9-2007  
Title Engineering Manager

Approved by (Signature) *[Signature]* Name (Printed/Typed) Office FFO Date 9/7/07  
Title AFM

Application approval does not warrant or certify 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

1212, make it a crime for any person knowingly and willfully to make to any department or agency of the  
nts or representations as to any matter within its jurisdiction

Obtain a pit permit from NMOCD  
prior to constructing location

NOTIFY AZTEC OCD 24 HRS.  
PRIOR TO CASING & CEMENT

DRILLING OPERATIONS AUTHORIZED ARE  
SUBJECT TO COMPLIANCE WITH ATTACHED  
"GENERAL REQUIREMENTS".

DISTRICT I  
1625 N. French Dr., Hobbs, N.M. 88240

DISTRICT II  
811 South First, Artesia, N.M. 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, N.M. 87410

DISTRICT IV  
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals & Natural Resources Department

Form C-102  
Revised August 15, 2000

Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

OIL CONSERVATION DIVISION  
2040 South Pacheco  
Santa Fe, NM 87505

AMENDED REPORT  
210 F.A.C. SECTION NM

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30.043.21053	*Pool Code 71629	*Pool Name Basin FRUITLAND COAL
*Property Code 36728	*Property Name SYNERGY 22-7-31	*Well Number 144
*GRID No. 163458	*Operator Name SYNERGY OPERATING, L.L.C.	*Elevation 6660'

10 Surface Location

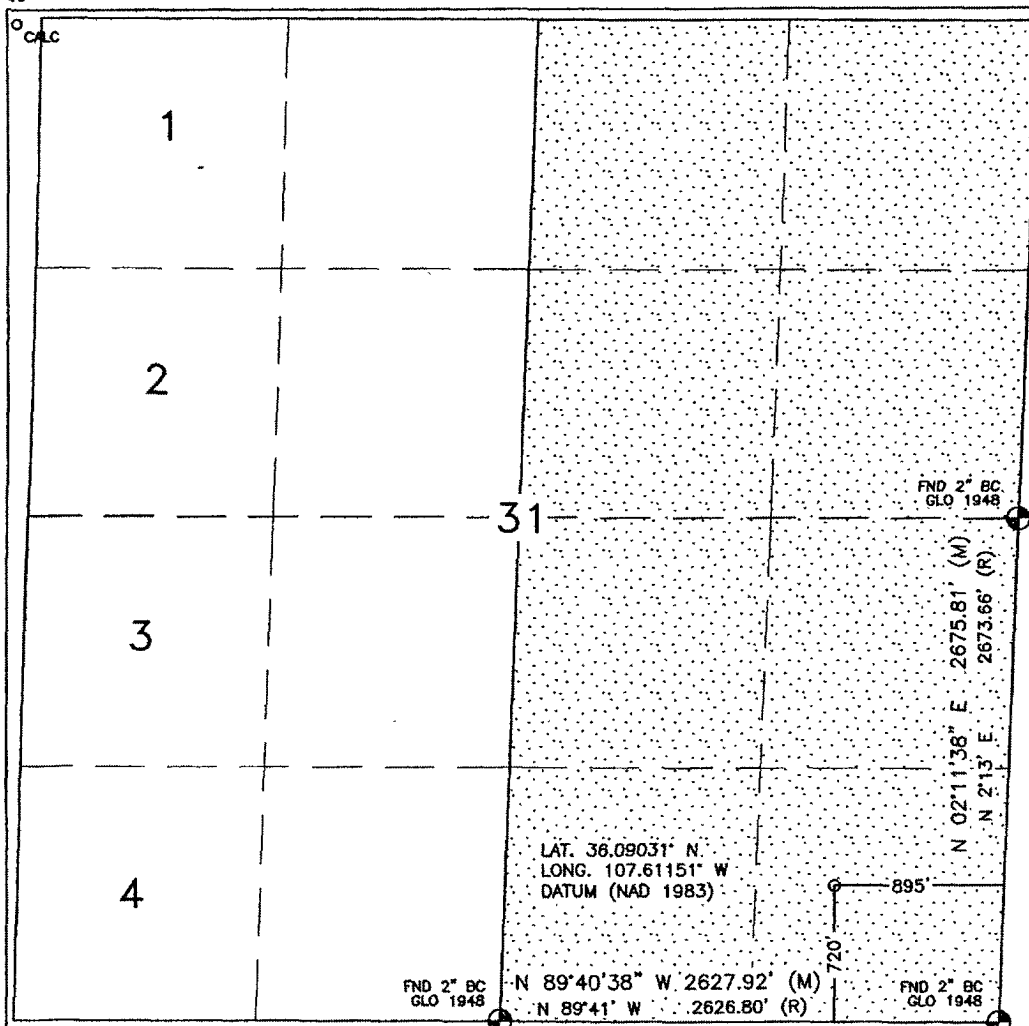
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	31	22N	7W		720'	SOUTH	895'	EAST	SANDOVAL

