Transco
Exploration Company

A Subsidiary of Transco Companies Inc.

2425 West Loop South
P. O. Box 4511
Houston, Texas 77210
713-871-8000

August 9, 1983

UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management
2000 Administration Building
1745 West 1700 South
Salt Lake City, Utah 84104

RECEIVED
AUG 11 1983
DIVISION OF
OIL GAS & MINING

Attention: Mr. Edgar W. Guynn
Chief of Fluid Minerals

Re: Transco Exploration Company
TXC/Huber Federal #1-15
Section 15, T28S, R25E
San Juan County, Utah

Mr. Guynn:

Enclosed in triplicate please find Transco's Application for Permit to Drill the above referenced well on U.S. Forest Service land (Manti LaSal National Forest). An archaeological survey report was submitted to the U.S. Forest Service and the Utah State Antiquities Office on July 25, 1983.

Because of the October 1, 1983 lease expiration date of which you are aware, we respectfully request approval of this application no later than September 1, 1983, so that the required road construction work can be completed in order to have the well spudded by September 30, 1983.

Should you have any questions or require additional information, please contact me immediately at (713) 235-9159 so that the data can be provided. The Designation of Operator forms will be forwarded when obtained.

Sincerely,

TRANSCO EXPLORATION COMPANY

Kay L. Morgan

Kay L. Morgan
Senior Drilling Administrator

KLM:sb
Encls

cc: Mr. Carter Reed
United States Department of Agriculture
Forest Service - Manti LaSal National Forest
599 West Price River Drive
Price, Utah 84501

Mr. Mark Chatterton
United States Department of Agriculture
Forest Service
446 South Main Street
Moab, Utah

Mr. Wayne Svejnoha
United States Department of the Interior
Bureau of Land Management - Oil and Gas
Grand Resource Area
P. O. Box M
Moab, Utah 84532

Mr. Ron Firth
State of Utah
Division of Oil, Gas and Mining
4241 State Office Building
Salt Lake City, Utah 84114

Form 9-331 C
(May 1963)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5. LEASE DESIGNATION AND SERIAL NO.: U-23313

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: ---

7. UNIT AGREEMENT NAME: ---

8. FARM OR LEASE NAME: TXC/HUBER FEDERAL

9. WELL NO.: 1-15

10. FIELD AND POOL, OR WILDCAT: WILDCAT

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: SEC 15, T28S, R25E

12. COUNTY OR PARISH: SAN JUAN

13. STATE: UTAH

1a. TYPE OF WORK: DRILL [X] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL: OIL WELL [ ] GAS WELL [ ] OTHER WILDCAT SINGLE ZONE [ ] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR: TRANSCO EXPLORATION COMPANY ATTN: KAY L. MORGAN

3. ADDRESS OF OPERATOR: P. O. BOX ~~4511~~ 1396, HOUSTON, TEXAS ~~77210~~ 77251

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 650' ~~FWL~~ FSL & 1900' FWL OF SEC. 15 (SE¼ SW¼)
At proposed prod. zone: SAME AS SURFACE

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: Approx. 40 miles southeast of LaSal, Utah

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 650'

16. NO. OF ACRES IN LEASE: 2392.38

17. NO. OF ACRES ASSIGNED TO THIS WELL: 160

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.: -

19. PROPOSED DEPTH: 12,700' Devonian

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 7597.7' (UNGRADED)

22. APPROX. DATE WORK WILL START*: SEPTEMBER 30, 1983 (SPUD)
SEPTEMBER 1, 1983 (DIRT WORK)

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
24"	20"	Culvert Pipe	50'+	Redimix
17½"	13-3/8"	72# L-80	2000'+	750 sx Class B (Circ to surface)
8-3/4"	5½"	17#, 20#, 23#, L-80, S-95	12700'±	1500 sx Class B Pozmix

Transco proposes to drill this well to 12,700' to test the Mississippian and Devonian formations. If productive, casing will be run to TD and the well will be completed and tested. If dry, the well will be plugged and abandoned in accordance with BLM, USFS, and State of Utah regulations.

APPROVED BY THE STATE OF UTAH DIVISION OF OIL, GAS, AND MINING
DATE: 8/15/83
BY: [signature]

RECEIVED
AUG 11 1983
DIVISION OF OIL, GAS & MINING

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED [signature] TITLE Senior Drilling Engineer DATE 08-08-83

(This space for Federal or State office use)

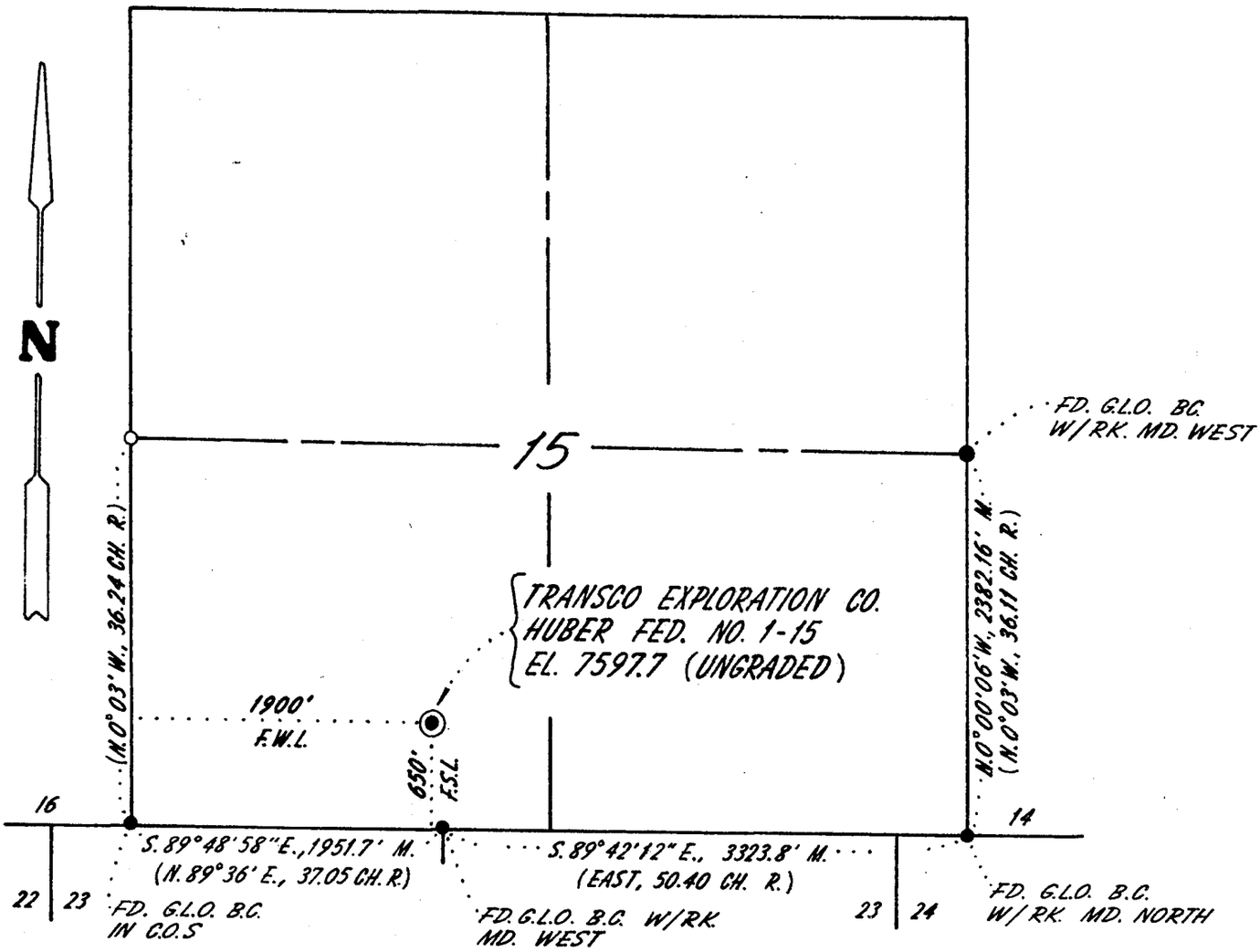
PERMIT NO. 43-037-30923 APPROVAL DATE

APPROVED BY TITLE DATE

CONDITIONS OF APPROVAL, IF ANY:

PATHFINDER ENGINEERING AND LAND SURVEYING, INC.
300 COUNTRY CLUB ROAD, SUITE 305
CASPER, WYOMING 307-266-3809

T.28 S., R.25 E., SALT LAKE B. & M., SAN JUAN CO., UTAH
SECTION 15



BASIS OF BEARINGS: SOLAR OBSERVATION

SCALE: 1" = 1000'

◉ = SURVEYED WELL LOCATION

PLATTED FIELD NOTES OF A SURVEY MARKING WELL LOCATION TRANSCO EXPLORATION CO., HUBER FED. NO. 1-15
SE ¼ SW ¼ SEC. 15
T. 28 S., R. 25 E., SALT LAKE B. & M.
SAN JUAN CO., UTAH

SURVEYORS CERTIFICATE

STATE OF WYOMING)
COUNTY OF NATRONA) S.S.

I, PAUL A. REID, HEREBY STATE THAT I AM A REGISTERED LAND SURVEYOR IN THE STATE OF UTAH UNDER PROVISIONS OF UTAH LAW. I FURTHER STATE THAT THIS PLAT REPRESENTS A SURVEY MADE UNDER MY DIRECT SUPERVISION AND RESPONSIBILITY BY STEVEN J. MALEY ON JUNE 30-31, 1983 FOR THE PURPOSE OF AN APPLICATION FOR PERMIT TO DRILL. ANY OTHER USE OF THIS PLAT WITHOUT THE EXPRESSED WRITTEN CONSENT OF THE SURVEYOR IS PROHIBITED.

PAUL A. REID UTAH REG. L.S. 5669

JOB NO: 060-06 83

DATE: AUGUST 3, 1983

NOTES: W.L. BK. #7
PGS. 25-34

REGISTERED PROFESSIONAL SURVEYOR
PAUL A. REID
5669
STATE OF UTAH

UNGRADED ELEVATION OF TRANSCO HUBER FED. NO. 1-15 . . . . . 7597.7

UNGRADED ELEVATIONS OF REFERENCE POINTS SET WITH 12" × ⅜" SPIKES.

NORTH. . . . . 250 FEET. 7610.7
SOUTH. . . . . 250 " 7590.4
EAST . . . . . 250 " 7607.4

BASIS OF ELEVATIONS: U.S.G.S. 15' QUAD "LA SAL" UTAH-COLO., BENCHMARK M-127 IN SEC. 35, PRINTED ELEV. 7121

EXHIBIT "A"

TRANSCO EXPLORATION COMPANY
TXC/HUBER FEDERAL #1-15
DRILLING PROGNOSIS

1. Surface Formation:

Cretaceous Mancos Undifferentiated

2. & 3. Formation Tops:

Ground Elevation - 7600'

A. Permian Cutler - 2650'
B. Permian White Rim - 4600'
C. Hermosa - 7700'
D. Top of Salt - 10,050'
E. Base of Salt - 11,550'
F. Mississippian Redwall - 11,800'
G. Devonian Ouray - 12,300'
H. Devonian Elbert - 12,425'
I. Devonian McCracken - 12,600'
J. Total Depth - 12,700'

If any water zones are encountered, they will be adequately protected and reported; none anticipated. The 2000' of surface casing will protect any near surface fresh water zones.

4. Casing Programs: (All New)

Hole Size	Interval	Size	Weight Grade	Cement Type
24"	0-50'±	20"	Conductor Pipe	
17-1/2"	0-2000'±	13-3/8"	72#, L-80	"B"
8-3/4"	0-12700'±	5-1/2"	17#, 20#, 23# L-80, S-95	"B" Pozmix

5. Minimum Pressure Control Equipment: (Schematic Attached)

Type : 11" - 5MSRRA - (Double gate hydraulic w/manual and remote controls)
Pressure Rating : 5000 psi
Testing Procedure: Equipment will be pressure tested to 70% internal yield strength surface casing and operational checks will be made daily and recorded on tour sheet.

6. Mud Program: (Visual Monitoring)

Interval	Mud Type	Mud Wt (ppg)	Viscosity (sec/at)	W.L.
0-2000'	Air, Mist, Foam	N/A	N/A	N/A
2000-10,000'	Air, Mist, Foam	N/A	N/A	N/A
10,000-12,700'	LSND	10.0-12.0	35-40	15 cc or less

*If hole conditions dictate mud will be used if air, mist, foam, does not provide adequate pressure control.

6. Mud Program: (Con't)

Sufficient mud inventory will be maintained on location during drilling to handle any adverse conditions that may arise. Mud inventory to be stockpiled on location. Will not be less than the amount needed for the mud system as required to drill this well.

7. Auxiliary Equipment:

A. A lower kelly cock will be kept in the string at all times.
B. Periodic checks will be made each tour of the mud system.
C. A stabbing valve will be kept on the derrick floor to be stabbed into the drill pipe whenever the kelly is not in the string.
D. No bit float will be used.
E. Monitoring of the mud system will be visual and flow sensor device.

8. Evaluation Program:

Logs: DIL, FDC-CNL, BHC - total depth to surface.
Cores: Possible sidewall cores.
DST's: Two (2) or as warranted by shows or logs.
Stimulation: No stimulation has been formulated for this test at this time. If production casing is run, the potential producing interval will be perforated with jets. The BLM (MMS) will be notified by "Sundry Notice" of a complete stimulation program. The drillsite, as approved, will be of sufficient size to accommodate all completion acitivites.

9. Abnormal Conditions:

It is not anticipated that abnormal temperatures, pressures or toxic gases will be encountered. No H_2S has been reported or know to exist from previous drilling in the area at this depth.

10. Drilling Activity:

Anticipated Commencement Date:	September 30, 1983
Required Drilling Days:	Approximately 90
Required Completion Days:	Approximately 30

FIGURE 7

5,000 psi Working Pressure
3 Pipe Rams

MINIMUM BOP STACK REQUIREMENTS			
No.	Item	Min. I.D.	Min. Nominal
1	Flowline		
2	Fill up Line		2"
3	Drilling Nipple		
4	Annular Preventer		
5	Two single or one dual hydraulically operated rams		
6a	Drilling spool with 2" and 3" min. outlets		
	or		
6b	Use ram outlets as alternate to 6a		
7	Valve Gate X Plug X	3-1/8"	
8	Gate Valve Power Operated	3-1/8"	
9	Line to choke manifold		3"
10	Valves Gate X Plug X	2-1/16"	
11	Check Valve	2-1/16"	
12	Single hydraulically operated ram		
13	Wear flange or bushing		
14	Casing spool		
15	Valves Gate X Plug X	1-13/16"	
16	Flanged control plug or valve	1-13/16"	
17	Compound pressure gauge		
18	Kill line to rig mud pump manifold		2"

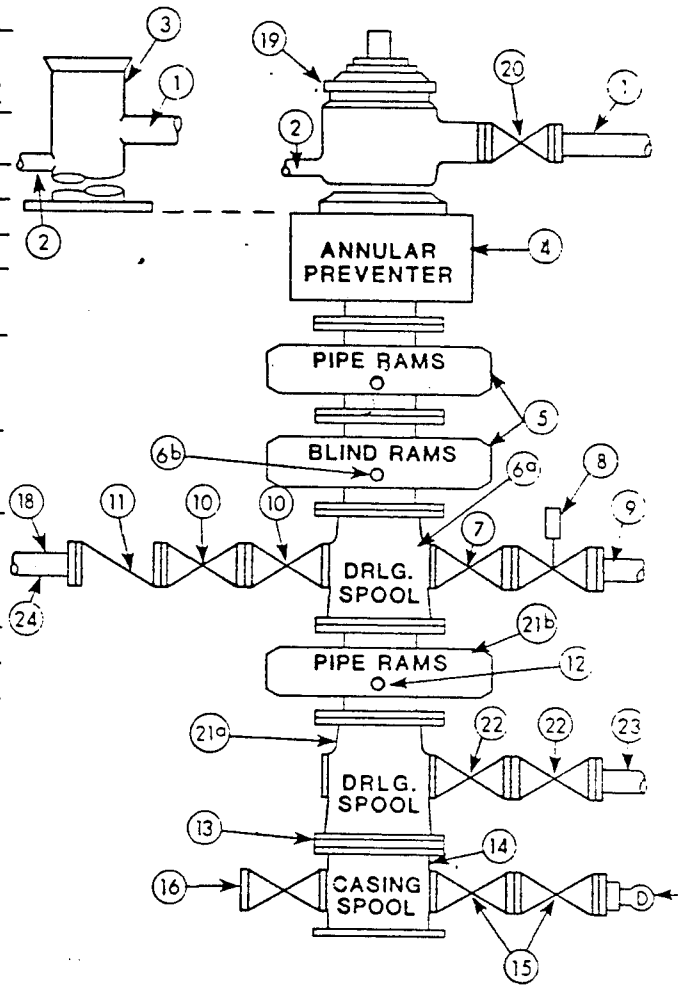
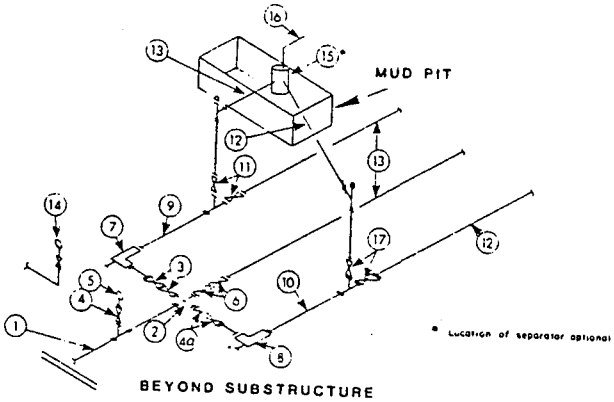


FIGURE 11

MINIMUM CHOKE MANIFOLD

3,000, 5,000 and 10,000 psi Working Pressure



No.		MINIMUM REQUIREMENTS								
		Class 3M			Class 5M			Class 10M		
		I.D.	NOMINAL	RATING	I.D.	NOMINAL	RATING	I.D.	NOMINAL	RATING
1	Line from drilling spool		3"	3,000		3"	5,000	3"	10,000	
2	Cross 3" x 3" x 3" x 2"			3,000			5,000			
	Cross 3" x 3" x 3" x 3"								10,000	
3	Valves (1) Gate X	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		
	Plug X (2)								10,000	
4	Valve Gate X	1-13/16"		3,000	1-13/16"		5,000	1-13/16"		
	Plug X (2)								10,000	
4a	Valve (1)	2-1/16"		3,000	2-1/16"		5,000	3-1/8"		
5	Pressure Gauge			3,000			5,000		10,000	
									10,000	
6	Valves (1) Gate X	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		
	Plug X (2)								10,000 (4)	
7	Adjustable Choke (3)	2"		3,000	2"		5,000	2"		
8	Adjustable Choke	1"		3,000	1"		5,000	2"	10,000	
9	Line		3"	3,000		3"	5,000		10,000	
10	Line		2"	3,000		2"	5,000	3"	10,000 (4)	
								3"	10,000 (4)	
11	Valves Gate X	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		
	Plug X (2)								10,000 (4)	
12	Lines		2"	1,000		2"	1,000	3"	2,000	
13	Lines		3"	1,000		3"	1,000	3"	2,000	
14	Remote reading compound standpipe pressure gauge			3,000			5,000		10,000	
15	Gas Separator		2' x 5'			2' x 5'			2' x 5'	
16	Line		4"	1,000		4"	1,000	4"	2,000	
17	Valves Gate X	2-1/16"		3,000	2-1/16"		5,000	3-1/8"		
	Plug X (2)								10,000 (4)	

(1) Only one required in Class 3M.
(2) Gate valves only shall be used for Class 10M.
(3) Remote operated hydraulic choke required on Class 10M for drilling.
(4) Optional pressure rating. Contact Drilling Superintendent.

TXC/w08440B

TRANSCO EXPLORATION COMPANY
TXC/HUBER FEDERAL #1-15
SE¼SW¼ SECTION 15, T28S, R25E
SAN JUAN COUNTY, UTAH

MULTI-POINT SURFACE USE AND OPERATIONS PLAN

GENERAL

1. Transco or our contractor will contact the U. S. Forest Service in Price, Utah (801/637-2817) and Moab, Utah (801/259-7155) 48 hours prior to commencing any of the dirt work or road construction on U. S. Forest Service land.

2. The dirt contractor will be provided with a copy of the approved Surface Use Plan with any accompanying additional BLM/USFS stipulations.

3. If subsurface cultural material is exposed during construction, work in that spot will stop immediately and the USFS will be contacted. All employees working in the area will be informed by Transco that they are subject to prosecution for disturbing archaeological sites or picking up artifacts. Salvage or excavation of identified archaeological sites will only be done if damage occurs.

1. EXISTING ROADS

A. The proposed well site and elevation plat are shown on Exhibit "A".

B. Directions to the location from Moab, Utah are as follows: From Moab, go 22.1 miles on Hwy. 191/163 to junction of Hwy. 46 at LaSal. Go SE 16.2 miles on Hwy. 46 to Two-Mile Creek/Buckeye Reservoir sign. Go left on Two-Mile Creek 1.2 miles to Hang Dog and follow in to location.

C. Access Roads - Refer to Exhibit "E".

D. This is an exploratory well - Refer to Exhibit "D" for existing roads within a 3-mile radius.

E. Existing Forest Development roads utilized for this operation will be upgraded, winterized, etc. per USFS specifications as will be done on the proposed access road.

F. All existing roads will be maintained and kept in good repair during all drilling and completion operations associated with this well.

G. The San Juan County Road Department will be contacted and permit obtained before county roads are used.

2. PLANNED ACCESS ROADS

Approximately 0.6 mile of new access road will be constructed to Forest Department Road. Forest Service roads utilized from Hw. 46 to the project road will be upgraded, winterized and maintained in accordance with the Manti-LaSal National Forest Service stipulations. Extremely detailed road survey work has been completed, including cross-sectioning at 50' intervals, and discussions are currently ongoing with the USFS in Price concerning the required road design. Approval of the road design will be obtained prior to commencing any construction work.

A. Width - 30'.
B. Maximum grade - 8%.
C. Turnouts - None required.
D. Drainage Design - will be in accordance with Manti LaSal National Forest Service stipulations, as presented in detail in the road design drawings.

E. Culverts, cuts & fills - as required over two 36" water crossings and at the entrance to the well site.
F. Surfacing Material - Native soils and gravel compacted w/water.
G. Cattleguards - in place as shown on Exhibit "E".
H. The new access road is flagged.

3. LOCATION OF EXISTING WELLS WITHIN A TWO-MILE RADIUS

A. Water wells - none.
B. Abandoned wells - Tenneco #1 Red Ranch, NESW - Sec 28, T28S, R25E.
C. Temporarily abandoned wells - none.
D. Disposal wells - none.
E. Drilling wells - none.
F. Producing wells - none.
G. Shut-in wells - none.
H. Injection wells - none.

4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES OWNED BY TRANSCO EXPLORATION COMPANY WITHIN A ONE-MILE RADIUS

A. Existing - There are no tank batteries, production facilites or oil or gas gathering lines owned by Transco in the area.
B. New Facilities Contemplated (see Exhibit "C").

1. All production facilites will be located on the disturbed portion of the well pad.
2. Production facilites will require an area approximately 160' x 100'.
3. All flowlines from well site to battery site will be buried below frost line.
4. Construction materials needed for installation of the production facilites will be obtained from the site; any additional materials will be pruchased from a local supplier.
5. Any open pits will be fenced to protect livestock & wildlife.

C. Rehabilitation of disturbed areas no longer needed for producing operations will be accomplished by grading, leveling and seeding as prescribed by the U. S. Forest Service.

5. LOCATION AND TYPE OF WATER SUPPLY

A. Water for this operation will be determined at a later date, and this information will be provided to your office.

B. Water will be trucked by Black Hills Trucking utilizing existing roads from the source to the well location. No new construction will be required for water transport.

C. Use of water for this project will be approved by obtaining a water appropriation temporary use permit from the Utah State Engineer (Price, Utah).

D. No water well will be drilled at this location.

6. SOURCE OF CONSTRUCTION MATERIAL

A. Native materials, surface & subsurface soils will be utilized for access road and well pad construction.

B. No construction materials will be taken off Federal land.

C. Gravel needed for construction of the site and roads will be purchased from a local supplier.

D. No new access roads (other than those identified on Exhibit "E" will be required for construction materials.

E. Construction activities will be completed by October 1, 1983 to avoid adverse climatic conditions.

7. METHODS OF HANDLING WASTE DISPOSAL

A. Drill cuttings will be deposited and buried in the reserve pit.

B. Drilling fluids will be contained in the reserve pit and allowed to evaporate. If the pit is leaking or is overly full, fluids will be removed and properly disposed of.

C. The produced fluids will be collected in test tanks until such time as construction of production facilites is completed. Any spills of oil, gas, saltwater, or other noxious vluids will be cleaned up and removed.

D. Sewage - a chemical porta-toilet will be furnished with the drilling rig.

E. Garbage, trash, other waste material will be handled in a trash cage, which will be totally enclosed with small mesh wire to prevent wind scattering and wildlife entry. No trash will be disposed of in the reserve pit.

7. METHODS OF HANDLING WASTE DISPOSAL (Continued)

F. All garbage, debris and foreign matter will be removed to an established sanitary landfill or other recognized facility as needed during drilling operations, and immediately following drilling operations.

G. The reserve pit will be fenced on 3 sides during drilling with the fourth side being fenced prior to removal of the rig.

8. ANCILLARY FACILITIES

There are no airstrips, camps or other facilites planned during the drilling of the proposed well.

9. WELL SITE LAYOUT

A. Exhibit "B" shows the drill site layout in detail as staked, including cross-sections of the planned cuts and fills, typical berm and ditch cross-sections.

B. The site will be cleared of all brush and trees, which will be disposed of by removal from the Forest by burning or other approved method. If burned, a burning permit will first be obtained from the USFS.

C. Topsoil will be stripped from all areas where surface disturbance is necessary and stockpiled as shown on Exhibit "B". All topsoil will be removed in a separate layer, avoiding mixing with other excavated materials, and stored in a stockpile to prevent loss from erosion or contamination and from which the topsoil may be easily recovered.

D. Exhibit "C" includes a diagram showing the rig layout: lcoation of mud tanks, reserve pit, trash cage, pipe racks, living facilities and access road. No permanent living facilities are planned. There will be two trailers provided at the location.

E. Exhibit "C" shows the production facilities layout.

F. The reserve pit will be constructed below the natural ground level as depicted on Exhibit "B" and will not be lined unless porous materials are encountered. A minimum 2-foot freeboard will be maintained in the pit at all times during drilling operations. The reserve pit will be trenched.

G. Drainage - The site will be graded with the required diversion ditch, straw dike, culvert at entrance of access road, and berm around perimeter of site constructed as shown on Exhibit "B". The well site will be flat as agreed to at the onsite inspection. The working surface will be surfaced with crushed gravel per USFS specifications.

9. WELL SITE LAYOUT (Continued)

H. Periodic maintenance will be required to ensure that drainages are kept open and free of debris, ice and snow, and that surfaces are properly treated to reduce erosion, fugitive dust and impacts to adjacent areas.

10. PLANS FOR RESTORATION OF THE SURFACE:

NON-PRODUCING WELLS:

A. Transco will restore the area pursuant to U. S. Forest Service requirements. The site will be restored as nearly as practical to its original condition. Cut & fill slopes will be reduced and graded to conform to the adjacent terrain.

B. The reserve pit will be fenced on 3 sides during drilling operations, with the fourth side being fenced prior to removal of the rig. The reserve pit will be allowed to dry. Fluids that will not dry will be removed and properly disposed of. All polluting substances or contaminated materials, such as oil, oil-saturated soils, and gravel, will be buried with a minimum of 2 feet of clean soil as cover, or removed from the Forest.

C. Drainages will be reestablished and temporary measures will be required to prevent erosion to the site until vegetation is established.

D. No well identification will remain.

E. The entire surface of the site will be scarified to eliminate slippage surfaces and to promote root penetration, after final grading of the site and before the replacement of topsoil. Topsoil will then be spread over the site to achieve an approximate uniform, stable thickness consistent with the established contours.

F. The site will be seeded/planted as per USFS specifications.

G. A temporary fence will be constructed around the site until vegation is established, after which it will be removed.

PRODUCING WELLS:

A. All areas not needed for production will be reclaimed immediately as stipulated above. The remaining areas will be reclaimed when the well is plugged.

B. The reserve pit will be reclaimed as stated above.

C. All polluting substances or contaminated materials such as oil, oil-saturated soils and gravel, will be buried within a minimum of 2 feet of clean soil as a cover or will be removed from the Forest.

D. The berm will be removed and the site graded to drain.

E. The site will be fenced.

11. OTHER INFORMATION

A. Topography:

Soils - Low lying ridge at the base of the LaSal Mts. w/shallow soils and broken exposures of Mancos shale.

Flora - Pinyon, gamble oak, sagebrush, serviceberry, lupine and occasional prickly pear.

Fauna - Deer, rabbit, birds.

B. The surface is owned by the U. S. Forest Service.

C. The nearest drilling is approximately 2300' to the south and the nearest water is a stream running through our planned access road.

D. An archaeological study was performed and six isolated loci were found during the survey. It was determined that little further research value exists beyond field documentation and archaeological clearance was recommended with the stipulation that development be restricted to areas inspected during the survey. Refer to report prepared by the Division of Conservation Archaeology, San Juan County Museum Association, and submitted directly to your office on July 25, 1983.

E. Because of a lease expiration problem, the well must be spudded by September 30, 1983. It is anticipated that drilling/completion operations will continue for a period of approximately 120 days.

12. LESSEE'S OR OPERATOR'S REPRESENTATIVE

Transco Exploration Company
Joe S. Davis, Drilling Superintendent
2425 West Loop South
P. O. Box 4511
Houston, Texas 77210

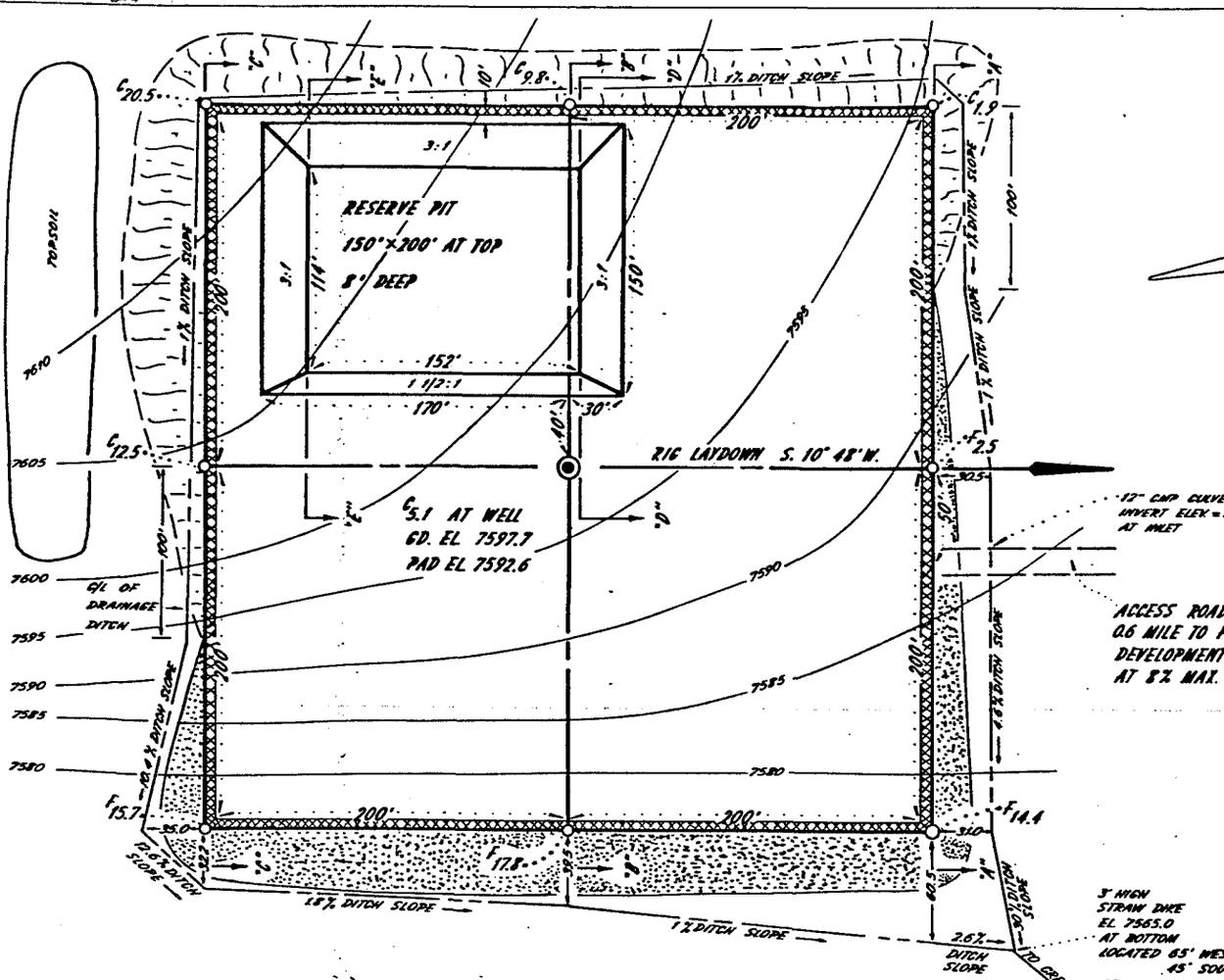
(713) 235-9237

13. CERTIFICATION

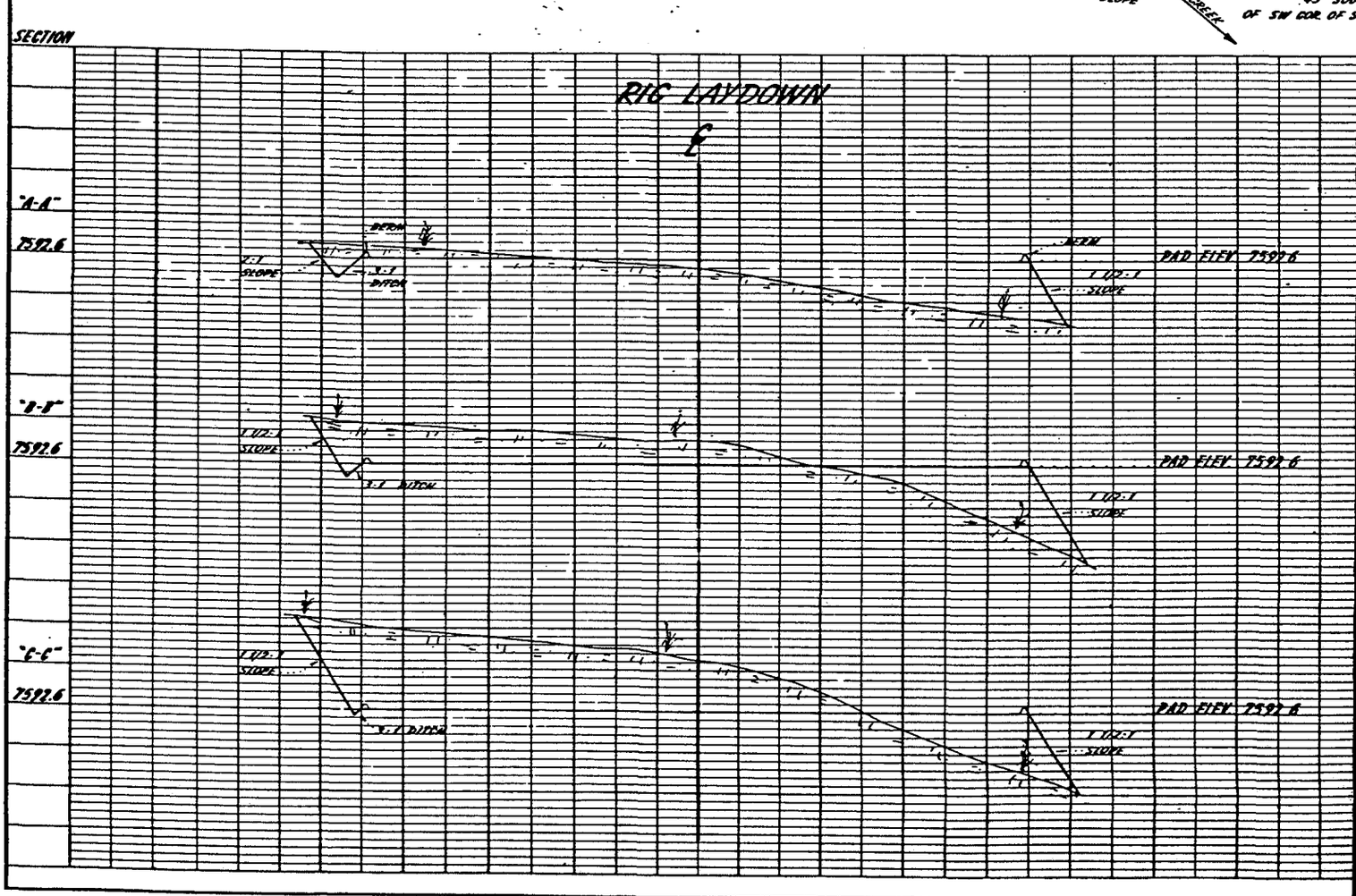
I hereby certify that I, or persons under my direct supervision have inspected the proposed drillsite and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Transco Exploration Company and its contractors and sub-contractors in conformity with the plan and the terms and conditions under which it is approved.

J. S. DAVIS
Drilling Superintendent

08-09-83
(DATE)



SECTION



PLAN
NOTE BOOK No.
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
BY
DATE

PROFILE
NOTE BOOK No.
SURVEYED
PLOTTED
GRADE CHECKED
B. M.'S NOTED
STRUCTURE LOCATIONS CHECKED
BY
DATE

K·E PLATE
48 7024

TRANSCO EXPLORATION CO.
HUBER FEDERAL NO. 1-15

SE 1/4 SW 1/4 SEC. 15
T. 28S., R. 25E.,
SALT LAKE BASE & MERIDIAN
SAN JUAN CO., UTAH

APPROXIMATE EARTHWORK VOLUMES

CUT. . . . . .35,720 CU. YDS.
FILL. . . . . .25,010 " "
TOPSOIL. . . . 3,950 " "
SPOIL. . . . . 0 " " AT 30 % SHRINKAGE
RESERVE PIT CAPACITY. . . . .
33,300 BARRELS AT 8' DEPTH

LEGEND

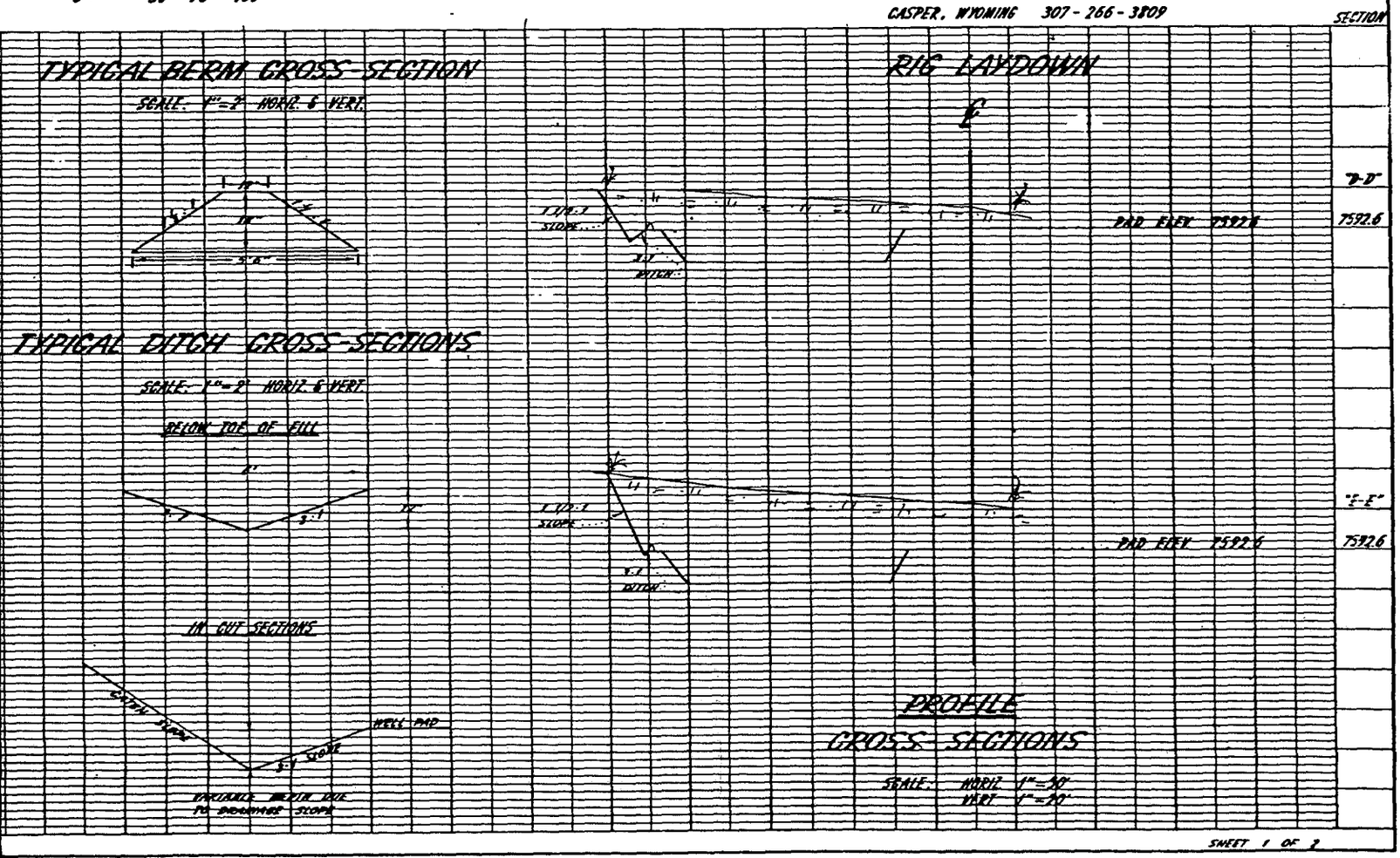
- PROPOSED WELL LOCATION
- NAIL W/STAKE & LATHE
- BERM
- C/L OF DRAINAGE DITCH

DATE: JULY 29, 1983
JOB NO: 060-06/83

SCALE: 1" = 50'
0 50' 75' 100'

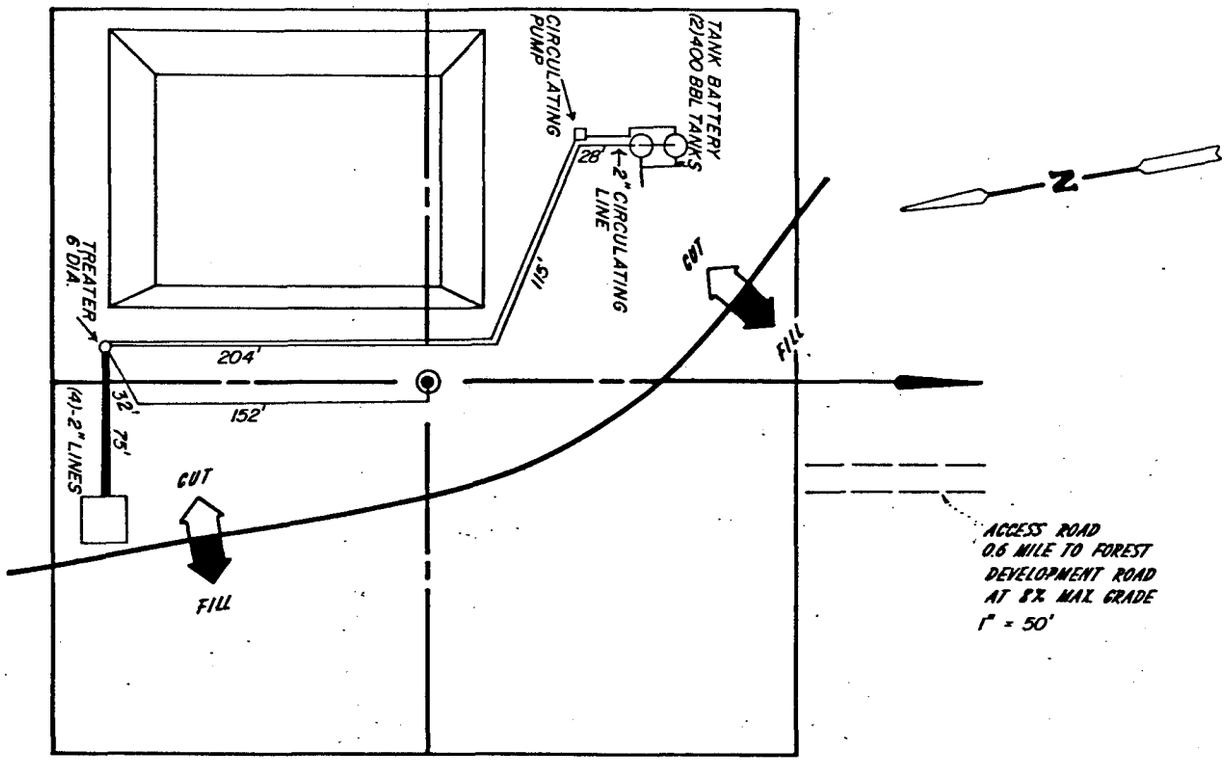
PREPARED BY:

PATHFINDER ENGINEERING & LAND SURVEYING, INC.
CASPER, WYOMING 307-266-3809

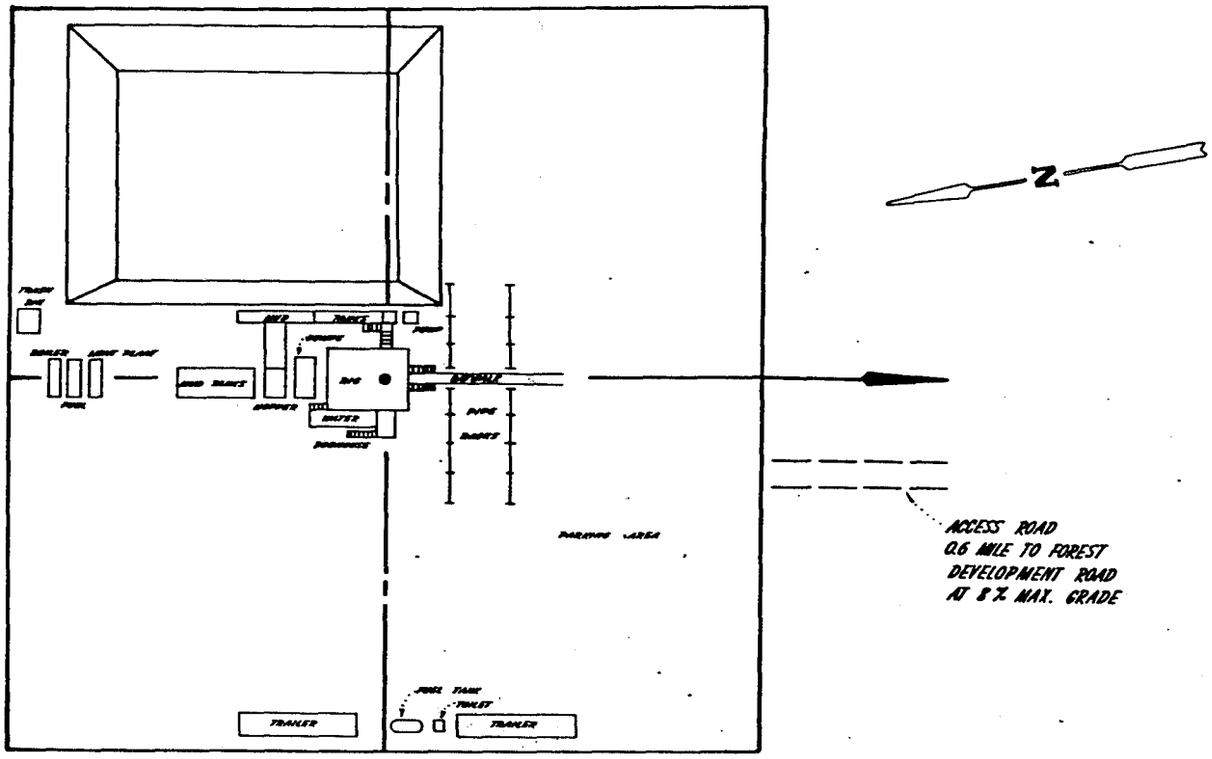


1. PLAN-PROFILE
KEUFFEL & ESSER CO

EXHIBIT "B"



PROPOSED PRODUCTION FACILITIES
TRANSCO EXPLORATION CO.
HUBER FEDERAL NO. 1-15
SCALE: 1" = 50'

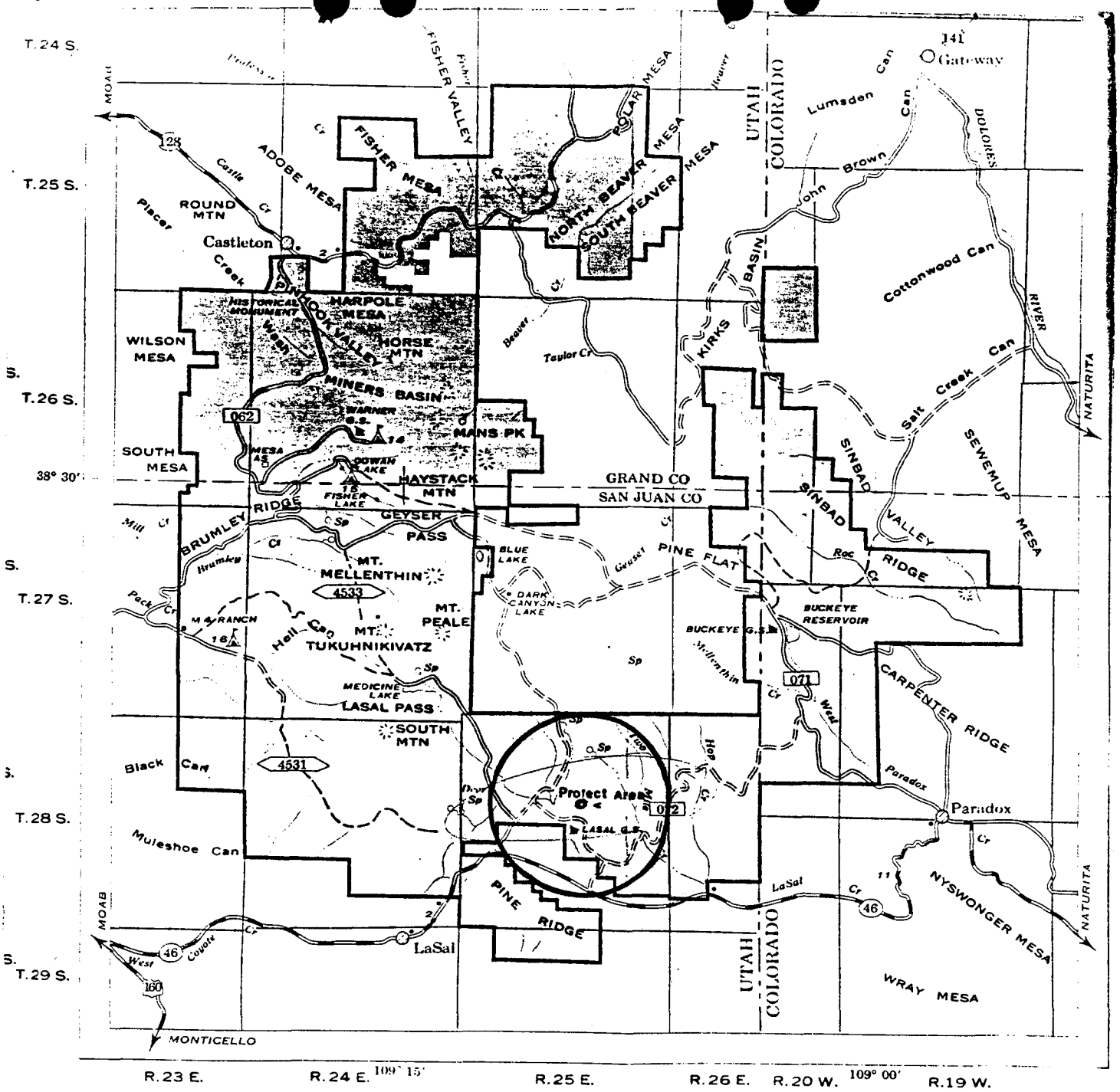


PROPOSED RIG LAYOUT FACILITIES
TRANSCO EXPLORATION CO.
HUBER FEDERAL NO. 1-15
SCALE: 1" = 50'

TRANSCO EXPLORATION CO.
HUBER FEDERAL NO. 1-15
PROPOSED PRODUCTION & RIG LAYOUT FACILITIES

SHEET 2 OF 2

EXHIBIT "C"



MOAB SECTION—LASAL DIVISION

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
EDWARD P. CLIFF, CHIEF

MANTI-LASAL NATIONAL FOREST

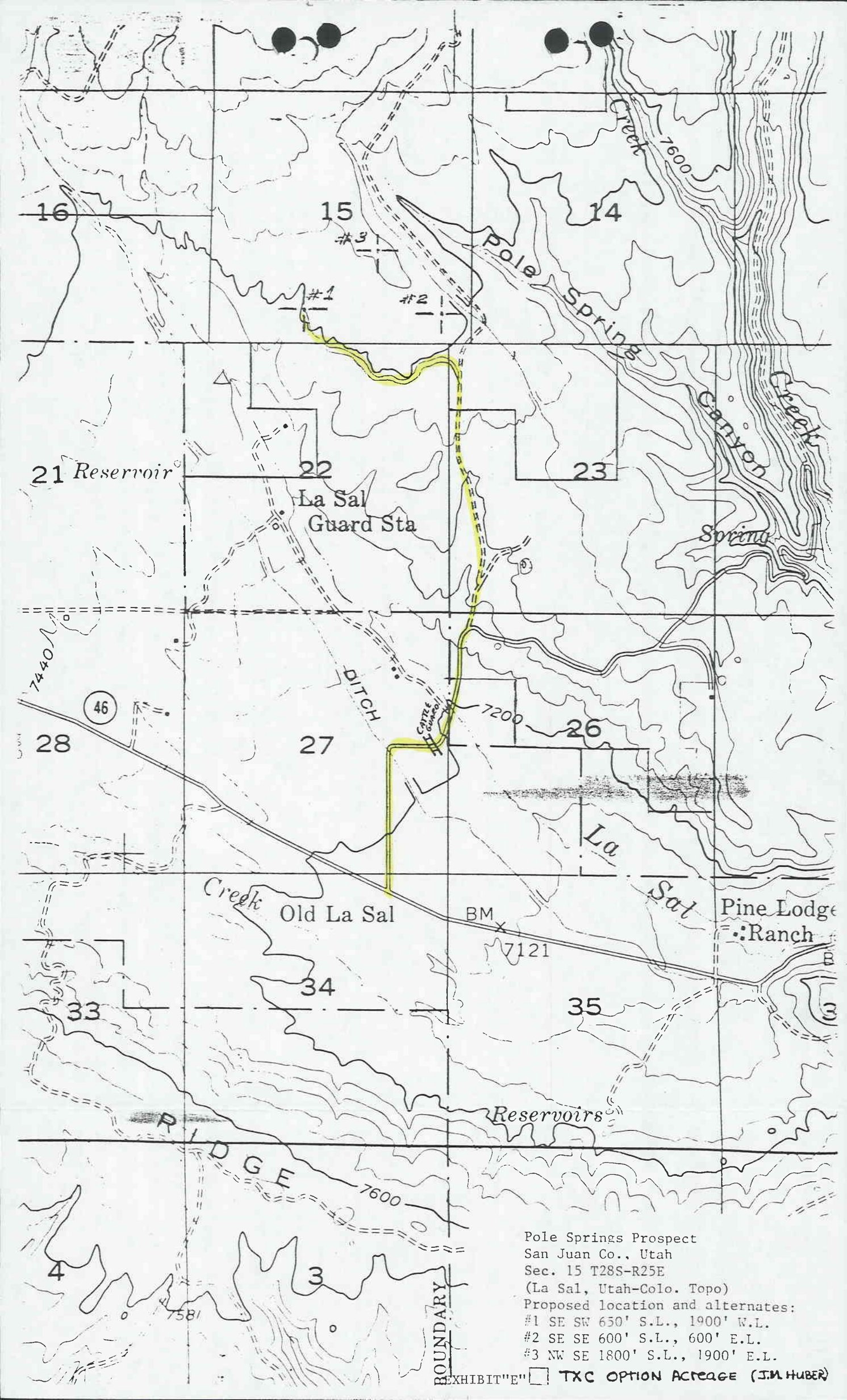
UTAH AND COLORADO

SALT LAKE AND NEW MEXICO MERIDIANS
1962

Scale
0 1 2 3 4 5 6 Miles

FIGURE 2

EXHIBIT "D"



Pole Springs Prospect
San Juan Co., Utah
Sec. 15 T28S-R25E
(La Sal, Utah-Colo. Topo)
Proposed location and alternates:
#1 SE SW 650' S.L., 1900' W.L.
#2 SE SE 600' S.L., 600' E.L.
#3 NW SE 1800' S.L., 1900' E.L.

EXHIBIT "E" ☐ TXC OPTION ACREAGE (J.M. HUBER)

OPERATOR Transco Exploration Co. DATE 8-11-83

WELL NAME TXC / Huber Federal #1-15

SEC SE SW 15 T 28S R 25E COUNTY San Juan

43-037-30923
API NUMBER

Fed.
TYPE OF LEASE

POSTING CHECK OFF:

[ ]	INDEX	[ ]	MAP	[ ]	HL
[ ]	NID	[ ]		[ ]	PI

PROCESSING COMMENTS:
No other oil/gas wells within 4960'

✓ CHIEF PETROLEUM ENGINEER REVIEW:
8/15/83 ✓

APPROVAL LETTER:

SPACING: [ ] A-3 _____ UNIT [ ] c-3-a _____ CAUSE NO. & DATE

[✓] c-3-b [ ] c-3-c

SPECIAL LANGUAGE:
Water

- [x] RECONCILE WELL NAME AND LOCATION ON APD AGAINST SAME DATA ON PLAT MAP.
- [x] AUTHENTICATE LEASE AND OPERATOR INFORMATION
- [x] VERIFY ADEQUATE AND PROPER BONDING
- [x] AUTHENTICATE IF SITE IS IN A NAMED FIELD, ETC.
- [ ] APPLY SPACING CONSIDERATION
  - [ ] ORDER _____
  - [ ] UNIT _____
  - [x] c-3-b
  - [ ] c-3-c
- [x] CHECK DISTANCE TO NEAREST WELL.
- [ ] CHECK OUTSTANDING OR OVERDUE REPORTS FOR OPERATOR'S OTHER WELLS.
- [x] IF POTASH DESIGNATED AREA, SPECIAL LANGUAGE ON APPROVAL LETTER
- [x] IF IN OIL SHALE DESIGNATED AREA, SPECIAL APPROVAL LANGUAGE.

August 15, 1983

Transco Exploration Company
P. O Box 4511
Houston, Texas 77210

RE: TXC/Huber Bederal 1-15
SESW 15, T.28S, R.25E
650 FSL, 1900'FWL
San Juan County, Utah

Gentlemen:

Insofar as this office is concerned, approval to drill the above referred to oil/gas well is hereby granted in accordance with Rule C-3(b), General Rules and Regulations and Rules of Practice and Procedure. Prior to spudding, a copy of the Utah Division of Water Rights (801-533-6071) approval for use of purchase of drilling water must be submitted to this office, otherwise this approval is void.

Should you determine that it will be necessary to plug and abandon this well, you are hereby requested to immediately notify the following:

RONALD J. FIRTH - Chief Petroleum Engineer
Office: 533-5771
Home: 571-6068

Enclosed please find Form OGC-8-X, which is to be completed whether or not water sands (acquifers) are encountered during drilling. Your cooperation in completing this form will be appreciated.

Further, it is requested that this Division be notified within 24 hours after drilling operations commence, and that the drilling contractor and rig number be identified.

The API number assigned to this well is 43-037-~~30823~~ 30923.

Sincerely,

R. J. Firth
Chief Petroleum Engineer

RJF/as
cc: Branch of Fluid Minerals
Encl.

Transco
Exploration Company

A Subsidiary of Transco Companies Inc.

2425 West Loop South
P. O. Box 4511
Houston, Texas 77210
713-871-8000

OIL & GAS
RECEIVED
AUG 25 1983
SALT LAKE CITY, UTAH

August 24, 1983

Mr. Edgar W. Guynn
United States Department of the Interior
Bureau of Land Management
Utah State Office
2000 Administration Building
1745 West 1700 South
Salt Lake City, Utah 84104

RE: TRANSCO EXPLORATION COMPANY
H_2S Precautionary Plan
TXC/Huber Federal #1-15
Section 15, T28S, R25E
San Juan County, Utah

Mr. Guynn:

Transco Exploration Company is preparing to drill the above-referenced well, which is located in the Manti-LaSal National Forest. This is not in a know H_2S area; however, Transco will take the following safety precautions to assure personnel safety:

1. All crews will be trained in H_2S safety prior to drilling the top of the Salt, which is estimated to be 10,000'; and escape routes will be determined.

2. All BOP's, tubulars and related equipment will be H_2S-treated.

3. Air packs will be provided for all personnel.

4. Wind socks will be installed on the location.

Should you have any questions concerning this matter, please contact Kay Morgan in this office at (713) 235-9159 at your earliest convenience.

Sincerely,

TRANSCO EXPLORATION COMPANY

H_2S precautions are o.k.
[illegible]

Joe S. Davis
Drilling Superintendent

JSD:KLM:tr

cc - United States Department of the Interior
Bureau of Land Management
P. O. Box 970
Moab, Utah 84532

ATTN: Mr. Tom Hare

State of Utah
Division of Oil, Gas & Mining
4241 State Office Building
Salt Lake City, Utah 84114

Transco
Exploration Company

A Subsidiary of Transco Companies Inc.

2425 West Loop South
P. O. Box 4511
Houston, Texas 77210
713-871-8000

August 24, 1983

Mr. Edgar W. Guynn
United States Department of the Interior
Bureau of Land Management
Utah State Office
2000 Administration Building
1745 West 1700 South
Salt Lake City, Utah 84104

RE: TRANSCO EXPLORATION COMPANY
H_2S Precautionary Plan
TXC/Huber Federal #1-15
Section 15, T28S, R25E
San Juan County, Utah

Mr. Guynn:

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Sincerely,

TRANSCO EXPLORATION COMPANY

Joe S. Davis
Drilling Superintendent

JSD:KLM:tr

cc - United States Department of the Interior
Bureau of Land Management
P. O. Box 970
Moab, Utah 84532

ATTN: Mr. Tom Hare

RECEIVED
AUG 26 1983
DIVISION OF
OIL, GAS & MINING

State of Utah
Division of Oil, Gas & Mining
4241 State Office Building
Salt Lake City, Utah 84114

WE'VE MOVED —
JUST ACROSS THE STREET

To 2800 Post Oak Boulevard.

Our mailing address is:

P. O. Box 1396
Houston, Texas 77251

☐ TRANSCO ENERGY COMPANY
☐ TRANSCONTINENTAL GAS PIPE LINE CORP.
☑ TRANSCO EXPLORATION COMPANY
☐

Our new phone number is (713) 439-2000

Department DRILLING

My direct dial number is (713) 439-3502

Name KAY L. MORGAN

HOUSTON TEX U.S. POSTAGE
RECEIVED
PB. METER 696974
AUG 29 1983

DIVISION OF
OIL, GAS & MINING

STATE OF UTAH
Division of Oil, Gas & Mining
4241 State Office Bldg.
Salt Lake City, UT 84114

Form 9-331 C
(May 1963)

SUBMIT IN [illegible]LICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK: DRILL [X] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL: OIL WELL [ ] GAS WELL [ ] OTHER WILDCAT SINGLE ZONE [ ] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR: TRANSCO EXPLORATION COMPANY ATTN: KAY L. MORGAN

3. ADDRESS OF OPERATOR: P. O. BOX ~~4511~~ 1396, HOUSTON, TEXAS ~~77210~~ 77251 2800 POST OAK BOULEVARD

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 650' ~~FWL~~ FSL & 1900' FWL OF SEC. 15 (SE¼ SW¼)
At proposed prod. zone: SAME AS SURFACE

5. LEASE DESIGNATION AND SERIAL NO.: U-23313

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: —

7. UNIT AGREEMENT NAME: —

8. FARM OR LEASE NAME: TXC/HUBER FEDERAL

9. WELL NO.: 1-15

10. FIELD AND POOL, OR WILDCAT: WILDCAT

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: SEC 15, T28S, R25E

12. COUNTY OR PARISH: SAN JUAN

13. STATE: UTAH

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: Approx. 40 miles southeast of LaSal, Utah

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 650'

16. NO. OF ACRES IN LEASE: 2392.38

17. NO. OF ACRES ASSIGNED TO THIS WELL: 160

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.: —

19. PROPOSED DEPTH: 12,700'

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 7597.7' (UNGRADED)

22. APPROX. DATE WORK WILL START*: SEPTEMBER 30, 1983 (SPUD) SEPTEMBER 1, 1983 (DIRT WORK

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
24"	20"	Culvert Pipe	50'+	Redimix
17½"	13-3/8"	72# L-80	2000'+	750 sx Class B (Circ to surface)
8-3/4"	5½"	17#, 20#, 23#, L-80, S-95	12700'±	1500 sx Class B Pozmix

Transco proposes to drill this well to 12,700' to test the Mississippian and Devonian formations. If productive, casing will be run to TD and the well will be completed and tested. If dry, the well will be plugged and abandoned in accordance with BLM, USFS, and State of Utah regulations.

RECEIVED
SEP 15 1983
DIVISION OF
OIL, GAS & MINING

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED [signature] TITLE Senior Drilling Engineer DATE 08-08-83

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY [signature] TITLE Associate District Manager DATE 9/13/83

CONDITIONS OF APPROVAL, IF ANY:

SUBJECT TO RIGHT OF WAY APPROVAL 9-13-83

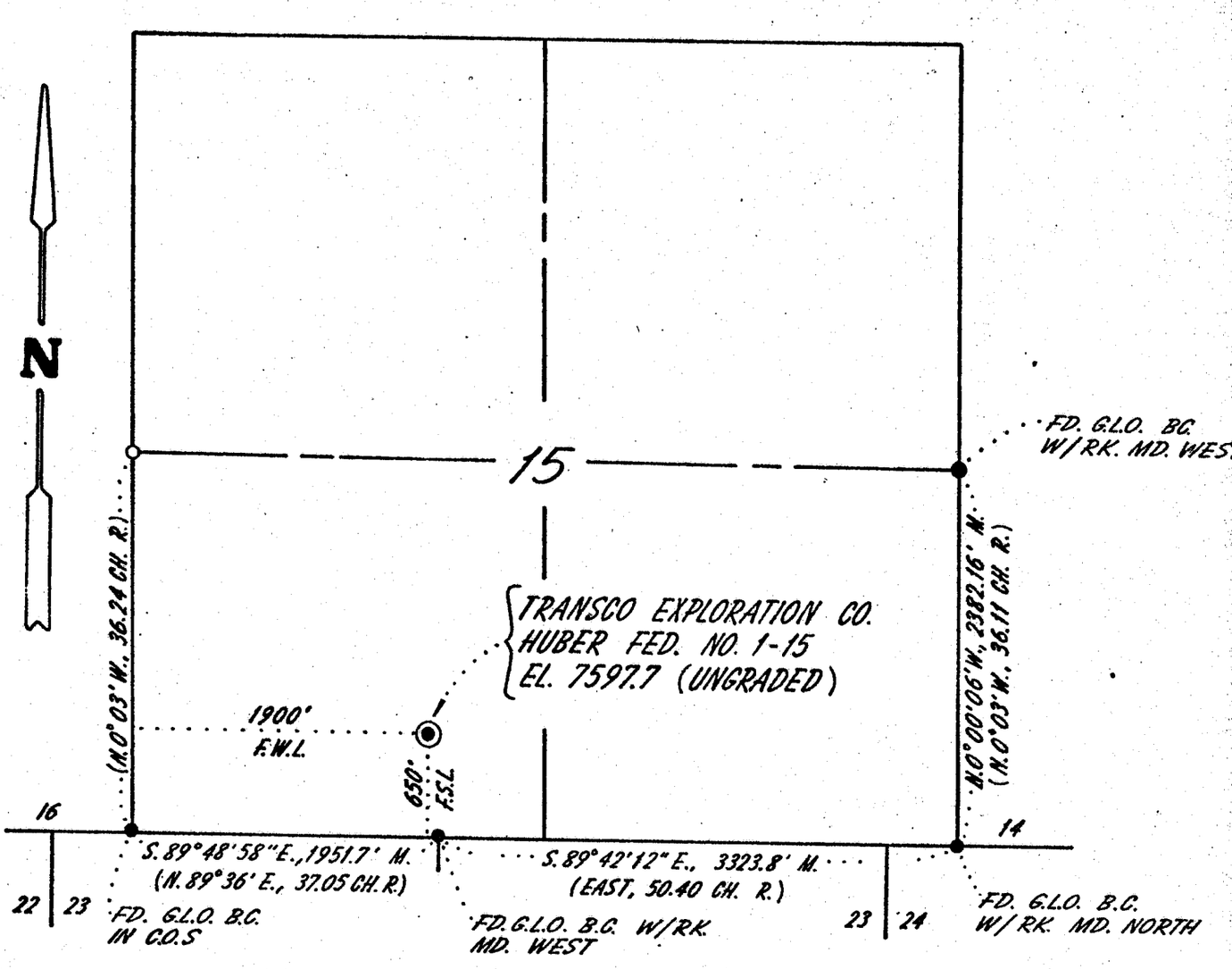
FLARING OR VENTING OF GAS IS SUBJECT OF NTL 4-A DATED 1/1/80

CONDITIONS OF APPROVAL ATTACHED

State of Utah - Oil & Mining

PATHFINDER ENGINEERING AND LAND SURVEYING, INC.
300 COUNTRY CLUB ROAD, SUITE 305
CASPER, WYOMING 307-266-3809

T.28 S., R.25E., SALT LAKE B. & M., SAN JUAN CO., UTAH
SECTION 15



BASIS OF BEARINGS: SOLAR OBSERVATION

SCALE: 1" = 1000'

◉ = SURVEYED WELL LOCATION

PLATTED FIELD NOTES OF A SURVEY MARKING WELL LOCATION TRANSCO EXPLORATION CO., HUBER FED. NO. 1-15
SE ¼ SW ¼ SEC. 15
T. 28 S., R. 25 E., SALT LAKE B. & M.
SAN JUAN CO., UTAH

SURVEYORS CERTIFICATE

STATE OF WYOMING)
COUNTY OF NATRONA) S.S.

I, PAUL A. REID, HEREBY STATE THAT I AM A REGISTERED LAND SURVEYOR IN THE STATE OF UTAH UNDER PROVISIONS OF UTAH LAW. I FURTHER STATE THAT THIS PLAT REPRESENTS A SURVEY MADE UNDER MY DIRECT SUPERVISION AND RESPONSIBILITY BY STEVEN J. MALEY ON JUNE 30-31, 1983 FOR THE PURPOSE OF AN APPLICATION FOR PERMIT TO DRILL. ANY OTHER USE OF THIS PLAT WITHOUT THE EXPRESSED WRITTEN CONSENT OF THE SURVEYOR IS PROHIBITED.

PAUL A. REID UTAH REG. L.S. 5669

JOB NO: 060-06 83
DATE: AUGUST 3, 1983
NOTES: W.L. BK. #7
PGS. 25-34

REGISTERED PROFESSIONAL SURVEYOR
PAUL A. REID
5669
STATE OF UTAH

UNGRADED ELEVATION OF TRANSCO HUBER FED. NO. 1-15 . . . . 7597.7

UNGRADED ELEVATIONS OF REFERENCE POINTS SET WITH 12" × ⅜" SPIKES.

NORTH. . . . . 250 FEET. 7610.7
SOUTH. . . . . 250 " 7590.4
EAST . . . . . 250 " 7607.4

BASIS OF ELEVATIONS: U.S.G.S. 15' QUAD "LA SAL" UTAH-COLO., BENCHMARK M-129 IN SEC. 35, PRINTED ELEV. 7121

EXHIBIT "A"

CONDITIONS OF APPROVAL FOR NOTICE TO DRILL

Company Transco Exploration Company **Well No.** 1-15

Location Sec. 15, T. 28 S., R. 25 E. **Lease No.** U-23313

A COPY OF THESE CONDITIONS SHOULD BE FURNISHED YOUR FIELD REPRESENTATIVE TO INSURE COMPLIANCE

All lease and/or unit operations are to be conducted in such a manner that full compliance is made with the applicable laws, regulations (30 CFR 221), and the approved plan of operations. The operator is considered fully responsible for the actions of his subcontractors. The following items are emphasized:

1. There shall be no deviation from the proposed drilling and/or workover program as approved. Safe drilling and operating practices must be observed. All wells, whether drilling producing, suspended, or abandoned shall be identified in accordance with 30 CFR 221.22. Any changes in operations must have prior approval of this office. Pressure tests are required before drilling out from under all casing strings set and cemented in place. Blowout preventer controls must be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned. Preventers will be inspected and operated at least daily to insure good mechanical working order, and this inspection recorded on the daily drilling report. Preventers will be pressure tested before drilling casing cement plugs. All BOP pressure tests must be recorded on the daily drilling report.

2. All shows of fresh water and minerals will be reported and protected. A sample will be taken of any water flows and furnished this office for analysis. All oil and gas shows will be adequately tested for commercial possibilities, reported and protected.

3. No location will be constructed or moved, no well will be plugged, and no drilling or workover equipment will be removed from a well to be placed in a suspended status without prior approval of this office. If operations are to be suspended, prior approval of this office must be obtained and notification given before resumption of operations.

   In the event abandonment of the hole is desired, an oral request may be granted by this office, but must be timely followed within 15 days with a "Notice of Intention to Abandon" (Form 9-331). Unless the plugging is to take place immediately upon receipt of oral approval, the District Manager must be notified at least 48 hours in advance of the plugging of the well in order that a representative may witness plugging operation. If a well is suspended or abandoned, all pits must be fenced immediately until they are backfilled. The "Subsequent Report of Abandonment" (Form 9-331) must be submitted within 15 days after the actual plugging of the well bore, reporting where the plugs were placed, and the current status of the surface restoration. If surface restoration has not been completed at that time, a follow-up report on form 9-331 should be filed when all surface restoration has been completed and the location is considered ready for final inspection.

4. The spud date will be reported orally to the respective District Manager's office within 48 hours after spudding. If the spudding occurs on a weekend or holiday, wait until the following regular workday to make this report.

Periodic drilling progress reports must be filed directly with the District Manager's office on a frequency and form or method as may be acceptable to the District Manager.

In accordance with NTL-1, this well must be reported on Form 9-329 "Monthly Report of Operations", starting with the month in which operations commence and continue each month until the well is physically plugged and abandoned. This report should be filed, in duplicate, directly with Royalty Management Accounting Center, Minerals Management Service, P. O. Box 2859, Casper, Wyoming 82602.

Any change in the program must be approved by the District Manager. "Sundry Notices and Reports on Wells" (form 9-331) must be filed for all changes of plans and other operations in accordance with 30 CFR 221.58. Emergency approval may be obtained orally, but such approval does not waive the written report requirement. Any additional construction, reconstruction, or alteration of facilities, including roads, gathering lines, batteries, etc., which will result in the disturbance of new ground will require the filing of a suitable plan pursuant to NTL-6, and prior approval by the District Manager.

5. Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (form 9-330) will be submitted not later than 15 days after completion of the well or after completion of operations being performed, in accordance with 30 CFR 221.59. Two copies of all logs run, core descriptions, core analyses, well-test data, geologic summaries, sample descriptions, and all other surveys or data obtained and complied during the drilling, workover, and/or completion operations, will be filed with form 9-330. Samples (cuttings, fluid, and/or gas) will be submitted only when requested by this office.

6. Significant surface values (are) (are not) involved at this location. Accordingly, you (must) (need not) notify at least (24) (48) hours prior to commencing field operations to allow this office to have personnel present for consultation during the construction of roads and locations.

Your contact with the District Office is: Tom Hare

Office Phone: 801-259-6111 Ext 235 Home Phone: 801-259-7965

City: Moab State: Utah

~~Resource Area Manager's~~ Address and contacts are: (Manti-LaSal Forest Service)

Address: 446 South Main, Moab, Utah 84532

Your contact is: Mark Chatterton

Office Phone: 801-259-7155 Home Phone: 801-259-8635

7. SURFACE OPERATING STANDARDS

Unless otherwise specified herein, construction and maintenance of surface facilities approved under this plan shall be in accordance with the guidelines set forth in the BLM/FS/GS Oil and Gas Brochure entitle, "Surface Operating Standards for Oil and Gas Exploration and Development". This includes but is not limited to such items as road construction and maintenance, handling of top soil and rehabilitation.

8. If a replacement rig is contemplated for completion operations, a "Sundry Notice" to that effect must be filed, for prior approval of the District Manager, and all conditions of this approved plan are applicable during all operations conducted with the replacement rig.

9. Pursuant to NTL-2B requirements regarding disposal facilities for new wells, this is authorization for unlined pit disposal of the water produced from this well for a period of 90 days from the date of initial production for sales purposes. During this period, an application for approval of the permanent disposal method, along with the required water analysis and other information must be submitted for the District Manager's approval. Failure to timely file an application within the time allowed will be considered an incident of noncompliance, and will be grounds for issuing a shut-in order until the application is submitted.

10. This permit is valid for a period of one year from the date of approval. If construction does not commence within 90 days from approval, the operator must contact this office 15 days prior to beginning construction. Construction under adverse conditions may require additional stipulations. If the permit terminates, any surface disturbance created under the application must be rehabilitated in accordance with the approved plan. After termination, it is required that a new application be filed for approval for any future operations.

11. If a tank battery is constructed on this lease, it must be surrounded by a fire wall of sufficient capacity to adequately contain the storage capacity of the battery.

12. This Application for Permit to Drill is approved subject to the requirement that, should the well be successfully completed for production, this office must be notified when it is placed in a producing status. Such notification will be by telegram or other written communication, and must be received in this office by not later than the first business day next following the date on which the well is placed on production. The notification shall provide, as a minimum, the following informational items:

    a. Operator name, address and telephone number.

    b. Well name and number.

    c. Well location (1/4, 1/4, Section, Township, Range and Prime Meridian).

    d. Date was placed in a producing status.

    e. The nature of the well's production, i.e. crude oil, or crude oil and casinghead gas, or natural gas and entrained liquid hydrocarbons.

f. The OCS, Federal or Indian lease prefix and number on which the well is located. Otherwise, the non-Federal or non-Indian land category, i.e. State or private.

g. If appropriate, the unit agreement name, number and participating area name.

h. If appropriate, the communitization agreement number.

13. _____

SUPPLEMENTAL STIPULATIONS OF APPROVAL ATTACHED

Transco Exploration Company
Well No. 1-15
Sec. 15, T. 28 S., R. 25 E.
San Juan County
Lease U-23313

Supplemental Stipulations:

A. Transportation

1. Permission agreements and/or right-of-ways must be obtained for reconstruction of the Forest Development Roads on the segments of private land.

2. All of the project road will be reclaimed if a developmental well does not result. The reclaimed project road must be blocked to prevent access by vehicles and signed by the operator to inform the public of the reclamation work underway.

3. All pinyon-juniper removed during construction of the project road should be stored above roadcuts, to be scattered across reclaimed project road.

4. Stockpile gravel removed from the project road during reclamation at the junction with the Forest Development Road System and the project road.

5. All range developments that are removed, damaged or altered will be repaired or replaced by Transco.

6. A Forest Service Road Use Permit will be required for all Forest System Roads used during the life of the project.

7. All road construction and reconstruction work will meet Forest Service "Standard Specifications for Construction of Roads and Bridges," 1979, unless specifically approved by the Forest Service.

8. Construction will not begin until plans have been reviewed and approved by the Forest Service.

9. Existing topsoil within the construction limits must be removed. The topsoil removed for reconstruction of the Forest Development Roads will be used to reclaim cut and fill slopes and other disturbed areas adjacent to the roads. Topsoil removed for construction of the project road must be stockpiled at a suitable location. The topsoil will be used to reclaim the

project road following project completion. If the well is a producer, the topsoil will be used to reclaim disturbed areas along the road.

10. Before construction may begin, a preconstruction meeting must be held, including appropriate contractors, operators, operator supervisory engineering personnel, and Forest Service personnel.

11. The following seed mix must be used for pad and project road reclamation work:

Agropyron cristatum	2 lbs/Acre	Crested wheatgrass (Fairway variety)
Agropyron intermedium	3 lbs/Acre	Intermediate wheatgrass
Agropyron pubescens	2 lbs/Acre	Pubescent wheatgrass
Oryzopsis hymenoides	2 lbs/Acre	Indian ricegrass
Medicago ladak	2 lbs/Acre	Ladak or standard alfalfa
Melilotus officinalis	1 lb/Acre	Yellow sweetclover
	12 lbs/Acre	

12. Apply a seed mix of less palatable vegetation to all new cutslopes and fill slopes on Forest Development Roads 50072 and 50201 immediately after construction. The following seed mix should be used:

Agropyron smithii	2 lbs/Acre	Western wheatgrass
Agropyron cristatum	1 lb/Acre	Crested wheatgrass
Calamagrostis canadensis	2 lbs/Acre	Bluejoint reedgrass
Elymus cinereus	2 lbs/Acre	Great Basin wildrye grass
Elymus glaucus	1 lb/Acre	Blue wildrye grass
Aster chilensis	½ lb/Acre	Pacific aster
Astragalus cicer	½ lb/Acre	Chickpea
Linum lewisii	¼ lb/Acre	Lewis flax
Melilotus alba	½ lb/Acre	White sweetclover
Sanguisorba minor	½ lb/Acre	Small burnet
Viguiera multiflora	¼ lb/Acre	Goldenrye
	10½ lbs/Acre	

13. Return pad and project road to approximate original contour, if reclamation is needed.

14. Upgrade the Lower Twomile Road and Hang Dog Creek Road to safely carry the anticipated volume and type of traffic during the extended season of use.

15. Provide a proper aggregate surface for support of the traffic and season of use on all roads to be used.

16. The operator will sign the Lower Twomile Road and Hang Dog Creek Road to indicate truck traffic.

17. Provide a safe turnaround and wintertime recreational vehicle parking area during winter operations, beyond the turnoff point to the well site on the Hang Dog Creek Road.

18. Waterbars and erosion control structures must be installed where needed on reclaimed portions of access roads and drill pad.

19. Disposal of slash and stumps along the Lower Twomile Road and Hang Dog Creek Road, and any portion of the project road which will remain open will be by burning or chipping. Any residue left from burning will then be disposed of by burying in a location approved by the Forest Service.

20. A temporary directional sign is required at the junction of FDR's 50072 and 50201. The Forest Service will provide a permanent sign at a later time.

B. Non-Transportation Requirements

21. All trash for this project must be contained in a manner which will prevent it from being blown off location.

22. Sewage disposal must meet State regulations and be acceptable to the Forest Service.

23. Adequate fire suppression equipment must be readily available to employees and contractors at the project site.

24. All motorized equipment will have working mufflers and spark arrestors. Electrical equipment must be properly insulated. Vehicles equipped with catalytic converters will be parked in clear areas to avoid igniting potential fuels such as grass and brush.

25. Pad design will meet Forest Service "Standard Specifications for Construction of Roads and Bridges," 1979, unless specifically approved by the Forest Service.

26. If production occurs, the unneeded portions of the drill pad will be reclaimed.

27. A three strand barbed wire fence will be required around reclaimed pad to be maintained by the operator and removed by the operator after reclamation is successful.

28. Topsoil will be stripped from all areas where surface disturbance is necessary, and stockpiled. Care should be taken to avoid unnecessary mixing with other excavated materials.

29. Any excess topsoil from permanent road construction not needed for reclamation of cut and fill slopes will be stockpiled for reclamation of the pad.

30. Intentional harassment of livestock and wildlife is prohibited.

31. Section corners or other survey markers within the project area must be flagged for preservation prior to commencement of surface disturbing activities. The removal, displacement or disturbance of markers must be approved by the proper authority.

32. All surface disturbing activities and operations must be supervised by a company representative knowledgeable of the terms and conditions of approval of the Operating Plan.

33. All surface disturbing activities must cease in the event that archaeological or cultural resources are unearthed or discovered. The Forest Service must be immediately notified of the situation. Operations may again commence upon Forest Service approval.

34. The operator is responsible for immediate repairs of any and all damages to roads, structures, and improvements, which result from his operations, at his own expense.

35. All equipment and debris must be removed from the National Forest upon completion of operations. All trash and garbage must be properly disposed of at an approved refuse area. Disposal or burial of any such material in the reserved pit is prohibited.

36. All trash which is burned on location must be in a facility which contains the fly ash and is approved by the Forest Service.

37. Water must be legally obtained in accordance with State water laws.

38. Vehicle operators must maintain safe speeds commensurate with existing road traffic and weather conditions.

39. Transco Exploration Company must take all necessary measures to prevent contamination of soils and water around the project, by containing all drill muds, fluids, fuels, and other contaminants during all phases of the operation.

40. Dogs at the campsite and construction area must be kept on a leash, or otherwise restricted from chasing wildlife and livestock.

41. In the event that drilling is completed in the winter and reclamation cannot be completed until spring, temporary measures must be taken. This includes fencing of the pit, removal of trash and debris, and correction and maintenance of any damage done to the surfacing or drainage features of the transportation system and pad area.

42. Snow removal operations at the drill site will be conducted such that contaminants are contained by the pad and reserve pit.

43. Water flow in the special use ditch will not be disrupted during all stages of operations.

44. Project vehicles will not leave the Forest Development Road or project road right-of-way or the pad site.

45. Contaminated gravel and soil stripped from the pad for reclamation must be buried in the reserve pit.

ADDITIONAL STIPULATIONS FOR PRODUCTION FACILITIES

Your Application for Permit to Drill also included a submittal for production facilities. These production facilities are approved for the lessee and his designated operator under Section 1 of the Oil and Gas Lease with the following conditions:

(1) The oil and gas measurement facilities must be installed on the well location. The oil and gas meters will be calibrated in place prior to any deliveries. Tests for meter accuracy are to be conducted monthly for the first three months on new meter installations and at least quarterly thereafter. Please provide this office with a date and time for the initial meter calibration and all future meter proving schedules. A copy of the meter calibration reports are to be submitted to the Salt Lake City District Oil and Gas Supervisor. Royalty payments will be made on all production volume as determined by the meter measurements or the tank measurements. All measurement facilities must conform with the API standards for liquid hydrocarbons and the AGA standard for natural gas measurement.

(2) Gas meter runs for each well will be located within 500 feet of the wellhead. The gas flowline will be buried from the wellhead to the meter and 500 feet downstream of the meter run or any production facilities. Meter runs must be housed and/or fenced.

(3) All disturbed areas not required for operations will be rehabilitated.

(4) All produced liquids must be contained including the dehydrator vent/condensate line effluent. All production pits must be fenced.

(5) The well activity, the well status and the date the well is placed on production must be reported on Lessee's Monthly Report of Operations, Form 9-329.

(6) All off-lease storage, off-lease measurement, or commingling on lease or off-lease must have written approval.

(7) All product lines entering and leaving hydrocarbon storage tanks must be locked/sealed.

(8) You are reminded of the requirements for handling, storing, or disposing of water produced from oil and gas wells under NTL-2B.

(9) All materials, trash, junk, debris, etc. not required for production must be removed from the well site and production facility site at the completion of these operations.

(10) A copy of the Gas Sales Contract will be provided to this office and the Royalty Accounting Department as directed.

(11) Construction and maintenance for surface use approved under this plan should be in accordance with the surface use standards as set forth in the BLM/GS Oil and Gas Brochure entitled, "Surface Operating Standards for Oil and Gas Exploration and Development." This includes, but is not limited to, such items as road construction and maintenance, handling of top soil and rehabilitation.

(12) "Sundry Notice and Reports on Wells" (form 9-331) will be filed for all changes of plans and other operations in accordance with 30 CFR 221.58. Emergency approval may be obtained verbally, but such approval does not waive the written report requirement. Any additional construction, reconstruction, or alternations of facilities, including roads, gathering lines, batteries, measurement facilities, etc., will require the filing of a suitable plan and prior approval by the survey.

Form 9-331
Dec. 1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

RECEIVED
OCT 3 1983
DIVISION OF
OIL GAS & MINING

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☐ other

2. NAME OF OPERATOR ATTN: KAY L. MORGAN
TRANSCO EXPLORATION COMPANY

3. ADDRESS OF OPERATOR
P. O. BOX 1396, HOUSTON, TEXAS 77251

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 650' ~~FWL~~ FSL & 1900'FWL OF SEC 15 (SE¼SW¼)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH: Same as Surface

5. LEASE
U-23313

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
---

7. UNIT AGREEMENT NAME
---

8. FARM OR LEASE NAME
TXC/HUBER FEDERAL

9. WELL NO.
1-15

10. FIELD OR WILDCAT NAME
WILDCAT

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
SEC 15, T28S, R25E

12. COUNTY OR PARISH: San Juan

13. STATE: Utah

14. API NO.
43-037-30923

15. ELEVATIONS (SHOW DF, KDB, AND WD)
7600 A.S.L.

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	☐	☐
FRACTURE TREAT	☐	☐
SHOOT OR ACIDIZE	☐	☐
REPAIR WELL	☐	☐
PULL OR ALTER CASING	☐	☐
MULTIPLE COMPLETE	☐	☐
CHANGE ZONES	☐	☐
ABANDON*	☐	☐
(other) Change Csg Program	X	

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

SEE ATTACHED FOR (REVISED) CASING PROGRAM.

~~APPROVED~~ ACCEPTED BY THE STATE OF UTAH DIVISION OF OIL, GAS, AND MINING
DATE: 10/3/83
BY:

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

18. I hereby certify that the foregoing is true and correct
SIGNED _____ TITLE Drilling Superintendent DATE 09-29-83

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

TXC-269
REV. 5-80
FRONT

Transco Exploration Company
Drilling Prognosis

Well Name: Transco-Huber-Federal 1-15 ✓ Date: 9-27-83

Prospect: Pole Springs AFE No.: 83636

Location: San Juan Co., Utah

650' FSL and 1900' FWL, Sec. 15, T28S, R25E

Total Depth: 12,700 Elevation: 7600 A.S.L. Water Depth: Land Location

Drilling:

Bit Size	Depth			Deviation
26"	0	To	100' ±	0-2°
17-1/2"	100'	To	2000'	0-2°
12-1/4"	2000'	To	6000' or 10,000'	0-4°
8-1/2"	*6000 or 10,000'	To	11,500' **	0-4°
6-1/2"	**11,500'	To	12,700'	0-5°

Casing Design

	Casing Size	Interval	Description	Tension	New Strength / Actual S.F. Collapse	Burst
Drive Pipe:	20"	0-100'±	Set Prior to spud	/	/	/
Conductor:				/	/	/
Surface:	13-3/8"	0-2000'	68#, K-55, BTC	1300 / 9.5	1950 / 1.8	3450 / 1.3
	Wear calculated burst for 60 days			/	/	/
				/	/	/
Intermediate: *	9-5/8"	0-6000/10,000'	L-80, 47#, LTC	893 / 1.9	4750 / 1.1	6870 / 3.8
	30 days wear burst - 2.7			/	/	/
	60 days wear burst - 2.3			/	/	/
				/	/	/
***	7-3/4"	5800/9800 -	11,500 S-125, 46.1#, LTC	1279 / 5.0	16610 / 1.2	16790 / 6.9
				/	/	/
Production	5"	11,300-12,700'	18#, P-110, LTC	495 / 19.6	13450 /2.3	13940 / 2.4

Logging Depths: 1. See Geological 2. Attachment 3. 4. 5.

