

FILE NOTATIONS

Entered in MID File ✓
Location Map Pinned ✓
Card Indexed ✓

Checked by Chief
Approval Letter
Disapproval Letter

COMPLETION DATA:

Date Well Completed
..... WW..... TA.....
WW..... QS..... BA.....

Location Inspected
Bond released
State or Fee Land

LOGS FILED

Driller's Log.....
Electric Logs (No.)
E..... I..... Dual I Lat..... GR-W..... Micro.....
BNC Sonic GR..... Lat..... ME-L..... Sonic.....
CCLog..... CCLog..... Others.....

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK
 DRILL DEEPEN PLUG BACK

b. TYPE OF WELL
 OIL WELL GAS WELL OTHER
 DIVISION SINGLE ZONE MULTIPLE ZONE

2. NAME OF OPERATOR
 Inland Fuels Corporation

3. ADDRESS OF OPERATOR
 2121 South Columbia, Tulsa, Oklahoma 74114

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)
 At surface NE. NW. Sec. 22, T 20S, R 23E, S.L.M.
 At proposed prod. zone 2310' fr. W-line and 375' fr. N-line

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
 Approximately 5 1/2 miles NE. of Cisco, Ut.

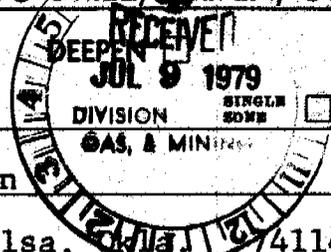
15. DISTANCE FROM PROPOSED LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any) 375'

18. DISTANCE FROM PROPOSED LOCATION TO NEAREST WELL, DRILLING COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT. 2640'

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
 4768' grd; 4778' K.B.

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
11"	8 5/8"	24.00#	150'	80 sks
7 7/8"	4 1/2"	10.50#	Thru pay zone	Cemented to 200' above Kd.



5. LEASE DESIGNATION AND SERIAL NO.
 U-42223

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME
 Federal

9. WELL NO.
 #22-1

10. FIELD AND POOL, OR WILDCAT
 Cisco Springs

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
 NE. NW. Sec 22-20S-23E
 S.L.M.

12. COUNTY OR PARISH 13. STATE
 Grand Utah

17. NO. OF ACRES ASSIGNED TO THIS WELL
 160

20. ROTARY OR CABLE TOOLS
 Rotary

22. APPROX. DATE WORK WILL START*
 Aug. 1, 1979

It is planned to drill a well at the above location to test the gas production possibilities of the sands in the Dakota, Cedar Mt., and Morrison formations. The well will be drilled to a point which is near the top of the Entrada formation or to commercial production, whichever is at the lesser depth. The well will be drilled with rotary tools, using air for circulation. The surface casing will be set at about 150 ft., and cemented with returns to the surface. A blowout preventer with hydraulically operated blind and pipe rams will be installed on top of the surface casing; and a rotating head will be used on top of the blowout preventer. Fill and kill lines (2") will be connected below the blind rams. Any gas encountered will be flared at the end of the blowout line, and roughly checked for volume thru 2" line after the pipe rams have been closed. A float valve will be used in the bottom drill collar at all times. A prognosis for the well is attached.

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 President DATE July 3, 1979

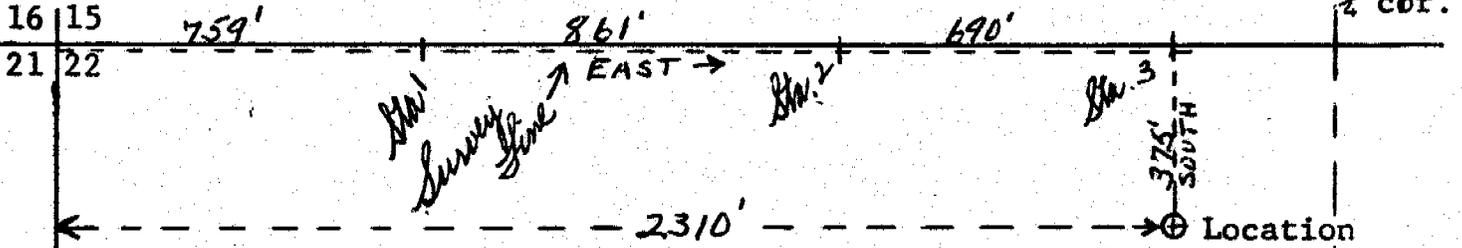
(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

LOCATION PLAT FOR
INLAND FUELS CORPORATION
FED.#22-1 WELL
NE.NW.SEC.22-20S-23E,S.L.M.
(2310' fr.W-line & 375' fr.N-line)
GRAND COUNTY,UTAH
Elev.:4768'grd.



NW 1/4 SECTION 22

1/4 cor.

Ref. pts. are 150' N-S-E-W

Scale: 1 in. = 400 ft.

Date: June 15, 1979

I, Sherman D. Gardner, do hereby certify that this plat was plotted from notes of a field survey made under my direct supervision, responsibility and checking on May 30, 1979.