11 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
12 Dedicated Acres 320.00 322.81 Acres - (E/2)					13 Joint or Infill		14 Consolidation Code		15 Order 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 DIVISION

16



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief

Signature  
Thomas E. Mullers  
Printed Name  
ENGINEERING MANAGER  
Title  
9-1-06  
Date

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 belief.

JULY 27, 2006

Date of Survey

Signature and Seal of Professional Surveyor:

David R. Russell  
DAVID R. RUSSELL  
NEW MEXICO  
REGISTERED PROFESSIONAL LAND SURVEYOR  
10201  
Certificate Number

10201

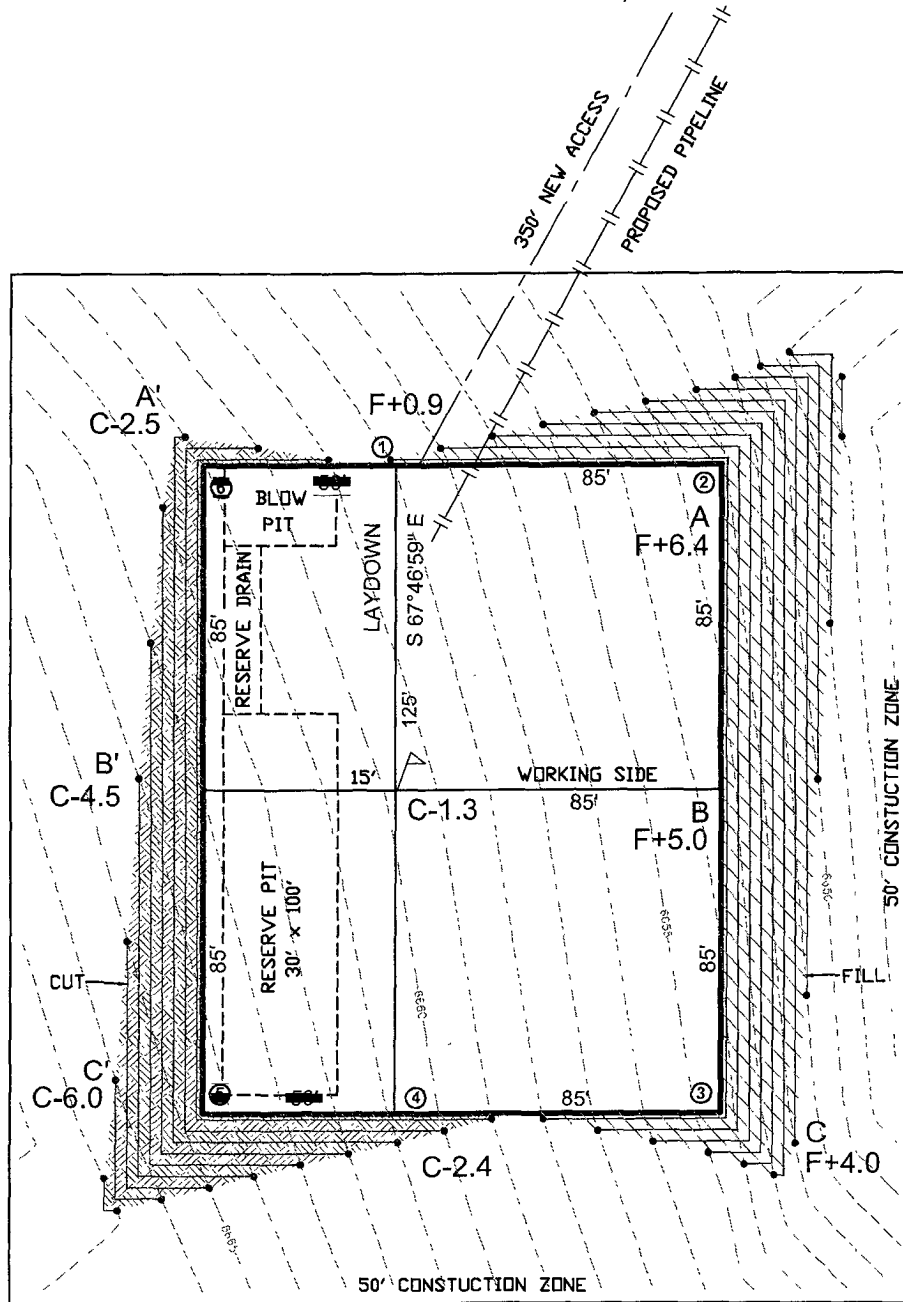
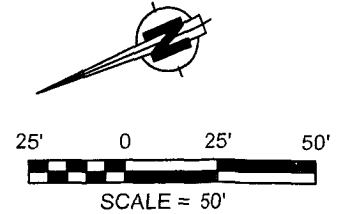
LATITUDE: 36.09031°N  
LONGITUDE: 107.61151°W  
DATUM: NAD 83