Services:

Geology: Start Samples @ ft. Large Small

Send Samples To:

Mud Logging: Start Services @ ft. Pore Press. Services: Yes No

Remarks: * Top of Salt

** Base of Salt

*** Length will vary with thickness of salt.

TXC-209
REV. 4-89
BACK

Well Name: Transco-Huber-Federal-1-15 Type Mud: Ligno

Mud Properties:

Depth	Wt.	W.L.	Visc.	Pv/Yp	Remarks
0-100' ±	Air, Mist				
100-2000'	8.3-8.5	NC	30-35	10/15	Fresh water
2000-Top salt	8.5-11.0	20cc or less	35-40	15/10	Fresh/brine water
Top Salt-11,500'	10.5-11.5	20 cc or less	35-45	15/10	Salt saturated
11,500'-12,700'	8.5-9.5	20cc or less	35-45	15/10	
					"Refer to Mud Program"

Cementing Information:

Conductor 20"

Filler 200 Sx. Type Class B + 2% $CaCl_2$ + 1/4#/sk Flocele
Yield: 1.18 CF - Water 5.7 gal
Tail _____ Sx. Type _____
Centralizers And Float Equipment _____
Casing Test Pressure _____ psi

Surface 13-3/8"

Filler 1000 Sx. Type Lite + 10#/sk Gilsonite + 0.25#/sk Flocele
12.4 ppg, 1.99 CF, 9.9 gal water
Tail 200 Sx. Type Class B + 2% $CaCl_2$ + 0.25#/sx Flocele
15.6 ppg, 1.18 CF, 5.2 gal water
Centralizers And Float Equipment 20 bbls super flush ahead - Double float shoe & collar plus four centralizers on bottom four joints.
Casing Test Pressure 1500 psi Required Shoe Test 13.0 Equiv. ppg

Intermediate 9-5/8"

600 Sx. Type Lite - 13.1 ppg - 1.18 CF - 5.2 gal water
Tail with 200 sx. Class B - 15.6 ppg - 1.18 CF - 5.2 gal water - 20 bbl mud flush ahead.
Centralizers And Float Equipment Double float shoe & collar and one centralizer - per 60' on bottom 2000' casing.
Casing Test Pressure 1500 psi Required Shoe Test 14.0 Equiv. ppg

Liner 7-3/4"

600 Sx. Type Class H + 0.6% Halad - 9 + 12% Salt + 0.5% CFR-2 - 10 bbls Sam V Ahead - 16.2 ppg - 1.17 CF- 5.1 gal water
Run double float shoe & collar - No centralizers

Production 5"

500 sx class H + 0.6 Halard 9 + 12% salt + 0.5% CFR-2 - 10 bbls Sam V ahead - 16.2 ppg
1.17 CF/sx - 5.1 gal water - No centralizers -

Remarks

Notify Joe Davis 713 - 363-2505 or David Adams 713 - 451-9417 of any unusual well conditions after office hours.

Approved:

Drilling Engineer _____ Drilling Superintendent _____

Drilling Engineering/Manager _____

wtr OK
g

DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

NAME OF COMPANY: TRANSCO EXPLORATION COMPANY

WELL NAME: TXO HUBER FED. 1-15

SECTION SESW 15 TOWNSHIP 28S RANGE 25E COUNTY San Juan

DRILLING CONTRACTOR

RIG #

SPUDDED: DATE 10-20-83

TIME 1:00 PM

HOW Dry Hole Digger

DRILLING WILL COMMENCE

REPORTED BY Tina Rios

TELEPHONE # Houston, Tx. Office

DATE 10-21-83 SIGNED R. J. Firth

AFFIDAVIT OF SPUDDING

STATE OF TEXAS

COUNTY OF HARRIS

Before me the undersigned authority, personally appeared David M. Adams, who being first duly sworn, did say that he is employed by Transco Exploration Company as Senior Drilling Engineer for operations in the State of Utah and further stated that drilling operations commenced on the TXC/HUBER FEDERAL #1-15 in Section 15, T28S, R25E, San Juan County, Utah at 1:00 p.m. (Mountain Time) on October 20, 1983.

David M. Adams

DAVID M. ADAMS
Senior Drilling Engineer

Subscribed and sworn to before me this 26th day of October, 19 83.

Susan Bowman
Notary Public

My commission expires 2/14/84

SUSAN BOWMAN
Notary Public in Harris County, Texas
My Commission Expires 2/14/84

OMB No. 1010-0045
(Expires July 31, 1986)

UNITED STATES
DEPARTMENT OF THE INTERIOR
MINERALS MANAGEMENT SERVICE

RECEIVED
OCT 28 1983
DIVISION OF
OIL, GAS & MINING

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form MMS-331-C for such proposals.)

1. oil well ☐ gas well ☐ other

2. NAME OF OPERATOR
TRANSCO EXPLORATION COMPANY ATTN: KAY L. MORGAN

3. ADDRESS OF OPERATOR *(Where form is completed)*
P. O. BOX 1396, HOUSTON, TEXAS 77251

4. LOCATION OF WELL *(Report location in accordance with instructions* and Item 16.)*
AT SURFACE: 650' FSL & 1900' FWL OF SEC 15 (SE¼SW¼)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH: Same as surface

5. LEASE NO.
U-23313

6. AREA & BLOCK
TXC/HUBER FEDERAL

7. WELL NO.
1-15

8. UNIT AGREEMENT
---

9. FIELD
WILDCAT

10. EXPLORATION ☒
DEVELOPMENT ☐

11. ADJACENT STATE
UTAH

12. API NO.
43-037-30923

13. ELEVATIONS
RKB 7600 A.S.L. DF

14. WATER DEPTH

SEC. 15, T28S, R25E
SAN JUAN COUNTY

15. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:
ACIDIZE	☐	☐
REPAIR WELL	☐	☐
PULL OR ALTER CASING	☐	☐
MULTIPLE COMPLETE	☐	☐
CHANGE ZONES	☐	☐
PERFORATE	☐	☐
PERMANENT ABANDONMENT	☐	☐
TEMPORARY ABANDONMENT	☐	☐
ARTIFICIAL LIFT	☐	☐
(Other) Notification of Spud Date		XX

(NOTE: Report results of multiple completion or zone change on Form MMS-330.)

16. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Spudded well on 10-20-83 @ 1300 hours. Ran and cemented 20" csg @ 100'.

VERBAL NOTIFICATION WAS GIVEN TO TIM ABING (BLM) BY TINA RIOS THAT THE ABOVE SUBJECT WELL WAS SPUDDED ON 10/20/83.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

17. I hereby certify that the foregoing is true and correct

SIGNED David Adams TITLE Senior Drilling Engineer DATE 10-26-83

(This space for Federal or State office use)

APPROVED _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

Form MMS-331 (May 1983)
(Supersedes USGS Form 9-331 which will not be used)

*See instructions on reverse

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
(FORM 9-329)
(2/76)
OMB 42-RO 356

MONTHLY REPORT OF OPERATIONS

Lease No. U-23313
Communitization Agreement No. -
Field Name Wildcat
Unit Name Pole Springs Unit
Participating Area None Established
County San Juan State Utah
Operator Transco Exploration Company
☐ Amended Report

The following is a correct report of operations and production (including status of all unplugged wells) for the month of October, 19 83

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396 d), regulation (30 CFR 221.60), and the terms of the lease. Failure to report can result in the assessment of liquidated damages (30 CFR 221.54 (j)), shutting down operations, or basis for recommendation to cancel the lease and forfeit the bond (30 CFR 221.53).

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
TXC/Huber Fed #1-15	Sec.15 SE¼ SW¼	28S	25E	DRG	0	0	0	0	TD: 263' Mud: 8.5 ppg Spudded 10-20-83. Ran & cemented 20" at 100'. Drlg. ahead with Forwest #6 Rig.

RECEIVED NOV 7 1983 DIVISION OF OIL, GAS & MINING

NOV 8 REC'D

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month		XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXX
*Produced			
*Sold			XXXXXXXXXXXXXXXXX
*Spilled or Lost		XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXXX		XXXXXXXXXXXXXXXXX
*Used on Lease			XXXXXXXXXXXXXXXXX
*Injected			
*Surface Pits	XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXX	
*Other (Identify)			
*On hand, End of Month		XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXX
*API Gravity/BTU Content			XXXXXXXXXXXXXXXXX

Authorized Signature: Kay L. Morgan Kay L. Morgan Address: P. O. Box 1396, Houston, Texas 77251
Title: Drilling Administrator

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
(FORM 9-329)
(2/76)
OMB 42-RO 356

MONTHLY REPORT OF OPERATIONS

Lease No. U-[redacted]13
Communitization Agreement No. -
Field Name Wildcat
Unit Name Pole Springs Unit
Participating Area None Established
County San Juan State Utah
Operator TRANSCO EXPLORATION COMPANY
☐ Amended Report

The following is a correct report of operations and production (including status of all unplugged wells) for the month of November, 19 83

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396 d), regulation (30 CFR 221.60), and the terms of the lease. Failure to report can result in the assessment of liquidated damages (30 CFR 221.54 (j)), shutting down operations, or basis for recommendation to cancel the lease and forfeit the bond (30 CFR 221.53).

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
TXC/Huber Fed #1-15	SEC. 15 SE¼ SW¼	28S	25E	DRG	0	0	0	0	TD: 7210' MUD: 8. Ran 13-3/8" csg @ 2002' w/1550 sx cmt. Tst csg 1500 Tst shoe 12#EMW. Drlg, Circ, and surveyed.

RECEIVED
DEC - 8 1983
DIV. OF OIL, GAS & MINING

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month		XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXX
*Produced			
*Sold			XXXXXXXXXXXXXXXXX
*Spilled or Lost		XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXXX		XXXXXXXXXXXXXXXXX
*Used on Lease			XXXXXXXXXXXXXXXXX
*Injected			
*Surface Pits	XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXX	
*Other (Identify)			
*On hand, End of Month		XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXX
*API Gravity/BTU Content			XXXXXXXXXXXXXXXXX

Authorized Signature: Kay L. Morgan Address: P.O. Box 1396, Houston, TX 77251
Title: Drilling Administrator Page 1 of 1

UNITED STATES
DEPARTMENT OF THE INT[redacted]
GEOLOGICAL SURVEY
(FORM 9-329)
(2/76)
OMB 42-RO 356

MONTHLY REPORT OF OPERATIONS

Lease No. U-23313
Communitization Agreem[redacted]
Field Name Wildcat
Unit Name Pole Springs Unit
Participating Area None Established
County San Juan State Utah
Operator TRANSCO EXPLORATION COMPANY
☐ Amended Report

The following is a correct report of operations and production (including status of all unplugged wells) for the mont[redacted] of December, 19 83

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396 d), regulation (30 CFR 221.60), and the terms of the lease. Failure to report ca[redacted] result in the assessment of liquidated damages (30 CFR 221.54 (j)), shutting down operations, or basis for recommendation to cancel the lease and forfeit the bond (30 CFR 221.53).

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
TXC/Huber Fed #1-15	SEC. 15 SE¼SW¼	28S	25E	DRG	0	0	0	0	TD: 9618' MUD: 9.0 Drilling and surveying. Run DST's #2 & #3. W&R 70' to TD. Drld to 9618'.

RECEIVED
JAN 16 1984
DIVISION OF
OIL, GAS & MINING

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month		XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Produced			
*Sold			XXXXXXXXXXXXXXXX
*Spilled or Lost		XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXX		XXXXXXXXXXXXXXXX
*Used on Lease			XXXXXXXXXXXXXXXX
*Injected			
*Surface Pits	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX	
*Other (Identify)			
*On hand, End of Month		XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*API Gravity/BTU Content			XXXXXXXXXXXXXXXX

Authorized Signature: Kay L. Morgan Address: P. O. Box 1396, Houston, TX 77251
Title: Drilling Administrator Page 1 of 1

Form 9-331
Dec. 1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☐ other

2. NAME OF OPERATOR ATTN: KAY MORGAN
TRANSCO EXPLORATION COMPANY

3. ADDRESS OF OPERATOR
P.O. BOX 1396, HOUSTON, TX 77210

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 650' FSL & 1900' FWL OF SEC. 15
AT TOP PROD. INTERVAL: (SE¼SW¼)
AT TOTAL DEPTH: SAME

5. LEASE
U-23313

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
----

7. UNIT AGREEMENT NAME
----

8. FARM OR LEASE NAME
TXC/HUBER FEDERAL

9. WELL NO.
1-15

10. FIELD OR WILDCAT NAME
WILDCAT

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
SEC. 15 T28S R25E

12. COUNTY OR PARISH: SAN JUAN
13. STATE: UTAH

14. API NO.
43-037-30923

15. ELEVATIONS (SHOW DF, KDB, AND WD)
7597.7' (Ungraded)

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	☐	☐
FRACTURE TREAT	☐	☐
SHOOT OR ACIDIZE	☐	☐
REPAIR WELL	☐	☐
PULL OR ALTER CASING	☐	☐
MULTIPLE COMPLETE	☐	☐
CHANGE ZONES	☐	☐
ABANDON*	☐	☐
(other) Amend 9-5/8" Casing		X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

RECEIVED
JAN 23 1984
DIVISION OF OIL, GAS & MINING

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

DEPTH: 10,180' MUD WT: 9.5

Amend 9-5/8" Casing @ 10,110', in lieu of 10,000'. Cemented casing w/900 sx. cmt. - Full returns.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

18. I hereby certify that the foregoing is true and correct

SIGNED [signature] TITLE Sr. Drlg. Engr. DATE 01-19-84

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

LEGAL LOCATION SEC. - TWP. - RNG.	FIELD AREA	COUNTY	STATE
15-28S-25E	WILDCAT	SAN JUAN	UTAH

LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL	LEASE OWNER/COMPANY NAME
TXC HUBER	1-15	1	7164.' - 7186.'	TRANSCO EXPLORATION COMPANY

HALLIBURTON SERVICES

TICKET NO. 69524000

02-DEC-83

FARMINGTON

FORMATION TESTING SERVICE REPORT

EQUIPMENT & HOLE DATA

FORMATION TESTED: CUTLER
NET PAY (ft): 7.0
GROSS TESTED FOOTAGE: 22.0
ALL DEPTHS MEASURED FROM: KB
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 12.250
ELEVATION (ft): 7500
TOTAL DEPTH (ft): 7186.0
PACKER DEPTH(S) (ft): 7158, 7164
FINAL SURFACE CHOKE (in):
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 9.00
MUD VISCOSITY (sec): 38
ESTIMATED HOLE TEMP. (°F):
ACTUAL HOLE TEMP. (°F): 120 @ 7182.0 ft

TICKET NUMBER: 69524000
DATE: 11-29-83 TEST NO: 1
TYPE DST: OPEN HOLE
HALLIBURTON CAMP: FARMINGTON
TESTER: ROBINSON
WITNESS: MC PHAIL
DRILLING CONTRACTOR: FORWEST LIMITED #6

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY	CHLORIDES
TOP	2.800 @ 66 °F	ppm
BOTTOM	2.840 @ 66 °F	ppm
MUD PIT	2.600 @ 62 °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm

SAMPLER DATA

Psig AT SURFACE: 46
cu.ft. OF GAS: 0.35
cc OF OIL: 0
cc OF WATER: 0
cc OF MUD: 100
TOTAL LIQUID cc: 100

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): @ °F
GAS/OIL RATIO (cu.ft. per bbl):
GAS GRAVITY:

CUSHION DATA

TYPE	AMOUNT	WEIGHT

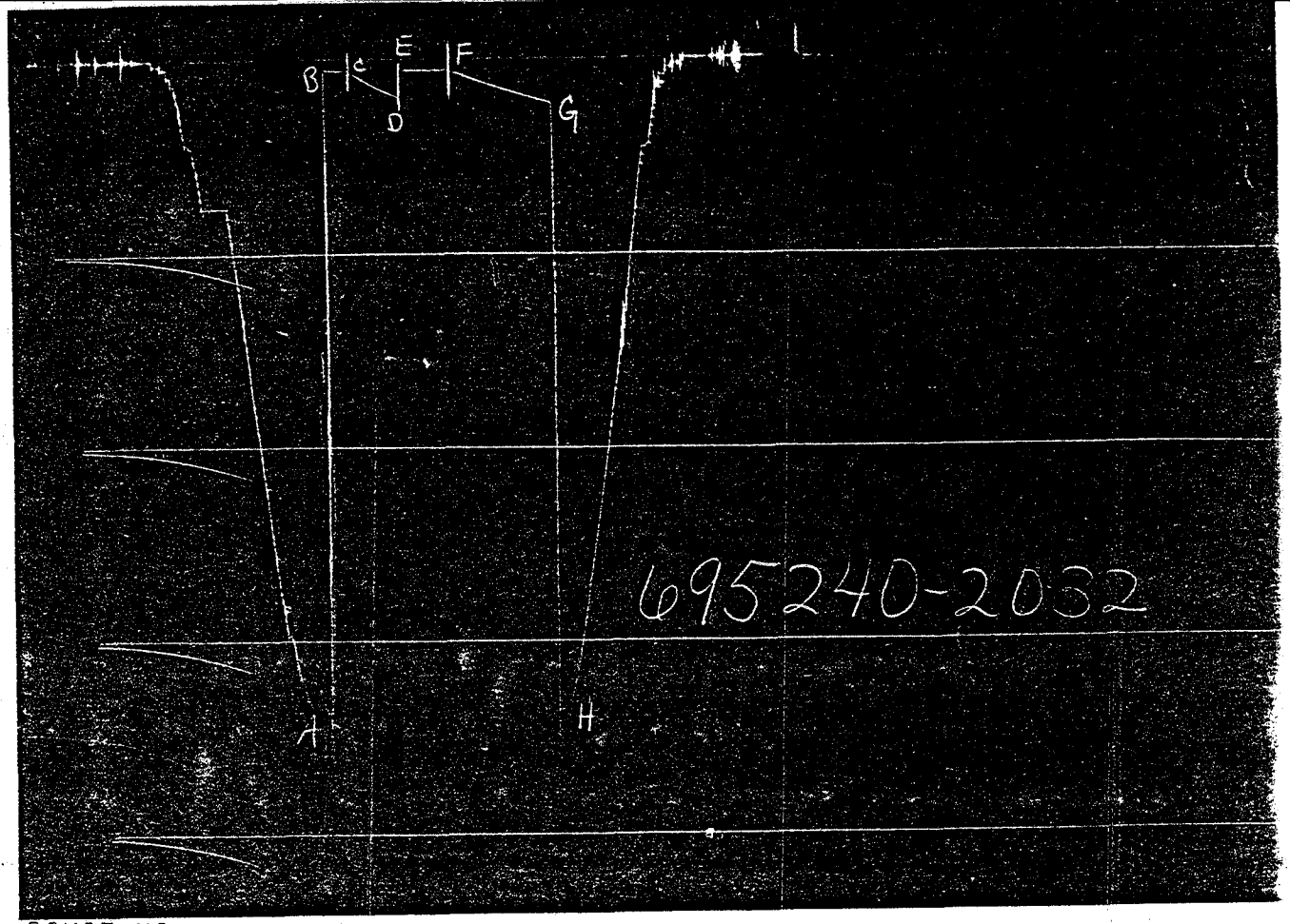
RECOVERED:

120' OF DRILLING MUD

MEASURED FROM TESTER VALVE

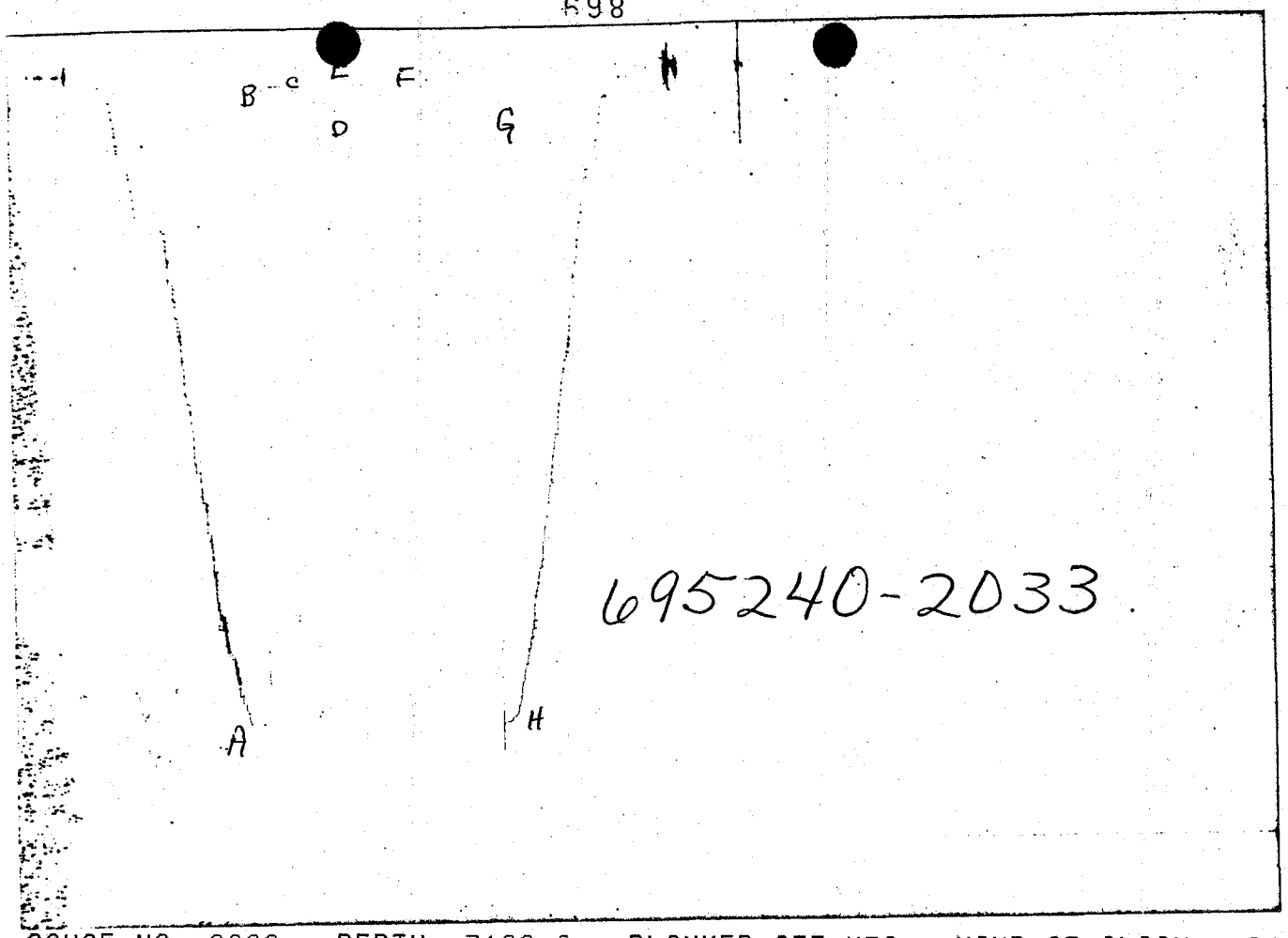
REMARKS:

TIGHT HOLE.....
NO FLUID IN SAMPLER



GAUGE NO: 2032 DEPTH: 7150.0 BLANKED OFF: NO HOUR OF CLOCK: 2

ID	DESCRIPTION	PRESSURE REPORTED	PRESSURE CALCULATED	TIME REPORTED	TIME CALCULATED	TYPE
A	INITIAL HYDROSTATIC	3345	3337.5			
B	INITIAL FIRST FLOW	53	55.4	30.0	29.4	F
C	FINAL FIRST FLOW	66	61.3			
C	INITIAL FIRST CLOSED-IN	66	61.3	60.0	60.2	C
D	FINAL FIRST CLOSED-IN	198	197.4			
E	INITIAL SECOND FLOW	66	54.5	60.0	60.1	F
F	FINAL SECOND FLOW	53	57.9			
F	INITIAL SECOND CLOSED-IN	53	57.9	120.0	119.7	C
G	FINAL SECOND CLOSED-IN	224	227.2			
H	FINAL HYDROSTATIC	3345	3346.0			



GAUGE NO: 2033 DEPTH: 7183.0 BLANKED OFF: YES HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE REPORTED	PRESSURE CALCULATED	TIME REPORTED	TIME CALCULATED	TYPE
A	INITIAL HYDROSTATIC	3364	3366.6			
B	INITIAL FIRST FLOW	67	82.8	30.0	29.4	F
C	FINAL FIRST FLOW	81	73.6			
C	INITIAL FIRST CLOSED-IN	81	73.6	60.0	60.2	C
D	FINAL FIRST CLOSED-IN	201	206.7			
E	INITIAL SECOND FLOW	81	57.9	60.0	60.1	F
F	FINAL SECOND FLOW	67	69.4			
F	INITIAL SECOND CLOSED-IN	67	69.4	120.0	119.7	C
G	FINAL SECOND CLOSED-IN	241	237.3			
H	FINAL HYDROSTATIC	3364	3366.6			

TICKET NO: 69524000

CLOCK NO: 13741 HOUR: 24

HALLIBURTON SERVICES

GAUGE NO: 2032

DEPTH: 7150.0

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
			FIRST FLOW			
B	1	0.0	55.4			
	2	5.0	60.8	5.4		
	3	10.0	60.8	0.0		
	4	15.0	60.8	0.0		
	5	20.0	61.6	0.8		
	6	25.0	61.6	0.0		
C	7	29.4	61.3	-0.3		
			FIRST CLOSED-IN			
C	1	0.0	61.3			
	2	1.0	77.8	16.5	1.0	1.481
	3	2.0	79.0	17.7	1.9	1.200
	4	3.0	79.9	18.6	2.7	1.040
	5	4.0	81.1	19.8	3.5	0.920
	6	5.0	81.4	20.1	4.3	0.836
	7	6.0	82.3	21.0	5.0	0.771
	8	7.0	83.5	22.2	5.6	0.719
	9	8.0	85.8	24.4	6.3	0.671
	10	9.0	87.9	26.5	6.9	0.630
	11	10.0	90.1	28.8	7.4	0.597
	12	12.0	96.2	34.8	8.5	0.540
	13	14.0	101.7	40.4	9.5	0.493
	14	16.0	106.7	45.4	10.4	0.454
	15	18.0	112.0	50.7	11.2	0.420
	16	20.0	116.8	55.4	11.9	0.393
	17	22.0	121.9	60.6	12.6	0.369
	18	24.0	127.2	65.8	13.2	0.348
	19	26.0	131.7	70.3	13.8	0.329
	20	28.0	136.4	75.1	14.4	0.312
	21	30.0	140.6	79.3	14.9	0.297
	22	35.0	151.5	90.1	16.0	0.265
	23	40.0	161.6	100.3	17.0	0.240
	24	45.0	171.2	109.9	17.8	0.219
	25	50.0	181.4	120.1	18.5	0.201
	26	55.0	190.1	128.8	19.2	0.186
D	27	60.2	197.4	136.0	19.8	0.173
			SECOND FLOW			
E	1	0.0	54.5			
	2	10.0	58.4	4.0		
	3	20.0	58.4	0.0		
	4	30.0	58.4	0.0		
	5	40.0	58.4	0.0		
	6	50.0	58.4	0.0		
F	7	60.1	57.9	-0.5		

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+}{\Delta}$
			SECOND CLOSED-IN			
F	1	0.0	57.9			
	2	10.0	75.5	17.5	9.0	0.99
	3	20.0	92.1	34.2	16.3	0.73
	4	30.0	107.0	49.1	22.5	0.60
	5	40.0	122.3	64.4	27.6	0.51
	6	50.0	136.7	78.8	32.1	0.44
	7	60.0	151.1	93.1	35.9	0.39
	8	70.0	164.8	106.9	39.3	0.35
	9	80.0	178.6	120.7	42.2	0.32
	10	90.0	191.3	133.4	44.9	0.30
	11	100.0	204.0	146.0	47.3	0.27
	12	110.0	216.6	158.7	49.4	0.25
G	13	119.7	227.2	169.3	51.2	0.24

REMARKS:

TYPE & SIZE MEASURING DEVICE: _____ TICKET NO: 69524000

TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
11-29-83					
0200					ON LOCATION, STANDING-BY
0530					PICKED UP TOOL
0800					TRIP IN WITH DST #1
1212					TAGGED BOTTOM & SLACKED OFF
1215	1/8BH				OPENED TOOL WITH BLOW FROM
					BOTTOM OF BUCKET
1217	"	10 OZ			STRONG BLOW, NO FLAMMABLE GAS
1220	"	36 OZ			SAME
1225	"	2.5#			SAME
1235	"	2.75#			SAME
1245	"	2.75#			CLOSED TOOL, NO FLAMMABLE GAS
1345	"				OPENED TOOL WITH A STRONG BLOW
1348	"	21 OZ			STRONG BLOW, NO FLAMMABLE GAS
1352	"	21 PZ			SAME
1356	"	19 OZ			SAME
1405	"	19 OZ			SAME
1415	"	18.75 OZ			SAME
1425	"	18.5 OZ			SAME
1430	"	18.25 OZ			SAME
1435	"	18 OZ			SAME
1440	"	17.75 OZ			SAME
1445	"	17.5 OZ			CLOSED TOOL
1645					OPENED BY-PASS, TRIP OUT
2030					TOOLS OUT AND BROKE
2130					TOOLS LAID DOWN

TICKET NO: 69524000	GAUGE NO: 2033
CLOCK NO: 7276 HOUR: 24	DEPTH: 7183.0

HALLIBURTON SERVICES

FIRST FLOW

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
B	1	0.0	82.8			
	2	5.0	77.3	-5.5		
	3	10.0	73.3	-4.0		
	4	15.0	73.3	0.0		
	5	20.0	73.1	-0.3		
	6	25.0	73.1	0.0		
C	7	29.4	73.6	0.5		

FIRST CLOSED-IN

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
C	1	0.0	73.6			
	2	1.0	74.8	1.2	0.9	1.499
	3	2.0	76.5	2.9	1.8	1.205
	4	3.0	79.0	5.4	2.7	1.037
	5	4.0	81.6	8.0	3.5	0.919
	6	5.0	84.2	10.6	4.3	0.841
	7	6.0	87.5	13.9	5.0	0.770
	8	7.0	90.6	17.0	5.7	0.714
	9	8.0	93.3	19.7	6.3	0.671
	10	9.0	95.8	22.3	6.9	0.629
	11	10.0	98.9	25.3	7.4	0.597
	12	12.0	103.8	30.2	8.5	0.537
	13	14.0	109.1	35.5	9.5	0.492
	14	16.0	114.7	41.2	10.4	0.454
	15	18.0	119.8	46.2	11.2	0.421
	16	20.0	124.9	51.3	11.9	0.393
	17	22.0	130.0	56.4	12.6	0.368
	18	24.0	134.7	61.1	13.2	0.348
	19	26.0	139.3	65.7	13.8	0.329
	20	28.0	144.5	70.9	14.4	0.312
	21	30.0	148.5	74.9	14.9	0.297
	22	35.0	159.1	85.5	16.0	0.265
	23	40.0	169.6	96.0	17.0	0.240
	24	45.0	179.4	105.8	17.8	0.219
	25	50.0	189.8	116.2	18.5	0.201
	26	55.0	198.5	124.9	19.2	0.186
D	27	60.2	206.7	133.1	19.8	0.173

SECOND FLOW

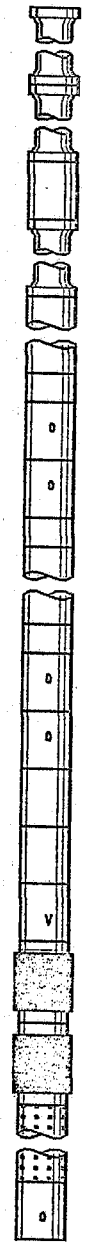
REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
E	1	0.0	57.9			
	2	10.0	66.8	8.8		
	3	20.0	69.2	2.4		
	4	30.0	69.2	0.0		
	5	40.0	69.7	0.5		
	6	50.0	69.7	0.0		
F	7	60.1	69.4	-0.3		

SECOND CLOSED-IN

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
F	1	0.0	69.4			
	2	10.0	84.9	15.4	9.0	0.998
	3	20.0	101.1	31.6	16.3	0.739
	4	30.0	117.0	47.6	22.5	0.601
	5	40.0	132.2	62.7	27.6	0.511
	6	50.0	147.2	77.7	32.1	0.446
	7	60.0	161.1	91.7	35.9	0.397
	8	70.0	175.5	106.0	39.3	0.358
	9	80.0	188.3	118.9	42.3	0.326
	10	90.0	201.1	131.6	44.9	0.300
	11	100.0	214.3	144.9	47.2	0.278
	12	110.0	226.8	157.4	49.4	0.259
G	13	119.7	237.3	167.8	51.2	0.243

REMARKS:

TICKET NO. 69524000



		O.D.	I.D.	LENGTH	DEPTH
1	DRILL PIPE.....	4.500	3.826	5883.0	
1	DRILL PIPE.....	4.500	2.750	280.0	
15	JAR.....	4.500	2.250	33.0	
2	TUBING.....	4.500	2.764	659.0	
3	DRILL COLLARS.....	6.750	2.250	210.0	
5	CROSSOVER.....	7.500	2.500	1.0	
50	IMPACT REVERSING SUB.....	6.000	2.500	1.0	7066.0
51	PUMP OUT REVERSING SUB.....	6.000	2.500	0.9	7067.0
5	CROSSOVER.....	7.690	3.130	1.0	
3	DRILL COLLARS.....	8.000	2.875	60.0	
5	CROSSOVER.....	7.690	2.000	1.2	
13	DUAL CIP SAMPLER.....	5.030	0.870	7.7	
60	HYDROSPRING TESTER.....	5.000	0.750	5.0	7141.0
15	JAR.....	5.000	1.750	5.0	
80	AP RUNNING CASE.....	5.000	2.250	4.1	7150.0
16	VR SAFETY JOINT.....	5.000	1.000	2.9	
70	OPEN HOLE PACKER.....	11.250	1.680	5.8	7158.0
70	OPEN HOLE PACKER.....	11.250	1.680	5.9	7164.0
20	FLUSH JOINT ANCHOR.....	5.750	2.870	16.0	
81	BLANKED-OFF RUNNING CASE.....	5.750		4.2	7183.0
	TOTAL DEPTH				7186.0

EQUIPMENT DATA

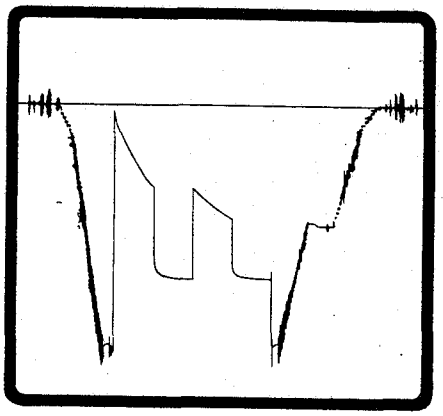
EQUATIONS FOR DST LIQUID WELL ANALYSIS

Transmissibility	$\frac{kh}{\mu} = \frac{162.6\ QB}{m}$	$\frac{\text{md-ft}}{\text{cp}}$
Indicated Flow Capacity	$kh = \frac{kh}{\mu}\mu$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Damage Ratio	$DR = .183\ \frac{P^* - P_f}{m}$	—
Theoretical Potential w / Damage Removed	$Q_1 = Q\ DR$	BPD
Approx. Radius of Investigation	$r_i = 4.63\ \sqrt{kt}$	ft

EQUATIONS FOR DST GAS WELL ANALYSIS

Indicated Flow Capacity	$kh = \frac{1637\ Q_g\ T}{m}$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Skin Factor	$S = 1.151 \left[\frac{m(P^*) - m(P_f)}{m} - LOG\ \frac{kt}{\phi\ \mu\ c_t r_w^2} + 3.23 \right]$	—
Damage Ratio	$DR = \frac{m(P^*) - m(P_f)}{m(P^*) - m(P_f) - 0.87\ mS}$	—
Indicated Flow Rate (Maximum)	$AOF_1 = \frac{Q_g\ m(P^*)}{m(P^*) - m(P_f)}$	MCFD
Indicated Flow Rate (Minimum)	$AOF_2 = Q_g \sqrt{\frac{m(P^*)}{m(P^*) - m(P_f)}}$	MCFD
Approx. Radius of Investigation	$r_i = 0.032 \sqrt{\frac{kt}{\phi \mu c_t}}$	ft

FORMATION TESTING SERVICE REPORT



TXC HUBER	1-15	1	7164.' - 7186.'	TRANSCO EXPLORATION COMPANY
LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL	LEASE OWNER/COMPANY NAME

HALLIBURTON SERVICES

Duncan, Oklahoma 73536

A Halliburton Company

NOMENCLATURE

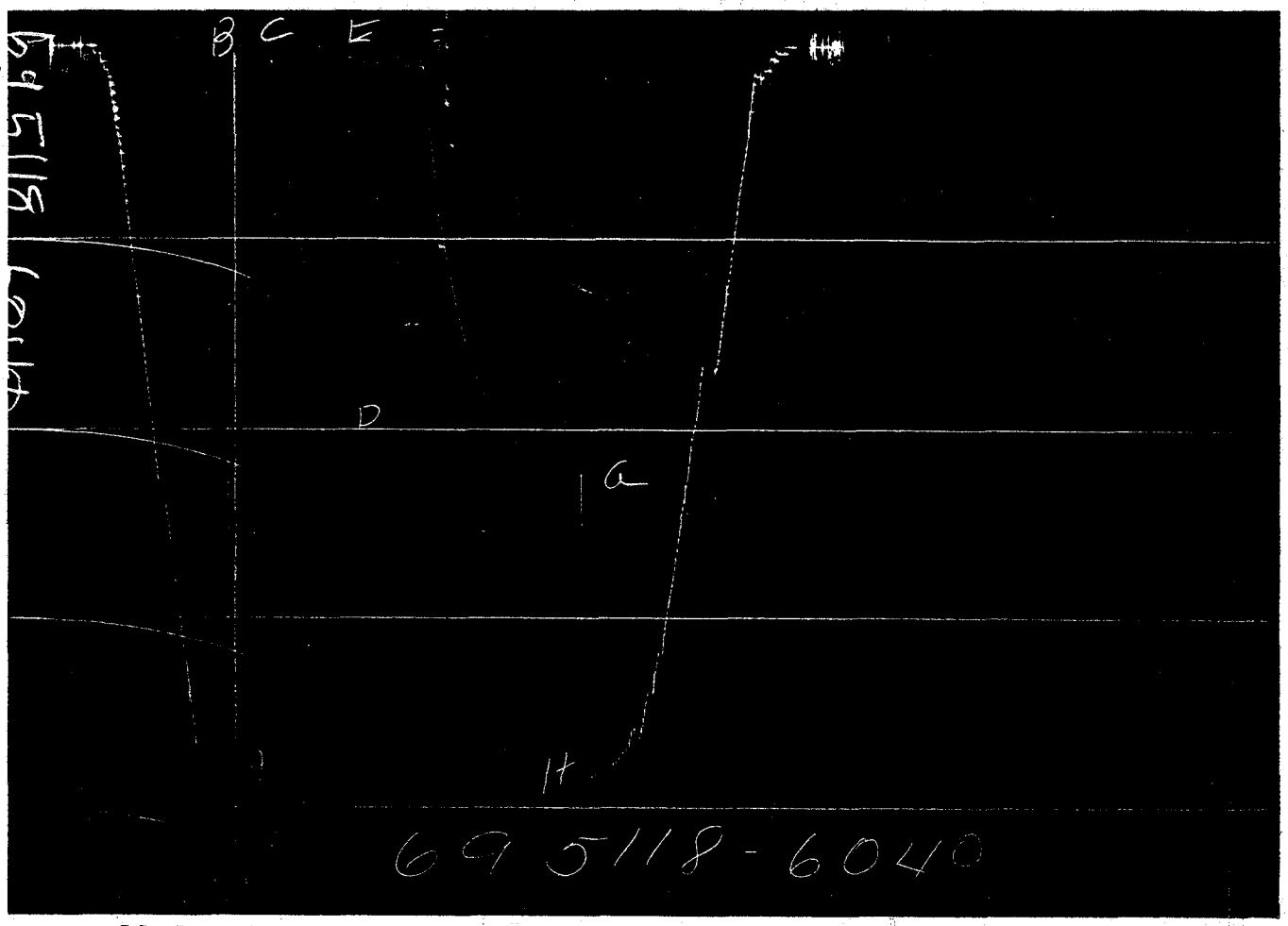
B	=	Formation Volume Factor (Res Vol / Std Vol)	—
c_t	=	System Total Compressibility	(Vol / Vol) / psi
DR	=	Damage Ratio	—
h	=	Estimated Net Pay Thickness	Ft
k	=	Permeability	md
m	=	(Liquid) Slope Extrapolated Pressure Plot	psi/cycle
		(Gas) Slope Extrapolated m(P) Plot	MM psi^2/cp/cycle
$m(P^*)$	=	Real Gas Potential at P^*	MM psi^2/cp
$m(P_f)$	=	Real Gas Potential at P_f	MM psi^2/cp
AOF_1	=	Maximum Indicated Absolute Open Flow at Test Conditions	MCFD
AOF_2	=	Minimum Indicated Absolute Open Flow at Test Conditions	MCFD
P^*	=	Extrapolated Static Pressure	Psig
P_f	=	Final Flow Pressure	Psig
Q	=	Liquid Production Rate During Test	BPD
Q_1	=	Theoretical Liquid Production w/ Damage Removed	BPD
Q_g	=	Measured Gas Production Rate	MCFD
r_i	=	Approximate Radius of Investigation	Ft
r_w	=	Radius of Well Bore	Ft
S	=	Skin Factor	
t	=	Total Flow Time Previous to Closed-in	Minutes
Δt	=	Closed-in Time at Data Point	Minutes
T	=	Temperature Rankine	°R
ϕ	=	Porosity	—
μ	=	Viscosity of Gas or Liquid	cp
Log	=	Common Log	

HALLIBURTON
SERVICES

TICKET NO. 69511800
15-DEC-83
FARMINGTON

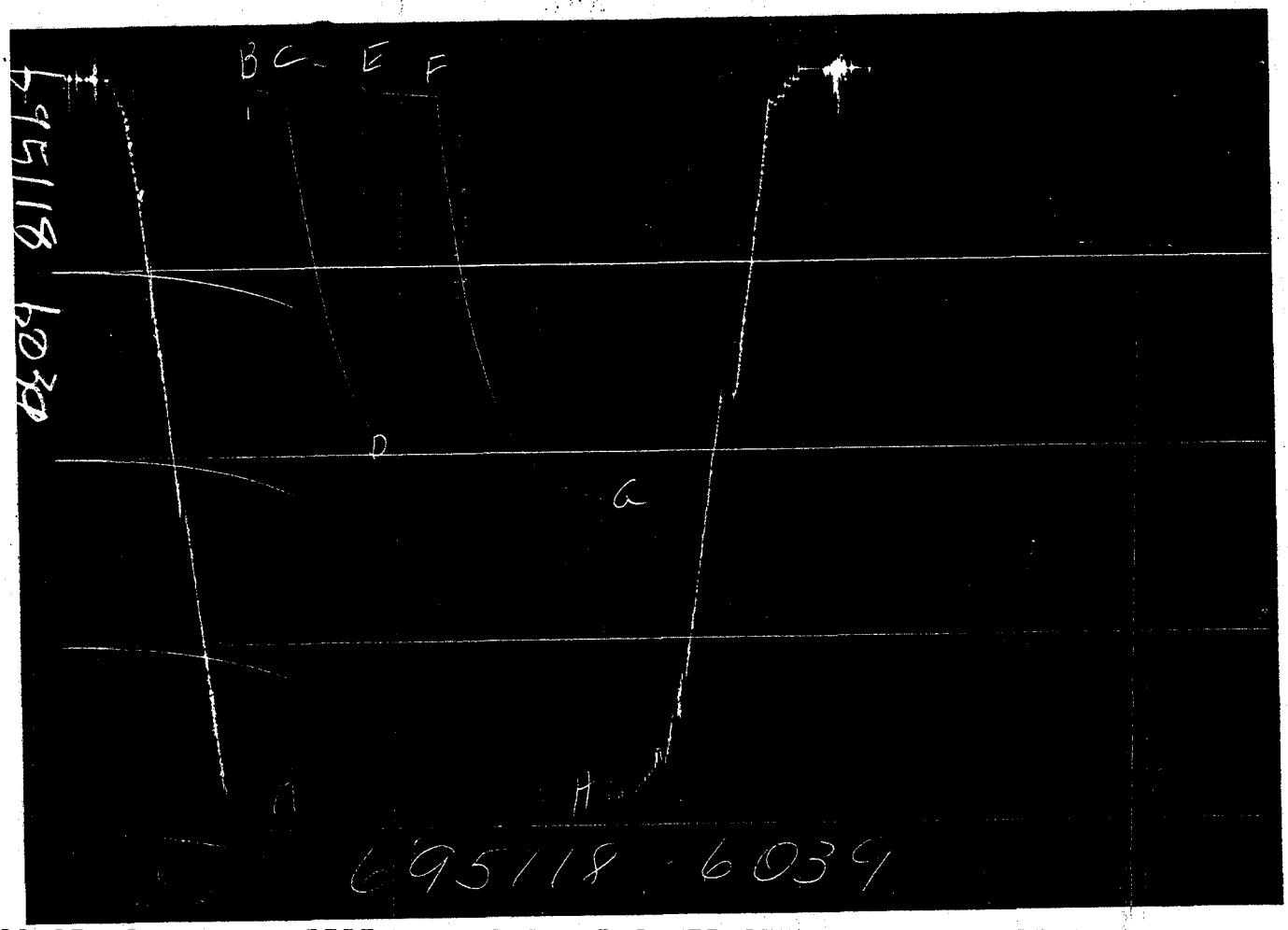
FORMATION TESTING SERVICE REPORT

TXC HUBER LEASE NAME	1-15 WELL NO.	2 TEST NO.	8294.' - 8314.' TESTED INTERVAL
LEGAL LOCATION SEC. - TWP. - RNG. 15-28S-25E	FIELD AREA LA SALLE	COUNTY SAN JUAN	STATE UTAH SM
TRANSCO EXPLORATION COMPANY LEASE OWNER/COMPANY NAME			



GAUGE NO: 6040 DEPTH: 8273.0 BLANKED OFF: NO HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE REPORTED	PRESSURE CALCULATED	TIME REPORTED	TIME CALCULATED	TYPE
A	INITIAL HYDROSTATIC	3886	3870.0			
B	INITIAL FIRST FLOW	67	53.0	45.0	43.8	F
C	FINAL FIRST FLOW	81	82.0			
C	INITIAL FIRST CLOSED-IN	81	82.0	90.0	91.4	C
D	FINAL FIRST CLOSED-IN	1842	1843.2			
E	INITIAL SECOND FLOW	67	60.2	90.0	88.2	F
F	FINAL SECOND FLOW	108	110.6			
F	INITIAL SECOND CLOSED-IN	108	110.6	185.0	186.6	C
G	FINAL SECOND CLOSED-IN	2234	2251.9			
H	FINAL HYDROSTATIC	3859	3859.4			



GAUGE NO: 6039 DEPTH: 8310.0 BLANKED OFF: YES HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE REPORTED	PRESSURE CALCULATED	TIME REPORTED	TIME CALCULATED	TYPE
A	INITIAL HYDROSTATIC	3895	3888.6			
B	INITIAL FIRST FLOW	67	75.7	45.0	43.8	F
C	FINAL FIRST FLOW	94	93.8			
C	INITIAL FIRST CLOSED-IN	94	93.8	90.0	91.4	C
D	FINAL FIRST CLOSED-IN	1826	1855.8			
E	INITIAL SECOND FLOW	67	69.6	90.0	88.2	F
F	FINAL SECOND FLOW	121	121.8			
F	INITIAL SECOND CLOSED-IN	121	121.8	185.0	186.6	C
G	FINAL SECOND CLOSED-IN	2244	2262.0			
H	FINAL HYDROSTATIC	3868	3876.6			

EQUIPMENT & HOLE DATA

FORMATION TESTED: HONAKER TRAIL
NET PAY (ft): 15.0
GROSS TESTED FOOTAGE: 20.0
ALL DEPTHS MEASURED FROM: KELLY BUSHING
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 12.250
ELEVATION (ft): 7596
TOTAL DEPTH (ft): 8314.0
PACKER DEPTH(S) (ft): 8288, 8294
FINAL SURFACE CHOKE (in):
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 9.20
MUD VISCOSITY (sec): 34
ESTIMATED HOLE TEMP. (°F):
ACTUAL HOLE TEMP. (°F): 134 @ 8310.0 ft

TICKET NUMBER: 69511800
DATE: 12-9-83 TEST NO: 2
TYPE DST: OPEN HOLE
HALLIBURTON CAMP: FARMINGTON
TESTER: D. AULD
WITNESS: MR. MCPHAIL
DRILLING CONTRACTOR: FORWEST LTD #6

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY	CHLORIDES
PIT	0.930 @ 90 °F	2727 ppm
TOP	1.920 @ 64 °F	2060 ppm
BOTTOM	1.920 @ 64 °F	2060 ppm
SAMPLER	1.450 @ 56 °F	2970 ppm
	@ °F	ppm
	@ °F	ppm

SAMPLER DATA

Psig AT SURFACE: 10
cu.ft. OF GAS: 0.00
cc OF OIL: 0
cc OF WATER: 0
cc OF MUD: 1550
TOTAL LIQUID cc: 1550

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): @ °F
GAS/OIL RATIO (cu.ft. per bbl):
GAS GRAVITY:

CUSHION DATA

TYPE	AMOUNT	WEIGHT

RECOVERED:

115 FEET OF MUD

MEASURED FROM TESTER VALVE

REMARKS:

ELEVATION REPORTED AT GROUND LEVEL.

op 45 SI 90, op

TYPE & SIZE MEASURING DEVICE:					TICKET NO: 69511800
TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
12-8-83					
2100					ON LOCATION
12-9-83					
0430					PICKED UP TOOLS
0609					TOOL ON TRIP IN
0901	BH	0			OPENED TOOL
0902	BH	3 OZ.			
0903	BH	5 OZ.			
0904	BH	7 OZ.			
0905	BH	14 OZ.			
0906	BH	17 OZ.			
0907	BH	19 OZ.			
0908	BH	21 OZ.			
0909	BH	23 OZ.			
0910	BH	25 OZ.			
0911	BH	26.5 OZ.			
0916	BH	32.5 OZ.			
0921	BH	2.25#			
0926	BH	2.75#			
0931	BH	3#			
0936	BH	3.25#			
0941	BH	3.75#			
0946	BH	4#			CLOSED TOOL
1116	BH	1#			op Tool
1117	BH	2#			
1118	BH	5#			
1119	BH	6.25#			
1120	BH	6.75#			
1121	BH	6.95#			
1122	BH	7.05#			
1123	BH	7.25#			
1124	BH	7.5#			
1125	BH	7.75#			
1126	BH	8#			
1131	BH	8.90#			
1136	BH	9.75#			
1141	BH	10.375#			

TYPE & SIZE MEASURING DEVICE: _____ TICKET NO: 69511800

TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
1146	BH	11#			
1151	BH	12#			
1156	BH	12.75#			
1201	BH	13.5#			
1206	BH	14.25#			
1211	BH	15#			
1216	BH	15.75#			
1221	BH	16.5#			
1226	BH	17#			
1231	BH	18#			
1236	BH	18.75#			
1241	BH	19.5#			
1246	BH	20.25#			CLOSED TOOL
1551					OPENED BYPASS, TRIPPED OUT OF
					THE HOLE.
1959					TOOL OUT OF THE HOLE
2230					JOB COMPLETED.

TICKET NO: 69511800	HALLIBURTON SERVICES	GAUGE NO: 6040
CLOCK NO: 13741 HOUR: 24		DEPTH: 8273.0

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
			FIRST FLOW			
B	1	0.0	53.0			
	2	6.0	66.9	14.0		
	3	12.0	67.7	0.8		
	4	18.0	67.7	0.0		
	5	24.0	74.5	6.7		
	6	30.0	76.6	2.2		
	7	36.0	78.6	2.0		
C	8	43.8	82.0	3.4		
			FIRST CLOSED-IN			
C	1	0.0	82.0			
	2	9.0	393.1	311.2	7.5	0.767
	3	18.0	654.8	572.8	12.8	0.535
	4	27.0	952.3	870.3	16.7	0.418
	5	36.0	1087.1	1005.1	19.8	0.346
	6	45.0	1264.1	1182.1	22.2	0.295
	7	54.0	1416.5	1334.5	24.2	0.258
	8	63.0	1547.0	1465.0	25.8	0.229
	9	72.0	1660.1	1578.1	27.2	0.206
	10	81.0	1756.6	1674.6	28.4	0.188
D	11	91.4	1843.2	1761.3	29.6	0.170
			SECOND FLOW			
E	1	0.0	60.2			
	2	15.0	84.0	23.8		
	3	30.0	90.7	6.7		
	4	45.0	97.0	6.3		
	5	60.0	102.0	5.0		
	6	75.0	106.9	4.8		
F	7	88.2	110.6	3.8		
			SECOND CLOSED-IN			
F	1	0.0	110.6			
	2	15.0	736.3	625.7	13.5	0.991
	3	30.0	1169.9	1059.3	24.5	0.732
	4	45.0	1475.9	1365.3	33.5	0.595
	5	60.0	1696.5	1585.9	41.3	0.505
	6	75.0	1856.6	1746.0	47.8	0.441
	7	90.0	1971.6	1861.0	53.5	0.392
	8	105.0	2056.8	1946.1	58.5	0.354
	9	120.0	2119.5	2008.8	62.8	0.322
	10	135.0	2166.8	2056.1	66.7	0.296
	11	150.0	2200.7	2090.1	70.2	0.274
	12	165.0	2225.8	2115.2	73.3	0.255
	13	180.0	2245.8	2135.2	76.2	0.239
G	14	186.6	2251.9	2141.3	77.3	0.232

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$

REMARKS:
SLIGHT STAIR STEPPING DURING INITIAL CIP PERIOD.

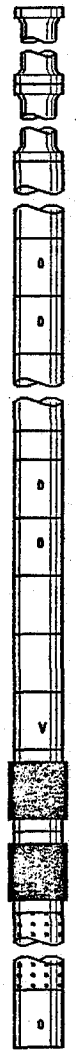
TICKET NO: 69511800		GAUGE NO: 6039
CLOCK NO: 7276 HOUR: 24	HALLIBURTON SERVICES	DEPTH: 8310.0

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
			FIRST FLOW			
B	1	0.0	75.7			
	2	6.0	75.2	-0.5		
	3	12.0	75.6	0.4		
	4	18.0	79.9	4.3		
	5	24.0	87.8	7.9		
	6	30.0	88.7	0.9		
	7	36.0	91.2	2.4		
C	8	43.8	93.8	2.7		
			FIRST CLOSED-IN			
C	1	0.0	93.8			
	2	9.0	408.0	314.2	7.5	0.768
	3	18.0	661.8	567.9	12.8	0.536
	4	27.0	888.4	794.5	16.7	0.418
	5	36.0	1094.9	1001.0	19.8	0.346
	6	45.0	1272.1	1178.3	22.2	0.295
	7	54.0	1426.5	1332.7	24.2	0.258
	8	63.0	1557.1	1463.3	25.8	0.229
	9	72.0	1667.1	1573.3	27.2	0.206
	10	81.0	1765.0	1671.1	28.4	0.188
D	11	91.4	1855.8	1762.0	29.6	0.170
			SECOND FLOW			
E	1	0.0	69.6			
	2	15.0	94.5	24.9		
	3	30.0	97.9	3.4		
	4	45.0	107.9	10.1		
	5	60.0	113.0	5.1		
	6	75.0	118.1	5.1		
F	7	88.2	121.8	3.8		
			SECOND CLOSED-IN			
F	1	0.0	121.8			
	2	15.0	754.0	632.2	13.5	0.991
	3	30.0	1188.5	1066.7	24.4	0.733
	4	45.0	1488.7	1366.8	33.6	0.594
	5	60.0	1709.7	1587.9	41.2	0.505
	6	75.0	1868.2	1746.3	47.8	0.441
	7	90.0	1982.5	1860.6	53.5	0.392
	8	105.0	2065.9	1944.1	58.5	0.354
	9	120.0	2130.2	2008.3	62.8	0.322
	10	135.0	2174.7	2052.8	66.7	0.296
	11	150.0	2209.0	2087.2	70.2	0.274
	12	165.0	2235.8	2114.0	73.3	0.255
	13	180.0	2255.5	2133.7	76.1	0.239
G	14	186.6	2262.0	2140.1	77.3	0.232

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$

REMARKS:

TICKET NO. 69511800



		O.D.	I.D.	LENGTH	DEPTH
1	DRILL PIPE.....	4.500	3.826	6997.0	
4	FLEX WEIGHT.....	4.500	3.000	930.0	
3	DRILL COLLARS.....	6.750	2.250	237.0	
50	IMPACT REVERSING SUB.....	6.000	3.000	1.0	8165.0
51	PUMP OUT REVERSING SUB.....	6.000	3.000	1.0	8166.0
3	DRILL COLLARS.....	6.750	2.250	93.0	
5	CROSSOVER.....	6.000	3.000	1.0	
13	DUAL CIP SAMPLER.....	5.000	0.870	7.0	
60	HYDROSPRING TESTER.....	5.000	0.750	5.0	8271.0
80	AP RUNNING CASE.....	5.000	2.250	4.0	8273.0
15	JAR.....	5.000	1.750	5.0	
16	VR SAFETY JOINT.....	5.000	1.000	3.0	
70	OPEN HOLE PACKER.....	11.250	1.530	6.0	8288.0
70	OPEN HOLE PACKER.....	11.250	1.530	6.0	8294.0
20	FLUSH JOINT ANCHOR.....	5.750	3.000	14.0	
81	BLANKED-OFF RUNNING CASE.....	5.750		4.0	8310.0
	TOTAL DEPTH				8314.0

EQUIPMENT DATA

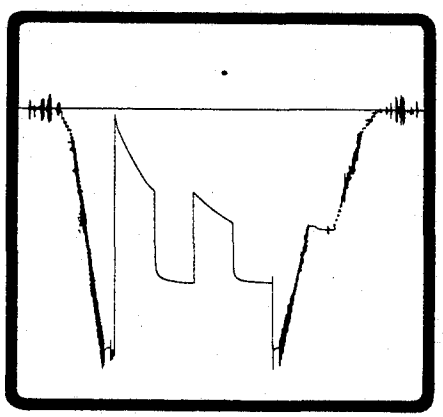
EQUATIONS FOR DST LIQUID WELL ANALYSIS

Transmissibility	$\frac{kh}{\mu} = \frac{162.6\ QB}{m}$	$\frac{\text{md-ft}}{\text{cp}}$
Indicated Flow Capacity	$kh = \frac{kh}{\mu}\ \mu$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Damage Ratio	$DR = .183\ \frac{P^* - P_f}{m}$	—
Theoretical Potential w / Damage Removed	$Q_1 = Q\ DR$	BPD
Approx. Radius of Investigation	$r_i = 4.63\ \sqrt{kt}$	ft

EQUATIONS FOR DST GAS WELL ANALYSIS

Indicated Flow Capacity	$kh = \frac{1637\ Q_g\ T}{m}$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Skin Factor	$S = 1.151 \left[\frac{m(P^*) - m(P_f)}{m} - LOG\ \frac{kt}{\phi\ \mu\ c_t r_w^2} + 3.23 \right]$	—
Damage Ratio	$DR = \frac{m(P^*) - m(P_f)}{m(P^*) - m(P_f) - 0.87\ mS}$	—
Indicated Flow Rate (Maximum)	$AOF_1 = \frac{Q_g\ m(P^*)}{m(P^*) - m(P_f)}$	MCFD
Indicated Flow Rate (Minimum)	$AOF_2 = Q_g \sqrt{\frac{m(P^*)}{m(P^*) - m(P_f)}}$	MCFD
Approx. Radius of Investigation	$r_i = 0.032 \sqrt{\frac{kt}{\phi \mu c_t}}$	ft

FORMATION TESTING SERVICE REPORT



695118 2

TRANSCO EXPLORATION COMPANY
ATT: BRUCE WYLEX
ONE UNITED BANK CENTER
1700 LINCOLN SUITE 2100
DENVER, CO. 80203

HALLIBURTON SERVICES

Duncan, Oklahoma 73536

A Halliburton Company

TXC HUBER
LEASE NAME

1-15
WELL NO.

2
TEST NO.

8294.' - 8314.'
TESTED INTERVAL

TRANSCO EXPLORATION COMPANY
LEASE OWNER/COMPANY NAME

LEGAL LOCATION

FIELD

LA SALLE

COUNTY SAN JUAN

STATE UTAH SM

1296-R4 ©—Southwestern

NOMENCLATURE

B	=	Formation Volume Factor (Res Vol / Std Vol)	—
c_t	=	System Total Compressibility	(Vol / Vol) / psi
DR	=	Damage Ratio	—
h	=	Estimated Net Pay Thickness	Ft
k	=	Permeability	md
m	=	(Liquid) Slope Extrapolated Pressure Plot	psi/cycle
		(Gas) Slope Extrapolated m(P) Plot	MM psi^2/cp/cycle
$m(P^*)$	=	Real Gas Potential at P^*	MM psi^2/cp
$m(P_f)$	=	Real Gas Potential at P_f	MM psi^2/cp
AOF_1	=	Maximum Indicated Absolute Open Flow at Test Conditions	MCFD
AOF_2	=	Minimum Indicated Absolute Open Flow at Test Conditions	MCFD
P^*	=	Extrapolated Static Pressure	Psig
P_f	=	Final Flow Pressure	Psig
Q	=	Liquid Production Rate During Test	BPD
Q_1	=	Theoretical Liquid Production w/ Damage Removed	BPD
Q_g	=	Measured Gas Production Rate	MCFD
r_i	=	Approximate Radius of Investigation	Ft
r_w	=	Radius of Well Bore	Ft
S	=	Skin Factor	
t	=	Total Flow Time Previous to Closed-in	Minutes
Δt	=	Closed-in Time at Data Point	Minutes
T	=	Temperature Rankine	°R
ϕ	=	Porosity	—
μ	=	Viscosity of Gas or Liquid	cp
Log	=	Common Log	

TXC HUBER	15-1	3	8423.' - 8471.'	TRANSCO EXPLORATION CORPORATION
LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL	LEASE OWNER/COMPANY NAME
LEGAL LOCATION SEC. - TWP. - RNG. 15-28S-25E	FIELD AREA WILDCAT	COUNTY SAN JUAN	STATE UTAH	SMBC

HALLIBURTON

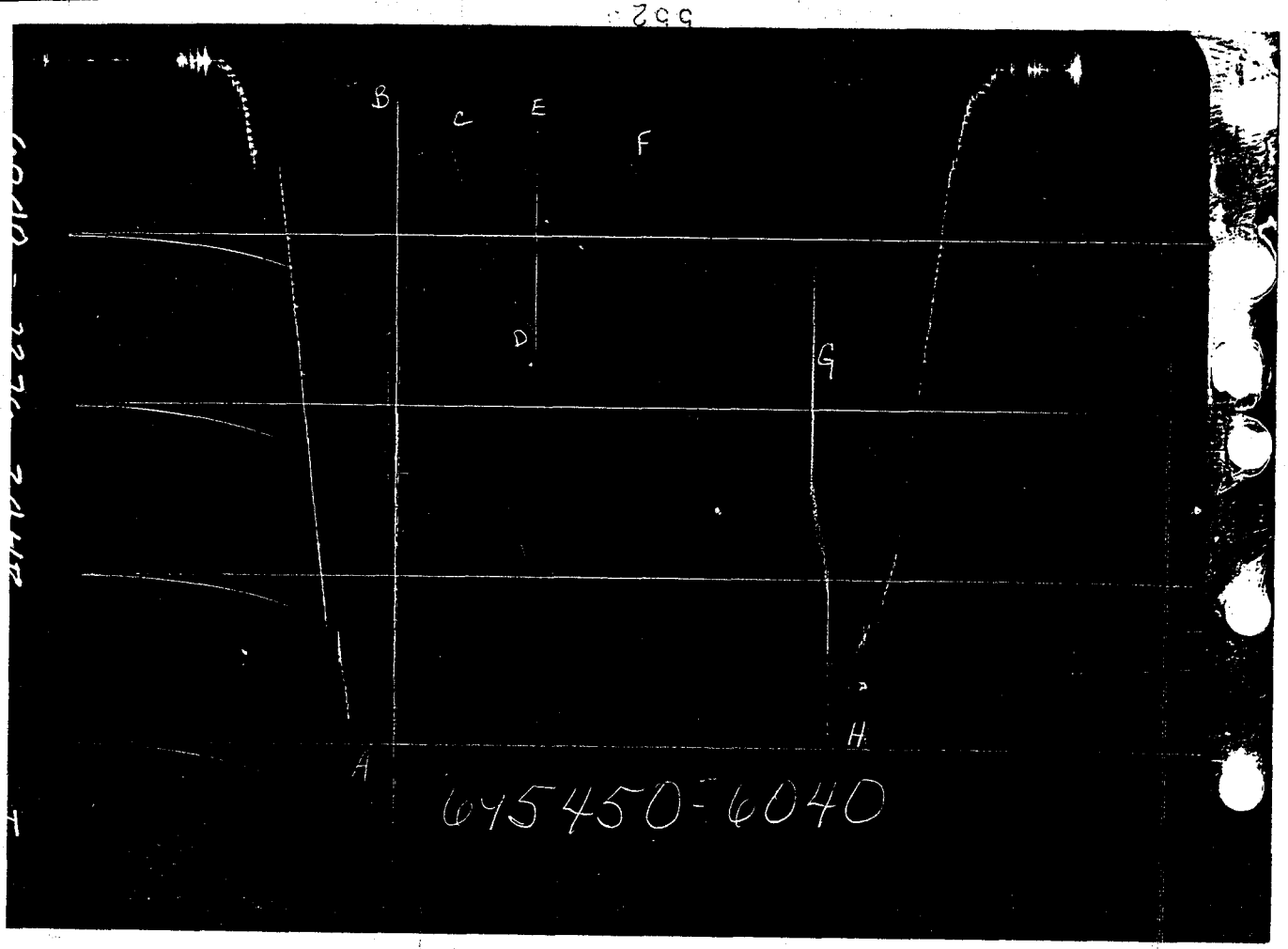
SERVICES

TICKET NO. 69545000

21-DEC-83

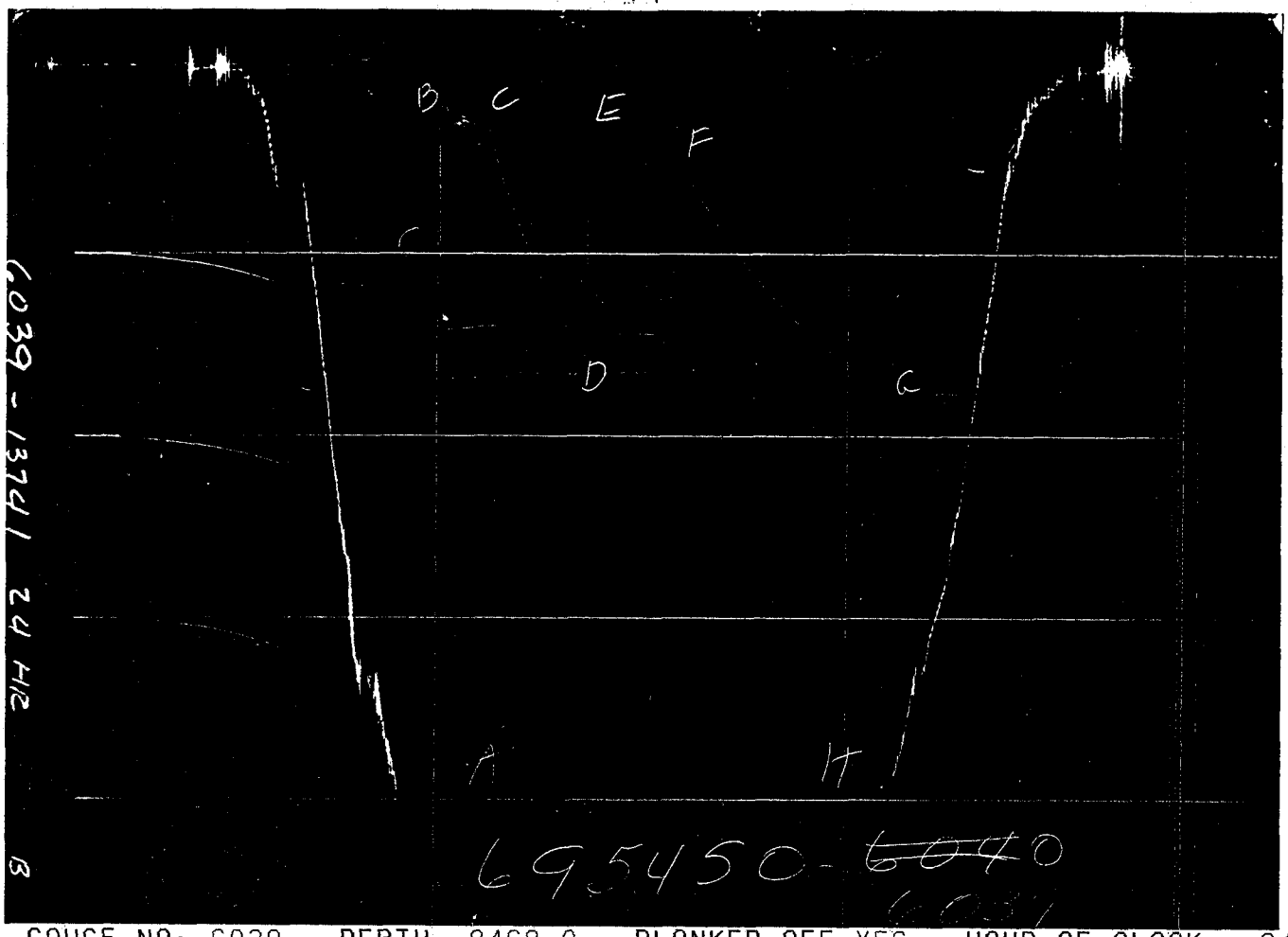
FARMINGTON

FORMATION TESTING SERVICE REPORT



GAUGE NO: 6040 DEPTH: 8402.0 BLANKED OFF: NO HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE REPORTED	PRESSURE CALCULATED	TIME REPORTED	TIME CALCULATED	TYPE
A	INITIAL HYDROSTATIC	3954	3943.8			
B	INITIAL FIRST FLOW	202	195.6	62.0	62.0	F
C	FINAL FIRST FLOW	363	337.4			
C	INITIAL FIRST CLOSED-IN	363	337.4	120.0	119.3	C
D	FINAL FIRST CLOSED-IN	1599	1579.2			
E	INITIAL SECOND FLOW	390	396.0	120.0	119.8	F
F	FINAL SECOND FLOW	524	545.6			
F	INITIAL SECOND CLOSED-IN	524	545.6	240.0	240.9	C
G	FINAL SECOND CLOSED-IN	1680	1705.5			
H	FINAL HYDROSTATIC	3927	3923.2			



GAUGE NO: 6039 DEPTH: 8468.0 BLANKED OFF: YES HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE REPORTED	PRESSURE CALCULATED	TIME REPORTED	TIME CALCULATED	TYPE
A	INITIAL HYDROSTATIC	3950	3966.2			
B	INITIAL FIRST FLOW	228	240.8	62.0	62.0	F
C	FINAL FIRST FLOW	362	352.0			
C	INITIAL FIRST CLOSED-IN	362	352.0	120.0	119.3	C
D	FINAL FIRST CLOSED-IN	1611	1592.7			
E	INITIAL SECOND FLOW	402	413.9	120.0	119.8	F
F	FINAL SECOND FLOW	550	560.3			
F	INITIAL SECOND CLOSED-IN	550	560.3	240.0	240.9	C
G	FINAL SECOND CLOSED-IN	1732	1727.2			
H	FINAL HYDROSTATIC	3936	3950.4			

EQUIPMENT & HOLE DATA

FORMATION TESTED: HONAKER TRAIL
NET PAY (ft):
GROSS TESTED FOOTAGE: 48.0
ALL DEPTHS MEASURED FROM: KB
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 12.250
ELEVATION (ft): 7596
TOTAL DEPTH (ft): 8471.0
PACKER DEPTH(S) (ft): 8417, 8423
FINAL SURFACE CHOKE (in):
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 8.90
MUD VISCOSITY (sec): 36
ESTIMATED HOLE TEMP. (°F):
ACTUAL HOLE TEMP. (°F): 126 @ 8467.0 ft

TICKET NUMBER: 69545000
DATE: 12-15-83 TEST NO: 3
TYPE DST: OPEN HOLE
HALLIBURTON CAMP: FARMINGTON
TESTER: KINCHELOE
WITNESS: ABRAMS
DRILLING CONTRACTOR: FORWEST #6

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY	CHLORIDES
MUD PIT	2.860 @ 54 °F	2500 ppm
DRILL PIPE	2.540 @ 66 °F	2300 ppm
DRILL COLLARS	0.360 @ 62 °F	10700 ppm
SAMPLER	0.200 @ 51 °F	47000 ppm
	@ °F	ppm
	@ °F	ppm

SAMPLER DATA

Psig AT SURFACE: 320
cu.ft. OF GAS: 0.55
cc OF OIL: 0
cc OF WATER: 1470
cc OF MUD: 150
TOTAL LIQUID cc: 1620

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): @ °F
GAS/OIL RATIO (cu.ft. per bbl):
GAS GRAVITY:

CUSHION DATA

TYPE	AMOUNT	WEIGHT

RECOVERED:

MEASURED FROM TESTER VALVE

REMARKS:

TYPE & SIZE MEASURING DEVICE: VARIABLE CHOKE | TICKET NO: 69545000

TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
12-14-83					
0900					ON LOCATION
12-15-83					
0100					PICKED UP TOOLS
0315					TRIP IN HOLE WITH DST #3
0728					OPENED TOOL WITH A GOOD BLOW
0732	1/8BH	5 lb			STRONG BLOW TO BOTTOM OF BUCKET
0733	"	8			SAME
0735	"	10			SAME
0739	"	13			SAME
0745	"	15			SAME
0753	"	17			SAME
0805	"	19.5			SAME
0812	"	20.5			SAME
0822	"	22			SAME
0830	"	22.75			CLOSED TOOL
0835					BLED OFF PRESSURE TO PIT
0840					FLARE LIT
1030	.25	1.5 OZ			WEAK FLARE, OPENED TOOL
1040	"	12 OZ			WEAK FLARE
1050	1/8	1.5			SAME
1100	"	2			SAME
1115	"	2.5			SAME
1130	"	2.75			SAME
1145	"	2.5			SAME
1200	"	2.3			SAME
1215	"	2.2			SAME
1230	"	2.1			WEAK FLARE, CLOSED TOOL
1630					TRIP OUT OF HOLE WITH DST #3
1855					1200' OF MUD IN STRING
1905					500' OF GAS CUT MUD
1910					ADDED WATER TO DRILL PIPE
2050					OUT OF HOLE, LAID TOOLS DOWN.

TESTER VALVE

TICKET NO: 69545000

CLOCK NO: 7276 HOUR: 24

HALLIBURTON SERVICES

GAUGE NO: 6040

DEPTH: 8402.0

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
		FIRST FLOW			
B 1	0.0	195.6			
2	10.0	225.3	29.7		
3	20.0	255.5	30.2		
4	30.0	279.0	23.5		
5	40.0	299.9	20.8		
6	50.0	317.9	18.0		
C 7	62.0	337.4	19.5		
		FIRST CLOSED-IN			
C 1	0.0	337.4			
2	10.0	535.7	198.3	8.6	0.859
3	20.0	672.8	335.4	15.1	0.612
4	30.0	796.4	459.0	20.2	0.487
5	40.0	910.5	573.1	24.3	0.407
6	50.0	1010.1	672.7	27.7	0.351
7	60.0	1111.7	774.3	30.5	0.309
8	70.0	1203.0	865.6	32.9	0.276
9	80.0	1291.7	954.3	34.9	0.249
10	90.0	1376.6	1039.2	36.7	0.228
11	100.0	1451.1	1113.7	38.3	0.210
12	110.0	1519.7	1182.4	39.7	0.194
D 13	119.3	1579.2	1241.8	40.8	0.182
		SECOND FLOW			
E 1	0.0	396.0			
2	20.0	447.8	51.9		
3	40.0	478.6	30.8		
4	60.0	500.7	22.0		
5	80.0	517.7	17.0		
6	100.0	530.7	13.0		
F 7	119.8	545.6	14.9		
		SECOND CLOSED-IN			
F 1	0.0	545.6			
2	20.0	711.9	166.4	18.0	1.004
3	40.0	842.0	296.4	32.8	0.744
4	60.0	963.3	417.7	45.1	0.605
5	80.0	1082.0	536.4	55.5	0.515
6	100.0	1195.6	650.0	64.5	0.450
7	120.0	1291.4	745.8	72.3	0.401
8	140.0	1379.0	833.5	79.1	0.361
9	160.0	1459.9	914.4	85.1	0.330
10	180.0	1533.1	987.5	90.5	0.303
11	200.0	1600.7	1055.1	95.2	0.281
12	220.0	1655.4	1109.8	99.5	0.262
13	240.0	1704.9	1159.3	103.4	0.245

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
		SECOND CLOSED-IN - CONTINUED			
G 14	240.9	1705.5	1160.0	103.6	0.24-

REMARKS:

557

TICKET NO: 69545000	
CLOCK NO: 13741	HOUR: 24

HALLIBURTON SERVICES

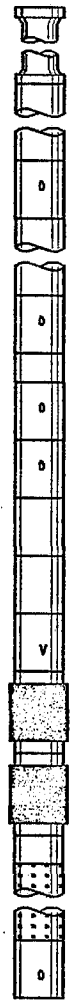
GAUGE NO: 6039	
DEPTH: 8468.0	

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
		FIRST FLOW			
B 1	0.0	240.8			
2	10.0	250.1	9.4		
3	20.0	270.8	20.6		
4	30.0	293.0	22.3		
5	40.0	313.8	20.8		
6	50.0	331.9	18.1		
C 7	62.0	352.0	20.1		
		FIRST CLOSED-IN			
C 1	0.0	352.0			
2	10.0	518.4	166.4	8.6	0.857
3	20.0	658.8	306.8	15.1	0.613
4	30.0	782.0	429.9	20.2	0.487
5	40.0	895.1	543.0	24.3	0.407
6	50.0	1001.5	649.5	27.7	0.351
7	60.0	1106.7	754.7	30.5	0.308
8	70.0	1200.9	848.9	32.9	0.275
9	80.0	1290.4	938.4	34.9	0.249
10	90.0	1376.1	1024.1	36.7	0.228
11	100.0	1451.8	1099.7	38.3	0.210
12	110.0	1524.3	1172.2	39.7	0.194
D 13	119.3	1592.7	1240.7	40.8	0.182
		SECOND FLOW			
E 1	0.0	413.9			
2	20.0	462.7	48.8		
3	40.0	491.7	29.0		
4	60.0	515.0	23.3		
5	80.0	534.8	19.8		
6	100.0	547.6	12.8		
F 7	119.8	560.3	12.7		
		SECOND CLOSED-IN			
F 1	0.0	560.3			
2	20.0	716.6	156.3	18.0	1.003
3	40.0	845.9	285.6	32.8	0.744
4	60.0	969.4	409.1	45.1	0.605
5	80.0	1088.9	528.7	55.5	0.515
6	100.0	1200.1	639.8	64.5	0.450
7	120.0	1300.0	739.7	72.3	0.401
8	140.0	1392.5	832.2	79.1	0.361
9	160.0	1474.0	913.7	85.1	0.330
10	180.0	1547.8	987.5	90.4	0.303
11	200.0	1616.7	1056.4	95.2	0.281
12	220.0	1673.3	1113.0	99.5	0.262
13	240.0	1725.1	1164.8	103.4	0.245

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
		SECOND CLOSED-IN - CONTINUED			
G 14	240.9	1727.2	1166.9	103.6	0.244

REMARKS:

TICKET NO. 69545000



		O.D.	I.D.	LENGTH	DEPTH
1	DRILL PIPE.....	4.500	3.826	8047.0	
3	DRILL COLLARS.....	6.750	2.250	153.7	
51	PUMP OUT REVERSING SUB.....	6.000	3.000	1.0	8200.6
3	DRILL COLLARS.....	6.750	2.250	184.4	
50	IMPACT REVERSING SUB.....	6.000	3.000	1.0	8386.0
5	CROSSOVER.....	6.000	3.000	1.0	
13	DUAL CIP SAMPLER.....	5.030	0.870	8.0	
60	HYDROSPRING TESTER.....	5.000	0.750	5.0	8400.0
80	AP RUNNING CASE.....	5.000	2.250	4.0	8402.0
15	JAR.....	5.030	1.750	5.0	
16	VR SAFETY JOINT.....	5.000	1.000	3.0	
70	OPEN HOLE PACKER.....	11.250	1.680	6.0	8417.0
70	OPEN HOLE PACKER.....	11.250	1.680	5.0	8423.0
5	CROSSOVER.....	6.000	3.000	1.0	
20	FLUSH JOINT ANCHOR.....	5.750	3.000	42.0	
81	BLANKED-OFF RUNNING CASE.....	5.750		4.0	8468.0
	TOTAL DEPTH				8471.0

EQUIPMENT DATA

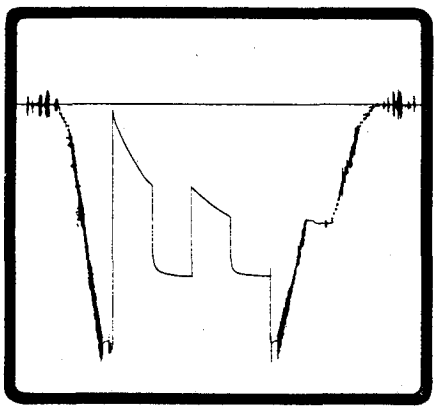
EQUATIONS FOR DST LIQUID WELL ANALYSIS

Transmissibility	$\frac{kh}{\mu} = \frac{162.6\ QB}{m}$	$\frac{\text{md-ft}}{\text{cp}}$
Indicated Flow Capacity	$kh = \frac{kh}{\mu}\ \mu$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Damage Ratio	$DR = .183\ \frac{P^* - P_f}{m}$	—
Theoretical Potential w / Damage Removed	$Q_1 = Q\ DR$	BPD
Approx. Radius of Investigation	$r_i = 4.63\ \sqrt{kt}$	ft

EQUATIONS FOR DST GAS WELL ANALYSIS

Indicated Flow Capacity	$kh = \frac{1637\ Q_g\ T}{m}$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Skin Factor	$S = 1.151 \left[\frac{m(P^*) - m(P_f)}{m} - LOG\ \frac{kt}{\phi\ \mu\ c_t r_w^2} + 3.23 \right]$	—
Damage Ratio	$DR = \frac{m(P^*) - m(P_f)}{m(P^*) - m(P_f) - 0.87\ mS}$	—
Indicated Flow Rate (Maximum)	$AOF_1 = \frac{Q_g\ m(P^*)}{m(P^*) - m(P_f)}$	MCFD
Indicated Flow Rate (Minimum)	$AOF_2 = Q_g \sqrt{\frac{m(P^*)}{m(P^*) - m(P_f)}}$	MCFD
Approx. Radius of Investigation	$r_i = 0.032 \sqrt{\frac{kt}{\phi \mu c_t}}$	ft

FORMATION TESTING SERVICE REPORT



TXC HUBER	15-1	3	8423.' - 8471.'	TRANSCO EXPLORATION CORPORATION
LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL	LEASE OWNER/COMPANY NAME

HALLIBURTON SERVICES

Duncan, Oklahoma 73536

A Halliburton Company

NOMENCLATURE

B	=	Formation Volume Factor (Res Vol / Std Vol)	—
c_t	=	System Total Compressibility	(Vol / Vol) / psi
DR	=	Damage Ratio	—
h	=	Estimated Net Pay Thickness	Ft
k	=	Permeability	md
m	=	(Liquid) Slope Extrapolated Pressure Plot	psi/cycle
		(Gas) Slope Extrapolated m(P) Plot	MM psi^2/cp/cycle
$m(P^*)$	=	Real Gas Potential at P^*	MM psi^2/cp
$m(P_f)$	=	Real Gas Potential at P_f	MM psi^2/cp
AOF_1	=	Maximum Indicated Absolute Open Flow at Test Conditions	MCFD
AOF_2	=	Minimum Indicated Absolute Open Flow at Test Conditions	MCFD
P^*	=	Extrapolated Static Pressure	Psig
P_f	=	Final Flow Pressure	Psig
Q	=	Liquid Production Rate During Test	BPD
Q_1	=	Theoretical Liquid Production w/ Damage Removed	BPD
Q_g	=	Measured Gas Production Rate	MCFD
r_i	=	Approximate Radius of Investigation	Ft
r_w	=	Radius of Well Bore	Ft
S	=	Skin Factor	
t	=	Total Flow Time Previous to Closed-in	Minutes
Δt	=	Closed-in Time at Data Point	Minutes
T	=	Temperature Rankine	°R
ϕ	=	Porosity	—
μ	=	Viscosity of Gas or Liquid	cp
Log	=	Common Log	

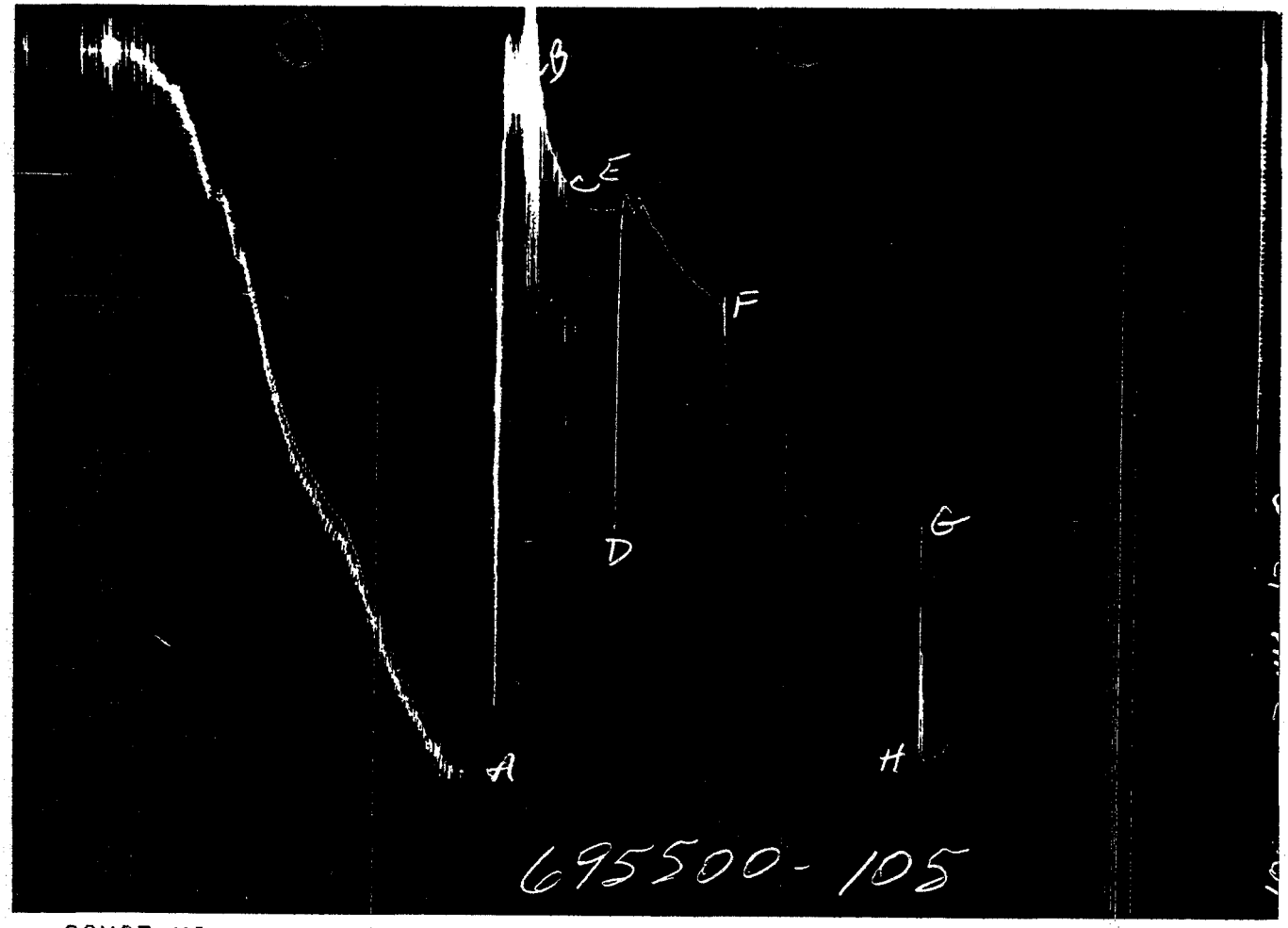
LEGAL LOCATION SEC. - TWP. - RNG.	FIELD AREA	COUNTY	STATE
15-28-25	WILDCAT	SAN JUAN	UTAH

LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL	LEASE OWNER/COMPANY NAME
TXC HUBER FEDERAL	1-15	4	12232.' - 12362.'	TRANSCO EXPLORATION CORPORATION

HALLIBURTON
SERVICES

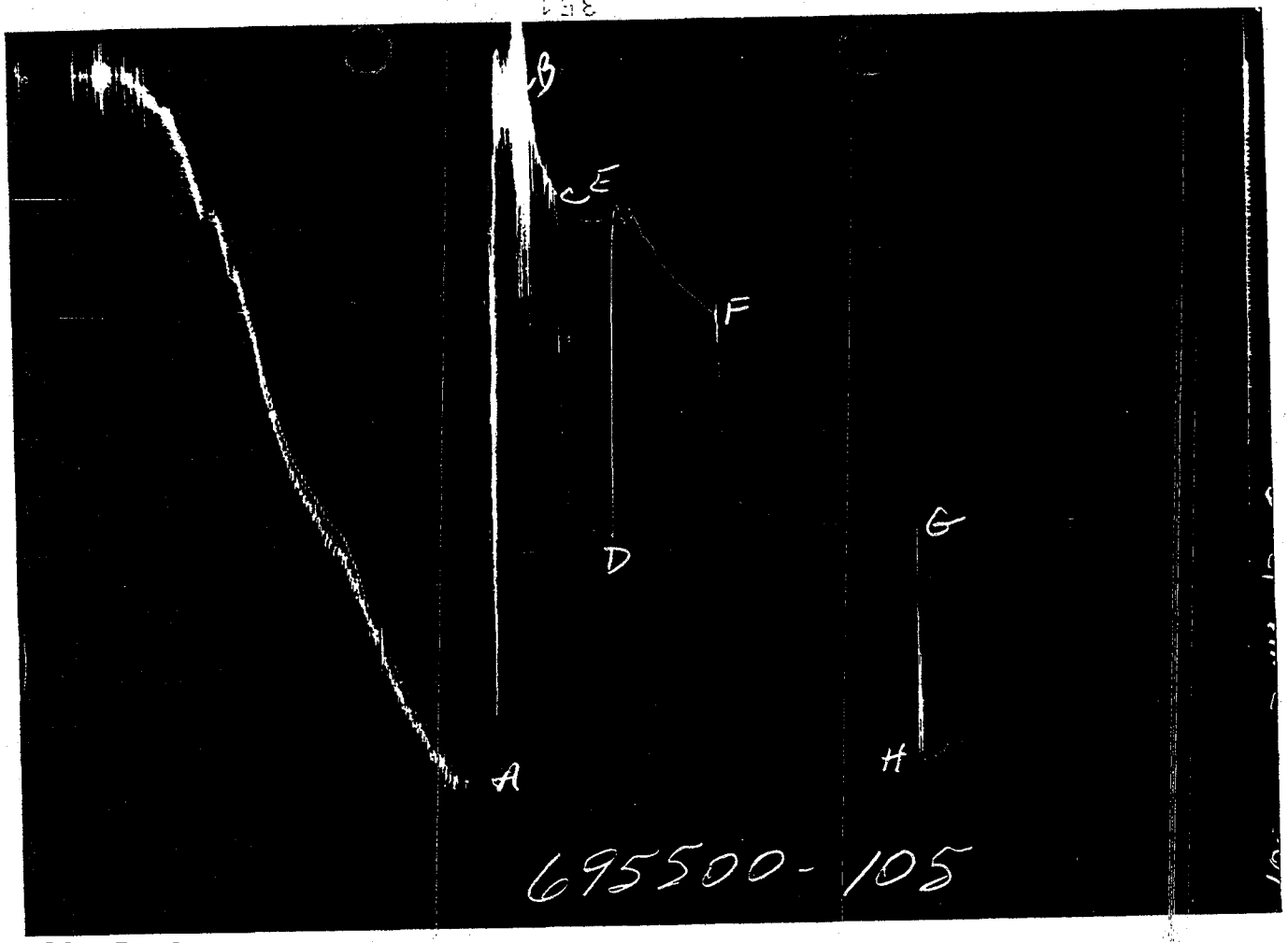
TICKET NO. 69550000
17-FEB-84
FARMINGTON

FORMATION TESTING SERVICE REPORT



GAUGE NO: 105 DEPTH: 12212.0 BLANKED OFF: NO HOUR OF CLOCK: 2

ID	DESCRIPTION	PRESSURE REPORTED	PRESSURE CALCULATED	TIME REPORTED	TIME CALCULATED	TYPE
A	INITIAL HYDROSTATIC	5958	5837.0			
B	INITIAL FIRST FLOW		158.8	32.0	31.5	F
C	FINAL FIRST FLOW	1015	1012.4			
C	INITIAL FIRST CLOSED-IN	1015	1012.4	60.0	60.5	C
D	FINAL FIRST CLOSED-IN	3863	3871.7			
E	INITIAL SECOND FLOW	1225	1161.3	121.0	121.5	F
F	FINAL SECOND FLOW	2002	2041.2			
F	INITIAL SECOND CLOSED-IN	2002	2041.2	235.0	234.5	C
G	FINAL SECOND CLOSED-IN	3842	3847.6			
H	FINAL HYDROSTATIC	5768	5796.4			



GAUGE NO: 1475 DEPTH: 12359.0 BLANKED OFF: YES HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE REPORTED	PRESSURE CALCULATED	TIME REPORTED	TIME CALCULATED	TYPE
A	INITIAL HYDROSTATIC	5983	5899.4			
B	INITIAL FIRST FLOW	1006	1029.1	32.0	31.5	F
C	FINAL FIRST FLOW	2312	2314.5			
C	INITIAL FIRST CLOSED-IN	2312	2314.5	60.0	60.5	C
D	FINAL FIRST CLOSED-IN	3933	3937.5			
E	INITIAL SECOND FLOW	1512	1514.1	121.0	121.5	F
F	FINAL SECOND FLOW	2080	2114.5			
F	INITIAL SECOND CLOSED-IN	2080	2114.5	235.0	234.5	C
G	FINAL SECOND CLOSED-IN	3891	3902.9			
H	FINAL HYDROSTATIC	5835	5850.7			

EQUIPMENT & HOLE DATA

FORMATION TESTED: LEADVILLE
NET PAY (ft): 30.0
GROSS TESTED FOOTAGE: 130.2
ALL DEPTHS MEASURED FROM: KELLY BUSHING
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 6.500
ELEVATION (ft): 0
TOTAL DEPTH (ft): 12362.0
PACKER DEPTH(S) (ft): 12227, 12232
FINAL SURFACE CHOKE (in): 0.375
BOTTOM HOLE CHOKE (in): 0.620
MUD WEIGHT (lb/gal): 9.20
MUD VISCOSITY (sec): 42
ESTIMATED HOLE TEMP. (°F):
ACTUAL HOLE TEMP. (°F): 156 @ 12357.0 ft

TICKET NUMBER: 69550000
DATE: 2-14-84 TEST NO: 4
TYPE DST: OPEN HOLE
HALLIBURTON CAMP: FARMINGTON
TESTER: D. GUNN
WITNESS: GARY COCKRELL
DRILLING CONTRACTOR: FORWEST LIMITED I. #6

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY		CHLORIDES
BOTTOM REVERSE	0.094 @	60 °F	52000 ppm
	@	°F	ppm
	@	°F	ppm
	@	°F	ppm
	@	°F	ppm
	@	°F	ppm

SAMPLER DATA

Psig AT SURFACE:
cu.ft. OF GAS:
cc OF OIL:
cc OF WATER:
cc OF MUD:
TOTAL LIQUID cc:

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): @ °F
GAS/OIL RATIO (cu.ft. per bbl):
GAS GRAVITY:

CUSHION DATA

TYPE	AMOUNT	WEIGH

RECOVERED:

50 BARRELS OF H2S WATER
GAS TO SURFACE

MEASURED FROM

REMARKS:

CHARTS INDICATE PLUGGING OF THE ANCHOR PIPE PERFORATIONS DURING THE INITIAL FLOW PERIOD.