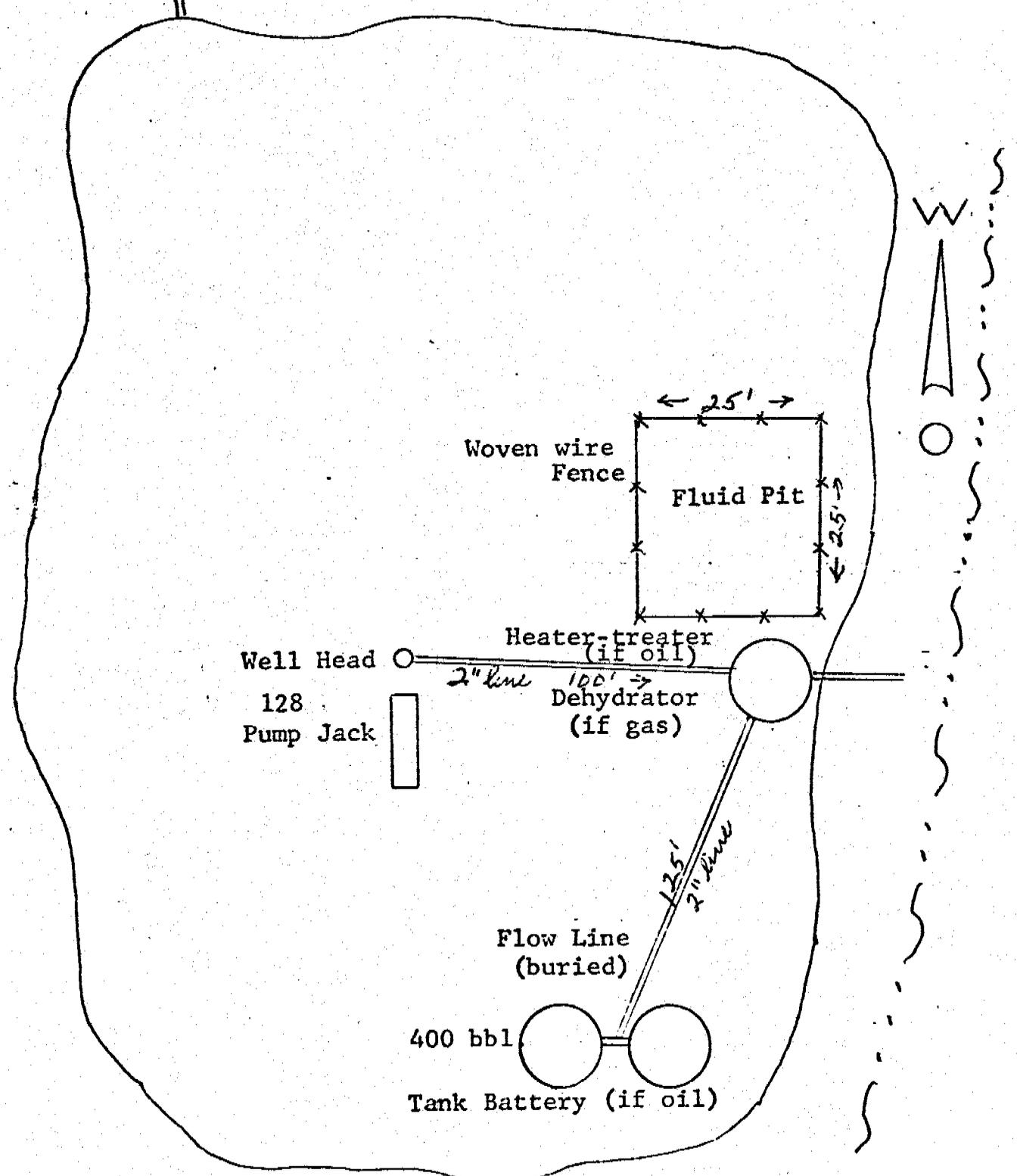
Sherman D. Gardner

Registered Land Surveyor
State of Utah #1556

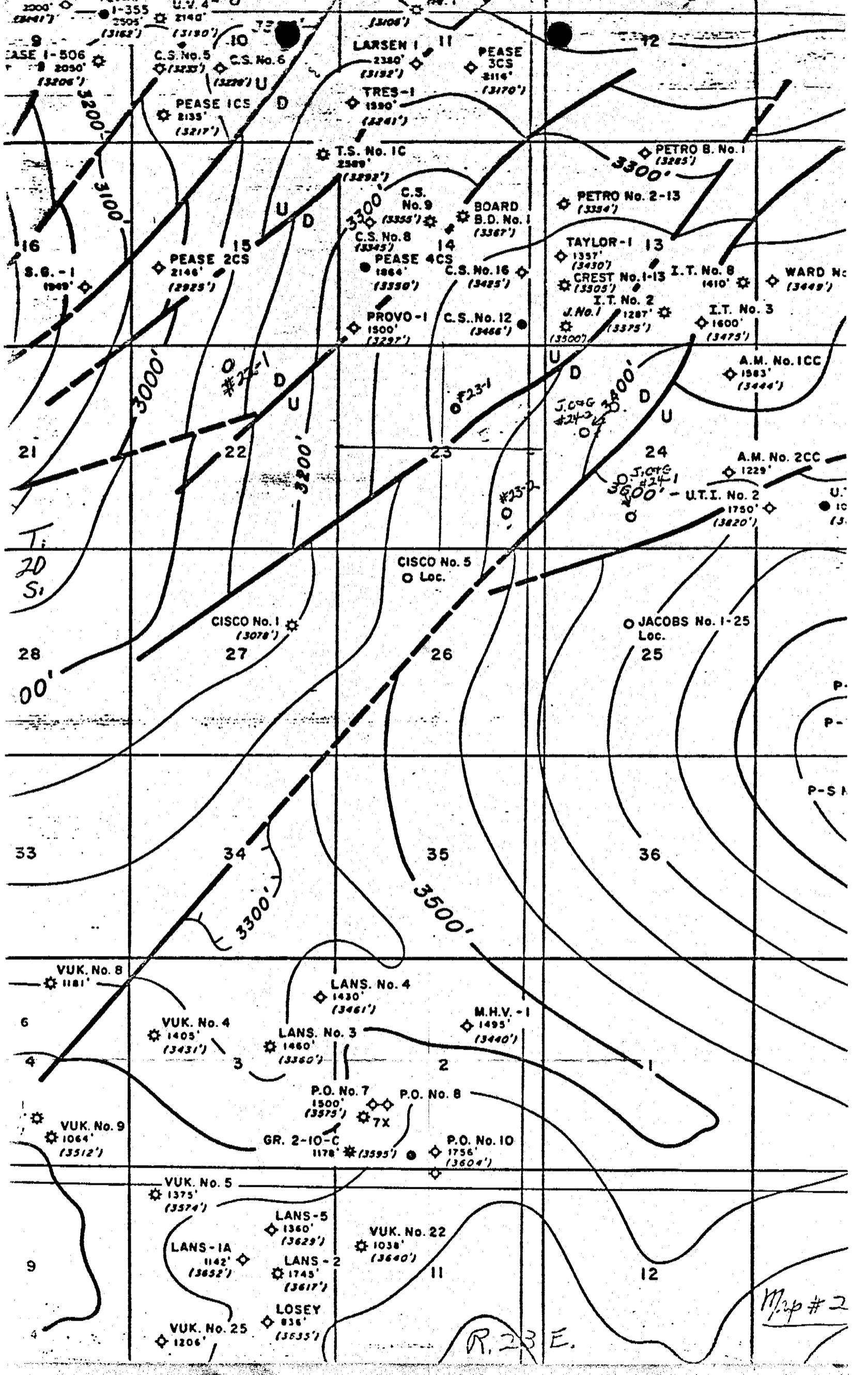
PLAT NO. 1

PLAN FOR PRODUCTION EQUIPMENT
INLAND FUELS CORP.
FEDERAL #22-1 WELL
NE. NW. SEC. 22-20S-23E.

Access rd.



Scale: 1 in. = 30 ft.



1-355
2505
(3162)
CASE I-506
2050
(3206')

U.V. 4
2140
(3190')
C.S. No. 5
(3225')
C.S. No. 6
(3228') U

(3100')
LARSEN I
2380'
(3152')
PEASE 3CS
2114'
(3170')
TRES-1
1890'
(3241')

72
3300'
PETRO B. No. 1
(3285')

16
S.B. -1
1949'
PEASE 2CS
2146'
(3225')

2589
(3292')
T.S. No. 1C
C.S. No. 9
(3335')
C.S. No. 8
(3345')
PEASE 4CS
1864'
(3350')

BOARD
B.D. No. 1
(3367')
PETRO No. 2-13
(3354')
TAYLOR-1 13
1357'
(3430')

21
22
3000'
3200'

14
C.S. No. 16
(3425')
PROVO-1
1500'
(3227')

I.T. No. 8
1410'
WARD No.
(3648')
I.T. No. 3
1600'
(3475')

28
00'
Ti
20
Si

CISCO No. 5
O Loc.
26
3500'

A.M. No. 2CC
1229'
U.T.I. No. 2
1750'
(3420')

33
34
3300'

CISCO No. 1
(3078')
27

JACOBS No. 1-25
Loc.
25

6
4
VUK. No. 8
1181'
VUK. No. 4
1405'
(3431')

LANS. No. 4
1430'
(3461')
LANS. No. 3
1460'
(3360')

M.H.V. -1
1495'
(3440')

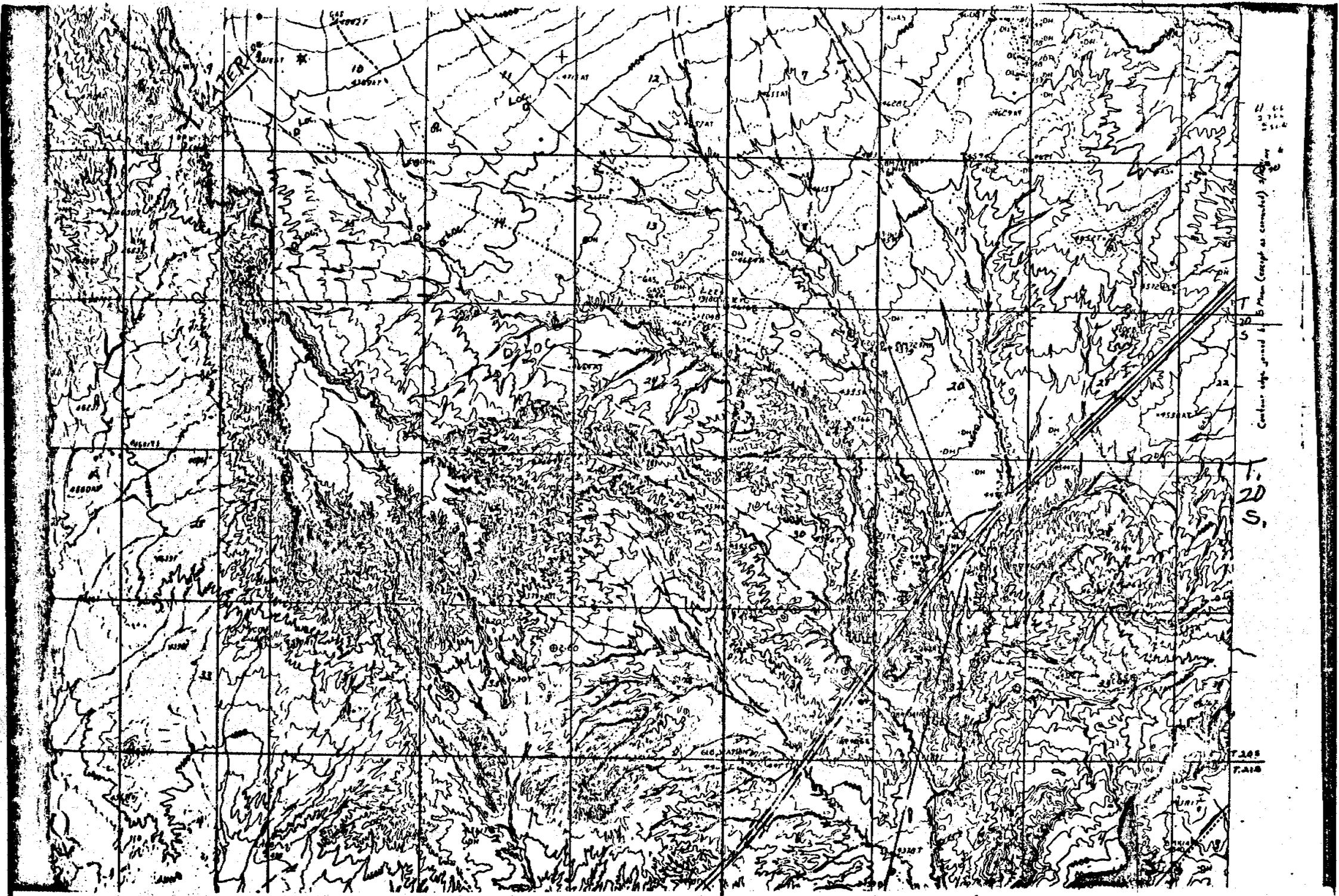
9
4
VUK. No. 9
1064'
(3512')

P.O. No. 7
1500'
(3575')
P.O. No. 8
7X
GR. 2-10-C
1178'
(3595')

P.O. No. 10
1756'
(3604')

Map # 2

R. 23 E.



R 23 E.