**SYNERGY OPERATING, L.L.C.**

SYNERGY 22-7-31 #144

720' FSL & 895' FEL

LOCATED IN THE SE/4 SE/4 OF  
SECTION 31, T22N, R7W, N.M.P.M.,  
SANDOVAL COUNTY, NEW MEXICO  
GROUND ELEVATION: 6660', NAVD 88  
FINISHED PAD ELEVATION: 6658.5', NAVD 88

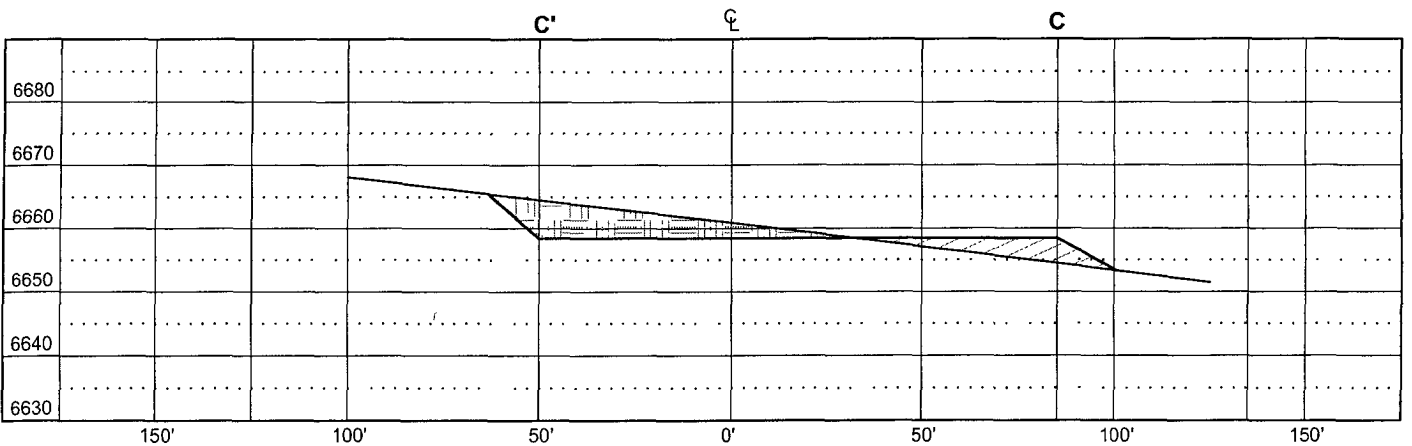
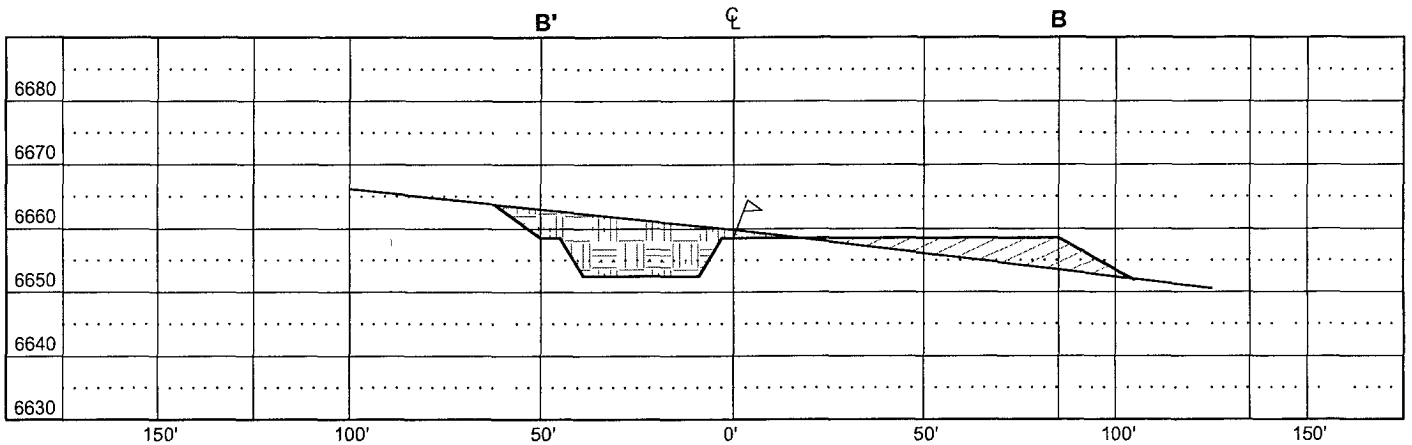
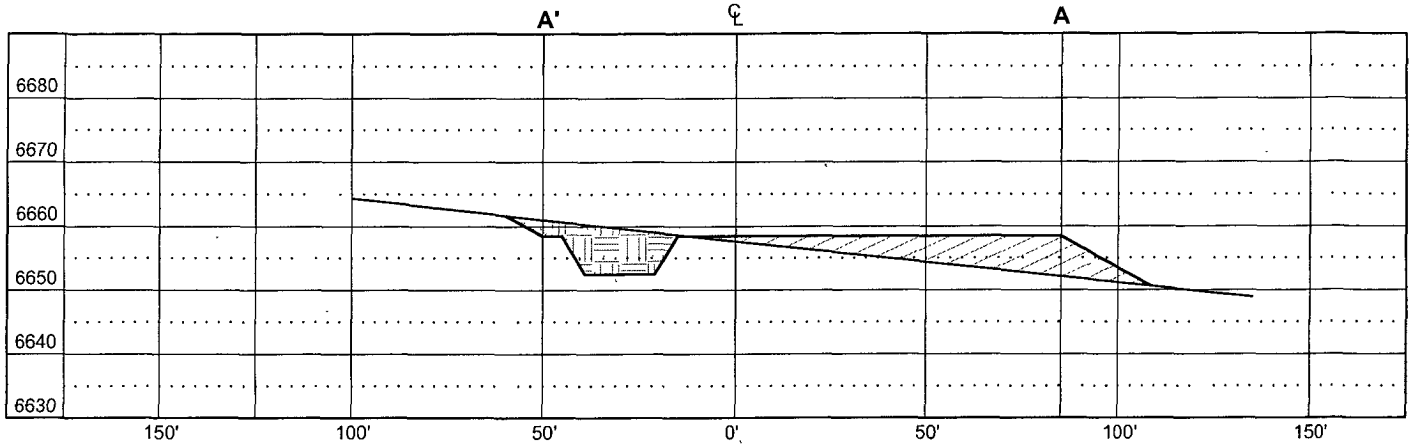