CLOCK FOR GAUGE #105 IS RUNNING AWAY DURING TRIP IN HOLE AND DURING THE FIRST FLOW PERIOD.

TYPE & SIZE MEASURING DEVICE: .75" ADJUSTABLE CHOKE | TICKET NO: 69550000

TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
2-13-84					
2200					ON LOCATION
2-14-84					
0130					PICKED UP TOOLS
0300					WENT IN HOLE
0722					ON BOTTOM
0725	1/8"BH	0			OPENED TOOL WITH WEAK BLOW-1"
					IN BUBBLE BUCKET
0730	1/8"BH	2.5 OZ.			FAIR BLOW-6" IN BUCKET
0735	"	4.5 OZ.			GOOD BLOW TO BOTTOM OF BUCKET
0740	"	6.5 OZ.			"
0745	"	9 OZ.			"
0750	"	10.5 OZ.			"
0757	"	12.25OZ.			CLOSED TOOL-NO GAS TO SURFACE
0857	"	8 OZ.			OPENED TOOL WITH A GOOD BLOW
					TO BOTTOM OF BUCKET
0902	"	16 OZ.			GOOD BLOW TO BOTTOM OF BUCKET
0907	"	21 OZ.			"
0912	"	28 OZ.			"
0917	"	36 OZ.			"
0922	"	3.5#			GOOD BLOW TO BOTTOM OF BUCKET
0927	"	15#			GOOD BLOW TO BOTTOM OF BUCKET
0932	"	22.5#			"
0937	"	26#			"
0940	1/8"	34#			CHANGED CHOKE-NO GAS TO SURFACE
0945	"	37#			
0950	"	40#			
1000	"	52#			
1003	3/8"	57#			OPENED TO LARGER CHOKE-NO GAS
1007	"	60#			GAS TO SURFACE-2' FLARE
1012	"	62#			FLARE QUIT BURNING
1015	"	60#			FLARE BACK UP TO 3'
1022	"	58#			GAS FLARE AT 5'
1027	"	55#			FLARE STEADY AT 3' TO 5'
1032	"	52#			FLARE DECREASING FROM 2' TO 1'
1045	"	50#			DETECTED SOUR GAS AT SURFACE
1058	"	50	220		CLOSED TOOL

4

GHT

MEASURED FROM TESTER VALVE

TYPE & SIZE MEASURING DEVICE: .75" ADJUSTABLE CHOKE | TICKET NO: 6955

TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
1335					PUMPED WATER TO FILL DRILL PIPE
1415					SHUT DOWN-DRILL PIPE FULL-
					TOOK 97 BARRELS TO FILL
1453					PULLED OFF BOTTOM - OPENED
					BYPASS - PULLED 3 STANDS OF PIPE
1544					DROPPED BAR TO REVERSE OUT
1551					REVERSED OUT - SHUT DOWN
2230					FINISHED COMING OUT OF HOLE
2-15-84					
0315					OUT OF HOLE
0430					LAID DOWN TOOLS
0630					JOB COMPLETED

TICKET NO: 69550000	GAUGE NO: 105
CLOCK NO: 12118 HOUR: 24	DEPTH: 12212.0

HALLIBURTON SERVICES

FIRST FLOW

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
B	1	0.0	158.8			
	2	3.0	355.0	196.2		
	3	6.0	478.4	123.5		
	4	9.1	588.2	109.7		
	5	12.0	689.6	101.5		
	6	15.0	747.1	57.5		
	7	18.0	796.8	49.7		
	8	21.0	855.6	58.8		
	9	24.0	912.1	56.4		
	10	27.0	954.5	42.5		
C	11	31.5	1012.4	57.8		

FIRST CLOSED-IN

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
C	1	0.0	1012.4			
	2	1.0	2626.8	1614.5	1.0	1.509
	3	2.0	2912.9	1900.5	1.9	1.227
	4	3.0	3133.2	2120.8	2.8	1.058
	5	4.0	3269.6	2257.2	3.5	0.951
	6	5.0	3401.9	2389.5	4.3	0.861
	7	6.0	3482.7	2470.3	5.0	0.795
	8	7.0	3542.7	2530.3	5.7	0.742
	9	8.0	3593.9	2581.5	6.4	0.692
	10	9.0	3626.6	2614.2	7.0	0.652
	11	10.0	3651.8	2639.4	7.6	0.617
	12	12.0	3690.1	2677.7	8.7	0.560
	13	14.0	3717.8	2705.4	9.7	0.512
	14	16.0	3740.0	2727.6	10.6	0.473
	15	18.0	3756.0	2743.6	11.5	0.439
	16	20.0	3769.8	2757.4	12.2	0.411
	17	22.0	3781.6	2769.2	12.9	0.386
	18	24.0	3792.2	2779.8	13.6	0.364
	19	26.0	3799.8	2787.4	14.2	0.344
	20	28.0	3807.6	2795.2	14.8	0.327
	21	30.0	3815.6	2803.3	15.4	0.312
	22	35.0	3829.6	2817.2	16.6	0.279
	23	40.0	3841.6	2829.3	17.6	0.252
	24	45.0	3852.2	2839.8	18.5	0.230
	25	50.0	3860.3	2847.9	19.3	0.212
	26	55.0	3866.6	2854.2	20.0	0.196
D	27	60.5	3871.7	2859.3	20.7	0.182

SECOND FLOW

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
E	1	0.0	1161.3			
	2	5.0	1163.4	2.1		
	3	10.0	1122.1	-41.4		
	4	15.0	1232.6	110.5		
	5	20.0	1222.3	-10.3		
	6	25.0	1223.7	1.5		

SECOND FLOW - CONTINUED

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
	7	30.0	1231.9	8.2		
	8	35.0	1307.6	75.6		
	9	40.0	1388.9	81.3		
	10	45.0	1428.8	39.9		
	11	50.0	1471.6	42.9		
	12	55.0	1559.5	87.8		
	13	60.0	1614.5	55.0		
	14	65.0	1652.3	37.8		
	15	70.0	1697.9	45.6		
	16	75.0	1754.4	56.5		
	17	80.0	1779.6	25.2		
	18	85.0	1817.4	37.8		
	19	90.0	1852.1	34.7		
	20	95.0	1879.2	27.1		
	21	100.0	1912.6	33.4		
	22	105.0	1947.1	34.5		
	23	110.0	1983.2	36.1		
	24	115.0	2011.6	28.4		
F	25	121.5	2041.2	29.6		

SECOND CLOSED-IN

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
F	1	0.0	2041.2			
	2	1.0	2459.8	418.6	1.0	2.205
	3	2.0	2700.8	659.6	2.0	1.887
	4	3.0	2872.5	831.3	3.0	1.712
	5	4.0	3007.8	966.6	3.9	1.592
	6	5.0	3149.0	1107.8	4.9	1.496
	7	6.0	3228.8	1187.5	5.8	1.423
	8	7.0	3310.1	1268.9	6.7	1.358
	9	8.0	3370.6	1329.4	7.6	1.302
	10	9.0	3404.4	1363.2	8.5	1.255
	11	10.0	3438.7	1397.5	9.4	1.211
	12	12.0	3486.7	1445.5	11.1	1.138
	13	14.0	3521.1	1479.9	12.9	1.076
	14	16.0	3547.4	1506.1	14.5	1.023
	15	18.0	3565.8	1524.5	16.1	0.978
	16	20.0	3582.2	1541.0	17.7	0.937
	17	22.0	3595.8	1554.5	19.2	0.901
	18	24.0	3607.8	1566.6	20.7	0.868
	19	26.0	3618.6	1577.4	22.2	0.837
	20	28.0	3628.5	1587.3	23.6	0.811
	21	30.0	3636.6	1595.3	25.1	0.785
	22	35.0	3655.2	1614.0	28.5	0.730
	23	40.0	3672.1	1630.9	31.7	0.683
	24	45.0	3686.7	1645.5	34.8	0.643
	25	50.0	3698.5	1657.3	37.7	0.608
	26	55.0	3708.7	1667.4	40.4	0.578
	27	60.0	3717.8	1676.5	43.1	0.550
	28	70.0	3733.6	1692.4	48.0	0.503
	29	80.0	3748.6	1707.4	52.5	0.464
	30	90.1	3759.6	1718.4	56.7	0.431
	31	100.0	3771.5	1730.2	60.5	0.403

REMARKS:
ALL FIRST FLOW READINGS AND THE FIRST 5 READINGS ON THE SECOND FLOW ARE QUESTIONABLE DUE TO PLUGGING.

TICKET NO: 69550000	
CLOCK NO: 12118	HOUR: 24

HALLIBURTON SERVICES

GAUGE NO: 105	
DEPTH: 12212.0	

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
SECOND CLOSED-IN - CONTINUED					
32	110.0	3780.3	1739.1	64.0	0.379
33	120.0	3790.1	1748.8	67.2	0.357
34	135.0	3801.5	1760.3	71.7	0.329
35	150.0	3810.6	1769.3	75.7	0.305
36	165.0	3818.6	1777.4	79.4	0.285
37	180.0	3826.4	1785.2	82.7	0.267
38	195.0	3833.4	1792.2	85.7	0.252
39	210.0	3839.5	1798.3	88.5	0.238
40	225.0	3844.8	1803.6	91.1	0.225
G 41	234.5	3847.6	1806.3	92.6	0.218

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+}{\Delta}$

REMARKS:
ALL FIRST FLOW READINGS AND THE FIRST 5 READINGS
ON THE SECOND FLOW ARE QUESTIONABLE DUE TO PLUGGING.

TICKET NO: 69550000	GAUGE NO: 1475
CLOCK NO: 14128 HOUR: 24	DEPTH: 12359.0

HALLIBURTON SERVICES

FIRST FLOW

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
B 1	0.0	1029.1			
2	3.0	1245.1	216.0		
3	6.0	1370.3	125.3		
4	9.0	1436.6	66.3		
5	12.0	1468.8	32.2		
6	15.0	1626.5	157.7		
7	18.0	1697.5	70.9		
8	21.0	1940.0	242.5		
9	24.0	2004.0	64.0		
10	27.0	2154.7	150.7		
C 11	31.5	2314.5	159.8		

FIRST CLOSED-IN

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
C 1	0.0	2314.5			
2	1.0	2630.1	315.6	1.0	1.516
3	2.0	2904.2	589.7	1.9	1.222
4	3.0	3116.0	801.5	2.8	1.056
5	4.0	3294.7	980.2	3.6	0.943
6	5.0	3393.3	1078.7	4.3	0.862
7	6.0	3507.6	1193.1	5.1	0.794
8	7.0	3581.7	1267.2	5.8	0.737
9	8.0	3628.8	1314.3	6.4	0.694
10	9.0	3674.9	1360.4	7.0	0.654
11	10.0	3706.1	1391.6	7.6	0.617
12	12.0	3745.5	1430.9	8.7	0.559
13	14.0	3774.9	1460.4	9.7	0.511
14	16.0	3796.8	1482.3	10.6	0.472
15	18.0	3814.3	1499.8	11.5	0.439
16	20.0	3828.2	1513.7	12.2	0.410
17	22.0	3840.6	1526.1	13.0	0.385
18	24.0	3851.4	1536.8	13.6	0.364
19	26.0	3860.4	1545.9	14.2	0.344
20	28.0	3868.4	1553.9	14.8	0.327
21	30.0	3875.2	1560.6	15.4	0.312
22	35.0	3890.9	1576.4	16.6	0.278
23	40.0	3903.8	1589.3	17.6	0.252
24	45.0	3914.1	1599.6	18.5	0.230
25	50.0	3923.2	1608.6	19.3	0.212
26	55.0	3930.7	1616.2	20.0	0.197
D 27	60.5	3937.5	1622.9	20.7	0.182

SECOND FLOW

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
E 1	0.0	1514.1			
2	5.0	1515.4	1.3		
3	10.0	1728.2	212.8		
4	15.0	1766.3	38.1		
5	20.0	1689.7	-76.6		
6	25.0	1408.2	-281.5		

SECOND FLOW - CONTINUED

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
7	30.0	1438.9	30.7		
8	35.0	1502.5	63.6		
9	40.0	1549.3	46.7		
10	45.0	1581.3	32.0		
11	50.0	1617.1	35.8		
12	55.0	1685.1	68.0		
13	60.0	1725.9	40.8		
14	65.0	1748.4	22.5		
15	70.0	1793.9	45.5		
16	75.0	1842.1	48.2		
17	80.0	1873.3	31.2		
18	85.0	1901.5	28.2		
19	90.0	1933.5	32.0		
20	95.0	1961.1	27.6		
21	100.0	1987.8	26.7		
22	105.0	2021.9	34.1		
23	110.0	2055.8	33.9		
24	115.0	2085.3	29.5		
F 25	121.5	2114.5	29.3		

SECOND CLOSED-IN

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
F 1	0.0	2114.5			
2	1.0	2429.1	314.5	1.0	2.192
3	2.0	2636.8	522.3	2.0	1.881
4	3.0	2792.4	677.9	2.9	1.720
5	4.0	2948.2	833.7	3.9	1.598
6	5.0	3097.5	982.9	4.9	1.496
7	6.0	3192.4	1077.9	5.8	1.423
8	7.0	3302.9	1188.4	6.7	1.358
9	8.0	3367.6	1253.1	7.6	1.305
10	9.0	3424.2	1309.7	8.5	1.254
11	10.0	3463.4	1348.8	9.4	1.213
12	12.0	3526.5	1412.0	11.1	1.138
13	14.0	3564.6	1450.1	12.8	1.076
14	16.0	3590.1	1475.6	14.5	1.023
15	18.0	3612.6	1498.1	16.1	0.977
16	20.0	3628.4	1513.9	17.7	0.937
17	22.0	3643.8	1529.3	19.2	0.901
18	24.0	3656.2	1541.7	20.7	0.868
19	26.0	3667.8	1553.3	22.2	0.838
20	28.0	3677.9	1563.4	23.7	0.811
21	30.0	3686.1	1571.6	25.1	0.785
22	35.0	3706.3	1591.8	28.5	0.730
23	40.0	3723.4	1608.8	31.7	0.684
24	45.0	3737.7	1623.2	34.8	0.644
25	50.0	3750.7	1636.2	37.7	0.608
26	55.0	3761.7	1647.2	40.4	0.578
27	60.0	3771.2	1656.6	43.1	0.550
28	70.0	3787.8	1673.3	48.0	0.503
29	80.0	3802.9	1688.4	52.5	0.464
30	90.0	3815.6	1701.1	56.7	0.431
31	100.0	3826.9	1712.4	60.5	0.403

REMARKS:
ALL FIRST FLOW READINGS AND THE FIRST 4 READINGS ON THE SECOND FLOW ARE QUESTIONABLE DUE TO PLUGGING.

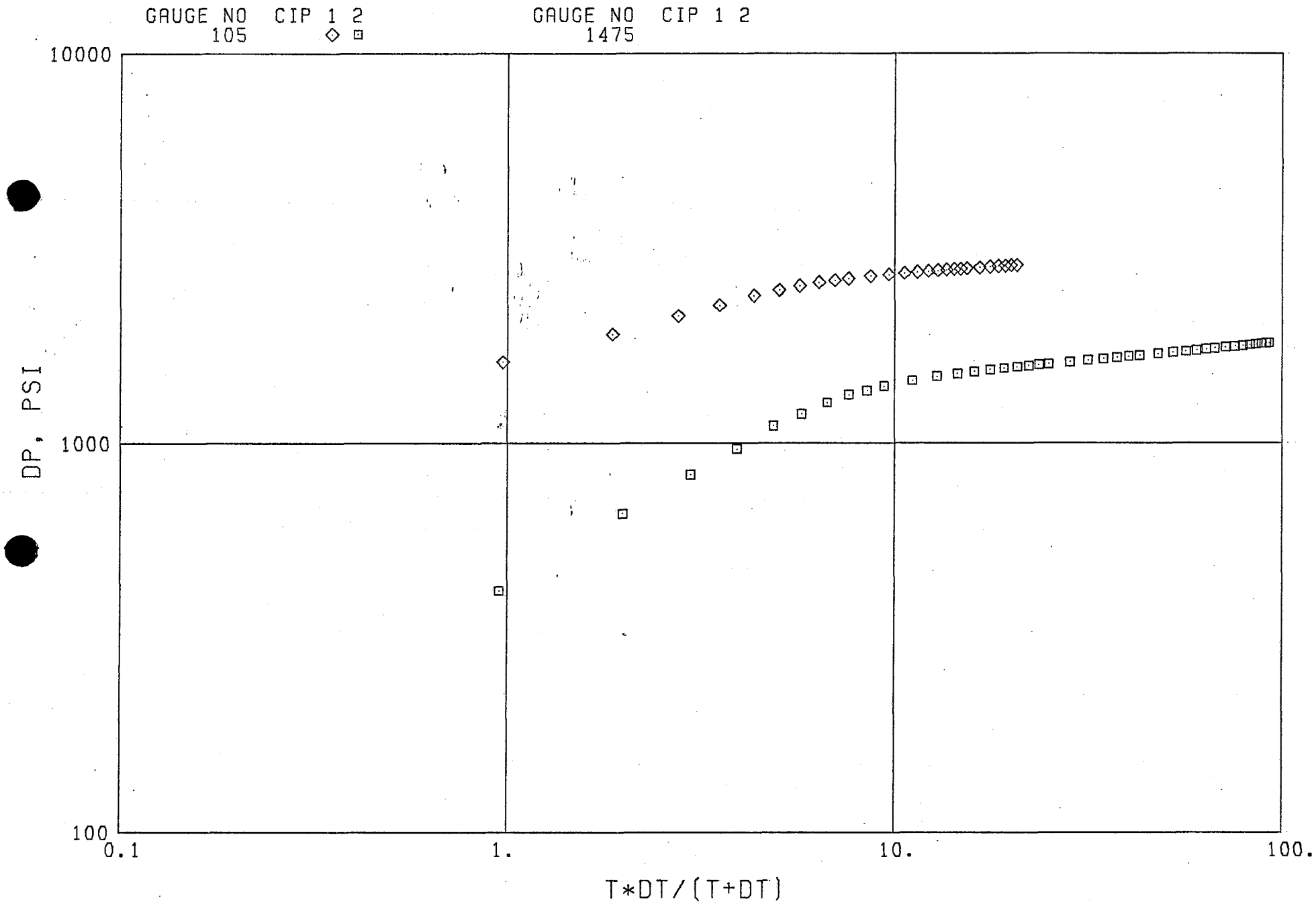
TICKET NO: 69550000	HALLIBURTON SERVICES	GAUGE NO: 1475
CLOCK NO: 14128 HOUR: 24		DEPTH: 12359.0

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
SECOND CLOSED-IN - CONTINUED					
32	110.0	3836.0	1721.5	64.0	0.378
33	120.0	3844.2	1729.7	67.2	0.357
34	135.0	3855.4	1740.8	71.7	0.329
35	150.0	3865.9	1751.4	75.7	0.305
36	165.0	3873.5	1758.9	79.4	0.285
37	180.0	3881.5	1766.9	82.7	0.267
38	195.0	3889.5	1774.9	85.7	0.252
39	210.0	3895.4	1780.8	88.5	0.238
40	225.0	3900.0	1785.5	91.1	0.225
G 41	234.5	3902.9	1788.4	92.6	0.218

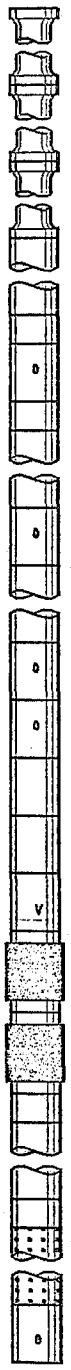
REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	log

REMARKS:
ALL FIRST FLOW READINGS AND THE FIRST 4 READINGS ON THE SECOND FLOW ARE QUESTIONABLE DUE TO PLUGGING.

TICKET NO 69550000



TICKET NO. 69550000

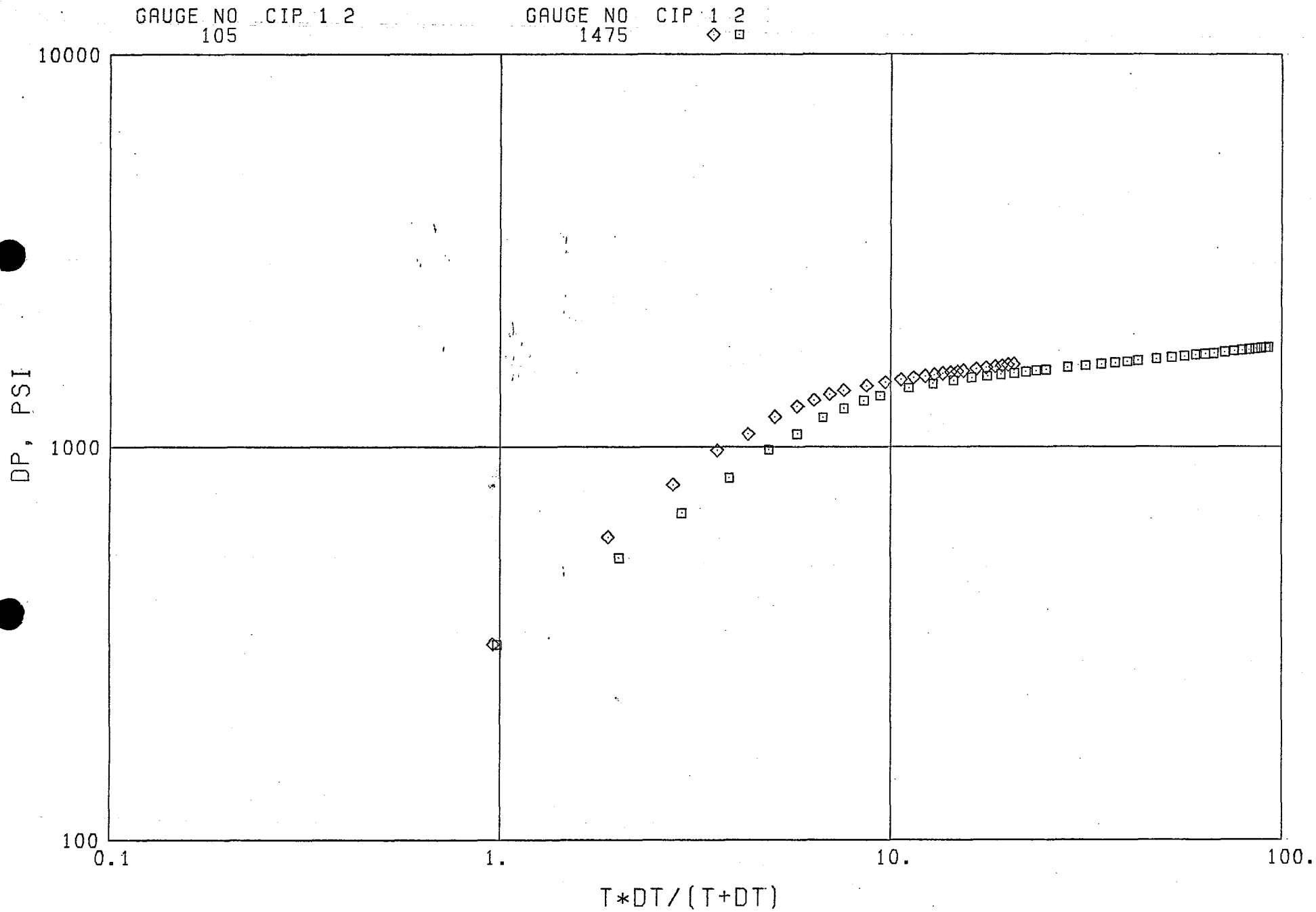


		O.D.	I.D.	LENGTH	DEPTH
1	DRILL PIPE.....	4.500	3.826	8865.9	
1	DRILL PIPE.....	3.500	2.764	2068.9	
4	FLEX WEIGHT.....	3.500	2.062	633.5	
3	DRILL COLLARS.....	4.750	2.250	465.2	
5	CROSSOVER.....	5.313	2.750	1.0	
51	PUMP OUT REVERSING SUB.....	5.250	2.750	1.0	12012.7
5	CROSSOVER.....	5.375	2.500	1.5	
3	DRILL COLLARS.....	4.750	2.250	92.0	
50	IMPACT REVERSING SUB.....	4.750	2.500	1.0	12107.2
3	DRILL COLLARS.....	4.750	2.250	92.0	
12	DUAL CIP VALVE.....	4.750	0.870	6.8	
60	HYDROSPRING TESTER.....	3.813	0.620	5.3	12209.0
80	AP RUNNING CASE.....	3.680	2.000	5.3	12212.3
15	JAR.....	3.680	1.000	6.2	
16	VR SAFETY JOINT.....	3.875	0.750	3.0	
70	OPEN HOLE PACKER.....	5.680	0.750	4.5	12226.8
70	OPEN HOLE PACKER.....	5.250	0.750	5.8	12231.8
5	CROSSOVER.....	4.680	2.500	1.2	
3	DRILL COLLARS.....	4.750	2.250	91.8	
5	CROSSOVER.....	4.680	1.500	1.7	
20	FLUSH JOINT ANCHOR.....	3.750	1.750	28.0	
81	BLANKED-OFF RUNNING CASE.....	3.750		5.0	12359.0
	TOTAL DEPTH				12362.0

EQUIPMENT DATA

T*DT/(T+DT)

TICKET NO 69550000



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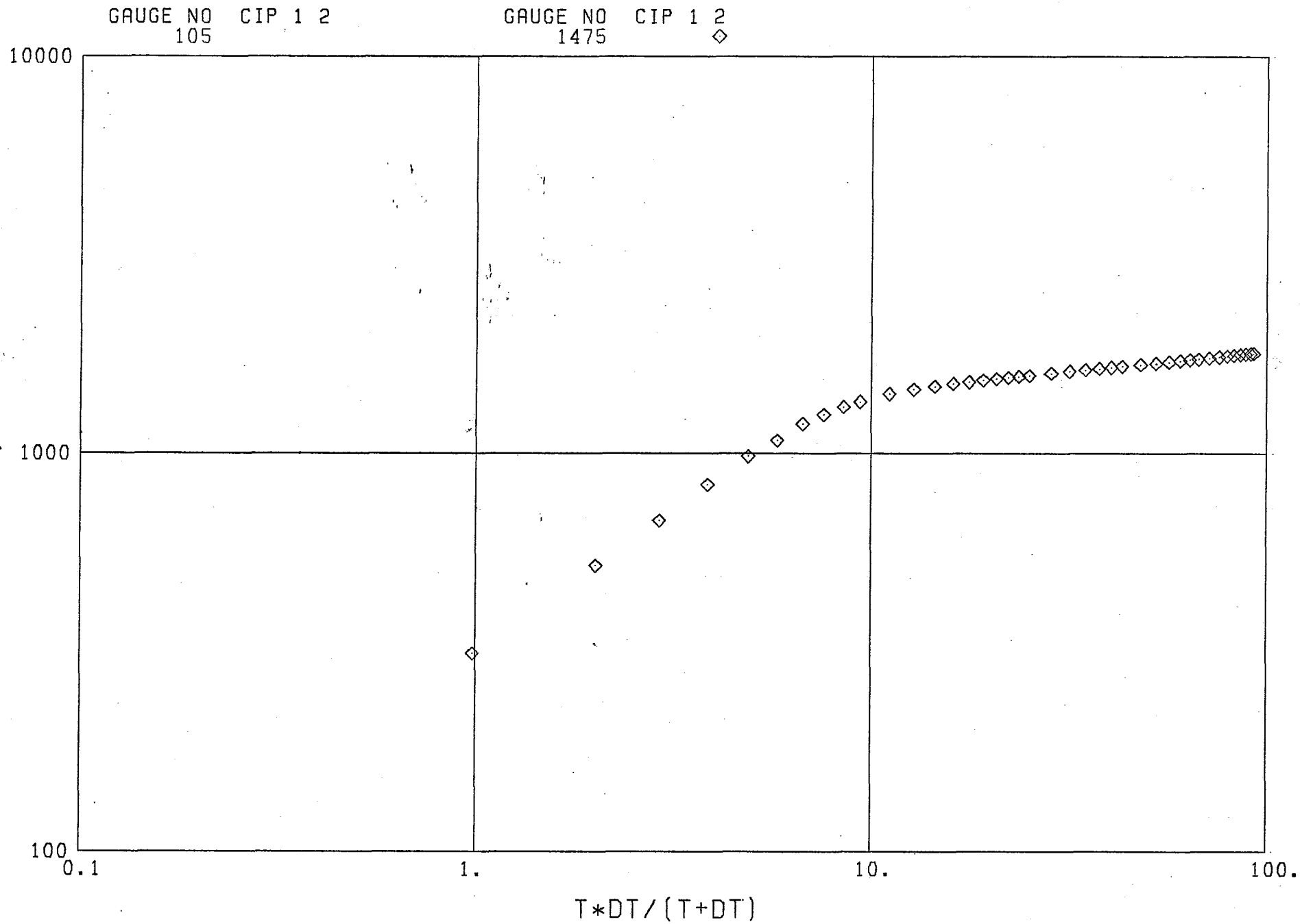

T*DT/(T+DT)

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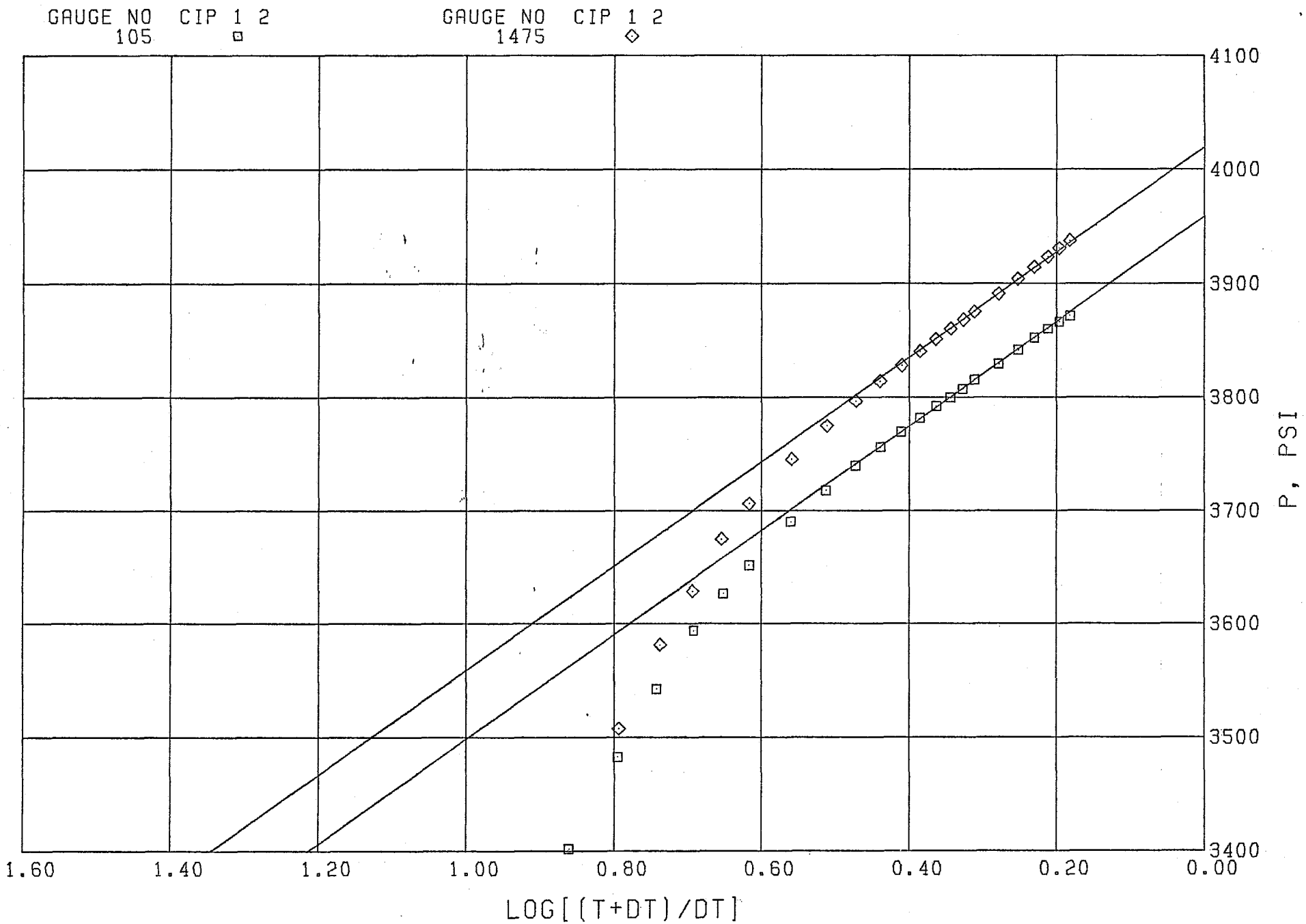

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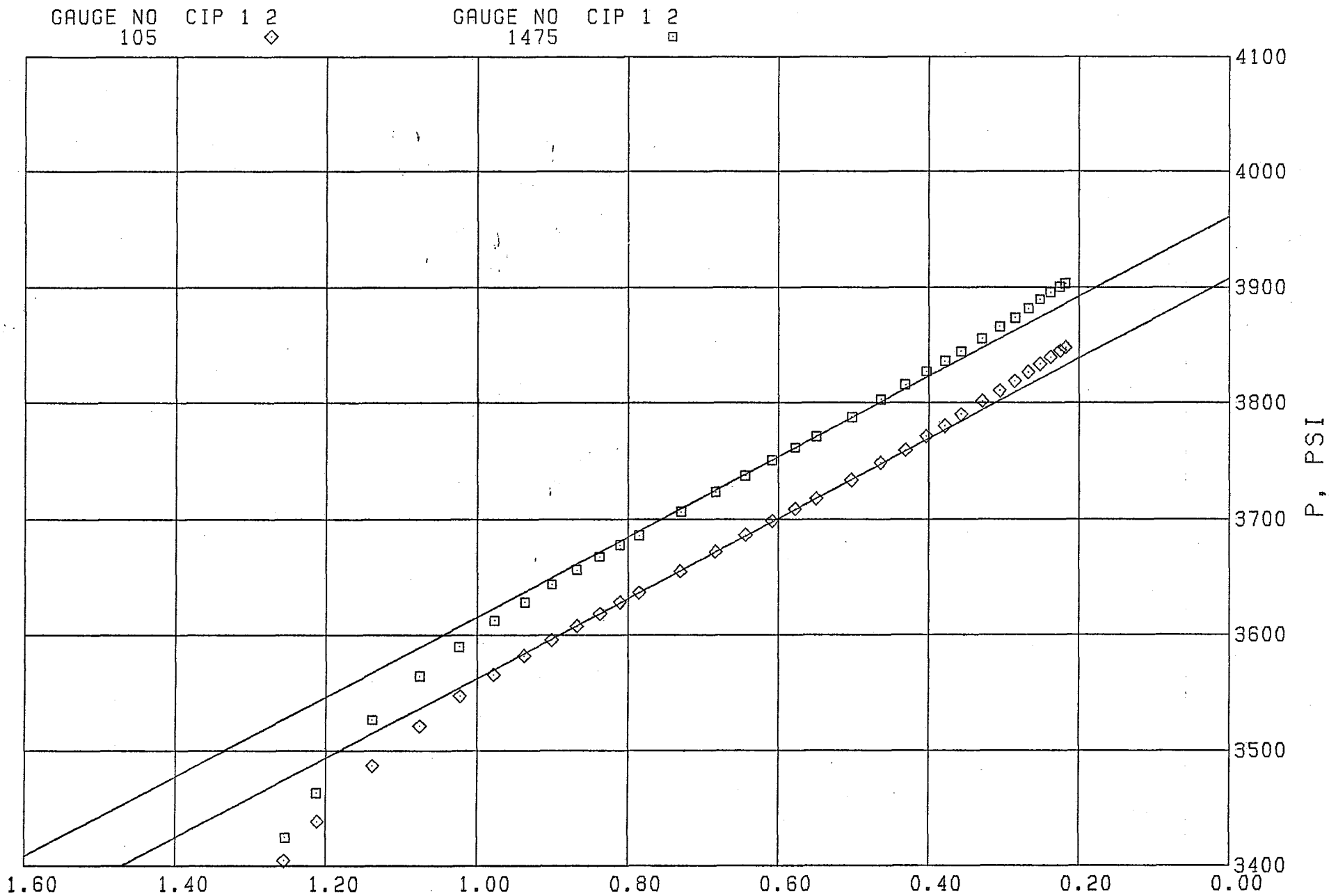
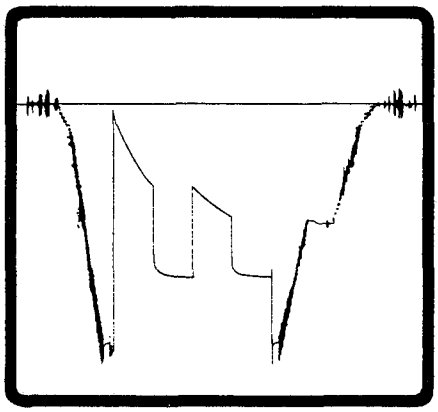


FORMATION TESTING SERVICE REPORT



TXC HUBER FEDERAL	1-15	4	12232.' - 12362.'
LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL

TRANSCO EXPLORATION CORPORATION
LEASE OWNER/COMPANY NAME

HALLIBURTON SERVICES

Duncan, Oklahoma 73536

A Halliburton Company

NOMENCLATURE

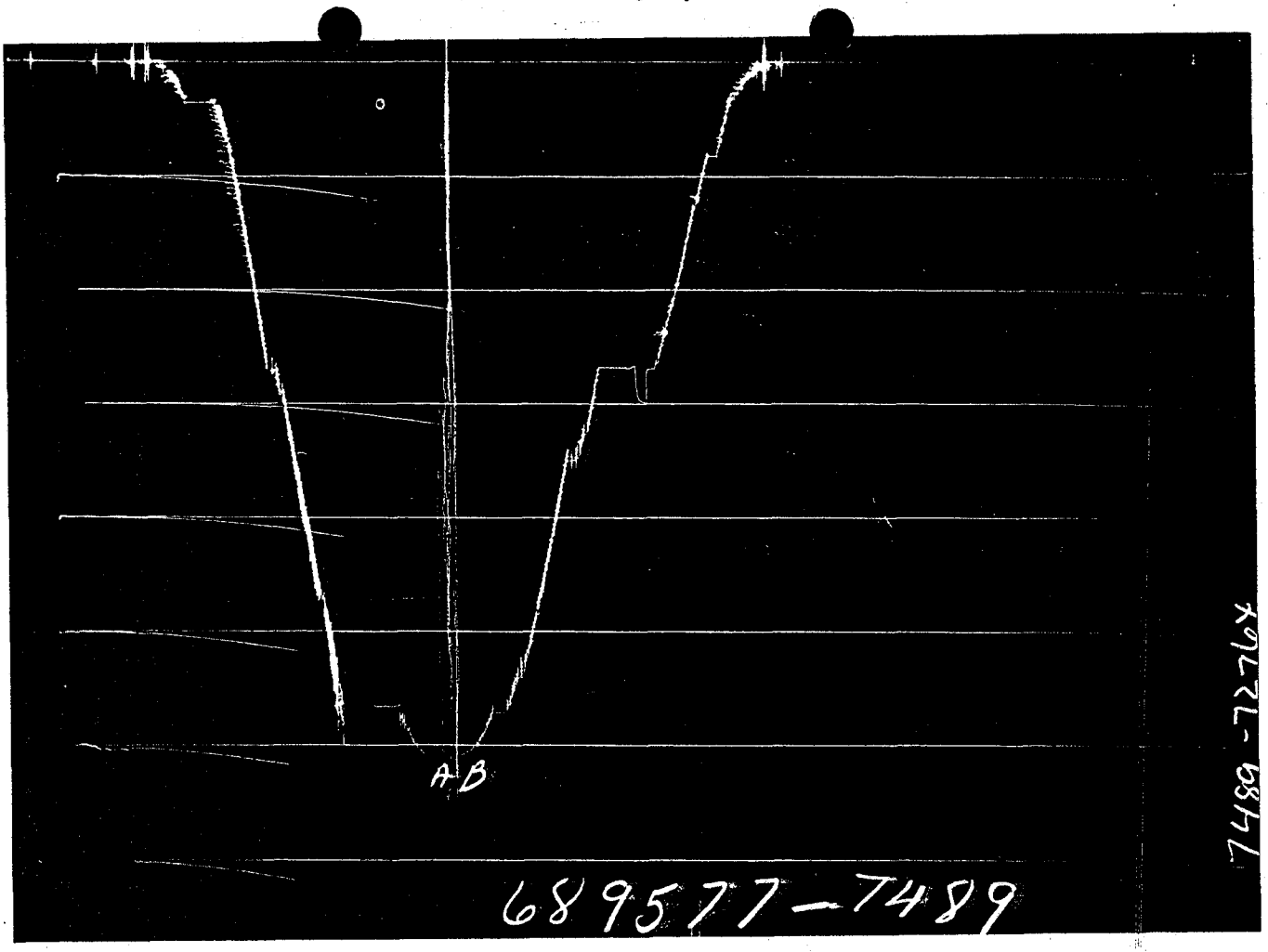
B	=	Formation Volume Factor (Res Vol / Std Vol)	—
c_t	=	System Total Compressibility	(Vol / Vol) / psi
DR	=	Damage Ratio	—
h	=	Estimated Net Pay Thickness	Ft
k	=	Permeability	md
m	=	(Liquid) Slope Extrapolated Pressure Plot	psi/cycle
		(Gas) Slope Extrapolated m(P) Plot	MM psi^2/cp/cycle
$m(P^*)$	=	Real Gas Potential at P^*	MM psi^2/cp
$m(P_f)$	=	Real Gas Potential at P_f	MM psi^2/cp
AOF_1	=	Maximum Indicated Absolute Open Flow at Test Conditions	MCFD
AOF_2	=	Minimum Indicated Absolute Open Flow at Test Conditions	MCFD
P^*	=	Extrapolated Static Pressure	Psig
P_f	=	Final Flow Pressure	Psig
Q	=	Liquid Production Rate During Test	BPD
Q_1	=	Theoretical Liquid Production w/ Damage Removed	BPD
Q_g	=	Measured Gas Production Rate	MCFD
r_i	=	Approximate Radius of Investigation	Ft
r_w	=	Radius of Well Bore	Ft
S	=	Skin Factor	
t	=	Total Flow Time Previous to Closed-in	Minutes
Δt	=	Closed-in Time at Data Point	Minutes
T	=	Temperature Rankine	°R
ϕ	=	Porosity	—
μ	=	Viscosity of Gas or Liquid	cp
Log	=	Common Log	

TXC HUBER FEDERAL LEASE NAME	1-15 WELL NO.	5 TEST NO.	12624.' - 12753.' TESTED INTERVAL	TRANSCO EXPLORATION COMPANY LEASE OWNER/COMPANY NAME
LEGAL LOCATION SEC. - TWP. - RNG. 15-28-25	FIELD AREA WILDCAT	COUNTY SAN JUAN	STATE UTAH OR	

HALLIBURTON
SERVICES

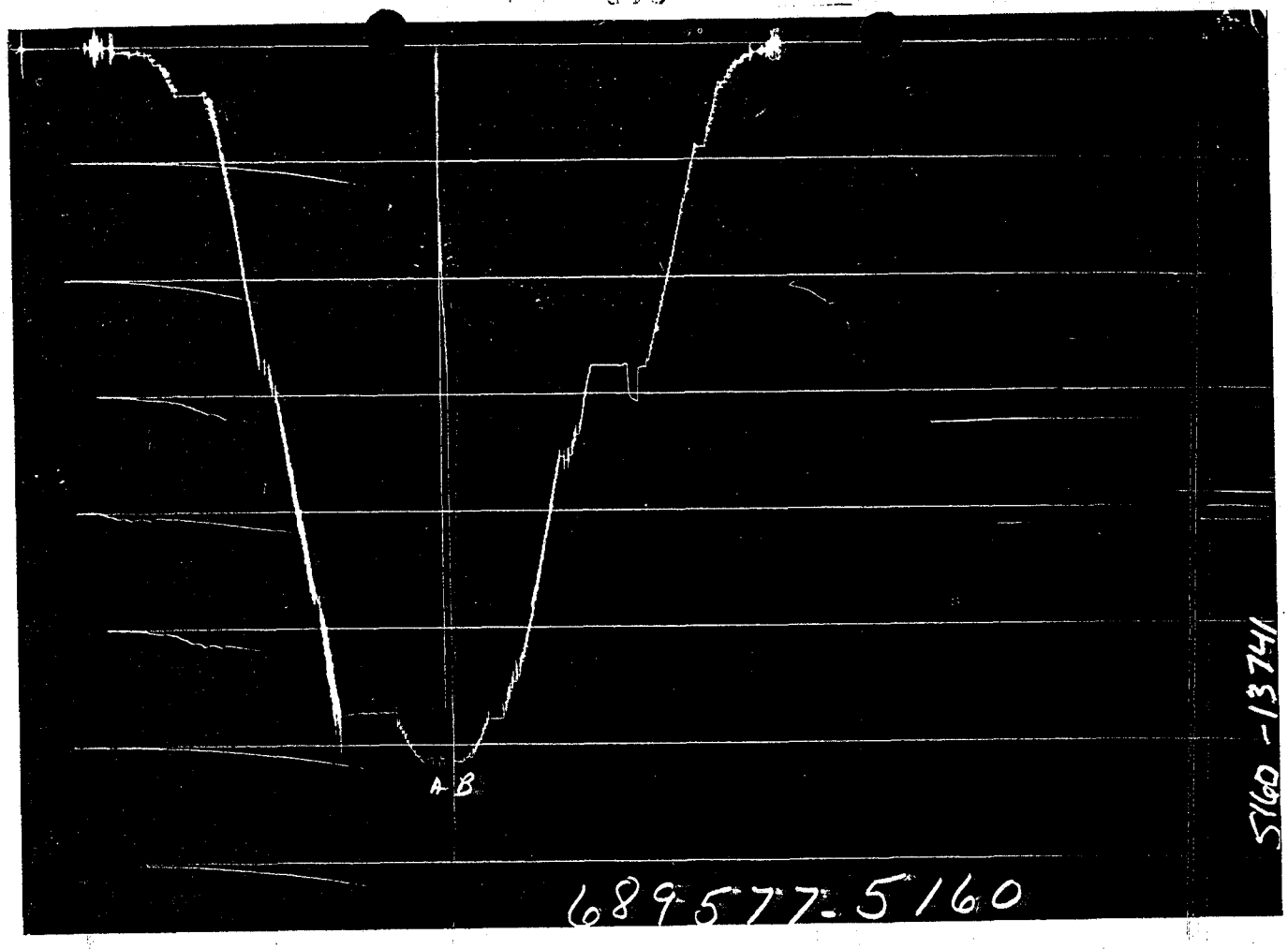
TICKET NO. 68957700
29-FEB-84
FARMINGTON

FORMATION TESTING SERVICE REPORT



GAUGE NO: 7489 DEPTH: 12606.0 BLANKED OFF: NO HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC		6068.8			
B	FINAL HYDROSTATIC		6061.5			



GAUGE NO: 5160 DEPTH: 12750.0 BLANKED OFF: YES HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC		6139.0			
B	FINAL HYDROSTATIC		6134.4			

EQUIPMENT & HOLE DATA

FORMATION TESTED: MC CRACKEN
NET PAY (ft):
GROSS TESTED FOOTAGE: 129.0
ALL DEPTHS MEASURED FROM: KELLY BUSHING
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 6.500
ELEVATION (ft): 0
TOTAL DEPTH (ft): 12753.0
PACKER DEPTH(S) (ft): 12618, 12624
FINAL SURFACE CHOKE (in):
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 9.10
MUD VISCOSITY (sec):
ESTIMATED HOLE TEMP. (°F): 170
ACTUAL HOLE TEMP. (°F): ___ @ _____ ft

TICKET NUMBER: 68957700

DATE: 2-22-84 TEST NO: 5

TYPE DST: OPEN HOLE

HALLIBURTON CAMP: FARMINGTON

TESTER: H. BELL, D. GUNN

WITNESS:

DRILLING CONTRACTOR: FORWEST LTD. #6

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY	CHLORIDES
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm

SAMPLER DATA

Psig AT SURFACE:
cu.ft. OF GAS:
cc OF OIL:
cc OF WATER:
cc OF MUD:
TOTAL LIQUID cc:

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): _____ @ ___ °F
GAS/OIL RATIO (cu.ft. per bbl):
GAS GRAVITY:

CUSHION DATA

TYPE	AMOUNT	WEIGHT
SEE REMARKS		

RECOVERED:

MEASURED FROM TESTER VALVE

REMARKS:

DID NOT GET PACKER SEAT.....UNSUCCESSFUL TEST

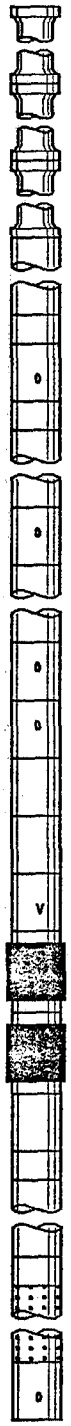
CUSHION CONSISTED OF 35 GALLONS OF AMMONIA, 70 GALLONS OF WATER, 10 GALLONS OF INHIBITOR AND 10 GALLONS OF DIESEL

TYPE & SIZE MEASURING DEVICE: 3/4" ADJUSTABLE CHOKE | TICKET NO: 68957700

TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
2-21-84					
2030					ON LOCATION
2230					PICKED UP TOOLS
2-22-84					
0020					WENT IN HOLE WITH DST #5
0623					ON BOTTOM
0625	1/8BH	4 OZ			OPENED TOOL WITH A FAIR BLOW
					4" IN BUBBLE BUCKET
0627	"				ANNULUS FLUID FELL-APPLIED
					35,000# WT.
0631					PULLED OFF BOTTOM-NO PACKER
					SEAT
0650					OUT OF HOLE WITH DST
1005					DROPPED BAR TO REVERSE OUT
					REVERSED OUT AMMONIA AND
					INHIBITOR
1040					FINISHED PULLING TOOL OUT OF
					HOLE
1300					OUT OF HOLE
					LAID TOOLS DOWN
1400					JOB COMPLETED

TESTER VALVE

TICKET NO. 68957700



		O.D.	I.D.	LENGTH	DEPTH
1	DRILL PIPE.....	4.500	3.826	7220.7	
1	DRILL PIPE.....	3.500	2.764	4083.2	
4	FLEX WEIGHT.....	3.500	2.500	633.5	
3	DRILL COLLARS.....	4.750	2.250	464.4	
5	CROSSOVER.....			1.0	
81	BLANKED-OFF RUNNING CASE.....	5.160	2.750	1.0	12406.0
5	CROSSOVER.....			1.7	
3	DRILL COLLARS.....	4.750	2.250	92.0	
50	IMPACT REVERSING SUB.....	4.750	2.750	1.0	12501.0
3	DRILL COLLARS.....	4.750	2.250	92.0	
13	DUAL CIP SAMPLER.....	5.030	0.750	7.0	
60	HYDROSPRING TESTER.....	5.000	0.750	5.0	12601.0
80	AP RUNNING CASE.....	5.000	2.250	4.0	12606.0
15	JAR.....	5.030	1.750	5.0	
16	VR SAFETY JOINT.....	5.000	1.000	3.0	
70	OPEN HOLE PACKER.....	5.500	1.530	6.0	12618.0
70	OPEN HOLE PACKER.....	5.500	1.530	6.0	12624.0
19	ANCHOR PIPE SAFETY JOINT.....	5.000	1.250	4.0	
5	CROSSOVER.....	4.750	2.250	1.0	
3	DRILL COLLARS.....	4.750	2.250	91.8	
5	CROSSOVER.....	4.750	2.250	1.0	
20	FLUSH JOINT ANCHOR.....	5.000	2.000	25.0	
81	BLANKED-OFF RUNNING CASE.....	5.000		4.0	12750.0
	TOTAL DEPTH				12753.0

EQUIPMENT DATA

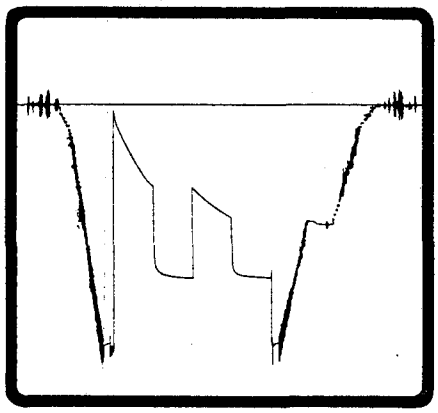
EQUATIONS FOR DST LIQUID WELL ANALYSIS

Transmissibility	$\frac{kh}{\mu} = \frac{162.6\ QB}{m}$	$\frac{\text{md-ft}}{\text{cp}}$
Indicated Flow Capacity	$kh = \frac{kh}{\mu}\ \mu$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Damage Ratio	$DR = .183\ \frac{P^* - P_f}{m}$	—
Theoretical Potential w / Damage Removed	$Q_1 = Q\ DR$	BPD
Approx. Radius of Investigation	$r_i = 4.63\ \sqrt{kt}$	ft

EQUATIONS FOR DST GAS WELL ANALYSIS

Indicated Flow Capacity	$kh = \frac{1637\ Q_g\ T}{m}$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Skin Factor	$S = 1.151 \left[\frac{m(P^*) - m(P_f)}{m} - \text{LOG}\ \frac{kt}{\phi\ \mu\ c_t r_w^2} + 3.23 \right]$	—
Damage Ratio	$DR = \frac{m(P^*) - m(P_f)}{m(P^*) - m(P_f) - 0.87\ mS}$	—
Indicated Flow Rate (Maximum)	$AOF_1 = \frac{Q_g\ m(P^*)}{m(P^*) - m(P_f)}$	MCFD
Indicated Flow Rate (Minimum)	$AOF_2 = Q_g \sqrt{\frac{m(P^*)}{m(P^*) - m(P_f)}}$	MCFD
Approx. Radius of Investigation	$r_i = 0.032 \sqrt{\frac{kt}{\phi \mu c_t}}$	ft

FORMATION TESTING SERVICE REPORT



TXC HUBER FEDERAL	1-15	6	12634.' - 12753.'	TRANSCO EXPLORATION COMPANY
LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL	LEASE OWNER/COMPANY NAME

HALLIBURTON SERVICES

Duncan, Oklahoma 73536

A Halliburton Company

NOMENCLATURE

B	=	Formation Volume Factor (Res Vol / Std Vol)	—
c_t	=	System Total Compressibility	(Vol / Vol) / psi
DR	=	Damage Ratio	—
h	=	Estimated Net Pay Thickness	Ft
k	=	Permeability	md
m	=	(Liquid) Slope Extrapolated Pressure Plot	psi/cycle
		(Gas) Slope Extrapolated m(P) Plot	MM psi^2/cp/cycle
$m(P^*)$	=	Real Gas Potential at P^*	MM psi^2/cp
$m(P_f)$	=	Real Gas Potential at P_f	MM psi^2/cp
AOF_1	=	Maximum Indicated Absolute Open Flow at Test Conditions	MCFD
AOF_2	=	Minimum Indicated Absolute Open Flow at Test Conditions	MCFD
P^*	=	Extrapolated Static Pressure	Psig
P_f	=	Final Flow Pressure	Psig
Q	=	Liquid Production Rate During Test	BPD
Q_1	=	Theoretical Liquid Production w/ Damage Removed	BPD
Q_g	=	Measured Gas Production Rate	MCFD
r_i	=	Approximate Radius of Investigation	Ft
r_w	=	Radius of Well Bore	Ft
S	=	Skin Factor	
t	=	Total Flow Time Previous to Closed-in	Minutes
Δt	=	Closed-in Time at Data Point	Minutes
T	=	Temperature Rankine	°R
ϕ	=	Porosity	—
μ	=	Viscosity of Gas or Liquid	cp
Log	=	Common Log	

TXC HUBER FEDERAL	1-15	6	12634.' - 12753.'		TRANSCO EXPLORATION COMPANY
LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL		LEASE OWNER/COMPANY NAME
LEGAL LOCATION SEC. - TWP. - RNG.	15-28-25	FIELD AREA	WILDCAT	COUNTY SAN JUAN	STATE UTAH BC

HALLIBURTON

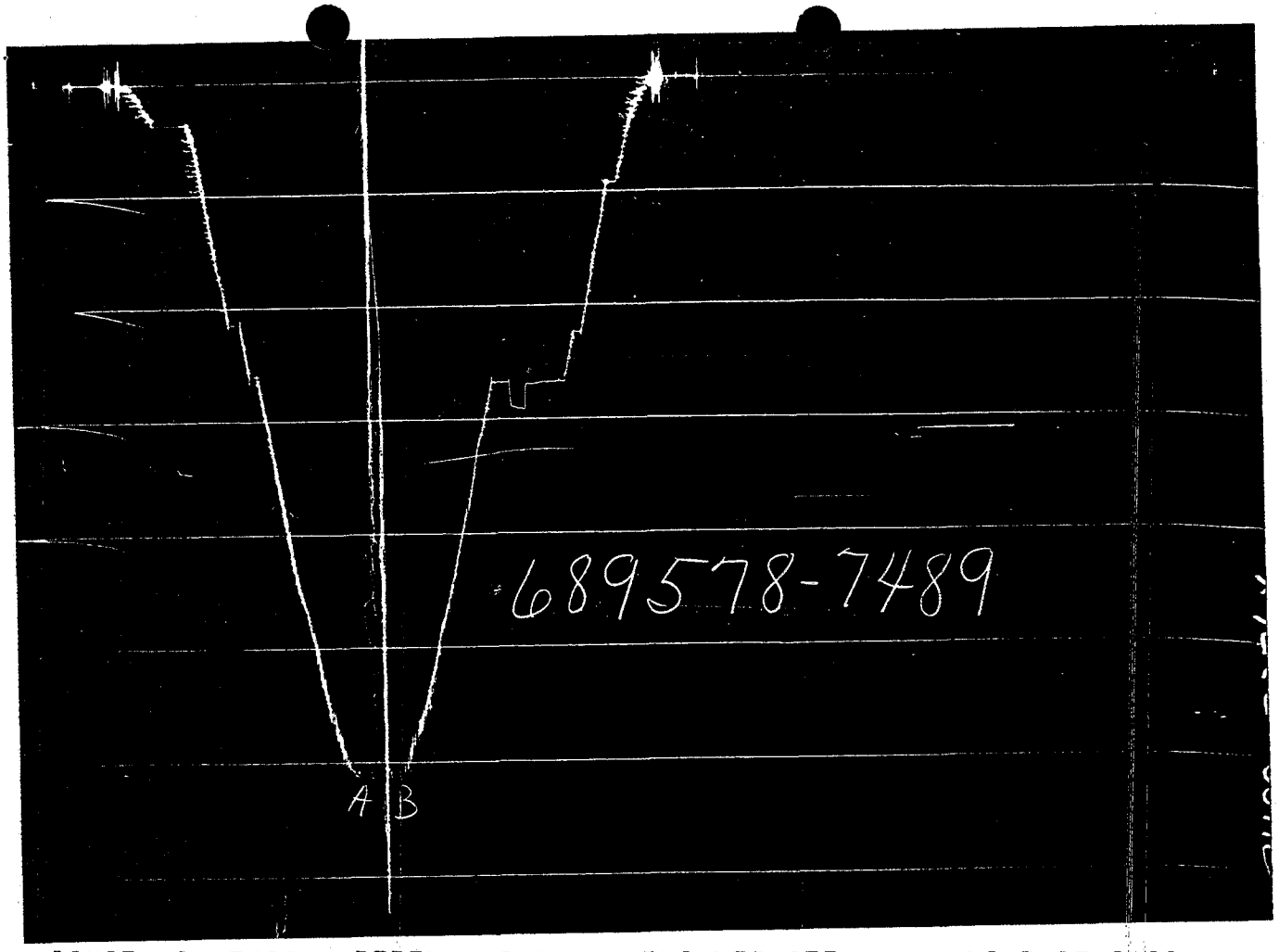
SERVICES

TICKET NO. 68957800

29-FEB-84

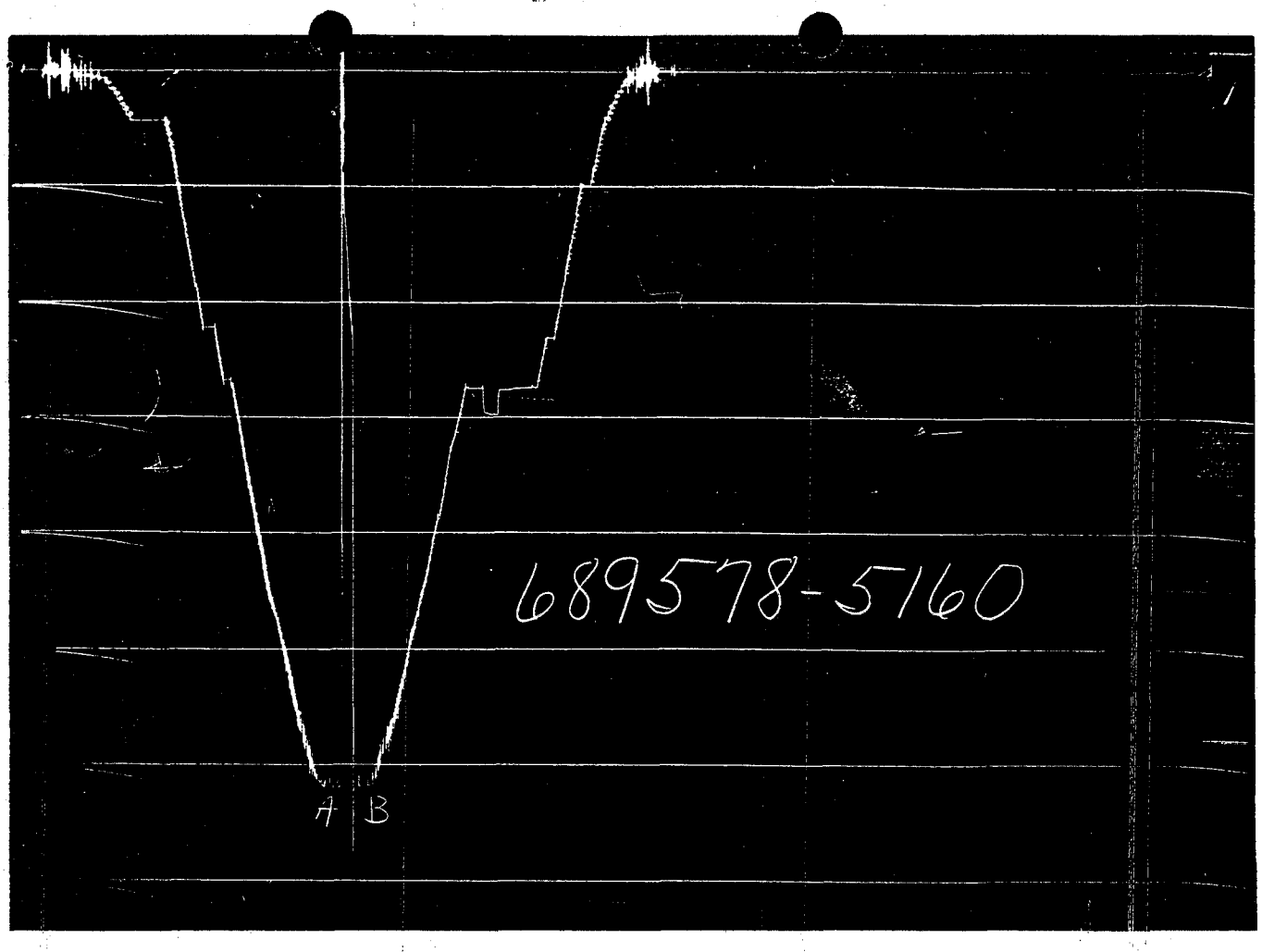
FARMINGTON

FORMATION TESTING SERVICE REPORT



GAUGE NO: 7489 DEPTH: 12616.0 BLANKED OFF: NO HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC		6074.6			
B	FINAL HYDROSTATIC		6108.5			



GAUGE NO: 5160 DEPTH: 12750.0 BLANKED OFF: YES HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC		6138.4			
B	FINAL HYDROSTATIC		6162.9			

EQUIPMENT & HOLE DATA

FORMATION TESTED: MC CRACKEN
NET PAY (ft):
GROSS TESTED FOOTAGE: 119.0
ALL DEPTHS MEASURED FROM: KB
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 6.500
ELEVATION (ft): 0
TOTAL DEPTH (ft): 12753.0
PACKER DEPTH(S) (ft): 12628, 12634
FINAL SURFACE CHOKE (in):
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 9.10
MUD VISCOSITY (sec):
ESTIMATED HOLE TEMP. (°F): 170
ACTUAL HOLE TEMP. (°F): ___ @ ___ ft

TICKET NUMBER: 68957800

DATE: 2-23-84 TEST NO: 6

TYPE DST: OPEN HOLE

HALLIBURTON CAMP: FARMINGTON

TESTER: GUNN BELL

WITNESS:

DRILLING CONTRACTOR: FORWEST LIMITED I #6

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY	CHLORIDES
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm

SAMPLER DATA

Psig AT SURFACE:
cu.ft. OF GAS:
cc OF OIL:
cc OF WATER:
cc OF MUD:
TOTAL LIQUID cc:

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): ___ @ ___ °F
GAS/OIL RATIO (cu.ft. per bbl):
GAS GRAVITY:

CUSHION DATA

TYPE	AMOUNT	WEIGHT

RECOVERED:

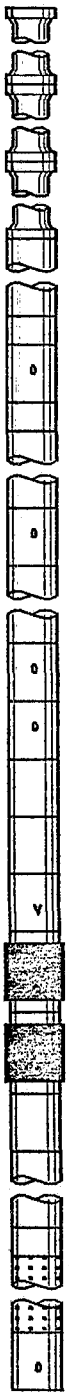
MEASURED FROM TESTER VALVE

REMARKS:

TYPE & SIZE MEASURING DEVICE: .75" ADJUSTABLE CHOKE | TICKET NO: 68957800

TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
2-23-84					
0030					PICKED UP TOOLS FOR DST #6
0200					TRIP IN HOLE WITH DST
0639					ON BOTTOM
0642					TOOL OPENED, ANNULUS FALLING.
					PUMPED TO CATCH FLUID DOWN
					ANNULUS
0650					PULLED OFF BOTTOM, OPENED BY-
					PASS. FILLED HOLE WITH MUD
0715					TRIP OUT OF HOLE WITH DST #6
					HAD NO PACKER SEAT
0930					DROPPED BAR AND REVERSED OUT
					AMMONIA CUSHION
1015					REVERSE COMPLETE
1040					FINISHED TRIP OUT OF HOLE
1240					OUT OF HOLE, LAID TOOLS DOWN.
1400					JOB COMPLETED.

TICKET NO. 68957800



		O.D.	I.D.	LENGTH	DEPTH
1	DRILL PIPE.....	4.500	3.826	7230.7	
1	DRILL PIPE.....	3.500	2.764	4083.2	
4	FLEX WEIGHT.....	3.500	2.500	633.5	
3	DRILL COLLARS.....	4.750	2.250	464.4	
5	CROSSOVER.....	5.375	2.375	1.0	
50	IMPACT REVERSING SUB.....	5.160	2.750	1.0	12416.4
5	CROSSOVER.....	5.250	2.625	1.7	
3	DRILL COLLARS.....	4.750	2.250	92.0	
50	IMPACT REVERSING SUB.....	4.750	2.750	1.0	12511.0
3	DRILL COLLARS.....	4.750	2.250	92.0	
13	DUAL CIP SAMPLER.....	5.030	0.750	7.0	
60	HYDROSPRING TESTER.....	5.000	0.750	5.0	12611.0
80	AP RUNNING CASE.....	5.000	2.250	4.0	12616.0
15	JAR.....	5.030	1.750	5.0	
16	VR SAFETY JOINT.....	5.000	1.000	3.0	
70	OPEN HOLE PACKER.....	5.500	1.530	6.0	12628.0
70	OPEN HOLE PACKER.....	5.500	1.530	6.0	12634.0
19	ANCHOR PIPE SAFETY JOINT.....	5.000	1.250	1.0	
3	DRILL COLLARS.....	4.750	2.250	91.8	
5	CROSSOVER.....	4.750	2.250	1.0	
20	FLUSH JOINT ANCHOR.....	5.000	2.000	15.0	
81	BLANKED-OFF RUNNING CASE.....	5.000		4.0	12750.0
	TOTAL DEPTH				12753.0

EQUIPMENT DATA

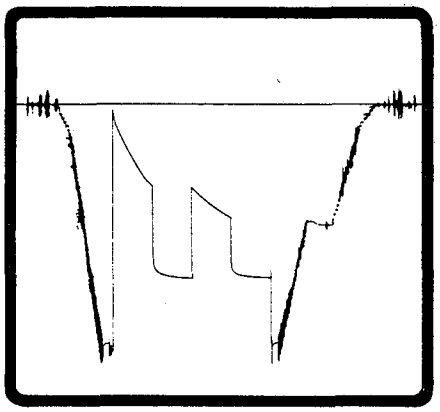
EQUATIONS FOR DST LIQUID WELL ANALYSIS

Transmissibility	$\frac{kh}{\mu} = \frac{162.6\ QB}{m}$	$\frac{\text{md-ft}}{\text{cp}}$
Indicated Flow Capacity	$kh = \frac{kh}{\mu}\ \mu$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Damage Ratio	$DR = .183\ \frac{P^* - P_f}{m}$	—
Theoretical Potential w / Damage Removed	$Q_1 = Q\ DR$	BPD
Approx. Radius of Investigation	$r_i = 4.63\ \sqrt{kt}$	ft

EQUATIONS FOR DST GAS WELL ANALYSIS

Indicated Flow Capacity	$kh = \frac{1637\ Q_g\ T}{m}$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Skin Factor	$S = 1.151 \left[\frac{m(P^*) - m(P_f)}{m} - LOG\ \frac{kt}{\phi\ \mu\ c_t r_w^2} + 3.23 \right]$	—
Damage Ratio	$DR = \frac{m(P^*) - m(P_f)}{m(P^*) - m(P_f) - 0.87\ mS}$	—
Indicated Flow Rate (Maximum)	$AOF_1 = \frac{Q_g\ m(P^*)}{m(P^*) - m(P_f)}$	MCFD
Indicated Flow Rate (Minimum)	$AOF_2 = Q_g \sqrt{\frac{m(P^*)}{m(P^*) - m(P_f)}}$	MCFD
Approx. Radius of Investigation	$r_i = 0.032 \sqrt{\frac{kt}{\phi \mu c_t}}$	ft

FORMATION TESTING SERVICE REPORT



TXC HUBER FEDERAL	1-15	5	12624.' - 12753.'
LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL

TRANSCO EXPLORATION COMPANY
LEASE OWNER/COMPANY NAME

HALLIBURTON SERVICES

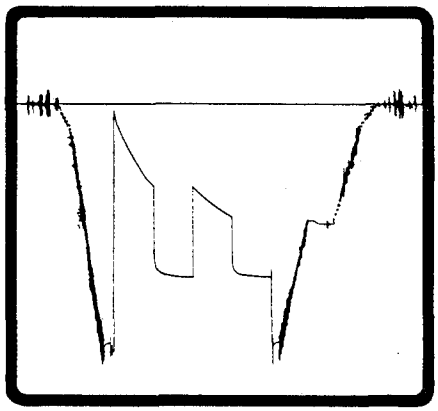
Duncan, Oklahoma 73536

A Halliburton Company

NOMENCLATURE

B	=	Formation Volume Factor (Res Vol / Std Vol)	—
c_t	=	System Total Compressibility	(Vol / Vol) / psi
DR	=	Damage Ratio	—
h	=	Estimated Net Pay Thickness	Ft
k	=	Permeability	md
m	=	(Liquid) Slope Extrapolated Pressure Plot	psi/cycle
		(Gas) Slope Extrapolated m(P) Plot	MM psi^2/cp/cycle
$m(P^*)$	=	Real Gas Potential at P^*	MM psi^2/cp
$m(P_f)$	=	Real Gas Potential at P_f	MM psi^2/cp
AOF_1	=	Maximum Indicated Absolute Open Flow at Test Conditions	MCFD
AOF_2	=	Minimum Indicated Absolute Open Flow at Test Conditions	MCFD
P^*	=	Extrapolated Static Pressure	Psig
P_f	=	Final Flow Pressure	Psig
Q	=	Liquid Production Rate During Test	BPD
Q_1	=	Theoretical Liquid Production w/ Damage Removed	BPD
Q_g	=	Measured Gas Production Rate	MCFD
r_i	=	Approximate Radius of Investigation	Ft
r_w	=	Radius of Well Bore	Ft
S	=	Skin Factor	
t	=	Total Flow Time Previous to Closed-in	Minutes
Δt	=	Closed-in Time at Data Point	Minutes
T	=	Temperature Rankine	°R
ϕ	=	Porosity	—
μ	=	Viscosity of Gas or Liquid	cp
Log	=	Common Log	

FORMATION TESTING SERVICE REPORT



TXC HUBER FEDERAL	1-15	7	12699.' - 12753.'	TRANSCO EXPLORATION COMPANY
LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL	LEASE OWNER/COMPANY NAME

HALLIBURTON SERVICES

Duncan, Oklahoma 73536

A Halliburton Company

NOMENCLATURE

B	=	Formation Volume Factor (Res Vol / Std Vol)	—
c_t	=	System Total Compressibility	(Vol / Vol) / psi
DR	=	Damage Ratio	—
h	=	Estimated Net Pay Thickness	Ft
k	=	Permeability	md
m	=	(Liquid) Slope Extrapolated Pressure Plot	psi/cycle
		(Gas) Slope Extrapolated m(P) Plot	MM psi^2/cp/cycle
$m(P^*)$	=	Real Gas Potential at P^*	MM psi^2/cp
$m(P_f)$	=	Real Gas Potential at P_f	MM psi^2/cp
AOF_1	=	Maximum Indicated Absolute Open Flow at Test Conditions	MCFD
AOF_2	=	Minimum Indicated Absolute Open Flow at Test Conditions	MCFD
P^*	=	Extrapolated Static Pressure	Psig
P_f	=	Final Flow Pressure	Psig
Q	=	Liquid Production Rate During Test	BPD
Q_1	=	Theoretical Liquid Production w/ Damage Removed	BPD
Q_g	=	Measured Gas Production Rate	MCFD
r_i	=	Approximate Radius of Investigation	Ft
r_w	=	Radius of Well Bore	Ft
S	=	Skin Factor	
t	=	Total Flow Time Previous to Closed-in	Minutes
Δt	=	Closed-in Time at Data Point	Minutes
T	=	Temperature Rankine	°R
ϕ	=	Porosity	—
μ	=	Viscosity of Gas or Liquid	cp
Log	=	Common Log	

TXC HUBER FEDERAL	1-15	7	12699.' - 12753.'	TRANSCO EXPLORATION COMPANY
LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL	LEASE OWNER/COMPANY NAME

LEGAL LOCATION SEC. - TWP. - RNG.	15 - 28 - 25	FIELD AREA	WILDCAT	COUNTY	SAN JUAN	STATE	UTAH	PW

HALLIBURTON

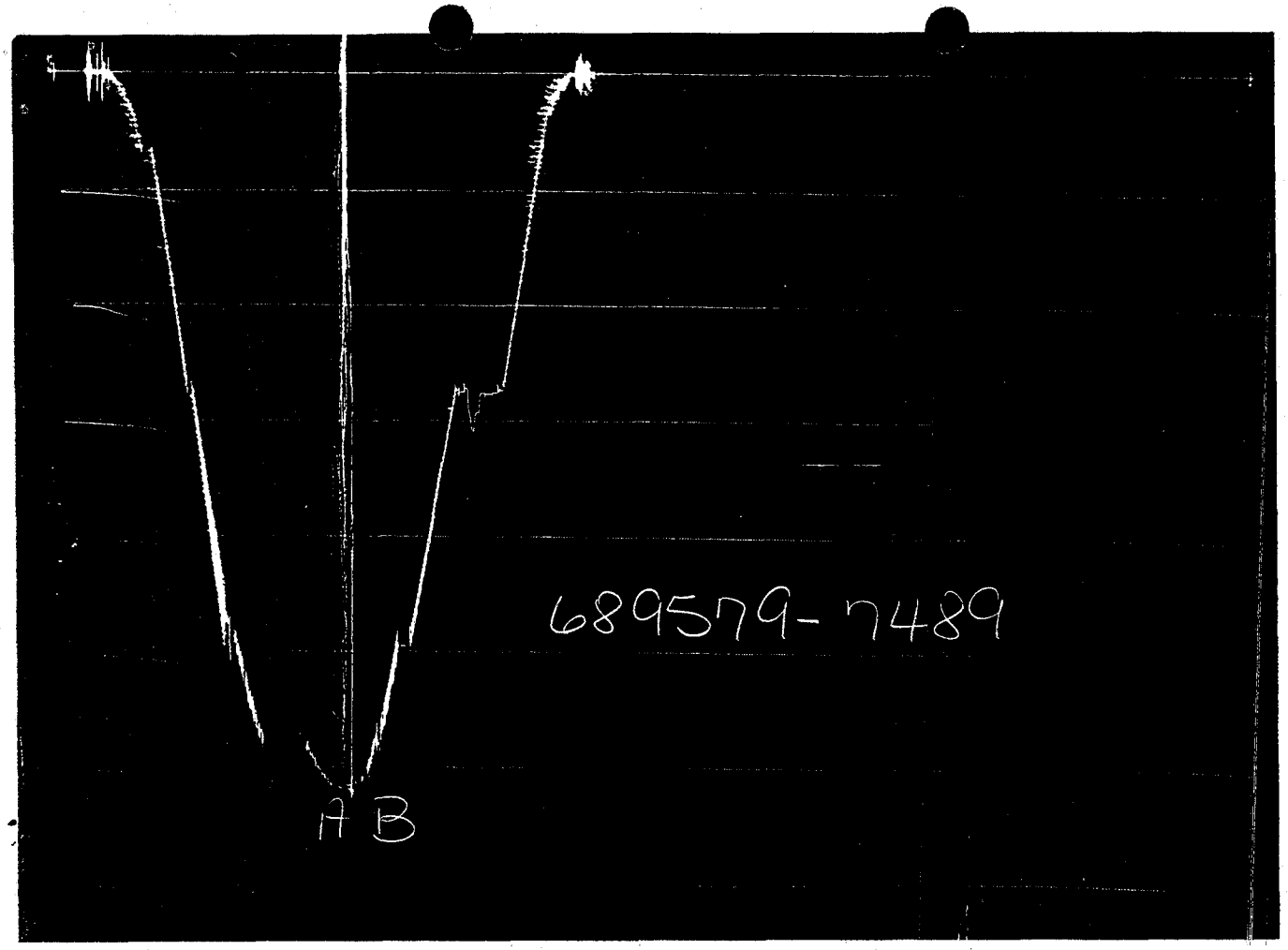
SERVICES

TICKET NO. 68957900

29-FEB-84

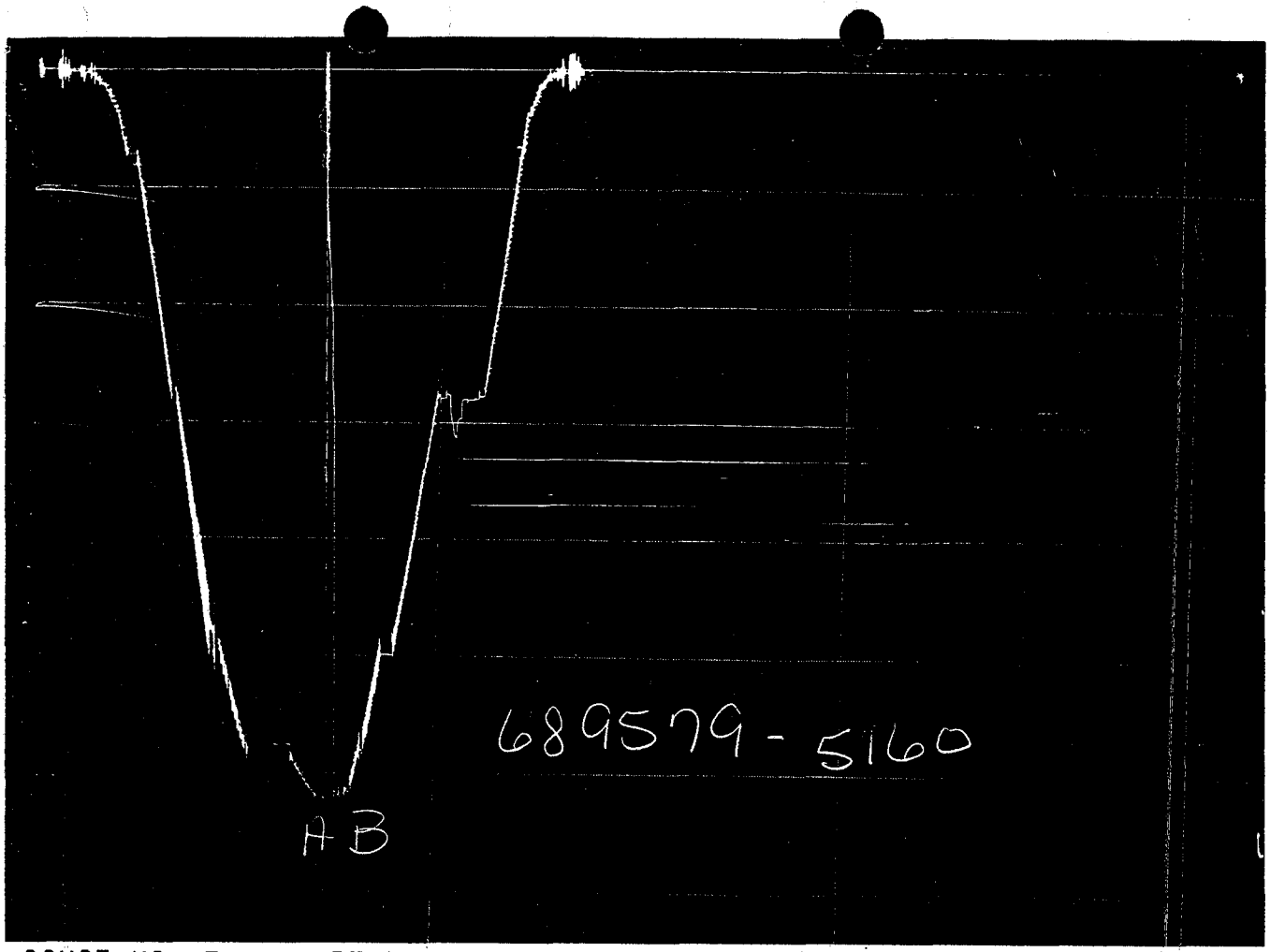
FARMINGTON

FORMATION TESTING SERVICE REPORT



GAUGE NO: 7489 DEPTH: 12679.0 BLANKED OFF: NO HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC		6175.2			
B	FINAL HYDROSTATIC		6175.2			



GAUGE NO: 5160 DEPTH: 12750.0 BLANKED OFF: YES HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC		6209.3			
B	FINAL HYDROSTATIC		6209.3			

EQUIPMENT & HOLE DATA

FORMATION TESTED: LYNCH
NET PAY (ft):
GROSS TESTED FOOTAGE: 54.0
ALL DEPTHS MEASURED FROM: KELLY BUSHING
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 6.500
ELEVATION (ft): 0
TOTAL DEPTH (ft): 12753.0
PACKER DEPTH(S) (ft): 12691, 12699
FINAL SURFACE CHOKE (in):
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 9.20
MUD VISCOSITY (sec): 42
ESTIMATED HOLE TEMP. (°F): 170
ACTUAL HOLE TEMP. (°F): 172 @ 12749.0 ft

TICKET NUMBER: 68957900

DATE: 2-24-84 TEST NO: 7

TYPE DST: OPEN HOLE

HALLIBURTON CAMP: FARMINGTON

TESTER: D. GUNN, H. BELL

WITNESS:

DRILLING CONTRACTOR: FORWEST, LTD. #6

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY	CHLORIDES
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm

SAMPLER DATA

Psig AT SURFACE:
cu.ft. OF GAS:
cc OF OIL:
cc OF WATER:
cc OF MUD:
TOTAL LIQUID cc:

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): @ °F
GAS/OIL RATIO (cu.ft. per bbl):
GAS GRAVITY:

CUSHION DATA

TYPE	AMOUNT	WEIGHT

RECOVERED:

MEASURED FROM

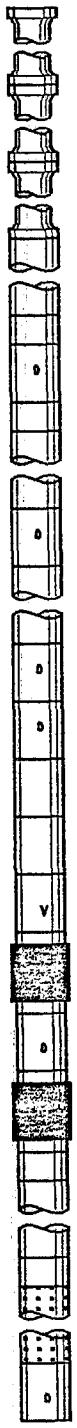
REMARKS:

TYPE & SIZE MEASURING DEVICE: 3/4" ADJUSTABLE CHOKE

TICKET NO: 68957900

TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
2-23-84					
1400					RIG TRIPPED IN HOLE TO
					CONDITION HOLE.
2-24-84					
0040					PICKED-UP TOOLS FOR DST #7
0130					TRIPPED IN HOLE WITH DST
0613					ON BOTTOM
0615	1/8"BH				OPENED TOOL
0617					MUD IN ANNULUS FALLING -
					PUMPED TO FILL.
0626					PULLED OFF BOTTOM - OPENED
					BYPASS.
0635					TRIPPED OUT OF HOLE WITH
					DST #7 - NO PACKER SEAT.
0930					DROPPED BAR AND REVERSED OUT
					FINISHED TRIPPING OUT OF HOLE
1230					OUT OF HOLE WITH TEST
					LAID TOOLS DOWN
1400					JOB COMPLETED

TICKET NO. 68957900



		O.D.	I.D.	LENGTH	DEPTH
1	DRILL PIPE.....	4.500	3.826	7233.0	
1	DRILL PIPE.....	3.500	2.764	4083.2	
4	FLEX WEIGHT.....	3.500	2.500	633.5	
3	DRILL COLLARS.....	4.750	2.250	525.9	
5	CROSSOVER.....	5.375	2.375	1.0	
50	IMPACT REVERSING SUB.....	5.160	2.750	1.0	12479.2
5	CROSSOVER.....	5.250	2.625	1.7	
3	DRILL COLLARS.....	4.750	2.250	92.0	
50	IMPACT REVERSING SUB.....	4.750	2.750	1.0	12574.0
3	DRILL COLLARS.....	4.750	2.250	92.0	
13	DUAL CIP SAMPLER.....	5.030	0.750	7.0	
60	HYDROSPRING TESTER.....	5.000	0.750	5.0	12674.0
80	AP RUNNING CASE.....	5.000	2.250	4.0	12679.0
15	JAR.....	5.030	1.750	5.0	
16	VR SAFETY JOINT.....	5.000	1.000	3.0	
70	OPEN HOLE PACKER.....	5.500	1.530	6.0	12691.0
18	DISTRIBUTOR VALVE.....	5.000	1.500	2.0	
70	OPEN HOLE PACKER.....	5.500	1.530	6.0	12699.0
5	CROSSOVER.....	4.750	2.250	1.0	
3	DRILL COLLARS.....	4.750	2.250	31.0	
5	CROSSOVER.....	4.750	2.250	1.0	
20	FLUSH JOINT ANCHOR.....	5.000	2.000	15.0	
81	BLANKED-OFF RUNNING CASE.....	5.000		4.0	12750.0
	TOTAL DEPTH				12753.0

EQUIPMENT DATA

EQUATIONS FOR DST LIQUID WELL ANALYSIS

Transmissibility	$\frac{kh}{\mu} = \frac{162.6\ QB}{m}$	$\frac{\text{md-ft}}{\text{cp}}$
Indicated Flow Capacity	$kh = \frac{kh}{\mu}\ \mu$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Damage Ratio	$DR = .183\ \frac{P^* - P_f}{m}$	—
Theoretical Potential w / Damage Removed	$Q_1 = Q\ DR$	BPD
Approx. Radius of Investigation	$r_i = 4.63\ \sqrt{kt}$	ft

EQUATIONS FOR DST GAS WELL ANALYSIS

Indicated Flow Capacity	$kh = \frac{1637\ Q_g\ T}{m}$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Skin Factor	$S = 1.151 \left[\frac{m(P^*) - m(P_f)}{m} - LOG\ \frac{kt}{\phi\ \mu\ c_t r_w^2} + 3.23 \right]$	—
Damage Ratio	$DR = \frac{m(P^*) - m(P_f)}{m(P^*) - m(P_f) - 0.87\ mS}$	—
Indicated Flow Rate (Maximum)	$AOF_1 = \frac{Q_g\ m(P^*)}{m(P^*) - m(P_f)}$	MCFD
Indicated Flow Rate (Minimum)	$AOF_2 = Q_g \sqrt{\frac{m(P^*)}{m(P^*) - m(P_f)}}$	MCFD
Approx. Radius of Investigation	$r_i = 0.032 \sqrt{\frac{kt}{\phi \mu c_t}}$	ft

TICKET NUMBER 69550000

SUMMARY OF RESERVOIR PARAMETERS
USING HORNER METHOD

OIL GRAVITY 0.0 @60° | WATER % SALT 5.2
GAS GRAVITY 0.700 | FLUID GRADIENT 0.4495 psi/ft
GAS/OIL RATIO 0.0 cu.ft/bbl | FORMATION VOL FACTOR 1.026 vol/vol
TEMPERATURE 156.0 °F | FLUID PROPERTIES AT 3961.2 Psig
VISCOSITY 0.461 cp | NET PAY 30.0 ft
PIPE CAPACITY FACTOR(S) 0.00492 0.00413 0.00742 0.01422 bbl/ft

GAUGE NUMBER		105	105	1475	1475			
GAUGE DEPTH		12212.0	12212.0	12359.0	12359.0			
FLOW AND CIP PERIOD		1	2	1	2			UNITS
FINAL FLOW PRESSURE	P_f	1012.4	2041.2	2314.5	2114.5			Psig
TOTAL FLOW TIME	t	31.5	153.0	31.5	153.0			min
EXTRAPOLATED PRESSURE	P*	3959.0	3907.5	4019.7	3961.2			Psig
ONE CYCLE PRESSURE		3498.2	3562.6	3558.8	3615.5			Psig
PRODUCTION RATE	Q		316.2		294.1			BPD
TRANSMISSIBILITY	kh/μ		152.976		141.948			$\frac{md-ft}{cp}$
FLOW CAPACITY	kh		70.5508		65.4649			md-ft
PERMEABILITY	k		2.35169		2.18216			md
DAMAGE RATIO	DR		0.99		0.98			
POTENTIAL RATE	Q_1		316.2		294.1			BPD
RADIUS OF INVESTIGATION	r_i		87.8		84.6			ft

LOG[(T+DT)/DT]

REMARKS:

A MATCH OF THE LOG-LOG DATA FOR THE FINAL CLOSED-IN PERIOD ON THE TYPE CURVE FOR RADIAL FLOW INDICATES THE PRESENCE OF EITHER MULTIPLE ZONES OR A PERMEABILITY ANOMALLY WITHIN THE RADIUS OF INVESTIGATION.