R 24 E

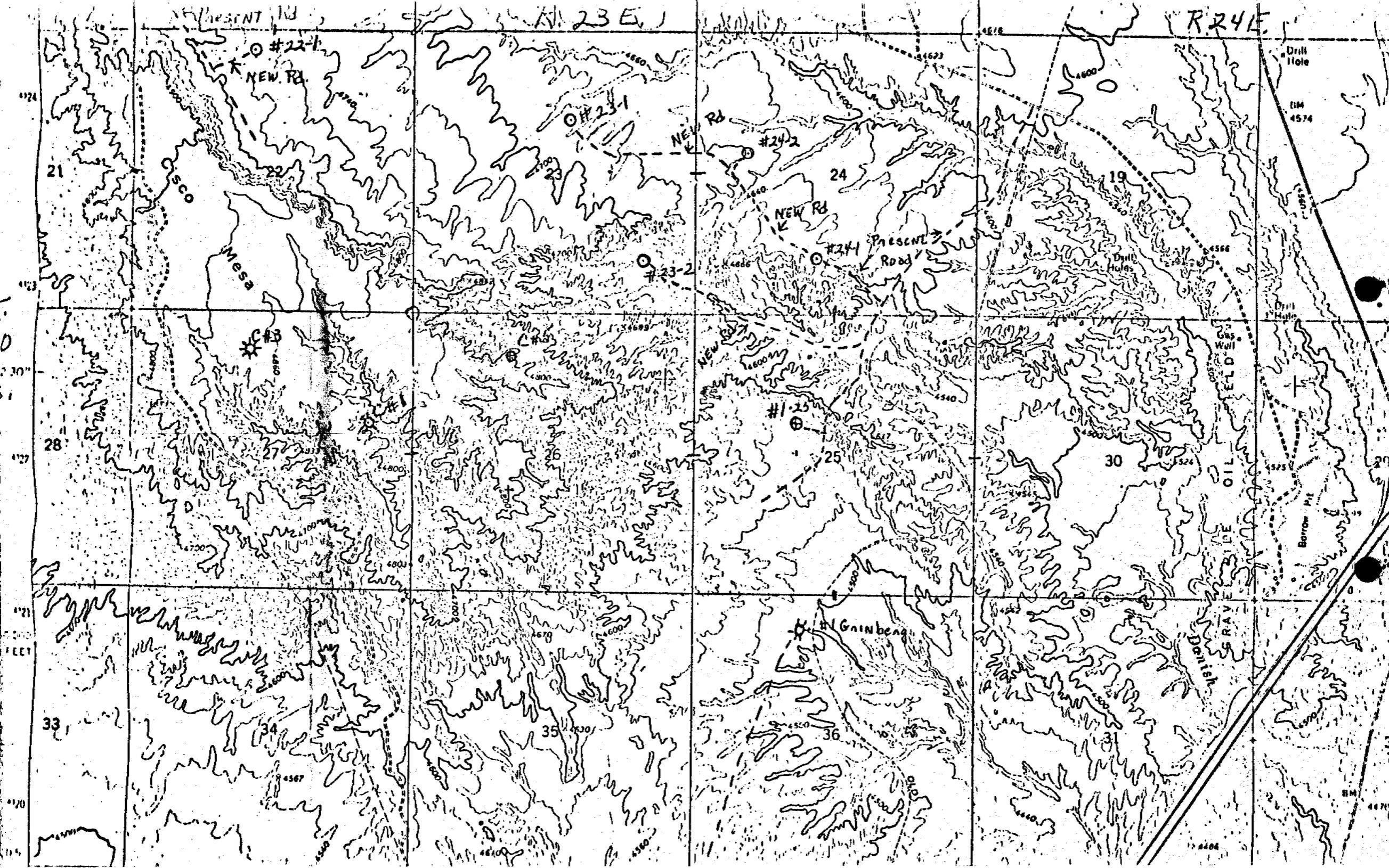
Contour interval ground of 5 feet (except as corrected) 1/10000

T. 20 S.

R. 24 E.

Map # 3

Map # 3



FROM : DISTRICT GEOLOGIST, ME, SALT LAKE CITY, UTAH

TO : DISTRICT ENGINEER, G, SALT LAKE CITY, UTAH

SUBJECT: APD MINERAL EVALUATION REPORT

LEASE NO. U-42223

OPERATOR: Amfund Fuels Corp.

WELL NO. 22-1

LOCATION: NE 1/4 NE 1/4 NW 1/4 sec. 22, T. 20S, R. 23E, S.L.M.

Grand County, Utah

1. Stratigraphy:

Mancoes	surface
Dakota	1678
Cedar Mtn.	1778
Bushy Basin (Morrison)	1868
Salt Wash (Morrison)	2148
Cutes - Summeville	2398

Entrada 2478

Total Depth 2525

* Operators tops are reasonable

2. Fresh Water:

Fresh water probable in lenticular sands of Mancoes

3. Leasable Minerals:

probable coal in Dakota

4. Additional Logs Needed:

adequate

5. Potential Geologic Hazards:

none expected

6. References and Remarks:

Old P.I. cards & APD's, Utah State Geologic map, townships files

Signature:

Scott L. Bartlett

Date:

July 18-1979

United States Department of the Interior
Geological Survey
8440 Federal Building
Salt Lake City, Utah 84138

Usual Environmental Analysis

Lease No. U-42223
Operator Inland Fuels Corp. Well No. 22-1
Location 2310' FWL 375' FNL Sec. 22 T. 20S R. 23E
County Grand State Utah Field Cisco Springs
Status: Surface Ownership Public Minerals Federal
Joint Field Inspection Date August 13, 1979

Participants and Organizations:

<u>Don Quigley</u>	<u>Operator</u>
<u>John Evans</u>	<u>U. S. Geological Survey</u>
<u>Bob Kershaw</u>	<u>Bureau of Land Management</u>
<u>Al Sanford</u>	<u>Mike's Water & Dozer Service</u>

Related Environmental Analyses and References:

- (1) Book Mountain Unit Resource Analysis
Bureau of Land Management
Utah

Analysis Prepared by: John T. Evans
Environmental Scientist
Grand Junction, Colorado

Date August 14, 1979

NOTED *JE* JOHN T. EVANS, JR.

8-16-79

*2nd 175 x 250
put 20 x 150
2/10 mi 20' wide access
1 mi up road. road
Flow line mt with
stock pits 20' x 20'
pg 6
Ship*

Proposed Action:

On July 6, 1979, Inland Fuels Corp filed an Application for Permit to Drill the No. 22-1 development well, a 2525' gas test of the Dakota, Cedar Mountain, and Morrison Formations; located at an elevation of 4768' in the NE $\frac{1}{4}$ NW $\frac{1}{4}$, Sec 22, T20S, R23E, on Federal mineral lands and Public surface; lease No. U-42223. There was no objection raised to the wellsite nor to the access road.

A rotary rig would be used for the drilling. An adequate casing and cementing program is proposed. Freshwater sands and other mineral-bearing formations would be protected. A Blowout Preventor would be used during the drilling of the well. The proposed pressure rating should be adequate. Details of the operator's NTL-6 10-Point Subsurface Plan is on file in the U.S.G.S. District Office in Salt Lake City, Utah, and the U.S.G.S. Northern Rocky Mountain Area Office in Casper, Wyoming. The 13-Point Surface Protection Plan is on file in the District Office in Salt Lake City, Utah.

A working agreement has been reached with Bureau of Land Management, the controlling surface agency. Rehabilitation plans would be decided upon as the well neared completion; the Surface Management Agency would be consulted for technical expertise on those arrangements.

The operator proposes to construct a drill pad 175' wide x 250' long and a reserve pit 20' x 100'. A new access road would be constructed 20' wide x 0.2 mile long and upgrade from an existing truck trail for approximately one mile from an existing and improved road. The operator proposes to construction production facilities on disturbed area of the proposed drill pad. If production is established, plans for a gas flowline would be submitted to the appropriate agencies for approval. The anticipated starting date is August 1979 and duration of drilling activities would be about seven days.

Location and Natural Setting:

The proposed drillsite is approximately 5 $\frac{1}{2}$ miles NE of Cisco, Utah, the nearest town. A truck trail runs to within 1000' of the location. This well is in the Cisco Springs Field.