1 FOOT CONTOUR INTERVAL SHOWN  
SCALE: 1" = 50'  
JOB No.: SYN026  
DATE: 07/31/06

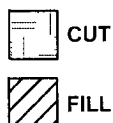


**Russell Surveying**  
1409 W. Aztec Blvd. #5  
Aztec, New Mexico 87410  
(505) 334-8637

**SYNERGY OPERATING, L.L.C.**  
 SYNERGY 22-7-31 #144  
 720' FSL & 895' FEL  
 LOCATED IN THE SE/4 SE/4 OF  
 SECTION 31, T22N, R7W, N.M.P.M.,  
 SANDOVAL COUNTY, NEW MEXICO  
 GROUND ELEVATION: 6660', NAVD 88  
 FINISHED PAD ELEVATION: 6658.5', NAVD 88



VERT. SCALE: 1" = 30'  
 HORZ. SCALE: 1" = 50'  
 JOB No.: SYN026  
 DATE: 7/31/06



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 1409 W. Aztec Blvd. #5  
 Aztec, New Mexico 87410  
 (505) 334-8637

## **Synergy Operating LLC**

### **Operations Plan**

**Well Name:** Synergy 22-7-31 # 144

**Location:** Unit P – 720' FSL, 895' FEL, Sec. 31, T-22-N, R-7-W, Sandoval Co. NM  
Latitude 36.09031° N, Longitude 107.61151° W (NAD 83)

**Field:** Basin Fruitland Coal

**Elevation:** 6660' GL

### **GEOLOGIC PROGRAM**

<b>Formations:</b>	<b>Tops/Depth</b>	<b>Fluids</b>
Base Ojo/Top Kirtland	320'	None
Fruitland	467'	Natural gas & produced water
Lower Fruitland Coal	765'	Natural gas & produced water
Pictured Cliffs	779'	Natural gas & produced water
TOTAL Depth	950'	

### **Logging Program:**

A) Open Hole: Density/Caliper & Gamma Ray: TD to Surface Csg Shoe  
B) Cased Hole: GR-CCL

### **Mudlogs, Cores, DST's:**

No mudlogs, coring or drill-stem testing (DST's) are scheduled.

### **Anticipated Downhole Conditions:**

It is not anticipated that any abnormal temperatures, abnormal pressures or hydrogen sulfide gas will be encountered. The maximum anticipated formation pressures are expected to be less than 300-PSIG. A minimum of MMS Class 1 BOP equipment will be used.

### **DRILLING PROGRAM**

**Contractor:** A local rotary drilling company is yet to be determined.

**Mud Program:** Freshwater based mud system will be utilized. Water sourced from commercial suppliers.

Depth	Type	Viscosity	#s/Gal
0-120'	Spud	40-50	8.4-8.9
120'-TD	Low Solids, Non-dispersed	30-60	8.4-9.5*

\* Barite will be used as a weighting material if needed

### Pressure Control / Blow Out Preventers (BOP's):

All BOP systems will be in accordance with <sup>BLM</sup> MMS Onshore Oil & gas Order No2. Until the drilling contract has been let, the exact make, model and pressure rating of BOP's is unknown. A typical double gate BOP with a rotating head is shown in the attached Exhibit #1. A typical Choke & Kill manifold is also shown in the attached Exhibit #1.

The minimum requirements necessary to drill this well comply with a Class <sup>-?</sup>1 Well Control Equipment rated to ~~2~~2000 psi operating conditions.

An upper kelly cock valve with handle and drill string safety valves for each size of drill pipe will be available on the rig floor.

### BOP Testing:

Surface – TD: An 11" or a 7-1/16" ~~1000#~~, 2000#, 3000#, or 5000# double gate BOP Stack & choke manifold will be utilized. Prior to drilling out the surface casing, the rams and casing will be tested to a minimum of 500#. All tests will be charted.

Pipe rams will be hydraulically actuated at least once a day. The blind rams will be function tested on each pipe trip. All ram function testing and BOP pressure testing will be recorded on the daily IADC drilling logs.

### Casing & Tubing Program:

All casing shall be new and constructed to API standards.