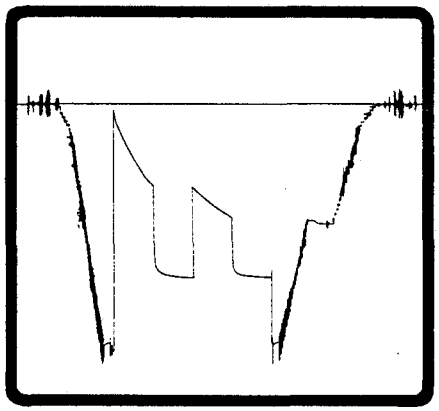
THE EXTRAPOLATED STATIC PRESSURE SHOULD NOT BE USED AS AN ESTIMATE FOR RESERVOIR PRESSURE.

THE CALCULATIONS PROVIDED ARE FOR SALTWATER PRODUCTION. THE RATES WERE CALCULATED USING PRESSURE CHANGE METHODS.

CALCULATIONS WERE NOT PROVIDED FOR THE INITIAL FLOW PERIOD DUE TO THE SEVERE PLUGGING IN THE ANCHOR PERFORATIONS DURING THAT PERIOD.

NOTICE: THESE CALCULATIONS ARE BASED UPON INFORMATION FURNISHED BY YOU AND TAKEN FROM DRILL STEM PRESSURE CHARTS, AND ARE FURNISHED YOU FOR YOUR INFORMATION. IN FURNISHING SUCH CALCULATIONS AND EVALUATIONS BASED THEREON, HALLIBURTON IS MERELY EXPRESSING ITS OPINION. YOU AGREE THAT HALLIBURTON MAKES NO WARRANTY EXPRESS OR IMPLIED AS TO THE ACCURACY OF SUCH CALCULATIONS OR OPINIONS, AND THAT HALLIBURTON SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE, WHETHER DUE TO NEGLIGENCE OR OTHERWISE, IN CONNECTION WITH SUCH OPINIONS.

FORMATION TESTING SERVICE REPORT



TXC HUBER FEDERAL	1-15	7	12699.' - 12753.'	TRANSCO EXPLORATION COMPANY
LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL	LEASE OWNER/COMPANY NAME

HALLIBURTON SERVICES

Duncan, Oklahoma 73536

A Halliburton Company

NOMENCLATURE

B	=	Formation Volume Factor (Res Vol / Std Vol)	—
c_t	=	System Total Compressibility	(Vol / Vol) / psi
DR	=	Damage Ratio	—
h	=	Estimated Net Pay Thickness	Ft
k	=	Permeability	md
m	=	(Liquid) Slope Extrapolated Pressure Plot	psi/cycle
		(Gas) Slope Extrapolated m(P) Plot	MM psi^2/ cp/cycle
$m(P^*)$	=	Real Gas Potential at P^*	MM psi^2/cp
$m(P_f)$	=	Real Gas Potential at P_f	MM psi^2/cp
AOF_1	=	Maximum Indicated Absolute Open Flow at Test Conditions	MCFD
AOF_2	=	Minimum Indicated Absolute Open Flow at Test Conditions	MCFD
P^*	=	Extrapolated Static Pressure	Psig
P_f	=	Final Flow Pressure	Psig
Q	=	Liquid Production Rate During Test	BPD
Q_1	=	Theoretical Liquid Production w/ Damage Removed	BPD
Q_g	=	Measured Gas Production Rate	MCFD
r_i	=	Approximate Radius of Investigation	Ft
r_w	=	Radius of Well Bore	Ft
S	=	Skin Factor	
t	=	Total Flow Time Previous to Closed-in	Minutes
Δt	=	Closed-in Time at Data Point	Minutes
T	=	Temperature Rankine	°R
ϕ	=	Porosity	—
μ	=	Viscosity of Gas or Liquid	cp
Log	=	Common Log	

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WELL SUMMARY

OPERATOR:	TRANSCO EXPLORATION CO.
WELL NAME:	TRANSCO-HUBER 1-15
AREA:	POLE SPRINGS PROSPECT (WILDCAT)
LOCATION:	650' FSL & 1900' FWL SEC 15 T28S R25E
COUNTY:	SAN JUAN
STATE:	UTAH
ELEVATION:	GL - 7592.5' KB - 7618.8'
DRILLING ENGINEERS:	GARY COCKRELL, RUSSELL M^{C} PHAIL, LEON ABRAMS
WELL-SITE GEOLOGIST:	LEE AMOROSO
SPUD DATE:	31 OCT 1983
COMPLETION DATE:	29 FEB 1984
CONTRACTOR:	FORWEST LTD RIG 6
TOOL PUSHERS:	CHUCK BRIGHT, CORKY ANDERSON, RANDY MINICK
HOLE SIZE:	17½" to 2002' 12¼" to 10,180' 8½" to 12,200' 6½" to TD
CASING RECORD:	13^{3}/8" K-55 to 2002' 9^{5}/8" L-80 to 2755' & S-95 2755' to 10,110', 7^{3}/4" S-125 2445', set at 12,148'
DRILL COLLARS:	8", 6^{3}/4", 4½"
DRILL PIPE:	4½", 3½"
DRILLING MUD:	IMCO ENGR: KEN BALLARD, SHEL HARRAS, MARK STANSBURY
MUD LOGGING:	TERRA SERVICES, INC.
ENGINEERS:	TOM STECHSCHULTE, TIM HASSELL, BRIAN SCHLECHTEN
ELECTRIC LOGS:	SCHLUMBERGER
TYPE OF LOGS:	GAMMA, SONIC, LDT/CNL, DIL w/ MICRO SFL, DIL w/ MICRO SFL(IN SALT MUD), CYBER DIP, CYBER LOOK
DST:	HALLIBURTON

WELL CHRONOLOGY

DATE DAYS	MDNT DEPTH	FT/ DAY	DAILY OPERATION
10/31 (1)	0'	620'	DRLG-SURV-DRLG-BUILD PILL(LOST CIRC)-PUMP PILL-TOH-DECIDE ON BIT-TIH-DRLG-SURV-DRLG-SURV-RIG SERV-DRLG-SURV-DRLG-SURV
11/1 (2)	620'	308'	DRLG-INSTALL ROTATING HEAD-SURVEY-DRLG-RIG SERV-REPLACE O RING IN KELLY HOSE-DRLG-SURV-DRLG-SURV-DRLG
11/2 (3)	928'	257'	DRLG-WORK TIGHT SPOT @ 975'-SURV-DRLG-WORK TIGHT SPOT @ 1017'-DRLG-CIRC-SURV-DRLG-SURV-DRLG-SURV-DRLG
11/3 (4)	1185'	580'	DRLG-SURV-DRLG-SURV-DRLG-LOSING CIRC(20 BBL)-MIX PILL-PUMP-DRLG-SURV-DRLG-SURV-DRLG-SURV-DRLG
11/4 (5)	1765'	90'	DRLG-SURV-DRLG-WORK TIGHT SPOT @ 1840'-REMOVE ROTATING HEAD-DROP SURVEY-TOH-WORK TIGHT HOLE @ 825'-TOH TO 729' TIGHT HOLE-WORK TIGHT HOLE-SPOT 30 BBL LCM PILL-TIH 2 STDS & STROKE PUMP EVERY TEN MIN
11/5 (6)	1855'	0'	CIRC & COND MUD-P/U STRING REAMER-TIH-REAM 1012'-REAM 1180'-1592'-TOH
11/6 (7)	1855'	147'	P/U NEW BIT-TIH-REAM 1584'-1855'-DRLG-INSTALL ROTATING HEAD-DRLG-SHORT TRIP TO COLLARS-TIH-BREAK CIRC-WASH TO BOT-DRLG
11/7 (8)	2002'	0'	SHORT TRIP TO DC'S-STRAP-CIRC-TOH-LAY DN 9½" DC'S-RIG UP CSG CREW-RUN 47 JT'S 13 3/8" 68# K-55 SET @ 2002'-RUN CMT-WOL-CUT CSG
11/8 (9)	2002'	0'	FINAL CUT CONDUCTOR & CSG-WELD ON WELL HEAD-PRESS TEST OK-NIPPLE UP
11/9 (10)	2002'		NIPPLE UP-TEST BOP'S-CK OK-FINISH NIPPLE UP ON FLOWLINE-P/U BIT & DC'S-TIH-PRESS TEST CSG TO 1500#
11/10 (11)	2002'	390'	FINISH DRLG FLOAT COLLAR @ 1962'-DRLG 40' CMT & SHOE @ 2002'-DRLG 2002-2017' & SPOT PILL-RUN P.I.T. E.M.W. 12 PPG-DRLG-WORK TIGHT HOLE(2002-2047')-DRLG-RIG SERV-DRLG-PULL ROTATING HEAD-DROP WEAR RING-SURV-DRLG-SURV-DRLG-SURV-DRLG

11/11 (12)	2392'	210'	DRLG-DROP SURV-TOH-TIH W/ NB-P/U STABILIZERS-TIH W/ HEAVY WEIGHT PIPE-LAY DN 15 JT'S DP-TIH W/ BIT #5-WASH & REAM 30' TO BOT-DRLG-RIG SERV-DRLG-CIRC & COND HOLE-PUMP SWEEP-TOH @ 2538' TO CK BIT-TIH
11/12 (13)	2602'	419'	DRLG-CIRC-SURV-DRLG-SURV-DRLG-SHORT TRIP-INSTALL NEW ROTATING HEAD-DRLG
11/13 (14)	3021'	368'	DRLG-CIRC-SURV-DRLG-WORK TIGHT HOLE @ 3072'-3144'-DRLG-SURV-DRLG
11/14 (15)	3389'	358'	DRLG-CIRC-SURVEY-SHORT TRIP 15 STDS-DRLG-SURV-DRLG
11/15 (16)	3747'	353'	DRLG-SURV-DRLG-SHORT TRIP-DRLG-SURV-DRLG
11/16 (17)	4100'	373'	DRLG-SURV-DRLG-SHORT TRIP-DRLG-SURV-DRLG
11/17 (18)	4473'	264'	CIRC BOT UP @ 4473'-DRLG-SURV-DRLG-PUMP SWEEP-DROP SURVEY-TOH-CHG ROTATING HEAD-P/U BIT #6-CHG STAB-REAM 90' TO BOT-DRLG
11/18 (19)	4737'	300'	DRLG-SURV-DRLG-SURV-DRLG
11/19 (20)	5037'	225'	TOH TO FIND WASH OUT(CHAIN OUT)-LAY DN 2 8" DC'S-GAUGE ALL IBS-TIH-WASH & REAM 60' TO BOT-DRLG-SURV-RIG SERV-DRLG-SURV-DRLG-ROTATING HEAD CLAMP TIGHTENED-DRLG
11/20 (21)	5262'	286'	DRLG-SURV-DRLG-SURV-DRLG
11/21 (22)	5548'	186'	DRLG-SURV-DRLG-SURV-DRLG-REPAIR ROTATING HEAD-DRLG-SURV-DRLG-TOH FOR WASHOUT-8" DC WASHED OUT-W/O DC INSPECTOR
11/22 (23)	5734'	162'	MAGNAFLUX BHA-LAY DN 8" DC & 6 3/4" DC BIT SUB & IBS-CUT D-LINE-TIH-WASH 60' TO BOT-DRLG
11/23 (24)	5896'	327'	DRLG-SURV-DRLG-SURV-DRLG-CIRC BOT UP-DRLG-SURV-DRLG-CIRC BOT UP-DRLG
11/24 (25)	6223'	303'	CIRC BOT UP-DRLG-SURV-DRLG-RIG SERV-DRLG
11/25 (26)	6526'	104'	DRLG-SURV-DRLG-RIG SERV-DRLG-

11/26 (27)	6630'	252'	DRLG-SURV-TOH FOR BIT-TEST BOPS-TIH-WASH 90' TO BOT-DRLG
11/27 (28)	6882'	232'	SURV-DRLG-SURV-DRLG-SURV-DRLG-TOH TO CHG BHA (DEV PROBLEM)
11/28 (29)	7114'	72'	TOH-CHG BHA-TIH-DRLG-CIRC-BOT UP-COND MUD FOR DST-SHORT TRIP-CIRC BOT UP
11/29 (30)	7186'	6' (correc.)	COND MUD FOR DST#1 TOH SLM RUN DST#1 TOH W/ DST TOOLS LAY DN DST TOOLS P/U BIT & TIH
11/30 (31)	7192'	198'	TIH-BREAK CIRC-WASH 60' TO BOT-DRLG-SURV-DRLG
12/1 (32)	7390'	81'	DRLG-SURV-DRLG-TOH-INSPECT BHA-P/U NEW BHA-TIH
12/2 (33)	7471'	138'	TIH-REAM-DRLG-CIRC B/U-DRLG-SURV-DRLG
12/3 (34)	7609'	146'	CK SFC EQUIP FOR PRESS LOSS-TOH-LAY DN DP W/ HOLE-CK PRESS-TIH-DRLG-CIRC-SURV-DRLG
12/4 (35)	7755'	143'	DRLG-SURV-DRLG-RESURV-DRLG
12/5 (36)	7898'	98'	DRLG-SURV-TOH FOR BIT-P/U NEW BIT-TIH-BREAK CIRC-REAM 100' TO BOT-DRLG-SURV-DRLG
12/6 (37)	7996'	143'	DRLG-SURV-DRLG-CIRC B/U-DRLG
12/7 (38)	8139'	128'	DRLG-SURV-DRLG-CIRC B/U-SURV-DRLG
12/8 (39)	8267'	47'	DRLG-SURV-DRLG-CIRC B/U-CIRC FOR DST-CIRC & COND MUD
12/9 (40)	8314'	0'	MAGNAFLUX DC'S-P/U DST TOOLS-TIH-RUN DST#2-TOH W/ TOOLS-TIH W/ BIT
12/10 (41)	8314'	14'	TIH-WASH & REAM(8234-8314')-DRLG-CIRC B/U-TOH-P/U BIT & DHM & BENT SUB-TIH-WASH 30' TO BOT-DRLG 1'-ORIENT DHM-ON 2nd CHECK SHOT SURVEY LINE BROKEN @ SFC-TOH 5 STDS & ATTEMPT TO PULL LINE-BROKEN SURVEY LINE AGAIN-TOH TO RETRIEVE TOOL
12/11 (42)	8328'	0'	TOH-CK MULESHOE SUB-TIH-RESTRING WIRE LINE-RUN WIRE LINE-OK THRU COLLARS-TIH-WASH & REAM TO BOT-WIRE LINE SURV & ORIENT BHA-DRLG TO 8334'-TOH-LAY DN DHM-CHG BHA-TIH W/ DHM
12/12 (43)	8328'	67'	TIH-DRLG W/ DHM-SURV-DRLG-DROP SURV-TOH

12/13 (44)	8395'	76'	TOH-LAY DN DHM-P/U BIT & PENDULUM ASS'Y-TIH-CUT D-LINE-TIH-REAM 60' TO BOT-DRLG
12/14 (45)	8471'	0'	SURV-CIRC @ 8471'-PUMP SLUG-TOH-BREAK & INSPECT & M/U ALL DC'S-L/D 1-8" DC-P/U 1-8" DC-TIH-CIRC FOR DST#3-DROP SURV-TOH
12/15 (46)	8471'	0'	TOH-P/U DST TOOLS-TIH-RUN DST#3-TOH-LAY DN TEST TOOLS-P/U BHA & SLM
12/16 (47)	8471'	39'	TIH-SLM-MOVE DP RUBBERS-TIH-TRY TO THAW STAND PIPE-CHG ROTARY HOSE TO 2nd STAND PIPE-BREAK CIRC-WASH 60' TO BOT-DRLG-SURV-DRLG
12/17 (48)	8510'	35'	DRLG-CIRC SPLS @ 8526'-8537± DRLG-SURV-DRLG-CIRC-TOH-L/D 1-8" DC & 2-6 3/4" DC-TEST BOP-TIH-WASH & REAM 60' TO BOT-SWIVEL LEAKING-CHG WASH PIPE & PACKING-DRLG
12/18 (49)	8545'	114'	CHG WASHPIPE PACKING-DRLG-SURV-DRLG
12/19 (50)	8659'	113'	DRLG-CIRC B/U(8664'-8684')-DRLG-SURV-WK TIGHT HOLE-DRLG-WIPER RUN 3 STDS-DRLG-RIG SERV-DRLG-SURV-DRLG
12/20 (51)	8772'	113'	DRLG-CIRC-SURV-DRLG
12/21 (52)	8885'	89'	DRLG-CIRC-DROP SURV-PUMP SLUG-TOH TO CHG BIT & INSPECT BHA
12/22 (53)	8974'	90'	MAGNAFLUX DC'S-P/U BIT#14 & TIH-REAM 100' TO BOT-DRLG-RIG SERV-DRLG
12/23 (54)	9064'	120'	DRLG-CIRC-SURV-DRLG
12/24 (55)	9184'	126'	DRLG-RIG SERV-DRLG
12/25 (56)	9310'	22'	DRLG-CIRC B/U-SURV(MISRUN)-DRLG-CIRC-DROP SURV-PUMP PILL-TOH-P/U BIT,6 PT,JARS & SHOCK SUB-BREAK CIRC-RIG SERV-TIH-REAM(9123'-9324')-DRLG-SURV-DRLG
12/26 (57)	9332'	89'	DRLG-SURV-DRLG-CIRC B/U-DRLG-SURV-DRLG
12/27 (58)	9421'	59'	DRLG-DROP SURV-TOH-WK TIGHT HOLE @ 8818'-P/U BIT#16 & STRING IBS-TIH
12/28 (59)	9480'	74'	TIH-REAM 200' TO BOT-DRLG-SURV-DRLG-CIRC-PUMP SLUG-TOH(TIGHT @ 8957')

12/29 (60)	9554'	26'	TOH-DRESS BIT#17-P/U JUNK SUB & TIH-REAM 8750'-8900'-WASH & REAM 100' TO BOT-DRLG-CIRC B/U-DRLG-REAMING-WASH & REAM 100' TO BOT-DRLG-SURV-DRLG-CIRC B/U
12/30 (61)	9580'	30'	DRLG-TOH-P/U BIT#18 & 6 PT- TIH-WASH & REAM 70' TO BOT-DRLG-CHG ROTATING HEAD-DRLG
12/31 (62)	9610'	37'	DRLG-SURV-TOH-L/D 6 PT & BIT SUB-P/U DHM & DIAMOND BIT-CUT D-LINE-TIH-WASH & REAM 60' TO BOT-DRLG
1/1/84 (63)	9647'	77'	DRLG-SURV-DRLG-WK TIGHT HOLE(9680'-9698')-DRLG
1/2/84 (64)	9724'	68'	DRLG-SURV-DRLG
1/3/84 (65)	9792'	42'	DRLG-SURV-DRLG-SURV-BLOW DN PUMP-PUMP PILL-TOH
1/4/84 (66)	9834'	48'	L/D DIAMOND BIT & BHM-MOVE IBS(30')-P/U MILLTOOTH BIT-WASH & REAM 80'-DRLG-SURV-DRLG
1/5/84 (67)	9882'	75'	CIRC & SURV-DRLG-SURV-DRLG-SURV-DRLG
1/6/84 (68)	9957'	27'	DRLG-TOH TO HWDP-MAGNAFLUX HWDP & BHA-P/U BIT & DHM-TIH-WASH 50' TO BOT-DRLG
1/7/84 (69)	9984'	28'	DRLG-CIRC-BUILD & PUMP PILL-TOH-P/U NEW BIT-CK BHM-TIH-DRLG
1/8/84 (70)	10,012'	24'	DRLG-SURV-DRLG-TOH-P/U BIT#22-SWAP OUT BHM-TIH-WASH 50' TO BOT-DRLG
1/9/84 (71)	10,036'	22'	DRLG-SURV-RIG SERV-CK BOP-DRLG-TOH FOR BIT-TIH-HIT BRIDGE @ 8764'-PULL THRU TIGHT HOLE TO 7715'-TOH
1/10 (72)	10,058'	25'	TOH TO 2002'-PULL BIT THRU CSG-CHG OUT BENT BHM-P/U BIT & JARS-TIH-WASH & REAM 90' TO BOT-DRLG
1/11 (73)	10,083'	29'	DRLG-SURV-DRLG-MIX & PUMP SLUG-TOH FOR BIT#25-L/D BHM-P/U BIT, STAB & DC-TIH W/ BHA-CUT D-LINE-TIH-HIT BRIDGE @ 8986'
1/12 (74)	10,112'	58'	TAG BRIDGE-REAM(8966'-9043')-TIH-WK TIGHT HOLE-REAM(9986'-10,113')-DRLG-CIRC B/U(10,130'-10,132')-DRLG-CIRC B/U (10,157'-10,160')-DRLG-CIRC B/U (10,160'-10,165')-(CHLORIDES 2600 PPM)
1/13 (75)	10,170'	10'	CIRC B/U-DRLG-CIRC B/U(10,165'-10,180')(CHLORIDES 6500 PPM)-CIRC & COND FOR LOGS-SHORT TRIP 25 STDS WORK PIPE-LAY DN 12 STDS TO REAM WITH-CIRC

1/14 (76)	10,180'	0'	SHORT TRIP(15 STDS)-CIRC & COND FOR LOGS-DROP SURV-PUMP PILL & TOH-SLM-RIG UP SCHLUM-P/U SHOOTING NIPPLE-TEST TO 200 PSI-RUN LOGS
1/15 (77)	10,180'	0'	REMOVE PACKOFF & REMOVE BIRDNEST OF WIRE(SCHLUM CABLE)-FINISH LOG-RIG DN SCHLUM-P/U BHA & BIT-TIH-CIRC & COND MUD-TOH-RIG UP SCHLUM-RUN LOGS
1/16 (78)	10,180'	0'	LOGGING-RIG DN SCHLUM-P/U BHA-TIH TO 1460'-RPR BRAKE ADJ ON DRAWWORKS-CUT D-LINE-TIH
1/17 (79)	10,180'	0'	CIRC & COND TO RUN CSG-PUMP SLUG-TOH TO DC'S-RIG UP LAY DN MACHINE-L/D ALL DC'S-CHG UPPER RAMS TO 9 5/8"-TEST TO 2500 PSI-RIG UP CSG CREW-RUN 9 5/8" CSG
1/18 (80)	10,180'	0'	RUN CSG TO 10,110'-RIG UP CMT HEAD-CIRC & RECIP-ROCATE CSG-RPR STARTER ON PUMP TRUCK-CMT CSG-BUMP PLUG W/ 1500 PSI-FLOAT OK-WOC
1/19 (81)	10,180'	0'	WOC REMOVE FLOW NIPPLE M/U CSG FLANGE ATTEMPT TO SEAL CSG FLANGE RPR & RETEST TO 3400 PSI(OK)-SET DN STACK RUN DIRECTIONAL SURVEY CLOSURE 196.4' S23.41E
1/20 (82)	10,180'	0'	REMOVE 9 5/8" CSG RAMS & INSTALL 4 1/2" RAMS-TEST BOPS TO TXC SPEC-NIPPLE UP FLOWLINE-P/U BHA-SLM IN HOLE-L/D BENT DP-BREAK CIRC-DRLG CMT-FLOAT COLLAR @ 10,070'
1/21 (83)	10,180'	25'	DRLG TO 10,082' THRU FLOAT SHOE-PRESS TEST TO 2000#-DRLG CMT TO 10,175' THRU SHOE @ 10,116'-CIRC & COND MUD
1/22 (84)	10,205'	91'	WASH & REAM TO 10,205'-CIRC & COND MUD-REAM(10,150'-10,205')-DRLG TO 10,236'-CIRC GAS-DRLG MUD 11.0 PPG-TOH
1/23 (85)	10,296'	171'	CHG BHA-P/U STAB-TIH-BREAK CIRC-WASH & REAM 60' TO BOT-DRLG-RIG SERV-DRLG-CIRC FOR SURV-SURV-CIRC-BUILD PILL & PUMP SAME-DROP SURV-TOH
1/24 (86)	10,467'	191'	TOH-L/D SDC & IBS-CHG BHA(90' PEND ASSY)-P/U 27 JT E PIPE-CIRC TO CK FOR PLUGGED JETS-TIH 15 STDS-TOH & L/D 42 JT WORN DP-TOH TO UNPLUG BIT-SET WEAR BEARING & TIH-INSTALL DP RUBBERS-WASH & REAM 90' TO BOT-DRLG
1/25 (87)	10,658'	129'	DRLG-SURV-DRLG

1/26 (88)	10,787'	53'	DRLG-SURV-SHORT TRIP TO SHOE-WASH 50' TO BOT-DRLG
1/27 (89)	10,840'	144'	DRLG-SURV-UNPLUG JET-RIG SERV-DRLG
1/28 (90)	10,984'	164'	DRLG-SURV-DRLG-CIRC FOR SURV-SURV-SHORT TRIP 10 STDS-TIH TO 10,998'(POINT LAST SURV)-CIRC & SURV (TOOL NOT DOWN IN TIME)-DRLG
1/29 (91)	11,150'	73'	DRLG-SURV-DRLG-TOH TO 10,998'-FILL TRIP TANK-DROP SURV-SLUG PIPE-TOH-INSPECT BHA-P/U BHA-TIH
1/30 (92)	11/223'	295'	TIH-REAM 100' TO BOT-DRLG-CIRC & COND FOR SURV-SURV-DRLG
1/31 (93)	11,518'	357'	DRLG-CIRC & COND FOR SURV-SURV
2/1 (94)	11,875'	275'	SHORT TRIP(10 STD)-DRLG-RIG SERV-DRLG-CIRC B/U-DRLG
2/2 (95)	12,150'	30'	DROP SURV-SLUG PIPE-FILL TRIP TANK-TOH-L/D STAB-P/U BIT#29-TIH W/ BHA-CUT D-LINE
2/3 (96)	12,180	20'	TIH-WASH & REAM(12,061'-12,180')-DRLG-CIRC B/U-COND MUD-SLUG & TOH TO CSG SHOE-OBSERVE WELL-TIH-WASH 50' TO BOT-CIRC & COND TO LOG-DROP SURV-PUMP SLUG-TOH-RPR SCR #3
2/4 (97)	12,200'	--	TOH-RIG UP SCHLUM-TEST LUBRICATOR W/ 300 PSI-LOGGING-RIG DN SCHLUM-P/U BHA & TIH-DEPTH CORRECTION (UP 47' TO 12,153') BREAK CIRC-WASH 50' TO BOT @ 12,153'
2/5 (98)	12,153'	0'	CIRC & COND MUD TO RUN PIPE-DROP DP RABBIT & TOH-L/D 33 JT DP & 30 JT H/W DP-L/D JARS & 12 DC'S-RUN CSG LINER TO 9 5/8" SHOE @ 10,110'-TIH TO 12,112'-BREAK CIRC & WASH TO BOT
2/6 (99)	12,153'	0'	DROP BALL-SET LINER-RELEASE LINER-CIRC & COND MUD-SWITCH TO HOWCO TO CEMENT LINER-PUMP CMT-WOC-TOH-P/U BIT & CSG SCRAPER-TIH-BREAK CIRC @ 8770'-TIH
2/7 (100)	12,153'	0'	DRLG CMT ON TOP OF LINER(3')-LINER TOP 9709'-CIRC & COND MUD-TEST LINER TO 14 PPG EMW-SLUG & TOH TO RUN RTTS-L/D BIT, CSG SCRAPER & BIT SUB-P/U RTTS & TIH-SET RTTS @ 9660'-TEST BACK SIDE W/ 800 PSI-TEST LINER TOP TO 14.2 PPG EMU-WOULD NOT HOLD 16 PPG EMU-DISPLACE DP W/ 8.5 PPG WATER-NEGATIVE TEST OK-REVERSE OUT WATER-CIRC OUT & SLUG PIPE-TOH

2/8 (101)	12,153'	0'	L/D & LOAD OUT HALLIBURTON-L/D 11 JT DP-CHG TOP RAMS-TEST CKE MANIFOLD & RAMS TO TXC SPEC-P/U BIT #30,15 DC'S,21 JT H/W DP,JARS & 66 JT 3 1/2 DP-ATTEMPT TO CIRC THRU NEW BHA-SUCTION PLUGGED W/ SALT-CUT D-LINE-CIRC TO BALANCE MUD COLUMN-TIH TO 9661'-WASH 35' TO TOP OF LINER @ 9696'-DRLG CMT(2') INSIDE LINER-WASH TO 9764'
2/9 (102)	12,153'	17'	TIH TO 12,035'-DRLG ON LAND COLLAR-DRLG ON FLOAT COLLAR @ 12,094.62'
2/10 (103)	12,170'	42'	DISPLACE SALT MUD W/ FRESH WATER LSND MUD-CIRC & BUILD VOLUME-P/U ROTATING HEAD-DRLG-CIRC B/U - DROP SURV-SLUG PIPE-TOH-SLM(10' CORR TD 12,203')
2/11 (104)	12,203'	83'	P/U BIT #31-TIH-WASH & REAM 67' TO BOT-DRLG TO 12,208'-WASH & REAM(12,173'-12,203')-30' FILL-DRLG-CIRC & RAISE MUD WT(8.8-9.0)-CONTROL PRESSURIZED SHALE-DRLG-CK HOLE FOR CVG(1' IN 10 MIN)-DRLG
2/12 (105)	12,286'	7'	DRLG-CIRC-SURV-DRLG-BUILD & PUMP PILL-TOH FOR BIT-R & R KELLY COCK VALVE-PICK UP BIT #32 & BHA-TIH-REAM
2/13 (106)	12,293'	69'	REAM(12,148'-12,304')-4' FILL-DRLG-RIG SERV-DRLG-CIRC B/U-COND MUD FOR DST-SHORT TRIP-SLUG PIPE
2/14 (107)	12,362'	0'	TOH-SLM(10' CORR)-P/U TOOLS FOR DST #4-TIH-START DST @ 7:25 AM-PULL 35 STD-RIG UP TO REVERSE CIRC-TOH
2/15 (108)	12,362'	56'	TOH W/ DST TOOLS-L/D DST TOOLS(20 PPM H_2S)-P/U BHA-TIH W/ BIT #32-REAM 120' TO BOT-DRLG-CIRC OUT GAS-DRLG
2/16 (109)	12,418'	89'	DRLG-CIRC B/U-DRLG-CIRC B/U BEFORE TRIP-DROP SURV-PUMP SLUG-TOH
2/17 (110)	12,507'	72'	TOH-P/U BIT #33-CHG BHA-TIH-PLUGGED JETS-WK PIPE-WASH 60' TO BOT-DRLG-RIG SERV-DRLG
2/18 (111)	12,579'	115'	DRLG-RIG SERV-DRLG-CIRC-SURV-DRLG
2/19 (112)	12,694'	11'	DRLG-CIRC B/U BEFORE TRIP-RIG UP L/D MACHINE-SLUG PIPE-L/D DP-RIG DN L/D MACHINE-TOH FOR BIT-P/U BIT #34-TIH TO JARS-CHG OUT JARS(BOX CRACKED)-RIG SERV-TIH-WASH 90' TO BOT-DRLG
2/20 (113)	12,705'	49'	DRLG-CIRC-TOH-RIG UP L/D MACHINE-L/D DP-TOH-REMOVE BIT JETS-TIH W/ BHA-P/U DP-BLO DN #1 PUMP

2/21 (114)	12,754'	0'	P/U DP & TIH-WASH 30' TO BOT-CIRC & COND MUD-RIG SERV-SLUG PIPE-SLM-CUT D-LINE-P/U DST TOOLS
2/22 (115)	12,754'	0'	FILL BHA W/ H_2S INHIBITOR-TIH TO 11,917'-W/O DAYLIGHT-TIH-OPN TOOL-ANNULAR FLUID DROPPED(PACKER FAILED TO SEAT @ 12,623')TOH-REVERSE OUT-TOH-L/D DST TOOLS-TIH-BREAK CIRC-WASH & REAM 120' TO BOT-CIRC & COND MUD-TOH FOR DST
2/23 (116)	12,754'	0'	TOH-P/U DST TOOLS-FILL BHA W/ H_2S INHIBITOR-TIH-ANNULAR FLUID DROPPED(PACKER SEAT FAILED @ 12,634')-TOH-REVERSE OUT-TOH-L/D TEST TOOLS-TIH W/ BIT-WASH 120' TO BOT-CIRC & COND MUD-TOH FOR DST
2/24 (117)	12,754'	4'	TOH-P/U DST TOOLS-TIH-FILL BHA W/ H_2S INHIBITOR-TIH-W/O DAYLIGHT-ANNULAR FLUID DROPPED(PACKER SEAT FAILED @ 12,699')-TOH-REVERSE OUT-TOH-L/D TEST TOOLS-INSPECT BHA-TIH-BREAK CIRC-WASH 90' TO BOT-DRLG
2/25 (118)	12,758'	107'	DRLG-RIG SERV-DRLG-CIRC B/U
2/26 (119)	12,865'	0'	CIRC & COND MUD-SHORT TRIP TO SHOE-CIRC-SURV-TOH-SLM-W/O SCHLUMBERGER-RIG UP SCHLUM-RUN E-LOGS
2/27 (120)	12,865'	41'	LOGGING-TIH-BREAK CIRC @ TOP OF LINER & SHOE-WASH 60' TO BOT-DRLG
2/28 (121)	12,906'	107'	DRLG-CIRC-RIG SERV-DRLG-SHORT TRIP 9 STDS-CIRC-DROP SURV-SLM
2/29 (122)	13,013		RIG UP SCHLUM-RUN E-LOGS-RUN VELOCITY SURVEY-RELEASE LOGGERS & GEOLOGIST

BIT RECORD

BIT NUMBER	SIZE	MAKE	TYPE	DEPTH OUT	FEET	HOURS	FEET/HR
1	17½"	HTC	R-2	263	138	10	13.8
2	17½"	HTC	X-22	1850	1587	84½	18.8
3	17½"	HTC	OSC 3J	2002	147	16½	8.9
4	12¼"	HTC	J-4	2423	461	22	20.9
5	12¼"	HTC	J-22	4691	2268	125	18.1
6	12¼	HTC	J-22	5739	1048	73½	14.3
RRG	12¼"	HTC	J-22	6630	1939	135½	14.3
7	12¼"	HTC	J-22	7162	532	47	11.3
8	12¼	HTC	J-22	7471	309	38	8.4
RR8	12¼"	HTC	J-22	7904	433	64½	6.7
9	12¼"	HTC	J-33	8328	424	59½	7.1
10	12¼	HTC	J-44	8334	6	4½	1.3
11	12¼"	HTC	J-33	8395	61	19½	3.12
12	12¼"	HTC	J-33	8471	76	14	5.4
RR 12	12¼"	HTC	J-33	8543	72	19	3.8
13	12¼"	HTC	J-22	8974	431	83	5.2
14	12¼"	HTC	J-22	9324	350	63	5.5
15	12¼"	HTC	J-22	9480	156	41	3.8
16	12¼"	HTC	J-22	9552	72	14½	5.0
17	12¼"	HTC	J-33	9595	43	19½	2.2
18	12¼"	HTC	J-4	9618	23	8	2.8
19	12¼"	HTC	HD-40M	9836	218	74	2.9
RR 18	12¼	HTC	J-4	9960	136	38½	3.5
20	12¼"	HTC	J-4	9996	36	14½	2.4
21	12¼"	HTC	JD 8	10,029	33	17½	2.0
22	12¼	HTC	J-44	10,057	28	28	1.0
23	12¼"	HTC	J-4	10,057	DAMAGED DURING TIH		
24	12¼	HTC	J-4	10,113	56	26	2.2
25	12¼	STC	F-3	10,180	67	9½	7.1
26	8½"	HTC	J-3	10,289	109	5½	19.8
27	8½"	HTC	J-22	10,637	338	12	28.2
RR 27	8½"	HTC	J-22	11,223	586	102	5.7
28	8½"	HTC	J-22	12,180	957	74	12.9
depth cor. 47' 29	8½"	HTC	J-33	12,200	20	8	2.5
RR 29	8½"	HTC	J-33	WIPER RUN			
30	6½"	HTC	J-4	12,203	75	21½	3.5

BIT RECORD

BIT NUMBER	SIZE	MAKE	TYPE	DEPTH OUT	FEET	HOURS	FEET/HR
31	6½"	HTC	J-55R	12,304	101	16½	6.1
32	6½"	HTC	J-55R	12,363	59	8½	6.9
RR 32	6½"	HTC	J-55R	12,506	143	25½	5.6
33	6½"	HTC	J-55R	12,705	199	38½	5.2
34	6½"	HTC	J-55R	12,753	48	10½	4.6
35	6½"	STC	F-7	12,865	112	22	5.1
RR 35	6½"	STC	F-7	13,013	148	18½	8.0

DEVIATION SURVEYS

DEPTH	DEVIATION	DEPTH	DEVIATION	DEPTH	DEVIATION
242'	1/2°	3113'	1°	6976'	3 1/4°
313'	1/2°	3301'	1/2°	7068'	3 1/4°
429'	3/4°	3488'	3/4°	7162'	3 1/2°
522'	1°	3707'	1°	7282'	1 1/2°
616'	1/2°	3894'	1°	7373'	3°
710'	1°	4082'	1 1/4°	7465'	3°
803'	1°	4288'	1°	7574'	3°
897'	1°	4486'	1 1/4°	7668'	2 3/4°
990'	1°	4691'	2°	7822'	2 3/4°
1085'	1 1/4°	4829'	2 1/4°	7904'	3 1/2°
1179'	1 3/4°	4923'	2 1/2°	7972'	4°
1273'	1 1/4°	5089'	1 3/4°	8068'	4°
1367'	1°	5181'	2 1/4°	8157'	4 1/2°
1462'	3/4°	5275'	2°	8189'	4 1/4°
1661'	1 1/4°	5369'	1°	8279'	4 3/4°
1771'	1 1/4°	5555'	2°	8328'	5 1/4°
1855'	1°	5585'	1 3/4°	8461'	4°
2002'	0°	5710'	1°	8508'	4 3/4°
2142'	1°	5975'	2°	8538'	4 1/2°
2235'	3/4°	6099'	1°	8591'	4 1/2°
2330'	1°	6282'	2°	8677'	4 1/4°
2588'	1°	6556'	2°	8750'	4 3/4°
2740'	1°	6630'	1 3/4°	8871'	4 1/4°
2894'	3/4°	6883'	2 1/2°	9117'	4°

MUD RECORD

DATE	DEPTH	WEIGHT	MUD GRAD.	FUNNEL VIS	PLASTIC VIS	YIELD POINT	GEL STREN.	pH	FILT. API	CAKE	ALK. FILT.	CHLOR PPM	CALC. PPM	SAND%	SOLID%	OIL%	WATER %	Nitrate PPM		Mud Type
12/26	9337	8.9+	.465	48	13	14	6/22	10.0	22.4	2/32	.15/.6	1000	200	.25	4.6	--	95.4			"
12/27	9426	8.9+	.465	47	15	10	4/15	10.5	24.1	2/32	.2/.8	1200	280	.25	4.6	--	95.4			"
12/28	9482	9.0+	.471	46	17	8	4/8	10.5	16.9	2/32	.2/.7	1100	200	.25	5.3	--	94.7			"
12/29	9554	9.0	.468	37	8	5	1/4	10.5	16.0	2/32	.2/.7	1100	200	tr	5.0	--	95.0			water/gel
12/30	9586	9.1+	.476	50	16	12	3/20	10.5	20.8	2/32	.4/.7	1100	180	tr	5.7	--	94.3			"
12/31	9615	9.1	.473	43	14	10	2/18	11.0	18.6	2/32	.3/.75	1100	200	tr	5.7	--	94.3			"
1/01	9655	9.1+	.476	52	16	12	2/18	11.0	18.8	2/32	.65/1.1	950	320	.25	6.1	--	93.9			"
1/02	9725	9.0+	.471	43	12	8	2/18	10.5	19.8	2/32	4.5/9.0	1150	380	.25	5.3	--	94.7			"
1/03	9794	9.1+	.476	50	14	12	3/-	10.5	21.2	2/32	.3/.75	1050	300	.25	6.1	--	93.9			"
1/04	9836	9.1+	.476	42	12	9	2/18	11.0	18.4	2/32	.2/.6	1000	280	tr	6.1	--	93.9			"
1/05	9895	9.1+	.476	53	20	10	4/16	10.0	22.4	2/32	.1/.8	1400	280	.25	6.1	--	93.9			LSND
1/06	9960	9.1+	.476	41	6	14	3/13	10.5	20.2	2/32	.15/.8	1400	280	tr	6.1	--	93.9			"
1/07	9987	9.1+	.476	44	15	9	2/10	10.5	21.7	2/32	.2/.8	1400	240	.25	6.1	--	93.9			"
1/08	10019	9.2	.478	42	12	8	3/8	10.5	20.6	2/32	.1/.8	1300	280	.25	6.4	--	93.6			"
1/09	10040	9.2	.478	42	14	8	2/9	10.5	19.3	2/32	.1/.8	1300	240	.25	6.4	--	93.6			"
1/10	10058	9.2	.478	38	9	6	1/4	9.5	1.65	2/32	.15/.75	1200	320	tr	6.5	--	93.5			water/gel
1/11	10088	9.2	.478	51	14	10	2/20	11.5	16.2	2/32	.25/.75	1000	320	.25	6.5	--	93.5			"
1/12	10113	9.3	.484	48	15	10	2/-	11.5	17.8	2/32	.4/.9	1050	320	.25	7.2	--	92.8			"
1/13	10180	9.2	.478	54	15	18	3/28	11.5	24.0	2/32	.5/1.0	4800	400	.10	6.5	--	93.5			"
1/14	10180	9.5	.494	50	18	11	2/17	11.5	11.2	2/32	.3/.85	4000	300	.10	7.7	--	92.3			"
1/15	10180	9.5	.494	40	13	8	2/4	11.0	10.7	2/32	.2/.9	4900	280	.20	7.0	--	93.0			LSND
1/16	10180	9.5	.494	40	13	5	2/4	11.0	10.8	2/32	.2/.9	4900	280	tr	7.0	--	93.0			"
1/17	10180	9.5+	.497	54	20	25	4/11	11.0	12.2	2/32	.15/.8	4900	280	.2	6.6	--	93.4			"
1/18	10180	9.5+	.497	42	17	8	2/5	11.0	11.8	2/32	.15/.8	4900	280	tr	6.6	--	93.4			
1/21	10110	10.1+	.528	34	5	10	6/12	7.0	--	--	--	172000	2160	0	2.8	--	97.2			Salt mud
1/22	10210	10.8	.562	48	15	16	7/21	7.0	16.8	2/32	--	190000	2160	tr	4.8	--	94.2			"
1/23	10300	11.7	.608	42	16	12	3/12	7.0	14.8	2/32	--	184000	2320	tr	9.0	--	91.0			"
1/24	10637	11.6	.603	42	18	12	4/16	7.5	22.6	3/32	--	187000	2400	tr	8.7	--	91.3			"

MUD RECORD

DATE	DEPTH	WEIGHT	MUD GRAD.	FUNNEL VIS	PLASTIC VIS	YIELD POINT	GEL STREN.	pH	FILT. API	CAKE	ALK. FILT.	CHLOR PPM	CALC. PPM	SAND%	SOLID%	OIL%	WATER %	Nitrate PPM		Mud Type
10/31	263	8.5	.442	38	6	6	2/12	10.5	16.6	2/32	.2/.5	600	80	.5	1.3	--	98.7			gel/ caustic
11/01	698	8.9+	.465	42	12	9	8/29	11.0	16.4	2/32	.4/.5	600	40	.5	4.3	--	95.7			"
11/02	973	8.9+	.465	36	9	8	4/16	11.0	14.0	2/32	.4/.65	300	20	.25	4.2	--	95.7			"
11/03	1265	9.0	.468	40	14	9	3/9	10.5	14.2	3/32	.3/.6	350	180	.5	4.1	--	95.9			"
11/04	1805	8.9	.463	38	12	6	2/7	10.5	13.8	2/32	.3/.5	300	40	.25	4.1	--	95.9			"
11/05	1855	8.7+	.455	36	12	10	2/6	11.5	12.0	2/32	.4/.8	500	40	tr	4.0	--	96.0			"
11/06	1855	8.8+	.460	41	13	6	3/14	11.5	10.1	2/32	.5/.9	600	20	.25	4.0	--	96.0			"
11/07	2002	8.8	.458	42	14	8	3/7	10.5	10.2	--	.5/1	700	tr	.25	4.0	--	96.0			"
11/08	2002	8.8+	.460	44	15	7	3/5	10.5	10.3	2/32	.7/1.2	600	tr	.25	4.0	--	96.0			"
11/09	2002	8.33	.433	27	--	--	--	--	--	--	--	700	160	--	--	--	--			water
11/10	2012	8.4	.437	28	--	--	--	12.0	--	--	1.2/2.4	700	480	tr	tr	--	99.0			"
11/11	2418	8.5	.442	28	--	--	--	8.5	--	--	.2/--	300	290	--	1	--	99.0			"
11/12	2640	8.5	.442	27	2	2	11-	10.0	--	--	.4/.8	300	200	--	1.9	--	98.0			"
11/13	3082	8.7	.452	32	6	2	1/-	11.0	20.6	1/32	.7/.9	500	20	--	2	--	98.0			"
11/14	3426	8.7	.452	35	6	5	3/2	8.5	34	2/32	.15/.25	500	40	tr	2	--	98.0			gel lo sol
11/15	3770	8.7+	.455	33	6	11	7/12	8.5	72	5/32	.15/.25	600	420	tr	2.5	--	98.0			"
11/16	4130	8.8+	.460	31	5	6	3/9	9.0	75	5/32	.1/.5	800	320	tr	3.0	--	97.0			"
11/17	4546	8.8+	.460	31	4	7	4/10	9.0	75	2/32	.1/.4	900	260	.2	3.0	--	97.0			"
11/18	4766	8.7+	.455	31	4	6	5/9	9.0	86	3/32	.1/.5	900	180	.2	1.0	--	99.0			"
11/19	5037	8.8	.458	32	4	9	5/8	9.0	51	3/32	.2/.5	900	120	tr	3.0	--	97.0			"
11/20	5299	8.7+	.455	33	5	10	6/15	8.5	52	3/32	.1/.3	900	80	tr	3.0	--	97.0			"
11/21	5575	8.8	.458	32	5	8	6/14	9.0	49	3/32	.25/.35	700	120	tr	4.2	--	95.8			"
11/22	5739	8.8	.458	30	5	8	6/12	9.0	50	4/32	.3/.4	600	100	tr	3.5	--	96.5			"
11/23	5933	8.9+	.465	33	6	9	8/14	9.5	49	3/32	.3/.4	750	100	.25	4.6	--	95.4			"
11/24	6250	8.7+	.455	33	5	7	7/12	9.5	43	3/32	.4/.5	700	80	.25	2.8	--	97.2			"
11/25	6546	9.0	.468	33	6	7	6/14	9.0	28.8	2/32	.2/.35	800	40	.25	5.0	--	95.0			"
11/26	6632	9.0+	.471	36	7	7	6/19	9.0	26.8	2/32	.15/.5	900	40	.25	5.0	--	95.0			"
11/27	6901	9.0+	.471	35	7	7	8/24	9.0	20.0	2/32	.2/.6	900	40	.20	5.0	--	95.0			"

MUD RECORD

DATE	DEPTH	WEIGHT	MUD GRAD.	FUNNEL VIS	PLASTIC VIS	YIELD POINT	GEL STREN.	pH	FILT. API	CAKE	ALK. FILT.	CHLOR PPM	CALC. PPM	SAND%	SOLID%	OIL%	WATER %	Nitrate PPM		Mud Type
11/28	7158	9.0+	.471	35	7	7	8/28	9.5	33.7	2/32	.25/.6	1000	40	.25	5.0	--	95.0			"
11/29	7186	9.0+	.471	35	8	6	3/19	10.0	22.5	2/32	.3/.6	1000	40	.25	5.0	--	95.0			LSND
11/30	7186	9.0+	.471	38	9	6	3/13	10.0	23.6	2/32	.3/.7	1000	40	.20	5.0	--	95.00			"
12/01	7404	9.0+	.471	36	8	9	5/22	10.0	27.1	2/32	.15/.4	1000	40	.25	5.3	--	94.7			"
12/02	7471	9.0	.468	33	5	7	4/18	9.5	25.8	2/32	.1/.3	850	40	tr	5.0	--	95.0			"
12/03	7607	9.0	.468	33	6	8	7/28	9.0	32.4	2/32	.20/.35	800	80	tr	5.0	--	95.0			"
12/04	7772	9.0	.468	35	9	10	8/26	10.5	26.4	2/32	.4/.6	850	60	.25	5.0	--	95.0			"
12/05	7904	9.0	.468	34	8	8	5/15	10.0	17.8	2/32	.4/.7	900	80	tr	5.0	--	95.0			"
12/06	8010	9.0+	.471	36	8	8	4/16	9.0	18.2	2/32	.4/.6	700	40	.25	5.0	--	95.0			"
12/07	8150	9.1	.473	36	9	8	4/16	10.0	17.2	2/32	.5/.7	850	40	.25	7.6	--	92.4			"
12/08	8285	9.0+	.471	35	10	7	3/15	10.0	16.9	2/32	.4/.7	900	40	.25	5.3	--	94.7			"
12/09	8314	8.9+	.465	34	9	6	2/8	10.0	16.1	2/32	.3/.8	900	40	tr	4.6	--	95.4	110		"
12/10	8314	9.1	.473	35	12	8	3/11	10.0	16.4	2/32	.3/.75	900	40	.25	5.5	--	94.5	110		"
12/11	8328	9.0+	.471	33	8	5	2/9	10.0	16.2	2/32	.25/.7	900	40	tr	5.3	--	94.7			"
12/12	8333	9.0+	.471	38	12	8	2/10	9.5	16.1	2/32	.26/.6	900	40	.20	5.3	--	94.7			"
12/13	8395	8.9+	.465	35	7	6	2/11	10.5	15.8	2/32	.3/.7	950	40	tr	4.6	--	95.4			"
12/14	8470	9.0+	.471	39	12	8	2/13	10.0	15.9	2/32	.3/.7	950	40	.25	5.3	--	94.7	48		"
12/15	8471	8.9+	.465	36	7	7	2/19	10.5	15.2	2/32	.5/.8	800	40	tr	4.8	--	95.2	104		"
12/16	8471	9.0+	.471	39	11	10	3/-	10.5	15.0	2/32	.5/.8	850	40	tr	5.3	--	94.7	130		"
12/17	8522	9.0	.468	48	15	10	4/28	10.5	13.6	2/32	.4/.65	825	40	.125	5.0	--	95.0			"
12/18	8546	9.0	.468	49	16	11	4/30	10.5	15.0	2/32	.55/.75	800	20	.125	5.0	--	95.0			water/gel
12/19	8685	9.1	.473	48	14	12	5/36	10.0	14.0	2/32	.35/.65	800	80	.25	5.7	--	94.3			"
12/20	8785	9.1	.473	46	10	10	2/34	10.0	12.4	2/32	.3/.5	750	40	.125	5.7	--	94.3			"
12/21	8895	9.1	.473	46	14	10	6/49	10.5	13.2	2/32	-/-	800	20	.125	5.7	--	94.3			"
12/22	8974	9.1+	.473	37	10	7	3/19	9.5	13.8	2/32	.15/.6	900	120	tr	6.1	--	93.9			LSND
12/23	9074	9.0+	.471	61	11	28	29/97	10.0	19.8	2/32	.2/.5	1000	240	.30	5.3	--	94.7			"
12/24	9198	9.0+	.471	47	13	13	11/47	9.5	21.2	2/32	.1/.4	1000	220	.30	5.3	--	94.7			"
12/25	9313	9.0	.468	70	18	20	8/36	10.5	20.2	2/32	.1/.5	1000	240	.30	5.0	--	95.0			"

MUD RECORD

DATE	DEPTH	WEIGHT	MUD GRAD.	FUNNEL VIS	PLASTIC VIS	YIELD POINT	GEL STREN.	pH	FILT. API	CAKE	ALK. FILT.	CHLOR PPM	CALC. PPM	SAND%	SOLID%	OIL%	WATER %	Nitrate PPM		Mud Type
11/28	7158	9.0+	.471	35	7	7	8/28	9.5	33.7	2/32	.25/.6	1000	40	.25	5.0	--	95.0			"
11/29	7186	9.0+	.471	35	8	6	3/19	10.0	22.5	2/32	.3/.6	1000	40	.25	5.0	--	95.0			LSND
11/30	7186	9.0+	.471	38	9	6	3/13	10.0	23.6	2/32	.3/.7	1000	40	.20	5.0	--	95.00			"
12/01	7404	9.0+	.471	36	8	9	5/22	10.0	27.1	2/32	.15/.4	1000	40	.25	5.3	--	94.7			"
12/02	7471	9.0	.468	33	5	7	4/18	9.5	25.8	2/32	.1/.3	850	40	tr	5.0	--	95.0			"
12/03	7607	9.0	.468	33	6	8	7/28	9.0	32.4	2/32	.20/.35	800	80	tr	5.0	--	95.0			"
12/04	7772	9.0	.468	35	9	10	8/26	10.5	26.4	2/32	.4/.6	850	60	.25	5.0	--	95.0			"
12/05	7904	9.0	.468	34	8	8	5/15	10.0	17.8	2/32	.4/.7	900	80	tr	5.0	--	95.0			"
12/06	8010	9.0+	.471	36	8	8	4/16	9.0	18.2	2/32	.4/.6	700	40	.25	5.0	--	95.0			"
12/07	8150	9.1	.473	36	9	8	4/16	10.0	17.2	2/32	.5/.7	850	40	.25	7.6	--	92.4			"
12/08	8285	9.0+	.471	35	10	7	3/15	10.0	16.9	2/32	.4/.7	900	40	.25	5.3	--	94.7			"
12/09	8314	8.9+	.465	34	9	6	2/8	10.0	16.1	2/32	.3/.8	900	40	tr	4.6	--	95.4	110		"
12/10	8314	9.1	.473	35	12	8	3/11	10.0	16.4	2/32	.3/.75	900	40	.25	5.5	--	94.5	110		"
12/11	8328	9.0+	.471	33	8	5	2/9	10.0	16.2	2/32	.25/.7	900	40	tr	5.3	--	94.7			"
12/12	8333	9.0+	.471	38	12	8	2/10	9.5	16.1	2/32	.26/.6	900	40	.20	5.3	--	94.7			"
12/13	8395	8.9+	.465	35	7	6	2/11	10.5	15.8	2/32	.3/.7	950	40	tr	4.6	--	95.4			"
12/14	8470	9.0+	.471	39	12	8	2/13	10.0	15.9	2/32	.3/.7	950	40	.25	5.3	--	94.7	48		"
12/15	8471	8.9+	.465	36	7	7	2/19	10.5	15.2	2/32	.5/.8	800	40	tr	4.8	--	95.2	104		"
12/16	8471	9.0+	.471	39	11	10	3/-	10.5	15.0	2/32	.5/.8	850	40	tr	5.3	--	94.7	130		"
12/17	8522	9.0	.468	48	15	10	4/28	10.5	13.6	2/32	.4/.65	825	40	.125	5.0	--	95.0			"
12/18	8546	9.0	.468	49	16	11	4/30	10.5	15.0	2/32	.55/.75	800	20	.125	5.0	--	95.0			water/gel
12/19	8685	9.1	.473	48	14	12	5/36	10.0	14.0	2/32	.35/.65	800	80	.25	5.7	--	94.3			"
12/20	8785	9.1	.473	46	10	10	2/34	10.0	12.4	2/32	.3/.5	750	40	.125	5.7	--	94.3			"
12/21	8895	9.1	.473	46	14	10	6/49	10.5	13.2	2/32	-/-	800	20	.125	5.7	--	94.3			"
12/22	8974	9.1+	.473	37	10	7	3/19	9.5	13.8	2/32	.15/.6	900	120	tr	6.1	--	93.9			LSND
12/23	9074	9.0+	.471	61	11	28	29/97	10.0	19.8	2/32	.2/.5	1000	240	.30	5.3	--	94.7			"
12/24	9198	9.0+	.471	47	13	13	11/47	9.5	21.2	2/32	.1/.4	1000	220	.30	5.3	--	94.7			"
12/25	9313	9.0	.468	70	18	20	8/36	10.5	20.2	2/32	.1/.5	1000	240	.30	5.0	--	95.0			"

MUD RECORD

DATE	DEPTH	WEIGHT	MUD GRAD.	FUNNEL VIS	PLASTIC VIS	YIELD POINT	GEL STREN.	pH	FILT. API	CAKE	ALK. FILT.	CHLOR PPM	CALC. PPM	SAND%	SOLID%	OIL%	WATER %	Nitrate PPM		Mud Type
1/25	10675	11.6	.603	44	20	12	5/14	7.5	30.8	3/32	--	179000	1320	tr	8.7	--	91.3			"
1/26	10789	11.6+	.606	51	18	12	5/14	7.0	24.2	3/32	--	191000	1200	.10	8.5	--	91.5			"
1/27	10846	11.7+	.611	48	21	10	5/14	7.0	22.3	3/32	--	184000	1240	.10	8.9	--	91.1			"
1/28	10989	11.4+	.595	51	21	13	5/16	7.0	22.8	3/32	tr/.10	188000	1300	.10	8.6	--	91.4			"
1/29	11167	11.5+	.601	49	20	11	6/17	7.0	20.6	3/32	tr/.15	180000	68000	.20	8.6	--	91.4			"
1/30	11222	11.6+	.606	46	18	12	4/16	7.5	16.8	2/32	tr/.10	178000	1800	tr	9.3	--	90.7			"
1/31	11525	11.5	.598	49	22	15	6/22	8.0	16.4	2/32	tr/.1	198000	850	tr	9.0	--	91.0			"
2/01	11876	11.6	.603	50	23	18	3/12	7.5	16.2	2/32	tr/-	197000	520	tr	9.2	--	90.8			"
2/02	12150	11.7	.608	50	26	14	3/21	7.5	12.8	2/32	--	198000	440	tr	9.4	--	91.6			"
2/03	12180	11.6+	.606	48	24	14	3/14	7.5	17.6	2/32	--	195000	800	tr	9.3	--	90.7			"
2/04	12200	11.6+	.606	50	22	9	3/11	7.5	16.4	2/32	--	195000	1080	tr	9.2	--	90.8			"
2/05	12153	11.7	.608	59	26	9	3/10	7.5	16.8	2/32	--	180000	1040	.2	9.3	--	90.7			"
2/06	12153	11.7	.608	68	25	9	2/8	7.5	17.9	2/32	--	181000	1000	.2	9.3	--	90.7			"
2/07	9618	11.7+	.611	60	32	15	4/14	9.0	34.7	3/32	tr/.4	178000	1200	.2	--	--	--			"
2/08	9660	11.7+	.611	51	25	5	2/5	11.5	51	3/32	.15/.4	181000	1200	.25	9.4	--	90.6			"
2/09	9710	11.8	.614	50	28	8	2/8	11.5	52	3/32	.2/.4	190000	850	.25	10.5	--	89.5			"
2/10	12149	8.8	.458	35	6	3	1/2	10.5	16.0	1/32	.5/1.0	28000	160	tr	1.7	--	98.3			"
2/11	12192	8.7+	.455	39	9	12	2/8	10.0	12.2	1/32	.45/1	16000	40	tr	2.1	--	97.9			"
2/12	12293	9.1+	.476	48	14	18	7/26	10.0	10.6	1/32	.5/1.2	19000	40	125	3.9	--	96.1			"
2/13	12306	9.2	.478	48	14	17	8/32	10.0	9.0	1/32	.7/1.6	17000	80	125	4.0	--	96.0			"
2/14	12372	9.1+	.476	42	13	17	5/25	10.0	9.2	1/32	.7/1.6	17000	100	tr	4.0	--	96.0	31		"
2/15	12372	9.2	.478	44	12	13	5/19	10.0	9.9	1/32	.4/1.6	16000	80	tr	4.0	--	96.0			"
2/16	12427	9.1+	.476	44	10	15	9/25	11.5	10.8	1/32	.8/2.4	14000	80	tr	4.8	--	95.2			"
2/17	12507	9.1+	.476	47	13	14	9/30	11.5	9.8	1/32	.85/2.4	15000	100	tr	4.0	--	96.0			"
2/18	12583	9.1+	.476	53	15	16	9/27	11.5	10.2	1/32	.9/2.4	14000	100	15	4.0	--	96.0			"
2/19	12695	9.1	.473	48	12	15	20/42	11.5	10.4	1/32	1.8/3.4	13000	220	125	4.2	--	95.8			"
2/20	12754	9.1	.473	44	10	13	8/28	11.7	12.2	1/32	1.6/3.2	10000	160	.25	4.5	--	94.5			"
2/21	12754	9.1	.473	44	10	13	8/28	11.7	12.2	1/32	1.6/3.2	10000	160	.25	4.5	--	94.5			"

MUD RECORD

DATE	DEPTH	WEIGHT	MUD GRAD.	FUNNEL VIS	PLASTIC VIS	YIELD POINT	GEL STREN.	pH	FILT. API	CAKE	ALK. FILT.	CHLOR PPM	CALC. PPM	SAND%	SOLID%	OIL%	WATER %	Nitrate PPM		Mud Type
1/25	10675	11.6	.603	44	20	12	5/14	7.5	30.8	3/32	--	179000	1320	tr	8.7	--	91.3			"
1/26	10789	11.6+	.606	51	18	12	5/14	7.0	24.2	3/32	--	191000	1200	.10	8.5	--	91.5			"
1/27	10846	11.7+	.611	48	21	10	5/14	7.0	22.3	3/32	--	184000	1240	.10	8.9	--	91.1			"
1/28	10989	11.4+	.595	51	21	13	5/16	7.0	22.8	3/32	tr/.10	188000	1300	.10	8.6	--	91.4			"
1/29	11167	11.5+	.601	49	20	11	6/17	7.0	20.6	3/32	tr/.15	180000	68000	.20	8.6	--	91.4			"
1/30	11222	11.6+	.606	46	18	12	4/16	7.5	16.8	2/32	tr/.10	178000	1800	tr	9.3	--	90.7			"
1/31	11525	11.5	.598	49	22	15	6/22	8.0	16.4	2/32	tr/.1	198000	850	tr	9.0	--	91.0			"
2/01	11876	11.6	.603	50	23	18	3/12	7.5	16.2	2/32	tr/-	197000	520	tr	9.2	--	90.8			"
2/02	12150	11.7	.608	50	26	14	3/21	7.5	12.8	2/32	--	198000	440	tr	9.4	--	91.6			"
2/03	12180	11.6+	.606	48	24	14	3/14	7.5	17.6	2/32	--	195000	800	tr	9.3	--	90.7			"
2/04	12200	11.6+	.606	50	22	9	3/11	7.5	16.4	2/32	--	195000	1080	tr	9.2	--	90.8			"
2/05	12153	11.7	.608	59	26	9	3/10	7.5	16.8	2/32	--	180000	1040	.2	9.3	--	90.7			"
2/06	12153	11.7	.608	68	25	9	2/8	7.5	17.9	2/32	--	181000	1000	.2	9.3	--	90.7			"
2/07	9618	11.7+	.611	60	32	15	4/14	9.0	34.7	3/32	tr/.4	178000	1200	.2	--	--	--			"
2/08	9660	11.7+	.611	51	25	5	2/5	11.5	51	3/32	.15/.4	181000	1200	.25	9.4	--	90.6			"
2/09	9710	11.8	.614	50	28	8	2/8	11.5	52	3/32	.2/.4	190000	850	.25	10.5	--	89.5			"
2/10	12149	8.8	.458	35	6	3	1/2	10.5	16.0	1/32	.5/1.0	28000	160	tr	1.7	--	98.3			"
2/11	12192	8.7+	.455	39	9	12	2/8	10.0	12.2	1/32	.45/1	16000	40	tr	2.1	--	97.9			"
2/12	12293	9.1+	.476	48	14	18	7/26	10.0	10.6	1/32	.5/1.2	19000	40	125	3.9	--	96.1			"
2/13	12306	9.2	.478	48	14	17	8/32	10.0	9.0	1/32	.7/1.6	17000	80	125	4.0	--	96.0			"
2/14	12372	9.1+	.476	42	13	17	5/25	10.0	9.2	1/32	.7/1.6	17000	100	tr	4.0	--	96.0	31		"
2/15	12372	9.2	.478	44	12	13	5/19	10.0	9.9	1/32	.4/1.6	16000	80	tr	4.0	--	96.0			"
2/16	12427	9.1+	.476	44	10	15	9/25	11.5	10.8	1/32	.8/2.4	14000	80	tr	4.8	--	95.2			"
2/17	12507	9.1+	.476	47	13	14	9/30	11.5	9.8	1/32	.85/2.4	15000	100	tr	4.0	--	96.0			"
2/18	12583	9.1+	.476	53	15	16	9/27	11.5	10.2	1/32	.9/2.4	14000	100	15	4.0	--	96.0			"
2/19	12695	9.1	.473	48	12	15	20/42	11.5	10.4	1/32	1.8/3.4	13000	220	125	4.2	--	95.8			"
2/20	12754	9.1	.473	44	10	13	8/28	11.7	12.2	1/32	1.6/3.2	10000	160	.25	4.5	--	94.5			"
2/21	12754	9.1	.473	44	10	13	8/28	11.7	12.2	1/32	1.6/3.2	10000	160	.25	4.5	--	94.5			"

MUD RECORD

DATE	DEPTH	WEIGHT	MUD GRAD.	FUNNEL VIS	PLASTIC VIS	YIELD POINT	GEL STREN.	pH	FILT. API	CAKE	ALK. FILT.	CHLOR PPM	CALC. PPM	SAND%	SOLID%	OIL%	WATER %	Nitrate PPM		Mud Type
2/22	12754	9.1	.473	43	10	12	7/18	11.7	9.0	1/32	1.3/3.0	8900	100	tr	4.5	--	94.5			"
2/23	12754	9.1+	.476	48	16	16	8/28	11.5	10.4	1/32	1.0/2.8	7500	160	.125	4.6	--	94.4			"
2/24	12754	9.3	.484	54	16	12	8/14	11.0	10.1	1/32	1.4/2.4	9500	120	.125	4.1	--	95.9			"
2/25	12770	9.0+	.471	54	14	15	7/18	11.0	9.7	1/32	.9/2.5	10400	100	tr	3.7	--	96.3			"
2/26	12865	9.1	.473	53	15	14	8/24	11.0	9.8	1/32	1.3/2.5	10500	60	tr	3.7	--	96.3			"
2/27	12865	9.1+	.476	48	13	17	10/24	11.5	9.5	1/32	1.3/2.4	9800	60	tr	3.7	--	96.3			"
2/28	12902	9.1	.473	47	14	16	12/28	11.7	10.2	1/32	1.7/3.2	9800	60	125	4.2	--	95.8			"
2/29	13013	9.1	.473	48	12	14	9/38	11.5	10.0	1/32	1.5/3.0	9200	120	.125	4.2	--	95.8			"

SAMPLE DESCRIPTION

150-180	90%	SH gy blky sil ip some carb flk ncalc
	10%	SS wh-ltgy vfg-slty arg sil-arg cmt firm carb str
180-210	100%	SS tan-wh fg-cg sbrnd-sbang psrt uncons-pcmt pred arg cmt occ sil cmt some lmn stn
210-240	100%	SS wh-clr mg-cg rnd-sbrnd occ wrnd msrt some fros occ pyr incl occ cht frags gy-smky some banded
240-270	90%	SS AA incr pyr incl
	10%	MUDST gn plty nfis occ sdy
270-300	80%	MUDST gn-gygn plty some calc occ sdy
	20%	SS wh vfg-fg sbang-sbrnd pred sil cmt wcmt tr cht gy-brn
300-420	NS	shaker down
420-450	100%	SS clr vfg-cg uncons rnd-wrnd str mudst brn-redbrn slty-sdy plty
450-480	20%	SH AA
	80%	SS AA dead stn on some gr no flor
480-510	100%	SS wh-clr some orng uncons sbrnd-sband fg-mg tr cly ptgs calc
510-570	NS	shaker bypassed
570-600	70%	SS AA some fros tr in varg SS
	30%	MUDST gy-gybrn-gygn slty ip ncalc
600-630	80%	SS wh-clr-rose uncons mg-vfg rnd-sbang psrt some calc cmt glauc incl tr cht frag tan-brn
	20%	MUDST gy-gygn sdy-slty nfis ncalc
630-660	100%	MUDST AA grdg to arg sdy SLTST some calc tr SS AA
660-690	80%	MUDST wh-ltgy-ltgn sl sdy sl calc
	20%	SS wh-clr fg-mg sbrnd-sband uncons some wh-ltgn sl calc calc/arg cmt
690-720	100%	SS wh-clr rnd-sbang fg-mg pred uncons some wcmt ip w/ sil cmt tr sh brn-redbrn slty
720-750	60%	SS AA
	10%	SLTST brn sl sdy calc pcmt w/ cly
	30%	SH brn-redbrn-gn slty ip calc sft sl fis
750-780	60%	SS brn-tan occ gn vfg occ fg slty arg ip sl calc ip
	40%	SH AA incr gn slty
780-810	50%	SH brn-redbrn some slty sl calc ptgs
	40%	SS AA cvgs
	10%	SLTST brn-mrn arg ncalc
810-840	60%	SH AA decr slty some w/ tan-brn ls ptgs
	10%	SLTST brn sdy ip
	30%	SS wh-clr fg-vfg rnd-sbrng wcmt arg cmt
840-870	10%	SH brn-redbrn sl slty sc sdy cvgs
	90%	SS wh-pk-salmon vfg-fg sl slty some sl calc some arg wcmt

870-900 100% SS wh-clr occ salmon vfg-fg sbrnd-rnd mcmt sl arg/ sil cmt

900-930 70% SH brn-redbrn sl slty calc fis some vslty
30% SS AA incr salmon tr cht brn

930-960 40% SS wh-salmon vfg-fg sbrnd-sbang wsrt mcmt sil/arg cmt fri
60% SH AA occ

960-990 50% SH brn-redbrn-mrn some slty/sdy w/ calc incl
50% SS AA incr salmon cvgs

990-1020 70% SH brn-redbrn-mrn slty ip calc & calc fl frac
20% str SLTST redbrn calc some sdy
10% str SS pink-mrn vfg-slty arg

1020-1050 100% SS wh vfg-fg occ mg sbang-rnd msrt some fros fri calc cmt occ dk access minerals cvgs

1050-1080 100% SS wh-pk vfg-fg some mg-cg pred sbang-rnd some slty Fe stn ip dk minerals thru calc cmt cvgs

1080-1110 80% SS AA incr pk Fe stn vfg calc cmt tr cht brn some LS ptgs
20% SH redbrn slty plty sl calc

1110-1140 70% SH redbrn-brn slty plty sl calc calc ptgs
20% SLTST redbrn arg v sl calc sdy ip tr dk minerals
10% SS AA

10' SPLS

1140-1150 60% SS wh-pk vfg sbang-sbrnd mcmt w/ calc occ dk minerals blk dd stn thru nsofc Fe stn ip occ LS ptgs gy brn micxl
40% SH AA

1150-1160 70% SS AA abun dd stn some mg-cg
30% SH brn-redbrn AA 10% of SH lt gn sft swelling vsl calc

1160-1170 50% SH mrn-redbrn-ltgn sl slty plty occ calc sft
50% SS dkgy-dkgybrn vfg-occ fg v wcmt w/ sil hd abun dk dd stn some ltbrn-pk-wh vfg-fg mcmt arg/sl sil cmt fri abun dd stn nsofc some Fe stn tr LS brn-gy micxl arg ip

1170-1180 60% SH AA gn wxy sft ncalc
40% SS AA occ cg gr

1180-1190 60% SH redbrn-mrn-ltgn-gy some lt gn-gy swelling wxy redbrn-mrn ncalc plty sft
40% SS pred dkgy vfg sbang wcmt w/ sil hd dd stn nsofc & dk minerals some salmon-red-wh vfg-fg sbrnd mcmt w/ calc occ Fe stn tr LS gy micxl arg

1190-1200 30% SS AA occ mg-cg uncons sbang-rnd
70% SH mrn-gy-gygn ncalc occ org flk occ LS frag ltgy micxl arg

1200-1210 70% SH gn-mrn AA some sl slty cvgs
30% SS dk gy arg AA some pk-wh fg sbang calc cmt some fri some vfg vcalc cht frag & qtz frags occ LS frags

1210-1220 80% SH AA incr gywxy sft occ LS dkgy micxl dns
20% SS AA
1220-1230 60% SH brn-redbrn-gy occ sft ncalc tr cht brn
40% SS gy-dkgy-brn fg occ cg sbang abun dk minerals arg/sil cmt fri some sil cmt vhd occ Fe stn occ SS wh-pk fg sbang-sbrnd calc cmt fri
1230-1240 40% SH AA occ wh sft ncalc occ pp dk minerals
60% SS AA abun dk min incr mg rnd loose
1240-1250 90% SS ltbrn-wh w/ Fe stn fg-mg sbrnd-sbang sil cmt abun dk min occ yel cly matrix? no flor Fe stn abun lse mg-cg sbrnd-rnd Fe stn
10% SH AA
1250-1260 90% SS AA abun cg-mg lse
10% SH AA
1260-1270 90% SS AA cg-mg sbrnd gr some fros
10% SH AA
1270-1280 60% SS ltbrn-brn-pk fg-mg sbang-sbrnd calc ip w-mcmt abun dk min in ltbrn-brn some in pk none in wh fg calc sbang-sbrnd some mg-cg lse wrnd fros
40% SH brn-redbrn splty sft-frm calc w/ calc incl occ gn frm ncalc
1280-1290 50% SS AA
50% SH AA some slty
1290-1300 80% SS pred pk-ltbrn vfg-fg mcmt fri calc dk min not as abun
20% SH AA
1300-1310 80% SS AA incr pk less dk min occ sbrnd-rnd mg-cg fros gr
20% SH brn-redbrn slty ip calc occ dk min
1310-1320 90% SS ltbrn-pk fg-mg sbrnd-ang psrt calc cmt dk min thru some slty some cg-mg rnd fros gr occ cht/qtz frags wh-tan
10% SH AA
1320-1330 100% SS clr stn salmon-mlky cg-mg sbrnd-wrnd uncons wsrt fros some wh cly? ncalc hd-fri
1330-1340 100% SS AA
1340-1350 100% SS AA
1350-1360 NS lost circ
1360-1370 100% SS salmon vfg-cg uncons psrt sbang-wrnd fros
1370-1380 100% SS AA
1380-1390 100% SS salmon cg-mg rnd fros vfg-mg sbang sl fros
1390-1400 100% SS orng brn vfg-occ fg sbang v pcmt no intrst material except dd stn & dk mineral(some blk w/ conch frac) some SS AA
1400-1410 100% SS AA some sl arg sl slty some vcggr in SS
1410-1420 60% SS AA grdg to
30% SLTST orng brn-brn arg sl-sdy some calc dk min
10% SH orng brn-red brn slty ip calc frm
1420-1430 40% SLTST orng brn-brn splty some ark w/ abun dk min ncalc arg cmt frm-hd some sdy
60% SS orng-orng brn vfg-slty w/ occ fg-mg sbrnd-sbang fri arg cmt occ dk min

1430-1440 80% SS AA abun lse fg-cg sbrnd-rnd
20% SLTST AA
1440-1450 100% SS salmon pred mg sbrnd-rnd uncons fros
1450-1460 100% SS salmon-lt orng fg-mg sbrnd-wrnd uncons fros
1460-1470 100% SS AA occ cht/qtz frags
1470-1480 100% SS salmon-lt orng pred fg occ mg-cg sbang-rnd pred fros
1480-1490 100% SS AA
1490-1500 100% SS lt orng vfg-fg sbang-sbrnd w/ some fg-mg rnd gr pred fros
1500-1510 100% SS AA incr fg-mg
1510-1520 100% SS AA
1520-1530 100% SS lt orng vfg-fg sbrnd-sbang uncons occ mg sbrnd-rnd fros
1530-1540 100% SS AA some sil cmt fri
1540-1550 100% SS AA pred fg
1550-1560 100% SS AA
1560-1570 100% SS lt orng fg-mg sbrnd-rnd uncons fros
1570-1580 100% SS AA
1580-1590 100% SS AA
1590-1600 100% SS AA some mcmt w/ sil dk mnrl incl
1600-1610 100% SS lt orng-tan vfg-fg sbrnd-sbang uncons some sil mcmt fros some dk mnrl incl
1610-1620 100% SS AA
1620-1630 100% SS lt orng vfg-fg rnd-sbang uncons pred fros
1630-1640 100% SS AA
1640-1650 100% SS AA
1650-1660 100% SS AA pred rnd
1660-1670 100% SS tan vfg-fg some slty sbrnd-sbang uncons some calc cmt fri tr SH gy-gygn smth frm ncalc
1670-1680 100% SS tan-salmon vfg-fg sbrnd mcmt w/ sil/ sl arg fri dk mnrl incl some arg cmt w/ yel clay tr SH AA tr SLTST brn mica dk mnrl
1680-1690 90% SS AA
10% SH gy-gygn-brn smth ncalc tr SLTST AA
1690-1700 70% SS AA incr slty some gy vfg sbang fri w/ pl remains
20% SH gygn-gy-redbrn some sdy ncalc sft
10% SLTST brn ark ip sdy mica arg(yel)
1700-1710 50% SLTST dkbrn-dk redbrn sdy mica abun dk mnrl
40% SS yel-pk abun arg cmt/lim lmn cmt slty
10% SH gn-gy-mrn-redbrn-purple pred smth ncalc gy slty-sdy frm-sft swelling
1710-1720 100% SS lt orng vfg-fg sbrnd-sbang uncons occ fros tr SLTST & SH AA
1720-1730 30% SLTST dkbrn mica sdy ncalc grdg to redbrn slty SS
70% SS AA
1730-1740 50% SLTST AA some lt brn sdy lim stn grdg to
40% SS yel-wh bnd vfg-fg occ dkbrn slty sil cmt str pred m-pcmt arg cmt dk mnrl incl ncalc fri
10% SH ltgn-ltgy-sdy ip frm ncalc wh cly ptgs
1740-1750 40% SS AA pred pcmt-uncons

	40%	SLTST AA
	20%	SH gn-mrn-redbrn some sl slty ncalc calc incl & fl frac LS nod tan-gy micxl-xl abun wh cly ptgs ncalc
1750-1760	50%	SS pk-orng vfg-fg sbrnd-sbang m-wsrt sl arg/sil cmt fri
	40%	SLTST AA bnd w/ wh SS & dkbrn-ltbrn SLTST
	10%	SH AA
1760-1770	60%	SLTST dk brn-brn-redbrn sdy ip ncalc hd sil cmt abun dk mnrl some mica LS nod gy-brn micxl hd
	40%	SS AA intb w/ SLTST & tr SH AA
1770-1780	60%	SS AA
	40%	SLTST AA tr SH gn smth ncalc sft
1780-1790	40%	SS yel brn-ltbrn vfg-fg sbrnd-sbang m-wrst occ slty arg cmt fri intb w/
	50%	LTST dkbrn-brn sdy arg abun dk mnrl frm-hd
	10%	SH gy-gygn smth occ sd gr ncalc LS nod gy micxl
1790-1800	70%	SLTST AA
	10%	SS AA
	20%	SH redbrn-brn wxy smth LS nod gy micxl arg ip some gn sl sdy some calc
1800-1810	60%	SS rose-tan-ltbrn vfg-fg sbang-rnd fri occ dk mnrl dd stn?
	30%	SLTST AA
	10%	SH redbrn-brn smth cal ip LS nod gy-brn micxl-crpxl
1810-1820	90%	SS AA pred rose incr fg-mg some sil cmt
	10%	SLTST & SH AA
1820-1830	90%	SS pred rose-wh-tan vfg-fg sbrnd wsrt sl sil arg/cmt fri some carb incl dd stn
	10%	SLTST & SH AA
1830-1840	100%	SS AA
1840-1850	100%	SS AA some lim stn
1850-1860	70%	SH mudst redbrn-gngy some slty splty fis ip occ calc & calc incl
	20%	SLTST dk redbrn arg ncalc
	10%	SS pk-pkwh-wh mg-fg sbang-ang m-wcmt w/sil fri some arg
1860-1870	80%	SS AA
	10%	SLTST AA
	10%	SS AA
1870-1880	80%	SH redbrn-orngbrn-brn-gngy pred smth occ sl calc splty-plty fis some mudst brn gyp incl
	10%	SLTST AA
	10%	SS AA pred pk-redbrn incr arg
1880-1890	50%	SH AA abun gyp ptgs
	50%	SS redbrn-rose fg occ mg sbang sil cmt wcmt sl arg grdg to sdy SLTST
1890-1900	90%	SS AA some mica
	10%	SH AA
1900-1910	100%	SS pk-redbrn fg sbang-ang wcmt w/sil occ slty& mica sl arg some calc anhy ptgs tr SH AA
1910-1920	100%	SS AA

1920-1930 100% SS AA incr pic-wh clean occ glauc incl intb w/ thin SLTST strg
1930-1940 100% SS wh-pk some redbrn fg sbrnd-sbang wsrt wcmt w/ sil occ glauc & carb incl occ arg/slty
1940-1950 100% SS AA tr ltgn glauc
1950-1960 100% SS AA slty str ANHYptgs
1960-1970 100% SS pk-redbrn-off wh fg-mg ang-sbrnd m-wcmt w/ sil slty str calc ip occ glauc incl; str SH redbrn plty smth
1970-1980 100% SS AA occ mica incr glauc incl
1980-1990 50% SS redbrn-purp-pk-wh vfg-fg occ mg sbrnd-sbang calc wcmt w/ sil & calc occ mica flks & carb incl
20% SLTST purp-redbrn sdy arg sl-ncalc
30% SH purp-redbrn-brn pred smth plty some slty ncalc ANHYptgs
1990-2000 60% SH AA some ANHY incl
20% SLTST AA some orng
20% SS AA orng-redbrn incr slty arg
2000-2040 CMT
2040-2050 90% SS orngbrn-redbrn-wh vfg-slty ncalc grdg to sdy SLTST
10% SH redbrn slty ncalc abun cmt inspl
2050-2060 90% SS AA some cg sdgr clr-smky
10% SH AA cmt in spl
2060-2070 70% SS ltorng-redbrn-wh vfg sbrnd-sbang slty sl calc occ carb incl
10% SLTST redbrn-orngbrn arg ncalc
20% GYP wh sft arg lcm & cmt in spl
2070-2080 40% SS AA abun cmt & lcm in spl
20% SLTST AA
40% GYP wh sft arg
2080-2090 60% SLTST redbrn arg occ pp carb incl ncalc
30% SS orng vfg-fg sbang sil cmt fri sl-narg; str SH redbrn sl slty ncalc
10% GYP wh sft abun cmt & lcm in spl
2090-2100 90% SS orng vfg sbang wsrt sil cmt occ pp carb incl & mica flk some arg cmt
10% SLTST AA
2100-2110 70% SS AA
15% SLTST redbrn arg occ sd gr
15% SH redbrn-brn some slty gyp ptgs
2110-2120 70% SS ltorng-orngbrn vfg sbrnd-sbang some fg-mg sbang sil cmt
20% SLTST AA
10% SH AA
2120-2130 90% SS AA abun cmt in spl
10% SLTST AA
2130-2140 90% SS orngbrn vfg sbrnd-sbang sil cmt occ arg m wcmt ncalc
10% SH redbrn sl slty splty ncalc
2140-2150 90% SS AA
10% SLTST AA

2150-2160	80%	SS	orngbrn-redbrn vfg sbrnd m-pcmt vfri
	20%	SH	brn occ purp slty
2160-2170	80%	SS	AA purp vsil
	20%	SH	AA slty str
2170-2180	30%	SH	redbrn-brn-gy some slty plty frm ncalc LS ptgs brn micxl-crpxl
	70%	SS	orngbrn-wh vfg sbang sil cmt some arg ncalc
2180-2190	90%	SS	AA some slty str carb incl
	10%	SH	AA
2190-2200	100%	SS	AA; tr SH AA
2200-2210	100%	SS	orng-orngbrn vrg-fg some mg-cg rnd-ang some cht pcmt w/ sil sl arg occ carb incl; tr SH AA
2210-2220	70%	SS	AA occ cht frags SS mcmt w/ sil & arg
	30%	SH	redbrn plty-splty
2220-2230	50%	SS	AA
	50%	SH	AA
2230-2240	60%	SS	orng-orngwh vfg occ fg sbrnd-sbang pcmt fri sil cmt sl arg occ slty str
	40%	SH	redbrn slty splty-plty ncalc
2240-2250	100%	SS	AA; tr SH AA
2250-2260	80%	SS	AA
	20%	SH	brn sl slty plty ncalc w/ gyp wh sft
2260-2270	70%	SS	AA
	30%	SH	AA gyp AA
2270-2280	30%	SH	brn-redbrn some slty splty ncalc gyp wh sft
	70%	SS	ltorng-redbrn vfg sbrnd-sbang sil cmt ncalc some dk mnrl
2280-2290	70%	SS	AA
	30%	SH	AA
2290-2300	60%	SS	AA
	40%	SH	AA
2300-2310	60%	SS	ltorng-tan vfg sbrnd-sbang wsrt sil cmt dk mnrl incl
	40%	SH	redbrn-brn pred smth plty-splty ncalc gyp ptgs
2310-2320	60%	SS	AA
	40%	SH	AA
2320-2330	50%	SS	AA some redbrn some slty str
	50%	SH	AA some mrn pred plty
2330-2340	70%	SS	tan-ltorng vfg sbrnd-sbang some arg sil cmt
	30%	SH	AA
2340-2350	40%	SH	brn-redbrn pred smth plty ncalc some slty mica occ pp carb incl
	60%	SS	AA
2350-2360	60%	SS	tan-orngbrn vfg occ fg sbrnd-sbang wsrt pcmt fri sl sil cmt dk mnrl ncalc
	10%	SLTST	redbrn-purp arg fri ncalc
	30%	SH	AA
2360-2370	100%	SH	brn-redbrn pred smth plty-splty ncalc occ ANHY incl occ gn wxy
2370-2380	100%	SH	AA
2380-2390	80%	SH	brn-redbrn-mrn plty occ slty ncalc ANHY incl

gn SH wxy splty DOL
10% SLTST purp-redbrn arg ncalc grdg to slty SS
10% SS brn-tan-yel occ clr vfg sil cmt some slty
2390-2400 90% SH abun gn wxy DOL gy-brn-redbrn plty-splty ANHY incl ncalc
10% SLTST AA
2400-2410 70% SH AA calc ptgs
10% SLTST AA
20% SS wh vfg sbrnd-sbang wsrt calc cmt
2410-2420 90% SH brn-redbrn-gybrn-mrn plty-splty some sl slty ncalc
10% SLTST redbrn-brn arg ncalc occ p-p carb incl; tr SS AA
2420-2430 90% SH orngbrn-brn-gn some slty plty-splty occ gn SH incl in brn SH sl calc
10% SS wh occ brn vfg sbrnd wsrt calc cmt fri
2430-2440 40% SLTST redbrn arg sl calc occ calc/LS nod
60% SH AA occ calc/LS nod wh-brn micxl; tr SS AA
2440-2450 50% SH redbrn-mrn-choc brn pred smth occ slty plty-splty calc/LS nod wh-brn micxl
50% SLTST AA
2450-2460 70% SLTST redbrn-brn-yelgn-yelbrn arg occ p-p carb incl calc occ vfg sdy str
30% SH AA
2460-2470 70% SLTST AA occ gn
30% SH AA
2470-2480 20% SH redbrn-choc brn some slty occ sl calc
80% SLTST AA
2480-2490 80% SLTST redbrn-yelbrn-gybrn arg sl calc w/ ltgy SS str vfg calc
20% SH AA some gn wxy calc
2490-2500 90% SLTST AA occ p-p carb incl str SS redbrn-yelgn vfg-slty sbrnd-sbang calc
10% SH AA
2500-2510 20% SH redbrn-brn pred slty plty-blky ncalc
80% SLTST AA str SS AA
2510-2520 100% SLTST brick red-orngbrn arg calc p-p carb incl tr SH AA
2520-2530 100% SLTST AA occ yelbrn-dkbrn str SH brn slty str gn smth wxy
2530-2540 90% SLTST AA
10% SH brn sl slty gn wxy sl calc
2540-2550 40% SH redbrn-brick red-brn slty ip splty ncalc occ mica str gn wxy blky-splty
60% SLTST redbrn-orng some v sil arg grdg to slty SS abun cly ptgs lmnstn calc
2550-2560 50% SH AA LS nod wh xl abun calc ptgs arg
40% SLTST AA some yelbrn
10% SS wh-ltbrn-tan vfg sbrnd arg cmt slty ip