Topography:

The proposed location is on a hillside that slopes gently to the NE. A small 4' deep x 8' wide arroyo drains on the side of location. Operator stipulated he would not impact the wash.

Geology:

The surface geology is Mancos. The soil is silty sands and gravels. No geologic hazards are known near the drillsite. Seismic risk for the area is minor. Anticipated geologic tops are filed with the 10-Point Subsurface Protection Plan.

Approval of the proposed action would be conditioned that adequate and sufficient electric/radioactive/density logging surveys would be made to locate and identify any potential mineral resources. Production casing and cementing would be adjusted to assure no influence of the hydrocarbon zones through the well bore on these minerals. In the event the well is abandoned, cement plugs would be placed with drilling fluid in the hole to assure protection of any mineral resources.

The potential for loss of circulation would exist but would be minimized by air drilling. Loss of circulation may result in the lowering of the mud levels, which might permit exposed upper formations to blow out or to cause formation to slough and stick to drill pipe. A loss of circulation would result in contamination due to the introduction of drilling muds, mud chemicals, filler materials, and water deep into the permeable zone, fissures, fractures, and caverns within the formation in which fluid loss is occurring. The use of special drilling techniques, drilling muds, and lost circulation materials may be effective in controlling lost circulation.

A geologic review of the proposed action has been furnished by the Area Geologist, U. S. Geological Survey, Salt Lake City, Utah.

The operator's drilling, cementing, casing and blowout prevention programs have been reviewed by the Geological Survey engineers and determined to be adequate.

Soils:

No detailed soil survey has been made of the project area. The topsoils in the area range from a sandy clay to a shale type soil. The soil is subject to runoff from rainfall and has a high runoff potential and sediment production would be high. The soils are mildly to moderately alkaline and support the salt-desert shrub community.

Topsoil would be removed from the surface and stockpiled. The soil would be spread over the surface of disturbed areas when abandoned to aid in rehabilitation of the surface. Rehabilitation is necessary to prevent erosion and encroachment of undesired species on the disturbed areas. The operator proposes to rehabilitate the location and access roads per the recommendations of the Bureau of Land Management.

Approximately two acres of land would be stripped of vegetation. This would increase the erosional potential. Proper construction practice, construction of water bars, reseeding of slope-cut area would minimize this impact.

Air:

No specific data on air quality is available at the proposed location. There would be a minor increase in air pollution due to emissions from rig and support traffic engines. Particulate matter would increase due to dust from travel over unpaved dirt roads. The potential for increased air pollution due to leaks, spills, and fire would be possible.

Relatively heavy traffic would be anticipated during the drilling-operations phase, increasing dust levels and exhaust pollutants in the area. If the well was to be completed for production, traffic would be reduced substantially to a maintenance schedule with a corresponding decrease of dust levels and exhaust pollutants to minor levels. If the project results in a dry hole, all operations and impact from vehicular traffic would cease after abandonment. Due to the limited number of service vehicles and limited time span of their operation, the air quality would not be substantially reduced.

Toxic or noxious gases would not be anticipated. Operator would control dust from blowie line by misting or other acceptable means.

Precipitation:

Annual rainfall should range from about 8 to 11" at the proposed location. The majority of the numerous drainages in the surrounding area are of a non-perennial nature flowing only during early spring runoff and during extremely heavy rainstorms. This type of storm is rather uncommon as the annual precipitation is around 8".

Winds are medium and gusty, occurring predominantly from SE to NW. The climate is semiarid with abundant sunshine, hot summers and cold winters with temperature variations on a daily and seasonal basis.

Surface Water Hydrology:

Drainage is through several unnamed washes which are subdrainage elements of Danish Wash which drains to the Colorado River 12 miles to the south. Some additional erosion would be expected in the area since surface vegetation would be removed. If erosion became serious, drainage systems such as water bars and dikes would be installed to minimize the problem. The proposed project should have minor impact on the surface water systems. The potentials for pollution would be present from leaks or spills. The operator is required to report and clean up all spills or leaks.

Groundwater Hydrology:

Some minor pollution of groundwater systems would occur with the introduction of drilling fluids (filtrate) into the aquifer. This is normal and unavoidable during rotary drilling operations. The potential for communication, contamination, and commingling of formations via the well bore would be possible. The drilling program is designed to prevent this. There is need for more data on hydrologic systems in the area and the drilling of this well may provide some basic information as all shows of fresh water would be reported. Water production with the gas would require disposal of produced water per the requirements of NTL-2B. The depths of freshwater formations are listed in the 10-Point Subsurface Protection Plan. The pits would be unlined. If fresh water should be available from the well, the owner or surface agency may request completion as a water well if given approval.

Vegetation:

Plants in the area are of the salt-desert shrub types grading to the pinyon-juniper association several miles to the north.

Proposed action would remove about two acres of vegetation. Removal of vegetation would increase the erosional potential and there would be a minor decrease in the amount of vegetation available for grazing.

The operator proposes to rehabilitate the surface upon completion of operations.

Wildlife:

Animal and plant inventory has been made by the BLM. No endangered plants or animals are known to inhabit the project area. The fauna of the area consists predominantly of mule deer, coyotes, rabbits, foxes, and varieties of small ground squirrels and other types of rodents and various types of reptiles. The area is used by man for the primary purpose of grazing domestic livestock and sheep. The birds of the area are raptors, finches, ground sparrows, magpies, crows, and jays.

Social-Economic Effect:

An on the ground surface archaeological reconnaissance would be required prior to approval of the proposed action. Appropriate clearances would then be obtained from the surface managing agency. If a historic artifact, an archaeological feature or site is discovered during construction operations, activity would cease until the extent, the scientific importance, and the method of mitigating the adverse effects could be determined by a qualified cultural resource specialist.

There are no occupied dwellings or other facilities of this nature in the general area. Minor distractions from aesthetics would occur over the lifetime of the project and are judged to be minor. All permanent facilities placed on the location would be painted a color to blend in with the natural environment. Present use of the area is grazing, recreation, and oil and gas activities.

Noise from the drilling operation may temporarily disturb wildlife and people in the area. Noise levels would be moderately high during drilling and completion operations. Upon completion, noise levels would be infrequent and significantly less. If the area is abandoned, noise levels should return to pre-drilling levels.

The site is not visible from any major roads.

The overall effect of oil and gas drilling and production activity is significant in Grand County but it is difficult to assess the environmental impact of a single well on state and/or national levels. However, if said well was to produce in sufficient quantity, additional development wells might be anticipated. This additional development, in turn, would lead to greater environmental and socioeconomic consequences.

Should the wellsite be abandoned, surface rehabilitation would be done according to the surface agency's requirements and to USGS's satisfaction. This would involve leveling, contouring, reseeding, etc., of the location and possibly the access road. If the well should produce hydrocarbons, measures would be undertaken to protect wildlife and domestic stock from the production equipment.

There are no national, state, or local parks, forests, wildlife refuges or ranges, grasslands, monuments, trails or other formally designated recreational facilities near the proposed location.

The proposed location is within the Book Mountain Planning Unit. This Environmental Assessment Record was compiled by the Bureau of Land Management, the surface managing agency of the Federal surface in the area. The study includes additional information on the environmental impact of oil and gas operations in this area and gives land use recommendations. The E.A.R. is on file in the agency's State offices and is incorporated herein by reference.

Waste Disposal:

The mud and reserves pits would contain all fluids used during the drilling operations. A trash pit would be utilized for any solid wastes generated at the site and would be buried at the completion of the operations. Sewage would be handled according to State sanitary codes. For further information, see the 13-Point Surface Plan.

Alternatives to the Proposed Action:

1) Not Approving the Proposed Permit--The Oil and Gas Lease grants the lessee exclusive right to drill for, mine, extract, remove and dispose of all oil and gas deposits. Under leasing provisions, the Geological Survey has an obligation to allow mineral development if the environmental consequences are not too severe or irreversible. Upon rehabilitation of the site, the environmental effects of this action would be substantially mitigated, if not totally annulled. Permanent damage to the surface and subsurface would be prevented as much as possible under U.S.G.S. and other controlling agencies' supervision with rehabilitation planning reversing almost all effects. Additionally, the growing scarcity of oil and gas should be taken into consideration.

2) Minor relocation of the wellsite and access road or any special, restrictive stipulations or modifications to the proposed program would not significantly reduce the environmental impact. There are no severe vegetative, animal or archaeological-historical-cultural conflicts at the site. Since only a minor impact on the environment would be expected, the alternative of moving the location is rejected. At abandonment, normal rehabilitation of the area such as contouring, reseeding, etc., would be undertaken with an eventual return to the present status as outlined in the 13-Point Surface Plan.

Proposed Stipulations of Approval:

Upgrading of existing truck trail off-lease would require tramroad permit. Operator stated he could use road "as is" for exploration but would apply for tramroad permit if production was established. Operator warned that unauthorized upgrading could be considered trespass and there was no objection to him using "as is." He was also advised he probably should apply for tramroad permit now to avoid delays.