Hole Size	OD	Weight	Grade	GL Set Depth	Clearance Hole/Collar
12-1/4"	8.625"	24#/ft	J-55	0' – 120'	1.3125"
7"	5.500"	15.5#/ft	J-55	0' – TD(950'+/-)	0.475"
2-3/8"	2.375"	4.7#/ft	J-55	Unknown	

*Per BLM Onshore Order # 2 - Casing collars shall have a minimum clearance of 0.422 inches on all sides in the hole/casing annulus, with recognition that variances can be granted for justified exceptions.*

### Float Equipment & Centralizers:

8-5/8" Surface Casing: Cement Guide Shoe, 1-Jt 8-5/8" casing as shoe joint, float collar and 8-5/8" casing to surface. A centralizer will be run 10' above the shoe, secured with a stop ring, around each of the collars of the planned three (3) casing joints. Surface casing will be run to a minimum depth of 120' to ensure protection of surface waters. No wiper plug will be run, cement will be just be displaced to within 20' of the shoe.

5-1/2" Production Casing: Cement guide shoe w/ auto-fill, 1-Jt 5-1/2" casing as shoe joint, float collar, and 5-1/2" casing to surface. A centralizers will be run on every other joint of casing. Additional centralizers will be deployed every other joint from the fifth most bottom joint to surface. Estimated total of twenty (22) centralizers. No turbolizers are planned to be

run, as there are no indications of any problems to be encountered with the cementing of such shallow wells.

All strings of casing and all cement will be circulated to the surface and topped off if necessary.

#### **Wellhead Equipment:**

A 8-5/8" x 5-1/2" 1000# or 1500# wellhead will be screwed on to the top joint of the 8-5/8" surface casing, w/ 3" line pipe outlets. A 5-1/2" screw-on 1500# wellhead with a 4" line pipe outlets and 2" line pipe outlet will be run. 2-3/8" production tubing is forecast to be run.

#### **Cementing Program:**

8-5/8" Surface Casing: Pump 70-sxs (99-ft<sup>3</sup>) Type III Cement w/ 3% CaCl<sub>2</sub> + 1/4-#/sx Celloflake. Yield = 1.42 ft<sup>3</sup>/sx, Slurry Weight = 14.5 PPG. Cement volume is 100% of annular excess to ensure circulation to surface. Wait on Cement (WOC) for 8-Hours. Pressure test surface casing to 750# for 15-Minutes.

5-1/2" Production Casing: Pump 139-sxs (194-ft<sup>3</sup>) Type III Cement w/ 1% CaCl<sub>2</sub> + 1/4-#/sx Celloflake + 0.2% FL-52 + 2-#/sx Pheno-Seal. Yield = 1.39 ft<sup>3</sup>/sx, Slurry Weight = 14.6 PPG. Total slurry volume is 34.6 bbls.

The projected annular hole volume from 950' to surface is: 97 ft<sup>3</sup>. Cement volume is 100% excess of annular openhole volume to ensure circulation to surface. Cement will be brought to surface on all strings of casing.

#### **Estimated Drilling Time:**

Spud date will occur after the APD has been approved, the location built and a drilling contractor selected. Once drilling operations commence, it is anticipated that the drilling phase should be completed within three (3) days.

#### **Estimated Completion Time:**

Rig completion activities are estimated to take approximately five (5) days. No separator or production tank is anticipated, only a rod pumping unit or small electric submersible pump will be installed. No oil production is anticipated from this well. A gas meter will be utilized temporarily for 30 days to measure the anticipated gas production.

Synergy will be installing a 4" Gas Sales Line and a 3" water gathering line to gather all produced waters to a central facility should the well be deemed commercial.