2560-2570 40% SS AA some calc
30% SH AA
30% SLTST AA
2570-2580 50% SS brn-redbrn vfg-slty sbang arg ark ip calc dk mnrl incl fri occ mica flk
30% SH brn slty ip ncalc str gn wxy sl calc ptgs arg
20% SLTST brn v arg occ mica
2580-2590 70% SS AA some v arg grdg to
10% SLTST brn-orngbrn varg calc ip
20% SH AA
2590-2600 60% SS brn-tan vfg-slty occ fg sbang-sbrnd pcmt varg mica dk mnrl incl incr ark some wh vfg sbrnd sil cmt glauc incl LS nod purp-gy-gy micxl hd
30% SH brn-mrn-orngbrn pred smth plty occgn wxy blky-splty
10% SLTST redbrn-orngbrn varg sdy ip calc ip
2600-2610 70% SS AA incr dk mnrl incl
10% SH AA some gy-gybrn splty-plty
20% SLTST AA
2610-2620 90% SS redbrn-orngbrn vfg-slty occ fg sbrnd-sbang pred sil cmt calc ip ark occ mica flk dk mnrl incl some brn slty str wh-brn calc ptgs arg
10% SH brn-gy-gr splty smth; occ LS nod wh-gy micxl
2620-2630 100% SS AA
2630-2640 90% SS AA
10% SH redbrn plty smth
2640-2650 60% SS gy vfg-fg sbrnd msrt sil cmt weathered k-spar incl abun glauc incl
10% LS clr suc, tan-gy micxl-xl,wh chky
30% SLTST & SH orngbrn-redbrn calc sdy
2650-2660 AA
2660-2670 40% SH brickred-orngbrn-brn slty ip p-p carb incl
60% SLTST mrn-orngbrn varg calc ip; tr LS AA; tr SS AA
2670-2680 80% SLTST AA
20% SH AA
2680-2690 40% SS orngbrn vfg-fg v slty arg arf v mica calc ip grdg to
40% SLTST
20% SH AA
2690-2700 100% SS AA p-p carb incl v ark
2700-2710 100% SS AA calc incl v slty
2710-2720 100% SS AA str redbrn slty SH
2720-2730 100% SS orngbrn vfg-fg slty arg ark mica some gy-smky fg sbang glauc incl sil cmt LS nod gy-purp micxl; strg orng brn SH slty splty
2730-2740 80% SS AA str SH AA
20% SLTST orngbrn arg sl-ncalc p-p carb incl
2740-2750 60% SS purp-wh fg-vfg sbang k-spr incl calc abun LS nod & strg wh-smky micxl-chk
40% SS & SLTST AA

2750-2760 70% SS brn-dkgy-dirty wh vfg-slty occ fg sbrnd-sbang sil cmt fri p-p carb incl dk mnrl occ mica ark ip grdg to
20% SLTST brn sdy arg ark calc ip; LS nod brn-redbrn-gy micxl-xl arg ip
10% SH brn wxy smth
2760-2770 40% SH brick red-brn pred smth occ slty sl calc
30% SLTST brn-orngbrn arg sdyip occ calc incl
30% SS pk-brn vfg ang-sbang wcmt w/sil ark some calc wh vfg sbrnd wsrt calc glauc incl yel vfg-slty v arg LS ptgs wh-brn xl arg
2770-2780 40% SH AA some brn
40% SLTST AA calc incl
20% SS AA
tr LS brn micxl
2780-2790 40% SH redbrn-mrn-orngbrn slty plty-blky p-p carb incl some gn wxy calc occ yelgn v slty grdg to SLTST
50% SLTST AA some calc incl; LS nod gy-gygn micxl
10% SS AA
2790-2800 60% SLTST AA some mrn v shy
40% SH AA
2800-2810 100% SLTST redbrn-brick red arg sl calc occ sdy p-p carb incl occ pl remains; occ LS ptgs brn
2810-2820 100% SLTST AA some mica flk & pl remains; strg SS wh vfg-slty occ glauc incl calc
2820-2830 15% LS red-brn-wh some lmn stn micxl-xl some arg occ clr suc
75% SLTST redbrn-gybrn arg ark ip sdy p-p carb incl occ yel sdy arg sft
10% SH redbrn-brn slty calc ip grdg to SLTST
2830-2840 10% LS AA
20% SH AA
70% SLTST AA
2840-2850 20% LS wh-brn-tan micxl-xl occ arg some wh-clr suc
30% SH redbrn-brn wxy ip slty ip splty-plty calc incl
50% SLTST AA come yel stn
tr SS purp vfg arg slty ip
2850-2860 60% SH brn-redbrn-mrn slty ip plty-blky sl-ncalc occ ANHY incl some grdg to mudst
tr LS AA
40% SLTST redbrn-brn arg some sdy mica
2860-2870 30% SH AA incr mrn abun ANHY
10% ptgs wh-redbrn-mrn strg SS clr cg sbrnd-rnd uncons some cht/qtz frags
10% SS mrn-redbrn-wh vfg-fg sbrnd-sbang arg some ark
50% SLTST AA
2870-2880 10% SS AA some purp abun
40% SH mrn-brn some slty blky some pl remains
10% ANHY wh-brn-clr xl-chk arg tr dd stn nsofc
40% SLTST redbrn-mrn mot arg tr dd stn nsofc

2880-2890 60% SH mrn mot blky some ANHY incl carb str grdg to slty SH
30% SLTST mrn-orngbrn some varg sdy
10% SS orng-wh vfg sbrnd arg fri; some cg rnd-sbang lse gr tr cht frag smky-brn
2890-2900 70% SH AA
20% SLTST AA
10% ANHY wh-brn-orng chk sft arg
2900-2910 80% SH AA pred mrn calc incl
20% SS orng occ wh vfg sbrnd wsrt arg sl calc
2910-2920 70% SH mrn blky sl slty sft ncalc occ carb incl
tr ANHY orng chk
30% SS AA
2920-2930 100% SH AA occ redbrn incl slty occ ANHY/calc ptgs arg
tr SS wh vfg arg cmt
2930-2940 70% SH AA
30% SLTST orngbrn-brn some varg calc ip
2940-2950 90% SH redbrn-mrn plty-blky some slty occ cg sd gr occ ' ANHY incl
10% SLTST AA
2950-2960 50% SH AA LS/calc nod wh-gy-brn
30% SLTST orngbrn-redbrn arg some sdy calc incl dk mnrl incl
20% SS clr vcg rnd-ang lse some cht frags
2960-2970 10% GYP clr-wh redbrn strk xl-chk occ LS ptgs
30% SLTST AA
40% SH AA
20% SS AA some orng vfg-slty ark mica arg
2970-2980 60% SH mrn-brn splty-plty some wxy slty ip some mot w/ ANHY incl calc ptgs orng arg occ gyp AA
10% SLTST AA
30% SS AA
2980-2990 90% SH AA
10% SLTST SS
2990-3000 80% SH AA some calc incl xl & fl frac
20% SLTST & SS AA
3000-3010 20% SLTST redbrn-orng arg calc
80% SH brn-mrn pred plty mot w/ ANHY incl ANHY & calc ptgs
3010-3020 40% SLTST AA occ lse vcg sd
60% SH AA
3020-3030 10% SS brn fg-slty v arg ark ip lse vcg sd
60% SH brn-mrn slty ip splty-plty ANHY fl frac & occ ptgs
30% SLTST AA
3030-3040 20% SLTST AA
20% SS AA some orng vfg arg calc
60% SH AA occ ANHY/gyp ptgs wh mot w/ red
3040-3050 70% SH red brn-orngbrn-mrn pred smth some mot mrn occ slty w/ p-p carb incl grdg to SLTST
30% SLTST brn-mrn varg sdy str wh vfg calc glauc incl
3050-3060 10% SS wh vfg sbrnd wsrt calc occ glauc incl & mica flk
30% SH AA
60% SLTST AA

3060-3070 AA
3070-3080 40% SH brn-redbrn-purp some slty ANHY ptgs plty ncalc
60% SLTST redbrn varg sdy ip some v mica
tr SS AA
3080-3090 tr LS frags purp-brn micxl arg
40% SH brn-mrn sl slty blky some wxy ANHY ptgs wh-clr hd
20% SS brn-orngbrn vfg abrnd arg ark some mica flk wh vfg sbrnd wsrt calc abun cg-vcg sd gr & cht frag rnd-ang clr-wh occ calc ptgs brn-wh
40% SLTST AA
3090-3100 60% SH brn-mrn some mot pred smth ncalc
30% SLTST AA
10% SS AA
3100-3110 70% SH AA
30% SLTST AA
3110-3120 40% SH AA ANHY nod
30% SLTST brn-redbrn-mrn arg sdy
30% SS orng-brn vfg-slty arg ark mica grdg to SLTST occ wh vfg-fg sbrnd-ang calc tite glauc incl
3120-3130 30% SH AA
40% SLTST AA
30% SS AA
3130-3140 60% SH mrn-brn-redbrn slty ip plty fis ip ncalc ANHY ptgs clr-wh xl-chk
40% SLTST AA
tr SS AA
3140-3150 40% SH AA some mica some mot w/ ANHY
30% SS brn-redbrn-off wh vfg arg ark mica ip wh vfg sbrnd-sbang calc sil cmt wsrt galuc incl
30% SLTST brn-redbrn slty ncalc
3150-3160 30% SH AA
50% SLTST AA
20% SS AA
3160-3170 30% SS wh-ltgy vfg sbrnd-sbang wsrt fri sil/calc cmt abun glauc incl dd stn nsofl
50% SLTST AA grdg to slty vfg brn SS AA
20% SH brn-mrn blky sl slty occ ANHY incl
3170-3180 50% SS AA abun vfg-fg lse gr
30% SLTST AA
20% SH AA
3180-3190 40% SH brn-redbrn occ gn str plty slty ip ncalc cht frags brn
10% SS AA
50% SLTST brn arg carb incl
3190-3200 40% SS orng vfg sbrnd arg wsrt calc occ lse Ca sd
30% SH AA
30% SLTST AA some redbrn
3200-3210 40% SS AA some wh-gy
40% SH brn occ redbrn blky-plty sl slty ncalc some not w/ gyp
20% SLTST redbrn arg sdy ip calc some mica

3210-3220 50% SS AA wh-gy vfg sbrnd wsrt calc/arg cmt occ glauc incl
30% SH AA
20% SLTST AA
3220-3230 60% SS orng-orngbrn vfg sbrnd-sbang wsrt arg cmt fri ncalc occ dk mnrl & mica incl wh vfg-slty sbrnd fri calc glauc incl cht frag clr
20% SLTST AA
20% SH AA wh calc ptgs & LS nod ltgy
3230-3240 60% SS AA
10% SLTST AA
30% SH brn plty some slty ncalc gn str sl calc ANHY incl
3240-3250 60% SLTST orngbrn-brn arg sdy ip mica ip dk mnrl incl some calc varg plty
10% SH brn pred smth plty ncalc
30% SS AA
3250-3260 70% SLTST AA
20% SH AA some mrn mot ANHY ptgs
10% SS AA
3260-3270 90% SLTST AA gyp ptgs & frac
10% SH AA
3270-3280 80% SLTST brn-orngbrn arg w/ sdy str some varg plty ncalc occ mica flk & dk mnrl incl gyp ptgs & fl frac
20% SH brn pred smth splty-plty occ slty & mica
3280-3290 90% SLTST AA str wh-ltgy vfg-slty ncalc ANHY ptgs & incl
10% SH AA
3290-3300 100% SLTST AA shy strg AA
3300-3310 100% SLTST orng arg vfg sdy ip ncalc occ dk mnrl incl ANHY ptgs & fl frac shy str sil hd
3310-3320 100% SLTST AA gyp ptgs incr arg sl calc
3320-3330 100% SLTST AA shy str
3330-3340 90% SLTST AA some brick red some mica some sdy str ANHY incl & ptgs
10% SH brn blky slty
3340-3350 100% SLTST redbrn-orng arg some shy strg ncalc ANHY ptgs sdy str gn wh vfg-slty
3350-3360 100% SLTST AA str wh mrn mot
3360-3370 90% SLTST AA
10% SH brn slty ip blky-plty ncalc
3370-3380 100% SLTST AA str SH AA
3380-3390 90% SLTST AA
10% SH AA ANHY incl
3390-3400 100% SLTST redbrn occ orng arg some plty occ dk mnrl incl ANHY incl shy str
3400-3410 90% SLTST AA some str gn sdy vfg-slty arg
10% SH brn plty-splty slty ip
3410-3420 80% SLTST orngbrn AA
20% SH AA
3420-3430 90% SLTST AA
10% SH AA
3430-3440 90% SLTST AA
10% SH AA

3440-3450 100% SLTST AA
3450-3460 100% SLTST brn-orngbrn arg dk mnrl incl mica flk ncalc occ ANHY incl
3460-3470 100% SLTST AA sdy ip shy str
3470-3480 90% SLTST AA incr ANHY incl
10% SH brn slty blky
3480-3490 100% SLTST AA str SH AA
3490-3500 100% SLTST brn-orngbrn arg sdy ip abun carb incl ANHY incl shy strg brn pred smth plty
3500-3510 40% SLTST AA some gn sdy calc
60% SH brn slty ip ncalc carb incl gn mudst sft
3510-3520 100% SLTST AA shy strg
3520-3530 30% SLTST orngbrn-brn varg sdy ip ncalc
60% SH brn sl slty fis ncalc some carb incl ANHY incl
10% SS ltgn-ltgy vfg-slty sil cmt frm ncalc carb incl some varg
3530-3540 40% SH AA
60% SLTST AA strg SS AA
3540-3550 20% SH AA
80% SLTST AA some sdy strg ANHY incl
3550-3560 30% SH AA
70% SLTST AA
3560-3570 60% SLTST orng brn arg sl calc ip p-p carb incl strg slty SS lt gn-ltgy vfg-slty sil cmt some calc frm
40% SH orngbrn-brn plty pred smth ncalc
3570-3580 80% SLTST AA some mica strg SS vfg-slty arg
20% SH AA
3580-3590 80% SLTST AA incr carb incl & sdy strg
20% SH AA
3590-3600 100% SLTST brn varg p-p carb incl sl calc ip some sdy
3600-3610 90% SLTST AA some sil plty
10% SH brn smth-slty some v mica occ ANHY incl
3610-3620 80% SLTST AA
20% SH AA
3620-3630 80% SLTST brn arg ANHY incl carb incl
20% SH AA
3630-3640 90% SLTST AA some abun carb incl
10% SH brn pred plty some slty ncalc occ carb incl
3640-3650 80% SLTST AA some orng brn sdy str
20% SH AA incr blky
3650-3660 80% SLTST AA some sdy
10% SH brn pred smth plty ncalc
10% SS orng vfg-slty arg cmt carb incl
3660-3670 80% SLTST brn varg plty ncalc v mica calc incl
10% SH AA
10% SS AA
3670-3680 90% SLTST AA occ ANHY incl
10% SH AA
tr SS AA
3680-3690 90% SLTST brn-orngbrn AA

	tr	SS	AA
	10%	SH	AA
3690-3700	100%	SLTST	AA
3700-3710	100%	SLTST	AA
3710-3720	100%	SLTST	orngbrn-brn arg some grdg to vfg SS ncalc mica ip occ carb incl occ ANHY incl some brn shy strg
3720-3730	100%	SLTST	AA some sil cmt fm-hd
3730-3740	100%	SLTST	AA incr brn brn shy strg
3740-3750	100%	SLTST	AA incr ANHY incl some mrn shy strg w/ ANHY incl
3750-3760	100%	SLTST	AA
3760-3770	90%	SLTST	brn-orngbrn arg some grdg to vfg SS carb incl some mica some sl calc
	10%	SH	brn pred smth plty occ sl calc
3770-3780	90%	SLTST	AA occ ANHY incl
	10%	SH	AA
3780-3790	10%	SH	AA
	90%	SLTST	AA incr arg plty occ ANHY incl
3790-3800	90%	SLTST	pred brn varg occ sdy mica carb incl occ ANHY incl
	10%	SH	brn sl slty plty occ mica ncalc
3800-3810	100%	SLTST	AA incr mica strg SH AA
3810-3820	100%	SLTST	AA incr ANHY & mica
3820-3830	100%	SLTST	AA sdy strg
3830-3840	100%	SLTST	brn arg plty ip mica carb incl ncalc sdy strg ANHY ptgs & incl brn shy strg
3840-3850	90%	SLTST	AA
	10%	SH	brn plty-splty ncalc
3850-3860	100%	SLTST	brn some varg mica ANHY incl sdy strg
3860-3870	100%	SLTST	AA
3870-3880	100%	SLTST	AA ANHY incl carb incl cht frag clr
	tr	LS	brn-gy dns crpxl sil
3880-3890	100%	SLTST	AA
3890-3900	100%	SLTST	AA incr carb incl
3900-3910	100%	SLTST	brn arg mica carb incl ncalc ANHY ptgs & incl some shy
	tr	LS	AA
3910-3920	80%	SLTST	AA sdy strg
	20%	SH	brn-redbrn-occ gn pred smth plty ncalc
3920-3930	80%	SLTST	AA
	20%	SH	AA
3930-3940	10%	SH	AA some gn plty wxy
	90%	SLTST	AA strg SS wh-lt gygn vfg-slty sl calc sil cmt p-p glauc incl
3940-3950	90%	SLTST	brn arg blky ncalc p-p carb incl
	10%	SH	AA
3950-3960	70%	SLTST	AA varg ANHY incl some mica
	30%	SH	brn-orngbrn plty-splty smth
3960-3970	80%	SLTST	AA
	20%	SH	AA

3970-3980 90% SLTST AA
10% SH AA

3980-3990 100% SLTST brn-orngbrn arg occ shy p-p carb incl ncalc
strg SS ltgy vfg-slty wsrt arg

3990-4000 100% SLTST incr orngbrn AA some mica occ calc ptgs arg
brn shy strg

4000-4010 60% SLTST brn arg mica some sdy ncalc carb incl
40% SH brn-orngbrn splty-plty sl slty carb incl ncalc
orng cly ptgs strg SS AA

4010-4020 40% SLTST AA
50% SH AA some mudst mrn mot sft ANHY incl
10% SS wh-ltgy vfg-slty

4020-4030 30% SLTST AA strg SS AA
70% SH AA

4030-4040 30% SLTST AA incr arg
70% SH brn slty ip plty-blky ncalc some gn mudst some
wxy frm ANHY incl & ptg

4040-4050 30% SLTST redbrn-orngbrn varg carb incl ANHY incl
strg SS wh vfg-slty arg p-p carb incl
70% SH AA

4050-4060 40% SH brn-orngbrn smth-slty strg lt gygn slty SH
some mrn mudst ANHY incl-ptgs
60% SLTST AA incr mica SS strg AA

4060-4070 70% SLTST AA
30% SH AA

4070-4080 80% SLTST AA incr arg
20% SH AA

4080-4090 40% SH redbrn smth blky-splty ncalc some mrn mot ANHY
incl
60% SLTST redbrn-orngbrn arg some sdy abun mica flks

4090-4100 30% SH AA
70% SLTST AA

4100-4110 90% SH redbrn-brn sl slty blky-plty occ carb incl gn
slty strg
10% SLTST AA

4110-4120 50% SH AA some mrn ANHY incl-lt brn red mudst
40% SLTST brn varg sdy mica
10% SS pk-wh vfg-fg sbang-sbrnd sil cmt abun carb incl
occ vcg sbrnd-rnd gr

4120-4130 30% SH AA
50% SLTST AA
10% SS AA

4130-4140 20% SH AA pred brn plty
80% SLTST AA some sdy

4140-4150 40% SH AA some v slty
60% SLTST brn v arg some sdy occ p-p carb incl

4150-4160 100% SH orngbrn-brn smth plty some mica pl remains
some gn mudst slty strg

4160-4170 100% SH AA

4170-4180 100% SH AA
4180-4190 100% SH AA some SLTST strg orng-brn
4190-4200 40% SH brn-orngbrn smth plty
20% SLTST brn sdy arg some carb incl
40% SS wh vfg occ fg-cg sbrnd-sbang pred wsrt sil cmt wcmt some arg tite some carb incl occ cht frag & pbl
4200-4210 100% SH orng plty-blky occ carb incl & ANHY
tr SS AA
4210-4220 80% SH AA incr orngbrn ANHY ptgs
20% SLTST orngbrn varg sdy ip occ mica strg SS wh vfg AA
4220-4230 80% SH AA
20% SLTST AA
4230-4240 60% SLTST AA incr brn
10% SS clr lse cg gr sbrnd some fros
30% SH AA
4240-4250 50% SLTST brn v arg sdy ip mica abun sd gr AA ANHY incl
20% SS clr lse mg-vcg ang-rnd some cht frags some wh vfg sil cmt abun carb incl
30% SH brn-redbrn slty ip carb & ANHY incl abun CLYST ptgs orng sft sl calc ANHY
4250-4260 80% SLTST AA
10% SH AA
tr SS AA
10% CLYST AA
4260-4270 80% SLTST AA ANHY ptgs
20% CLYST orng sl calc sft-frm sl ANHY
tr SS cg AA
4270-4280 70% SLTST AA
30% CLYST AA
tr SS AA
4280-4290 70% SLTST orngbrn v arg occ sdy p-p carb incl shy
20% CLYST AA
10% SS clr-FE stn orng cg pred rnd some fros occ ang wsrt
4290-4300 60% SS clr-Fe stn orng mg-cg rnd some fros m wsrt
20% CLYST AA ANHY ptgs
20% SLTST AA
4300-4310 40% SS clr mg-cg rnd-sbrnd m wsrt uncons cht occ tan
30% SLTST AA
30% CLYST AA grdg to orng brn SH
4310-4320 60% SS AA
20% CLYST wh-orng ANHY ip sl calc
20% SLTST brn-orngbrn v arg occ mica carb incl
4320-4330 50% SS AA
10% CLYST AA
40% SLTST AA some shy
4330-4340 AA
4340-4350 AA
4350-4360 40% SS clr-FE stn orng cg-mg occ vcg sbrnd-rnd occ sbang-ang lse tr pyr
10% CLYST orng-wh sft-frm
50% SLTST AA

4360-4370 60% SLTST brn-orngbrn v arg ncalc occ mica carb incl
20% CLYST AA
20% SS AA
4370-4380 80% SS clr-mlky-Fe stn orng fg-cg occ vcg pred rnd-sbrnd some fros some/wh vfg-slty tite sil cmt tr dd blk stn nsofc asphaltic-carb
10% CLYST wh-orng sft ANHY
10% SLTST AA pyr ptgs thru
4380-4390 90% SS AA wh vfg AA
10% CLYST AA
4390-4400 40% SS AA in cly matrix SS grdg to wh ltgy-ltgygn vfg-fg occ mg arg ip some sil cmt tite carb incl dd blk asphaltic stn nsofc
40% SLTST brn-orng brn mica sdy ip some shy
20% CLYST wh-orng occ sd gr AA
4400-4410 60% SS clr-Festn orng-mlky fg-cg pred sbrnd lse
20% SLTST AA sdy occ ANHY ptgs wh xl
20% CLYST AA
4410-4420 50% SLTST AA ANHY ptgs wh xl
30% CLYST AA
20% SS clr-Fe stn vcg-cg some fros pred rnd-sbrnd lse
4420-4430 70% SS clr- Fe stn cg-vcg pred rnd-sbrnd lse occ sbang some fros occ CLYST ptgs
30% SLTST orng brn v arg sdy carb incl ANHY ptgs
4430-4440 80% SS AA
20% SLTST AA abun CLYST ptgs
4440-4450 100% SS wh-clr-orng mg-cg sbrnd-rnd some fros cht frag & pbl uncons some ltgy-wh vfg-fg sbang sil cmt carb incl pyr cly ptgs & ANHY ptgs
tr SLTST AA
4450-4460 100% SS lt gy-wh pred fg-slty w/ abun mg-cg sbang-sbrnd some uncons mg-cg some fros sbrnd-rnd sil cmt m-psrt dk brn-blk asphaltic stn nsofc pø cly ptgs wh pyr incl; strg SH brn-redbrn sl slty blky
4460-4470 90% SS AA psrt dd stn thru fø abun pyr abun cly ptgs incr cht frags gy occ ANHY
10% SH orngbrn pred smth blky-splty
4470-4480 70% SS AA some mg-cg sbrnd
30% SH AA
4480-4490 80% SS wh-mlky mg-vcg pred sbrnd-sbang m wsrt uncons cly ptgs wh thru pyr incl & ptg cht frags brn tr flor no cut
20% SH AA
4490-4500 100% SS pk-orng pred cg-vcg sbrnd-sbang uncons wsrt wh cly ptgs thru occ ANHY ptgs cht frags brn
4500-4510 100% SS AA wh-gy vfg-fg sbrnd-sbang wsrt p-fø sil cmt occ arg dd brn-blk stn asphaltic nsofc ANHY ptgs & mica flks cht brn thru cly ptgs wh-orng k-spar ptgs
tr SLTST brn arg occ sdy
4510-4520 100% SS AA abun cht brn some weathered
tr SLTST AA

4520-4530 100% SS AA abun cht & feldspar ptgs
4530-4540 AA
4540-4550 AA
4550-4560 90% SS clr-orng-Fe stn mg-cg sbrnd-sbang msrt some fros abun cht frags ANHY ptgs some orng vfg arg
10% SH brn slty carb incl
4560-4570 100% SS AA
4570-4580 100% SS AA cht brn-tan
tr SH AA
4580-4590 90% SS wh-orng-mlky mg-vcg sbrnd-ang uncons some cht frags some feldspar partings
10% SH AA
4590-4600 90% SS AA
10% SH brn-orngbrn slty ip occ carb incl
4600-4610 100% SS orng mg-fg sbrnd-rnd occ sbang uncons occ cht & pyr
4610-4620 100% SS AA
4620-4630 10% SLTST redbrn arg sdy some shy
80% SS orng fg-vfg sbrnd arg wsrt fri occ wh w/ glauc incl some SS AA w/ cly ptgs
10% SH brn sl slty ncalc slky-splty
4630-4640 30% SH AA
20% CLYST wh-orng sl slty frm
50% SS AA
4640-4650 100% SS orng-clr fg-cg sbrnd-ang msrt uncons cht brn-tan cly ptgs AA
4650-4660 100% SS orng fg-mg sbrnd-ang msrt uncons cht brn-orng
4660-4670 100% SS AA
4670-4680 90% SS AA cht frags some vfg arg cht frags smky-brn thru
10% SH brn-redbrn smth
4680-4690 AA
4690-4700 30% SH orngbrn-brn-redbrn splty-blky sl slty sl calc ANHY ptgs
30% SLTST orng v arg sl sdy mica ip ncalc
40% SS orng-clr mg-cg ang-sbrnd m wsrt uncons some sil cmt occ pyr incl cht brn-tan-clr qtz frags
4700-4710 10% SH AA
40% SLTST AA
50% SS AA
4710-4720 30% SLTST AA
10% SH AA
60% SS AA some vcg occ cly ptgs
4720-4730 30% SH brn-red slty ip occ sdy w/ ANHY incl
20% SLTST AA
50% SS AA
4730-4740 80% SS lt orng-clr mg-cg ang-sbrnd abun qtz frags uncons occ cly ptgs cht mlky-brn some weathered occ arg cmt
20% SLTST orng v arg sdy ip ark sl calc some v mica
tr SH AA occ ANHY ptgs clr
4740-4750 90% SS AA incr arg abun cht/qtz frags
10% SLTST AA some mica flks fld ptgs
4750-4760 AA

4760-4770 20% SH brn-red slty mica ip sdy grdg to
20% SLTST orngbrn v arg ark sdy ip occ ANHY ptgs
60% SS AA abun weathered cht frags
4770-4780 30% SH AA
20% SLTST AA
50% SS AA ark fld frags
4780-4790 70% SS lt orng-clr mg-cg occ vcg ang-sbrnd abun qtz/fld frags some arg cmt occ cly ptgs pred uncons cht mlky Fe stn weathered
20% SLTST orngbrn v arg ark abun mica flks
10% SH brn-mrn slty ip occ pl remains
4790-4800 90% SS AA abun cht AA
10% SLTST AA
4800-4810 AA abun cht AA
4810-4820 80% SS AA
20% SLTST AA
4820-4830 100% SS wh-orng fg-cg ang-sbang occ sbrnd ark abun qtz frags occ dd blk asphaltic stn nsofc pyr ptgs & incl tan cht frags
4830-4840 AA cly ptgs wh orng-brn str
4840-4850 90% SS AA cly ptgs wh orng mot occ fld abun cht tan-mlky some weathered
10% SH brn-orngbrn mica
4850-4860 90% SS AA
10% SH AA
4860-4870 100% SS clr-orng mg-vcg ang-sbrnd msrt abun qtz frags occ fld occ ANHY ptgs clr xl
4870-4880 100% SS AA incr orng incr fld tr dd stn nsofc some cht brn-tan occANHY clr xl
4880-4890 70% SS AA incr arg abun cht brn-tan frac
30% SLTST brn-orngbrn shy mica occ ark SS strg ANHY incl
4890-4900 70% SS AA
30% SLTST AA
4900-4910 100% SS orng-mlky mg-cg ang-sbrnd occ rnd uncons abun qtz frags some fld frags cht wh ANHY ptgs
tr SLTST AA
4910-4920 100% SS AA
4920-4930 100% SS AA cly ptgs wh occ pyr incl
4930-4940 100% SS AA incr cly ptgs wh occ mica flks
4940-4950 90% some SS AA pred clr-wh fg-cg sbrnd-ang some sil cmt pyr incl pred uncons abun dd blk-gnblk asphaltic stn nsofc cht & qtz frags clr-mlky
10% SLTST orngbrn-redbrn arg some sdy mica occ dd stn AA ANHY ptgs
4950-4960 AA incr cht frags
4960-4970 90% SS orng-clr fg-cg occ vcg sbrnd-ang pred uncons ark ip some mica flks tr dd stn AA cht orng-brn ANHY & cly ptgs thru
10% strg SH orngbrn-brn slty ncalc
4970-4980 100% SS AA incr ark occ fld ptgs cht mlky abun vcg qtz frags
tr SH AA

4980-4990	80%	SS AA cly ptgs wh-orng sl calc
	20%	SH orng brn smth ncalc sft some grdg to shy SLTST
4990-5000	80%	SS orng vcg ang-sbang arg cmt? uncons ark abun qtz frags fld ptgs orng-smky cht frags
	20%	SLTST brn v arg mica ip ANHY ptgs
5000-5010	90%	SS AA occ pyr incl ark
	10%	SLTST AA
5010-5020	80%	SS AA
	20%	SLTST AA
5020-5030	70%	SS orng-clr mg-cg ang-sbrnd uncons qtz frags vcg cht frags ark ANHY ptgs
	30%	SLTST orng v arg mica abun cly ptgs ncalc
5030-5040	50%	SS AA cht frags tan-orng
	20%	SLTST AA
	30%	SH brn-redbrn slty ip some gy mot strg gy-gn some slty DOL ip
5040-5050	40%	SS AA
	30%	SLTST AA
	30%	SH AA
5050-5060	60%	SS orng fg-cg some vcg ang-sbrnd msrt uncons ark abun vcg qtz frags
	30%	SH redbrn-brn some pk CLYST some slty blky-plty some gn mot ANHY incl ncalc
	10%	SLTST brn v arg some mica sdy
5060-5070	40%	SS AA some wh-gy cht frags some dd asph stn
	30%	SLTST AA
	30%	SH AA
5070-5080	50%	SS AA mlky cht frags
	40%	SLTST orng v arg carb incl some mica ncalc orng cly ptgs
	10%	SH AA some orng smth plty ANHY incl
5080-5090	70%	SS orng-wh fg-cg abun vcg qtz frags sbrnd-ang pred uncons some sil cmt abun mlky-wh-orng some weathered cht frags tr dd blk asph nsofc stn
	30%	SLTST AA ANHY ptgs xl clr
5090-5100	60%	SLTST AA some orng vfg SS strg arg occ mica flks ANHY ptgs
	20%	SS AA orng arg cmt abun orng qtz frags
	20%	SH orng-brn slty blky ncalc
5100-5110	30%	SLTST brn-orngbrn-occ dk brn v arg v mica occ calc some sdy
	50%	SS orng-wh mg-cg pred ang some sbrnd uncons abun vcg qtz frags occ fld some mlky cht; tr wh vfg sbrnd wsrt calc cmt some asphaltic nsofc
	20%	SH AA ANHY incl
5110-5120	50%	SS AA abun cht tan weathered
	50%	SLTST AA tr SH AA
5120-5130	60%	SS AA tr wh vfg AA ANHY ptgs clr xl
	40%	SLTST AA
5130-5140	AA	some cly ptgs wh-orng sl calc
5140-5150	AA	

5150-5160 30% SH orngbrn-brn slty ip plty-blky some orng cly ptgs calc ip
50% SLTST orng brn v arg mica sdy ip ANHY incl & ptg
20% SS scat lse gr mg-cg sbang-ang some tan v mlky cht frags weathered
5160-5170 20% SH AA
10% SS AA
70% SLTST AA
5170-5180 30% CLYST purp-mrn sft ANHY nod & incl scat sd gr fg
20% SH AA pred brn
40% SLTST AA
10% SS AA
5180-5190 10% SS clr-orng sbrnd fg-cg some arg cmt some dd blk asphaltic stn pred uncons
50% SLTST AA
10% SH AA
30% CLYST AA
5190-5200 50% SLTST orng v arg sdy ip mica ncalc
20% SH brn smth plty fine mica ncalc
20% SS AA
10% CLYST AA
5200-5210 10% SH AA cly ptgs orng calc
70% SLTST AA ANHY ptgs wh xl
20% SS orng-wh mg-cg occ vcg ang-sbrnd uncons ark ip qtz frags occ cht tan
5210-5220 90% SLTST AA some sdy ANHY ptgs thru clr-xl
10% SS AA orng cly cmt ip some wh vfg sbrnd-rnd v wsrt arg cmt some mica flks carb incl wh cly ptgs
5220-5230 50% SLTST orng-orngbrn v arg some mica carb incl
20% SH orng brn occ brn smth blky ncalc tr pl remains ANHY ptgs & incl
30% SS AA abun cht mlky-orng tr dd blk stn nsofc
5230-5240 40% SS orng-lt orng mg-vcg ang-sbrnd thru occ rnd-sbrnd arg cmt ip some sil cmt ark pred uncons tr dd blk asphaltic stn nsofc occ wh vfg sbrnd wsrt calc cmt dd stn AA
40% SLTST AA
20% SH AA
5240-5250 60% SS AA cht mlky-orng/qtz clr frags thru some orng cly ptgs calc
30% SLTST AA some v sdy
10% SH AA
5250-5260 60% SS AA incr vcg qtz frags & cht incr arg cmt
30% SLTST AA
10% SH brn-mrn slty ip blky ncalc
5260-5270 70% SS clr-lt orng pred cg-vcg some mg pred ang-sbang uncons occ arg cmt wh-orng cly ptgs ark tr dd stn nsofc
30% SLTST orng brn varg sdy mica
tr SH AA
5270-5280 80% SS AA some weathered cht mlky-smky tr pyr clus

	20%	SLTST AA occ ANHY incl
5280-5290	50%	SLTST orng-redbrn varg sdy mica ANHY ptgs
	40%	SS AA ANHY ptgs orng cly cmt ip
	10%	SH mrn-brn slty ip blky some grdg to CLYST sl calc
5290-5300	20%	SH AA
	40%	SLTST AA
	40%	SS AA abun weathered cht orng-mlky
5300-5310	60%	SLTST AA orngbrn-redbrn varg sdy ip mica calc ip occ ANHY ptgs wh fine xl tr pl remains
	20%	SH brn-redbrn-orngbrn plty-blky slty ip sft ncalc
	20%	SS AA cht tan-mlky some weathered
5310-5320	40%	SLTST AA ANHY ptgs & incl wh xl
	50%	SS clr-mlky-orng mg-cg sbang uncons abun cht thru tr dd blk asphaltic stn nsofc
	10%	SH AA tr gn wxy blky w/ dd stn in frac
5220-5230	100%	SS clr-lt orng mg-cg abun vcg qtz frags pred ang-sbang uncons occ cht frags mlky some mica flk
5330-5340	90%	SS AA some arg ark cht AA some orng
	10%	SLTST brn varg mica some ANHY
5340-5350	80%	SS AA some wh fg sil cmt mica strg
	20%	SLTST AA
5350-5360	80%	SS AA wh fg AA pyr incl cht thru tan
	20%	SLTST AA some sdy
	tr	SH brn smth splty some gn mot tr LS gy micxl
5360-5370	70%	SS clr-orng fg-vcg ang-sbrnd pred uncons some orng cly cmt calc, calc ptgs some gn-wh fg SS
	20%	SLTST AA ANHY incl
	10%	SH AA occ sd gr tr LS AA
5370-5380	20%	SH brn-redbrn smth blky mica ip ANHY ptgs clr xl thin strg LS wh-ltgy micxl-chk frm
	30%	SLTST redbrn-brn varg sdy mica
	50%	SS AA
5380-5390	10%	SH AA
	20%	SLTST AA
	70%	SS AA some sh fg occ mg-cg sbang-ang msrt calc cmt/ sil cmt occglauc incl cht tan
5390-5400	10%	SS AA wh fg AA
	60%	SLTST orngbrn varg some sdy mica sl calc
	30%	SH AA
5400-5410	50%	SS clr-orng mg-cg some vcg ang-sbrnd pred uncons some arg cmt mica ip cht frag orng-mlky frac
	40%	SLTST AA
	10%	SH AA some gn mot ANHY ptgs clr xl
5410-5420	60%	SS AA some sil cmt occ carb incl
	30%	SLTST AA some v sdy
	10%	SH AA
5420-5430	80%	SS AA
	10%	SLTST AA
	10%	SH AA
5430-5440	90%	SS orng-clr fg-cg ang-sbang occ sbrnd uncons some arg cmt lse mica biotite flks wh orng calc ptgs thru

	10%	SH & SLTST AA
5440-5450	90%	SS AA
	10%	SLTST AA
5450-5460	10%	SH brn-redbrn slty blky-splty occ ANHY acic xl clr
	60%	SLTST orngbrn-brn varg sdy mica
	30%	SS AA some slty arg cmt arg wh calc ip occ LS wh-brn-orngbrn-gybrn micxl sl arg nod
5460-5470	50%	SS clr-ltorng fg-cg some v cl qtz frags ang-sbang some sil cmt glauc incl some mlkycht frags
	30%	SLTST AA
	10%	SH AA occ ANHY incl
	LS	AA
5470-5480	20%	SS AA some sil cmt orng-wh arg calc ptgs
	60%	SLTST orngbrn varg mica calc tr pl remains
	20%	SH orngbrn-brn pred smth fine mica flks thru some sl calc
5480-5490	10%	SS AA
	80%	SLTST AA
	10%	SH AA
5490-5500	AA	
5500-5510	90%	SLTST AA
	10%	SH AA
	tr	SS AA
5510-5520	70%	SS ltgy-wh fg occ mg sbrnd-abang mwsrt some cg qtz gr & frag sil cmt occ arg cmt some uncons abun dd blk asphaltic stn nsofc cly ptgs wh calc some mica occ glauc
	30%	SLTST orngbrn sdy varg mica
5520-5530	90%	SS some AA incr pred uncons mg-cg sbrnd-abang some rnd mwsrt sl stn AA occ orng-gy cht frags
	10%	SLTST AA
5530-5540	100%	SS wh-clr pred mg-cg sbang occ fg few vca sbrnd-sbang mwsrt pred uncons occ sil cmt occ dd stn AA occ tan cht tr glauc
5540-5550	70%	SS AA
	30%	SLTST orngbrn some sdy arg mica some shy
5550-5560	80%	SS AA pred Ca incr glauc incl incr dd stn blck asphaltic nsofc
	20%	SLTST AA
5560-5570	80%	SS AA
	20%	SLTST AA incr shy
5570-5580	80%	SS orng-wh mg-cg ang-abrnd mwsrt pred uncons some arg cmt some fg slty arg cmt
	10%	SLTST AA
	10%	SH orngbrn-brn some slty blky sl-ncalc occ gn mot
5580-5590	80%	SS AA incr wh-clr some glauc incl incr dd stn AA occ cht tan-orng-gy some weathered
	10%	SH AA gn mica
	10%	SLTST orng-brn-redbrn varg some sdy mica
5590-5600	70%	SS AA some sil/arg cmt
	20%	SLTST AA
	10%	SH AA

5600-5610 70% SS wh-clr some lt orng mg-cg ang-sbang occ sbrnd mwsrt pred uncons occ sil cmt tr glauc incl dd blk asphaltic stn thru nsofc cht pk-smky
10% SLTST AA
20% SH orngbrn-brn pred smth some slty mica some calc incl

5610-5620 80% SS AA decr dd stn
10% SH AA occ orngbrn LS nod micxl
10% SLTST AA

5620-5630 AA

5630-5640 70% SS AA abun glauc incl
10% SLTST orngbrn varg mica some sdy
20% SH AA

5640-5650 80% SS AA some arg cmt cht tan-gybrn-mlky
10% SLTST AA
10% SH AA some ANHY incl nod LS tan micxl

5650-5660 30% SH orng-orngbrn occ brn pred smth some finely mica ncalc LS nod AA
10% SLTST AA
60% SS clr-mlky-ltorng mg-cg msrt pred uncons some arg cmt abun smky-mlky cht

5660-5670 20% SH AA some gn CLYST sil ip
30% SLTST AA some brn v mica (weathered schist?)
50% SS AA abun calc arg cmt & abun ptgs some glauc incl pyr clus

5670-5680 30% SH AA
10% SLTST brn-redbrn varg mica sdy ip grdg to arg SS
60% SS some AA abun brn mg ang abun brn arg cmt

5680-5690 20% SH orngbrn-mrn blky some finely mica
40% SLTST orngbrn varg occ sdy some v mica some carb incl
40% SS AA tr LS nod gy micxl

5690-5700 60% SS clr-mlky-ltorng mg-cg sbang-ang occ sbrnd mwsrt pred uncons some sil cmt occ cly ptgs some glauc incl
20% SLTST AA
20% SH AA

5700-5710 50% SS AA cht orng-tan tr dd blk asph stn nsofc
20% SLTST AA
30% SH AA some mrn mot w/ ANHY

5710-5720 50% SS AA
20% SLTST AA
30% SH AA some brn smth blky

5720-5730 60% SS wh-ltorng fg-mg vcg-cg qtz frags ang-sbrnd pred uncons some arg cmt
20% SLTST AA
20% SH AA

5730-5740 20% SH brn pred smth blky sl calc some ltbrn w/ gn mot
30% SLTST orngbrn varg some mica calc & calc incl some sdy
50% SS AA

5740-5750 30% SH AA some mrn slty ANHY incl
50% SLTST AA
20% SS AA abun cht frags

5750-5760 100% SLTST orngbrn-redbrn arg sl sdy mica calc strg SS wh-ltgygn vfg sbrnd wsrt sil cmt carb incl
5760-5770 50% SLTST AA some dkbrn some ANHY incl
40% SS brn arg cmt w/ clr-ltorng mg-cg ang-sbrnd occ wrnd pred uncons some dk gy cht
10% SH orngbrn-brn smth some mica ncalc
5770-5780 100% SS AA
5780-5790 10% SS AA
60% SLTST AA calc incl & ptgs wh chk-xl
30% SH AA
5790-5800 30% SH brn-orngbrn blky smth mica ip ncalc
60% SLTST orngbrn varg sdy ip mica ncalc w/ occ calc incl LS ptgs wh-brn micxl (nod)
10% SS AA cht frags lt orng
5800-5810 20% SH AA
60% SLTST AA
20% SS AA cht
5810-5820 10% SH AA
60% SLTST AA calc ptgs
30% occ SS ltgn-wh vfg sbrnd wsrt wcmt sil cmt pred clr-ltorng mg-cg occ vcg sbang-ang uncons some sil cmt glauc incl tr pyr clus cht gy-mlky
5820-5830 70% SLTST orngbrn-brn some varg sdy mica calc & calc incl grdg to slty SS
20% SS AA
10% SH AA
5830-5840 20% SH brn-orngbrn smth blky occ slty finely mica
70% SLTST AA sdy
10% SS AA
5840-5850 90% SLTST AA
10% SH AA
5850-5860 20% SH redbrn-brn occ arngbrn smth plty-blky some finely mica cly ptgs orng calc (CLYST?)
80% SLTST redbrn-orngbrn varg mica ip sdy strg
5860-5870 20% SH AA
80% SLTST AA
5870-5880 10% SH AA abun cly ptgs AA
90% SLTST AA pred orngbrn
5880-5890 10% SH AA
90% SLTST AA occ ANHY incl
5890-5900 30% SS clr-otorng mg-cg ang-sbrnd mwsrt pred uncons occ arg cmt calc incl
70% SLTST orngbrn & arg mica sdy strg occ p-p carb incl
5900-5910 40% SS AA
50% SLTST AA
10% SH brn-redbrn blky-plty some v mica
5910-5920 30% SS AA some cht wh-gy-ltgygn fg sbrnd wsrt sil cmt
60% SLTST AA
10% SH AA occ ANHY incl

5920-5930 30% SS AA occ wh mg sbang wsrt sil cmt glauc incl
60% SLTST AA
10% SH AA
5930-5940 10% SH redbrn-brn slty ip blky fis
70% SLTST orngbrn varg sdy ip calc incl occ mica flks
20% SS AA some sil cmt
5940-5950 40% SLTST AA
60% SS wh-ltorng pred mg ang-sbrnd wsrt pred uncons some sil/arg cmt occ calc some glauc incl occ cht/qtz frags smky-clr
tr SH AA
5950-5960 40% SS AA incr arg cmt
60% SLTST AA
5960-5970 70% SLTST orngbrn varg sdy ip mica some grdg to slty SS
10% SS AA cly ptgs orng-wh calc ip tr CLYST gn sdy slty
20% SH orngbrn splty sl slty
5970-5980 80% SLTST AA calc incl
10% SH AA
10% SS AA
5980-5990 60% SS pred clr-mlky occ lt orng mg-cg ang-sbang occ sbrnd some qtz frags vcg pred uncons occ sl sil cmt some arg cmt w/ occ dk mnrl fri fg-mg AA nsofc
30% SLTST AA
10% SH AA
5990-6000 90% SS AA
10% SLTST AA
6000-6010 100% SS AA incr sbrnd
6010-6020 100% SS lt orng-clr mg-cg occ fg sbrnd-sbang uncons mwsrt occ cly ptgs
6020-6030 60% SS AA some clr fg-mg sbang sil cmt tr dd asph. stn glauc incl
30% SLTST orngbrn varg mica calc sdy ip
10% SH brn-orngbrn smth blky mica ip cht frags orng
6030-6040 70% SS AA pred clr uncons AA
30% SLTST AA
6040-6050 AA
6050-6060 90% SS orng-clr mg-cg pred sbang mwsrt uncons occ orng arg cmt occ glauc incl
10% SLTST orngbrn varg mica sl calc
6060-6070 70% SS AA some wh fg sbang sil cmt glauc incl tr dd blk asph. stn nsofc occ pyr clus abun calc & cly ptgs cht frags gy
30% SLTST AA
6070-6080 80% SS AA some sil cmt some vcg cht clr-gy
20% SLTST AA
6090-6100 60% SS lt orng-clr mg-cg some vcg sbrnd-ang pred uncons msrt occ sil occ mica flk/ occ glauc incl arg cmt calc ptgs clr xl cht gy
30% SLTST orngbrn-brn varg mica calc incl sdy ip calc ip
10% SH brn-redbrn slty ip mica
6100-6110 60% SLTST brn-orngbrn varg occ mica

	10%	SH brn-redbrn pred smth blky some splty mica ip
	30%	SS orng-clr mg-cg ang-sbrnd mwsrt uncons
6110-6120	60%	SS AA occ clr mg sbang sil cmt tr dd asph. stn
	40%	SLTST AA
	tr	SH AA
6120-6130	30%	SS AA
	50%	SLTST AA incr mica
	20%	SH AA
6130-6140	30%	SH orngbrn smth some slty mica occ gy-gn CLYST sft
	60%	SLTST orngbrn varg mica calc ip
	10%	SS gy-wh fg occ mg sbrnd-sbang wsrt calc cmt fri some dd blk asphaltic stn nsofc
6140-6150	20%	SS AA incr mg incr sil cmt fri occ glauc incl
	60%	SLTST AA
	20%	SH orngbrn-brn smth some fine mica
6150-6160	40%	SS clr occ orng mg-cg occ vcg sbrnd-sbang pred uncons some fg-mg sil cmt fri some glauc incl some calc ptgs
	60%	SLTST redbrn-brn varg mica some dk brn sil
	10%	SH AA some gn CLYST sdy swelling some gy sil
6160-6170	70%	SS AA pred clr some fg-mg some dd blk asphaltic stn nsofc
	30%	SLTST AA
	tr	SH AA
6170-6180	90%	SS clr cg-mg some fg-vfg sbrnd-ang msrt some sil/arg cmt abun uncons in spl abun galuc incl some dd blk asphaltic stn nsofc tight some dkgy fg sbang sil/arg cmt wcmt pyr incl
	10%	SLTST AA some gy arg m-wcmt
6180-6190	80%	SS AA abun glauc incl some gy-smky cht
	10%	SLTST redbrn-brn arg some calc incl mica occ CLYST pk-redbrn sft
6190-6200	60%	SS AA
	30%	SLTST AA
	10%	SH redbrn smth blky mica
6200-6210	30%	SS clr-smky mg-cg sbang-ang mwsrt uncons
	50%	SLTST AA
	20%	SH AA
6210-6220	70%	SS AA some sil cmt occ calc abun glauc incl dd blk asphaltic stn thru nsofc some redbrn arg cmt w/ mg-cg
	30%	SLTST & SH AA
6220-6230	100%	SS clr-mlky occ lt orng fg-mg occ cg ang-sbrnd mwsrt uncons occ pyr clus occ sil cmt abun dd blk asphaltic stn some cht frags smky
6230-6240	100%	SS AA decr dd stn AA
6240-6250	100%	SS AA tr dd stn AA
6250-6260	10%	SH orngbrn-brn smth blky-splty some fine mica ncalc
	30%	SLTST orngbrn varg mica some sdy
	60%	SS AA some sil cmt
	tr	CLYST gn mica some sdy
6260-6270	10%	SH AA
	20%	SLTST AA

70% SS mlky-lt orng fg-mg v occ cg sbrnd ang-abang occ sbrnd mwsrt uncons in spl occ sil cmt pyr clus cht gy-tan

6270-6280 10% SH AA
20% SLTST AA some v sdy
70% SS AA some dd blk asphaltic stn nsofc some redbrn arg cmt

6280-6290 10% SH redbrn-orngbrn blky-splty smth mica ip
60% SLTST orngbrn varg mica some sdy
tr CLYST gn wxy ip occ sd gr
30% SS clr-mlky-lt orng mg-cg sbrnd-sbang occ sil cmt some arg cmt pred uncons in spl occ pyr clus

6290-6300 AA

6300-6310 tr SH AA
40% SLTST brn-redbrn varg some shy mica
60% SS clr occ lt orng fg-mg sbrnd-abang uncons in spl

6310-6320 10% SLTST orngbrn varg mica occ calc
90% SS AA

6320-6330 90% SS mlky-clr occ lot orng mg-cg pred sbrnd-sbang occ sil cmt pred uncons in spl occ dd blk asphaltic syn nsofc cht mlky
10% SLTST AA

6330-6340 90% SS AA
10% SLTST AA

6340-6350 30% SLTST orng-orngbrn varg mica ip sdy ip grdg to slty SH
70% SS AA some sil cmt cht frags orng-tan abun wh cly ptgs calc tr dd stn AA

6350-6360 90% SS mlky-clr cg-vcg occ fg-mg pred sbrnd-abang some sil cmt glauc incl pred uncons in spl some tan cht frags dd blk asphaltic stn thru nsofc
10% SLTST AA
tr LS ptgs pk-redbrn sl arg micxl

6360-6370 50% SLTST brn occ redbrn shy ip v mica grdg to
10% SH brn-redbrnblky mica slty ip some smth splty
40% SS AA incr orngbrn arg/sil cmt occ wh cly ptgs calc ip
tr LS AA

6370-6380 10% SH AA
70% SLTST AA
20% SS AA

6380-6390 30% SS redbrn pred fg-mg sbang arg some sil cmt tr SS AA abun cly ptgs wh-redbrn calc
30% SLTST AA
40% SH redbrn-brn v mica some slty blky occ redbrn smth blky

6390-6400 30% SS AA some clr mg-fg sbrnd-ang lse gr
50% SLTST orngbrn arg p-p carb incl calc ip mica
20% SH AA some gybrn-mrn smth splty

6400-6410 40% SS clr-smky-mlky pred mg-cg occ fg ang-sbrnd msrt some sil cmt calc ip some vcg qtz frags some cht smky
40% SLTST AA
20% SH AA
6410-6420 10% SS AA
80% SLTST AA incr mica
10% SH AA
6420-6430 40% SH redbrn-brn splty-blky some v mica ncalc
60% SLTST orngbrn-redbrn varg mica occ sdy calc strg SS wh-ltgn vfg sbrnd wsrt wcmt calc carb incl occ glauc incl w/ asspc gn CLYST ptgs tr dd blk stn nsofc
6430-6440 30% SH AA tr gy SH calc smth frm-hd (sil?)
70% SLTST AA
tr SS AA
6440-6450 30% SS clr-mlky mg occ fg sbang-sbrnd occ ang wsrt uncons in spl tr dd blk asphaltic stn occ cht smky
50% SLTST AA
20% SH AA
6450-6460 40% SH brn-redbrn smth occ fine mica
50% SLTST orngbrn varg v mica ip some sdy sil cmt hd
10% SS AA
6460-6470 20% SH AA
70% SLTST AA
10% SS wh fg sbrnd-sbang wsrt sil cmt some intstl cly tr dd blk asphaltic stn nsofc
6470-6480 10% SH AA
60% SLTST AA
30% SS AA some mlky mg-cg ang-sbrnd mwsrt uncons in spl
6480-6490 20% SH AA
60% SLTST AA
20% SS AA some glauc incl some smky-gy cht frags tr dd stn AA
6490-6500 20% SH brn-redbrn pred smth plty-splty some calc
70% SLTST brn-orngbrn varg sdy ip some mica
10% SS AA
6500-6510 10% SH AA
50% SLTST AA
40% SS AA some wh fg occ mg sbang sil cmt wsrt wcmt some intstl cly tight occ dd slk asphaltic stn nsofc
6510-6520 80% SS mlky-clr mg-cg sbrnd-ang mwsrt pred uncons in spl tr glauc incl occ sil cmt tight some dd blk asphaltic stn some stn in frac cht nsofc
20% SLTST AA
6520-6530 60% SS AA incr cg-vcg incr glauc incl some sil cmt w/ intstl cly & cly ptgs tight
40% SLTST redbrn varg sdy ip mica ip
6530-6540 60% SS AA
20% SLTST AA
20% SH orngbrn-ltbrn smth ip plty-splty mica ip

6540-6550 20% SS AA
50% SLTST AA
30% SH AA
6550-6560 10% SS AA
60% SLTST AA
30% SH AA
6560-6570 60% SS mlky-clr mg-cg sbrnd-ang mwsrt pred uncons in spl some sil cmt w/ intstl cly & slty cly ptgs some mica incl some dd blk asphaltic stn nsofc smky-tan cht thru
30% SLTST AA incr brn-redbrn
10% SH AA
6570-6580 40% SS AA incr dd stn pred cg-vcg
60% SLTST redbrn-brn varg mica sdy ip some v calc some shy
6580-6590 20% SS AA
60% SLTST AA
20% SH redbrn-brn slty ip some finely mica grdg to shy SLTST
6590-6600 30% SS smky-mlky-clr mg-cg some vcg sbrnd-sbang some ang msrt pred uncons in spl some sil cmt w/ intstl cly & cly ptgs dd blk asph stn nsofc occ SH gy mica sil
20% pred SH AA
50% SLTST AA some calc incl
6600-6610 30% SS AA some gy-wh vfg-slty calc tr stn AA
50% SLTST brn-mrn-orng arg-varg vfg sdy ip mica calc & calc incl hd grdg to slty arg vfg to fg SS
20% SH brn-orngbrn slty ip plty-splty calc ip & calc incl some mica
6610-6620 20% SS AA some SS gybrn-gygn vfg some slty sbrnd-abang v wsrt calc cmt some glauc incl dd blk asphaltic stn in pores & frac nsofc some lt orng fg occ mg sbang sil cmt
70% SLTST AA
10% SH AA
6620-6630 10% SS AA abun clr-mlky vcg gr & frag
70% SLTST AA some sdy strg
20% SH brn smth splty-blky calc ip some gy-gn mot
6630-6640 10% SS vcg frag & gr AA
80% SLTST orngbrn-brn arg p-p carb incl mica calc sdy some sil cmt grdg to slty vfg SS
10% SH AA
6640-6650 100% SLTST AA some calc incl tr SH AA some sl slty
6650-6660 90% SLTST AA incr mica some wh vfg SS str
10% SH brn-orngbrn slty ip LS ptgs wh crpxl-chk
6660-6670 20% SLTST brn-orngbrn arg sdy calc & calc incl mica ip
80% SH brn-lt orngbrn splty-plty sl slty calc& calc incl some mica
ptgs LS ltbrn-gybrn micxl dns hd
6670-6680 60% SLTST AA some lt orng varg
40% SH AA some gybrn-gy gn w/ black sil LS nod micxl-crpxl dns v hd
6680-6690 80% SLTST AA some V mica

	20% SH AA
	LS ptgs brn-wh micxl
6690-6700	80% SLTST brn-orngbrn varg mica p-p carb incl calc & calc incl strg SS wh-brn vfg sbrnd calc fri wh calc ptgs some sl arg
	20% SH brn-dkbrn pred smth occ fine mica calc ip
6700-6710	80% SLTST AA
	20% SH AA
	abun LS ptgs brn-crm-wh micxl-crpxl v sl arg
6710-6720	50% SLTST AA
	30% SH brn pred smth splty-plty v calc
	20% LS brn-gybrn-gy-crm micxl-crpxl sl arg
6720-6730	60% SLTST ltbrn-lt orngbrn arg mica ip some sdy calc & calc incl
	30% SH AA calc incl
	10% LS AA
6730-6740	50% SLTST AA
	40% SH AA
	10% LS AA some wh chk
6740-6750	70% SLTST AA some sdy strg
	30% SH AA
	tr LS AA
6750-6760	80% SLTST AA
	20% SH AA some mica calc ptgs wh-crm chk
6760-6770	80% SLTST brn-orngbrn arg v mica calc & calc incl some SLTST crm-wh sl arg p-p carb incl calc sdy ip
	20% SH brn-redbrn slty ip splty some mica calc
6770-6780	90% SLTST AA strg SS wh-lt orng-lt gy vfg-slty sl calc sil cmt mica carb incl tr dd blk asph stn nsofc
	10% SH AA
6780-6790	20% SH brn-occ redbrn splty-blky some slty & v mica sl calc
	60% SLTST brn-ltbrn some varg some mica sl calc
	10% SS wh-ltgy-ltorng vfg-slty sbrnd-abang wsrt calc cmt ip wil cmt some mica tight tr dd blk stn nsofc
	10% LS pk-crm-brn micxl-crpxl dns hd arg ip
6790-6800	10% SH AA some gy wxy smth
	70% SLTST AA some v mica
	20% SS AA some fg
	tr LS AA
6800-6810	20% SH brn-redbrn smth blky some mica occ gy-gn smth wxy occ slty mica
	60% SLTST AA
	20% SS AA some orng-smky cht frags
	tr LS AA
6810-6820	10% SH AA some v mica
	60% SLTST brn-ltbrn-crm arg ip mica sdy grdg to
	30% SS crm-orng vfg-slty occ fg wsrt calc cmt arg ip calc sil/calc cmt tight
6820-6830	30% SH AA calc incl
	50% SLTST AA
	20% SS AA

6830-6840 10% SH AA some dk brn LS nod arg
60% SLTST AA
30% SS lt orng-crm-wh vfg-slty some fg pred sbrnd wsrt calc calc/sil cmt fri cht frags smky-gy
6840-6850 tr SH AA some dk gy plty sil
70% SLTST brn-lt orngbrn arg ip mica calc
30% SS AA
ptgs LS gy crpxl dns hd
6850-6860 10% SH brn slty ip plty-blky calc ip some mica
60% SLTST AA some sil cmt
30% SS AA some ltgy-gy vfg wsrt carb incl mica calc cmt
tr LS AA
6860-6870 10% SH AA incr mica
70% SLTST AA some sdy str
20% SS ltgy-wh occ lt orng vfg occ slty sbrnd-sbang wsrt calc sil cmt fri-hd occ p-p carb incl occ mica
6870-6880 tr SH AA
80% SLTST AA
20% SS AA incr mica some gn SS & CLYST
6880-6890 20% SS AA incr fg some wh-orng calc ptgs
80% SLTST AA
tr SH AA
6890-6900 10% SH redbrn-gybrn pred smth blky sl calc, calc ptgs
80% SLTST brn-redbrn arg ip mica ip calc grdg to slty SS
10% SS wh-clr fg-mg occ cg sbrnd-sbang sil cmt tight tr dd blk asph stn nsofc occ SS AA wh calc ptgs
6900-6910 20% SH AA some gy smth splty
50% SLTST AA
20% SS ltorng-wh vfg-slty wsrt calc cmt fri
10% LS gy-gybrn-lt brn crpxl dns hd arg ip
6910-6920 30% SH brn occ gy smth blky calc occ slty mica
40% SLTST AA
10% SS AA
20% LS AA slty ip
6920-6930 30% SH AA some gn wxy occ slty
50% SLTST AA
10% SS AA
10% LS AA
6930-6940 30% SH AA
40% SLTST orngbrn-brn arg ip some sdy calc
30% SS orng-crm-pk vfg-slty occ fg sbrnd-sbang pred wsrt calc cmt fri sl arg tight occ ptgs LS gy-gybrn crpxl dns hd
6940-6950 30% SH brn-redbrn pred smth some sl slty calc some sil
70% SLTST AA
tr SS AA
tr LS AA
6950-6960 20% SH AA some calc incl
70% SLTST brn arg-varg mica calc
10% strg SS lt orng brn vfg sbrnd-sbang wsrt occ ptgs LS

gy-gybrn-brn calc/sil cmt crpxl dns hd arg ip
6960-6970 10% SH AA some mica plty
90% SLTST AA some dk gn arg grdg to slty CLYST
tr SS AA
tr LS AA
6970-6980 tr SH AA
100% SLTST AA some sdy
6980-6990 30% SH brn pred smth fine mica calc
70% SLTST brn-orng brn arg mica sdy ip calc occ ANHY incl occ ptgs. LS redbrn-gybrn micxl-crpxl dns hd arg ip
6990-7000 70% SS clr-smky-mlky mg-vcg occ fg sbrnd-sbang occ ang msrt uncons in spl pyr incl occ weakly cmt w/ sil some intstl cly p-fø tr glauc incl some dd blk asph stn nsofc
30% SLTST & SH AA
7000-7010 100% SS AA pred fg-mg occ dd stn AA
7010-7020 100% SS AA occ pyr incl some mcmt w/ sil
7020-7030 40% SH brn-redbrn occ gn some slty calc ip
20% SLTST orngbrn-brn arg ip carb incl mica calc
40% SS clr-mlky mg-fg occ cg sbrnd-sbang msrt pred uncons in spl occ glauc incl some sil cmt frm tight pø dd blk asph stn nsofc
7030-7040 100% SS AA occ sl calc decr dd stn
7040-7050 100% SS AA some intstl cly
7050-7060 80% SS AA some vfg-fg sil cmt w/ intstl cly
10% SH redbrn-brn blky
10% SLTST orngbrn-brn arg mica sdy ip calc
7060-7070 10% SH AA occ gy fis ncalc
20% SLTST AA
70% SS AA occ glauc incl tr dd stn AA some vcg occ ptgs LS crm-orng micxl frm
7070-7080 10% SH orngbrn-brn occ gn-gy some mica
30% SLTST redbrn arg-varg mica ip some sdy
60% SS mlky-clr occ dkgy-gygn mg-cg occ vcg sbrnd-sbang uncons in spl some sil cmt occ glauc incl
occ ptgs LS brn micxl arg ip dns hd
7080-7090 10% SH AA
50% SLTST AA
40% SS AA occ fg-mg sil cmt fri some dd blk asph stn nsofc
7090-7100 20% SH brn-occ redbrn blky mica ip sl calc
40% SLTST AA
40% SS AA
occ ptgs LS gy-gybrn crpxl dns hd sl arg
7100-7110 10% SH AA
80% SLTST brn-lt orngbrn arg mica ip calc
10% SS ltgy-wh-lt gygn vfg-slty sbrnd wsrt calc cmt fri occ mica incl occ wh calc ptgs

7110-7120 10% SH AA
80% SLTST AA
10% SS AA
7120-7130 20% SH brn slty ip blky calc ip
80% SLTST AA some sdy
tr SS AA abun wh-orng cly calc
7130-7140 20% SH AA
60% SLTST AA
20% SS orngbrn-wh vfg-slty sbrnd-sbang wsrt calc pcmt w/ sil fri occ mica flks
7140-7150 20% SH AA incr mica
50% SLTST orngbrn-brn arg mica sdy ip calc
30% SS AA some arg incr mica occ glauc incl
7150-7160 20% SH brn-redbrn smth blky calc
50% SLTST AA
30% SS AA occ wh fg-mg sil cmt tr dd blk asph stn occ ptgs LS gy micxl dns hd
7160-7170 20% SH AA
70% SLTST AA
10% SS AA
7170-7180 20% SH AA
40% SLTST AA
40% SS wh-clr fg occ mg sbrnd-sbang m wsrt sl cmt w/ sil little intstl cly abun dd brn stn sl fldr no cut some mcmt w/ sil w/ some cly occ glauc incl
7180-7190 10% SH redbrn-lt orngbrn smth blky some mica
80% SLTST orngbrn some arg occ p-p carb incl calc
10% SS AA
7190-7200 30% SH AA
40% SLTST AA
30% SS wh-ltgy fg occ mg sbang-sbrnd pred wsrt calc cmt tight occ dd blky stn nsofc
7200-7210 20% SH AA some slty some ANHY incl occ gy sl slty sl calc
70% SLTST brn-orng varg ip some mica calc
10% SS AA incr mg some cg-vcg gr
occ LS gy micxl sl arg frm
7210-7220 20% SH AA incr gy mica ncalc some redbrn w/ gn mot
70% SLTST AA
10% SS AA
LS brn-wh micxl-xl frm-hd
7220-7230 10% SH AA some gn CLYST w/ stn fl frac
70% SLTST brn-orngbrn arg sdy ip some mica
20% SS wh-clr fg-mg sbrnd-sbang m wsrt sil cmt w/ occ intstl cly
tr LS AA
7230-7240 tr SH AA
10% SLTST AA
90% SS smky-lt orng mg occ cg ang-sbrnd pred wsrt pred uncons in spl occ sil cmt w/ intstl cly some dd blk

asph stn nsofc

7240-7250 40% SH ltbrn-brn-occ mrn sl slty some v mica
30% SLTST brn arg v mica calc ip
30% SS AA

7250-7260 60% SH AA occ ANHY incl
30% SLTST AA occ sdy
10% SS AA some wh-ltgy vfg sil cmt arg ip

7260-7270 80% SH lt redbrn-brn plty-blky some v mica sl calc occ gy blky carb incl
20% SLTST AA some mrn
calc ptgs wh-crm calc
thin strg SS AA ptgs LS gybrn micxl dns frm

7270-7280 80% SH AA some grdg to varg SLTST
10% SLTST brn varg v mica
10% strg SS clr mg sil cmt & occ redbrn cg-vcg wcmt w/ sil arg ip some orng cht

7280-7290 60% SH AA
20% SLTST AA some redbrn
20% SS wh-clr mg occ cg ang-sbrnd pred wsrt sil cmt fri some uncons abun cly ptgs wh-crm calc

7290-7300 50% SH AA some gn slty strg abun cly ptgs wh-pk
50% SLTST gybrn-redbrn arg-v arg some mica some sdy calc
tr SS AA

7300-7310 70% SS ltbrn-lt redbrn-tan vfg sbrnd wsrt pcmt w/ calc occ carb incl & mica flks some clr mg-cg calc cmt ip pred uncons
10% SLTST AA
20% SH brn-redbrn occ gy blky ncalc occ mica tr LS gy micxl frm sl arg

7310-7320 50% SS AA
10% SLTST AA
40% SH brn-mrn-occ redbrn blky mica sl calc

7320-7330 20% SH AA
40% SLTST ltbrn sl arg some mica calc sdy ip
40% SS ltgybrn vfg some slty sbrnd wsrt calc cmt occ carb incl & mica flks some varg some clr fg-mg arg cmt calc abun cly ptgs

7330-7340 30% SH AA occ ANHY ptgs
20% SLTST AA
50% SS AA incr clr-mlky fg ang-sbrnd m wsrt some calc cmt sil cmt/sil ovgth fri occ glauc incl occ red intstl cly tr dd blk asph stn nsofc

7340-7350 50% SH brn-ltbrn-redbrn blky occ splty v mica ip sl calc
20% SLTST ltbrn-gy occ gn arg-v arg mica ip
30% SS AA
occ ptgs LS dk gybrn micxl dns/wh-clr micxl-xl

7350-7360 50% SH gybrn-brn blky mica sl calc occ ltgy-gy splty occ carb incl sl calc
20% SLTST AA
30% SS wh-ltgy fg-mg occ vfg-slty pred ang-sbrnd pred uncons in spl some pcmt w/ sil calc ip occ carb incl abun cly ptgs
tr LS gy-gybrn crpxl dns hd
7360-7370 80% SS mlky-clr mgpcg occ vcg sbrnd-ang mwsrt occ pcmt w/ sil calc pred uncons in spl occ dd blk asph stn nsofc tight some SS AA w/ occ dd blk stn nsofc
tr SLTST AA some redbrn
20% SH AA
7370-7380 50% SH brn-redbrn-mrn blky-plty mica ip some redbrn slty w/ lt gn CLYST strg sl-ncalc
30% SLTST brn-dkbrn arg some mica calc some sil cmt hd
20% SS AA occ orng-smky cht frags
7380-7390 20% SH AA some v mica
30% SLTST AA incr arg
50% SS clr-mlky occ lt orng mg occ fg sbrnd-sbang uncons in spl abun cly ptgs tr dd blk asph stn nsofc
7390-7400 20% SH AA
10% SLTST AA
70% SS AA some pcmt w/ sil calc
7400-7410 50% SH ltbrn-brn-occ redbrn sl slty occ smth v mica ip some calc occ LS ptgs gy micxl-crpxl dns hd
30% SLTST brn-dkbrn arg ip some p-p carb incl calc some sdy
20% SS ltgygn-ltgybrn vfg sbrnd-sbang wsrt calc cmt carb incl some intstl cly occ orng cht some pcmt SS AA
7410-7420 70% SH AA occ gy
30% SLTST AA some redbrn-orng
tr SS AA
7420-7430 80% SH AA
20% SLTST redbrn-orng sl arg v calc ip
tr SS AA
strg LS crm-orng micxl sl slty some ltgy crpxl dns hd
7430-7440 70% SH AA some calc incl
30% SLTST AA w/ strg SS gy-wh vfg wcmt calc
7440-7450 100% SH AA minor SS AA
7450-7460 60% SH dk brn-redbrn pred smth occ slty some sil sl calc ip mica ip
10% SLTST dkbrn v arg calc grdg to slty SH
40% SS gy occ wh pred vfg occ fg sbrnd-sbang fg occ ang pred wsrt some uncons sil cmt fri sl calc some intstl cly mica ip abun cly ptgs
tr LS brn crpxl dns arg
7460-7470 30% SH AA incr redbrn occ gn SH ptgs & mot of redbrn SH

	10%	SLTST AA
	60%	SS AA incr fg-mg incr mica some dd blk asph stn nsofc some cht frags smky-lt orng tight thru
7470-7480	30%	SH redbrn some slty blky some fine mica ncalc occ calc incl
	tr	SLTST AA
	70%	SS smky-clr pred fg-mg sbrnd-sbang pred wsrt uncons in spl occ vfg-slty sil cmt sl calc some mica
7480-7490	80%	SS ltgy-wh vfg sbrnd-sbang v wsrt sil cmt fri sl calc occ carb incl mica some SS AA abun cly ptgs some pipe dope in spl
	20%	SH AA
7490-7500	80%	SS pred AA mcmt w/ sil tr pl remains some gy slty abun mica tight thru some SS(30% of SS) smky-lt orng-clr fg-mg wrnd-arg uncons abun cly ptgs in spl sl amt dd blk-brn asph stn nsofc some asph oil? in spl tight occ cht smky weathered
	20%	SH AA some gy smth wxy some lmy
7500-7510	50%	SS wh-ltgy vfg-slty arg-sbrnd pred wsrt sil cmt fri calc ip some mica flks w/ some sl alt carb incl
	10%	SLTST wh-ltgy aren calc ip some mica
	10%	SH redbrn AA some SH gy-gygn slty ip wxy ip sl-ncalc
	30%	CLYST wh-crm sl slty some alt mica calc
7510-7520	60%	SS AA some brn-pk grdg to SLTST incr calc
	20%	SLTST AA
	20%	SH gy occ dkgy slty ip some carb incl occ CLYST AA
7520-7530	60%	SS wh-ltgy-pk vfg-slty occ fg-mg gr sbrnd-sbang wsrt sil cmt calc carb incl occ CLYST AA
	40%	SLTST AA some wh varg grdg to CLYST
7530-7540	50%	SS AA incr pk some wcmt w/ sil
	30%	SLTST ltgy-brn aren some sl arg calc occ carb incl
	10%	SH redbrn slty frm-hd
	10%	CLYST wh sl slty calc
7540-7550	50%	SS pk-wh-gy vfg-slty occ fg-mg gr sbrnd-sbang pred v wsrt sil cmt fri some mica carb incl calc some cht weathered
	40%	SLTST AA mica thru
	10%	SH AA
7550-7560	60%	SS AA v mica
	30%	SLTST gy-ltbrn-wh aren ip arg ip calc
	10%	CLYST wh-crm mica ip slty ip calc incl
7560-7570	70%	SS AA some wcmt w/ sil
	20%	SLTST AA occ ANHY ptgs
	10%	CLYST AA
7570-7580	70%	SS AA
	20%	SLTST AA
	tr	CLYST AA
	10%	SH brn-gy pred smth splty-blky fine mica sl-ncalc

7580-7590 50% SS crm-wh-brn vfg-slty occ fg-mg sbrnd-sbang pred wsrt sil cmt fri carb incl mica calc grdg to SLTST
20% SLTST crm-wh-brn aren arg ip mica calc
30% SH AA some v mica

7590-7600 70% SH brn occ gy-gybrn blky-plty fine mica calc some lmy occ ANHY incl
10% SLTST AA
20% SS AA

7600-7610 60% SH AA some slty calc incl
30% SS AA slty grdg to SLTST AA
10% SLTST AA some redbrn arg sdy ip

7610-7620 40% SH AA some dkbrn-redbrn
30% SLTST brn-gybrn arg aren ip mica calc
30% SS pk-crm-brn vfg-slty occ fg sbrnd-sbang wsrt calc/ sil cmt occ LS pk-brn micxl dns hd

7620-7630 40% SH AA some redbrn splty calc incl some wh CLYST sl slty calc
40% SLTST AA incr gy
20% SS AA

7630-7640 80% SS wh-ltgy-pk vfg occ slty sbrnd-sbang sil cmt fri calc carb incl some mica flks tr dd brn stn nsofc
20% SLTST redbrn-brn-crm sdy ip arg ip calc some CLYST ptgs crm calc
tr SH AA anhy ptgs xl clr
tr LS gy-gybrn micxl dns hd

7640-7650 80% SS AA cht tan-brn frac ip some SS wh-clr fg occ mg sbrnd msrt sil cmt calc occ carb incl some lse mg-cg qtz gr
10% CLYST wh-crm slty ip calc
10% SLTST AA

7650-7660 30% SH gy blky finely mica carb incl sl-ncalc some redbrn-brn slty ip
20% SLTST AA incr gy
50% SS AA incr cht tan-brn some w/ sil ovgth
tr LS redbrn-tan micxl dns hd

7660-7670 50% SH AA some slty
20% SLTST brn arg mica calc
30% SS wh-ltgy-pk vfg-fg sbrnd-sbang pred wsrt calc cmt fri occ glauc incl carb incl occ cht tan-brn
tr LS gy micxl dns

7670-7680 50% SH AA
10% SLTST AA v mica
20% SS AA
20% LS ltgy-wh chk-xl some re xl

7680-7690 70% SH gybrn-brn-gy blky slty ip some v mica calc some lmy
10% SS AA
20% LS gy-ltbrn-brn micxl-crpxl dns hd some sil
tr dolomitized some chk sl arg

7690-7700 30% SH AA
30% SS wh-pk-ltgn vfg-fg occ mg ang-sbrnd mwsrt sil cmt calc fri glauc some SS AA some lse mg-cg qtz gr
20% SLTST gy-gybrn aren calc mica
20% LS AA
7700-7710 70% SH brn-gybrn-gy plty some v mica calc & calc incl some lmy
10% SLTST AA some brn
20% LS brn-dkbrn crpxl dns hd some re xl
7710-7720 70% SH AA some sdy strg AA
30% LS AA some arg some gy micxl frm
7720-7730 90% SH AA w/ CLYST crm-wh calc
10% LS AA some arg
SS strg wh-pk fg sbrnd wsrt calc cmt
7730-7740 80% SH pred brn occ gy blky-plty sl slty some v mica calc & calc fl frac
10% LS gy-gybrn micxl some rexl dns hd
10% SS AA some vfg-slty
7740-7750 80% SH AA
20% LS AA some pk chk arg
tr SS wh vfg wsrt glauc incl calc
7750-7760 70% SH AA some cht orng
30% LS brn-gybrn micxl-crpxl dns hd some rexl sl arg occ sil
tr SS AA
7760-7770 70% SH AA
30% LS AA some ltbrn xl-chk
7770-7780 70% SH brn-redbrn-some gybrn blky slty ip sl calc some mica
20% LS brn-gy-gybrn crpxl some micxl dns hd sil ip some rexl
10% strg SS wh fg occ vfg sbrnd w srt calc cmt
7780-7790 60% SH AA calc incl incr calc thru
20% LS AA some pk-ltbrn chk some dol rexl
20% SS AA some mg-cg qtz/cht frags
7790-7800 70% SH AA occ anhy ptgs
30% LS AA some rexl some shy & sil
7800-7810 60% SH AA some CLYST wh-crm calc
10% LS wh-crm micxl frm some brn crpxl rexl in frac
30% SS wh-mlky fg-mg ang-sbrnd msrt sil cmt
tr dd blk asph stn nsofc abun mlky cht frags abun lse mg-cg qtz gr
7810-7820 40% SH brn blky slty ip some v mica sl-ncalc
30% SS AA some biotite incl
10% SLTST wh-crm-gy arg ip mica ip calc
10% LS AA some gy crpxl dns hd
10% CLYST wh-crm calc

7820-7830 40% SH AA some pl remains
10% SLTST AA aren ip
30% SS mlky-wh mg-cg sbrnd-ang msrt sil cmt fri some gy fg-vfg sil cmt dd blk asph stn nsofc tight cht frags smky-mlky
20% LS brn-gy micxl-crpxl dns hd some rexl some dolomitized

7830-7840 60% SS ltgy-wh vfg sbrnd wsrt glauc incl some cg rnd gr cht frags mlky sil/calc cmt occ dd blk stn nsofc tight
20% SLTST ltbrn-ltgy aren calc
10% SH gy-brn blky slty some carb incl sl-ncalc
10% LS AA

7840-7850 40% SS AA some carb incl incr mg-cg
20% SLTST AA
10% SH AA
30% LS wh-crm chk arg ip grdg to lmy CLYST slty ip

7850-7860 70% SS AA some pk carb incl thru
10% SLTST ltgy-wh aren sdy ip calc
20% SH AA

7860-7870 40% SS AA
30% SLTST AA
30% SH gy-brn-redbrn plty-blky sl slty calc ip sil ip some mica
tr LS gybrn micxl-crpxl dns hd

7870-7880 30% SS wh-ltgy-ltbrn vfg-slty occ fg sbrnd-ang m wsrt wcmt w/ sil sl calc some carb incl
30% SLTST AA LS ptgs pk crpxl dns hd
40% SH AA some pk-crm CLYST

7880-7890 40% SH AA some slty incr mica
30% SLTST gy-gybrn arg ip aren ip mica calc
20% SS AA
10% LS gy-pk-brn crpxl some re xl dns hd

7890-7900 40% SH gy-gybrn splty-plty fine mica calc some redbrn slty ip n calc
30% SLTST AA
20% SS AA
10% LS redbrn-crm crpxl-micxl arg ip some dolomitized

7900-7910 30% SH AA occ carb incl in gy SH some gn CLYST strg
30% SLTST crm-wh-gy some v arg mica ip some grdg to slty CLYST
20% SS wh vfg sbrnd w srt sil cmt some calc some cht smky-orng
20% LS crm chk sl arg

7910-7920 40% SH brn-gy plty-blky frm mica ip carb incl in gy SH sl calc occ orng-mrn sft
30% SLTST AA some redbrn-orng
30% SS AA some fg lse gr some cht AA
tr LS gybrn micxl dns hd

7920-7930 30% SH AA
20% SLTST dkgy-gybrn sl-n arg aren some sil cmt some mica calc
30% SS AA lt gy ip some sl alt mica some glauc incl
20% LS clr xl ltbrn-gybrn-dkgybrn crpxl some rexl sl arg some dolomitized v hd tr DOL dkgy micxl

7930-7940 20% SH AA
40% SLTST AA
30% SS AA smky orng cht & qtz frags thru
10% LS AA

7940-7950 30% SH gy-brn-orng mica slty ip calc occ anhy incl
30% SLTST gy-gybrn-orng arg ip mica calc
30% SS wh-crm vfg sbrnd wsrt calc cmt some carb incl & mica flks
10% strg DOL gy-gybrn micxl dns hd & strg LS redbrn-gybrn micxl sl arg

7950-7960 30% SH AA
40% SLTST AA
20% SS AA some cg-vcg qtz gr
10% LS redbrn-gy micxl-crpxl some rexl dolomitized

7960-7979 30% SH brn blky slty fine mice calc some dkgy-gy blky-splty smth some calc fl frac
40% SLTST AA
30% SS wh-ltgy vfg-slty sbrnd-ang wsrt m cmt w/ sil calc occ carb incl & mica flks some sil ovgth some cht frags smky occ LS pk chk arg sft some LS AA

7970-7980 20% SH AA
40% SLTST ltbrn-gybrn v arg ip mica calc some dkgy sl arg sil cmt
40% SS AA incr pk some v calc
tr LS AA

7980-7990 60% SS wh-ltgy vfg-slty sbrnd-sbang pred w srt calc cmt fri sl arg occ fg-mg qtz gr thru rnd-ang occ carb incl & mica flks some lmy tight
20% SLTST AA
20% SH AA

7990-8000 70% SS AA test for cut nsofc
20% SLTST AA
10% SH AA

8000-8010 70% SS AA some lmy grdg to sdy LS
10% LS wh chk sdy gybrn-gy micxl-crpxl dns hd some rexl occ ptgs anhy wh-crm xl
20% SLTST & SH AA

8010-8020 50% SS AA
10% SH gy-brn slty ip lmy ip sft
10% SLTST AA some mica aren
30% LS gy-ltgy crpxl dns hd

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8020-8030 AA

8030-8040 30% SH brn-orngbrn slty blky calc mica tr gn CLYST
20% SLTST brn-gy arg ip mica calc
30% SS AA
20% LS AA some gybrn occ anhy xl clr

8040-8050 40% SH AA
10% SLTST AA
40% SS wh-ltgy vfg sbrnd-sbang wsrt some sil cmt pred calc cmt occ glauc incl & mica flks some smky cht
10% LS gy-brn micxl-crpxl dns hd some dolomitic

8050-8060 50% SH AA
20% SLTST AA
20% SS AA some fg-mg sil cmt
10% LS AA

8060-8070 60% SH AA
10% SLTST AA
25% SS AA some cg-fg lse qtz gr ang-rnd
5% LS AA

8070-8080 40% SH AA some gy smth-sl slty calc
10% SLTST gy-brn aren ip sil cmt some arg calc
30% SS wh-gy-brn vfg occ fg ang-sbrnd pred wsrt calc cmt some sil occ glauc incl & smky-orng cht some fg-mg lse qtz gr
20% LS wh-crm chk sl arg & gy-brn micxl dns firm-hd

8080-8090 60% SS clr-mlky mg a ng-sbrnd wsrt pred uncons some sil cmt some cht smky-tan occ frac some w/ dd stn in frac nsofc
some SS wh-ltgy vfg-slty sbrnd wsrt calc cmt glauc & carb incl tr cly ptgs
20% SH brn blky slty occ sdy calc
10% LS gy-pk micxl-crpxl dns frm-hd sl arg some wh chk
10% SLTST brn-orng arg calc grdg to slty SH

8090-8100 50% SS AA incr cly ptgs some mg w/ calc cmt
10% SLTST AA
20% SH AA
20% LS brn-gybrn crpxl dns hd some rexl v sl arg some ltgy-wh chk sft-frm sl slty & arg

8100-8110 60% SS clr-smky-lt orng mg occ cg ang-sbrnd m wsrt uncons in spl some sil cmt tr dd blk asph stn nsofc cht frags smky abun some SS wh-some Fe stn v fg sbrnd-sbang wsrt
10% SLTST brn arg ip pred argn mica calc
30% SH brn-redbrn blky sl slty some mica sl calc some gy-dkgy plty mica sl calc occ anhy ptgs chk
tr LS gy micxl dns hd some rexl

8110-8120 40% SS AA incr sil cmt of mg SS incr cht smky-mlky frac
10% SLTST AA
40% SH AA
10% LS pk-brn-ltbrn micxl some rexl & LS crm-wh chk some pel txt sl arg

8120-8130 60% SS abun cht frags AA some occ ltbrn vfg SS frm-fri calc
20% SLTST AA some dkgybrn
20% SH brn occ mrn blky slty ip v calc some gy splty mica
tr LS gybrn-brn micxl some wh chk

8130-8140 50% SS clr-smky mg-cg ang-sbang m wsrt uncons in spl abun cht frags tan-smky-mlky some frac
some SS wh-ltbrn vfg sbrnd wsrt calc cmt-lmy
20% SLTST brn-redbrn arg calc
20% SH AA some orng-wh CLYST ptgs calc-v calc
10% LS brn-ltbrn micxl dns frac ip some gy crpxl dns hd some dolomitized

8140-8150 70% SS AA some mg wrnd fros gr some sil cmt frm
10% SLTST AA
10% SH AA
10% LS AA incr wh chk sl arg

8150-8160 40% SS AA occ sil cmt glauc incl some orng cht
20% SLTST AA gy some aren carb incl calc
30% SH brn-dkbrn blky slty ip some frm-hd calc
10% LS gy-brn micxl-crpxl dns hd some wh chk sl arg some xl

8160-8170 10% LS wh-gy chk arg(micrite) some dkgy-wh micxl-crpxl some smky-gy cht
40% SS clr-smky-ltgy mg-cg occ fg ang-sbrnd pred uncons in spl some sil cmt(tight) some blk stn nsofc some SS wh-crm vfg-fg sbrnd wsrt calc/arg cmt some stn AA
50% SLTST & SH AA

8170-8180 20% SH redbrn-brn slty splty-blky frm calc some gy plty fine mica pl remains sl-ncalc
20% SLTST brn-gybrn aren ip sil cmt some arg calc
40% SS AA incr wh-crm vfg-fg SS some brn v calc some ltbrn-ltgy vfg sbrnd wsrt lse cons some brn oil stn nsofc some orng cht weathered
20% LS AA incr micrite

8180-8190 20% LS wh-crm chk sl arg & LS gybrn micxl-xl some rexl dolomitized some suc fø in suc/rexl some brn oil stn
60% SS wh-ltbrn vfg occ fg sbrnd-sbang pred wsrt lse cons f-gø live brn oil stn some v faint yel cut some visible cut from stained LS & SS abun mc-cg qtz & cht frags
20% SH & SLTST AA

8190-8200 10% LS AA some sdy some brn crpxl dns hd
60% SS AA occ glauc incl some SS smky mg sbrnd-ang wsrt sil cmt intstl dd oil stn cg cht frags smky & orng stn
10% SH AA
20% SLTST AA

8200-8210 70% SS amky-clr mg-cg ang-sbrnd pred wsrt uncons in spl occ sil cmt intstl & surficial dd blk asph stn nsofc
some SS wh vfg AA cht pk-smky

	20% SLTST orng-orngbrn-pk-gy aren ip arg ip calc cmt some vfg sdy
	10% SH brn blky slty mica occ gy splty v mica calc some wh CLYST clac w/ carb material
8210-8220	90% SS AA occ glauc incl w/ cmt gr dd stn thru AA
	10% SH & SLTST AA
8220-8230	85% SS AA dd stn thru AA
	15% SH & SLTST AA
8230-8240	AA dd stn thru AA
8240-8250	70% SS AA some pyr clus on qtz gr some vcg qtz & cht frags dd stn thru AA
	tr SLTST AA
	30% SH brn-ltorngbrn plty-blky fine mica n calc
8250-8260	70% SS AA abun vcg cht mlky-smky some brn stn w/ calc some dd stn AA
	15% SLTST orngbrn sl arg aren ip calc-v calc
	15% SH AA
8260-8270	60% SS clr-smky-ltorng mg-cg occ vcg ang-sbrnd msrt pred uncons in spl occ p cmt w/ calc glauc incl in SS & on some cht mlky dd blk asph stn nsofc some carb incl (gilsonite?) occ cly ptgs
	10% SLTST AA
	30% SH brn blky fine mica calc some gy plty fine mica carb incl n calc
8270-8280	70% SS AA incr calc cmt incr cht some orng stn some CLYST wh-crm calc
	10% SLTST AA
	20% SH AA incr gy
	tr LS gy micxl dns hd
8280-8290	85% SS AA abun orng stn on qtz & cht gr
	5% cly ptgs AA
	10% SH & SLTST AA
8290-8300	15% SH brn-dkbrn blky-plty sl slty sft-frm n calc
	10% SLTST orngbrn-brn-gy mg-fg ang-sbrnd m wsrt calc cmt blk oil stn in some SS
8300-8310	60% SS clr-mlky fg-mg sbrnd-sbang m wsrt calc cmt some glauc incl brn-blk oil stn(50% of SS) positive acid test some oil floating on acid nfosc some SS fg-vfg sbrnd-sbang calc cmt oil stn AA fø gø? abun lse lt orng-clr mg-cg qtz & cht gr AA
	10% SLTST AA
	30% SH AA
8310-8320	90% SS clr-mlky-lt orng mg occ fg ang-sbrnd pred wsrt uncons in spl stn AA occ calc cmt w/ oil stn AA
	10% SLTST & SH AA
8320-8330	20% SH brn blky smth-slty n calc & SH gy plty fine mica n calc some lt gn CLYST

10% SLTST ltgy arg sft n-sl calc
50% SS AA pred weak cmt w/ sil dd blk stn nsofc in intstl & surficial
20% LS brn-gybrn crpxl some micxl rexl dns hd sl arg

8330-8340 40% SH AA
20% SLTST AA
30% SS AA some slty m cmt p-msrt stn AA some stn cly ptgs
10% LS AA

8340-8350 50% SH brn-lt orngbrn slty some mica sl calc & SH gy-dkgy slty ip some carb incl n calc some gn CLYST wxy sft
20% SLTST brn-crm-gy arg aren ip some carb incl some calc
20% SS AA some orng-wh cht frags
10% LS brn-gybrn micxl-crpxl dns occ rexl frm-hd occ sl arg