Adverse Environmental Effects Which Cannot Be Avoided:

Surface disturbance and removal of vegetation from approximately two acres of land surface for the lifetime of the project which would result in increased and accelerated erosional potential. Grazing would be eliminated in the disturbed areas and there would be a minor and temporary disturbance of wildlife and livestock. Minor induced air pollution due to exhaust emissions from rig engines of support traffic engines would occur. Minor increase in dust pollution would occur due to vehicular traffic associated with the operation. If the well is a gas producer, additional surface disturbance would be required to install production pipelines. The potential for fires, leaks, spills of gas, oil or water would exist. During the construction and drilling phases of the project, noise levels would increase. Potential for subsurface damage to freshwater aquifers and other geologic formations exists. Minor distractions from aesthetics during the lifetime of the project would exist. If the well is a producer, an irreplaceable and irretrievable commitment of resources would be made. Erosion from the site would eventually be carried as sediment in the Colorado River. The potential for pollution to the Danish Wash system would exist through leaks and spills.

If well is a producer, other development wells would be anticipated with substantially greater environmental and economic impacts.

Determination:

This requested action does not constitute a major Federal action significantly affecting the environment in the sense of NEPA, Sec. 102(2)(C).

8/30/79
Date

E. W. [Signature]
District Engineer
U. S. Geological Survey
Conservation Division
Oil and Gas Operations
Salt Lake City District



22-1

PROGNOSIS FOR
INLAND FUELS CORP.
FEDERAL #22-1 WELL

Location: NE. NW. Section 22, T 20S, R 23E, S.L.M., Grand County, Utah (2310' fr. W-line and 375' fr. N-line).

Elevations: 4768' grd; 4778' K.B.

Surface Casing: 150' of 8 5/8", 24.00#, K-55, R-3 casing set and cemented with 80 sks cement w/3% CaCl; with returns to surface. The surface hole (11") will be drilled to 150 ft. K.B. and will be no more than 1° deviation.

Expected Formation Tops:

<u>Formation</u>	<u>Depth to Top</u>	<u>Thickness</u>	<u>Datum</u>
Mancos	Surface	1678'	4778' K.B.
Dakota *	1678'	100'	3100'
Cedar Mountain *	1778'	90'	3000'
Morrison (Brushy Basin) *	1868'	280'	2910'
(Salt Wash) *	2148'	250'	2630'
Curtis-Summerville	2398'	80'	2380'
Entrada	2478'	—	2300'
Total Depth	2525'		

* Formations with possible hydrocarbons in paying amounts.

1. It is planned to drill a 11" surface hole for the surface casing down to a depth of about 150' and set 8 5/8 inch casing with approx. 80 sks of cement with returns to the surface. A casing head or flange will be mounted on top of the surface casing and a blowout preventer with blind and pipe rams (hydraulic) will be mounted on top of the blowout preventer. A blewie line, at least 125' long, will then be attached to the rotating head and extended into the reserve pit. B.O.P. will be tested to 2000 lbs. before drilling below surface casing.
2. A 7 7/8" hole will then be drilled below the surface casing, using air for circulation. A flare will be maintained at 500' and below. This will insure that no gas will be missed. The air drilling will

also minimize the damage to the hydrocarbon reservoir. No toxic gases have ever been encountered in this area and none are expected.

3. Samples of the cuttings will begin at 500'. 30-ft. samples will be taken from 500' to 800', and then 10-ft. samples will be taken from 800' to total depth.
4. It is planned to drill the well to a depth which is approximately 100 feet below the top of the Entrada formation unless good commercial flow of gas is obtained above this depth.
5. If a high gas flow (several million cubic feet) and/or when the total depth of the well is reached, electric logs will be run. Prior to running logs, high viscosity mud (not less than 100 vis.) will be pumped into the hole to provide control of the gas and to provide a conductive medium for the logs. A dual-induction-laterolog will be run from bottom to the top of the hole, and a gamma-density and compensated neutron porosity log will be run from the bottom to a point which is 150' above the top of the Dakota formation.
6. If good production (over 750 MCF) is obtained, 4½" O.D., 10.50#, K-55, R-3 new casing will be run and cemented conventionally with sufficient R.F.C. cement to cover 200 ft. above the top of the Dakota formation. The production zone will then be perforated, 2 3/8" O.D. tubing run, and completed conventionally.
7. It is anticipated that the drilling of the well will require less than one week.

W. Don Quigley

W. Don Quigley
Consulting Geologist
Suite 440
57 West South Temple
Salt Lake City, Utah 84101

N T L - 6 P L A N R E P O R T

For

Well Name: Inland Fuels Corporation - Federal #22-1Location: NE. NW. Sec. 22, T 20S, R 23E, S.L.M., Grand County, Ut.1. Existing Roads: (See attached Maps)

A. Well Location: (See Plat #1)

Reference Stakes: 150' N-S-E-WPerimeter Stakes: As above. Stakes outline maximum perimeter of well pad.

B. Route and Distance to Well Site From Reference Point: (See att. maps)

From the E. Cisco Exit on I-70, the site is 8 miles along secondary and unimproved roads on Danish Flat and Cisco Mesa.

C. Access Roads (Identify secondary roads to be used): (See att. maps)

The Cisco Mesa road going NW, from the E. Cisco Exit on Danish Flat is used for the first 6 miles; then the Cisco Mesa road to the south is used for 1 mile; then a trail for $\frac{1}{2}$ mile and finally a new road for $\frac{1}{2}$ mile to the location.D. Roads Within 3 mile Radius: (See att. maps) The main Danish Flat road (first 6 miles) is a county road, is partially gravelled, graded,crowned, and ditched. The Cisco Mesa road is crowned and ditched.The last $\frac{1}{2}$ mile of road is a trail with no improvement. It is on Mancos soil and topography and is on shale and silt in the low areas and on gravel across the benches. The new access road will also beSurface type and conditions: on Mancos soil composed of shale and clay.

E. Roads Within 1 mile Radius: (See att. maps) See 1-D Above.

The roads within 1-mile of the site are mostly dozed trails (old seis trails) dozed across natural topography and soil. The road base is Mancos shale and soil with some gravel and conglomerate on the bench areas. They are normally about 10 ft. wide.F. Plans for Road Improvement & Maintenance: The last one mile of road will be widened to a maximum disturbed width of 20' and flat graded with the dirt pushed to the sides. Some shallow washes (1 ft. deep)

F. will be graded down and sloped to provide a smooth track.

2. Planned Access Roads: (See att. maps) About 1000' of new road will be built across fairly level Mancos terrain by blading a path with a bulldozer.

(1) Width: Maximum disturbed width will be 20 ft.

(2) Maximum Grades: 2% or less

(3) Turnouts: None needed

(4) Drainage Design: None needed

(5) Location and Size of Culverts, Cuts, and Fills: None needed

(6) Surfacing Material: The road is across Mancos shale and soil which is composed of gravel and silt. No other material will be used.

(7) Gates, Cattleguards, or Fence Cuts: None

(8) All new roads have been flagged as required.

3. Location of Existing Wells: (See Map No. 2)

(1) Water Wells: None

(2) Abandoned Wells: See Map #2

(3) Temporarily Abandoned Wells: None

(4) Disposal Wells: None

(5) Drilling Wells: None at present

(6) Producing Wells: Several - See Map #2

(7) Shut-in Wells: Three

(8) Injection Wells: None

(9) Monitoring or Observation Wells: None

4. Location of Existing and/or Proposed Facilities:

A. Within 1-mile radius of location show the following existing facilities owned or controlled by lessee/operator:

(1): Tank Batteries: (Size) None

- (2) Production Facilities: None
- (3) Oil gathering lines: None
- (4) Gas gathering lines: None
- (5) Injection lines: None
- (6) Disposal lines: None
- (7) Are lines buried? No

B. If new facilities are contemplated, in the event of production, show: (These facilities depend on the outcome of the proposed well and are really unknown at this time.) Show a general proposed plan. (See Plat No. 2)

(1) Are any facilities planned off well pad? None at this time. If the well is a successful gas well, a gas gathering line (3½") will have to be laid and connected to the main gas line; but this will be covered by a separate proposed plan, accompanied with maps, surveys, etc., at a later date.

(2) Give dimensions of facilities: See Plat #2

(3) Construction methods and materials: Location will be levelled for production equipment. Tank batteries will be placed on a 3-in. gravel pad and surrounded with an 18" dike (15' from tanks). Separators and heater-treaters will be placed on gravel pads or cement bases. Pump jacks will be on cement platforms or on raised dirt and gravel mounds. All pipe lines on the pad will be buried.

(4) Protective measures for livestock and wildlife: All open pits will be fenced with woven wire (sheep) fence (40") and pump jacks or rotating machinery will have guards to prevent danger by moving parts.

C. Plan for rehabilitation of disturbed areas no longer needed after drilling operations are completed: Well site will be cleaned, levelled, and graded for production equipment; pits folded-in or

C. fenced with woven wire if full of fluid before rig is moved. The other work will be done within 30 days after well is completed. While production ensues, previous areas of well pad not needed for production operations will be restored as in Item 10 below.