#### **Reserve Pit Construction/Closure:**

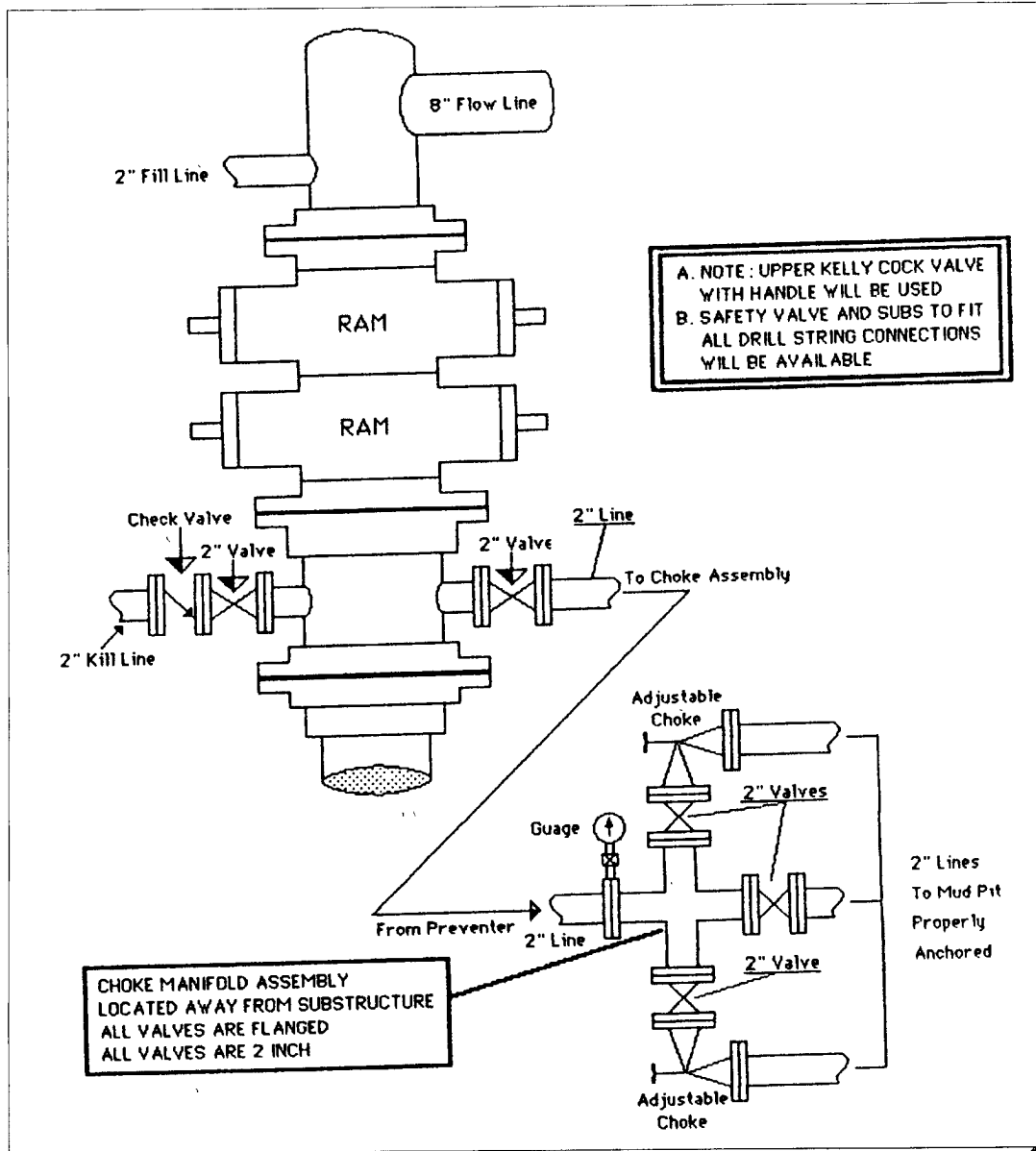
The planned reserve pit is located on the attached plat. The pit dimensions are projected to be 65 feet by 15 feet. The pit will be lined with an approved lining material, a minimum of a 12 mils

# Synergy Operating, LLC

San Juan Basin

~~2~~ M BOPE - ~~Class 1~~ BOPE

Minimum of ~~2~~ 1000 psi Working Pressure



*2M system per OneShot Oil & Gas Order #2*

A BOP Stack consisting of either a ~~manual~~ two(2) ram preventer, (double or 2 singles) or a single Hydraulic annular preventer with a minimum of 1000 psi working pressure. The upper ram cavity Shall contain pipe rams to fit the drill pipe in use. The lower cavity shall contain blind rams.

The choke and kill manifold shall be minimum 2\" in diameter and rated to minimum of ~~2~~ 1000#.