8350-8360 50% SH AA
10% SLTST AA
10% SS AA
30% LS AA some chk

8360-8370 60% SH AA
10% SLTST AA
20% SS AA abun mg-vcg qtz frags
10% LS AA

8370-8380 40% SH AA
20% SLTST brn-crm-wh aren calc
30% SS clr-mlky fg-mg occ cg ang-sbrnd m wsrt uncons in spl some dd blk oil stn on cly ptgs nsofc some stn on gr nsofc
10% LS AA

8380-8390 70% SH gy-gybrn-brick red sl slty occ mica n calc
10% SLTST AA
20% SS AA some dd brn oil stn nsofc some sil cmt

8390-8400 30% SH AA
10% SLTST AA
60% SS AA

8400-8410 70% SS mlky-clr pred mg occ fg & cg ang-sbrnd pred uncons in spl some sil cmt w/ dd brn stn nsofc
10% SLTST lt brn-crm aren sl arg calc
20% SH AA occ wh cly ptgs

8410-8420 90% SS AA occ stn AA
10% SH & SLTST AA

8420-8430 90% SS some AA pred cg occ vcg some cht frags dd blk stn nsofc
10% SH AA

8430-8440 100% SS AA
tr SH AA

8440-8450 90% SS mlky-clr mg-cg occ fg ang-sbrnd msrt pred uncons in spl some sil cmt w/ intstl calc or calc cmt dk brn oil stn no flour v pale milky yel cut(delayed)
10% SH AA

8450-8460 100% SS AA pred mg calc cmt some dk mnrl & carb incl occ glauc incl flvor & cut AA
8460-8470 95% SS AA tr pyr occ glauc incl
5% SH gy-brn blky sl-n calc sft some redbrn slty calc
8470-8480 95% SS AA dd stn thru
5% SH AA
8480-8490 95% SS AA
5% SH AA
8490-8500 95% SS mlky mg-vcg ang-sbrnd msrt uncons in spl some sil cmt occ glauc incl dd blk stn thru nsofc
5% SH AA
8500-8510 95% SS AA
5% SH AA
8510-8520 90% SS AA some wh cly ptgs w/ dd stn AA
10% SH AA
tr LS brn chk-micxl sl arg frm
8520-8530 90% SS AA some intstl cly
10% SH brn-gy blky sl slty sl-n calc sft some redbrn slty sdy ip
8530-8540 90% SS pred AA some SS mlky fg-mg sbang-sbrnd weak sil cmt w/ intstl cly occ calc dd blk stn thru nsofc tight
10% SH AA some gy SH incr slty
tr LS lt gy chk-micxl sl arg
8540-8550 85% SS mlky-occ clr mg-cg some vcg ang-sbrnd msrt uncons in spl some weak cmt w/ sil sl calc abun intstl & surficial brn-blk stn(resid oil) some weak acid test reaction no fluor pale mlky yel cut
15% SH & SLTST (cvgs)
8550-8560 85% SS AA some glauc incl sl mica fluor & cut AA
5% SLTST wh-lt yel gy aren v calc fri some redbrn arg calc
10% SH brn-gybrn blky mica ip occ calc
tr LS brn-gy micxl dns hd arg
8560-8570 80% SS AA some fg w/ glauc incl
50% SLTST AA
15% SH AA
8570-8580 70% SS AA
5% SLTST AA
25% SH gy blky slty ip fine mica n calc brn-redbrn blky slty n calc
tr LS AA
8580-8590 tr LS gybrn micxl dns hd
75% SS mlky-clr fg-vcg ang-sbrnd m-psrt pred uncons in spl sil cmt some glauc incl occ brn-blk stn nsofc
10% SLTST AA
15% SH AA
8590-8600 65% SS AA glauc incl
10% SLTST gy-gybrn-wh aren v calc arg ip some lmy

	10%	SH AA
	tr	LS AA
8700-8710	75%	SS AA incr vfg-fg incr sil cmt incr glauc incl
	10%	SLTST AA some brn
	10%	SH brn blky slty ip n calc some gy blky n calc
	5%	LS gy-brn xl-chk arg sft
8710-8720	75%	SS AA incr vcg
	10%	SLTST AA
	5%	SH AA
	10%	LS gy-gybrn-pk micxl-xl dns ip frm
8720-8730	70%	SS blk-smky-mlky vfg-mg occ cg-vcg sbrnd-sbang msrt sil cmt abun brn-blk stn no fluor v faint yel cut grdg to no cut some smky cht frags occ glauc incl
	15%	SLTST gy aren v calc grdg to slty LS
	10%	SH AA
	5%	LS AA some wh-gy xl-chk slty sft
8730-8740	70%	SS AA
	10%	SLTST AA
	20%	SH AA
	tr	LS AA
8740-8750	60%	SS AA
	10%	SLTST AA
	20%	SH gy blky slty ip mica calc ip & brn-redbrn blky slty n calc
	10%	LS wh-ltgy chk-micxl sft-frm sl arg
8750-9860	10%	LS gy micxl- crpxl dns hd some DOL lt gy chk arg sft
	40%	SS AA stn cly ptgs some wh vfg sbrnd wsrt calc cmt
	10%	SLTST brn arg mica ip calc gy aren p-p carb incl ncalc
	40%	SH AA
8760-8770	30%	SH gy blky-plty smth-slty p-p carb incl calc some brn slty mica sl calc
	10%	SLTST AA
	50%	SS blk-mlky vfg-mg ang-sbrnd msrt sil cmt abun dd blk stn(asph) no fluor no cut cht frags stn in frac abun lse cg-vcg qtz frags stn on sfc
	10%	LS gy micxl dns hd lt gy chk pel txt arg
8770-8780	40%	SH AA
	5%	SLTST gy aren grdg to vfg sdy calc
	50%	SS AA
	5%	LS AA some sdy
8780-8790	%%	LS gy micxl some pex txt some DOL
	50%	SS AA
	35%	SH AA
	10%	SLTST AA
8790-8800	40%	SS AA some rnd gr in slty sh calc
	10%	SLTST AA vcalc
	40%	SH AA
	10%	LS gy micxl some int xl ø some DOL wh chk sdy

	25%	SH AA
	tr	LS AA some redbrn arg
8600-8610	5%	LS gybrn micxl dns frm-hd
	45%	SH brn-gy blky slty ip fine mica sl calc
	10%	SLTST AA
	40%	SS AA pyr incl
8610-8620	5%	LS AA some crpxl
	50%	SH AA incr calc
	10%	SLTST AA
	35%	SS AA
8620-8630	5%	LS gybrn-brn crpxl dns hd arg
	30%	SS mlky-clr fg-cg ang-sbrnd m-psrt uncons in spl some sil cmt tan cht frags some w/ intstl cly brn-blk stn no fluor slow pale milky yel cut
	15%	SLTST AA
	50%	SH AA
8630-8640	40%	SH gy blky slty mica calc & brn blky smth-slty mica ip sl calc sft
	20%	SLTST gy-gybrn-brn aren v calc mica ip
	40%	SS AA decr stn
	tr	LS AA
8640-8650	40%	SH AA
	10%	SLTST AA
	50%	SS mlky-dkgy-clr mg-cg occ vcg sbrnd-ang pred uncons in spl occ sil cmt abun brn-blk stn thru no fluor no cut
	tr	LS pk crpxl dns hd arg
8650-8660	50%	SH AA incr slty
	10%	SLTST AA
	35%	SS AA incr vcg incr stn AA
	5%	LS AA
8660-8670	30%	SH AA some crm CLYST calc
	5%	SLTST AA
	55%	SS mlky-blk-clr fg-cg occ vcg ang-sbrnd psrt pred uncons in spl some sil cmt intstl cly hvy brn-blk stn asph no fluor slow v pale milky cut some stn cly ptgs
	10%	LS gy-pk micxl-crpxl dns hd arg ip some rexl some chk
8670-8680	50%	SS AA occ cht frags smky
	10%	SLTST AA
	35%	SH AA
	5%	LS AA
8680-8690	70%	SS smky-blk-occ clr vfg-cg occ vcg ang-sbrd m-p srt some sil cmt pred uncons in spl glauc incl abun hvy brn-blk stn(asph)some in frac no fluor no cut
	10%	SLTST gy-wh aren vcalc fri
	10%	SH AA
	10%	LS wh-pk-gy xl chky arg ip sft some tan crpxl dns hd
8690-8700	75%	SS AA pred fg-mg some wh fg sbrd-sbang wsrt calc cmt
	15%	SLTST AA some orng

8800-8810 45% SS blk-smky fg-mg sbrnd-sbang mwsrt sil cmt fri some stn cht frags blk stn thru nsofc
15% SLTST brn-crm arg ip aren ip calc
30% SH AA
10% LS gy micxl some int xl ø arg ip

8810-8820 40% SS AA
20% SLTST AA some v calc
20% SH gy smth sl slty ip n calc brn slty n calc
20% LS AA some crpxl dns hd some pk micxl-crpxl dns hd some pk micxl-crpxl dns hd arg & wh-ltgy micxl ool txt slty ip

8820-8830 40% LS gy-dkgy crpxl-micxl dns hd sl arg & wh-ltgy chk slty arg ip pel txt
20% SH AA
20% SLTST AA
20% SS AA abun vcg qtz & cht frags

8830-8840 30% SS dkgy-smky clr fg-cg occ vcg ang-sbrnd m-psrt sil cmt abun dd blk stn nsofc abun cht frags smky
15% SLTST gy-brn arg ip aren ip fri calc
20% SH AA some dk gy
35% LS AA some frac(calc fl)

8840-8850 30% SH dkgy-gy blky smth-sl slty some sil some p-p carb incl
10% SLTST AA some crm v calc
20% SS AA
40% LS gy-dkgy crpxl occ micxl-chk dns pred hd some calc fl frac

8850-8860 15% SH AA some brn flky slty mica n calc some gy w/ calc fl frac
20% SLTST ltbrn-brn-off wh aren arg ip mica ip v calc
45% LS gy-gybrn crpxl dns hd occ pel txt some chk & rexl & LS wh-ltgy chk sft
20% SS AA

8860-8870 30% SS wh-blk(stn) vfg-slty occ fg sil cmt blk stn thru nsofc some SS AA
15% SLTST AA
10% SH dkbrn-dkgy blky-plty slty ip sl-ncalc
45% LS AA ltgy-gybrn fine suc w/ stn ool(abun) nsofc

8870-8880 10% LS wh-ltbrn chk sft
25% LS wh-ltgy fine suc(rexl) pø abun stn ool nsofc some brn micxl-crpxl ool/ool txt some fos hash some calc fl frac occ DOL &
45% LS gy-gybrn crpxl dns hd
20% SH gybrn-dk brn-brn sl slty blky occ calc incl pred n calc occ mica
tr SS

8880-8890 70% LS AA
20% SH AA
10% ANHY sh chk(est %)

8890-8900 20% LS gy-gybrn crpxl dns hd sl arg some ool occ tan cht frags
15% LS ltgy-wh-ltbrn fine suc decr stn ool pø some chk sl arg fine slty
15% DOL ltgy micxl occ suc frm
30% ANHY wh chk some orng stn(est %)
20% SH AA ANHY incl

8900-8910 30% SH dkgy-gy plty sil ip n calc hd
20% ANHY wh chk sft
35% LS AA (same %)
15% DOL AA

8910-8920 10% LS gy chk v arg(MICRITE)
20% LS gybrn crpxl dns hd DOL
30% LS gy-gybrn micxl-suc rexl pø DOL some pel some leached DOL some blk stn nsofc
20% DOL gybrn micxl-crpxl arg some rexl
20% SH dk gybrn blky smth n calc frm-hd

8920-8930 10% MICRITE AA some DOL
30% LS micxl-suc AA
some ANHY in fill algal plates? leached & stn ool(some pseudo-ool?) DOL ip
20% LS crpxl AA
20% DOL crpxl-micxl AA
20% SH AA DOL/sil hd

8930-8940 5% MICRITE AA
25% LS micxl-suc ool AA
40% LS crpxl
15% DOL micxl-crpxl AA some rexl blk stn nsofc
15% SH AA

8940-8950 10% MICRITE lt gy chk slty ip
30% LS gybrn crpxl dns hd arg
20% LS gybrn-ltgy-wh suc rexl leached & stn ool some brec & rexl
10% DOL ltgy crpxl dns hd some micxl rexl
30% SH dkgy blky sil sl slty hd DOL ip

8950-8960 5% ANHY wh xl(est %)
30% LS gy-dkgy-dkgybrn micxl-chk arg some crpxl smky cht frag & incl
25% DOL dkgy micxl rthy ip sl arg dns ip pø arg some ltgy suc
10% LS wh suc ool AA some aragonite assoc w/ ANHY(wh xl)
30% SH dkgy blky slty ip DOL dns hd sil ip

8960-8970 5% ANHY wh-crm xl(est %)
25% LS lt gybrn-gybrn crpxl dns hd DOL ip some rexl w/ dd blk stn occ suc w/ leached ool nsofc
20% MICRITE lt gy sl slty sft
20% DOL dkgy micxl rexl ip lmy ip dns hd
30% SH AA some dk brn mica n calc frm

8970-8980 AA some cvgs

8980-8990 30% SH AA
25% MICRITE AA
25% LS lt gybrn & suc ool AA
20% SOL AA
some cvgs

8990-9000 10% SS dkgy-gy-wh vfg-slty sbrnd sil cmt calc grdg to sdy SLTST dd blk stn thru
30% SH gy-dkgy smth-slty blky some p-p carb incl DOL ip
10% LS wh-lt gy-gy chk some MICRITE
30% LS ltgy-gy crpxl-micxl dns hd DOL ip some suc w/ leached ool
20% DOL gy-dkgy micxl rexl ip arg

9000-9010 10% SS AA occ pyr clus some fg ang
20% SH AA
10% LS chk MICRITE AA
40% LS incr leached/stn ool AA some pk micxl w/ stn in frac
20% DOL AA some leached vol(1 mm)

9010-9020 15% SS blk-ltgy slty-fg sbrnd sbang m wsrt sil cmt calc ip grdg to sdy SLTST
15% SH blk-dkgy-gy smth p-p carb incl some calc fl h line frac
20% LS wh-ltgy suc leached ool occ fø grdg to
20% LS gy-dkgy crpxl dns hd some rexl some chk smky-dk brn cht frags
10% MICRITE lt gybrn sft some pred mud
20% DOL gy-dkgy micxl-crpxl some rexl

9020-9030 tr ANHY wh-ltbrn xl
15% SS wh-ltgy vfg-slty sbrnd-sbang w srt sil/DOL cmt pyr clus & incl thru
10% SLTST lt gybrn aren arg ip DOL ip
35% SH AA
10% MICRITE AA occ calc fl frac
20% LS crpxl dns AA
10% DOL AA

9030-9040 5% ANHY wh chk sft some off wh xl w/ stn fl frac
20% SS AA calc cmt some dk brn fg ang fri mica
10% SLTST AA
35% LS dkgy-gy rthy v arg h line calc fl frac some MICRITE frm
10% LS gybrn-ltgy crpxl pel txt dns hd arg occ chk
20% SH AA lmy ANHY nod wh xl

9040-9050 35% SH dkgy blky plty-slty ip calc ip ANHY AA
5% SS AA calc cmt pyr clus
40% LS dkgy-gy rthy MICRITE AA some slty
20% LS gybrn crpxl some rexl suc pø pyr clus long thin xl bundles

9050-9060 15% SH AA pyr clus some ltgy slty nod ANHY
50% LS rthy MICRITE AA some resid oil nsofc
20% LS gybrn crpxl AA
15% ANHY wh chk sft some nod in SH
9060-9070 30% SH dkgy-gy smth plty-lam slty ip DOL ip ANHY nod wh sl
30% LS dkgy-gybrn rthy sft-frm grdg to MICRITE
15% LS dkgy brn crpxl dns hd
20% ANHY wh chk-xl
5% sdy strg AA
9070-9080 30% SH AA plty-splty some ltgy v slty
20% LS dkgy rthy MICRITE AA
some ltbrn ANHY fl frac & nod
5% DOL ltgy micxl fri ip fø
20% LS dkgybrn-gybrn-ltgy micxl-crpxl arg DOL ip
25% ANHY wh xl-chk some stn fl frac nsofc
9080-9090 10% SH AA
35% SLTST ltgy aren arg ip DOL ip
15% LS rthy MICRITE AA some lt brn
25% LS dkgybrn crpxl-micxl AA
some rexl suc w/ leached/stn ool
tr DOL AA
15% ANHY AA
9090-9100 30% SH dk gybrn-gybrn-gy slty ip blky DOL ip ANHY nod carb ip
25% SLTST AA calc cmt
20% LS brn crpxl-micxl occ chk pred dns hd sl arg some DOL
20% MICRITE dkgybrn slty ip frm
tr LS wh-crm chk sft
5% ANHY wh chk-xl sft-frm
9100-9110 70% DOL gybrn micxl & rthy occ crpxl some lmy dns frm-hd
20% SLTST wh-crm sdy ip aren DOL
10% MICRITE pred dkgybrn AA some chk arg LS
9110-9120 80% DOL AA lmy ip some grdg to DOL LS
10% SLTST AA
10% MICRITE AA
9120-9130 55% DOL AA grdg to DOL LS
10% SLTST sdy AA arg ip
10% SH dkgybrn-blk smth blky DOL ip carb ip frm-hd
15% MICRITE AA grdg to chk arg LS
10% LS gybrn crpxl dns hd DOL
tr ANHY ptgs wh xl(w/ SH)
9130-9140 60% LS gy-dkgy micxl some rexl DOL some chk pel
30% DOL gy-dkgy micxl-crpxl dns hd sl arg
10% SH dkgy smth splty DOL ip
9140-9150 50% LS AA some brn crpxl
30% DOL AA
10% SH AA some carb incl
10% ANHY wh xl
9150-9160 10% SH AA

	70%	LS gy micxl-chk some rexl suc pø DOL ip pel some fos frags(algal?) some dd blk stn in suc nsofc
	20%	DOL AA
9160-9170	45%	LS wh chk some rexl pel ip fos frags(?)
	30%	LS skgybrn crpxl-micxl dns hd DOL ip
	10%	SH dkgy-gybrn smth plty carb incl DOL ip occ ANHY nod
	15%	SS gy-dkgy vfg-slty ang-sbrnd mcmt DOL ip calc ip
9170-9180	40%	LS chk AA
	20%	LS micxl-crpxl AA ltgybrn ip
	10%	SH AA
	30%	SS AA
9180-9190	40%	LS chk AA
	30%	LS micxl-crpxl AA
	10%	SH AA some carb
	20%	SS AA
9190-9200	40%	LS wh-crm chk sft some mot arg
	20%	LS micxl-crpxl AA
	10%	SH AA
	30%	SS AA
9200-9210	30%	LS chk AA
	40%	LS micxl-crpxl AA
	10%	SH AA
	20%	SS AA
9210-9220	40%	LS gy-dkgy micxl-crpxl DOL some rexl tight hd pel ip
	10%	LS chk AA
	10%	DOL dkgy micxl dns hd
	30%	SS AA
	10%	SH dkgy-blk smth carb ip DOL
9220-9230	AA	
9230-9240	10%	MICRITE gy-ltgy sft
	60%	LS micxl-crpxl AA some chk
	20%	SS dk gy-gy vfg-slty occ fg sbrnd-ang mcmt dk mnrl (asph?)nsofc
	10%	SH AA some calc fl frac and nod
9240-9250	20%	MICRITE gy-dk gy sft some rexl pel
	30%	LS gy-dk gy micxl-chk some rexl pel ip occ gy-brn crpxl dns hd
	30%	SH dk gy-gy smth plty DOL/LMY
	20%	SS AA
9250-9260	10%	ANHY wh xl frm
	15%	SH AA some lt gy
	65%	LS gy-dk gy AA some fos hash pel ip occ stn and lchd ool pyr incl
	10%	SS AA
9260-9270	10%	SH AA
	60%	LS lt gy brn-wh fos hash(agal?)w/MICRITE cmt some lchd ool(some foram?) tan cht intraclast occ pyr incl
	30%	MICRITE dkgy sft some calc fl frac

9270-9280 40% SH dkgy blky DOL frm occ calc fl frac
20% SS gy-wh vfg-slty sbrnd-sbang wsrt DOL cmt some calc fri carb flks
30% LS AA occ fos & pel
10% MICRITE AA
9280-9290 60% SH AA
10% SS AA
20% LS AA occ fos & pel some rexl
10% MICRITE
9290-9300 30% LS ltgy-gybrn chk some rexl some arg some stn pel occ foram pø
70% SH AA
9300-9310 5% ANHY wh chk
35% SH dkgy-blk blky DOL carb ip
10% LS dkgybrn crpxl dns hd
35% LS AA some calc fl frac pø occ foram
15% MICRITE gy-dkgy occ slty sft
9310-9320 50% SH AA
10% LS dkgybrn AA DOL rexl
30% LS ltgy chk mot w/ carb flks occ fos frags some grdg to MICRITE
10% SS gy-dkgy fg-slty ang sbrnd DOL cmt carb incl
9320-9330 40% SH AA calc fl frac
30% LS dkgybrn-gybrn micxl-crpxl some rexl & DOL pred dns hd some h line frac
20% LS ltgy AA
10% SS AA
9330-9340 30% SH AA
50% LS dkgybrn AA calc fl frac
10% LS lt gy AA
5% SS AA
5% ANHY wh chk ltgy xl
9340-9350 40% SH gy-dkgy smth blky DOL calc incl calc fl frac
25% LS gy-wh micxl-xl some rexl sl arg
25% LS gybrn crpxl dns hd h line frac DOL
10% SLTST gybrn aren DOL cmt
9350-9360 40% SH AA incr DOL
tr SLTST AA
40% LS gybrn-dkgy crpxl AA occ pyr incl
20% LS gy-wh AA some DOL some stn in frac nsofc
9360-9370 40% SH AA
30% LS gy micxl-xl some rexl dol
30% LS wh-gy chk dol ip rexl ip
9370-9380 20% SH dk gy-gy occ blk blky dol calc incl
30% DOL dk gy-gy brn micxl dns hd
35% LS gy-dk gy micxl-xl some rexl DOL occ wh chk AA
10% SLTST wh-gy-dk gy aren sdy ip dol cmt
5% ANHY wh xl occ chk (est %)
9380-9390 30% SH AA

	20%	DOL AA
	45%	LS AA some h line frac occ carb flks
	10%	SLTST AA
	5%	ANHY AA (est %)
9390-9400	15%	ANHY wh-crm-clr xl frm-hd (est %)
	45%	LS gy-gy brn micxl dns hd some rexl DOL
	20%	LS lt gy-wh chk arg ip sft
	5%	DOL dk gy crpxl dns hd
	15%	SH dk gy-blk blky dol calc fl frac(red bed cvgs)
9400-9410	20%	ANHY AA (est %)
	15%	DOL AA
	40%	LS gy- gy brn micxl
	5%	LS lt gy-wh chk
	10%	SH AA
	10%	SLTST wh-lt gy aren vfg sdy dol cmt(red bed cvgs)
9410-9420	20%	ANHY wh xl frm-hd
	60%	LS gy-gy brn micxl rthy some rexl arg ip frm occ wh chk
	10%	DOL AA
	10%	SH AA cvgs AA
9420-9430	10%	ANHY AA
	80%	LS AA some dk gy DOL
	10%	SH dk gy blky dns frm dol ip
	tr	DOL AA cvgs AA
9430-9440	65%	LS AA incr dk gy micxl-crpxl occ dol
	20%	MICRITE dk gy-gy plty lam ip
	15%	ANHY wh xl-suc prly(est %) abun cvgs-redbeds
9440-9450	40%	MICRITE dk gy lam-blky abun calc fl frac
	60%	LS gy-lt gy brn micxl-chk occ rexl arg ip anht nod (cvgs redbeds)
9450-9460	65%	LS gybrn-gy micxl-chk some fos frags dol ip some rexl arg ip
	25%	SH dk gy blky dns lmy ip dol
	10%	ANHY wh xl-suc (abun cvgs-redbeds)
9460-9470	55%	LS AA some MICRITE brn sft
	10%	SH AA occ calc fl frac
	30%	LS brn crpxl dns hd some pel
	5%	ANHY AA (cvgs AA)
9470-9480	40%	LS dk gy-gybrn micxl rthy occ chk sl arg some rexl
	30%	LS gybrn crpxl some rexl pred dns hd
	30%	SH dk gy-blk blky dol carb ip(abun cvgs redbeds)
9480-9490	20%	LS dk gy-gybrn AA
	55%	LS gy brn AA some wh-lt gy xl-chk
	20%	SH AA
	5%	SLTST gy aren carb incl dol(abun cvgs AA)
9490-9500	60%	SH gybrn-dk gy blky dol calc fl frac slty ip
	15%	MICRITE blk carb frm
	20%	LS gy-gybrn occ dk gy micxl-chk dol ip occ fos some rexl suc h line frac
	5%	ANHY wh xl (cvgs AA)

9500-9510 60% SH AA
10% MICRITE AA
20% LS AA
10% SLTST lt gy-crm aren dol(abun cvgs redbeds)
9510-9520 80% SH AA
10% MICRITE AA
10% LS AA
9520-9530 85% SH AA
15% LS AA
9530-9540 90% SH AA pred dk gy
10% LS AA(abun cvgs redbeds)
9540-9550 90% SH gy-dk gy blky dol carb ip sft-frm occ slty
10% LS AA(abun cvgs redbeds)
9550-9560 90% SH AA pyr incl calc fl frac
10% SLTST lt gy aren carb incl dol cmt arg ip
tr LS AA
9560-9570 100% SH AA carb incl(abun cvgs AA some SS(Honaker?))
9570-9580 100% SH dk gy-blk(occ gy slty)blky dol frm-hd strg
DOL gybrn crpxl dns hd(abun cvgs AA)
9580-9590 100% SH AA(abun cvgs AA)
9590-9600 100% SH gy-dk gy blky wh-crm slty strg DOL frm occ calc
fl frac(abun cvgs AA)
9600-9610 85% SH AA pred dk gy sl slty doland calc fl frac and xl
incl
15% SS wh-crm vfg sbang wsrt dol cmt fri occ glauc incl
tr LS wh xl-chk frm
9610-9620 75% SH AA some lmy pyr xl fl frac some lt gy calc
20% SLTST wh-lt gybrn arg ip dol cmy some sdy
5% LS wh-lt gy xl-chk some rexl
9620-9630 70% SH gy-dk gy splty-blky lmy occ dol
10% LS gy-brn-dk gybrn micxl-crpxl dns frm occ fos
10% SLTST AA some gy
10% SS wh vfg sbrnd-sbang wsrt calc
9630-9640 65% SH AA pyr incl
10% LS AA pred dk gy
10% SLTST AA
10% MICRITE dk gy-blk splty frm
5% ANHY wh xl nod(in SH)
9640-9650 75% SH AA abun calc fl frac pyr clus calc nod anhy nod
10% LS gy-gybrn micxl rexl ip
15% SLTST AA
9650-9660 75% SH dk gy-blk blky lmy dol ip
25% LS AA some wh xl-suc some gybrn crpxl pel ip some dol
(abun cvgs)
9660-9670 65% SH AA calc fl frac some lrg 2 mm
35% LS gybrn-gy micxl-chk some rexl and suc p ø occ pel
in gy-gybrn micxl
9670-9680 55% SH AA incr dol anhy nod
40% LS AA arg ip pel ip
5% ANHY wh xl-chk (abun cvgs)

9680-9690 35% LS gy-gybrn-crm micxl rthyip some DOL and rexl occ lt gy crpxl dns hd
15% MICRITE gy-dk gy blky frm
50% SH gy-dk gy blky dol carb flks calc fl frac
9690-9700 75% SH AA occ blk calc fl frac lrg 1 mm pyr incl and fl frac
15% SLTST wh-crm-tan aren arg ip dol cmt (some sltst cvgs -calc)
10% LS AA (abun cvgs redbeds and uncons ss)
9700-9710 70% SH gy-dk gy blky-plty dol sl slty
20% SLTST AA some grdg to vfg ss
5% ANHY wh-clr xl
5% LS AA(abun cvgs AA)
9710-9720 20% ANHY wh-clr suc sft
25% SH AA
30% SLTST tan aren sdy dol cmt
25% SS wh-tan vfg-slty sbrnd-sbang wsrt dol cmt fri
9720-9730 15% ANHY AA
30% SH AA calc fl frac(less 1/2 mm)
25% SLTST AA
30% SS AA
9730-9740 40% SH dk gy-blk blky carb ip dol calc fl frac
40% SS and SLTST AA
10% LS dk gy micxl rthy frm
10% ANHY AA
9740-9750 45% SH AA anhy nod pyr incl
30% SLTST tan-lt gybrn aren dol cmt sdy ip
20% LS gy-gybrn micxl-chk dns ip sl arg some rexl DOL w/ anhy in fill
5% ANHY wh xl-suc(abun cvgs)
9750-9760 60% SH AA
15% SLTST AA
20% LS AA DOL strg some MICRITE
5% ANHY AA
9760-9770 60% SH AA
20% SLTST AA
20% LS AA some crpxl
tr ANHY AA
9770-9780 50% SH dk gy blky slty dol
40% SLTST wh-tan aren dol cmt sdy
10% LS AA incr dol(lignite and cvgs in spl)
9780-9790 40% SH AA some gy slty
35% SLTST AA
20% DOL brn crpxl-micxl dns frm some rexl some lmy
5% ANHY wh xl
9790-9800 40% SH gy-dk gy slty lmy ip dol ip frm
40% SLTST AA vfg sdy

	10%	DOL AA
	10%	LS gy-dk gy chk MICRITE ip arg ip some micxl rthy (p spl cvgs AA)
	tr	ANHY AA
9800-9810	60%	SH AA
	10%	SLTST AA
	20%	DOL AA
	10%	LS AA
	tr	ANHY AA (p spl)
9810-9820	30%	SH gy splty slty ip DOL calc fl frac
	20%	DOL AA
	25%	LS AA some lt gy-ltbrn MICRITE
	25%	SLTST tan-lt gy aren arg ip calc-DOL cmt(p spl abun lignite)
9820-9830	60%	SH gy-dkgy blky-splty DOL
	30%	SLTST AA vfg sdy
	10%	LS AA
9830-9840	50%	SH gy-dkgy blky-plty DOL carb ip calc fl frac
	10%	MICRITE gy-gybrn smth rthy sft-frm
	30%	DOL gy-gybrn micxl-crpxl pred dns hd some micro suc & rexl slty ip
	10%	SLTST AA (cvgs redbeds)
9840-9850	50%	SH AA lmy nod
	10%	MICRITE AA
	25%	DOL AA
	15%	SLTST AA
9850-9860	60%	SH gy occ dkgy blky DOL calc fl frac frm
	40%	DOL AA some lmy slty ip
	tr	MICRITE AA
	tr	SLTST AA
9860-9870	45%	SH AA scat pyr
	40%	DOL gybrn-dkgy occ wh-ltgy micxl & rexl occ crpxl dns slty ip grdg to DOL SLTST
	tr	cht mlky nod
	15%	SLTST wh-ltgy aren abun dol cmt
9870-9880	40%	SH gy-dkgy smth blky some carb dol calc fl frac(~ 1 mm)
	50%	SLTST ltgybrn-gybrn aren some vfg sdy dol cmt fri
	10%	DOL gybrn crpxl-micxl some slty dns(abun cvgs redbeds)
9880-9890	40%	SH AA calc fl frac (½-1 mm)
	30%	SLTST AA
	20%	LS dkgy-gy-brn micxl-crpxl dns hd
	5%	DOL AA
	5%	ANHY wh xl-suc frm
9890-9900	30%	SH AA
	65%	SLTST AA frm sl arg
	15%	LS & DOL AA(cvgs AA)
9900-9910	15%	SH AA
	70%	SLTST wh-tan aren sdy ip dol cmt fri occ lmy
	15%	LS dkgy crpxl dns hd some DOL

9910-9920	tr	SH AA
	75%	SLTST AA some brn
	20%	DOL wh-gy-dkgy crpxl some micxl rexl dns frm slty
	5%	ANHY wh xl (cvgs AA)
9920-9930	30%	SH dkgy-gy blky-plty sl slty carb flks DOL some lmy
	55%	SLTST wh-brn aren DOL cmt fri
	10%	DOL AA some lmy some hd
	5%	ANHY AA
9930-9940	20%	SH AA
	55%	SLTST AA some lmy
	20%	DOL AA some crpxl
	5%	LS wh-crm chk some rexl sl arg
9940-9950	70%	SLTST wh-ltbrn-ltgy aren DOL cmt frm to fri
	15%	DOL ltgybrn-wh micxl-suc occ crpxl slty dns frm
	5%	ANHY wh chk
	10%	SH AA pyr clus
9950-9960	15%	SH AA calc fl frac
	65%	SLTST AA
	10%	DOL AA
	10%	ANHY wh chk-xl
9960-9970	50%	DOL wh-ltgy-dkgy crpxl-micxl some suc rexl dns frm-hd abun ANHY fl voids wh suc sl arg
	20%	SH dkgy blky slty ip DOL
	10%	SLTST AA
	20%	ANHY wh xl-suc DOL ip
9970-9980	60%	DOL AA some dd stn fl frac
	30%	SH AA vDOL
	10%	ANHY AA
9980-9990	75%	DOL wh-ltgybrn occ dkgybrn crpxl some micxl-suc dns hd sl arg
	10%	SH AA v DOL calc fl frac
	15%	ANHY wh-yel wh xl-suc
9990-10,000	40%	SH dkgy occ blk blky-plty DOL pyr
	45%	DOL dkgy occ ltgy micxl-crpxl dns frm-hd calc fl h line frac ANHY fl ip arg ip
	15%	ANHY wh xl-suc DOL ip
10,000-10,010	40%	SH AA
	50%	DOL AA
	10%	ANHY AA
10,010-10,020	50%	SH AA some dkgybrn
	10%	MICRITE gybrn-dkbrn sft DOL
	30%	DOL AA occ ltgy-wh
	10%	ANHY AA
10,020-10,030	55%	SH gy-dkgy sl slty ip DOL calc fl frac
	40%	DOL ltgy-dkgy crpxl occ micxl dns frm sl arg
	5%	ANHY clr xl-suc
10,030-10,040	65%	SH AA
	30%	DOL AA
	5%	ANHY AA

10,040-10,050	85%	SH dkgy-blk sl slty pred carb DOL
	15%	DOL AA
	tr	ANHY AA
10,050-10,060	95%	SH AA occ carb some calc
	5%	DOL AA
10,060-10,070	85%	SH AA calc fl frac
	15%	MICRITE gy-dkgy brn sft
10,070-10,080	90%	SH gy-gybrn occ dkgy blky slty ip DOL occ calc fl frac occ mica
	10%	MICRITE ltgy-gry sft
10,080-10,090	80%	SH AA calc ip
	20%	MICRITE AA some rexl & frm
10,090-10,100	90%	SH gy-dkgy blky sl slty occ carb DOL frm
	10%	DOL dkgy micxl dns hd
10,100-10,110	75%	SH AA
	15%	DOL AA some ltgy
	10%	MICRITE brn-gy sft
10,110-10,120	70%	SH AA
	15%	MICRITE AA
	10%	DOL AA
	5%	ANHY wh xl-suc
10,120-10,130	70%	SH dkgy sl slty DOL ip incr calc calc fl frac
	15%	MICRITE dkgy sft some shy
	5%	ANHY wh xl gy w/ wh mot
	10%	DOL wh-ltgy micxl
10,130-10,140	65%	SH AA
(pel)	20%	MICRITE AA
	10%	DOL
	5%	ANHY AA
10,140-10,150	10%	DOL gybrn-dkgy micxl occ suc dns hd
	60%	SH AA calc fl frac
	10%	ANHY wh xl-suc
	20%	MICRITE AA
10,150-10,160	50%	MICRITE gybrn-gy sft(sl DOL?)
	15%	DOL AA some ltgy
	25%	SH dkgy blky sl slty pred calc occ DOL
	10%	ANHY AA
10,160-10,170	30%	MICRITE AA sl slty
	30%	DOL AA slty ip
	20%	SH AA
	20%	ANHY wh-clr xl-suc
10,170-10,180	50%	SH gy-dkgy blky DOL ip calc ip calc fl frac
	15%	MICRITE gybrn sft
	15%	DOL gybrn-dkgy crpxl occ micxl h line frac(calc fl?)
	10%	LS redbrn-red occ wh micxl-crpxl rthy slty & arg assoc w/ pyr & ANHY
	10%	ANHY wh-clr xl
10,180-10,190	85%	SH dkgy-dkgybrn splty-plty carb DOL ip
	15%	SLTST wh-crm aren DOL cmt frm-fri

10,190-10,200	100%	SH	AA calc fl frac
10,200-10,210	40%	SH	dkbrn-dkgy smth blky carb sl DOL hd
	60%	SA*	wh xl
10,210-10,220	70%	SH	AA
	30%	SA	AA
10,220-10,230	70%	SH	AA
	30%	SA	AA
10,230-10,240	40%	SH	skgy-occ blk blky-splty carb some sl DOL
	10%	DOL	gy crpxl dns sl slty some lmy
	50%	SA	wh xl
10,240-10,250	40%	SH	AA
	tr	DOL	AA
	15%	ANHY	yel-wh xl-chk sft-frm
	45%	SA	AA
10,250-10,260	30%	SH	dkgy-blk splty-blky carb DOL ip
	10%	SLTST	wh-crm aren DOL & red orng arg ark ip
	10%	CLYST	brn-orng smth lam ip
	50%	SA	AA
10,260-10,270	60%	SH	AA
	40%	SA	AA
10,270-10,280	50%	SH	AA tr red-orng slty SH
	50%	SA	AA
10,280-10,290	15%	SH	AA tr red-brn smth SH
	60%	SA	AA
	10%	SLTST	ltgy-ltgybrn arg carb incl
	15%	ANHY	wh-yel crm chk frm some gy xl frm
10,290-10,300	AA		
10,300-10,340	100%	SA	wh-gy xl occ ANHY wh chk
10,340-10,580	100%	SA	clr-wh xl occ lam in xl
10,580-10,630	100%	SA	AA
10,630-10,720	100%	SA	wh-clr xl lam in xl
10,720-10,750	100%	SA	AA
10,750-10,790	100%	SA	wh-cl xl
10,790-10,870	100%	SA	wh xl
10,870-10,920	100%	SA	wh-clr xl
10,920-10,930	85%	SA	AA
	15%	ANHY	wh chk
10,930-10,940	95%	SA	AA
	5%	ANHY	AA
10,940-10,950	AA		
10,950-11.000	90%	SA	wh-clr xl
	10%	ANHY	wh xl-chk
11,000-11,020	85%	SA	AA
	15%	ANHY	wh-yel xl
11,020-11,060	100%	SA	wh-ltgy xl
11,060-11,070	85%	SA	wh xl
	10%	ANHY	wh chk
	5%	SH	dkgy-blk blky carb

*All salt percentages are estimates

11,070-11,080	80%	SA AA
	10%	ANHY AA some crm
	10%	SH AA some rthy
11,080-11,090	10%	SH blk carb some lam ANHY str
	10%	ANHY wh chk
	10%	SLTST wh-gy aren clean p-p carb incl some sdy w/ red-orn arg cmt
	70%	SA wh xl
11,090-11,100	95%	SA AA
	5%	SH AA
	tr	SLTST AA
	tr	ANHY AA
11,100-11,110	95%	SA AA
	5%	SH AA
11,110-11,150	100%	SA wh-clr xl
	tr	SH blk carb
11,150-11,200	100%	SA wh-clr xl
11,200-11,220	95%	SA wh xl
	5%	SH blk plty-blky carb sl slty
11,220-11,240	100%	SA AA
	tr	SH AA
11,240-11,300	95%	SA wh xl lam ip
	5%	ANHY wh fine xl-chk
11,300-11,340	100%	SA wh xl some lam occ thin lam ANHY AA cmt in spl
11,340-11,360	95%	SA wh xl w/ thin lam ANHY
	5%	SH blk blky carb
11,360-11,450	100%	SA wh xl w/ thin lam ANHY
	tr	SH AA
11,450-11,480	AA	
11,480-11,555	85%-90%	SA wh xl w/ occ thin lam ANHY wh
	5%-10%	SH blk splty carb sft(v small frags)
	cmt in spl	
11,550-11,590	100%	SA wh xl w/ occ thin lam ANHY wh
11,590-11,720	100%	SA wh-clr xl tr ANHY wh
	tr	SH blk carb
11,720-11,750	100%	SA wh xl
11,750-11,800	90%	SA wh-clr xl some lam
	5%	SH blk carb sft occ dkgybrn slty sdy
	5%	tr ANHY wh chk
11,800-11,820	90%	SA wh-clr xl
	5%	DOL dkgybrn-gy rthy slty some carb flks
	5%	SH AA
11,820-11,850	95%	SA wh-clr xl
	tr	DOL AA
	5%	ANHY wh chk
11,850-11,880	100%	SA wh xl
11,880-11,930	85%	SA wh xl
	10%	SH blk blky carb sl DOL sft-frm
	5%	ANHY wh xl-chk

11,930-12,030 90% SA wh xl some lam
5% SH blk carb sl DOL
5% ANHY wh-yel crm chk
12,030-12,080 100% SA wh xl
tr SH AA
12,080-12,100 95% SA wh xl w/ dd stn(?) incl no fluo or cut
5% SH blk-dkgy blky carb sl DOL
12,100-12,120 75% SA wh xl w/ tr dd stn(msofc)
20% SH blk blky brit v carb some metallic luster
tr ANHY wh chk
5% SLTST ltbrn aren DOL cmt
12,120-12,150 85% SA wh xl
10% SH blk carb sl DOL occ micxl pyr occ metallic lstr
5% ANHY wh chk sft
tr SLTST AA
12,150-12,160 75% SA wh xl
5% DOL gybrn micxl slty arg
5% SLTST gybrn micxl slty arg
5% SLTST ltbrn aren DOL cmt carb incl
15% SH blk-dkgy blky-plty slty ip DOL ip carb ip
tr CHT brn lse frags
12,160-12,170 60% SA AA
25% SH AA incr dkgy slty DOL
10% DOL gybrn-brn micxl-crpxl dns hd arg ip some rexl
5% SLTST AA
12,170-12,175 50% DOL gy-gybrn-dkgybrn micxl occ crpxl dns hd pel ip lmy ip arg ip some gy rthy arg occ calc fl frac tr micxl pyr
35% SH dkgy occ blk blky-splty carb ip occ calc fl frac occ micxl pyr
5% LS wh chk occ carb str frm & tan-brn crpxl dns hd
10% ANHY wh xl frm
(All Salt washed from spls from 12,170'-12,200')
tr SLTST brn sil cmt dns glauc incl
12,175-12,180 15% LS wh chk ip micxl-crpxl & sparry mtx w/ pel(indst fos?) suc ip dd brn stn in frac? nsofc
20% LS tan-gybrn crpxl dns occ pel txt occ ool & bio breccia fos frags
40% DOL gybrn micxl dk pel & dkgybrn micxl-crpxl dns hd some rexl
25% SH AA
tr ANHY AA
12,180-12,190 10% LS wh-ltbrn chk micritic ip w/ bioclastics sft-frm occ pel
20% LS brn-wh micxl-crpxl dns occ pel DOL ip pyr xl
10% DOL gy micxl occ crpxl frm-hd
5% SLTST gybrn-brn arg DOL cmt w/ thin DOL strg
55% SH dkgy-blk plty-splty carb sl DOL
tr red clastics pk stn qtz gr red arg SLTST & CLYST ptgs (molas fm)

12,190-12,195 15% DOL dkgy-gy-brn micxl-occ crpxl dns sl arg slty ip some clr xl-micxl assoc w/ pyr occ p-p carb incl
30% LS gy-brn crpxl dns hd DOL ip sl slty/arg lt brn cht frags foram(indst) in sparite some fos hash
15% LS wh-ltgy chk some sparry sft-frm arg some micritic scat qtz gr ool ip
40% SH dkgy-gy blky slty ip some pyr clus
tr SLTST yel aren fri
tr red clastics SLTST CLYST pk-red stn qtz gr
tr gn SH-CLYST
12,195-12,200 5% CHT smky-ltbrn w/ pyr incl
15% DOL AA some rexl pø
40% LS wh chk sparry AA
15% LS gy-brn micxl-crpxl AA incr DOL
25% SH AA decr pyr
tr red clastics AA

Depth correction 47' @ 10,180'

12,150-12,160 v p spl cmt & lcm
tr DOL gy crpxl
12,160-12,170 tr LS ltgy micxl sparry ip some gy-dkgy crpxl dns DOL ip
tr DOL gy crpxl dns abun cmt & lcm
v p spl
12,170-12,180 15% LS ltgy-gybrn micxl-crpxl dns hd tr dd stn in h line frac nsofc
10% LS wh chk sparry sft-frm
10% DOL gy crpxl dns hd
50% DOL ltgy-dkgy rthy grdg to dolomitic CLYST dns frm occ arg slty occ thin carb(?) lam
15% LS pk arg str w/ red cly & SLTST occ vareigated SH
tr SH blk carb
abun cmt in spl
v p spl
12,180-12,190 45% DOL rthy grdg to DOL CLYST AA
15% LS brn crpxl dns hd some pel
15% LS wh chk sparry ip clean frm-sft some xl
20% LS pk AA & red clastics AA
5% CHT clr-opaque frags abun cmt in spl
12,190-12,200 20% LS wh micxl occ chk pel/ool ip sparry ip suc txt fø tr pyr fl frac some calcilutite
tr algal plates & foram(?) p-p stn in chk & sparite LS pos acid test nsofc
10% LS brn crpxl some f xl suc
15% DOL wh-gy micxl dns pel(brn)
20% DOL gy-gygn arg rthy grdg to ltgn-gygn DOL CLYST
20% SLTST & CLYST pk-red lmy w/ pk stn LS
15% CLYST gn-gygn splty n lam p-p stn AA DOL

(10' depth correction @ 12,202')

12,200-12,210	30% LS	wh micxl AA
	10% LS	brn crpxl AA
	10% DOL	gy micxl-crpxl dns hd
	30% CLYST	gn-gygn AA(as cvgs)
	20% SLTST & CLYST	red-purp-pk AA(some as cvgs)
12,210-12,215	35% LS	wh-ltgy chk some micxl pel ip w/ sparry-MICRITE mtx some suc tr ool
	15% LS	brn-dkgy crpxl dns hd some suc
	50% CVGS	AA
12,215-12,220	5% CHT	smky-opaque frags
	65% LS	brn-tan crpxl some w/ f xl suc fø pel ip indst fos frags some DOL algal plates? occ glauc nsofc
	30% LS	wh chk sparry ip pel ip abun molas & Pinkerton Trail cvgs
12,220-12,225	AA	
12,225-12,230	40% LS	brn AA
	60% LS	wh chk AA some ool some suc abun cvgs
12,230-12,235	60% LS	ltbrn-wh crpxl fxl suc ip tr ool pel ip
	40% LS	wh chk sparry occ suc
	tr CHT	opaque frags abun cvgs
12,235-12,240	30% LS	ltbrn-wh crpxl AA
	70% LS	wh chk AA
	abun CVGS	
12,240-12,250	45% LS	wh-brn micxl-suc w/ brn crpxl dns w/ indst fos frags
	50% LS	wh chk pel in sparry mtx w/ suc txt pø
	5% DOL	ltbrn-brn crpxl dns hd(abun cvgs)
12,250-12,260	65% LS	wh-brn AA w/ abun suc some DOL p-fø tr pyr xl nsofc
	30% LS	wh chk AA
	5% DOL	AA some dk brn tr secondary ø (abun cvgs)
12,260-12,270	70% LS	ltbrn-wh micxl w/ abun suc pred pø occ fø occ DOL occ crpxl dns some pel w/ sparite
	tr	dk brn stn nsofc
	20% LS	wh chk AA
	10% DOL	dk brn-tan crpxl dns tr suc/secondary ø occ pyr xl(abun cvgs)
12,270-12,280	70% LS	ltbrn-wh AA indst fos some MICRITE mtx w/ suc sl DOL
	30% DOL	ltgy-brn-tan pred crpxl dns w/ pyr xl some suc & lmy ip some indst fos
	(abun cvgs)	
12,280-12,290	80% LS	AA some brn pel fos hash t5 clr-translucent ool(?)
	20% DOL	AA
12,290-12,300	85% LS	wh-brn suc-micxl pred pø some fø some DOL tr glauc indst fos frags tr brn stn nsofc abun pyr xl
	15% DOL	brn-dkbrn crpxl dns hd

12,300-12,310 50% LS wh-ltgy-ltbrn micxl suc ip p-fø pyr incl some pel
25% LS wh-brn crpxl occ chk-sparry dns frm-hd
10% DOL brn-tan crpxl dns lmy ip
15% DOL brn-micxl-mic suc secondary ø abun brn stn in mtx ø nsofc occ pel

12,310-12,315 40% LS wh-ltgy micxl AA(crinoid stem?)
25% LS wh-brn crpxl AA(foram?)
15% DOL brn-tan crpxl AA
20% DOL brn mic suc AA

12,315-12,320 65% LS wh chk occ sparry pel ip grdg to tan crpxl-mic suc fos frags & indst fos pyr fl frac occ brn stn nsofc
10% DOL brn-tan crpxl AA
25% DOL brn mic suc AA stn AA

12,320-12,330 15% DOL brn-dkgybrn crpxl dns hd some lmy
10% DOL brn-dkgy mic suc p-fø dd brn-blk stn nsofc
75% LS wh-ltgy micxl occ suc pø some DOL occ foram some dd blk stn nsofc in frac fos frags(striae) occ chk sparite

12,330-12,340 10% DOL brn-dkgy mic suc AA pø stn AA
90% LS wh-ltgy AA indst fos(w/ striae) dd blk stn in frac & pores nsofc pyr incl
tr CHT blk w/ assoc wh micxl LS (lo,335-10,340 spl)
tr CHT brn frags

12,340-12,350 10% DOL brn crpxl dns hd
10% DOL brn-dkgy mic suc secondary dd brn-blk stn in pores nsofc
80% LS brn-ltgy crpxl some suc some chk sparite tr blk stn in frac nosfc pyr fl h line frac
tr CHT brn-blk some nod w/ some blk stn on cht

12,350-12,360 90% LS brn-gy crpxl dns some suc pø some dd blk stn in suc ø nsofc tr glauc fos frags
10% DOL dkgy-brn mic suc AA
tr DOL dkbrn crpxl dns hd
tr CHT AA (abun cvgs)

12,360-12,372 65% LS AA
20% DOL gy-wh mic suc-suc dd blk stn in pores nsofc frm
15% DOL brn crpxl dns hd
tr CHT brn some blk stn crinoid stem in lt gn CLYST mtx

10' depth correction @ 12,202'-back to 12,372'

12,362-12,370 25% DOL gy-brn mic suc p-fø dd blk stn in pores nsofc
40% LS wh-gy suc occ mic suc pø pel ip
tr CHT brn frags some assoc w/ LS wh chk
20% DOL AA some suc & crpxl
45% LS brn-wh-gy crpxl dns glauc ip pyr incl
35% LS wh-gy suc(AA tr ool incr pel in sparry-suc mtx

12,375-12,380	30% LS	brn-occ gy & wh crpxl AA incr glauc abun ool DOL ip indst fos
	35% LS	ltbrn-wh gy suc occ mic suc pø occ indst fos
	10% LS	wh chk grdg mic suc-sparry mtx frm grdg to suc LS some ool/pel w/ dd blk stn nsofc
	15% DOL	AA
	10% DOL	gy-dkbrn crpxl dns w/ thin LS laminae
12,380-12,385	15% LS	brn-wh crpxl AA decr ool abun pel
	20% LS	ltbrn-wh-gy suc AA
	10% LS	wh chk AA
	40% DOL	brn-dkgybrn mic suc pø secondary ø tr dd blk stn nsofc grdg to
	15% DOL	brn-gy crpxl dns w/ occ mic suc txt tr dd blk stn nsofc
12,385-12,390	30% LS	brn-occ wh & gy crpxl abun ool & pel some in sparite/suc mtx tr crinoids
	20% LS	wh chk sparry ip grdg to mic suc-suc abun pel & ool thru(pack stone)
	20% DOL	mic suc AA
	30% DOL	crpxl AA
12,390-12,395	40% LS	brn-wh-gy crpxl AA calc fl v vgs
	10% LS	wh chk AA
	15% DOL	crpxl AA indst fos frags
	35% DOL	brn mic suc secondary ø tight pel(?) ip
12,395-12,400	40% DOL	brn occ gy suc-micxl some mic suc p secondary ø lmy ip occ dd blk stn nsofc
	15% DOL	brn crpxl dns hd occ ool
	45% LS	wh-ltbrn suc-micxl occ sdy txt pø pel ip tr ool occ pyr incl occ dd blk stn in frac nsofc tr glauc
	tr LS	chk AA
12,400-12,410	50% LS	AA some packstone incr ool
	35% DOL	brn-gy suc-micxl AA some pel
	15% DOL	crpxl AA
12,410-12,420	25% DOL	brn-gy suc AA
	25% DOL	brn-dkbrn pred crpxl some micxl dns hd pel
	20% LS	wh chk micritic ip frm DOL ip occ sparry
	30% LS	ltbrn-gy-wh crpxl & pel w/ sparite/calc mtx grdg to packstone abun ool/pel some DOL
	tr CVGS	
12,420-12,430	25% DOL	crpxl AA
	45% DOL	suc-micxl AA
	10% LS	chk
	20% LS	crpxl & packstone AA some indst fos
12,430-12,440	40% DOL	brn-tan micxl occ crpxl some mic suc dns pø pred secondary occ LS lam dd blk stn nsofc
	30% DOL	dkbrn-gybrn-tan crpxl dns hd occ lmy
	30% LS	gybrn-gy crpxl-micxl dns occ packst DOL ip

12,440-12,450 50% DOL brn-gybrn crpxl dns occ pel some blk stn nsofc some micritic sl arg
30% DOL brn-tan micxl-mic suc AA some lmy
20% LS AA

12,450-12,460 40% DOL dkbrn-gybrn crpxl AA some lmy
30% DOL brn-tan micsl-suc occ mic suc p secondary ø some lmy w/ pyr incl faint pel txt
20% LS wh-ltgy-tan chk-micritic some slt size gr in sparite some pack-grainst ool/pel
10% LS brn crpxl dns frm some ool
(tr CVGS)

12,460-12,465 60% DOL brn-gy crpxl dns hd some calc fl frac some lmy occ pel/ool occ suc-mic suc
20% LS wh-ltbrn-brn packst MICRITE mtx some chk some grdg to grainst
20% LS brn crpxl dns occ ool

12,465-12,470 60% DOL brn crpxl AA occ dd blk stn fl frac pyr xl
15% LS wh chk some sparry fos casts
25% LS wh-ltbrn AA packst

12,470-12,480 30% DOL brn crpxl AA
10% DOL wh-brn suc-mic suc p secondary ø occ dd blk stn nsofc
20% LS brn-gy crpxl some sparite fl vvgs occ pel(faint)
20% LS wh chk AA some algal plates
20% LS wh-ltbrn packst AA

12,480-12,490 40% DOL brn-tan crpxl dns hd
10% DOL suc-mic suc AA
20% LS crpxl AA some suc
30% LS wh chk sparry AA

12,490-12,500 25% DOL gy-brn crpxl dns hd some h line calc fl frac occ fos frag?
35% LS gy-brn-tan crpxl some packst-grainst w/ intraclasts/ fos frags? some calcarenite
40% LS wh chk grdg to calcarenite w/ MICRITE mtx pyr fl frac tr dd blk stn nsofc

12,500-12,510 20% DOL crpxl AA
30% LS crpxl AA
50% LS wh chk AA some sparite w/ dd brn stn nsofc some intraclastic w/ sparite cmt
tr SH gn wxy

12,510-12,520 70% LS wh calcarenite w/ MICRITE mtx & wh chk micritic occ sparry some intraclasts & fos frags occ h line stn fl frac nsofc
20% LS wh calcarenite grainstone AA some bio clastics tr dd brn stn nsofc
20% LS crpxl AA
10% DOL AA

12,530-12,540 55% LS wh calcarenite MICRITE mtx some packstone occ sparry
25% LS wh micritic occ dd brn stn grdg to calcarenite AA tr algal plates(?)

	20% LS	brn crpxl dns hd tr foram
	tr DOL	AA
12,540-12,550	55% LS	calcarenite AA pel ip
	15% LS	MICRITE AA
	30% LS	brn crpxl AA sparite in frac?
12,550-12,560	50% LS	calcarenite AA
	10% LS	MICRITE AA pyr incl
	25% LS	brn crpxl AA
	15% DOL	brn crpxl dns hd some lmy occ pel
12,560-12,570	35% LS	wh calcarenite w/ MICRITE mtx some sparry some intraclasts & fos frags
	15% LS/MICRITE	wh chk sft
	40% LS	brn-gy crpxl dns occ suc w/ indst fos some frac
	10% DOL	AA
12,570-12,580	30% LS	wh calcarenite AA
	10% LS	MICRITE AA
	45% LS	brn-gy crpxl AA
	15% DOL	AA some suc txt some fos frags
12,580-12,590	30% LS	calcarenite AA
	15% LS	MICRITE AA indst fos
	30% LS	crpxl AA
	10% DOL	gy-dkbrn crpxl dns hd
	15% DOL	gy-wh mic suc p-fø abun dd blk stn snofc(?)
	tr SH	gn sbwxy assoc w/ brn crpxl LS
12,590-12,600	45% LS	AA
	40% DOL	gy-dkbrn crpxl AA
	10% DOL	mic suc AA(?)
	5% SH	gn-ltgn sbwxy-wxy sil ip hd
12,600-12,610	25% LS	AA
	60% DOL	gy-dkgy crpxl dns hd occ calc fl frac brecciated(?)
	5% DOL	mic suc AA
	10% SH	AA
12,610-12,620	65% DOL	brn-gy crpxl dns hd pel bioclastics tr forma some dd blk stn nsofc
	20% LS	brn-gy crpxl some sparite fl frac(suc txt)
	15% SH	gn-dkgn wxy plty
12,620-12,630	75% DOL	brn crpxl AA pyr xl
	15% LS	AA
	10% SH	AA
	tr SS	wh fg-mg w rnd DOL cmt frm
	20% SS	wh fg-mg sbrnd-w rnd DOL cmt occ dd blk stn nsofc
	70% DOL	AA occ qtz gr
	10% SH	ltgn sbwxy pyr xl occ sdy(qtz gr)
12,630-12,640	occ sil	cmt frm-fri
12,640-12,650	80% DOL	brn-dkbrn-gy crpxl dns hd occ secondary ø pø occ dk blk stn fl frac & pores scat qtz gr some dk brn rthy arg
	15% SS	wh AA
	5% SH	AA

12,650-12,660 80% DOL AA sdy incr dd stn
15% SS wh-clr fg-cg occ vfg ang-rnd sil/DOL cmt dd blk stn in pore space no fluor v pale milky yel cut(?) p ø
5% SH gn-gygn splty wxy-sbwxy frm

12,660-12,670 80% DOL AA stn AA abun fg-cg sbrnd qtz gr thruout scat pyr xl
15% SS AA
5% SH AA

12,670-12,680 90% DOL dkbrn-tan-gy crpxl dns hd occ p secondary ø(suc) dd blk stn fl frac & pores nsofc abun qtz gr rnd-sbrnd fg-cg
10% SS AA
tr SH AA

12,680-12,690 85% DOL AA incr secondary ø(p-fø)
15% SS clr-ltgygn-tan fg-cg occ vcg rnd-ang psrt pred DOL/occ sil cmt pø pyr xl & dd blk stn in pores nsofc
tr SH AA

12,690-12,700 80% DOL AA
20% SS AA

12,700-12,705 85% DOL gy-tan-brn crpxl dns some secondary ø(suc) p ø some dd blk stn nsofc scat qtz gr thru
15% SS AA

12,705-12,710 75% DOL AA
10% SS AA
5% SH AA dkgy-dkbrn splty-plty DOL brit

12,710-12,720 75% DOL AA
5% SS AA
5% SH gn AA
10% SH dkgy AA tr blue(?) sl slty

12,720-12,730 tr CHT brn
75% DOL gy-tan-occ dkbrn crpxl dns occ mic suc txt occ fg qtz gr tr dd blk stn in mic suc txt & h line frac nsofc
10% SS wh-pk-brn vfg-slty sbang wsrt p cmt w/ DOL fri tr dd blk stn nsofc(McCracken?)
10% SLTST AA some thin lam some sdy
5% SH dkgy-dkbrn sl slty thin lam

12,730-12,740 70% DOL AA some(30% of DOL) wh micxl-crpxl occ mic suc ø abun glauc(bright gn) occ dk mnrl some fg some dd blk stn nsofc
15% SLTST AA
10% SH AA blue SH ptgs
tr CHT brn weathered

12,740-12,750 80% DOL wh micxl AA some fg sdy
10% SH AA
tr SH ltgn plty wxy
10% SS AA pred wh

12,750-12,780 v p spl
pred SS wh uncons(McCracken cvgs) & brn SH & SLTST(molas?) abun lcm & pipe dope in spls

12,780-12,790 100% DOL wh-brn crpxl dns f xl pyr scat thru tr glauc (lt gn) some dd blk stn fl h line frac some micxl w/ occ small vvgs some p-p dd blk stn tr mnrl fluor nsofc (McCracken & Aneth cvgs) (abun pipe dope in spl)

12,790-12,800 100% DOL AA incr pyr incl scat mg qtz gr (abun McCracken cvgs)

12,800-12,810 90% DOL brn-tan occ wh pred crpxl occ micxl-mic suc pyr xl scat thru incr glauc incl(brt gn) dd blk stn in pore spaces & some p-p stn nsofc pø scat dk mnrl

10% SH gy-brn smth blky n calc some lam v fine mica (abun McCracken cvgs)

12,810-12,820 50% DOL AA

15% SH AA

5% SLTST ltbrn-off wh calc arg cmt some dd brn stn nsofc

30% SS brn-wh vfg occ fg sbang-rnd wsrt DOL cmt glauc incl occ dd blk stn nsofc

12,820-12,830 70% SS gy-wh occ dkgy vfg-slty occ fg sbrnd wsrt sil cmt some qtz sl DOL brt gn glauc incl occ dk mnrl some dd blk stn in pores & frac nsofc

20% SLTST brn-gybrn sl arg sil cmt occ DOL p-p dd blk stn nsofc

10% SH dkgy-dkbrn occ purp(?) sl slty sl DOL occ brt gn glauc incl

12,830-12,840 75% SS AA occ pyr incl abun cht frags & pbl some weathered brn-smky

15% SLTST AA

10% SH AA scat pyr xl

12,840-12,850 tr DOL brn crpxl dns hd

100% SS wh-gy-brn vfg some slty sbrnd wsrt sil cmt some qtzc brt gn glauc incl sl DOL occ cht frags smky p-p dd brn-blk stn snofc occ dk mnrl

12,850-12,860 80% 80% SS AA some cg qtz gr incr cht

5% DOL AA

15% SH gy-brn-blky-splty sl slty fine mica occ glauc incl sl DOL

12,860-12,864 80% SS brn occ wh-gy-dkgy vfg sbrnd-sbang wsrt sil cmt sl DOL pyr xl thru abun brt gn glauc incl some dk mnrl dd stn AA

10% SH AA some blk carb(?)

10% DOL AA some lmy some sdy

12,865-12,870 15% SLTST wh-gy DOL cmt fri occ glauc incl

85% SS wh-brn-gy vfg occ fg-mg ang-sbrnd msrt DOL/sil cmt some qtzc some brt-dk gn glauc incl & scat pyr xl

tr dd blk stn nsofc p ø

12,870-12,880 10% SLTST AA occ mica

90% SS AA scat feld gr

tr SH gy-dkgy blky sl slty sl DOL

tr cht brn frags

FORMATION TOPS

FORMATION	TRANSCO #1-15 E-LOG TOP	TRANSCO #1-15 SUBSEA	TIDEWATER #1 PINERIDGE SUBSEA	TENNECO #1 REDD RANCH SUBSEA
CRETACEOUS				
DAKOTA SANDSTONE	--	--	--	--
BURRO CANYON FM.	229'	7390'	--	--
JURASSIC				
MORRISON FM.				
BRUSHY BASIN MBR.	383'	7236'	--	--
SALT WASH MBR.	683'	6936'	7244'(?)	--
SUMMERVILLE FM.	945'	6674'	7019'(?)	--
ENTRADA SANDSTONE	1142'	6477'	6752'	6946'
TRIASSIC				
NAVAJO SANDSTONE	1415'	6204'	6544'	6714'
KAYENTA FM.	1834'	5785'	6097'	6524'
WINGATE SANDSTONE	2070'	5549'	5884'	6314'
CHINLE FM.	2373'	5246'	5499'	6061'
BLACK LEDGE MBR.	2567'	5052'	--	5666'
MOENKOPI FM.	2652'	4967'	4789'	5606'
PERMIAN				
CUTLER GROUP(UNDIFF)	2885'	4734'	4739'	5206'
PENNSYLVANIAN				
HONAKER TRAIL FM.	7670'	-51'	-1098'	--
PARADOX FM.*	8807'	-1188'	-1351'	5034'
PARADOX SALT MBR	10,165'	-2546'	-4166'	4574'
PINKERTON TRAIL FM.	12,053'	-4434'	-4329'	-4594'
MOLAS FM.	12,132'(?)	-4513'	-4504'	-4742'
MISSISSIPPIAN				
REDWALL FM.	12,156'	-4537'	-4546'	-4817'
DEVONIAN				
OURAY FM.	12,476'	-4857'	--	--
ELBERT FM.	12,574'	-4955'	--	--
MC CRACKEN SS MBR	12,646'	-5027'	--	--
ANETH FM.*	12,777'	-5158'	--	--
CAMBRIAN				
LYNCH FM.*	12,870'	-5251'	--	--

* See geologic summary for discussion

GEOLOGIC SUMMARY
AND
ZONES OF INTEREST

Geologic coverage for Transco Exploration Company's well, Transco-Huber Federal #1-15, located in Section 15-T28S-R25E began under conductor pipe at 140' in the Dakota Sandstone. Spudded on 31 October 1983, the well reached a total depth of 13,013' on 28 February 1984 in the Lynch Formation.

Dakota Sandstone (Surface-229')

The middle member of the Cretaceous Dakota Sandstone(Fm.) was encountered under conductor pipe at 140 feet. The middle member consisted of a gray noncalcareous clay stone with scattered carbonaceous flakes and thin stringers of white to light gray very fine grained to silty sandstone with carbonaceous streaks.

The lower member of the Dakota Sandstone(Fm.) was a moderate to coarse grained white sandstone with occasional pyrite inclusions and a chert pebble conglomerate at the base.

No shows were observed in the Dakota Sandstone.

Burro Canyon Formation (229'-383')

The Burro Canyon Formation of lower Cretaceous age, was marked by a green swelling mudstone at the top, interbedded with white, very fine to fine grained sandstone. The basal portion of the Burro Canyon was not observed because the shale shaker was bypassed.

No shows were observed in the Burro Canyon Formation.

Morrison Formation-Brushy Basin Member (383'-683')

The top of the Brushy Basin Member of upper Jurassic age was picked by E-logs as the shale shaker was bypassed. The Brushy Basin Member was composed of gray to gray green, slightly silty, non-swelling mudstones interbedded with white to rose colored sandstones, very poorly sorted and unconsolidated(in samples). Minor amounts of chert were also observed.

There were small increases in the background gas(<5 units) in the sandstone breaks of the Brushy Basin Member.

Morrison Formation-Salt Wash Member (683'-945')

The top and bottom of the upper Jurassic Salt Wash Member were placed to include all the radioactive markers as shown on the gamma ray log.

The samples showed the Salt Wash Member to have a shaly and silty character with thin interbeds of fine to moderate grained, brown to tan sandstone in its upper section while the lower section consisted

of a massive sandstone; white to salmon colored, argillaceous or silica cemented and generally fine to very fine grained. The basal portion of the Salt Wash Member was a gradational contact with the underlying Summerville Formation.

There were minor amounts of methane(100 ppm) in the Salt Wash Member.

Summerville Formation (945'-1142'(?))

The top of the upper Jurassic Summerville Formation was picked just below the last radioactive marker of the Salt Wash Member of the Morrison Formation. The samples show a gradational contact with the Salt Wash Member.

The Summerville consisted of brown, red brown and maroon silty shales, calcareous in part interbedded with white to pink, very fine to fine grained sandstones occasionally moderate to coarse grained and calcitecite cemented. There was also some dead black asphaltic stain in the lower sandstones.

The lower contact with the Entrada Sandstone was difficult to pick due to the sandy nature of the basal Summerville Formation. The top of the Entrada Sandstone was determined using E-logs although the green to maroon shales with limestone nodules at 1200'-1220' probably were basal Summerville.

Minor amounts of methane were noted in the upper Summerville Formation.

Entrada Sandstone (1142'(?)-1415')

The top of the Jurassic Entrada Sandstone, as mentioned above, was probably at or below 1220', with the shales and limestone nodules representing basal Summerville or interfingering of Summerville and Entrada sediments.

The Entrada Sandstone is generally divided into three members, in descending order: Moab Tongue, Slickrock Member and Dewey Bridge Member.

The Moab Tongue was predominantly a white to pink, occasionally brown, fine to moderate grained sandstone, with abundant dark minerals(felspathic?), silica cemented with occasional clay cement/ matrix. Below the Moab Tongue, the Slickrock Member(~1290') was a cleaner unconsolidated(in samples) sand, moderate to coarse frosted grains with finer grains and poorly cemented with clay in the lower portion. The Dewey Bridge Member(~1396'),thin in this well, was composed of very coarse quartz grains in a predominantly fine to very fine orangebrown sandstone with minor shales and a basal arkosic, sandy siltstone.

No hydrocarbon shows were seen in the Entrada Sandstone. A lost circulation zone was encountered at 1350'-60'.

Navajo Sandstone (1415'-1834')

The top of the upper Triassic Navajo Sandstone is a disconformable contact with the Entrada as seen along Utah Route 163 between LaSal Junction and Kane Springs. The top is usually marked by white to brown weathered chert nodules in samples although the only chert was seen at 1460'-70'. The top was selected, due to sparse chert and other sample indications, using the gamma ray log.

The Navajo Sandstone consisted of two distinctive sections at this location. The upper 2/3 consists ofa light orange to tan sandstone, generally fine to very fine, rounded frosted grains, unconsolidated(in samples) or silica cemented. The lower section was composed primarily of sandstones pink, white and yellow occasionally brown very fine to fine grained, subrounded to subangular, and silica/argillaceous cementing. There were also minor brown siltstones and light green to gray-green shales with gray to brown limestone nodules, probably of playa lake origin.

The Navajo Sandstone was very thick(419') at this location. It was also thick at Tidewater #1 Pine Ridge(447')& moderately thick Tenneco #1 Redd Ranch(190'). The Navajo generally thins to the east and northeast and pinches out along the Utah-Colorado border. Transco-Huber Federal is approximately 5 miles from the border so the anomalous thickness was probably due to salt tectonic-paleotopographic control in the area.

There were no hydrocarbon shows in the Navajo Sandstone.

Kayenta Formation(1834'-2070')

The top of the upper Triassic Kayenta Formation was picked by e-logs, while the lithology change was noted in the samples at 1850' with the appearance of reddish brown to brown, occasionally graygreen, shales and mudstones, some calcareous with minor gypsum inclusions. The Kayenta consisted mainly of sandstones, reddish brown to rose colored sometimes white and purple, fine to moderate grained and calcite cemented. Minor shales as described above and redbrown argillaceous siltstones were scattered throughout.

No hydrocarbon shows were observed in the Kayenta Formation.

Wingate Sandstone (2070'-2373')

The top of the upper Triassic Wingate Sandstone was marked by a return to predominantly sandstone lithology in both samples and e-logs. The Wingate Sandstone was composed of roange, brown, tan and white sandstones very fine to fine grained, occasionally moderate to coarse grained, with scattered chert fragments. The sands were poorly cemented with silica and minor amounts of clay. No calcite cement was seen. Thin scattered reddish brown silts and shales were seen with occasional thin beds of brown crypto crystalline limestone. The basal Wingate shows an increase in shaliness due to probable reworking of, or interfingering with, the underlying Chinle Formation. Gypsum nodules and partings were noted throughout the lower shaly section of the Wingate.

There were no hydrocarbon shows observed in the Wingate Sandstone.

Chinle Formation (2373'-2652')

The top of the upper Triassic Chinle Formation was picked from e-logs as there was a gradational contact with the overlying Wingate Sandstone. The Chinle Formation at this location was divided to an upper silty member and the lower sandy Black Ledge Member. The siltstones were reddish brown, orange brown and occasionally yellow green, argillaceous and predominantly calcareous. There were minor reddish brown to dark brown shaly interbeds scattered throughout. The Black Ledge Member, top at 2567', was mainly a reddish brown to orange brown sandstone, very fine grained, silty in part, some with argillaceous or siliceous cement. Brown to red brown shales and limestone nodules were a minor lithology.

There were no hydrocarbon shows in the Chinle Formation.

Moenkop: Formation (2652'-2885')

The lower Triassic Moenkopi Formation top was marked by an orange brown to maroon argillaceous siltstone of the Sewemup Member. The Sewemup had scattered, thin orange brown to brick red silty shales and minor amounts of limestone pebbles. The Sewemup Member is thin in this area due to an erosional uncomformity, probably related to salt tectonics.

The Ali Baba Member, top at 2684'(?), consisted of predominantly orangebrown sandstone; sometimes purple, gray and white, very fine to fine grained argillaceous, arkosic and very micaceous. Limestone nodules and glauconite were noted in the lower Ali Baba Member.

The lowest member, the Tenderfoot, was marked by a change to siltstones and shales at 2758'. The siltstones, reddish brown in color, argillaceous, and with scattered plant remains, made up most of the Tenderfoot Member. Thin shales and freshwater limestones were minor constuents. The basal Tenderfoot contains bedded anhydrites gypsum which are helpful in selecting the Moenkopi-Cutler contact.

There were no hydrocarbon shows in the Moenkopi Formation.

Cutler Group-Undifferentiated (2885'-7670')

The Permian Cutler group does not get subdivided into separate formations until the approximate eastern border of Canyonlands is reached. At this location the Cutler is a massive deposit of silts and sands with minor shales with no distinct formational boundaries. The siltstones were orangebrown to reddish brown in color, very argillaceous, micaceous and occasionally sandy. The shales were various shades of brown, micaceous and silty in part. The sandstones of the Cutler group were generally white, orange and brown in color. Grain size varied from very fine to very coarse grained with the larger grain sizes generally confined to the thicker sandstone beds. It was suggested in "Lower Permian Depositional System"[1] that the sands of the Cutler at this

locality were deposited in a meandering stream system originating from the Uncompahgre Uplift. The abundant dead asphalt seen in the Cutler starting at 4370' has stained much of these stream sands. Porosities were generally poor with some interstitial clays. There may by a marine component to these sands but they do not correspond timewise with the White Rim Sandstone which truncates along the line of the Colorado River to the west of this location.

The basal Cutler had minor amounts of limestone and the shales and silts became dark brown to gray in color and generally more calcareous. There was a gradational contact with the underlying Honaker Trail Formation. There may be lateral grading with the lower Permian Elephant Canyon Formation at this locality.

There were minor gas increases in background gas readings at 3150'-3200'(10-15 units), 5980'-6010'(5 units) and 6501'-6516'(8 units). An increase of 93 units was detected from a drilling break at 7171'-7176' with C_1-C_5 on the chromatograph. This zone was tested with DST #1 with no gas to surface or recovered. (See DST Reports in this geologic report.) Another increase over background of 128 units at 7490'-7501' also showed C_1-C_5 on the chromatograph. This zone was not tested.

Honaker Trail Formation (7670'-8807')

The Honaker Trail Formation of late Pennsylvanian age, has a gradational contact with the overlying Cutler Group due to marine transgressions, and may also have a disconformable contact as well. As a result the top of the Honaker Trail is generally selected at the first significant limestone.

The upper Honaker Trail at the wellsite consisted of brown, reddish brown and graying brown shales and thin brown to grayish brown micro- to cryptocrystalline limestones. Sandstones, white to light gray and light brown, very fine grained, silica cemented and glauconitic in part, were a significant lithology. The lower Honaker Trail became increasingly sandy with abundant asphaltic stain as shown in the "show" column of the geologic log. The sands were generally unconsolidated or loosely consolidated(in samples), cemented with silica or the asphaltic residue. Porosities were generally poor to fair, although difficult to estimate due to the nature of the samples.

Gas shows were seen in numerous drilling breaks in the Honaker Trail. A good gas show from a drilling break at 8300'-8320' had C_1-C_4 indicated on the chromatograph and brown oil staining the pore spaces. There was no florescence or chlorothene cut. Porosities were estimated as fair to good. The interval was evaluated by DST #2 with gas to surface during the final flow bleed down. Another drilling break from 8426'-8478' showed a 148 unit increase over background with C_1-C_4 present. Samples showed dark brown oil staining with a delayed milky yellow cut. The interval 8425'-8471' was evaluated by DST #3. There was gas to surface during the preflow bleed down. See DST Reports for flow information. Slightly gas cut saltwater was recovered but no oil was seen.

The abundance of asphaltic stain in both the Cutler and Honaker Trail sands indicate a significant potential for petroleum accumulation from the adjacent Paradox Salt source beds. As the Cutler sands are primarily river channel in origin and the Honaker Trail sands littoral, marine and continental in nature, both structural and stratiagraphic plays are possible in this area.

Paradox Formation (8807'-12,053')

The middle Pennsylvanian Paradox Formation consisted of an upper section of cyclic carbonate deposition and a lower section, the Paradox Salt Member. The top of the Paradox Formation was marked by thicker carbonates and the disappearance of marine shales and sands abundant in the Honaker Trail Formation.

The carbonate facies can be subdivided into the Ismay zone 9807'-9490', Gothic Shale 9490'-9639', Desert Creek zone 9639'-10,148' and Akah zone 10,148'-10,165'. The divisions were made by correlation with wells of the eastern Paradox Basin where the zones are thinner, but comparisons are still possible. No zones of good secondary or vuggy posority were observed although some algal plates were recognized in the upper Ismay at 8920' and in the lower Ismay at 9265'. Small amounts of dead asphaltic stain were observed in the Ismay and Desert Creek.

There were small increases in the background gas of 10-15 units 9018'-9060', 20 units at 9300'-9315', 40 units at 9850'-9867'and 42 units at 10,124'-10,139' but no sample shows were observed.

Paradox Salt Member (10,165'-12,053')

The Paradox Salt Member, top at 10,165' was marked by an increase in the drilling rate and drilling mud chlorides. Electric logs were run at this point and casing run to 10,110'. Drilling mud was changed to a saturated salt mud with 30% excess salt with an 11.0+ ppg weight. This resulted in an in gage drill hole but made it difficult if not impossible to recognize any facies changes in the samples. Shale intervals were recognized by drilling rate. Washing a large amount of sample would sometimes yield a few shale partings when all salt was dissolved. No cuttings gas analysis were run as a result of poor samples.

Gas shows in the Paradox Salt were found in the shale intervals at 10,172'-10,180' with a 350 unit increase and C_1,C_2 and C_3 indicated on the chromatograph, 10,710'-10,812' with a 200 unit increase and C_1 and C_2. There were also shows at 10,912'-10,948' with 136 units with C_1 and C_2 and 11,156'-11,176' with 75 units and C_1 and C_2 detected. Several of these zones were being evaluated for possible completion at the time the well was TD.

Pinkerton Trail Formation (12,053'-12,132')

The top of the lower Pennsylvanian Pinkerton Trail Formation was marked by a slowing of the penetration rate and the appearance of black very carbonaceous shales and white chalky anhydrites of the upper PinkertonTrail. The lower Pinkerton Trail consisted of grayish-brown to gray earthy microcrystalline dolomite and minor shales and siltstones.

There were numerous large increases in background gas of 160-928 units from shaly zones of the Pinkerton Trail. All the shows were characterized by a large ratio of methane to the other gases so they appear to be shale gas from the very carbonaceous shales fo the upper section of the Pinkerton Trail Formation. No shows were detected in the samples.

Molas Formation (12,132'-12,156')

The Molas Formation, of late Pennsylvanian age is a thin reddish regolith which occurs spottily in samples. The Molas at this location was reddish claystones and siltstones with pink to red colored quartz grains. The underlying Redwall Limestone can be weathered to a karst surface so evidence of Molas regolith in samples and E-logs may extend for a considerable depth.

There were no hydrocarbon shows in the Molas Formation.

Redwall Formation (12,156'-12,476')

The Redwall Formation(leadville), of middle Mississippian age, is subdivided in the Paradox Basin area into four members in descending order: "D" or Horseshoe Mesa Member, "C" or Mooney Falls Member, "B" or Thunder Springs Member and the "A" or Whitmore Wash Member. These divisions were originally made at the Grand Canyon type locality and correlate well into the Paradox Basin area.

The top of the Redwall Formation is marked by a karst surface which indicates a period of erosion which can make the upper member of variable thickness. The top of the Redwall Formation at this location was marked by white chalky to microcrystalline limestones of the "D" Member or Horseshoe Mesa Member of the Redwall. These limestones were sometimes oolitic with minor amounts of pyrite, algal and foraminiferal fossil fragments with scattered glauconite inclusions.

The top of the "C" or Mooney Falls Member, at 12,235', was picked based on the appearance of light brown, cryptocrystalline dolomite. There were some small drilling breaks in the "C" zone 12,238'-12,244', 12,250'-12,254' and 12,262'-12,275' with 40-60 unit gas increases in these breaks. Methane and ethane were detected by the chromatograph. The lithology of the drilling breaks was white to brown limestones microcrystalline, sucrosic in part, pelletal in part, with indistinct fossil fragments. There was some secondary dolomite and porosity was estimated as fair. There were traces of dead brown oil stain in the samples with no chlorothene cut.

DST #4 was run over an interval of 12,231'-12,362' with 50 barrels of hydrogen sulfide and gas cut salt water recovered; gas to surface 70 minutes after start of final flow. Analysis found it to be low BTU gas with over 50% nitrogen, 10% CO_2 and 50% H_2S and methane.

The "B" or Thunder Springs Member, top at 12,330', was marked by brown to black nodular chert and an increase in dolomite. The dolomite, gray, brown and white in color and micro- to cryptocrystalline with some microsucrosic texture, had pinpoint dead black stain, the porosity was generally poor. The limestone was brown to gray, generally cryptocrystalline with abundant fossil fragments and pyrite crystals. No gas shows were observed in the Thunder Springs Member.

The "A" or Whitmore Wash Member top at 12,375' was determined by the absence of chert and an increase in the abundance of oolites and pellets in the carbonates. The limestones were described as brown, gray and white, abundant pellets and oolites with a packstone texture. Some algal plates and fossil hash were observed. There were no gas shows in the Whitmore Wash Member.

Ouray Formation(12,476'-12,574')

The Ouray Formation, of upper Devonian age, was marked by the absence of dolomite and an abundance of pellets, oolites, fossil fragments and intraclasts of limestone. It was marked by shale markers on the gamma ray log. The texture of the limestones ranged from calcarenite with micrite matrix to grainstones and packstones composed of oolites, pellets and intraclasts in a sparite cement. Some indistinct foraminifera were also noted.

Some of the calcarenite pore spaces had traces of dead black asphaltic stain but no show or chlorothene cut was observed. There were no gas shows in the Ouray Formation.

Elbert Formation (12,574'-12,701')

The upper Devonian Elbert Formation was composed of dense dolomite, white to brown cryptocrystalline with traces of forams and abundant dead black stain in pinpoint pore spaces in the upper one third of the Elbert. No florescence or chlorothene cut was observed in the dolomite. Thin green waxy shale streaks were scattered throughout. The lower dolomites and shales became sandy due to interfingering with the underlying McCracken Sandstone Member. No gas shows were observed in the Elbert dolomites.

McCracken Sandstone Member (12,646'-12,701')

The McCracken Sandstone Member was observed in samples to be a white to tan moderate to coarse grained sandstone, predominantly dolomite cemented, with the sandstone sometimes grading into a sandy dolomite. Some silica cementing and accessory pyrite was also noted.

The sands were tight in the samples and E-logs, though abundant hard black asphaltic stain was noted in pore spaces. A pale milky-yellow cut was observed in the interval 12,654'-12,658'. There were no gas shows in the McCracken Sandstone.

Three attempts were made to DST the McCracken Sandstone: packers set at 12,623', 12634' and 12,699' to a TD of 12,754'. In all three cases the packers did not seal the annulus and drilling mud flowed past into the test tools. Caliper logs showed that the wellbore was in gage. Fracture Identification logs showed fractures at or near all of these packer points.

Below the McCracken Sandstone (12,701'-13,013')

Below the McCracken Sandstone Member there was some disagreement between damples and E-logs. Due to a lack of well date below the McCracken more widespread wells were chosen for correlation purposes. For reasons of local paleogeography, distance from this location, and facies variations, good correlations could not be made. Bruce Wiley of Transco Exploration Company has suggested the following tops:

Lower Devonian	Aneth Formation	12,777'
Upper Cambrian	Lynch Formation	12,870'

Because of some lithologic and E-log agreement with the AMSTRAT log of Pure #1 U.S.A. Big Indian SE NE Sec 33 T29S R24E, I have suggested the following formation tops and descriptions.

Aneth Formation (12,678'-12,731')

The top of the lower Devonian Aneth Formation appeared to be a gradational contact with the overlying McCracken Sandstone Member. The lower McCracken becomes a sandy dolomite grading into dark gray to dark brown sandy dolomitic shales of the Aneth. The Aneth has thin beds of red and pink argillaceous siltstones and white, pink and brown very fine grained to silty sandstones. There were minor amounts of dead black asphaltic stain in the sandy dolomites and sandstone stringers.

There were no gas shows in the Aneth Formation.

Lynch Formation (12,731'-12,775')

The upper Cambrian Lynch Formation top was a distinct change to white microcrystalline to cryptocrystalline dolomites with bright green glauconite inclusions. The upper Lynch had scattered quartz grains and chert fragments. The lower Lynch was brown to white cryptocrystalline dolomite with scattered pyrite crystals. Dead black asphaltic stain was found in some pore spaces and microscopic vugs with no florescence or cut.

There was a minor gas increase of 10-15 units from 12,752'-12,780'. Only methane was detected by the chromatograph.

Bright Angel Shale-Formation (12,775'-12,872'(?))

The name "Bright Angel" should be seen in the Four Corners area because of the proximity of the type section and continuity of sediments between the Paradox Basin and the Grand Canyon. The Ophir designation is used in Central and Western Utah beyond the Kaibab and Monument Uplifts.

The Bright Angel at this locality was gradational between the overlying Lynch and underlying Ignacio Quartzite. There was little actual shale in the samples. They were described as gray to brown non-calcareous and containing fine mica flakes. There were minor amounts of light brown to off-white, calcareous with argillaceous cement. The lower Bright Angel is a brown to white silty sandstone with glauconite inclusions and dark accessory minerals which graded into the Ignacio. Brown weathered chert and pyrite crystals were also noted in this area.

There was a minor gas increase of 16 units methane at 12,886'-12,896' in the gradational contact.

Ignacio Quartzite-Formation (12,872'-TD)

The middle Cambrian Ignacio Quartzite had a gradational contact with the overlying Bright Angel Formation. The upper Ignacio itself was a quartzitic sandstone primarily very fine grained with silica cementing and minor dolomite cementing. Dark to light green glauconite and pyrite crystals were accessories. Thin siltstone and shale were also noted. There were streaks of brown cryptocrystalline dolomites in the middle Ignacio with a thicker lithoclastic, silty solomite was noted towards TD. There has been some evidence of dolomites in the lower Ignacio in some wells in Southwestern Colorado and Southern Utah(ref 2) within the last 10' drilled, trace amounts of chert pebbles, reddish-brown siltstones and fresh feldspar fragments.

There was a small gas show at the top of the Ignacio Quartzite as mentioned above.

TRANSCO EXPLORATION COMPANY
DRILL STEM TEST
REPORT SHEET

I. GENERAL DATA:

Date 9 December 83 Lease and Well No. Transco-Huber Federal #1-15
Location 650' FSL & 1900' FWL SEC 15 T28S-R25E
DST No. 2 Formation Honaker Trail
Test Interval 8294-8314 Test Tools 57 ft.
Drill Collars 6 3/4 OD 2 1/4 ID 330' Length
Drill Pipe 4 1/2 OD 3 & 3.86 ID 7927'
Water Cushion none ft. bbls

II. SURFACE FLOW DATA:

Tools Opened 0902 AM Total Length of Test 405 mins
Initial Flow 45 mins - Description opn to bot of bucket in 5 min:17 oz, in 10 min:26 1/2 oz, in 15 min:32 1/2 oz, in 20 min:2 1/4psi, in 25 min:2 3/4psi, in 30 min:3psi, in 35 min:3 1/4psi, in 40 min:3 3/4 psi, in 45 min:4 1/4psi NGTS

Initial Shut In 90 mins
Final Flow 90 mins - Description opn to bot of bucket/psi; in 5 min 7psi, in 10 min 8psi, in 20 min:9 3/4psi, in 30 min:11psi, in 40 min:12 3/4psi, in 50 min:14 1/4 psi, in 60 min:15 3/4psi, in 70 min:17psi, in 80 min:18 3/4psi, in 90 min:20 1/4psi, NGTS

Final Shut In 180 mins from bubble hose; 10'-12' flare during bleed down Died at 15 min after shut in

III. PRESSURE RECORDER DATA:

	Top Chart		Bottom Chart	
	8273'	depth	8311'	depth
Init Hyd	3886	psi	3895	psi
IFP	67 / 81	psi	67 / 94	psi
ISIP	1842	psi	1826	psi
FFP	67 / 108	psi	67 / 121	psi
FSIP	2234	psi	2244	psi
Final Hyd	3859	psi	3868	psi

BHT 134 ° F.

IV. RECOVERY DATA:

Depth to fluid 8199 ft. Total Recovery 115 ft. .56 bbls

Description of Recovery				Sample Chamber	
115 ft	.56 bbls of	mud		0 cfg @	~ 10 psi
ft	bbls of			1500 cc of	mud
ft	bbls of			cc of	
ft	bbls of			cc of	
ft	bbls of			cc of	
ft	bbls of			cc of	

V. MISCELLANEOUS DATA:

Mud			Resistivity	Chlorides	Nitrates	Chromates
Mud Filtrate	0.93	@ 90 ° F.		2727 ppm	ppm	ppm
Top Sample	1.92	@ 64 ° F.		2060 ppm	ppm	ppm
Middle Sample		@ ° F.		ppm	ppm	ppm
Bottom Sample	1.92	@ 64 ° F.		2060 ppm	ppm	ppm
Sample Chamber	1.45	@ 56 ° F.		2970 ppm	ppm	ppm

Remarks: chem analysis fluids top & mid chamber & bot pipe & gas analysis

8/83

TRANSCO EXPLORATION COMPANY
DRILL STEM TEST
REPORT SHEET

I. GENERAL DATA:

Date 14 February 1984 Lease and Well No. Transco-Huber Fed #1-15
Location 650' FSL & 1900' FWL SEC 15 T28S-R25E
DST No. 4 Formation Redwall LS
Test Interval 12,231-12,362 Test Tools 131 ft.
Drill Collars 4 3/4" OD 2 1/4" ID 741' Length
Drill Pipe 3 1/2 & 4 1/2 OD 2.7" & 3.8" ID 11490'
Water Cushion none ft. bbls

II. SURFACE FLOW DATA:

Tools Opened 0725 AM Total Length of Test 453 mins
Initial Flow 32 mins - Description opn w/ wk blo in 5 min: 2.503, in 10 min: 4.507, in 15 min: 6.507, in 20 min: 9.003, in 25 min: 10.507, in 30 min: 12.2507 NGTS

Initial Shut In 60 mins
Final Flow 121 mins - Description opn w/ GD BLO bot of bucket 803; in 15 min:2803, in 20 min:3607, in 25 min:3.5 psi 30 min:15psi, in 35 min 22.5psi, in 40 min 26psi, in 45 min:34psi(CKE 1/8") In 53 min:40psi, in 63 min:52psi, in 66 min:57psi, in 70 min:60psi,*
Final Shut In 235 mins

III. PRESSURE RECORDER DATA:

Top Chart		12,212	depth	Bottom Chart		12,359	depth
Init Hyd		5958	psi			5983	psi
IFP		/ 1015	psi		1006	/ 2312	psi
ISIP		3863	psi			3933	psi
FFP	1225	/ 2002	psi		1512	/ 2080	psi
FSIP		3842	psi			3891	psi
Final Hyd		5768	psi			5835	psi

BHT 156 ° F.