5. Location & Type of Water Supply: (See att. maps)

A. Type of Water Supply: Cisco Springs (natural flow) located in Sec. 9 of T 20S, R 23E. (See Map #3)

B. Method of Transporting Water: The water will be hauled from the spring to the well site by truck along the Cisco Mesa road. This will be approximately 2 miles from the spring to the well site.

C. Is Water Well Planned? No
If so, describe location, depth and formation: _____

6. Source of Construction Materials:

A. See attached map and describe: None will probably be required, since the well will be drilled during the good weather season. If the well is successful, the last 1/2 mile of road will be improved by ditching, and crowning to provide easy access during bad weather. Some places might also require some gravel.

B. Identify if Federal, Indian, or Fee Land: Unknown at this time.

C. Describe Material: (Where from and how used) The source, amount, type of material, and permit will have to be obtained at a later date, if required.

D. See item 1-C and 2 above.

7. Waste Disposal:

The cuttings will be blown into the reserve pit, and the
(1) Cuttings: blewie line will be directed into the cut portion of the pit
(2) Drilling Fluids: In mud tanks; excess put into reserve pit.
(3) Producing Fluids (oil or water) Oil in tanks; water in reserve pit.
(4) Human Waste: Toilet with pit (4' deep) with lime for odor and sanitation control. Will be covered with soil (3' deep) at end of operation.

prior to commencement
of drilling

(5) Garbage & Other Waste: (Burn pit will be adequately fenced with chicken wire to prevent scattering of debris by wind) Into burn pit, 4'X6'X6' deep) and burned periodically. The burn pit will be approx. 125' from well head.

(6) Clean-up: (See item 10 below) All garbage and unburned debris will be buried by at least 3 ft. of cover after the drilling and completion operations are finished. The unused material and all equipment will be removed from the site and taken to supply yards or to the next drill site, as soon as the well is completed.

8. Airstrips and/or Camp Sites (Describe): None needed.

9. Well Site Layout: (See Plat No. 3)

(1) Describe cuts or fills: No cuts or fills other than for pits.

(2) Describe pits, living facilities, soil stockpiles: Reserve pit is long and narrow as shown, and will be placed in a natural depression on the north side. Excavated material will be piled at the south end of pit. Top soil, mostly gravel (12" deep), will be piled at the west and east ends of the site. Two or three trailer houses will be provided for the supervisory personnel.

(3) Rig Orientation, Pipe rack, Access Road Entrance, etc.: (See Plat #3)

(4) Are Pits Lined? Unlined with 4-ft. banks.

10. Plans For Restoration:

A. If Well is completed: Site will be cleaned, debris removed, pits folded-in or fenced with woven wire if full of fluid, and site levelled for production equipment. All unused portions will be contoured, graded, scarred, and seeded with wheat grass, or acceptable seed mix authorized by BLM.

B. If Well is abandoned:

(1) Clean-up, levelling, folding pits-in, contouring: These items will be done as soon as possible. Clean-up will be accomplished at

B. (1) time rig is removed. The rest of the work should be done within 10 to 60 days after well is completed.

(2) Seeding location and access road: Site will be seeded with crested wheat grass, or with a seed mix suggested by BLM by hand broadcasting and then scarred with a dozer or spike-toothed drag. The access road, if no longer needed, will be erased, contoured, seeded, and scarred as above. Water bars will be placed where needed.

(3) Will pits be fenced or covered? If there is a large amount of fluid in the reserve pit, it will be fenced with woven wire before rig is released & remain fenced until the fluid dries up & the pit is re-
(4) Is there any oil in reserve pit? _____ claimed.

If so, describe disposal: Should not be any great amount. If there is a large amount, it will be removed prior to covering pit.

(5) When will restoration work be done? As soon as possible. Within 60 days after equipment is removed if weather and availability of clean-up equipment permit and will be completed within 10 days thereafter.

11. Description of Land Surface:

(1) Topography & Surface Vegetation: Location is on fairly level ground and is on typical Mancos soil & gravel. Sparse sage brush, shad scale, grass and tumble weed are present.

(2) Other Surface Activities & Ownership: The land around the drill site is federal land with minerals & surface owned by the public. Inland Fuels Corp. has an oil & gas lease on most of the NW $\frac{1}{4}$ of Sec. 22. The area does have some grazing by sheep. There are no powerlines, powersites, irrigation ditches, or cultivation in the area.

(3) Describe other dwellings, archaeological, historical, or cultural sites: There are no known buildings, archaeological, historical or cultural sites in the area. An abandoned railroad bed is located in Sec. 19 and 25 to the east and south of the proposed well site. Other oil and gas well drilling and production are present in the general area.

12. Operators Representative: (Address & Phone number)

W. Don Quigley, Suite 440, 57 W. So. Temple, Salt Lake City, Utah 84101
801-359-3575

13. Certification:

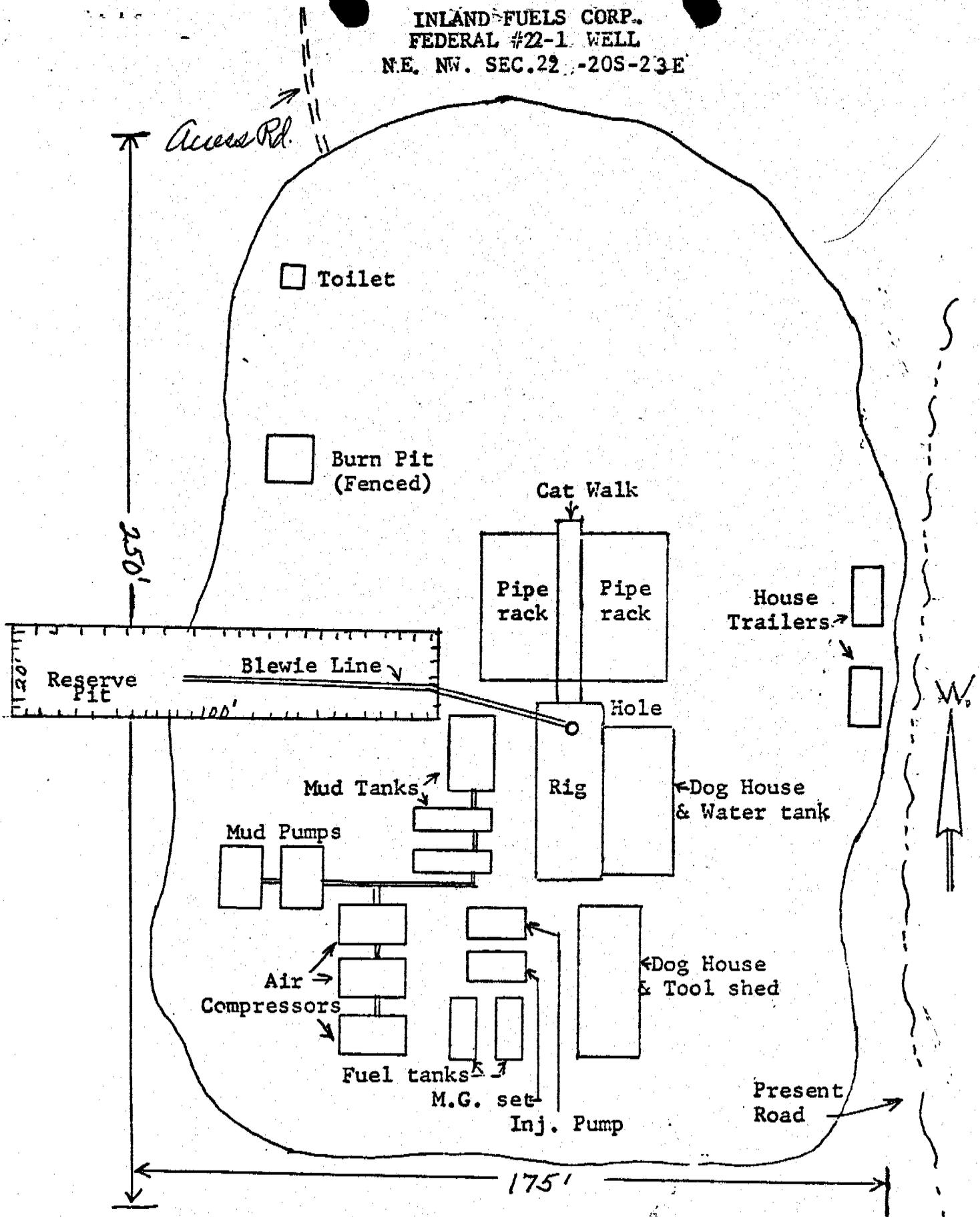
I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access route; that I am familiar with the conditions which presently exist; that statements made in this plan are, to the best of my knowledge, true and correct; and that work associated with the operations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

Date: July 3, 1979

Name: H. Don Guesley

Title: Consulting Geologist

LOCATION PLAN FOR
 INLAND FUELS CORP.
 FEDERAL #22-1 WELL
 N.E. NW. SEC. 22 - 20S-23E



Scale: 1 in. = approx. 30 ft.