IV. RECOVERY DATA:

Depth to fluid 6831 ft. Total Recovery 5369 ft. 50 bbls

Description of Recovery				Sample Chamber	
5369 ft	50 bbls of	H_2S & GC saltwater		N/A cfg @	N/A psi
ft	bbls of			cc of	
ft	bbls of			cc of	
ft	bbls of			cc of	
ft	bbls of			cc of	
ft	bbls of			cc of	

V. MISCELLANEOUS DATA:

Mud		Resistivity	Chlorides	Nitrates	Chromates
Mud Filtrate	@	° F.	17,000 ppm	31 ppm	700 ppm
Top Sample	@	° F.	ppm	ppm	ppm
Middle Sample	@	° F.	ppm	ppm	ppm
Bottom Sample	@	° F.	ppm	ppm	ppm
Sample Chamber	@	° F.	ppm	ppm	ppm

Remarks: Samples from pipe heavily contaminated by H_2S. No sample chamber in slim-hole DST tools. Top chart beginning IFP not readable

* in 75 min:62psi(3/8" CKE) In 90 min:55psi, in 95 min 52psi, in 108 min: 50psi, in 120 min:50psi GTS 70 min 2 ft flare incr to 6'8 ft

H_2S to SFC in 108 min Bleed down flare 15-18 ft
Max flow volume 240 MCFPD

8/83

TRANSCO EXPLORATION COMPANY
DRILL STEM TEST
REPORT SHEET

I. GENERAL DATA:

Date 15 December 83 Lease and Well No. Transco-Huber Federal #1-15
Location 650' FSL & 1900' FWL SEC 15 T28S-R25E
DST No. 3 Formation Honaker Trail
Test Interval 8425'8471 Test Tools 86 ft.
Drill Collars 6 3/4" OD 2 1/4 ID 338' Length
Drill Pipe 4 1/2" OD 3"&38.6" ID 8047'
Water Cushion none ft. bbls

II. SURFACE FLOW DATA:

Tools Opened 0728 AM Total Length of Test 540 mins opn ck
Initial Flow 62 mins - Description opn tool good blow bot bucket 2 min; in 4 min:5psi, in 5 min:8psi, in 7 min:10psi, in 11 min:13psi, in 17 min:15psi, in 25 min:17 psi, in 37 min:19.5psi, in 44 min:20.5psi, in in 54 min:22psi, in 62 min:22.75psi, NTGS*

Initial Shut In 120 mins
Final Flow 120 mins - Description opn w/ weak BLO 1"(¼"ck) in 10 min: 12 oz(chg to 1/8"ck), in 20 min:1.5psi, in 30 min:2psi, in 45 min:2.5psi, in 60 min:2.75psi, in 75 min:2.5psi, in 90 min:2.3psi, in 105 min: 2.2psi, in 120 min:2.1psi, weak flare thru (3'-6') no fluid to SFC

Final Shut In 240 mins

III. PRESSURE RECORDER DATA:

	Top Chart		Bottom Chart	
	8405	depth	8467	depth
Init Hyd	3953.9	psi	3949.8	psi
IFP	201.7 / 363.0	psi	227.9 / 362.0	psi
ISIP	1598.7	psi	1610.6	psi
FFP	389.8 / 524.2	psi	402.2 / 549.5	psi
FSIP	1679.8	psi	1731.9	psi
Final Hyd	3926.7	psi	3936.2	psi

BHT 126 ° F.

IV. RECOVERY DATA:

Depth to fluid 7271 ft. Total Recovery 1200 ft. 17 bbls

Description of Recovery				Sample Chamber	
700 ft	9.9 bbls of	drlg mud		0.55 cfg @ 320 psi	
500 ft	7.1 bbls of	salt water (GC)		150 cc of mud	
ft	bbls of			1470 cc of salt water (GC)	
ft	bbls of			cc of	
ft	bbls of			cc of	
ft	bbls of			cc of	

V. MISCELLANEOUS DATA:

Mud			Resistivity		Chlorides	Nitrates	Chromates
Mud Filtrate	2.86	@	54	° F.	2500 ppm	132 ppm	ppm
Top Sample	2.54	@	66	° F.	2300 ppm	132 ppm	ppm
Middle Sample		@		° F.	ppm	ppm	ppm
Bottom Sample	.36	@	62	° F.	10,700 ppm	1.0 ppm	ppm
Sample Chamber	.20	@	51	° F.	47,000 ppm	-- ppm	ppm

Remarks: bottom CK 3/4" condensate odor from sampler

* from hose--bleed off 12-15' flare orng color 15" until dead some condensate

8/83

TRANSCO EXPLORATION COMPANY
DRILL STEM TEST
REPORT SHEET

I. GENERAL DATA:

Date 29 November 83 Lease and Well No. Transco-Huber Federal #1-15
Location 650' FSL & 1900' FWL SEC 15 T28S-R25E
DST No. 1 Formation Cutler
Test Interval 7164-7186 Test Tools 75 ft.
Drill Collars 8" OD 2.875" ID 60' Length DC 6.75" OD 2.25" ID
Drill Pipe 4.5" OD 2.75 ID 6821' 210'
Water Cushion none ft. bbls

II. SURFACE FLOW DATA:

Tools Opened 1215 PM AM Total Length of Test 270 mins
Initial Flow 30 mins - Description 1/8" hose in 2 min:10 oz. in 5 min:2 1/4psi, in 10 min:2 1/2psi, in 20 min:2 3/4psi, in 30 min:2 3/4psi NGTS

Initial Shut In 60 mins
Final Flow 60 mins - Description opn w/ strong bubble in 3 min: 21 oz, in 11 min:19 oz, in 30 min:18 3/4 oz, in 40 min:18 1/2 oz, in 50 min:18 oz, in 55 min:17 3/4 oz, in 60 min:17 1/2 oz

Final Shut In 120 mins

III. PRESSURE RECORDER DATA:

	Top Chart				Bottom Chart			
	7150			depth	7183			depth
Init Hyd	3344.9			psi	3363,7			psi
IFP	52.8	/	66.0	psi	67.1	/	80.5	psi
ISIP	197.9			psi	201.1			psi
FFP	66.0	/	52.8	psi	80.5	/	67.1	psi
FSIP	224.3			psi	241.3			psi
Final Hyd	3344.9			psi	3363.7			psi

BHT 120 ° F.

IV. RECOVERY DATA:

Depth to fluid 6991 ft. Total Recovery 120 ft. .78 bbls

Description of Recovery				Sample Chamber	
120 ft	.78 bbls of	drlg mud		.35 cfg @	46 psi
ft	bbls of			100 cc of	mud
ft	bbls of			cc of	
ft	bbls of			cc of	
ft	bbls of			cc of	
ft	bbls of			cc of	

V. MISCELLANEOUS DATA:

Mud			Resistivity		Chlorides	Nitrates	Chromates
Mud Filtrate	2.60	@	62	° F.	ppm	ppm	ppm
Top Sample	2.80	@	66	° F.	ppm	ppm	ppm
Middle Sample	--	@	--	° F.	ppm	ppm	ppm
Bottom Sample	2.84	@	66	° F.	ppm	ppm	ppm
Sample Chamber	2.84	@	66	° F.	ppm	ppm	ppm

Remarks: Questionable sample chamber recovery(leaking)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
(FORM 9-329)
(2/76)
OMB 42-RO 356

MONTHLY REPORT OF OPERATIONS

Lease No. U-23
Communitization Agreement No. --
Field Name Wildcat
Unit Name Pole Springs Unit
Participating Area None Established
County San Juan State Utah
Operator Transco Exploration Company
☐ Amended Report

The following is a correct report of operations and production (including status of all unplugged wells) for the month of January, 19 84

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396 d), regulation (30 CFR 221.60), and the terms of the lease. Failure to report can result in the assessment of liquidated damages (30 CFR 221.54 (j)), shutting down operations, or basis for recommendation to cancel the lease and forfeit the bond (30 CFR 221.53).

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
TXC/Huber Fed #1-15	SEC. 15 SE¼SW¼	28S	25E	DRG	0	0	0	0	TD: 11654' MUD: 11.6 Run 9-5/8" csg to 10,110' w/900 sx. cmt. Full returns Bumped plug w/1500 psi. Tested BOP's Tested csg. to 2000 psi. - OK. Drlg & surveying to 11,654'.

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month		XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXX
*Produced			
*Sold			XXXXXXXXXXXXXXXXX
*Spilled or Lost		XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXXX		XXXXXXXXXXXXXXXXX
*Used on Lease			XXXXXXXXXXXXXXXXX
*Injected			
*Surface Pits	XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXX	
*Other (Identify)			
*On hand, End of Month		XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXX
*API Gravity/BTU Content			XXXXXXXXXXXXXXXXX

Authorized Signature: Kay L. Morgan Address: P. O. Box 1396, Houston, TX 251
Title: Supervisor, Regulatory & Environmental Affairs
Page 1 of 1

CONTINGENCY & EVACUATION PLAN

TRANSCO EXPLORATION COMPANY

P.O. BOX 1396

HOUSTON, TEXAS 77251

(713) 439-2000

WELL: 1-15 TXC-HUBER FEDERAL

LOCATION: Section 15, T28S, R25E
650' FSL & 1900' FWL
San Juan County, Utah

DIRECTIONS TO WELL SITE: From LaSal, Utah, go west on Highway 46 approximately 9 and 1/4 miles to Buckeye Lake sign. Turn north and follow road to first fork. Take right fork and follow road approximately 1 and 3/4 to 2 miles north to road leading west to rig.

PURPOSE OF PLAN:

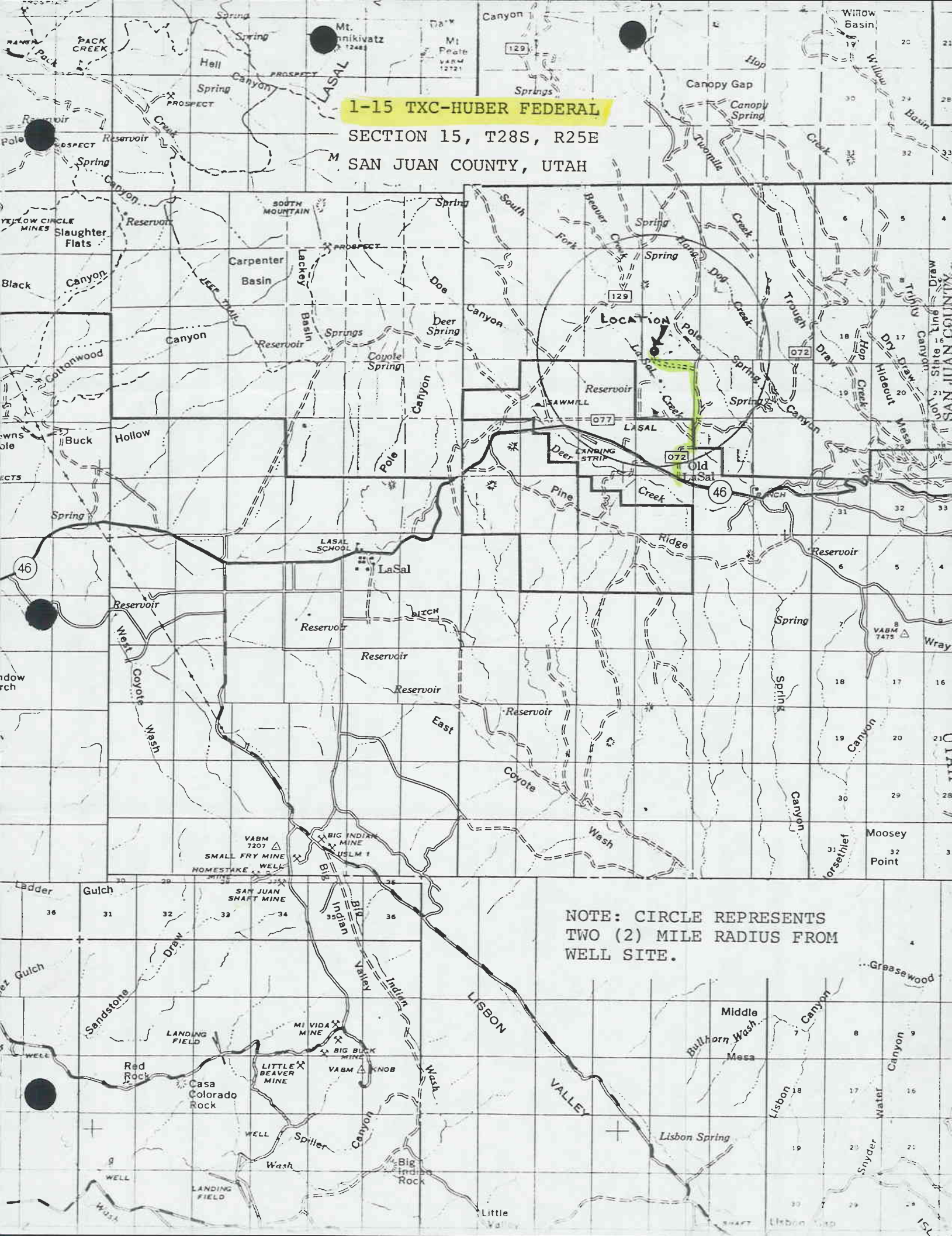
The purpose of this plan is to safeguard the lives of the public, contract personnel and company personnel in the event of equipment failures or disaster during drilling or completion operations in formations which may contain Hydrogen Sulfide Gas (H_2S).

Transco Exploration Company has specified materials and practices for the drilling or completion of this well to insure the safety of all concerned. However, as a precautionary measure, this contingency plan has been prepared to further assure the safety of all concerned, should a disaster occur.

RECEIVED

JAN 19 1984

W. A. BRUHA
TXC DRILLING DEPT.


1-15 TXC-HUBER FEDERAL
SECTION 15, T28S, R25E
SAN JUAN COUNTY, UTAH
LOCATION
NOTE: CIRCLE REPRESENTS TWO (2) MILE RADIUS FROM WELL SITE.
Old LaSal
LaSal
LASAL SCHOOL
SAWMILL
LANDING STRIP
Canopy Gap
Carpenter Basin
Slaughter Flats
Black Canyon
Cottonwood
Buck Hollow
Pole Canyon
Deer Spring
Coyote Spring
Pine Ridge
Deer Creek
Reservoir
Spring
Hop Creek
Trough Draw
Hideout Mesa
Moosey Point
Wray
Big Indian Valley
Big Indian Wash
Big Indian Rock
Little Valley
Lisbon Spring
Lisbon Canyon
Middle Mesa
Bullhorn Wash
Greasewood
Sandstone Draw
Red Rock
Casa Colorado Rock
Spiller Canyon
Ladder Gulch
West Coyote Wash
East Coyote Wash
Mt. Peale
Hell Canyon
Willow Basin
Canopy Spring
Twomile Creek
Beaver Creek
South Fork
Hang Dog Creek
Trinity Canyon
Dry Draw
Hop Creek
Lion Draw
Snyder Water Canyon
Horsethief Canyon
Big Indian Rock
Big Indian Mine
Small Fry Mine
Homestake Mine
San Juan Shaft Mine
Mi Vida Mine
Big Buck Mine
Little Beaver Mine
Landing Field
Lasal Creek
Pole Spring
Canyon
Hollow
Pack Creek
Yellow Circle Mines
Jeep Trail
Lackey Basin
Springs
Pack Creek
Prospect
Reservoir
Ditch
Wash
Lisbon Valley
46
129
072
077
SAN JUAN COUNTY
Lisbon Gap

1-15 TXC-HUBER FEDERAL
SECTION 15, T28S, R25E
SAN JUAN COUNTY, UTAH
Beaver Creek
Spring
Fork
Spring
Hang Dog Creek
Creek
129
Pole Spring
Spring
1-15 LOCATION
La Sal Creek
Reservoir
SAWMILL
077
LASAL
Deer
LANDING STRIP
072
Old LaSal
46
Pine
NOTE: CIRCLE REPRESENTS TWO (2) MILE RADIUS FROM WELL SITE.

RESIDENTS WITHIN 2 MILE RADIUS OF WELL

1. Verd Burns.....No Phone
2. Arnold Grundvig.....801/686-2382
3. Keith Larsen.....801/686-2304
4. Homer Manson.....801/686-2376
5. A. M. Stocks.....801/686-2366

RESIDENCE MAP FOR: 1-15 TXC-HUBER FEDERAL
SECTION 15, T28S, R25E
SAN JUAN COUNTY, UTAH
Beaver Creek
Spring
Fork
Spring
Hang Dog Creek
Creek
129
Pole Spring
Creek
1-15 Location
La Sal Creek
Reservoir
SAWMILL
077
LASAL
Spring
Deer
LANDING STRIP
072
Old LaSal
46
NOTE: CIRCLE REPRESENTS TWO (2) MILE RADIUS FROM WELL BORE.

Transco
Exploration Company
A Subsidiary of Transco Energy Company

2800 Post Oak Boulevard
P. O. Box 1396
Houston, Texas 77251
713-439-2000

RECEIVED
JAN 30 1984
DIVISION OF
OIL, GAS & MINING

January 24, 1984

Mr. Edgar W. Guynn
United States Department of the Interior
Bureau of Land Management
Utah State Office
2000 Administration Building
1745 West 1700 South
Salt Lake City, Utah 84104

RE: TRANSCO EXPLORATION COMPANY
H_2S Contingency Plan
TXC/Huber Federal #1-15
Sec. 15, T28S, R25E
San Juan County, Utah

Mr. Guynn:

Reference is made to our letter dated August 24, 1983, which was submitted to you concerning the same subject stated above. As was stated in that letter, the TXC/Huber Federal #1-15 is not in a known H_2S area. However, Transco has taken some precautionary measures in the event H_2S would be encountered.

As an additional safety precaution, Esse International Inc. prepared the attached H_2S Contingency Plan, which we are hereby submitting for your files. Please be advised once again that H_2S is not expected to be encountered; this is strictly a precautionary measure.

Sincerely,

TRANSCO EXPLORATION COMPANY

Kay L. Morgan

Kay L. Morgan, Supervisor
Regulatory & Environmental Affairs

KLM/tmr

cc - United States Department of the Interior
Bureau of Land Management
Attention: Mr. Tom Hare
P. O. Box 970
Moab, Utah 84532

State of Utah
Division of Oil, Gas & Mining
4241 State Office Building
Salt Lake City, Utah 84114

✓ TXC Huber Fed 1-15
15 - 28S, 25E
SAN JUAN

Ron, after discussion with Gil, I gave approval for Transco to pump approx 2000 BBLS fresh mud H_2O between their $13\frac{3}{8}$ and $9\frac{5}{8}$ casings. The $13\frac{3}{8}$ is set at 2002' CTS, and the $9\frac{5}{8}$ is set a 10,000 with CT 7000. The Navajo, Wingate, and Salt are protected by cement, and the open formations had no H_2O shows. They said they would watch pressures.

John
1-27-84

DAVID ADAMS
KAY MORGAN } 713-439-3502

TERRA SERVICES, INC.
163 SOUTH VAN GORDON ST. • LAKEWOOD, COLORADO 80228
303/988-5111

TRANSCO EXPLORATION COMPANY
Transco-Huber Federal 1-15
Sec. 15, T28S, R25E
San Juan County, Utah

Prepared by:
TERRA SERVICES, INC.
Lakewood, Colorado 80228

Supervisors: Joel Parise
Steve Szekula

Loggers: Tim Hassell
Tom Stechschulte
Brian Schlechten

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WELL DATA

OPERATOR

Transco Exploration Company

WELL

Transco-Huber Federal 1-15

FIELD

Pole Springs Prospect (Wildcat)

LOCATION

Section 15, Towship 28S, Range 25E

ELEVATION

Ground Elevation	7592.5 feet
Kelly Bushing Elevation	7618.8 feet

CONTRACTOR

Forwest LTD Rig 6

TOOL PUSHERS

Chuck Bright, Corky Anderson, Randy Minick

DRILLING SUPERVISORS

Gary Cockrell, Russel McPhail, Leon Abrams

WELLSITE GEOLOGIST

Lee Amoroso

MUDLOGGERS

Terra Services, Inc.

Loggers: Tim Hassell, Tom Stechschulte, Brian Schlechten

MUD COMPANY

Imco Engr: Ken Ballard, Shel Harras, Mark Stansbury

WELL DATA (con't)

ELECTRIC LOGGING COMPANY

Schlumberger

Type of logs: Gamma, Sonic, LDT/CNL, DIL w/ Micro SFL, Dil w/ Micro SFL (in salt mud), Cyber dip, Cyber look

SPUD DATE

10-31-83

SURFACE CASING

13 3/8" K-55 to 2002' 9 5/8" L-80 to 2755' & S-95 2755' to 10,110', 7 3/4" S-125 2445', set at 12,148'

DRILL PIPE SIZE

4 1/2", 3 1/2"

TOTAL DEPTH

Driller Depth: 13,013'

TRANSCO EXPLORATION COMPANY
Transco-Huber Federal 1-15

FORMATION TOPS

FORMATION	E-LOG TOP	SUBSEA
Crecateous		
Dakota Sandstone	----	----
Burro Canyon Fm.	229'	7390'
Jurassic		
Morrison Fm.		
Brushy Basin Mbr.	383'	7236'
Salt Wash Mbr.	683'	6936'
Summerville Fm.	945'	6674'
Entrada Sandstone	1142'	6477'
Triassic		
Navajo Sandstone	1415'	6204'
Kayenta Fm.	1834'	5785'
Wingate Sandstone	2070'	5549'
Chinle Fm.	2373'	5246'
Black Ledge Mbr.	2567'	5052'
Moenkopi Fm.	2652'	4967'
Permian		
Cutler Group (undiff)	2885'	4734'
Pennsylvanian		
Honaker Trail Fm.	7670'	-51'
Paradox Fm.	8807'	-1188'
Paradox Salt Mbr.	10,165'	-2546'
Pinkerton Trail Fm.	12,053'	-4434'
Molas Fm.	12,132'	-4513'
Mississippian		
Redwall Fm.	12,156'	-4537'
Devonian		
Ouray Fm.	12,476'	-4857'
Elbert Fm.	12,574'	-4955'
McCracken SS Mbr.	12,646'	-5027'
Aneth Fm.	12,701'	-5158'
Cambrain		
Lynch Fm.	12,870'	-5251'

TRANSCO EXPLORATION COMPANY
Transco-Huber Federal 1-15

SURVEY RECORD

DEPTH	DEVIATION	DEPTH	DEVIATION
242'	1/2	6099'	1
313'	1/2	6282'	2
429'	3/4	6556'	2
522'	1	6630'	1 3/4
616'	1/2	6883'	2 1/2
710'	1	6976'	3 1/4
803'	1	7068'	3 1/4
897'	1	7162'	3 1/2
990'	1	7282'	1 1/2
1085'	1 1/4	7373'	3
1179'	1 3/4	7465'	3
1273'	1 1/4	7574'	3
1367'	1	7668'	2 3/4
1462'	3/4	7822'	2 3/4
1661'	1 1/4	7904'	3 1/2
1771'	1 1/4	7972'	4
1855'	1	8068'	4
2002'	0	8157'	4 1/2
2142'	1	8189'	4 1/4
2235'	3/4	8279'	4 3/4
2330'	1	8328'	5 1/4
2588'	1	8461'	4
2740'	1	8508'	4 3/4
2894'	3/4	8538'	4 1/2
3113'	1	8591'	4 1/2
3301'	1/2	8677'	4 1/4
3488'	3/4	8750'	4 3/4
3707'	1	8871'	4 1/4
3894'	1	9117'	4
4082'	1 1/4	9314'	5 1/2
4288'	1	9348'	6
4486'	1 1/4	9404'	6 1/4
4691'	2	9434'	6 1/4
4829'	2 1/4	9505'	8
4923'	2 1/2	9553'	8 3/4
5089'	1 3/4	9618'	8
5181'	2 1/4	9627'	7 1/2
5275'	2	9690'	6 1/2
5369'	1	9753'	6 1/2
5555'	2	9783'	5 3/4
5585'	1 3/4	9845'	6
5710'	1	9882'	6
5975'	2	9934'	5 1/2

SURVEY RECORD (con't)

DEPTH	DEVIATION
9979'	4 3/4
10010'	5 1/4
10070'	4 3/4
10635'	5 1/4
10718'	5
10832'	6
10903'	3 3/4
10998'	2 1/2
11094'	2 1/4
11188'	1 1/4
11475'	1
11860'	1/2
12160'	1/4
12200'	1 3/4
12302'	1 3/4
12372'	2 1/4
12490'	4 1/2
12643'	6
12860'	6

BIT RECORD

BIT NUMBER	SIZE	MAKE	TYPE	DEPTH OUT	FEET	HOURS	FEET/HR
1	17 1/2"	HTC	R-2	263'	138'	10	13.8
2	17 1/2"	HTC	X-22	1850'	1587'	84 1/2	18.8
3	17 1/2"	HTC	OSC 3J	2002'	147'	16 1/2	8.9
4	12 1/4"	HTC	J-4	2423'	461'	22	20.9
5	12 1/4"	HTC	J-22	4691'	2268'	125	18.1
6	12 1/4"	HTC	J-22	5739'	1048'	73 1/2	14.3
RR6	12 1/4"	HTC	J-22	6630'	1939'	135 1/2	14.3
7	12 1/4"	HTC	J-22	7162'	532'	47	11.3
8	12 1/4"	HTC	J-22	7471'	309'	38	8.4
RR8	12 1/4"	HTC	J-22	7904'	433'	64 1/2	6.7
9	12 1/4"	HTC	J-33	8328'	424'	59 1/2	7.1
10	12 1/4"	HTC	J-44	8334'	6'	4 1/2	1.3
11	12 1/4"	HTC	J-33	8395'	61'	19 1/2	3.12
12	12 1/4"	HTC	J-33	8471'	76'	14	5.4
RR12	12 1/4"	HTC	J-33	8543'	72'	19	3.8
13	12 1/4"	HTC	J-22	8974'	431'	83	5.2
14	12 1/4"	HTC	J-22	9324'	350'	63	5.5
15	12 1/4"	HTC	J-22	9480'	156'	41	3.8
16	12 1/4"	HTC	J-22	9552'	72'	14 1/2	5.0
17	12 1/4"	HTC	J-33	9595'	43'	19 1/2	2.2
18	12 1/4"	HTC	J-4	9618'	23'	8	2.8
19	12 1/4"	HTC	HD-40M	9836'	218'	74	2.9
RR18	12 1/4"	HTC	J-4	9960'	136'	38 1/2	3.5
20	12 1/4"	HTC	J-4	9996'	36'	14 1/2	2.4
21	12 1/4"	HTC	JD-8	10,029'	33'	17 1/2	2.0
22	12 1/4"	HTC	J-44	10,057'	28'	28	1.0
23	12 1/4"	HTC	J-4	10,057'	DAMAGED DURING TIH		
24	12 1/4"	HTC	J-4	10,113'	56'	26	2.2
25	12 1/4"	STC	F-3	10,180'	67'	9 1/2	7.1
26	8 1/2"	HTC	J-3	10,289'	109'	5 1/2	19.8
27	8 1/2"	HTC	J-22	10,637'	338'	12	28.2
RR27	8 1/2"	HTC	J-22	11,223'	586'	102	5.7
28	8 1/2"	HTC	J-22	12,180'	957'	74	12.9
29	8 1/2"	HTC	J-33	12,600'	20'	8	2.5
RR29	8 1/2"	HTC	J-33	WIPER RUN			
30	6 1/2"	HTC	J-4	12,203'	75'	21 1/2	3.5
31	6 1/2"	HTC	J-55R	12,304'	101'	16 1/2	6.1
32	6 1/2"	HTC	J-55R	12,363'	59'	8 1/2	6/9
RR32	6 1/2"	HTC	J-55R	12,506'	143'	25 1/2	5.6
33	6 1/2"	HTC	J-55R	12,705'	199'	38 1/2	5.2
34	6 1/2"	HTC	J-55R	12,753'	48'	10 1/2	4.6
35	6 1/2"	STC	F-7	12,865'	112'	22	5.1
RR35	6 1/2"	STC	F-7	13,013'	148'	18 1/2	8.0

FORMATION EVALUATION

Dakota Sandstone (Surface to 229')

The Dakota Sandstone consisted of a light to dark gray, noncalcareous, moderately firm to firm claystone. Stringers of white to gray, fine grained, slilty sandstone were observed. Minor amounts of carbonaceous flakes were observed. An increase of fine to coarse grained, light gray to white sandstone can be seen in the lower portion of the Dakota Sandstone. Minor amounts of chert and pyrite were also noted.

Burro Canyon Formation (229' to 383')

The upper portion of this formation consisted of a light to pale green mudstone, with minor stringers of light gray to white, fine grained sandstone. A description of the lower portion of this formation is incomplete due to the bypassing of the shale shaker.

Morrison Formation-Brushy Basin Member (383' to 683')

The Brushy Basin Member consisted of light gray to light green, silty, firm mudstones. Thin stringers of light gray to light red, unconsolidated sandstone were seen. Occasional traces of gray chert were noted. See mud-log for drill rate and gas reading changes.

Morrison Formation-Salt Wash Member (683' to 945')

The upper zone consisted of gray-green, silty shale interbedded with buff, fine to coarse, subangular, subrounded sandstone. The lower zone samples were predominantly light gray to light red, fine grained, silty, noncalcareous sandstone. No shows were seen in the Salt Wash Member.

Summerville Formation (945' to 1142')

Samples observed in this formation were primarily red, brown, occasionally calcareous, earthy, firm shale. Interbedded sandstone stringers, light gray to light red, subangular, poor to moderately sorted, fine to coarse grained with dead asphaltic stain were observed. No shows were present in the Summerville Formation.

Entrada Sandstone (1142' to 1415')

This formation consisted of buff, light red, light brown, light orange, fine to coarse grained, argillaceous inpart, calcareous inpart, sandstone.

Formation Evaluation (con't)

Also noted were unidentified dark minerals. Small amounts of light brown, earthy, silty shales were present. Trace amounts of brown, red, sandy siltstones were noted. No shows were seen in the Entrada Sandstone.

Navajo Sandstone (1415' to 1834')

The upper zone of this formation was orange, buff, light brown, fine grained, subrounded, well sorted, noncalcareous, friable sandstone. The lower zone samples consisted of light red, light gray to white, light brown, fine grained, subangular, firm sandstone. Lesser amounts of gray subwaxy, calcareous inpart, silty inpart shales were observed. No shows were seen in this formation.

Kayenta Formation (1834' to 2070')

Light red, brown, gray, minor lavender, fine to coarse grained, moderate to poorly sorted, firm sandstone was present. Lesser amounts of brown, red, gray, green, earthy, subwaxy, blocky, silty, calcareous inpart shale was noted. Trace amounts of gypsum were observed in sample. No shows were present in the Kayenta Formation.

Wingate Sandstone (2070' to 2373')

Orange, red, light brown, buff, fine grained, minor coarse grained, subangular, slightly argillaceous, noncalcareous sandstone was seen in the upper Wingate Sandstone. The lower Wingate consisted of sandstone as above, with an increase of brown silty shale. Trace amounts of brown, cryptocrystalline, hard limestone could be seen. No shows were present in the Wingate Sandstone.

Chinle Formation (2373' to 2652')

The upper zone of this formation consisted of brown, orange, red, sandy, calcareous, argillaceous siltstone interbedded with round, red, earthy, calcareous inpart, firm shale. The lower zone was primarily red, orange, brown, very fine grained, well sorted, subangular, subrounded, silty sandstone. There were no shows.

Moenkopi Formation (2652' to 2885')

The upper section consisted of orange, red, brown, argillaceous, calcareous inpart, siltstone with thin stringers of red, brown, orange, subwaxy to earthy, blocky to platy, shale. The middle section samples contained orange, light gray to white, lavender, light brown, fine grained, subangular, subrounded, micaceous, argillaceous sandstone with trace amounts of light brown, microcrys-

Formation Evaluation (con't)

talline, hard limestone. The basal section consisted of red, brown, slightly calcareous, sandy siltstone. Possible fossil fragments were observed. Trace amounts of anhydrite and gypsum were noted. No shows were seen in this formation.

Cutler Group (2885' to 7670')

Large amounts of orange, red, brown, argillaceous, micaceous, sandy, calcareous inpart, siltstone were observed. Lesser amounts of varicolored, blocky to platy, earthy to subwaxy, micaceous, silty, firm shale were noted. Abundant orange, brown, tan, white, very fine to coarse, poorly sorted, subangular, slightly calcareous, dead asphaltic stained sandstone was present. Occasional gray, brown, microcrystalline chalky inpart, moderately hard limestone occurred more frequently toward the basement of this formation. See mudlog for detailed information regarding drilling breaks, gas shows and DST data.

Honaker Trail Formation (7670' to 8807')

The upper section of this formation contained brown, red, gray, earthy to subwaxy, calcareous inpart, firm to moderately hard shale. Lesser amounts of gray, brown, microcrystalline, hard limestones were also present. The lower section contained light gray to white, occasionally light brown, fine grained, well sorted, slightly calcareous sandstone with abundant asphaltic staining and trace glauconite. See mudlog for detailed information regarding drilling breaks, gas shows and DST data.

Paradox Formation (8807' to 10,165')

The Paradox Formation is predominantly limestone and dolomite which is light to dark gray, tan to brown, microcrystalline to cryptocrystalline, microsucrosic, chalky inpart, argillaceous inpart, tight to poor porosity, with minor amounts of dead asphaltic staining and hard. Trace amounts of fossil fragments were also observed. Lesser amounts of shale were seen throughout the section and increased as the Paradox Salt Member approached. The shale was gray to dark gray, black, earthy, silty inpart, slightly calcareous, occasionally carbonaceous, firm to moderately hard. Minor amounts of gray, argillaceous, slightly sandy inpart, firm siltstone were noted. No shows were observed.

Paradox Salt Member (10,165' to 12, 053')

Special engineering techniques were used to drill through the salt section;

Formation Evaluation (con't)

specifically, the fresh water drilling fluid was converted to a supersaturated salt base. This strategy eliminated such problems as washouts and tight hole complications. However, due to the large amounts of salt in solution, the shale cuttings were not of sufficient quantity to have valid representation. Gas shows could be correlated to show intervals, the largest being 350 units from approximately 10,172' to 10,180'. See mudlog for details of gas shows and drill rate changes.

Pinkerton Trail Formation (12,053' to 12,132')

The upper zone of the Pinkerton Trail consisted of black, dark gray, dark brown, blocky, earthy, carbonaceous shale. The lower zone of this formation consisted of dark gray, dark brown, cryptocrystalline, argillaceous, dense, hard dolomite. Minor amounts of anhydrite and pyrite were observed throughout the section. Trace amounts of fossils were also observed. Large amounts of methane were encountered, but no shows were tested.

Molas Formation (12,132' to 12,156')

This formation consisted of gray, red, argillaceous, firm to hard limestone with gray to light red, slightly sandy siltstone and minor amounts of light red chert. Lesser amounts of red, green claystone and shale were also noted. Trace amounts of mineral fluorescence were observed, but no hydrocarbon shows were present.

Redwall Formation (12,156' to 12,476')

The top of the Redwall Formation consists of light gray, white, microcrystalline, chalky to argillaceous, hard limestone. This section is also referred to as the Horseshoe Mesa Member. The next section, referred to as the Mooney Falls Member, consists of light gray to cream, minor light brown, microcrystalline to cryptocrystalline, microsucrosic limestone and dolomite. Fossil fragments were evident and occasional traces of dead oil stain were observed. Porosity was considered tight to poor.

The next section, or Thunder Springs Member, was very similar to the Mooney Falls Member with the exception of an increase of interbedded chert. At approximately 12,375 feet, the top of the Whitmore Wash Member was encountered. This member consisted of light gray to gray, brown, cryptocrystalline, dense limestone. An increase in brown, microsucrosic to sucrosic, dense dolomite was observed.

Formation Evaluation (con't)

A decrease of chert helped to mark this member. See mudlog for detailed information regarding drill breaks, gas shows and DST report.

Ouray Formation (12,476' to 12,574')

This formation consisted of gray, cream, tan, microcrystalline, microsucrosic, oolitic, tight limestone and dolomite. Dolomitic shales and shaly dolomite were also present in this formation. Although occasional dead oil stain was present, no shows were observed.

Elbert Formation (12,574' to 12,646')

This formation consisted of light gray, cream, tan, microcrystalline to cryptocrystalline, hard limestone. Traces of fossils and asphaltic stain were also observed. Dark gray, sucrosic, slightly sandy dolomite was evident in the lower zone of this formation.

McCracken Sandstone Member (12,646' to 12,701')

Samples observed in this section consisted of gray, white, fine to coarse grained, moderately sorted, subrounded, dolomitic, tight sandstone. Although there was dark asphaltic staining, there was only a trace yellow cut. Lesser amounts of interbedded gray, tan, sucrosic, sandy dolomite was observed. See log for drill breaks and DST information.

Aneth Formation (12,701' to 12,870')

The Aneth sample cuttings consisted of gray to dark gray, microcrystalline, sandy, glauconitic, shaly dolomite, grading to dark gray, buff, tan, brown dolomitic shales with lesser amounts of gray, tan, brown, very fine to medium grained, argillaceous, tight, glauconitic sandstone stringers. Occasional dark gray, sandy, dolomitic siltstone stringers were also noted. No shows were present.

Lynch Formation (12,870' to 13,013')

The Lynch Formation consisted of light to dark gray, microcrystalline to cryptocrystalline, microsucrosic to sucrosic, glauconitic, sandy dolomite. Abundant sandstone, light to dark gray, cream, tan, very fine to fine grained, well sorted, subangular, pyritic, tight porosity, with occasional mineral fluorescence was present. There was no cut nor any shows in the samples.

DST #4, 12231-12362, M ✓
From sample reversed out into
Fract tank

CORE LABORATORIES, INC.

1300 SOUTH POTOMAC ST. SUITE 130
AURORA, CO. 80012

PHONE: (303) 751-1780

ANALYTICAL REPORT

COMPANY: TRANSCO EXPLORATION CO.
WELL NAME:
TYPE OF WATER: MUD/WATER #2
DEPTH:
LEASE:
LOCATION:
FORMATION:
COUNTY:

DATE SAMPLED:
DATE RECEIVED: 20-FEB-84
DATE ANALYZED: 21-FEB-84
FILE NUMBER: 6307-W84083
SAMPLE #: 3

CONSTITUENTS

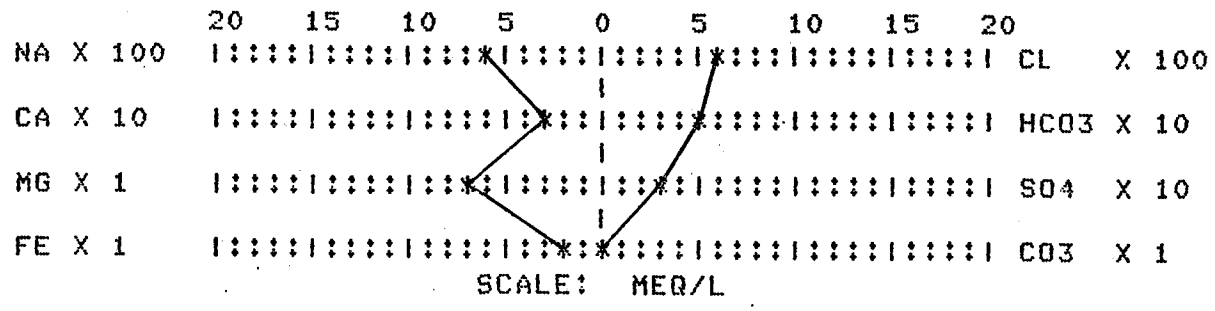
CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
CALC. SODIUM (NA)	14277	621.0	CHLORIDE (CL)	21000	592.4
CALCIUM (CA)	560	27.9	SULFATE (SO4)	1210	25.2
MAGNESIUM (MG)	87	7.2	CARBONATE (CO3)	<0.1	0.0
IRON (FE)	50	1.8	BICARBONATE (HCO3)	2930	48.0
POTASSIUM (K)	130	7.7	HYDROXIDE (OH)	<0.1	0.0

TOTAL DISSOLVED SOLIDS (CALC.) 40243 MG/L

HYDROGEN SULFIDE: NEGATIVE

PHYSICAL PROPERTIES

PH	7.73
SPECIFIC GRAVITY @ 77 F	1.026
RESISTIVITY (OHM-METERS) @ 77 F	.16



DST #4 12231-12362, M
From ~~[illegible]~~ sample reversed out into Fract tank

CORE LABORATORIES, INC.

1300 SOUTH POTOMAC ST. SUITE 130
AURORA, CO. 80012

PHONE: (303) 751-1780

ANALYTICAL REPORT

COMPANY: TRANSCO EXPLORATION CO.
WELL NAME:
TYPE OF WATER: MUD/WATER #1
DEPTH:
LEASE:
LOCATION:
FORMATION:
COUNTY:

DATE SAMPLED:
DATE RECEIVED: 20-FEB-84
DATE ANALYZED: 21-FEB-84
FILE NUMBER: 6307-W84083
SAMPLE #: 2

CONSTITUENTS

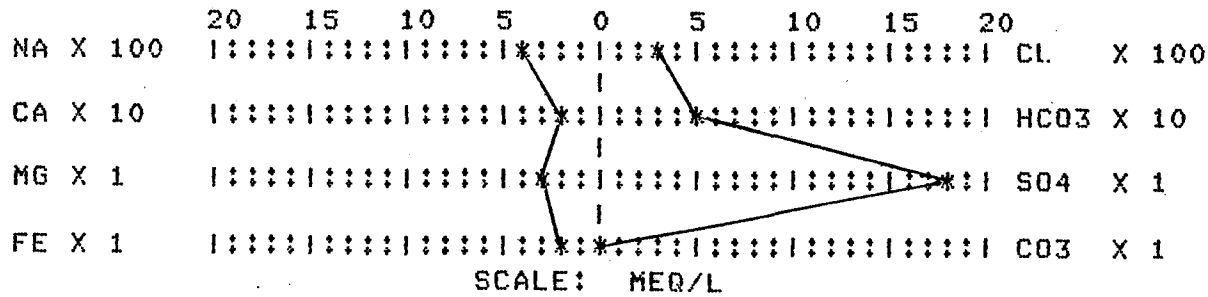
CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
CALC. SODIUM (NA)	8456	367.8	CHLORIDE (CL)	12000	338.5
CALCIUM (CA)	470	23.5	SULFATE (SO4)	880	18.3
MAGNESIUM (MG)	38	3.1	CARBONATE (CO3)	<0.1	0.0
IRON (FE)	43	1.5	BICARBONATE (HCO3)	2860	46.9
POTASSIUM (K)	120	7.8	HYDROXIDE (OH)	<0.1	0.0

TOTAL DISSOLVED SOLIDS (CALC.) 24867 MG/L

HYDROGEN SULFIDE: NEGATIVE

PHYSICAL PROPERTIES

PH	7.78
SPECIFIC GRAVITY @ 77 F	1.014
RESISTIVITY (OHM-METERS) @ 77 F	.29



DST #4, 12231-12362, M
From bottom drill collar between reverse circulating sub & DST tool

CORE LABORATORIES, INC.

1300 SOUTH POTOMAC ST. SUITE 130
AURORA, CO. 80012

PHONE: (303) 751-1780

ANALYTICAL REPORT

COMPANY: TRANSCO EXPLORATION CO.
WELL NAME:
TYPE OF WATER: BOTTOM WATER
DEPTH:
LEASE:
LOCATION:
FORMATION:
COUNTY:

DATE SAMPLED:
DATE RECEIVED: 20-FEB-84
DATE ANALYZED: 21-FEB-84
FILE NUMBER: 6307-W84083
SAMPLE #: 1

CONSTITUENTS

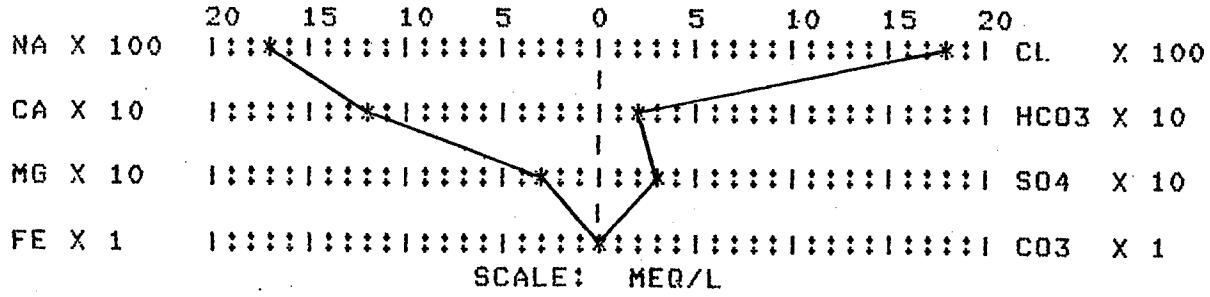
CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
CALC. SODIUM (NA)	39209	1705.5	CHLORIDE (CL)	64100	1808.3
CALCIUM (CA)	2400	119.8	SULFATE (SO4)	1470	30.6
MAGNESIUM (MG)	340	28.0	CARBONATE (CO3)	<0.1	0.0
IRON (FE)	0.8	0.0	BICARBONATE (HCO3)	1290	21.1
POTASSIUM (K)	850	6.8	HYDROXIDE (OH)	<0.1	0.0

TOTAL DISSOLVED SOLIDS (CALC.) 109659 MG/L

HYDROGEN SULFIDE: NEGATIVE

PHYSICAL PROPERTIES

PH	6.78
SPECIFIC GRAVITY @ 77 F	1.075
RESISTIVITY (OHM-METERS) @ 77 F	.075



DST #4 12231-12362, M
from sample reversed out
into fract tank.

CORE LABORATORIES, INC.

1300 SOUTH POTOMAC ST. SUITE 130
AURORA, CO. 80012

PHONE: (303) 751-1780

ANALYTICAL REPORT

COMPANY: TRANSCO EXPLORATION CO.
WELL NAME:
TYPE OF WATER: MUD/WATER #3
DEPTH:
LEASE:
LOCATION:
FORMATION:
COUNTY:

DATE SAMPLED:
DATE RECEIVED: 20-FEB-84
DATE ANALYZED: 21-FEB-84
FILE NUMBER: 6307-W84083
SAMPLE #: 4

CONSTITUENTS

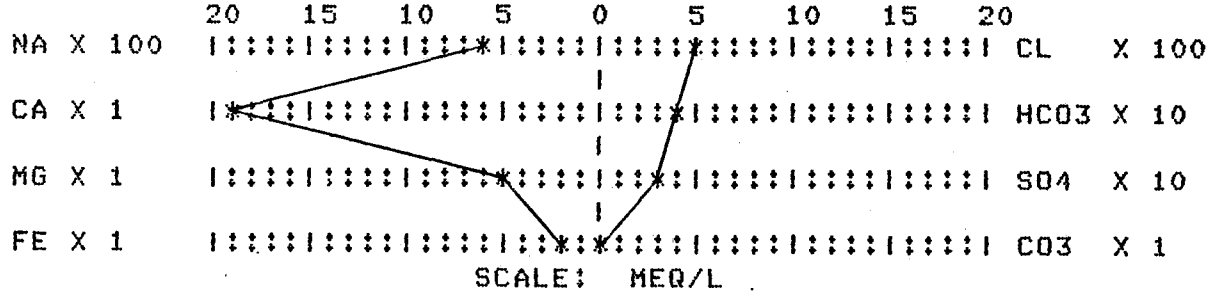
CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
CALC. SODIUM (NA)	13220	575.0	CHLORIDE (CL)	19300	544.5
CALCIUM (CA)	370	18.5	SULFATE (SO4)	1225	25.5
MAGNESIUM (MG)	62	5.1	CARBONATE (CO3)	<0.1	0.0
IRON (FE)	41	1.5	BICARBONATE (HCO3)	2320	38.0
POTASSIUM (K)	180	7.9	HYDROXIDE (OH)	<0.1	0.0

TOTAL DISSOLVED SOLIDS (CALC.) 36717 MG/L

HYDROGEN SULFIDE: NEGATIVE

PHYSICAL PROPERTIES

PH	7.93
SPECIFIC GRAVITY @ 77 F	1.020
RESISTIVITY (OHM-METERS) @ 77 F	.20



CORE LABORATORIES, INC.

File 3806-G-1370

Company TRANSCO EXPLORATION COMPANY Formation

Well TXC HUBER FEDERAL ~~15-1~~ 1-15 County

Field WILDCAT (SEC 15-T28S-R25E) State UTAH

HYDROCARBON ANALYSIS OF: NATURAL GAS

Component	Mol Percent	GPM
Carbon Dioxide	Nil	
Nitrogen	99.83	
Methane	Nil	
Ethane	Nil	
Propane	.07	.019
iso-Butane	Trace	
n-Butane	.07	.022
iso-Pentane	Nil	
n-Pentane	Nil	
Hexanes Plus	.03	.013
	100.00	.054

Sample is contaminated with approximately 16% air.
Calculations are done on an air free basis.

Calculated gas gravity (air = 1.000) = .969

Calculated gross heating value = 5.7 BTU per cubic foot of dry gas at 14.65 psia and 60°F.

Collected at 25 psig and 60 °F.

Date Sampled :

TXC, 1-15 Huber Fed. — Gas Analysis
bled off gas after SI. overnight
from completion attempt in
perfs. 8717-39 & 8820-25 MD Pennsylvania
Honaker Trail

These analyses, opinions or interpretations are based on observations and material supplied by the client to whom, and for whose exclusive and confidenti use, this report is made. The interpretations or opinions expressed represent the best judgement of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representations as to the produc-

CORE LABORATORIES, INC.
Reservoir Fluid Analysis

File ARFL-840028

Company TRANSCO EXPLORATION COMPANY Formation

Well TXC HUBER 1-5 County

Field WILDCAT State UTAH

HYDROCARBON ANALYSIS OF GAS SAMPLE FROM DST TEST

DST #4
12231-12362, M

Component	Mol Percent	GPM
Hydrogen Sulfide	0.00+	
Carbon Dioxide	43.62	
Nitrogen	11.79	
Methane	44.02	
Ethane	0.45	0.123
Propane	0.07	0.020
iso-Butane	0.04	0.013
n-Butane	0.01	0.003
iso-Pentane	0.00	0.000
n-Pentane	0.00	0.000
Hexanes	0.00	0.000
Heptanes plus	0.00	0.000
	100.00	0.159

Calculated gas gravity (air = 1.000) = 1.027

Calculated gross heating value = 466 BTU per cubic foot of dry gas at 15.025 psia and 60°F.

Collected 60 psig and 32°F.

Cylinder Number: 8

Date Sampled 2-14-84 Date Analyzed: 3-6-84

+Absence of H_2S recomfirmed by lead acetate paper test on samples were collected in a mild steel cylinder with brass valves which would cause small quantities of H_2S to degrade.

These analyses, opinions or interpretations are based on observations and material supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgement of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representations as to the produc-
of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

File ARFL-840028

Company TRANSCO EXPLORATION COMPANY Formation

Well TXC HUBER 1-5 County

Field WILDCAT State UTAH

HYDROCARBON ANALYSIS OF GAS SAMPLE FROM DST TEST*

DST #4
12231-12362,4

Component	Mol Percent	GPM
Hydrogen Sulfide	0.00+	
Carbon Dioxide	48.99	
Nitrogen	10.66	
Methane	39.83	
Ethane	0.41	0.112
Propane	0.07	0.020
iso-Butane	0.03	0.010
n-Butane	0.01	0.003
iso-Pentane	0.00	0.000
n-Pentane	0.00	0.000
Hexanes	0.00	0.000
Heptanes plus	0.00	0.000
	100.00	0.145

Calculated gas gravity (air = 1.000) = 1.074

Calculated gross heating value = 421 BTU per cubic foot of dry gas at 15.025 psia and 60°F.

Collected 60 psig and 32°F.

Cylinder Number: 1238

Date Sampled 2-14-84 Date Analyzed: 2-20-84

+Absence of H_2S recomfirmed by lead acetate paper test. Samples were collected in a mild steel cylinder with brass valves which would cause small quantities of H_2S to degrade.

*Results previously reported

4 cc
Transco Exploration Company
Mr. Bruce Wiley
One United Bank Center
1700 Lincoln, Suite 2100
Denver, Colorado 80203

CORE LABORATORIES, Inc.
Craig L. Bromley
Craig L. Bromley
Reservoir Fluid Supervisor

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Form 9-331
Dec. 1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☐ other

2. NAME OF OPERATOR ATTN: KAY MORGAN
TRANSCO EXPLORATION COMPANY

3. ADDRESS OF OPERATOR
P. O. BOX 1396, HOUSTON, TEXAS 77251

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 650' FSL & 1900' FWL OF SEC. 15
AT TOP PROD. INTERVAL: (SE¼SW¼)
AT TOTAL DEPTH:

5. LEASE
U-23313

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
---

7. UNIT AGREEMENT NAME
---

8. FARM OR LEASE NAME
TXC/HUBER FEDERAL

9. WELL NO.
1-15

10. FIELD OR WILDCAT NAME
WILDCAT

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
SEC. 15, T28S, R25E

12. COUNTY OR PARISH: SAN JUAN
13. STATE: UTAH

14. API NO.
43-037-30923

15. ELEVATIONS (SHOW DF, KDB, AND WD)
7597.7' (Ungraded)

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	☐	☐
FRACTURE TREAT	☐	☐
SHOOT OR ACIDIZE	☐	☐
REPAIR WELL	☐	☐
PULL OR ALTER CASING	☐	☐
MULTIPLE COMPLETE	☐	☐
CHANGE ZONES	☐	☐
ABANDON*	☐	☐
(other) Amend 7-3/4" liner depth and TD depth		X X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

RECEIVED
FEB 10 1984
DIVISION OF
GAS & MINING

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

DEPTH 12, 158' MUD: 11.7

Amend 7-3/4" liner to 12,148', in lieu of 11,500'. TOL @ 9705'.

Amend TD to 13,000', in lieu of 12,700'.

VERBAL APPROVAL GRANTED BY BOB GRAFF TO TINA RIOS ON 2/6/84 & 2/7/84.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

18. I hereby certify that the foregoing is true and correct

SIGNED Kay L Morgan for JSD TITLE Drilling Superintendent DATE 02-07-84

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

APPROVED BY THE STATE OF UTAH DIVISION OF OIL, GAS, AND MINING
DATE: 2/13/84
BY: [signature]

*See Instructions on Reverse Side

Form 9-331
Dec. 1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☐ other

2. NAME OF OPERATOR ATTN: KAY MORGAN
TRANSCO EXPLORATION COMPANY

3. ADDRESS OF OPERATOR
P. O. BOX 1396, HOUSTON, TEXAS 77251

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 650' FSL & 1900' FWL OF SEC. 15 (SE¼ SW¼)
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH: SAME AS SURFACE

5. LEASE
U-23313

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
---

7. UNIT AGREEMENT NAME
---

8. FARM OR LEASE NAME
TXC/HUBER FEDERAL

9. WELL NO.
1-15

10. FIELD OR WILDCAT NAME
WILDCAT

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
SEC. 15, T28S, R25E

12. COUNTY OR PARISH
SAN JUAN

13. STATE
UTAH

14. API NO.
43-037-30923

15. ELEVATIONS (SHOW DF, KDB, AND WD)
7597.7' (Ungraded)

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	☐	☐
FRACTURE TREAT	☐	☐
SHOOT OR ACIDIZE	☐	☐
REPAIR WELL	☐	☐
PULL OR ALTER CASING	☐	☐
MULTIPLE COMPLETE	☐	☐
CHANGE ZONES	☐	☐
ABANDON*	☐	☐
(other) REPORT OF ENCOUNTERING H_2S	X	✓

RECEIVED
FEB 22 1984
DIVISION OF OIL, GAS & MINING

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

DEPTH: 12,363' MUD WT: 9.2 ppg

20" csg @ 100'
13-3/8" csg @ 2002'.
9-5/8" csg @ 10,110'.
7-3/4" liner 9705-12,148'.

Conducted open-hole DST on 02-14-84; had H_2S gas to surface in 108 minutes (1600-2200 ppm concentration). Closed tool and bled off gas. Pulled DST tool OOH. Rev. circ & cond 9.2 ppg mud. Will notify BLM & OSHA prior to conducting next DST. Transco is rigged up for H_2S in accordance with BLM and OSHA regulations.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

18. I hereby certify that the foregoing is true and correct

SIGNED [signature] TITLE Drilling Superintendent DATE 02-15-84

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
(FORM 9-329-1)
(2/76)

OMB 42-R0356

MONTHLY REPORT
OF
OPERATIONS
(Continued)

Lease No. U-23

Communitization Agreement No. -
Field Name Wildcat
Unit Name Pole Springs Unit
Participating Area None Established
County San Juan State Utah
Operator Transco Exploration Company

☐ Amended Report

The following is a correct report of operations and production (including status of all unplugged wells) for the month of February, 1984

(See Reverse of Form 9-329 for Instructions)

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
TXC/Huber Fed.#1-15 (Continued)	Sec. 15 SE¼SW¼	28S	25E	DRG	0	0	0	0	12,865'. Logged.

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*-----SCHLUMBERGER------*
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SCHLUMBERGER DIRECTIONAL SURVEY

TRANSCO EXPLORATION CORP.

TRANSCO HUBER FEDERAL #1-15

WILDCAT

SAN JUAN COUNTY,UTAH

RUN NO.	1	2002 -	10102	16-JAN-84	16509
RUN NO.	2	10104 -	12146	4-FEB-84	16537

START OF SURVEY IS CASING AT 2002 FT.

EXACT RADIUS OF CURVATURE METHOD

REFERENCE JOB 16537.

Schlumberger

REF 16537.

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
2002.0	0.6	29	2002.0	0.0	0.0	0.0
2020.0	0.6	29	2020.0	0.2	0.1	0.2
2040.0	0.7	14	2040.0	0.4	0.2	0.4
2060.0	0.8	32	2060.0	0.6	0.3	0.7
2080.0	0.6	30	2080.0	0.8	0.4	0.9
2100.0	0.6	26	2100.0	1.0	0.5	1.1
2120.0	0.6	28	2120.0	1.2	0.6	1.3
2140.0	0.7	27	2140.0	1.4	0.7	1.6
2160.0	0.6	30	2160.0	1.6	0.8	1.8
2180.0	0.8	24	2180.0	1.8	0.9	2.0
2200.0	0.7	26	2200.0	2.0	1.0	2.3
2220.0	0.7	37	2220.0	2.2	1.2	2.5
2240.0	0.8	41	2240.0	2.5	1.3	2.8
2260.0	0.7	40	2260.0	2.7	1.5	3.0
2280.0	0.8	41	2280.0	2.8	1.7	3.3
2300.0	0.8	45	2300.0	3.1	1.9	3.6
2320.0	0.7	42	2320.0	3.2	2.0	3.8
2340.0	0.8	28	2340.0	3.5	2.2	4.1
2360.0	0.9	37	2360.0	3.7	2.3	4.4
2380.0	0.8	47	2380.0	3.9	2.5	4.7
2400.0	0.8	53	2400.0	4.1	2.9	4.9
2420.0	0.8	54	2420.0	4.3	3.0	5.2
2440.0	0.7	61	2440.0	4.4	3.2	5.4
2460.0	0.8	63	2460.0	4.5	3.4	5.7
2480.0	0.8	61	2480.0	4.7	3.7	5.9
2500.0	0.8	70	2500.0	4.8	3.9	6.2
2520.0	0.9	73	2520.0	4.9	4.2	6.4
2540.0	0.9	65	2540.0	5.0	4.5	6.7
2560.0	0.9	75	2560.0	5.1	4.8	7.0
2580.0	1.0	65	2579.9	5.2	5.1	7.3
2600.0	1.0	70	2599.9	5.3	5.4	7.6
2620.0	0.9	69	2619.9	5.5	5.7	7.9
2640.0	1.1	58	2639.9	5.6	6.1	8.2
2660.0	1.1	69	2659.9	5.7	6.4	8.6
2680.0	1.1	64	2679.9	5.9	6.8	9.0
2700.0	1.1	69	2699.9	6.0	7.1	9.3
2720.0	1.1	65	2719.9	6.2	7.5	9.7
2740.0	1.1	69	2739.9	6.3	7.8	10.1
2760.0	1.1	71	2759.9	6.5	8.2	10.4
2780.0	1.0	68	2779.9	6.6	8.5	10.8
2800.0	1.3	58	2799.9	6.8	8.9	11.2
2820.0	1.2	59	2819.9	7.0	9.3	11.6
2840.0	1.2	56	2839.9	7.2	9.6	12.0
2860.0	0.9	64	2859.9	7.4	9.9	12.4
2880.0	1.2	61	2879.9	7.6	10.3	12.8
2900.0	1.3	62	2899.9	7.8	10.6	[illegible]

Schlumberger

REF 16537.

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
2920.0	1.1	71	2919.9	8.0	11.0	13.5
2940.0	1.2	71	2939.9	8.1	11.4	14.0
2960.0	1.2	68	2959.9	8.2	11.9	14.4
2980.0	1.2	78	2979.9	8.4	12.2	14.8
3000.0	1.2	73	2999.9	8.5	12.6	15.2
3020.0	1.3	66	3019.9	8.6	13.0	15.6
3040.0	1.3	70	3039.9	8.8	13.4	16.0
3060.0	1.2	73	3059.9	8.9	13.8	16.5
3080.0	1.3	79	3079.8	9.0	14.3	16.9
3100.0	1.2	81	3099.8	9.1	14.7	17.3
3120.0	1.2	89	3119.8	9.1	15.1	17.7
3140.0	1.2	88	3139.8	9.2	15.5	18.0
3160.0	1.2	85	3159.8	9.2	15.9	18.4
3180.0	1.3	87	3179.8	9.2	16.4	18.8
3200.0	1.1	90	3199.8	9.2	16.8	19.2
3220.0	1.1	93	3219.8	9.2	17.2	19.5
3240.0	1.1	93	3239.8	9.2	17.6	19.8
3260.0	1.1	78	3259.8	9.2	17.9	20.2
3280.0	1.1	87	3279.8	9.3	18.3	20.5
3300.0	1.0	93	3299.8	9.3	18.7	20.9
3320.0	1.0	88	3319.8	9.3	19.0	21.2
3340.0	0.9	92	3339.8	9.3	19.4	21.5
3360.0	0.9	87	3359.8	9.3	19.7	21.8
3380.0	0.9	87	3379.8	9.3	20.0	22.1
3400.0	0.9	83	3399.8	9.3	20.3	22.3
3420.0	0.9	84	3419.8	9.4	20.6	22.6
3440.0	0.8	89	3439.8	9.4	20.9	22.9
3460.0	0.8	89	3459.8	9.4	21.2	23.2
3480.0	0.7	83	3479.8	9.4	21.5	23.4
3500.0	0.8	89	3499.8	9.4	21.7	23.7
3520.0	0.8	93	3519.8	9.4	22.0	23.9
3540.0	0.8	86	3539.8	9.4	22.3	24.2
3560.0	0.9	88	3559.8	9.4	22.6	24.5
3580.0	0.9	90	3579.8	9.4	22.9	24.8
3600.0	1.0	89	3599.8	9.4	23.2	25.1
3620.0	0.9	87	3619.8	9.4	23.5	25.4
3640.0	0.9	86	3639.8	9.5	23.9	25.7
3660.0	0.9	84	3659.8	9.5	24.2	26.0
3680.0	0.9	83	3679.8	9.5	24.5	26.3
3700.0	0.9	84	3699.8	9.6	24.8	26.6
3720.0	0.9	84	3719.8	9.6	25.1	26.9
3740.0	0.9	81	3739.8	9.6	25.4	27.2
3760.0	0.9	82	3759.8	9.7	25.7	27.5
3780.0	1.0	80	3779.7	9.7	26.1	27.8
3800.0	0.9	79	3799.7	9.8	26.4	28.1
3820.0	1.0	75	3819.7	9.9	26.7	2[illegible]

Schlumberger

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
3840.0	1.0	75	3839.7	10.0	27.0	28.8
3860.0	1.0	75	3859.7	10.1	27.4	29.2
3880.0	1.0	73	3879.7	10.2	27.7	29.5
3900.0	1.0	71	3899.7	10.3	28.1	29.9
3920.0	1.0	72	3919.7	10.4	28.4	30.2
3940.0	1.1	72	3939.7	10.5	28.7	30.6
3960.0	1.1	74	3959.7	10.6	29.1	31.0
3980.0	1.1	68	3979.7	10.7	29.5	31.4
4000.0	1.1	68	3999.7	10.9	29.8	31.7
4020.0	1.2	68	4019.7	11.0	30.2	32.1
4040.0	1.2	68	4039.7	11.2	30.6	32.6
4060.0	1.2	63	4059.7	11.3	31.0	33.0
4080.0	1.2	64	4079.7	11.5	31.3	33.4
4100.0	1.3	60	4099.7	11.7	31.7	33.8
4120.0	1.3	62	4119.7	12.0	32.1	34.3
4140.0	1.4	61	4139.7	12.2	32.5	34.7
4160.0	1.3	60	4159.7	12.4	32.9	35.2
4180.0	1.4	60	4179.7	12.6	33.3	35.7
4200.0	1.4	60	4199.7	12.9	33.8	36.1
4220.0	1.3	59	4219.7	13.1	34.2	36.6
4240.0	1.3	58	4239.7	13.4	34.6	37.1
4260.0	1.4	61	4259.6	13.6	35.0	37.5
4280.0	1.4	63	4279.6	13.8	35.4	38.0
4300.0	1.4	62	4299.6	14.1	35.8	38.5
4320.0	1.4	63	4319.6	14.3	36.3	39.0
4340.0	1.4	64	4339.6	14.5	36.7	39.5
4360.0	1.5	63	4359.6	14.7	37.2	40.0
4380.0	1.5	64	4379.6	15.0	37.6	40.5
4400.0	1.5	56	4399.6	15.2	38.1	41.0
4420.0	1.5	58	4419.6	15.5	38.5	41.5
4440.0	1.5	63	4439.6	15.8	39.0	42.0
4460.0	1.5	63	4459.6	16.0	39.4	42.6
4480.0	1.5	68	4479.6	16.2	39.9	43.1
4500.0	1.7	69	4499.6	16.4	40.4	43.6
4520.0	1.7	60	4519.6	16.7	41.0	44.2
4540.0	1.6	61	4539.6	17.0	41.5	44.8
4560.0	1.7	58	4559.5	17.3	42.0	45.4
4580.0	1.8	55	4579.5	17.6	42.5	46.0
4600.0	1.8	57	4599.5	17.9	43.0	46.6
4620.0	1.9	64	4619.5	18.3	43.6	47.2
4640.0	1.8	67	4639.5	18.5	44.1	47.9
4660.0	1.9	72	4659.5	18.8	44.7	48.5
4680.0	2.0	67	4679.5	19.0	45.4	49.2
4700.0	2.1	63	4699.5	19.3	46.0	49.9
4720.0	2.1	64	4719.5	19.6	46.7	50.6
4740.0	2.3	63	4739.4	20.0	47.4	51.[illegible]

Schlumberger

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
4760.0	2.3	64	4759.4	20.3	48.1	52.2
4780.0	2.3	63	4779.4	20.7	48.8	53.0
4800.0	2.4	69	4799.4	21.0	49.6	53.8
4820.0	2.3	69	4819.4	21.3	50.3	54.7
4840.0	2.3	67	4839.4	21.6	51.1	55.5
4860.0	2.3	69	4859.3	21.9	51.8	56.3
4880.0	2.3	69	4879.3	22.2	52.6	57.1
4900.0	2.3	69	4899.3	22.5	53.3	57.9
4920.0	2.4	68	4919.3	22.8	54.1	58.7
4940.0	2.3	68	4939.3	23.1	54.8	59.5
4960.0	2.3	68	4959.3	23.4	55.6	60.3
4980.0	2.3	67	4979.2	23.7	56.3	61.1
5000.0	2.4	67	4999.2	24.0	57.1	61.9
5020.0	2.2	69	5019.2	24.3	57.8	62.7
5040.0	2.2	68	5039.2	24.6	58.5	63.5
5060.0	2.1	72	5059.2	24.9	59.2	64.2
5080.0	2.0	70	5079.2	25.1	59.9	65.0
5100.0	1.9	72	5099.2	25.3	60.6	65.6
5120.0	1.9	74	5119.1	25.5	61.2	66.3
5140.0	1.9	74	5139.1	25.7	61.8	67.0
5160.0	2.0	73	5159.1	25.9	62.5	67.6
5180.0	2.1	74	5179.1	26.1	63.2	68.3
5200.0	2.0	75	5199.1	26.3	63.9	69.1
5220.0	2.0	74	5219.1	26.5	64.5	69.7
5240.0	1.9	75	5239.1	26.7	65.2	70.4
5260.0	2.1	74	5259.1	26.8	65.9	71.1
5280.0	2.0	74	5279.1	27.0	66.5	71.8
5300.0	2.1	73	5299.0	27.2	67.2	72.5
5320.0	2.1	75	5319.0	27.4	67.9	73.3
5340.0	2.1	75	5339.0	27.6	68.6	74.0
5360.0	2.1	77	5359.0	27.8	69.4	74.7
5380.0	2.1	80	5379.0	28.0	70.1	75.4
5400.0	2.1	77	5399.0	28.1	70.8	76.2
5420.0	2.1	75	5419.0	28.3	71.5	76.9
5440.0	2.0	77	5438.9	28.4	72.2	77.6
5460.0	2.0	79	5458.9	28.6	72.9	78.3
5480.0	2.0	81	5478.9	28.7	73.5	79.0
5500.0	2.0	80	5498.9	28.8	74.3	79.7
5520.0	1.9	78	5518.9	29.0	74.9	80.3
5540.0	2.1	80	5538.9	29.1	75.6	81.0
5560.0	2.1	80	5558.9	29.2	76.3	81.7
5580.0	2.0	83	5578.9	29.3	77.0	82.4
5600.0	2.1	82	5598.8	29.4	77.7	83.1
5620.0	2.0	79	5618.8	29.5	78.5	83.8
5640.0	1.9	80	5638.8	29.7	79.1	84.5
5660.0	2.0	82	5658.8	29.8	79.8	8[illegible]

Schlumberger

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
5680.0	1.9	84	5678.8	29.9	80.5	85.8
5700.0	1.9	84	5698.8	29.9	81.1	86.5
5720.0	1.9	91	5718.8	29.9	81.8	87.1
5740.0	1.8	92	5738.8	29.9	82.4	87.7
5760.0	1.8	91	5758.8	29.9	83.1	88.3
5780.0	1.8	93	5778.7	29.9	83.7	88.9
5800.0	1.9	93	5798.7	29.9	84.3	89.5
5820.0	1.8	93	5818.7	29.8	85.0	90.1
5840.0	1.8	95	5838.7	29.8	85.6	90.6
5860.0	1.8	96	5858.7	29.7	86.2	91.2
5880.0	1.8	97	5878.7	29.7	86.9	91.8
5900.0	1.7	98	5898.7	29.6	87.5	92.3
5920.0	1.8	93	5918.7	29.5	88.1	92.9
5940.0	1.9	90	5938.7	29.5	88.7	93.5
5960.0	1.9	87	5958.7	29.6	89.1	94.1
5980.0	1.8	89	5978.6	29.5	90.0	94.7
6000.0	1.6	99	5998.6	29.5	90.6	95.3
6020.0	1.9	106	6018.6	29.4	91.2	95.8
6040.0	1.9	101	6038.6	29.2	91.9	96.4
6060.0	1.7	103	6058.6	29.1	92.5	96.9
6080.0	1.8	103	6078.6	28.9	93.1	97.5
6100.0	1.8	105	6098.6	28.8	93.7	98.0
6120.0	1.8	108	6118.6	28.6	94.3	98.5
6140.0	1.8	105	6138.6	28.4	94.9	99.0
6160.0	1.8	105	6158.6	28.3	95.5	99.6
6180.0	1.8	110	6178.5	28.1	96.1	100.1
6200.0	1.9	111	6198.5	27.9	96.7	100.6
6220.0	1.7	111	6218.5	27.6	97.3	101.1
6240.0	1.6	117	6238.5	27.4	97.8	101.6
6260.0	1.7	119	6258.5	27.1	98.4	102.0
6280.0	1.5	122	6278.5	26.8	98.9	102.4
6300.0	1.7	127	6298.5	26.5	99.3	102.8
6320.0	1.7	133	6318.5	26.1	99.8	103.1
6340.0	1.7	131	6338.5	25.7	100.2	103.5
6360.0	1.7	136	6358.5	25.3	100.7	103.8
6380.0	1.8	137	6378.5	24.8	101.1	104.1
6400.0	1.8	144	6398.4	24.3	101.5	104.4
6420.0	1.9	144	6418.4	23.8	101.9	104.6
6440.0	2.0	147	6438.4	23.3	102.2	104.9
6460.0	2.0	148	6458.4	22.7	102.6	105.1
6480.0	2.0	145	6478.4	22.1	103.0	105.3
6500.0	2.0	148	6498.4	21.5	103.4	105.6
6520.0	2.0	148	6518.4	20.9	103.7	105.8
6540.0	2.2	146	6538.4	20.3	104.1	106.1
6560.0	2.0	150	6558.4	19.7	104.5	106.4
6580.0	2.3	148	6578.3	19.1	104.9	10[illegible]

Schlumberger

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
6600.0	2.3	154	6598.3	18.4	105.3	106.9
6620.0	2.3	153	6618.3	17.6	105.7	107.1
6640.0	2.4	153	6638.3	16.9	106.0	107.4
6660.0	2.3	154	6658.3	16.2	106.4	107.6
6680.0	2.4	157	6678.3	15.4	106.8	107.9
6700.0	2.4	156	6698.2	14.7	107.1	108.1
6720.0	2.4	157	6718.2	13.9	107.4	108.3
6740.0	2.5	160	6738.2	13.1	107.7	108.5
6760.0	2.6	159	6758.2	12.3	108.0	108.7
6780.0	2.5	161	6778.2	11.4	108.3	108.9
6800.0	2.6	162	6798.1	10.6	108.6	109.1
6820.0	2.6	162	6818.1	9.7	108.9	109.3
6840.0	2.6	164	6838.1	8.8	109.2	109.5
6860.0	2.6	163	6858.1	8.0	109.4	109.7
6880.0	2.5	164	6878.1	7.1	109.7	109.9
6900.0	2.7	166	6898.0	6.2	109.9	110.1
6920.0	2.7	164	6918.0	5.3	110.2	110.3
6940.0	2.8	166	6938.0	4.4	110.4	110.5
6960.0	2.8	169	6958.0	3.4	110.6	110.7
6980.0	2.9	166	6977.9	2.5	110.8	110.9
7000.0	2.9	166	6997.9	1.5	111.1	111.1
7020.0	3.0	168	7017.9	0.5	111.3	111.3
7040.0	2.8	169	7037.9	-0.5	111.5	111.5
7060.0	3.1	168	7057.8	-1.5	111.7	111.7
7080.0	3.2	169	7077.8	-2.6	112.0	112.0
7100.0	3.1	171	7097.8	-3.7	112.1	112.2
7120.0	3.1	170	7117.8	-4.8	112.3	112.4
7140.0	3.2	169	7137.7	-5.8	112.5	112.7
7160.0	3.2	169	7157.7	-6.3	112.7	112.9
7180.0	3.3	166	7177.7	-8.0	113.0	113.3
7200.0	3.5	164	7197.6	-9.2	113.3	113.7
7220.0	3.5	166	7217.6	-10.4	113.6	114.1
7240.0	3.1	171	7237.5	-11.5	113.9	114.4
7260.0	3.0	173	7257.5	-12.6	114.0	114.7
7280.0	3.3	178	7277.5	-13.7	114.1	114.9
7300.0	3.1	177	7297.5	-14.8	114.1	115.1
7320.0	3.1	180	7317.4	-15.9	114.2	115.3
7340.0	3.2	179	7337.4	-17.0	114.2	115.4
7360.0	3.1	182	7357.4	-18.1	114.2	115.6
7380.0	3.1	180	7377.3	-19.1	114.1	115.7
7400.0	3.0	180	7397.3	-20.2	114.1	115.9
7420.0	3.1	184	7417.3	-21.3	114.1	116.1
7440.0	3.0	182	7437.3	-22.3	114.0	116.2
7460.0	2.9	178	7457.2	-23.4	114.0	116.4
7480.0	2.9	182	7477.2	-24.4	114.0	116.6
7500.0	2.9	182	7497.2	-25.4	114.0	11[illegible]

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REF 16537.

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
7520.0	2.9	183	7517.2	-26.4	114.0	117.0
7540.0	2.9	184	7537.1	-27.4	113.9	117.2
7560.0	2.9	185	7557.1	-28.4	113.8	117.3
7580.0	2.9	185	7577.1	-29.4	113.7	117.5
7600.0	2.9	185	7597.1	-30.4	113.6	117.6
7620.0	2.9	185	7617.0	-31.4	113.6	117.8
7640.0	2.9	186	7637.0	-32.4	113.5	118.0
7660.0	3.0	186	7657.0	-33.5	113.4	118.2
7680.0	3.1	185	7676.9	-34.5	113.2	118.4
7700.0	3.1	187	7696.9	-35.6	113.1	118.6
7720.0	3.2	186	7716.9	-36.7	113.0	118.8
7740.0	3.2	187	7736.9	-37.8	112.9	119.0
7760.0	3.3	186	7756.8	-38.9	112.7	119.3
7780.0	3.3	189	7776.8	-40.1	112.6	119.5
7800.0	3.2	188	7796.8	-41.2	112.4	119.7
7820.0	3.2	189	7816.7	-42.3	112.3	120.0
7840.0	3.4	189	7836.7	-43.4	112.1	120.2
7860.0	3.5	190	7856.7	-44.6	111.9	120.4
7880.0	3.5	189	7876.6	-45.8	111.7	120.7
7900.0	3.7	191	7896.6	-47.1	111.5	121.0
7920.0	3.6	190	7916.5	-48.3	111.2	121.3
7940.0	3.7	191	7936.5	-49.6	111.0	121.6
7960.0	3.8	190	7956.5	-50.9	110.8	121.9
7980.0	3.8	190	7976.4	-52.2	110.5	122.2
8000.0	3.8	191	7996.4	-53.5	110.3	122.6
8020.0	3.9	191	8016.3	-54.8	110.0	122.9
8040.0	4.0	192	8036.3	-56.1	109.8	123.3
8060.0	4.1	193	8056.2	-57.5	109.4	123.6
8080.0	4.2	191	8076.2	-58.9	109.1	124.0
8100.0	4.2	191	8096.1	-60.4	108.9	124.5
8120.0	4.2	191	8116.1	-61.8	108.6	124.9
8140.0	4.3	191	8136.0	-63.3	108.3	125.4
8160.0	4.4	192	8155.0	-64.7	108.0	125.9
8180.0	4.5	191	8175.9	-66.3	107.7	126.4
8200.0	4.5	191	8195.8	-67.8	107.4	127.0
8220.0	4.6	190	8215.8	-69.4	107.1	127.6
8240.0	4.8	191	8235.7	-71.0	106.8	128.2
8260.0	4.8	191	8255.6	-72.6	106.5	128.9
8280.0	5.1	189	8275.5	-74.3	106.2	129.6
8300.0	5.0	190	8295.5	-76.1	105.9	130.4
8320.0	4.9	189	8315.4	-77.8	105.6	131.1
8340.0	5.0	185	8335.3	-79.5	105.4	132.0
8360.0	4.9	190	8355.3	-81.2	105.2	132.9
8380.0	5.0	189	8375.2	-82.9	104.9	133.7
8400.0	5.0	187	8395.1	-84.6	104.6	134.6
8420.0	4.9	188	8415.0	-86.3	104.4	13[illegible]

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MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
9350.0	6.0	208	9351.6	-160.4	75.9	177.5
9380.0	6.3	207	9371.5	-162.3	75.0	178.8
9400.0	6.5	208	9391.4	-164.3	73.9	180.1
9420.0	6.7	208	9411.2	-166.3	72.8	181.6
9440.0	7.1	207	9431.1	-168.4	71.7	183.1
9460.0	7.3	208	9450.9	-170.7	70.6	184.7
9480.0	7.6	207	9470.8	-173.0	69.4	186.4
9500.0	7.9	207	9490.6	-175.4	68.2	188.1
9520.0	8.2	207	9510.4	-177.9	66.9	190.0
9540.0	8.7	208	9530.2	-180.5	65.5	192.0
9560.0	8.4	208	9549.9	-183.1	64.1	194.0
9580.0	9.4	207	9569.7	-185.7	62.8	196.0
9600.0	9.1	206	9589.5	-188.2	61.5	198.0
9620.0	8.0	206	9609.3	-190.8	60.3	200.1
9640.0	8.0	205	9629.1	-193.3	59.1	202.1
9660.0	8.2	206	9648.9	-195.8	57.9	204.2
9680.0	8.0	205	9668.7	-198.4	56.7	206.3
9700.0	7.5	205	9688.6	-200.8	55.5	208.3
9720.0	7.0	204	9708.4	-203.1	54.5	210.3
9740.0	7.0	206	9728.2	-205.3	53.4	212.2
9760.0	6.7	205	9748.1	-207.5	52.4	214.0
9780.0	6.5	203	9768.0	-209.6	51.5	215.8
9800.0	6.3	203	9787.8	-211.6	50.6	217.5
9820.0	6.3	206	9807.7	-213.6	49.7	219.3
9840.0	6.3	203	9827.6	-215.6	48.5	221.1
9860.0	6.0	203	9847.5	-217.6	47.9	222.8
9880.0	5.6	204	9867.4	-219.4	47.1	224.4
9900.0	5.7	202	9887.3	-221.2	46.4	226.1
9920.0	5.5	204	9907.2	-223.0	45.5	227.7
9940.0	5.0	206	9927.1	-224.7	44.8	229.1
9960.0	4.9	209	9947.0	-226.2	44.0	230.5
9980.0	4.9	207	9967.0	-227.7	43.2	231.8
10000.0	5.6	210	9986.9	-229.2	42.4	233.1
10020.0	5.1	207	10006.8	-230.7	41.6	234.4
10040.0	4.9	212	10026.7	-232.2	40.8	235.8
10060.0	5.1	212	10046.7	-233.7	39.9	237.1
10080.0	4.7	207	10066.6	-235.2	39.0	238.4
10100.0	4.5	212	10086.5	-236.5	38.2	239.6
10120.0	4.7	205	10106.5	-238.0	37.5	240.9
10140.0	4.7	208	10126.4	-239.4	36.7	242.2
10160.0	4.8	206	10146.3	-240.9	36.0	243.6
10180.0	4.9	207	10166.3	-242.4	35.2	245.0
10200.0	4.9	200	10186.2	-244.0	34.6	246.4
10220.0	5.0	199	10206.1	-245.6	34.0	247.9
10240.0	5.1	197	10226.0	-247.3	33.1	249.5
10260.0	5.1	195	10246.0	-249.0	32.9	25[illegible]

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MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
8440.0	4.8	190	8435.0	-88.0	104.2	136.3
8460.0	4.8	192	8454.9	-89.6	103.8	137.2
8480.0	4.9	194	8474.8	-91.3	103.5	138.0
8500.0	4.8	193	8494.7	-92.9	103.1	138.8
8520.0	4.9	195	8514.7	-94.6	102.7	139.6
8540.0	5.0	193	8534.6	-96.2	102.2	140.4
8560.0	4.5	192	8554.5	-97.9	101.9	141.3
8580.0	4.6	192	8574.5	-99.4	101.5	142.1
8600.0	4.7	190	8594.4	-101.0	101.2	143.0
8620.0	4.5	193	8614.3	-102.6	100.9	143.9
8640.0	4.4	195	8634.3	-104.1	100.5	144.7
8660.0	4.6	193	8654.2	-105.6	100.2	145.6
8680.0	4.5	193	8674.2	-107.2	99.8	146.4
8700.0	4.4	201	8694.1	-108.7	99.4	147.2
8720.0	4.5	200	8714.0	-110.1	98.8	147.9
8740.0	4.4	199	8734.0	-111.6	98.3	148.7
8760.0	4.8	201	8753.9	-113.1	97.7	149.5
8780.0	4.9	202	8773.8	-114.6	97.1	150.3
8800.0	4.5	201	8793.8	-116.2	96.5	151.0
8820.0	4.7	202	8813.7	-117.7	95.9	151.8
8840.0	4.7	203	8833.6	-119.2	95.3	152.6
8860.0	4.4	202	8853.6	-120.7	94.7	153.4
8880.0	4.7	207	8873.5	-122.1	94.0	154.1
8900.0	4.5	206	8893.4	-123.6	93.3	154.8
8920.0	4.3	204	8913.4	-124.9	92.7	155.6
8940.0	4.2	205	8933.3	-126.3	92.0	156.3
8960.0	4.4	208	8953.3	-127.6	91.4	157.0
8980.0	4.8	205	8973.2	-129.1	90.7	157.7
9000.0	4.6	199	8993.1	-130.6	90.0	158.6
9020.0	4.9	207	9013.1	-132.1	89.4	159.5
9040.0	4.6	203	9033.0	-133.6	88.7	160.4
9060.0	4.5	200	9052.9	-135.1	88.1	161.3
9080.0	4.5	203	9072.9	-136.5	87.5	162.2
9100.0	4.4	203	9092.8	-138.0	86.9	163.1
9120.0	5.1	206	9112.8	-139.5	86.3	164.0
9140.0	5.2	209	9132.7	-141.1	85.4	164.9
9160.0	5.1	201	9152.6	-142.7	84.7	165.9
9180.0	5.3	206	9172.5	-144.4	84.0	167.0
9200.0	5.3	204	9192.4	-146.0	83.2	168.1
9220.0	5.6	208	9212.3	-147.7	82.3	169.1
9240.0	5.5	208	9232.2	-149.4	81.4	170.2
9260.0	5.7	206	9252.1	-151.2	80.5	171.3
9280.0	5.9	207	9272.0	-153.0	79.7	172.5
9300.0	5.9	205	9291.9	-154.8	78.8	173.7
9320.0	5.9	207	9311.8	-156.7	77.9	175.0
9340.0	6.0	207	9331.7	-158.5	76.9	17

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MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
11200.0	1.0	197	11183.4	-310.8	14.9	311.2
11220.0	1.0	204	11203.4	-311.1	14.7	311.5
11240.0	0.9	211	11223.4	-311.4	14.5	311.8
11260.0	0.9	198	11243.4	-311.7	14.4	312.0
11280.0	0.9	197	11263.4	-312.0	14.3	312.3
11300.0	0.8	207	11283.3	-312.3	14.2	312.6
11320.0	0.8	205	11303.3	-312.5	14.1	312.9
11340.0	0.8	193	11323.3	-312.8	14.0	313.1
11360.0	0.7	196	11343.3	-313.1	13.9	313.4
11380.0	0.7	213	11363.3	-313.3	13.8	313.6
11400.0	0.7	197	11383.3	-313.5	13.7	313.8
11420.0	0.6	192	11403.3	-313.7	13.7	314.0
11440.0	0.6	208	11423.3	-313.9	13.6	314.2
11460.0	0.6	210	11443.3	-314.1	13.5	314.4
11480.0	0.5	193	11463.3	-314.3	13.4	314.5
11500.0	0.5	198	11483.3	-314.4	13.4	314.7
11520.0	0.5	225	11503.3	-314.6	13.3	314.9
11540.0	0.5	203	11523.3	-314.7	13.2	315.0
11560.0	0.4	193	11543.3	-314.9	13.1	315.1
11580.0	0.4	223	11563.3	-315.0	13.1	315.3
11600.0	0.4	224	11583.3	-315.1	13.0	315.4
11620.0	0.3	200	11603.3	-315.2	12.9	315.5
11640.0	0.3	210	11623.3	-315.3	12.9	315.5
11660.0	0.3	250	11643.3	-315.3	12.8	315.6
11680.0	0.2	228	11663.3	-315.4	12.7	315.6
11700.0	0.2	230	11683.3	-315.4	12.7	315.7
11720.0	0.2	259	11703.3	-315.5	12.6	315.7
11740.0	0.3	258	11723.3	-315.5	12.5	315.7
11760.0	0.3	250	11743.3	-315.5	12.4	315.8
11780.0	0.3	276	11763.3	-315.5	12.3	315.8
11800.0	0.4	287	11783.3	-315.5	12.2	315.7
11820.0	0.4	249	11803.3	-315.5	12.1	315.7
11840.0	0.4	260	11823.3	-315.5	11.9	315.8
11860.0	0.4	293	11843.3	-315.5	11.8	315.7
11880.0	0.5	276	11863.3	-315.5	11.7	315.7
11900.0	0.5	259	11883.3	-315.5	11.5	315.7
11920.0	0.5	285	11903.3	-315.5	11.3	315.7
11940.0	0.6	291	11923.3	-315.4	11.1	315.6
11960.0	0.5	272	11943.3	-315.4	10.9	315.5
11980.0	0.6	274	11963.3	-315.4	10.7	315.6
12000.0	0.7	304	11983.3	-315.3	10.5	315.5
12020.0	0.7	285	12003.3	-315.2	10.3	315.4
12040.0	0.7	275	12023.3	-315.2	10.1	315.3
12060.0	0.8	275	12043.3	-315.1	9.8	315.3
12080.0	0.8	294	12063.3	-315.1	9.5	315.2
12100.0	0.8	280	12083.3	-315.0	9.3	31[illegible]

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MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
10280.0	5.2	196	10265.9	-250.7	32.5	252.8
10300.0	5.2	195	10285.8	-252.5	32.0	254.5
10320.0	5.3	196	10305.7	-254.2	31.5	256.2
10340.0	5.4	195	10325.6	-256.0	31.0	257.9
10360.0	5.4	195	10345.5	-257.8	30.5	259.6
10380.0	5.5	195	10365.4	-259.7	30.0	261.4
10400.0	5.5	195	10385.3	-261.5	29.5	263.2
10420.0	5.5	194	10405.3	-263.4	29.0	265.0
10440.0	5.6	194	10425.2	-265.3	28.6	266.8
10460.0	5.6	194	10445.1	-267.2	28.1	268.6
10480.0	5.6	194	10465.0	-269.1	27.6	270.5
10500.0	5.6	195	10484.9	-270.9	27.1	272.3
10520.0	5.7	195	10504.8	-272.8	26.6	274.1
10540.0	5.7	195	10524.7	-274.8	26.1	276.0
10560.0	5.7	195	10544.6	-276.7	25.6	277.9
10580.0	5.6	195	10564.5	-278.6	25.1	279.7
10600.0	5.5	196	10584.4	-280.5	24.6	281.5
10620.0	5.4	196	10604.3	-282.3	24.1	283.3
10640.0	5.2	195	10624.2	-284.1	23.6	285.0
10660.0	5.0	196	10644.1	-285.8	23.1	286.7
10680.0	4.9	196	10664.1	-287.4	22.6	288.3
10700.0	4.7	196	10684.0	-289.0	22.1	289.9
10720.0	4.5	197	10703.9	-290.6	21.7	291.4
10740.0	4.4	198	10723.9	-292.0	21.2	292.8
10760.0	4.2	196	10743.8	-293.5	20.8	294.2
10780.0	4.0	196	10763.8	-294.8	20.4	295.5
10800.0	3.9	195	10783.7	-296.2	20.0	296.8
10820.0	3.7	197	10803.7	-297.4	19.6	298.1
10840.0	3.5	197	10823.6	-298.6	19.3	299.2
10860.0	3.4	196	10843.6	-299.8	18.9	300.4
10880.0	3.2	196	10863.6	-300.9	18.6	301.5
10900.0	3.0	199	10883.5	-301.9	18.3	302.5
10920.0	2.9	196	10903.5	-302.9	18.0	303.4
10940.0	2.7	196	10923.5	-303.8	17.7	304.3
10960.0	2.5	197	10943.5	-304.7	17.4	305.2
10980.0	2.4	198	10963.4	-305.5	17.2	306.0
11000.0	2.2	202	10983.4	-306.3	16.9	306.7
11020.0	2.0	205	11003.4	-306.9	16.6	307.4
11040.0	1.9	205	11023.4	-307.5	16.3	308.0
11060.0	1.7	208	11043.4	-308.1	16.1	308.5
11080.0	1.5	209	11063.4	-308.6	15.8	309.0
11100.0	1.4	204	11083.4	-309.0	15.6	309.4
11120.0	1.2	199	11103.4	-309.4	15.4	309.8
11140.0	1.1	204	11123.4	-309.8	15.2	310.2
11160.0	1.1	214	11143.4	-310.[illegible]	15.1	310.5
11180.0	1.0	199	11163.4	-310.5	14.9	31[illegible]

Schlumberger

```
*****************************************************************************
*                        BOTTOM HOLE LOCATION                               *
*                                                                           *
*                        COURSE LENGTH:          314.9  FT                  *
*                                                                           *
*                        COURSE AZIMUTH:         178.4  DEGREES             *
*                                                                           *
*                                                                           *
*                        MEASURED DEPTH:       12146.0  FT                  *
*                                                                           *
*                        TRUE VERTICAL DEPTH:  12129.3  FT                  *
*                                                                           *
*                        DISTANCE SOUTH:         314.8  FT                  *
*                                                                           *
*                        DISTANCE EAST:            8.5  FT                  *
*                                                                           *
*                                                                           *
*                        EXACT RADIUS OF CURVATURE METHOD                   *
*                                                                           *
*****************************************************************************
```

Schlumberger

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
12120.0	0.9	273	12103.3	-315.0	9.0	315.1
12140.0	0.9	301	12123.3	-314.9	8.7	315.0
12145.0	0.9	298	12129.3	-314.8	8.5	314.9

Schlumberger

Form 9-331
Dec. 1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☐ other

2. NAME OF OPERATOR ATTN: KAY MORGAN
TRANSCO EXPLORATION COMPANY

3. ADDRESS OF OPERATOR
P.O. BOX 1396, HOUSTON, TX 77251

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 650' FSL & 1900' FWL OF SEC. 15
AT TOP PROD. INTERVAL: (SE¼SW¼)
AT TOTAL DEPTH: SAME AS SURFACE

5. LEASE
U-23313

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
--

7. UNIT AGREEMENT NAME
--

8. FARM OR LEASE NAME
TXC/HUBER FEDERAL

9. WELL NO.
1-15

10. FIELD OR WILDCAT NAME
WILDCAT

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
SEC. 15, T28S, R25E

12. COUNTY OR PARISH
SAN JUAN

13. STATE
UTAH

14. API NO.
43-037-30923

15. ELEVATIONS (SHOW DF, KDB, AND WD)
7597.7' (Ungraded)

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	☐	☐
FRACTURE TREAT	☐	☐
SHOOT OR ACIDIZE	☐	☐
REPAIR WELL	☐	☐
PULL OR ALTER CASING	☐	☐
MULTIPLE COMPLETE	☐	☐
CHANGE ZONES	☐	☐
ABANDON*	☐	☐
(other) AMEND TD		X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

DEPTH: 12,946' MUD WT: 9.1

Amend TD to 13,500, in lieu of 13,000

VERBAL APPROVAL GRANTED BY BOB GRAFF TO TINA RIOS ON 02-28-84

RECEIVED
MAR 1 1984
DIVISION OF
OIL, GAS & MINING

Subsurface Safety Valve: Manu. and Type _____ Set, ft.

18. I hereby certify that the foregoing is true and correct

SIGNED _____ TITLE Drilling Superintendent DATE 02-28-84

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
(FORM 9-329)
(2/76)
OMB 42-RO 356

MONTHLY REPORT OF OPERATIONS

Lease No. U-23313
Communitization Agreement No. -
Field Name Wildcat
Unit Name Pole Springs Unit
Participating Area None Established
County San Juan State Utah
Operator Transco Exploration Company
☐ Amended Report

The following is a correct report of operations and production (including status of all unplugged wells) for the month of February, 19 84

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396 d), regulation (30 CFR 221.60), and the terms of the lease. Failure to report can result in the assessment of liquidated damages (30 CFR 221.54 (j)), shutting down operations, or basis for recommendation to cancel the lease and forfeit the bond (30 CFR 221.53).

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
TXC/Huber Fed. #1-15	Sec. 15 SE¼SW¼	28S	25E	DRG	0	0	0	0	43-037-30923 TD: 13,013' Mud: 9.1 ppg. Drilled & surveyed to 12,200'. Logged. Ran & set 7 3/4" liner 9705'-12,148'.& cmtd. w/410 sx Class "H" cmt. Tested TOL to 14.2# EMW. Dry tested TOL to 8.5# EMW. Tested BOP's. Tested shoe to 13.5 EMW. Drilled & surveyed to 12,363' & ran DST (Had H_2S show - rptd. to BLM Drilled to 12,753' ran DST. Drilled t

RECEIVED
MAR 12 1984
DIVISION OF
OIL, GAS & MINING

RECEIVED
MAR 12 1984
DIV. OF OIL, GAS & MINING

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month		XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXX
*Produced			
*Sold			XXXXXXXXXXXXXXXXX
*Spilled or Lost		XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXXX		XXXXXXXXXXXXXXXXX
*Used on Lease			XXXXXXXXXXXXXXXXX
*Injected			
*Surface Pits	XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXX	
*Other (Identify)			
*On hand, End of Month		XXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXX
*API Gravity/BTU Content			XXXXXXXXXXXXXXXXX

Authorized Signature: Kay L. Morgan Address: P. O. Box 1396, Houston, TX 77251
Title: Supervisor, Regulatory & Environmental Affairs

17+ Sepia

SCHLUMBERGER WELL SERVICES
A DIVISION OF SCHLUMBERGER TECHNOLOGY CORPORATION
HOUSTON, TEXAS 77001

March 7, 1984

PLEASE REPLY TO
SCHLUMBERGER WELL SERVICES
P.O. Box 250
Farmington, NM 87499

TRANSCO EXPLORATION CORPORATION
One United Bank Center
1700 Lincoln, Suite 2100
Denver, CO 80203
Attention: Mr. Bruce Wiley

Gentlemen:

Enclosed are 4 prints of the DIL/DLL, BHC (4 Runs), PML (4 Runs), NGT (2 Runs), WF, CNL/LDT, CDR (3 Runs).

Company Transco Exploration Corporation
Well Transco Huber Federal #1-15
Field Wildcat County San Juan State Utah

Additional prints are being sent to:

1 prints
Transco Exploration Corporation
P.O. Box 1396
Houston, TX 77251
ATTN: Rayer Chain

2 prints
J.M. Huber Corporation
1601 First Natl. Bank Building
Denver, CO 80293

2 prints
Tenneco Oil Company
P.O. Box 3249
Englewood, CO 80155

2 prints
Minerals Management Service
1745 West 1700 South, Suite 2000
Salt Lake City, UT 84104

2 prints + 1 Sepia
Texas Gas Expl. Corporation
410 17th Street, Suite 340
Denver, CO 80202
ATTN: Mr. Thomas Larson

1 prints
Utah Dept. of Natural Resources
Division of Oil, Gas, & Mining
4241 State Office Building
Salt Lake City, UT 84114

2 prints
Texas Gas Expl. Corporation
3300 Interfirst Plaza
1100 Louisiana
Houston, TX 77002

1 prints
RMWLS
Schlumberger Well Services
2850 City Center Four
1801 California Street
Denver, CO 80202

The film is being sent to

TRANSCO EXPLORATION CORPORATION
One United Bank Center
1700 Lincoln, Suite 2100
Denver, CO 80203
ATTN: Mr. Bruce Wiley

We appreciate the privilege of serving you.

Very truly yours,
SCHLUMBERGER WELL SERVICES

D. F. DeSmyter
DISTRICT MANAGER

SWS-1327-E

Form 9-331
Dec. 1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☐ other Wildcat

2. NAME OF OPERATOR
Transco Exploration Company, ATTN: Kay Morgan

3. ADDRESS OF OPERATOR
P. O. Box 1396, Houston, Texas 77251

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 650' FSL & 1900' FWL of Sec. 15
AT TOP PROD. INTERVAL: (SE¼SW¼)
AT TOTAL DEPTH: Straight Hole

5. LEASE
U-23313

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
---

7. UNIT AGREEMENT NAME
Pole Springs Unit

8. FARM OR LEASE NAME
TXC/Huber Federal

9. WELL NO.
1-15

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 15, T28S, R25E

12. COUNTY OR PARISH: San Juan
13. STATE: Utah

14. API NO.
43-037-30923

15. ELEVATIONS (SHOW DF, KDB, AND WD)
7597.7' (Ungraded)

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	☐	☐
FRACTURE TREAT	☐	☐
SHOOT OR ACIDIZE	☐	☐
REPAIR WELL	☐	☐
PULL OR ALTER CASING	☐	☐
MULTIPLE COMPLETE	☐	☐
CHANGE ZONES	☐	☐
ABANDON*	☐	☐
(other) Plugback		X

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

TD: 13,013'. Mud: 9.1 ppg. 20" csg. @ 100'. 13 3/8" csg. @ 2002'. 9 5/8" csg. @ 10,110'. 7 3/4" liner from 9705'-12,148'.

Ran and set 7 3/4" EZSV @ 12,000'. Squeezed 83 sx cmt. below EZSV, left 32 sx in 7 5/8" csg. & spotted 5 sx cmt. above EZSV (PBTD = 11,979'). ND BOP's & installed TA cap. Released Forwest Rig #6 on 3/2/84. Will move in completion rig within the next 1-2 weeks.

Verbal approval to plugback was granted by Bob Graff (BLM) & Ron Firth (Utah Div. of Oil, Gas & Mining) to Russell McPhail on 2/29/84.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

18. I hereby certify that the foregoing is true and correct

SIGNED [signature] TITLE Drilling Superintendent DATE 3/7/84

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

RECEIVED
MAR 12 1984
DIV. OF OIL, GAS & MINING

Transco
Exploration Company
A Subsidiary of Transco Energy Company

2800 Post Oak Boulevard
P. O. Box 1396
Houston, Texas 77251
713-439-2000

RECEIVED
MAR 14 1984
DIVISION OF
OIL, GAS & MINING

March 9, 1984

U. S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
P. O. Box 970
Moab, Utah 84532

ATTN: Bob Graff

RE: TXC/HUBER FEDERAL #1-15
Directional Surveys
San Juan County, Utah

Gentlemen:

Enclosed for your review are (2) two copies of the directional surveys taken by Schlumberger for the above subject well.

If additional information is needed, please contact me.

Sincerely,

TRANSCO EXPLORATION COMPANY

Kay L. Morgan

Kay L. Morgan, Supervisor
Regulatory & Environmental Affairs

/TMR

cc - State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
4241 State Office Building
Salt Lake City, Utah 84114

Transco
Exploration Company
A Subsidiary of Transco Energy Company

2800 Post Oak Boulevard
P. O. Box 1396
Houston, Texas 77251
713-439-2000

RECEIVED
MAR 19 1984
DIVISION OF
OIL, GAS & MINING

March 16, 1984

U. S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
P. O. Box 970
125 West Second South
Moab, Utah 84532

ATTN: Mr. Bob Graff

RE: Request for Confidential Status

Gentlemen:

Transco Exploration Company requests that all reports filed with the BLM and State be kept confidential for a period of (6) months on the TXC/HUBER FEDERAL WELL #1-15 in San Juan County, Utah.

If additional information is required, please contact Tina Rios at (713) 439-3503.

Sincerely,

TRANSCO EXPLORATION COMPANY

Tina M. Rios

for Kay L. Morgan, Supervisor
Regulatory & Environmental Affairs

/TMR

cc - STATE OF UTAH
Department of Natural Resources
Division of Oil, Gas and Mining
4241 State Office Building
Salt Lake City, Utah 84114

ATTN: Mr. Ron Firth

Form approved — Budget Bureau No. 1004-0138 Expires August 31, 1985

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Form 3160-6
(November 1983)
(Formerly 9-329)

MONTHLY REPORT OF OPERATIONS

Lease No. U-23[illegible]
Communitization Agreement No. -
Field Name Wildcat
Unit Name Pole Springs Unit
Participating Area None Established
County San Juan State Utah
Operator Transco Exploration Company
☐ Amended Report

The following is a correct report of operations and production (including status of all unplugged wells) for the month of March, 19 84

(See Reverse of Form for Instructions)

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396d), regulation (43 CFR 3162.4-3), and the terms of the lease. Failure to report can result in the assessment of liquidated damages, (43 CFR 3160), penalties, shutting down operations, or basis for recommendation to cancel the lease and forfeit the bond (43 CFR 3160).

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
TXC/Huber Fed #1-15	Sec. 15 SE¼SW¼	28S	25E	DRG	0	0	0	0	PBTD: 11,979' Fin logging. Set EZSV @ 12,000'. Sqz'd 83 sx cmt. below EZSV, left 3[illegible] sx. in 7-5/8" csg, spotted 5 sx. cmt above EZSV. ND BOP's & installed TA cap. Released rig on 3-2-84. Moved in completion rig on 3-27-84. TIH w/2-7/8" tbg to 10605' & set Baker pkr. ND BOP's. NU tree. Made 2" gauge ring run. Could not get below 9167'. POOH

RECEIVED
APR 12 1984
DIVISION OF OIL GAS & MINING

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month		XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Produced			
*Sold			XXXXXXXXXXXXXXXX
*Spilled or Lost		XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXX		XXXXXXXXXXXXXXXX
*Used on Lease			XXXXXXXXXXXXXXXX
*Injected			
*Surface Pits	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX	
*Other (Identify)			
*On hand, End of Month		XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*API Gravity/BTU Content			XXXXXXXXXXXXXXXX

Authorized Signature: Kay L. Morgan Address: P. O. Box 1396, Houston, TX 77251
Title: Supervisor, Regulatory & Environmental Affairs Page 1 of 1

Title 18 U.S.C. Section 1001, makes 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.

Form approved – Budget Bureau No. 1004-0138 August 31, 1985

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Form 3160-7
(November 1983)
(Formerly 9-329-1)

MONTHLY REPORT
OF
OPERATIONS
(Continued)

Lease No. U-23313

Communitization Agreement No. -

Field Name Wildcat

Unit Name Pole Springs Unit

Participating Area None Established

County San Juan State Utah

Operator Transco Exploration Company

☐ Amended Report

CONFIDENTIAL

The following is a correct report of operations and production (including status of all unplugged wells) for the month of April, 1984

(See Reverse of Form 3160-6 for Instructions)

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
TXC/Huber Fed #1-15	Sec. 15 SE¼SW¼	28S	25E	DRG	0	0	0	0	Circ 9.0# gelled water. Spot cmt plug from 8620'-8490 w/50 sx cmt; Spot plug from 5500-5240' w/100 sx cmt. Spot plug from 2100-1840' w/100 sx cmt. & 50 sx plug @ 140'. Pumped pits down 13-3/8 x 9-5/8 annulus. Pumped 10(sx cmt down 13-3/8 x 9-5/8" annulus. Cut csg 8' below ground level. Set 10 sx cmt plug @ surface. Well was P&A'd on 4/23/84.

RECEIVED
APR 30 1984
DIVISION OF OIL
GAS & MINING

Title 18 U.S.C. Section 1001, makes 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.

Form approved — Budget Bureau No. 1004-0138 Expires August 31, 1985 3

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Form 3160-6
(November 1983)
(Formerly 9-329)

MONTHLY REPORT OF OPERATIONS

Lease No. U-2331
Communitization Agreement No. -
Field Name Wildcat
Unit Name Pole Springs Unit
Participating Area None Established
County San Juan State Utah
Operator Transco Exploration Company
☐ Amended Report

The following is a correct report of operations and production (including status of all unplugged wells) for the month of April, 19 84

(See Reverse of Form for Instructions)

CONFIDENTIAL

This report is required by law (30 U.S.C. 189, 30 U.S.C. 359, 25 U.S.C. 396d), regulations (43 CFR 3162.4-3), and the terms of the lease. Failure to report can result in the assessment of liquidated damages, (43 CFR 3160), penalties, shutting down operations, or basis for recommendation to cancel the lease and forfeit the bond (43 CFR 3160).

Well No.	Sec. & ¼ of ¼	TWP	RNG	Well Status	Days Prod.	*Barrels of Oil	*MCF of Gas	*Barrels of Water	Remarks
TXC/Huber Fed #1-15	Sec.15 SE¼SW¼	28S	25E	DRG	0	0	0	0	PBTD: 11,979' Tagged DB pkr @ 10,535'. Tstd annl 1000 psi; tstd tbg 2000 psi-OK. Perf 11000-11008; 10912-10943;10760-10789; 10720-10747' w/4SPF. Swabbed. Observed well 24 hrs. Set DR plug in pkr @ 10535' & set 13 sx cmt on top pkr to 10470'. Ran JB & GR to 8850' Perf 8820-8825;8829-8739; 8727-8729; & 8717-8727'. Set DB pkr @ 8620'. Acidize & swabbed. Observed well.

RECEIVED
APR 30 1984
DIVISION OF OIL GAS & MINING

*If none, so state.

DISPOSITION OF PRODUCTION (Lease, Participating Area, or Communitized Area basis)

	Oil & Condensate (BBLS)	Gas (MCF)	Water (BBLS)
*On hand, Start of Month		XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Produced			
*Sold			XXXXXXXXXXXXXXXX
*Spilled or Lost		XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*Flared or Vented	XXXXXXXXXXXXXXXX		XXXXXXXXXXXXXXXX
*Used on Lease			XXXXXXXXXXXXXXXX
*Injected			
*Surface Pits	XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX	
*Other (Identify)			
*On hand, End of Month		XXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXX
*API Gravity/BTU Content			XXXXXXXXXXXXXXXX

Authorized Signature: Kay L. Morgan Address: P. O. Box 1396, Houston, TX 77251
Title: Supervisor, Regulatory & Environmental Affairs Page 1 of 2

Title 18 U.S.C. Section 1001, makes 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.

Form 3160-5
(November 1983)
(Formerly 9-331)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 1004-0135
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL ☐ GAS WELL ☐ OTHER Dry

2. NAME OF OPERATOR: TRANSCO EXPLORATION COMPANY ATTN: KAY L. MORGAN

3. ADDRESS OF OPERATOR: P. O. BOX 1396, HOUSTON, TEXAS 77251

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 650' FSL & 1900' FWL OF SEC. 15 (SE¼SW¼)

5. LEASE DESIGNATION AND SERIAL NO.: U-23313

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: ---

7. UNIT AGREEMENT NAME: Pole Springs Unit

8. FARM OR LEASE NAME: TXC/Huber Federal

9. WELL NO.: #1-15

10. FIELD AND POOL, OR WILDCAT: Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: SEC. 15, T28S, R25E

12. COUNTY OR PARISH: San Juan

13. STATE: Utah

14. PERMIT NO.: 43-037-30923

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 7597.7' (Ungraded)

16. **Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data**

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	X
REPAIR WELL	☐	CHANGE PLANS	☐	(Other)			
(Other)							

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

RECEIVED
MAY 2 1984
DIVISION OF OIL GAS & MINING

TD: 13,013' MUD: 9.1 ppg

STATUS: 20" csg @ 100'.
13-3/8" csg @ 2002'.
9-5/8" csg @ 10,110'.
7-3/4" liner from 9705' - 12,148'.

ACTUAL PROCEDURE: Set DR plug in pkr @ 8620'. Tested to 1500 psi. Pumped 9.0# gelled water. Set 50 sx plug 8620'-8490'; 100 sx plug 5500'-5240'; 100 sx plug 2100'-1840'; and 50 sx plug @ 140'. Pumped pits down 13-3/8" x 9-5/8" annulus. Pumped 100 sx cmt down 13-3/8" x 9-5/8" annulus. Cut csg. off 8' below ground level. Set 10 sx cmt plug at surface. Well was plugged and abandoned on 04-23-84.

Location will be rehabilitated as soon as the reserve pit is completely dry, pursuant to USFS stipulations. The pit has been fenced. A subsequent report of abandonment will be submitted after reclamation is completed.

VERBAL APPROVAL TO P&A GRANTED BY BOB GRAFF TO KAY MORGAN ON APRIL 17, 1984.

18. I hereby certify that the foregoing is true and correct

SIGNED [signature] TITLE Drilling Superintendent DATE 04-26-84

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____
CONDITIONS OF APPROVAL, IF ANY:

ACCEPTED BY THE STATE OF UTAH DIVISION OF OIL, GAS, AND MINING
DATE: 5-2-84
BY: [signature]

*See instructions on Reverse Side

Title 18 U.S.C. Section 1001, makes 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.

Transco
Exploration Company
A Subsidiary of Transco Energy Company

2800 Post Oak Boulevard
P. O. Box 1396
Houston, Texas 77251
713-439-2000

RECEIVED
MAY 25 1984
DIVISION OF OIL
GAS & MINING

May 22, 1984

UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management
P. O. Box 970
Moab, Utah 84532

ATTN: Mr. Bob Graff

RE: Form 3160-4 (Well Completion Report)
TXC/Huber Federal #1-15 Well
San Juan County, Utah

Mr. Graff:

Enclosed in duplicate please find the Well Completion Report for the captioned report. A Sundry Notice will be submitted to your office after reclamation work is completed.

Should you have any questions concerning this submittal or require additional information at this time, please contact me at (713) 439-3502 at your convenience.

Sincerely,

TRANSCO EXPLORATION COMPANY

Kay L. Morgan

Kay L. Morgan, Supervisor
Regulatory & Environmental Affairs

Enclosure

cc - U.S. Department of Agriculture
Forest Service
ATTN Mr. Mark Chatterton
446 South Main Street
Moab, Utah 84532

State of Utah
Division of Oil, Gas and Mining
ATTN Mr. Norm Stout
4241 State Office Building
Salt Lake City, Utah 84114

Form 3160-4
(November 1983)
(formerly 9-330)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

Form approved.
Budget Bureau No. 1004-0137
Expires August 31, 1985

14

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ DRY ☒ Other

b. TYPE OF COMPLETION: NEW WELL ☐ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other P&A ✓

2. NAME OF OPERATOR: TRANSCO EXPLORATION COMPANY

3. ADDRESS OF OPERATOR: P. O. Box 1396, Houston, Texas 77251 - ATTN: K. Morgan

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements*)*
At surface: 650' FSL & 1900' FWL of Sec. 15 (SE¼SW¼)
At top prod. interval reported below: -
At total depth: Straight Hole

5. LEASE DESIGNATION AND SERIAL NO.: U-23313
6. IF INDIAN, ALLOTTEE OR TRIBE NAME: -
7. UNIT AGREEMENT NAME: Pole Springs Unit
8. FARM OR LEASE NAME: TXC/Huber Federal
9. WELL NO.: 1-15
10. FIELD AND POOL, OR WILDCAT: Wildcat
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 15, T28S, R25E

14. PERMIT NO.: 43-037-30923 | DATE ISSUED: 09-13-84
12. COUNTY OR PARISH: San Juan | 13. STATE: Utah

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
10-20-83	02-28-84	04-23-84 (P&A)	7597.7' (Ungraded)	0

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
13013'MD,12995'TVD	Surface	-	→	X	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
None

25. WAS DIRECTIONAL SURVEY MADE: Yes

26. TYPE ELECTRIC AND OTHER LOGS RUN: DIL; Proximity Log; Sonic Log; NGT; LS Sonic W/ Sample; DLL; Microlog, SFL; GR Survey; Litho Density Comp Neutron; Dipmeter; MSHL

27. WAS WELL CORED: No

28. CASING RECORD (*Report all strings set in well*)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
20"	Culvert pipe	100'	-	200 sx	8'
13 3/8"	68#	2002'	17 1/2"	1550 sx	8'
9 5/8"	47#	10110'	12 1/4"	900 sx	8'

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
7 3/4"	9705'	12,148'	410	

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 7/8"	10,516'	10,536') Pulled
2 7/8"	8,620'	8,620')

31. PERFORATION RECORD (*Interval, size and number*)
10720-10747', 10760-10789', 10912-10943', 11000-11008' 4 SPF (Plugged off)

8717-8727', 8727-8729', 8729-8739', 8820-8825' 4 SPF (Acidized; Plugged off)

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
13013+-11979'	EZSV @ 12000' w/83 sx below & 5 sx above
10535-10470'	DR plug @ 10535' w/13 sx above
8620-8490'	DR plug @ 8620' w/50 sx above

SEE REVERSE SIDE FOR REMAINING CMT. PLUGS

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (*Flowing, gas lift, pumping—size and type of pump*)	WELL STATUS (*Producing or shut-in*)
-		P&A

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
			→				

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
		→				

RECEIVED
MAY 25 1984
DIVISION OF OIL GAS & MINING

34. DISPOSITION OF GAS (*Sold, used for fuel, vented, etc.*)

TEST WITNESSED BY

35. LIST OF ATTACHMENTS

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED [signature] TITLE Drilling Superintendent DATE 5/22/84

*(See Instructions and Spaces for Additional Data on Reverse Side)

Title 18 U.S.C. Section 1001, makes 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.

37. SUMMARY OF POROUS ZONES: (Show all important zones of porosity and contents thereof; cored intervals; and all drill-stem, tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries):

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	
CEMENT PLUGS (CONTINUED):			5500-5240'	100 sx cmt.
			2100-1840'	100 sx cmt.
			140'	50 sx cmt.
			350-0'	100 sx in 13 3/8" x 9 5/8" annulus
			20-5'	10 sx cmt.

38. GEOLOGIC MARKERS

NAME	TOP MEAS. DEPTH	TOP TRUE VERT. DEPTH
Mancos	Surface	Surface
Burro Canyon	255'	255'
Morrison	387'	387'
Entrada ss (?)	1153'	1153'
Navajo ss	1415'	1415'
Kayenta	1845'	1844'
Wingate ss	2066'	2066'
Chinle	2375'	2375'
Shinarump (?)	2830'(?)	2830'(?)
Moenkopi (?)	2890'(?)	2890'(?)
Cutler (?)	3230'(?)	3230'(?)
White Rim ss	4445'	4445'
Honaker Trail(?)	7450'(?)	7448'(?)
Paradox	8888'	8882'
Hatch or Sitton	9268'	9260'
Boundary Butte Sh.	9514'	9505'
Upper Ismay	9555'	9545'
Hovenweep Sh.	9725'	9713'
Lower Ismay	9815'	9803'
Gothic Sh.	9992'	9979'
Upper Desert Cr.	10130'	10117'
Upper Desert Cr. Salt	10163'	10149'
Base Salt = Pinkerton Tr.	12053'	12036'
Molas	12140'(?)	12123'
Redwall	12168'	12151'
Ouray	12475'	12458'
Elbert	12573'	12556'
McCracken ss	12646'	12629'
Aneth Sh.	12777'	12759'
Lynch Dolo.	12870'	12852'
Total Depth	13013'	12995'

DRILL STEM TEST DATA

DST #1: 7164-7186, Permian Cutler, op 30, SI 60, op 60, SI 120. IF op w/blow from btm. bucket. Strong blow (10 oz) in 2 min on 1/2" chk. incr. to 2.75# in 30 min. NGTS. FF op with strong blow (21 oz) in 3 min, decreasing to 17.5 oz in 60 min. NGTS. Rec 120' DM. Splr: 0.35 CFG @ 46 psig, 100 cc M. Rm-bottom spl. = 2.84 ohmm @ 66°F. IHP 3367, IFP 83-74, ISIP: 207, FFP 58-69, FSIP 237, FHP 3367, BHT 120°F.

DST #2: 8294-8314, Pennsylvanian Honaker Trail, op 45, SI 90, op 90, SI 185. NGTS during IF or FF. IF op with 0 oz on 3/4" BH chk, incr to 4 lb in 45 min. NGTS. FF op with 1 lb blow on 3/4" BH chk., incr. to 20.25 lb blow in 90 min. At end FF, bled gas from pipe and got 10-12' (max) flare. Died 15 min into FSI. Rec. 115' M., Splr: 1550 cc M @ psig, no G, no wtr. Rm-splr: 1.45 ohmm @ 56°F (2970 ppm chl.). IHP 3889, IFP 76-94, ISIP 1856, FFP 70-122, FSIP 2262, FHP 3877, BHT 134°F.

DST #3: 8423-8471, Pennsylvanian Honaker Trail, op 62, SI 120, op 120, SI 240. IF op with good blow, strong blow to bottom bucket in 4 min. 5 lbs on 1/8" BH chk. incr. to 22.75 lb in 62 min. At ISL bled gas from pipe and got 12-15' orange flare for 15 min. FF op with weak flare (1.5 oz) on .25" chk., press incr. to 12 oz in 10 min., changed to 1/8" chk. in 20 min. at 1.5 lb. Increases to 2.75 lb in 60 min., then decreases to 2.1 lb at 120 min. Weak flare (3-6') throughout FF. No fluid to surface. Rec. 700' DM, 50' GCSW. Splr: 0.55 CFG @ 320 psig, 1470 cc GCSW with sli. cond. odor, 150 cc DM. Rm-splr=0.2 @ 51°F (47,000 ppm chl.) IHP: 3966, IFP 241-352, ISIP 1593, FFP 414-560, FSIP 1727, FHP 3950, BHT 126°F.

DST #4: 12232-12362, Mississippian Redwall, op 32, SI 60, op 121, SI 235. IF op with weak blow (1"= 0 oz. on 1/8" BH chk). Fair blow 6" in bucket (=2.5 oz) in 5 min, increasing to 12.25 oz in 32 min. (good blow to bottom bucket). No gas to surface. FF op. with a good blow to btm. of bucket (8 oz on 1/8" BH chk), increasing to 57# in 66 min when changed to 3/8" chk. GTS in 70 min at 60 lb. (2' flare), 62 lb at 75 min, decreasing to 50 lb at 121 min. 3-5' flare from 70-121 min, with associated H_2S in 108 min. Rev. out 5369' (47-50 bbls) sour gas cut SW (20,000-58,000 ppm chl.). Bottom reversed out sample Rw = 0.094 @ 60°F (52,000 ppm chl). Gas analysis indicates low Btu (421-466 btu/cu ft) sour gas. (CO_2 = 43.62%, N_2=11.79%, Methane = 44.02%, Ethane = 0.45%, Propane 0.07%, Isobutane = 0.04%, N-Butane = 0.01%. H_2S not detected by analysis but may have been degraded by collection in a mild steel cylinder with brass valves. IHP 5899, IFP 1029-2315, ISIP 3938, FFP 1514-2115, FSIP 3903, FHP 5851, BHT 156°F.

Transco
Exploration Company
A Subsidiary of Transco Energy Company

One United Bank Center
1700 Lincoln, Suite 2100
Denver, Colorado 80203
303-863-3600

RECEIVED

JUN 11 1984

DIVISION OF OIL
GAS & MINING

June 8, 1984

State of Utah
Division of Oil, Gas & Mining
4241 State Office Building
Salt Lake City, Utah 84114

Dear Sir:

Enclosed please find one copy of the following data from the Transco Exploration Company, TXC-Huber Federal #1-15 well, Sec. 15, T28S, R25E, San Juan Co., Utah:

1) DST Report #1-7
2) Schlumberger directional survey log runs 1-3
3) Gyrodata directional survey log run #1
4) Two gas analyses DST #4, one gas analysis perfs 8717-39 & 8820-20
5) Four chemical analyses of water samples from DST #4
6) Consulting geologists well report and strip log
7) Mud loggers summary and mudlog
8) Completion report
9) Open hole logs should have been forwarded by Schlumberger as per the enclosed transmittal letter (copy) dated March 7, 1984
10) A washed set of samples from surface to TD will be cut and forwarded by AM Strat when they prepare samples on this well.

We probably Don't want these sent.
-JRB

UG MS

Sincerely,

Bruce Wiley

Bruce Wiley
Senior Exploration Geologist
Transco Exploration Company

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*-----------------------*
*-----SCHLUMBERGER-----*
*-----------------------*
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SCHLUMBERGER DIRECTIONAL SURVEY

TRANSCO EXPL. CORP.

TRANSCO HUBER FED. #1-15

WILDCAT

SAN JUAN COUNTY,UTAH

RUN NO.	1	2002 - 10102	16-JAN-84	16509
RUN NO.	2	10102 - 12144	04-FEB-84	16537
RUN NO.	3	12144 - 12848	26-FEB-84	16562

START OF SURVEY IS CASING AT 2002 FT.

EXACT RADIUS OF CURVATURE METHOD

REFERENCE JOB 16562.

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
2002.0	0.6	29	2002.0	0.0	0.0	0.0
2020.0	0.9	29	2020.0	0.2	0.1	0.2
2040.0	0.7	14	2040.0	0.4	0.2	0.4
2060.0	0.8	32	2060.0	0.6	0.3	0.7
2080.0	0.6	30	2080.0	0.8	0.4	0.9
2100.0	0.6	26	2100.0	1.0	0.5	1.1
2120.0	0.6	28	2120.0	1.2	0.6	1.3
2140.0	0.7	27	2140.0	1.4	0.7	1.6
2160.0	0.6	30	2160.0	1.6	0.8	1.8
2180.0	0.8	24	2180.0	1.8	0.9	2.0
2200.0	0.7	26	2200.0	2.0	1.0	2.3
2220.0	0.7	37	2220.0	2.2	1.2	2.5
2240.0	0.8	41	2240.0	2.5	1.3	2.8
2260.0	0.7	40	2260.0	2.7	1.5	3.0
2280.0	0.8	41	2280.0	2.8	1.7	3.3
2300.0	0.8	45	2300.0	3.1	1.9	3.6
2320.0	0.7	42	2320.0	3.2	2.0	3.8
2340.0	0.8	28	2340.0	3.5	2.2	4.1
2360.0	0.9	37	2360.0	3.7	2.3	4.4
2380.0	0.8	47	2380.0	3.9	2.5	4.7
2400.0	0.8	53	2400.0	4.1	2.8	4.9
2420.0	0.8	54	2420.0	4.3	3.0	5.2
2440.0	0.7	61	2440.0	4.4	3.2	5.4
2460.0	0.8	63	2460.0	4.5	3.4	5.7
2480.0	0.8	61	2480.0	4.7	3.7	5.9
2500.0	0.8	70	2500.0	4.8	3.9	6.2
2520.0	0.9	73	2520.0	4.9	4.2	6.4
2540.0	0.9	65	2540.0	5.0	4.5	6.7
2560.0	0.9	75	2560.0	5.1	4.8	7.0
2580.0	1.0	65	2579.9	5.2	5.1	7.3
2600.0	1.0	70	2599.9	5.3	5.4	7.6
2620.0	0.9	69	2619.9	5.5	5.7	7.9
2640.0	1.1	68	2639.9	5.6	6.1	8.2
2660.0	1.1	69	2659.9	5.7	6.4	8.6
2680.0	1.1	64	2679.9	5.9	6.8	9.0
2700.0	1.1	69	2699.9	6.0	7.1	9.3
2720.0	1.1	65	2719.9	6.2	7.5	9.7
2740.0	1.1	69	2739.9	6.3	7.8	10.1
2760.0	1.1	71	2759.9	6.5	8.2	10.4
2780.0	1.0	68	2779.9	6.6	8.5	10.8
2800.0	1.3	58	2799.9	6.8	8.9	11.2
2820.0	1.2	59	2819.9	7.0	9.3	11.6
2840.0	1.2	56	2839.9	7.2	9.6	12.0
2860.0	0.9	64	2859.9	7.4	9.9	12.4
2880.0	1.2	61	2879.9	7.6	10.3	12.8
2900.0	1.3	62	2899.9	7.8	10.6	13.2

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
2920.0	1.1	71	2919.9	8.0	11.0	13.6
2940.0	1.2	71	2939.9	8.1	11.4	14.0
2960.0	1.2	68	2959.9	8.2	11.8	14.4
2980.0	1.2	78	2979.9	8.4	12.2	14.8
3000.0	1.2	73	2999.9	8.5	12.6	15.2
3020.0	1.3	66	3019.9	8.6	13.0	15.6
3040.0	1.3	70	3039.9	8.8	13.4	16.0
3060.0	1.2	73	3059.9	8.9	13.8	16.5
3080.0	1.3	79	3079.8	9.0	14.3	16.9
3100.0	1.2	81	3099.8	9.1	14.7	17.3
3120.0	1.2	89	3119.8	9.1	15.1	17.7
3140.0	1.2	88	3139.8	9.2	15.5	18.0
3160.0	1.2	85	3159.8	9.2	15.9	18.4
3180.0	1.3	87	3179.8	9.2	16.4	18.8
3200.0	1.1	90	3199.8	9.2	16.8	19.2
3220.0	1.1	93	3219.8	9.2	17.2	19.5
3240.0	1.1	93	3239.8	9.2	17.6	19.8
3260.0	1.1	78	3259.8	9.2	17.9	20.2
3280.0	1.1	87	3279.8	9.3	18.3	20.5
3300.0	1.0	93	3299.8	9.3	18.7	20.9
3320.0	1.0	88	3319.8	9.3	19.0	21.2
3340.0	0.9	92	3339.8	9.3	19.4	21.5
3360.0	0.9	87	3359.8	9.3	19.7	21.8
3380.0	0.9	87	3379.8	9.3	20.0	22.1
3400.0	0.9	83	3399.8	9.3	20.3	22.3
3420.0	0.9	84	3419.8	9.4	20.6	22.6
3440.0	0.8	89	3439.8	9.4	20.9	22.9
3460.0	0.8	89	3459.8	9.4	21.2	23.2
3480.0	0.7	83	3479.8	9.4	21.5	23.4
3500.0	0.8	89	3499.8	9.4	21.7	23.7
3520.0	0.8	93	3519.8	9.4	22.0	23.9
3540.0	0.8	86	3539.8	9.4	22.3	24.2
3560.0	0.9	88	3559.8	9.4	22.6	24.5
3580.0	0.9	90	3579.8	9.4	22.9	24.8
3600.0	1.0	89	3599.8	9.4	23.2	25.1
3620.0	0.9	87	3619.8	9.4	23.5	25.4
3640.0	0.9	86	3639.8	9.5	23.9	25.7
3660.0	0.9	84	3659.8	9.5	24.2	26.0
3680.0	0.9	83	3679.8	9.5	24.5	26.3
3700.0	0.9	84	3699.8	9.6	24.8	26.6
3720.0	0.9	84	3719.8	9.6	25.1	26.9
3740.0	0.9	81	3739.8	9.6	25.4	27.2
3760.0	0.9	82	3759.8	9.7	25.7	27.5
3780.0	1.0	80	3779.7	9.7	26.1	27.8
3800.0	0.9	79	3799.7	9.8	26.4	28.1
3820.0	1.0	75	3819.7	9.9	26.7	28.5

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
3840.0	1.0	75	3839.7	10.0	27.0	28.8
3860.0	1.0	75	3859.7	10.1	27.4	29.2
3880.0	1.0	73	3879.7	10.2	27.7	29.5
3900.0	1.0	71	3899.7	10.3	28.1	29.9
3920.0	1.0	72	3919.7	10.4	28.4	30.2
3940.0	1.1	72	3939.7	10.5	28.7	30.6
3960.0	1.1	74	3959.7	10.6	29.1	31.0
3980.0	1.1	68	3979.7	10.7	29.5	31.4
4000.0	1.1	68	3999.7	10.9	29.8	31.7
4020.0	1.2	68	4019.7	11.0	30.2	32.1
4040.0	1.2	68	4039.7	11.2	30.6	32.6
4060.0	1.2	63	4059.7	11.3	31.0	33.0
4080.0	1.2	64	4079.7	11.5	31.3	33.4
4100.0	1.3	60	4099.7	11.7	31.7	33.8
4120.0	1.3	62	4119.7	12.0	32.1	34.3
4140.0	1.4	61	4139.7	12.2	32.5	34.7
4160.0	1.3	60	4159.7	12.4	32.9	35.2
4180.0	1.4	60	4179.7	12.6	33.3	35.7
4200.0	1.4	60	4199.7	12.9	33.8	36.1
4220.0	1.3	59	4219.7	13.1	34.2	36.6
4240.0	1.3	58	4239.7	13.4	34.6	37.1
4260.0	1.4	61	4259.6	13.6	35.0	37.5
4280.0	1.4	63	4279.6	13.8	35.4	38.0
4300.0	1.4	62	4299.6	14.1	35.8	38.5
4320.0	1.4	63	4319.6	14.3	36.3	39.0
4340.0	1.4	64	4339.6	14.5	36.7	39.5
4360.0	1.5	63	4359.6	14.7	37.2	40.0
4380.0	1.5	64	4379.6	15.0	37.6	40.5
4400.0	1.5	56	4399.6	15.2	38.1	41.0
4420.0	1.5	58	4419.6	15.5	38.5	41.5
4440.0	1.5	63	4439.6	15.8	39.0	42.0
4460.0	1.5	63	4459.6	16.0	39.4	42.6
4480.0	1.5	68	4479.6	16.2	39.9	43.1
4500.0	1.7	69	4499.6	16.4	40.4	43.6
4520.0	1.7	60	4519.6	16.7	41.0	44.2
4540.0	1.6	61	4539.6	17.0	41.5	44.8
4560.0	1.7	58	4559.5	17.3	42.0	45.4
4580.0	1.8	55	4579.5	17.6	42.5	46.0
4600.0	1.8	57	4599.5	17.9	43.0	46.6
4620.0	1.9	54	4619.5	18.3	43.6	47.2
4640.0	1.8	67	4639.5	18.5	44.1	47.9
4660.0	1.9	72	4659.5	18.8	44.7	48.5
4680.0	2.0	67	4679.5	19.0	45.4	49.2
4700.0	2.1	63	4699.5	19.3	46.0	49.9
4720.0	2.1	64	4719.5	19.6	46.7	50.6
4740.0	2.3	63	4739.4	20.0	47.4	51.4

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	COORDINATES + NORTH - SOUTH	COORDINATES + EAST - WEST	COURSE LENGTH FT
4760.0	2.3	64	4759.4	20.3	48.1	52.2
4780.0	2.3	63	4779.4	20.7	48.8	53.0
4800.0	2.4	69	4799.4	21.0	49.6	53.8
4820.0	2.3	69	4819.4	21.3	50.3	54.7
4840.0	2.3	67	4839.4	21.6	51.1	55.5
4860.0	2.3	69	4859.3	21.9	51.8	56.3
4880.0	2.3	69	4879.3	22.2	52.6	57.1
4900.0	2.3	69	4899.3	22.5	53.3	57.9
4920.0	2.4	68	4919.3	22.8	54.1	58.7
4940.0	2.3	68	4939.3	23.1	54.8	59.5
4960.0	2.3	69	4959.3	23.4	55.6	60.3
4980.0	2.3	67	4979.2	23.7	56.3	61.1
5000.0	2.4	67	4999.2	24.0	57.1	61.9
5020.0	2.2	69	5019.2	24.3	57.8	62.7
5040.0	2.2	68	5039.2	24.6	58.5	63.5
5060.0	2.1	72	5059.2	24.9	59.2	64.2
5080.0	2.0	70	5079.2	25.1	59.9	65.0
5100.0	1.9	72	5099.2	25.3	60.6	65.6
5120.0	1.9	74	5119.1	25.5	61.2	66.3
5140.0	1.9	74	5139.1	25.7	61.8	67.0
5160.0	2.0	73	5159.1	25.9	62.5	67.6
5180.0	2.1	74	5179.1	26.1	63.2	68.3
5200.0	2.0	75	5199.1	26.3	63.9	69.1
5220.0	2.0	74	5219.1	26.5	64.5	69.7
5240.0	1.9	75	5239.1	26.7	65.2	70.4
5260.0	2.1	74	5259.1	26.8	65.9	71.1
5280.0	2.0	74	5279.1	27.0	66.5	71.8
5300.0	2.1	73	5299.0	27.2	67.2	72.5
5320.0	2.1	75	5319.0	27.4	67.9	73.3
5340.0	2.1	75	5339.0	27.6	68.6	74.0
5360.0	2.1	77	5359.0	27.8	69.4	74.7
5380.0	2.1	80	5379.0	28.0	70.1	75.4
5400.0	2.1	77	5399.0	28.1	70.8	76.2
5420.0	2.1	75	5419.0	28.3	71.5	76.9
5440.0	2.0	77	5438.9	28.4	72.2	77.6
5460.0	2.0	79	5458.9	28.6	72.9	78.3
5480.0	2.0	81	5478.9	28.7	73.6	79.0
5500.0	2.0	80	5498.9	28.8	74.3	79.7
5520.0	1.9	78	5518.9	29.0	74.9	80.3
5540.0	2.1	80	5538.9	29.1	75.6	81.0
5560.0	2.1	80	5558.9	29.2	76.3	81.7
5580.0	2.0	83	5578.9	29.3	77.0	82.4
5600.0	2.1	82	5598.8	29.4	77.7	83.1
5620.0	2.0	79	5618.8	29.5	78.5	83.8
5640.0	1.9	80	5638.8	29.7	79.1	84.5
5660.0	2.0	82	5658.8	29.8	79.8	85.2

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
5680.0	1.9	84	5678.8	29.9	80.5	85.8
5700.0	1.9	84	5698.8	29.9	81.1	86.5
5720.0	1.9	91	5718.8	29.9	81.8	87.1
5740.0	1.8	92	5738.8	29.9	82.4	87.7
5760.0	1.8	91	5758.8	29.9	83.1	88.3
5780.0	1.8	93	5778.7	29.9	83.7	88.9
5800.0	1.9	93	5798.7	29.9	84.3	89.5
5820.0	1.8	93	5818.7	29.8	85.0	90.1
5840.0	1.8	95	5838.7	29.8	85.6	90.6
5860.0	1.8	96	5858.7	29.7	86.2	91.2
5880.0	1.8	97	5878.7	29.7	86.9	91.8
5900.0	1.7	98	5898.7	29.6	87.5	92.3
5920.0	1.8	93	5918.7	29.5	88.1	92.9
5940.0	1.9	90	5938.7	29.5	88.7	93.5
5960.0	1.9	87	5958.7	29.5	89.4	94.1
5980.0	1.8	89	5978.6	29.5	90.0	94.7
6000.0	1.6	99	5998.6	29.5	90.6	95.3
6020.0	1.9	106	6018.6	29.4	91.2	95.8
6040.0	1.9	101	6038.6	29.2	91.9	96.4
6060.0	1.7	103	6058.6	29.1	92.5	96.9
6080.0	1.8	103	6078.6	28.9	93.1	97.5
6100.0	1.8	105	6098.6	28.8	93.7	98.0
6120.0	1.8	108	6118.6	28.6	94.3	98.5
6140.0	1.8	105	6138.6	28.4	94.9	99.0
6160.0	1.8	105	6158.6	28.3	95.5	99.6
6180.0	1.8	110	6178.5	28.1	96.1	100.1
6200.0	1.9	111	6198.5	27.9	96.7	100.6
6220.0	1.7	111	6218.5	27.6	97.3	101.1
6240.0	1.8	117	6238.5	27.4	97.8	101.6
6260.0	1.7	119	6258.5	27.1	98.4	102.0
6280.0	1.6	122	6278.5	26.8	98.9	102.4
6300.0	1.7	127	6298.5	26.5	99.3	102.8
6320.0	1.7	133	6318.5	26.1	99.8	103.1
6340.0	1.7	131	6338.5	25.7	100.2	103.5
6360.0	1.7	136	6358.5	25.3	100.7	103.8
6380.0	1.8	137	6378.5	24.8	101.1	104.1
6400.0	1.8	144	6398.4	24.4	101.5	104.4
6420.0	1.9	144	6418.4	23.8	101.9	104.6
6440.0	2.0	147	6438.4	23.3	102.2	104.9
6460.0	2.0	148	6458.4	22.7	102.6	105.1
6480.0	2.0	146	6478.4	22.1	103.0	105.3
6500.0	2.0	148	6498.4	21.5	103.4	105.6
6520.0	2.0	148	6518.4	20.9	103.7	105.8
6540.0	2.2	146	6538.4	20.3	104.1	106.1
6560.0	2.0	150	6558.4	19.7	104.5	106.4
6580.0	2.3	148	6578.3	19.1	104.9	106.6

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
6600.0	2.3	154	6598.3	18.4	105.3	106.9
6620.0	2.3	153	6618.3	17.6	105.7	107.1
6640.0	2.4	153	6638.3	16.9	106.0	107.4
6660.0	2.3	154	6658.3	16.2	106.4	107.6
6680.0	2.4	157	6678.3	15.4	106.8	107.9
6700.0	2.4	156	6698.2	14.7	107.1	108.1
6720.0	2.4	157	6718.2	13.9	107.4	108.3
6740.0	2.5	160	6738.2	13.1	107.7	108.5
6760.0	2.6	159	6758.2	12.3	108.0	108.7
6780.0	2.5	161	6778.2	11.4	108.3	108.9
6800.0	2.6	162	6798.1	10.6	108.6	109.1
6820.0	2.6	162	6818.1	9.7	108.9	109.3
6840.0	2.6	164	6838.1	8.8	109.2	109.5
6860.0	2.6	163	6858.1	8.0	109.4	109.7
6880.0	2.6	164	6878.1	7.1	109.7	109.9
6900.0	2.7	166	6898.0	6.2	109.9	110.1
6920.0	2.7	164	6918.0	5.3	110.2	110.3
6940.0	2.8	166	6938.0	4.4	110.4	110.5
6960.0	2.8	169	6958.0	3.4	110.6	110.7
6980.0	2.9	166	6977.9	2.5	110.8	110.9
7000.0	2.9	166	6997.9	1.5	111.1	111.1
7020.0	3.0	168	7017.9	0.5	111.3	111.3
7040.0	2.8	169	7037.9	-0.5	111.5	111.5
7060.0	3.1	168	7057.8	-1.5	111.7	111.7
7080.0	3.2	169	7077.8	-2.6	112.0	112.0
7100.0	3.1	171	7097.8	-3.7	112.1	112.2
7120.0	3.1	170	7117.8	-4.8	112.3	112.4
7140.0	3.2	169	7137.7	-5.8	112.5	112.7
7160.0	3.2	169	7157.7	-6.9	112.7	112.9
7180.0	3.3	166	7177.7	-8.0	113.0	113.3
7200.0	3.6	164	7197.6	-9.2	113.3	113.7
7220.0	3.5	166	7217.6	-10.4	113.6	114.1
7240.0	3.1	171	7237.5	-11.5	113.8	114.4
7260.0	3.0	173	7257.5	-12.6	114.0	114.7
7280.0	3.3	178	7277.5	-13.7	114.1	114.9
7300.0	3.1	177	7297.5	-14.8	114.1	115.1
7320.0	3.1	180	7317.4	-15.9	114.2	115.3
7340.0	3.2	179	7337.4	-17.0	114.2	115.4
7360.0	3.1	182	7357.4	-18.1	114.2	115.6
7380.0	3.1	180	7377.3	-19.1	114.1	115.7
7400.0	3.0	180	7397.3	-20.2	114.1	115.9
7420.0	3.1	184	7417.3	-21.3	114.1	116.1
7440.0	3.0	182	7437.3	-22.3	114.0	116.2
7460.0	2.9	179	7457.2	-23.4	114.0	116.4
7480.0	2.9	182	7477.2	-24.4	114.0	116.6
7500.0	2.9	182	7497.2	-25.4	114.0	116.8

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
7520.0	2.9	183	7517.2	-26.4	114.0	117.0
7540.0	2.9	184	7537.1	-27.4	113.9	117.2
7560.0	2.9	185	7557.1	-28.4	113.8	117.3
7580.0	2.9	185	7577.1	-29.4	113.7	117.5
7600.0	2.9	185	7597.1	-30.4	113.6	117.6
7620.0	2.9	185	7617.0	-31.4	113.6	117.8
7640.0	2.9	186	7637.0	-32.4	113.5	118.0
7660.0	3.0	186	7657.0	-33.5	113.4	118.2
7680.0	3.1	186	7676.9	-34.5	113.2	118.4
7700.0	3.1	187	7696.9	-35.6	113.1	118.6
7720.0	3.2	186	7716.9	-36.7	113.0	118.8
7740.0	3.2	187	7736.9	-37.8	112.9	119.0
7760.0	3.3	186	7756.8	-38.9	112.7	119.3
7780.0	3.3	189	7776.8	-40.1	112.6	119.5
7800.0	3.2	188	7796.8	-41.2	112.4	119.7
7820.0	3.2	189	7816.7	-42.3	112.3	120.0
7840.0	3.4	189	7836.7	-43.4	112.1	120.2
7860.0	3.5	190	7856.7	-44.6	111.9	120.4
7880.0	3.5	189	7876.6	-45.8	111.7	120.7
7900.0	3.7	191	7896.6	-47.1	111.5	121.0
7920.0	3.6	190	7916.5	-48.3	111.2	121.3
7940.0	3.7	191	7936.5	-49.6	111.0	121.6
7960.0	3.8	190	7956.5	-50.9	110.8	121.9
7980.0	3.8	190	7976.4	-52.2	110.5	122.2
8000.0	3.8	191	7996.4	-53.5	110.3	122.6
8020.0	3.9	191	8016.3	-54.8	110.0	122.9
8040.0	4.0	192	8036.3	-56.1	109.8	123.3
8060.0	4.1	193	8056.2	-57.5	109.4	123.6
8080.0	4.2	191	8076.2	-58.9	109.1	124.0
8100.0	4.2	191	8096.1	-60.4	108.9	124.5
8120.0	4.2	191	8116.1	-61.8	108.6	124.9
8140.0	4.3	191	8136.0	-63.3	108.3	125.4
8160.0	4.4	192	8156.0	-64.7	108.0	125.9
8180.0	4.5	191	8175.9	-66.3	107.7	126.4
8200.0	4.5	191	8195.8	-67.8	107.4	127.0
8220.0	4.6	190	8215.8	-69.4	107.1	127.6
8240.0	4.8	191	8235.7	-71.0	106.8	128.2
8260.0	4.8	191	8255.6	-72.6	106.5	128.9
8280.0	5.1	189	8275.6	-74.3	106.2	129.6
8300.0	5.0	190	8295.5	-76.1	105.9	130.4
8320.0	4.9	189	8315.4	-77.8	105.6	131.1
8340.0	5.0	185	8335.3	-79.5	105.4	132.0
8360.0	4.9	190	8355.3	-81.2	105.2	132.9
8380.0	5.0	189	8375.2	-82.9	104.9	133.7
8400.0	5.0	187	8395.1	-84.6	104.6	134.6
8420.0	4.9	188	8415.0	-86.3	104.4	135.5

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
8440.0	4.8	190	8435.0	-88.0	104.2	136.3
8460.0	4.8	192	8454.9	-89.6	103.8	137.2
8480.0	4.9	194	8474.9	-91.3	103.5	138.0
8500.0	4.8	193	8494.7	-92.9	103.1	138.8
8520.0	4.9	195	8514.7	-94.6	102.7	139.6
8540.0	5.0	193	8534.6	-96.2	102.2	140.4
8560.0	4.6	192	8554.5	-97.9	101.9	141.3
8580.0	4.6	192	8574.5	-99.4	101.5	142.1
8600.0	4.7	190	8594.4	-101.0	101.2	143.0
8620.0	4.5	193	8614.3	-102.6	100.9	143.9
8640.0	4.4	195	8634.3	-104.1	100.5	144.7
8660.0	4.6	193	8654.2	-105.6	100.2	145.6
8680.0	4.5	193	8674.2	-107.2	99.8	146.4
8700.0	4.4	201	8694.1	-108.7	99.4	147.2
8720.0	4.5	200	8714.0	-110.1	98.8	147.9
8740.0	4.4	199	8734.0	-111.6	98.3	148.7
8760.0	4.8	201	8753.9	-113.1	97.7	149.5
8780.0	4.9	202	8773.8	-114.6	97.1	150.3
8800.0	4.6	201	8793.8	-116.2	96.5	151.0
8820.0	4.7	202	8813.7	-117.7	95.9	151.8
8840.0	4.7	203	8833.6	-119.2	95.3	152.6
8860.0	4.4	202	8853.6	-120.7	94.7	153.4
8880.0	4.7	207	8873.5	-122.1	94.0	154.1
8900.0	4.5	206	8893.4	-123.6	93.3	154.8
8920.0	4.3	204	8913.4	-124.9	92.7	155.6
8940.0	4.2	205	8933.3	-126.3	92.0	156.3
8960.0	4.4	208	8953.3	-127.6	91.4	157.0
8980.0	4.8	205	8973.2	-129.1	90.7	157.7
9000.0	4.6	199	8993.1	-130.6	90.0	158.6
9020.0	4.9	207	9013.1	-132.1	89.4	159.5
9040.0	4.6	203	9033.0	-133.6	88.7	160.4
9060.0	4.5	200	9052.9	-135.1	88.1	161.3
9080.0	4.5	203	9072.9	-136.5	87.5	162.2
9100.0	4.4	203	9092.8	-138.0	86.9	163.1
9120.0	5.1	205	9112.9	-139.5	86.3	164.0
9140.0	5.2	209	9132.7	-141.1	95.4	164.9
9160.0	5.1	201	9152.6	-142.7	84.7	165.9
9180.0	5.3	206	9172.5	-144.4	84.0	167.0
9200.0	5.3	204	9192.4	-146.0	83.2	168.1
9220.0	5.6	208	9212.3	-147.7	82.3	169.1
9240.0	5.5	208	9232.2	-149.4	81.4	170.2
9260.0	5.7	206	9252.1	-151.2	80.6	171.3
9280.0	5.9	207	9272.0	-153.0	79.7	172.5
9300.0	5.9	205	9291.9	-154.8	78.8	173.7
9320.0	5.9	207	9311.8	-156.7	77.9	175.0
9340.0	6.0	207	9331.7	-158.5	76.9	176.2

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
9360.0	6.0	208	9351.6	-160.4	75.9	177.5
9380.0	6.3	207	9371.5	-162.3	75.0	178.8
9400.0	6.5	208	9391.4	-164.3	73.9	180.1
9420.0	6.7	209	9411.2	-166.3	72.8	181.6
9440.0	7.1	207	9431.1	-168.4	71.7	183.1
9460.0	7.3	208	9450.9	-170.7	70.6	184.7
9480.0	7.6	207	9470.8	-173.0	69.4	186.4
9500.0	7.9	207	9490.6	-175.4	68.2	188.1
9520.0	8.2	207	9510.4	-177.9	66.9	190.0
9540.0	8.7	208	9530.2	-180.5	65.5	192.0
9560.0	8.4	208	9549.9	-183.1	64.1	194.0
9580.0	8.4	207	9569.7	-185.7	62.8	196.0
9600.0	8.1	206	9589.5	-188.2	61.5	198.0
9620.0	8.0	206	9609.3	-190.8	60.3	200.1
9640.0	8.0	205	9629.1	-193.3	59.1	202.1
9660.0	8.2	206	9648.9	-195.8	57.9	204.2
9680.0	8.0	205	9668.7	-198.4	56.7	206.3
9700.0	7.5	205	9688.6	-200.8	55.5	208.3
9720.0	7.0	204	9708.4	-203.1	54.5	210.3
9740.0	7.0	206	9728.2	-205.3	53.4	212.2
9760.0	6.7	205	9748.1	-207.5	52.4	214.0
9780.0	6.5	203	9768.0	-209.6	51.5	215.8
9800.0	6.3	203	9787.8	-211.6	50.6	217.6
9820.0	6.3	206	9807.7	-213.6	49.7	219.3
9840.0	6.3	203	9827.6	-215.6	48.8	221.1
9860.0	6.0	203	9847.5	-217.6	47.9	222.8
9880.0	5.6	204	9867.4	-219.4	47.1	224.4
9900.0	5.7	202	9887.3	-221.2	46.4	226.1
9920.0	5.5	204	9907.2	-223.0	45.6	227.7
9940.0	5.0	206	9927.1	-224.7	44.8	229.1
9960.0	4.9	209	9947.0	-226.2	44.0	230.5
9980.0	4.9	207	9967.0	-227.7	43.2	231.8
10000.0	4.6	210	9986.9	-229.2	42.4	233.1
10020.0	5.1	207	10006.8	-230.7	41.6	234.4
10040.0	4.9	212	10026.7	-232.2	40.8	235.8
10060.0	5.1	212	10046.7	-233.7	39.9	237.1
10080.0	4.7	207	10066.6	-235.2	39.0	238.4
10100.0	4.5	212	10086.5	-236.6	38.2	239.6
10120.0	4.7	205	10106.5	-238.0	37.5	240.9
10140.0	4.7	208	10126.4	-239.4	36.7	242.2
10160.0	4.8	206	10146.3	-240.9	36.0	243.6
10180.0	4.9	207	10166.3	-242.4	35.2	245.0
10200.0	4.9	200	10186.2	-244.0	34.6	246.4
10220.0	5.0	199	10206.1	-245.6	34.0	247.9
10240.0	5.1	197	10226.0	-247.3	33.4	249.5
10260.0	5.1	195	10246.0	-249.0	32.9	251.2

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
10280.0	5.2	196	10265.9	-250.7	32.5	252.8
10300.0	5.2	195	10285.8	-252.5	32.0	254.5
10320.0	5.3	196	10305.7	-254.2	31.5	256.2
10340.0	5.4	195	10325.6	-256.0	31.0	257.9
10360.0	5.4	195	10345.5	-257.8	30.5	259.6
10380.0	5.5	195	10365.4	-259.7	30.0	261.4
10400.0	5.5	195	10385.3	-261.5	29.5	263.2
10420.0	5.5	194	10405.3	-263.4	29.0	265.0
10440.0	5.6	194	10425.2	-265.3	28.6	266.8
10460.0	5.6	194	10445.1	-267.2	28.1	268.6
10480.0	5.6	194	10465.0	-269.1	27.6	270.5
10500.0	5.6	195	10484.9	-270.9	27.1	272.3
10520.0	5.7	195	10504.8	-272.8	26.6	274.1
10540.0	5.7	195	10524.7	-274.8	26.1	276.0
10560.0	5.7	195	10544.6	-276.7	25.6	277.9
10580.0	5.6	195	10564.5	-278.6	25.1	279.7
10600.0	5.5	196	10584.4	-280.5	24.6	281.5
10620.0	5.4	196	10604.3	-282.3	24.1	283.3
10640.0	5.2	195	10624.2	-284.1	23.6	285.0
10660.0	5.0	196	10644.1	-285.8	23.1	286.7
10680.0	4.9	196	10664.1	-287.4	22.6	288.3
10700.0	4.7	196	10684.0	-289.0	22.1	289.9
10720.0	4.5	197	10703.9	-290.6	21.7	291.4
10740.0	4.4	198	10723.9	-292.0	21.2	292.8
10760.0	4.2	196	10743.8	-293.5	20.8	294.2
10780.0	4.0	196	10763.8	-294.8	20.4	295.5
10800.0	3.9	195	10783.7	-296.2	20.0	296.8
10820.0	3.7	197	10803.7	-297.4	19.6	298.1
10840.0	3.5	197	10823.6	-298.6	19.3	299.2
10860.0	3.4	196	10843.6	-299.8	18.9	300.4
10880.0	3.2	196	10863.6	-300.9	18.6	301.5
10900.0	3.0	199	10883.5	-301.9	18.3	302.5
10920.0	2.9	196	10903.5	-302.9	18.0	303.4
10940.0	2.7	196	10923.5	-303.8	17.7	304.3
10960.0	2.5	197	10943.5	-304.7	17.4	305.2
10980.0	2.4	198	10963.4	-305.5	17.2	306.0
11000.0	2.2	202	10983.4	-306.3	16.9	306.7
11020.0	2.0	205	11003.4	-306.9	16.6	307.4
11040.0	1.9	205	11023.4	-307.5	16.3	308.0
11060.0	1.7	208	11043.4	-308.1	16.1	308.5
11080.0	1.5	209	11063.4	-308.6	15.8	309.0
11100.0	1.4	204	11083.4	-309.0	15.6	309.4
11120.0	1.2	199	11103.4	-309.4	15.4	309.8
11140.0	1.1	204	11123.4	-309.8	15.2	310.2
11160.0	1.1	214	11143.4	-310.1	15.1	310.5
11180.0	1.0	199	11163.4	-310.5	14.9	310.8

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
11200.0	1.0	197	11183.4	-310.8	14.8	311.2
11220.0	1.0	204	11203.4	-311.1	14.7	311.5
11240.0	0.9	211	11223.4	-311.4	14.5	311.8
11260.0	0.9	198	11243.4	-311.7	14.4	312.0
11280.0	0.9	197	11263.4	-312.0	14.3	312.3
11300.0	0.8	207	11283.3	-312.3	14.2	312.6
11320.0	0.8	205	11303.3	-312.5	14.1	312.9
11340.0	0.8	193	11323.3	-312.8	14.0	313.1
11360.0	0.7	196	11343.3	-313.1	13.9	313.4
11380.0	0.7	213	11363.3	-313.3	13.8	313.6
11400.0	0.7	197	11383.3	-313.5	13.7	313.8
11420.0	0.6	192	11403.3	-313.7	13.7	314.0
11440.0	0.6	208	11423.3	-313.9	13.6	314.2
11460.0	0.6	210	11443.3	-314.1	13.5	314.4
11480.0	0.5	193	11463.3	-314.3	13.4	314.5
11500.0	0.5	198	11483.3	-314.4	13.4	314.7
11520.0	0.5	223	11503.3	-314.6	13.3	314.9
11540.0	0.5	203	11523.3	-314.7	13.2	315.0
11560.0	0.4	193	11543.3	-314.9	13.1	315.1
11580.0	0.4	223	11563.3	-315.0	13.1	315.3
11600.0	0.4	224	11583.3	-315.1	13.0	315.4
11620.0	0.3	200	11603.3	-315.2	12.9	315.5
11640.0	0.3	210	11623.3	-315.3	12.9	315.5
11660.0	0.3	250	11643.3	-315.3	12.8	315.6
11680.0	0.2	228	11663.3	-315.4	12.7	315.6
11700.0	0.2	230	11683.3	-315.4	12.7	315.7
11720.0	0.2	259	11703.3	-315.5	12.6	315.7
11740.0	0.3	258	11723.3	-315.5	12.5	315.7
11760.0	0.3	250	11743.3	-315.5	12.4	315.8
11780.0	0.3	276	11763.3	-315.5	12.3	315.8
11800.0	0.4	287	11783.3	-315.5	12.2	315.7
11820.0	0.4	249	11803.3	-315.5	12.1	315.7
11840.0	0.4	260	11823.3	-315.5	11.9	315.8
11860.0	0.4	293	11843.3	-315.5	11.8	315.7
11880.0	0.5	276	11863.3	-315.5	11.7	315.7
11900.0	0.5	259	11883.3	-315.5	11.5	315.7
11920.0	0.5	285	11903.3	-315.5	11.3	315.7
11940.0	0.6	291	11923.3	-315.4	11.1	315.6
11960.0	0.6	272	11943.3	-315.4	10.9	315.6
11980.0	0.6	274	11963.3	-315.4	10.7	315.6
12000.0	0.7	304	11983.3	-315.3	10.5	315.5
12020.0	0.7	285	12003.3	-315.2	10.3	315.4
12040.0	0.7	275	12023.3	-315.2	10.1	315.3
12060.0	0.8	275	12043.3	-315.1	9.8	315.3
12080.0	0.8	294	12063.3	-315.1	9.5	315.2
12100.0	0.8	280	12083.3	-315.0	9.3	315.1

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
12120.0	0.9	273	12103.3	-315.0	9.0	315.1
12140.0	0.9	301	12123.3	-314.9	8.7	315.0
12160.0	0.5	283	12143.3	-314.8	8.5	314.9
12180.0	0.5	289	12163.3	-314.7	8.3	314.8
12200.0	0.8	293	12183.3	-314.6	8.1	314.7
12220.0	0.8	295	12203.3	-314.5	7.8	314.6
12240.0	1.0	294	12223.3	-314.4	7.5	314.5
12260.0	1.1	298	12243.3	-314.2	7.2	314.3
12280.0	1.2	298	12263.3	-314.0	6.9	314.1
12300.0	1.3	297	12283.3	-313.8	6.5	313.9
12320.0	1.6	300	12303.3	-313.6	6.0	313.7
12340.0	1.9	307	12323.3	-313.3	5.5	313.3
12360.0	1.9	304	12343.3	-312.9	5.0	312.9
12380.0	2.1	299	12363.3	-312.5	4.4	312.5
12400.0	2.4	302	12383.2	-312.1	3.7	312.1
12420.0	2.6	304	12403.2	-311.6	3.0	311.6
12440.0	2.9	302	12423.2	-311.1	2.2	311.1
12460.0	3.4	305	12443.2	-310.5	1.3	310.5
12480.0	3.9	305	12463.1	-309.8	0.2	309.8
12500.0	4.3	307	12483.1	-308.9	-0.9	308.9
12520.0	4.5	307	12503.0	-308.0	-2.2	308.0
12540.0	4.7	307	12523.0	-307.0	-3.4	307.1
12560.0	4.8	309	12542.9	-306.0	-4.8	306.1
12580.0	4.9	309	12562.8	-305.0	-6.1	305.0
12600.0	5.0	308	12582.7	-303.9	-7.4	304.0
12620.0	5.1	307	12602.7	-302.8	-8.8	302.9
12640.0	5.2	312	12622.6	-301.7	-10.2	301.8
12660.0	5.2	310	12642.5	-300.5	-11.6	300.7
12680.0	5.3	309	12662.4	-299.3	-13.0	299.6
12700.0	5.5	310	12682.3	-298.1	-14.4	298.5
12720.0	5.4	309	12702.2	-296.9	-15.9	297.3
12740.0	5.4	307	12722.1	-295.8	-17.4	296.3
12760.0	5.4	309	12742.1	-294.6	-18.9	295.2
12780.0	5.4	308	12762.0	-293.4	-20.3	294.1
12800.0	5.4	305	12781.9	-292.3	-21.8	293.1
12820.0	5.5	308	12801.8	-291.2	-23.4	292.1
12840.0	5.5	307	12821.7	-290.0	-24.9	291.1
12848.0	5.6	307	12829.7	-289.5	-25.5	290.7

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*****************************************************************
*                    BOTTOM HOLE LOCATION                       *
*                                                               *
*                    COURSE LENGTH:          290.7  FT          *
*                    COURSE AZIMUTH:         185.0  DEGREES     *
*                                                               *
*                    MEASURED DEPTH:       12848.0  FT          *
*                    TRUE VERTICAL DEPTH: 12829.7  FT          *
*                    DISTANCE SOUTH:         289.5  FT          *
*                    DISTANCE WEST:           25.5  FT          *
*                                                               *
*                    EXACT RADIUS OF CURVATURE METHOD           *
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A Gyrodata Directional Survey
for

TRANSCO EXPL CO

TXC HUBER FED WELL NO. 1-15

SAN JUAN CO., UTAH

Date Run: 19-JAN-84 20:28: 0

Job Number: HT0184G006

Surveyor: KUDRLE

Survey Method: RADIUS OF CURVATURE

Proposed Well Direction: S 23deg 0min 0sec E

RANSCO EXPL CO
XC HUBER FED WELL NO. 1-15
AN JUAN CO., UTAH

MEASURED DEPTH ft	INCLINATION deg min	BORE HOLE BEARING deg min	BORE HOLE AZIMUTH deg	VERTICAL DEPTH ft	VERTICAL SECTION ft	HORIZONTAL COORDINATES feet		CLOSURE DISTANCE ft	CLOSURE BEARING deg min	DOG-LEG SEVERITY deg/100
0.0	0 0	N 0 0 E	0.00	0.0	0.0	.0 N	.0 E	0.0	N 90 0 E	0.00
100.0	0 13	S 5 5 E	174.91	100.0	.2	.2 S	.0 E	.2	S 5 5 E	.22
200.0	0 20	S 89 35 E	90.41	200.0	.6	.5 S	.3 E	.6	S 34 52 E	.38
[illegible]0.0	0 24	S 82 25 E	97.59	300.0	.9	.5 S	1.0 E	1.1	S 61 31 E	.08
[illegible]0.0	0 23	S 89 12 E	90.80	400.0	1.2	.6 S	1.7 E	1.8	S 70 33 E	.06
500.0	0 29	N 84 19 E	84.32	500.0	1.4	.6 S	2.4 E	2.5	S 77 3 E	.12
600.0	0 33	S 89 15 E	90.75	600.0	1.8	.5 S	3.3 E	3.3	S 81 8 E	.08
700.0	0 28	S 75 1 E	104.98	700.0	2.2	.6 S	4.2 E	4.2	S 81 21 E	.15
800.0	0 42	N 76 36 E	76.60	800.0	2.6	.6 S	5.2 E	5.2	S 82 51 E	.37
900.0	1 4	N 77 57 E	77.94	900.0	2.9	.3 S	6.7 E	6.7	S 87 20 E	.37
1000.0	1 4	N 84 47 E	84.78	999.9	3.3	.0 S	8.5 E	8.5	S 89 47 E	.13
1100.0	1 0	N 89 58 E	89.97	1099.9	4.0	.1 N	10.3 E	10.3	N 89 43 E	.12
1200.0	1 2	S 85 58 E	94.03	1199.9	4.7	.0 S	12.1 E	12.1	S 89 57 E	.08
1300.0	1 15	N 83 17 E	83.28	1299.9	5.5	.0 N	14.1 E	14.1	N 89 51 E	.30
1400.0	1 10	N 84 48 E	84.80	1399.9	6.1	.3 N	16.2 E	16.2	N 89 6 E	.09
1500.0	0 54	N 68 16 E	68.27	1499.9	6.4	.7 N	18.0 E	18.0	N 87 51 E	.40
1600.0	0 53	N 60 32 E	60.53	1599.8	6.3	1.3 N	19.3 E	19.4	N 86 3 E	.12
1700.0	0 48	N 56 26 E	56.44	1699.8	6.1	2.1 N	20.6 E	20.7	N 84 9 E	.11
1800.0	0 36	N 68 10 E	68.16	1799.8	6.0	2.7 N	21.7 E	21.8	N 82 58 E	.24
1900.0	0 32	N 70 1 E	70.01	1899.8	6.0	3.0 N	22.6 E	22.8	N 82 22 E	.07
2000.0	0 29	N 59 58 E	59.97	1999.8	6.0	3.4 N	23.4 E	23.7	N 81 43 E	.11
[illegible]0.0	0 18	N 52 19 E	52.32	2099.8	5.9	3.8 N	24.0 E	24.3	N 81 1 E	.18
[illegible]0.0	0 30	N 58 49 E	58.82	2199.8	5.7	4.2 N	24.6 E	24.9	N 80 20 E	.20
2300.0	0 21	N 56 32 E	56.53	2299.8	5.6	4.6 N	25.2 E	25.6	N 79 41 E	.15
2400.0	0 24	N 59 48 E	59.80	2399.8	5.5	4.9 N	25.7 E	26.2	N 79 10 E	.06

ANSCO EXPL CO
C HUBER FED WELL NO. 1-15
N JUAN CO., UTAH

MEASURED DEPTH ft	INCLINATION deg min	BORE HOLE BEARING deg min	BORE HOLE AZIMUTH deg	VERTICAL DEPTH ft	VERTICAL SECTION ft	HORIZONTAL COORDINATES feet		CLOSURE DISTANCE ft	CLOSURE BEARING deg min	DOG-LEG SEVERITY deg/100
2500.0	0 39	N 73 14 E	73.23	2499.8	5.5	5.3 N	26.6 E	27.1	N 78 44 E	.28
2600.0	0 47	N 80 57 E	80.94	2599.8	5.7	5.6 N	27.8 E	28.4	N 78 40 E	.16
2700.0	0 48	N 81 47 E	81.78	2699.8	6.1	5.8 N	29.2 E	29.8	N 78 48 E	.02
2[illegible].0	0 52	N 85 47 E	85.78	2799.8	6.5	5.9 N	30.7 E	31.3	N 79 2 E	.08
2900.0	0 48	N 88 13 E	88.22	2899.8	7.0	6.0 N	32.1 E	32.7	N 79 23 E	.08
3000.0	0 50	S 86 59 E	93.01	2999.7	7.6	6.0 N	33.6 E	34.1	N 79 51 E	.08
3100.0	0 51	S 84 8 E	95.86	3099.7	8.3	5.9 N	35.0 E	35.5	N 80 26 E	.04
3200.0	0 51	S 79 55 E	100.08	3199.7	9.0	5.7 N	36.5 E	37.0	N 81 9 E	.06
3300.0	0 48	S 82 17 E	97.72	3299.7	9.8	5.5 N	37.9 E	38.3	N 81 48 E	.07
3400.0	0 46	S 89 15 E	90.74	3399.7	10.4	5.4 N	39.3 E	39.7	N 82 14 E	.10
3500.0	0 44	S 86 53 E	93.12	3499.7	11.0	5.3 N	40.6 E	41.0	N 82 32 E	.04
3600.0	0 46	S 84 33 E	95.45	3599.7	11.6	5.2 N	41.9 E	42.2	N 82 54 E	.05
3700.0	0 50	S 89 45 E	90.25	3699.7	12.2	5.2 N	43.3 E	43.6	N 83 13 E	.09
3800.0	0 50	N 87 9 E	87.15	3799.7	12.7	5.2 N	44.8 E	45.1	N 83 23 E	.04
3900.0	0 57	N 78 23 E	78.39	3899.6	13.1	5.4 N	46.3 E	46.6	N 83 22 E	.18
4000.0	1 1	N 76 4 E	76.07	3999.6	13.4	5.8 N	48.0 E	48.3	N 83 9 E	.07
4100.0	0 57	N 71 18 E	71.29	4099.6	13.6	6.2 N	49.6 E	50.0	N 82 50 E	.10
4200.0	1 7	N 59 13 E	59.22	4199.6	13.6	7.0 N	51.2 E	51.7	N 82 14 E	.27
4300.0	1 15	N 60 25 E	60.42	4299.6	13.3	8.0 N	53.0 E	53.6	N 81 23 E	.14
4400.0	1 17	N 60 44 E	60.74	4399.5	13.1	9.1 N	55.0 E	55.7	N 80 35 E	.04
4500.0	1 27	N 66 23 E	66.39	4499.5	12.9	10.2 N	57.1 E	58.0	N 79 53 E	.21
4[illegible].0	1 38	N 76 11 E	76.19	4599.5	13.1	11.0 N	59.7 E	60.7	N 79 30 E	.32
4700.0	1 45	N 78 43 E	78.72	4699.4	13.7	11.7 N	62.5 E	63.6	N 79 25 E	.14
4800.0	1 49	N 79 49 E	79.82	4799.4	14.3	12.3 N	65.6 E	66.7	N 79 24 E	.07
4900.0	1 49	N 80 56 E	80.93	4899.3	15.1	12.8 N	68.7 E	69.9	N 79 27 E	.04

:ANSCO EXPL CO
C HUBER FED WELL NO. 1-15
IN JUAN CO., UTAH

MEASURED DEPTH ft	INCLINATION deg min	BORE HOLE BEARING deg min	BORE HOLE AZIMUTH deg	VERTICAL DEPTH ft	VERTICAL SECTION ft	HORIZONTAL COORDINATES feet		CLOSURE DISTANCE ft	CLOSURE BEARING deg min	DOG-LEG SEVERITY deg/100
5000.0	1 48	N 83 6 E	83.10	4999.3	15.9	13.2 N	71.8 E	73.0	N 79 34 E	.07
5100.0	1 43	N 83 28 E	83.47	5099.2	16.7	13.6 N	74.9 E	76.1	N 79 42 E	.08
5200.0	1 44	N 84 28 E	84.47	5199.2	17.6	13.9 N	77.8 E	79.1	N 79 52 E	.04
5300.0	1 43	N 86 35 E	86.58	5299.1	18.6	14.1 N	80.8 E	82.1	N 80 5 E	.07
5400.0	1 42	N 88 37 E	88.62	5399.1	19.6	14.3 N	83.8 E	85.0	N 80 20 E	.06
5500.0	1 39	S 87 54 E	92.10	5499.1	20.8	14.2 N	86.7 E	87.9	N 80 40 E	.12
5600.0	1 38	S 86 20 E	93.67	5599.0	22.0	14.1 N	89.6 E	90.7	N 81 3 E	.05
5700.0	1 42	S 86 17 E	93.72	5699.0	23.3	13.9 N	92.5 E	93.5	N 81 27 E	.07
5800.0	1 40	S 83 16 E	96.74	5798.9	24.7	13.6 N	95.4 E	96.4	N 81 52 E	.09
5900.0	1 41	S 76 51 E	103.15	5898.9	26.3	13.1 N	98.3 E	99.2	N 82 23 E	.19
6000.0	1 35	S 72 36 E	107.40	5998.8	28.1	12.4 N	101.0 E	101.8	N 83 1 E	.16
6100.0	1 37	S 69 31 E	110.48	6098.8	29.9	11.5 N	103.7 E	104.3	N 83 41 E	.09
6200.0	1 37	S 61 22 E	118.64	6198.8	32.0	10.3 N	106.2 E	106.7	N 84 27 E	.23
6300.0	1 37	S 52 3 E	127.95	6298.7	34.4	8.8 N	108.6 E	109.0	N 85 23 E	.26
6400.0	1 46	S 40 52 E	139.13	6398.7	37.1	6.7 N	110.7 E	110.9	N 86 31 E	.36
6500.0	2 0	S 37 11 E	142.82	6498.6	40.2	4.2 N	112.8 E	112.9	N 87 52 E	.27
6600.0	2 10	S 34 11 E	145.82	6598.6	43.8	1.2 N	114.9 E	114.9	N 89 23 E	.21
6700.0	2 25	S 29 21 E	150.65	6698.5	47.7	2.2 S	117.0 E	117.1	S 88 56 E	.31
6800.0	2 39	S 24 23 E	155.62	6798.4	52.1	6.1 S	119.0 E	119.2	S 87 4 E	.32
6900.0	2 52	S 18 2 E	161.97	6898.3	57.0	10.6 S	120.8 E	121.2	S 84 59 E	.37
7000.0	3 3	S 13 4 E	166.93	6998.1	62.1	15.6 S	122.2 E	123.1	S 82 44 E	.31
7100.0	3 3	S 9 7 E	170.88	7098.0	67.2	20.7 S	123.2 E	124.9	S 80 28 E	.21
7200.0	2 58	S 0 19 W	180.31	7197.9	72.1	25.9 S	123.6 E	126.3	S 78 9 E	.50
7300.0	3 2	S 3 22 W	183.37	7297.7	76.9	31.2 S	123.4 E	127.3	S 75 50 E	.18
7400.0	2 54	S 5 39 W	185.66	7397.6	81.5	36.3 S	123.0 E	128.2	S 73 33 E	.18

RANSCO EXPL CO
(C HUBER FED WELL NO. 1-15
N JUAN CO., UTAH

MEASURED DEPTH ft	INCLINATION deg min	BORE HOLE BEARING deg min	BORE HOLE AZIMUTH deg	VERTICAL DEPTH ft	VERTICAL SECTION ft	HORIZONTAL COORDINATES feet		CLOSURE DISTANCE ft	CLOSURE BEARING deg min	DOG-LEG SEVERITY deg/100
7500.0	2 59	S 7 35 W	187.59	7497.5	85.9	41.4 S	122.4 E	129.2	S 71 19 E	.13
7600.0	3 7	S 7 28 W	187.47	7597.3	90.5	46.7 S	121.7 E	130.3	S 69 1 E	.14
7700.0	3 17	S 9 23 W	189.38	7697.2	95.3	52.2 S	120.9 E	131.7	S 66 39 E	.20
[illegible]0.0	3 29	S 9 34 W	189.57	7797.0	100.3	58.0 S	119.9 E	133.2	S 64 11 E	.19
7900.0	3 44	S 11 29 W	191.49	7896.8	105.5	64.2 S	118.8 E	135.0	S 61 36 E	.28
---				50 FOOT STATIONS TO TD						---
7950.0	3 55	S 11 32 W	191.53	7946.7	108.3	67.5 S	118.1 E	136.0	S 60 15 E	.37
8000.0	4 5	S 13 29 W	193.48	7996.6	111.1	70.9 S	117.3 E	137.1	S 58 52 E	.42
8050.0	4 13	S 12 58 W	192.97	8046.4	114.0	74.4 S	116.5 E	138.2	S 57 26 E	.27
8100.0	4 24	S 12 24 W	192.40	8096.3	117.1	78.1 S	115.7 E	139.6	S 55 59 E	.38
8150.0	4 27	S 11 56 W	191.93	8146.2	120.2	81.8 S	114.9 E	141.0	S 54 32 E	.12
8200.0	4 39	S 13 16 W	193.27	8196.0	123.4	85.7 S	114.0 E	142.6	S 53 4 E	.46
8250.0	4 50	S 12 14 W	192.24	8245.8	126.8	89.7 S	113.1 E	144.4	S 51 34 E	.40
8300.0	4 52	S 12 51 W	192.85	8295.7	130.2	93.9 S	112.2 E	146.3	S 50 5 E	.13
8350.0	4 50	S 13 21 W	193.35	8345.5	133.6	98.0 S	111.2 E	148.2	S 48 37 E	.11
8400.0	4 32	S 14 52 W	194.86	8395.3	136.9	101.9 S	110.2 E	150.1	S 47 14 E	.64
8450.0	4 36	S 16 35 W	196.58	8445.1	140.0	105.8 S	109.2 E	152.0	S 45 54 E	.30
8500.0	4 38	S 18 11 W	198.19	8495.0	143.1	109.6 S	108.0 E	153.8	S 44 34 E	.27
8550.0	4 34	S 17 9 W	197.14	8544.8	146.1	113.4 S	106.7 E	155.7	S 43 16 E	.21
8600.0	4 25	S 17 29 W	197.49	8594.7	149.1	117.2 S	105.6 E	157.7	S 42 1 E	.30
8650.0	4 23	S 18 29 W	198.48	8644.5	152.0	120.8 S	104.4 E	159.7	S 40 50 E	.17
[illegible]0.0	4 31	S 17 4 W	197.07	8694.4	154.9	124.5 S	103.2 E	161.7	S 39 39 E	.34
8750.0	4 39	S 18 50 W	198.83	8744.2	158.0	128.3 S	102.0 E	163.9	S 38 28 E	.40
8800.0	4 48	S 19 1 W	199.01	8794.0	161.0	132.2 S	100.6 E	166.2	S 37 17 E	.28
8850.0	4 39	S 19 34 W	199.56	8843.9	164.1	136.1 S	99.3 E	168.5	S 36 6 E	.29
8900.0	4 27	S 22 57 W	202.95	8893.7	166.9	139.8 S	97.8 E	170.6	S 34 59 E	.68

TRANSCO EXPL CO
TXC HUBER FED WELL NO. 1-15
SAN JUAN CO., UTAH

MEASURED DEPTH ft	INCLINATION deg min	BORE HOLE BEARING deg min	BORE HOLE AZIMUTH deg	VERTICAL DEPTH ft	VERTICAL SECTION ft	HORIZONTAL COORDINATES feet		CLOSURE DISTANCE ft	CLOSURE BEARING deg min	DOG-LEG SEVERITY deg/100
8950.0	4 28	S 23 49 W	203.82	8943.6	169.6	143.4 S	96.3 E	172.7	S 33 53 E	.14
9000.0	4 44	S 23 28 W	203.46	8993.4	172.3	147.0 S	94.7 E	174.9	S 32 47 E	.53
9050.0	4 32	S 22 36 W	202.60	9043.2	175.2	150.8 S	93.1 E	177.2	S 31 42 E	.41
9100.0	4 33	S 22 55 W	202.92	9093.1	177.9	154.4 S	91.6 E	179.5	S 30 40 E	.06
9150.0	5 3	S 25 24 W	205.39	9142.9	180.7	158.2 S	89.9 E	182.0	S 29 36 E	1.07
9200.0	5 17	S 27 38 W	207.64	9192.7	183.7	162.2 S	87.9 E	184.5	S 28 26 E	.64
9250.0	5 41	S 28 52 W	208.87	9242.5	186.7	166.5 S	85.6 E	187.2	S 27 13 E	.82
9300.0	5 50	S 28 39 W	208.65	9292.2	189.8	170.9 S	83.2 E	190.0	S 25 58 E	.29
9350.0	6 4	S 28 57 W	208.96	9342.0	193.0	175.4 S	80.7 E	193.1	S 24 42 E	.49
9400.0	6 32	S 29 8 W	209.13	9391.7	196.3	180.2 S	78.0 E	196.4	S 23 25 E	.93

Final Station Closure: 196.4 feet South 23 deg 24 min 40 sec East @ 9400'

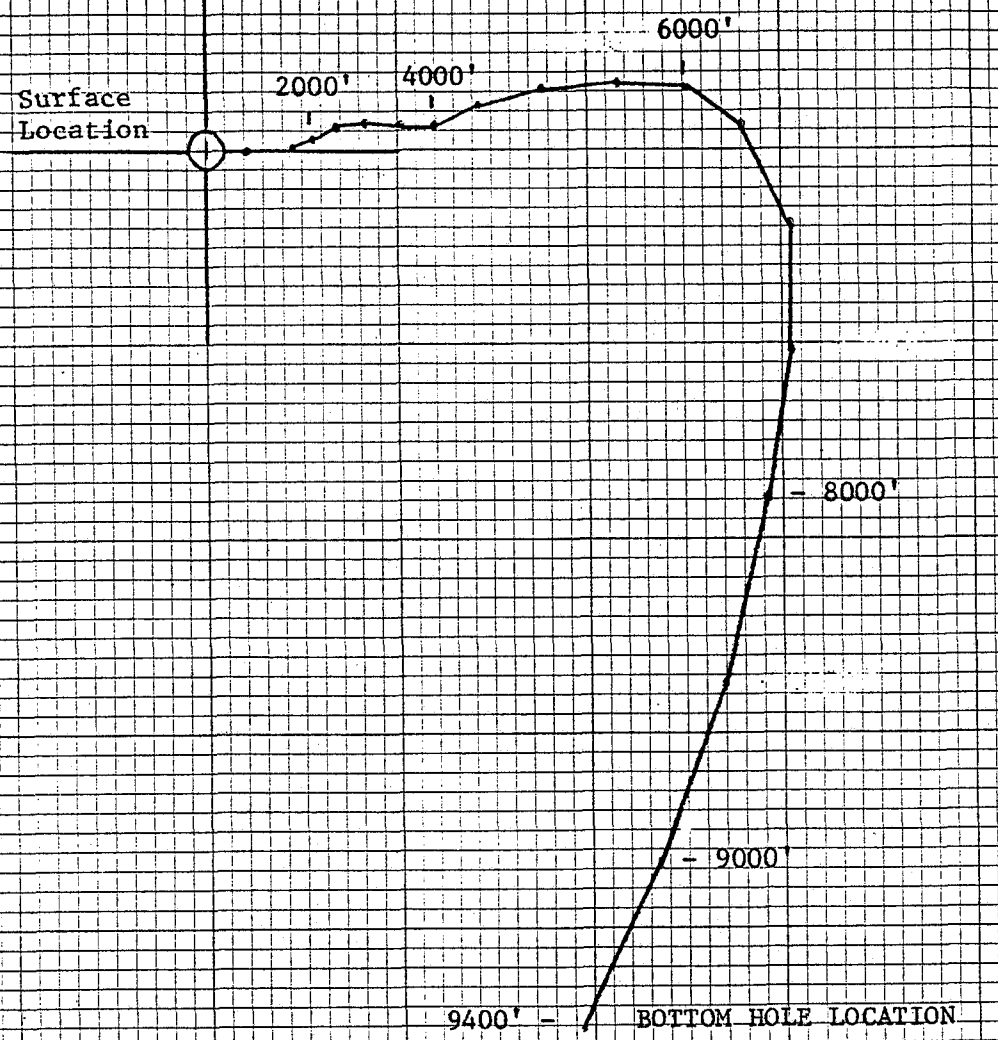
by Achieum. DM

9400 MD = 9391.4 TVD
164.3' S, 73.9' E

cmt in csg from 9900 → 10,110 csg TD

D. ADAMS

TRANSCO EXPLORATION CO.
TXC HUBER FED WELL NO. 1-15
SAN JUAN CO., UTAH



BOTTOM HOLE LOCATION

South 180.2'

East 78.0'

NORTH

gyrodata

Scale 1" = 40'

46 0706

K&E 10 X 10 TO THE INCH • 7 X 10 INCHES KEUFFEL & ESSER CO. MADE IN U.S.A.