WELL CONTROL EQUIPMENT FOR
INLAND FUELS CORP.
FEDERAL #22-1 WELL
NE.NW. SEC. 22 -20S-23E.
GRAND COUNTY, UTAH

The following control equipment is planned for the above designated well: (See attached diagram)

1. Surface Casing:

- A. Hole size for surface casing is 11" -
- B. Setting depth for surface casing is approx. 200 ft.
- C. Casing specs. are: \varnothing 5/8" O.D., K-55, 24.00#, 8 rd. thread, R-3 new or used.
- D. Anticipated pressure at setting depth is approx. 20 lbs.
- E. Casing will be run using three centralizers and a guide shoe, and will be cemented with 75 sks of cement with returns to the surface.
- F. Top of the casing will be near ground level.

2. Casing Head:

Flange size: 10", A.P.I. Pressure rating: 2000# W.P., Series 600; Cameron, OCT, or equivalent; new or used; equipped w/two 2" ports with nipples and 2", 2000# W.P. ball or plug valves. Casing head and valves set above ground level. (A flange only may be used on top of the casing, if the B.O.P. is equipped with 2" outlets below the blind rams.)

3. Intermediate Casing:

None

4. Blowout Preventors:

- A. Double rams; hydraulic; one set of blind rams; one set of rams for 3½" or 4" drill pipe; 10" flange; 2000# or greater W.P.; Series 900; equipped with mechanical wheels and rod for back-up; set on top of casing head flange and securely bolted down, and pressure tested for leaks up to 2000# p.s.i. A hydraulically operated hy-drill may be used in place of the above B.O.P., if equipped with 2" outlets below the rams. B.O.P. will be tested for leaks at 2000# p.s.i. prior to drilling below surface casing.
- B. Rotating Head: Shaffer, Grants or equivalent; set on top of blowout preventor and bolted securely; complete with kelly drive, pressure lubricator; 3½" or 4" rubber for

2000# W.P.; need not have hydril assembly on bottom, if a separate hydril or B.O.P. is used.

- C. **Fill and Kill Lines:** The fill and kill lines (2" tubing or heavy duty line pipe) are to be connected thru the 2" valves on the casing head and thru a manifold to permit ready switching from the fill to kill lines.

5. Auxillary Equipment:

A float valve is to be used in the bottom drill collar at all times. A safety valve that can be used in the drill pipe will be kept within easy reach on the rig floor at all times.

6. Anticipated Pressures:

The shut-in pressures of the Dakota, Cedar Mountain, and Morrison formations at depths of 2000' to 3000' in the area have been measured at about 500# to 800# maximum. No toxic gases have ever been encountered in the area and none are anticipated.

7. Drilling Fluids:

Air will be used to drill the subject well until water is encountered, then air-soap-water mist will be used to drill the well deeper. In case of excessive caving problems, it may be necessary to convert to mud.

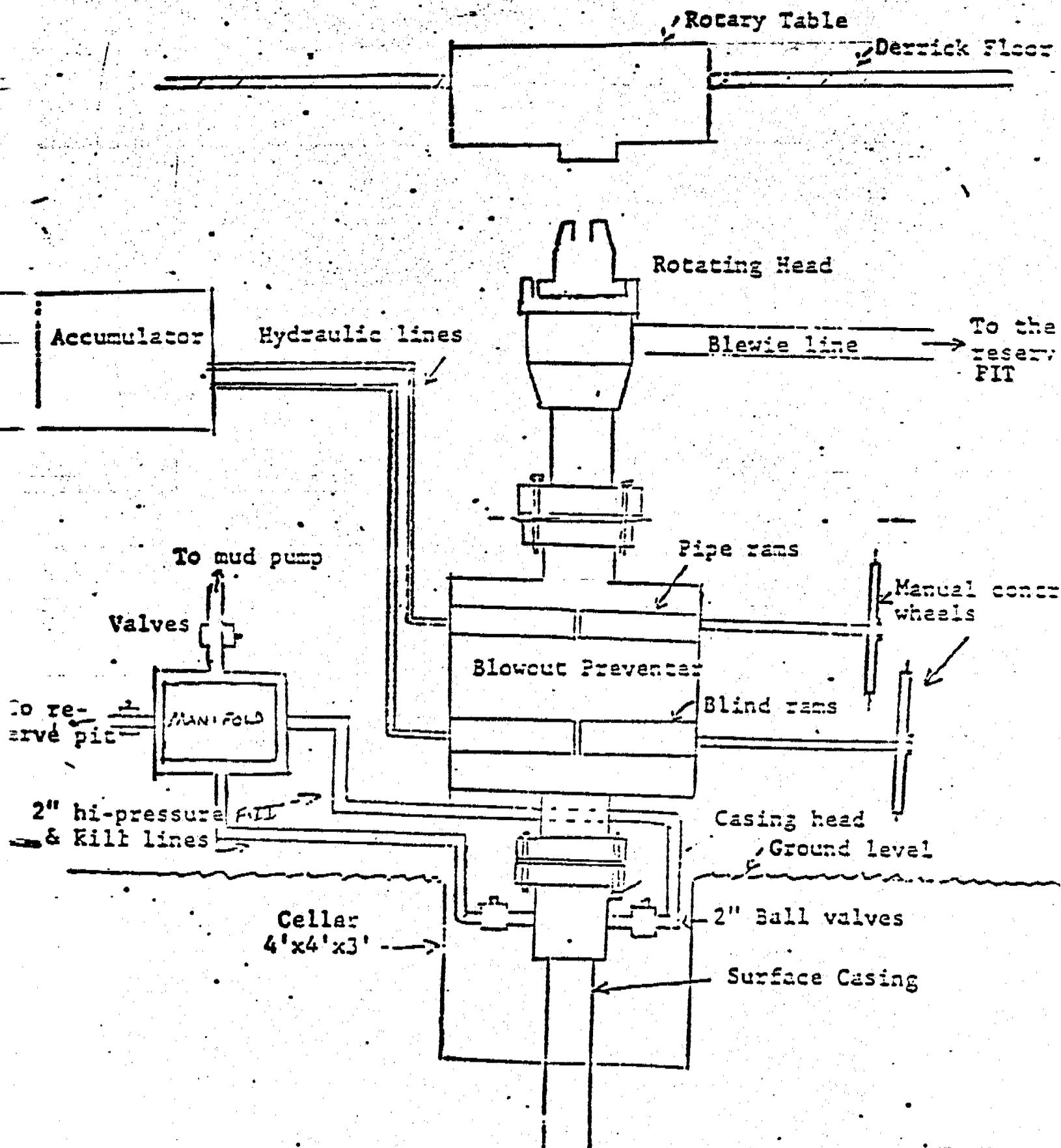
8. Production Casing:

- A. Hole size for production casing will be 6½".
- B. Approx. setting depth will be about 3500'.
- C. Casing Specs. are: 4½" O.D.; K-55; 10.50#; 8-rd thread; R-3, new.
- D. If good production is obtained, the casing will be run with a guide shoe at the bottom and about six centralizers and cemented conventionally with sufficient R.F.C. cement to cover 200 ft. above the top of the Dakota formation. The production zone will be perforated, 2 3/8" O.D. tubing will be run, and the well completed conventionally. In the event the production is small, it may be desirable to minimize the damage to the formation by keeping all mud and cement off the formation. In this case the procedure outlined below will be used.
- E. Casing will be run with about six centralizers and a cement basket with DV tool set above the production zone.

There will be sufficient casing to extend thru the production zone below the basket with a blind guide shoe on the bottom. The casing will be cemented above the packer with about 85 sks of cement (sufficient to cement thru the Dakota formation). The cement will be allowed to cure at least 48 hrs. The plug can then be drilled out and the casing perforated below the DV tool. Two inch tubing will be run and secured in the tubing head prior to perforating.

SCHEMATIC DIAGRAM OF
CONTROL EQUIPMENT FOR THE

INLAND FUELS CORP.
FEDERAL #22-1 WELL
NE. NW. SEC. 22-20S-23E.



STATE OF UTAH
DIVISION OF OIL, GAS, AND MINING

9-25-90

** FILE NOTATIONS **

Date: July 9, 1979

Operator: Inland Fuels Corporation

Well No: Federal 22-1

Location: Sec. 22 T. 20S R. 23E County: Grand

File Prepared:

Entered on N.I.D.:

Card Indexed:

Completion Sheet:

API Number: 43-019-30526

CHECKED BY:

Administrative Assistant: _____

Remarks:

Petroleum Engineer: M.A. Minder 7-13-79

Remarks:

Director: [Signature]

Remarks:

INCLUDE WITHIN APPROVAL LETTER:

#3

Bond Required:

Survey Plat Required:

Order No. 102-5 11/2/64

Surface Casing Change
to _____

Rule C-3(c), Topographic exception/company owns or controls acreage
within a 660' radius of proposed site

O.K. Rule C-3

O.K. In _____ Unit

Other:

Letter Written/Approved

ltm

[Signature] 4555

July 13, 1979

Inland Fuels Corporation
2121 South Columbia
Tulsa, Oklahoma 74114

Re: Well No. Federal 22-1
Sec. 22, T. 20S, R. 23E,
Grand County, Utah

Dear Sir:

Insofar as this office is concerned, approval to drill the above referred to well is hereby granted in accordance with the Order issued in Cause No. 102-5 dated November 2, 1984.

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

MICHAEL T. MINDER - Geological Engineer
Office: 533-5771
Home: 876-3001

Enclosed please find Form OGC-8-X, which is to be completed whether or not water sands (aquifers) 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 43-019-30526.

Sincerely,

DIVISION OF OIL, GAS AND MINING

Michael T. Minder
Geological Engineer

/b.m
cc

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE

(See other instructions on reverse side)

Budget Bureau No. 42-R355.6.

3

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 _____

2. NAME OF OPERATOR
Inland Fuels Corporation

3. ADDRESS OF OPERATOR
2121 South Columbia, Tulsa, Oklahoma 74114

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
 At surface NE. NW. Sec. 22, T 20S, R 23E, S.L.M.
 At top prod. interval reported below 2310' fr. W-line and 375' fr. N-line
 At total depth _____

14. PERMIT NO. _____ DATE ISSUED _____

5. LEASE DESIGNATION AND SERIAL NO.
U-42223

6. IF INDIAN, ALLOTTEE OR TRIBE NAME _____

7. UNIT AGREEMENT NAME _____

8. FARM OR LEASE NAME
Federal

9. WELL NO.
#22-1

10. FIELD AND POOL, OR WILDCAT
Cisco Springs

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA
NE. NW. Sec. 22-20S-23E. S.L.M.

12. COUNTY OR PARISH
Grand

13. STATE
Utah

15. DATE SPUNDED Oct. 19, 79 16. DATE T.D. REACHED Oct. 23, 79 17. DATE COMPL. (Ready to prod.) _____ 18. ELEVATIONS (DF, REB, RT, GR, ETC.)* 4778' KB 19. ELEV. CASINGHEAD _____

20. TOTAL DEPTH, MD & TVD 2650' 21. PLUG, BACK T.D., MD & TVD _____ 22. IF MULTIPLE COMPL., HOW MANY* None 23. INTERVALS DRILLED BY _____ POTARY TOOLS 0-2650' CABLE TOOLS _____

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
None

25. WAS DIRECTIONAL SURVEY MADE
No

26. TYPE ELECTRIC AND OTHER LOGS RUN
Dual-Induction-Laterolog; Gamma-Density-CNL

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
<u>8 5/8"</u>	<u>24.00#</u>	<u>163' K.B.</u>	<u>12 1/2"</u>	<u>85 sks</u>	<u>None</u>

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
<u>None</u>				

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)

31. PERFORATION RECORD (Interval, size and number)
None

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED

33. PRODUCTION

DATE FIRST PRODUCTION None PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) _____ WELL STATUS (Producing or shut-in) _____

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.)
			<u>None</u>	<u>None</u>	<u>None</u>	

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) _____ TEST WITNESSED BY _____

35. LIST OF ATTACHMENTS
Drilling History and Geologic Report

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED St. Non Guigley TITLE Consultant DATE Nov. 19, 1979

*(See Instructions and Spaces for Additional Data on Reverse Side)

DRILLING HISTORY
AND
GEOLOGIC REPORT
ON
INLAND FUELS CORP.
FEDERAL #22-1 WELL

By

W. DON QUIGLEY
CONSULTANT
SALT LAKE CITY, UTAH

November 19, 1979

DRILLING HISTORY
AND
GEOLOGIC REPORT
ON
INLAND FUELS CORP.
FEDERAL #22-1 WELL

Operator: Inland Fuels Corporation, 2121 South Columbia
Tulsa, Oklahoma 74114

Contractor: Veco Drilling, Inc., P. O. Box 1705, Grand Junction,
Colorado 81501

Location: NE. NW. Sec. 22, T 20S, R 23E, S.L.M., Grand County,
Utah (2310' fr. W-line and 375' fr. N-line)

Elevations: 4768' grd; 4778' K.B.

Spudded-in: October 19, 1979

Surface Casing: 8 5/8", 24.00#, K-55, R-3 casing landed at
163' K.B. and cemented w/85 sks reg. cement w/3%
CaCl. Returns to surface.

Finished Drilling: October 23, 1979

Total Depth: 2650'

Bottom Formation: Entrada

Producing Formation & Zones: None

Plugged & Abandoned: October 24, 1979

Drilling History

Oct. 17: Moving rig to location (Veco Rig #2).

Oct. 18: Rigging up.

Oct. 19: Drilled 0' to 135' (135'). Drilled rat hole. Drilled
surface hole (12 1/2") to 135' with air and mud.

- Oct. 20: Drilled 135' to 175' (40'). Drilled surface hole to 169'. Ran 4 jts. (154') of 8 5/8", 24.00#, K-55, R-3 casing and landed casing at 163' K.B. Cemented casing w/85 sks reg. cement w/3% CaCl. Had returns to the surface. Waited 5 hrs. for cement to set. Nippled-up and tested B.O.P. and casing at 1800#. Drilled mouse hole. Unloaded hole, dried it up, and drilled out cement plug. Began drilling ahead with 7 7/8" bit, using air for circulation.
- Oct. 21: Drilled 175' to 1300' (1125'). Dusting good and drilling at avg. rate of 60 ft/hr. Survey at 560' was 3/4°; at 1080' was 1°.
- Oct. 22: Drilled 1300' to 2348' (1048'). Survey at 1562' was 1°. Encountered good thick medium-grained ss. at 1800-1840'. Had no shows and sand looked wet. Dust decreased and had to convert to air-mist drilling at 1845'. Estimate top of Dakota formation at 1800'. Top of Cedar Mountain formation is probably at 1885' due to green shale and white bentonitic shale. Est. top of Morrison at 1960'; at base of hard tight quartzitic sandstone and on first red siltstone. No sands of interest or shows in the Cedar Mt. formation. The top of the Salt Wash was at 2250'. This was a hd. qtztc. ss with no shows. The Brushy Basin section was mostly siltstone with lots of bentonite. The upper Salt Wash sands did not have any shows and there was no flare of gas while they were drilled.
- Oct. 23: Drilled 2348' to 2650' (302'). Finished drilling at 9 AM. at depth of 2650' which was about 70' below the top of the Entrada formation. Est. top of the Curtis-Summerville section at 2530' and top of the Entrada at 2580'. Had no shows in the Entrada, lower Salt Wash, or in the Curtis-Summerville. Began mudding up at 0900 hrs. and finally finished at midnight. Had to work loose after being stuck near bottom and after pulling 10 stds, it took several hours to circulate, clean-up the hole, and get back to bottom.
- Oct. 24: Finished cleaning hole out and circulating on bottom at

0100 hrs. Began logging well. Ran Dual-Induction-SFL log; Gamma-Density-CNL log. Finished logging at 0600 hours. Laid down drill collars and went back to bottom with drill pipe. Installed cement plugs in the hole as follows:

- Plug #1: 2560' to 2530' (120') 40 sks
across Entrada formation
- Plug #2: 2420' to 2300' (120') 40 sks
across Salt Wash sands
- Plug #3: 1850' to 1700' (150') 50 sks
across top of Dakota
- Plug #4: 200' to 110' (90') 30 sks
across bottom of surface casing
- Plug #5: At surface (10 sks) with well
marker

Finished plugging well at 2000 hours.

Geologic Report

The Inland Fuels Corporation Federal #22-1 well was the first well of a five well series, which are to be drilled on a lease obtained by the company which is located on the west and north flank of Cisco Springs structure. There are 1840 acres in the lease and it covers parts of Sections 9, 10, 11, 15, 22, and 23 of T 20S, R 23E, Grand County, Utah. Whereas, the lease spread over several different sections, the various parts are not continuous and some of the parcels are small making selection of favorable well sites difficult. This is particularly true when the numerous faults across the structure have to be avoided.

The Federal #22-1 well was the least prospective and least favorable of the five well sites which have been selected. The well is located far down the west flank of the structure and in an area where the sand development in the potential producing formations is less than in areas located farther to the east. However, the occurrence of these sands is so unpredictable and erratic that every location has potential of being productive or non-pro-

ductive; so until the well is drilled, the presence of the sands is unknown.

The subject well had practically no hydrocarbon shows. A calcareous shale zone in the Mancos, at 1450' to 1480' had some oil stain and odor; but had no free oil or gas.

The Dakota formation was topped at 1800' and contains one good clean sand from 1800' to 1840' but this sand contained no shows of hydrocarbons, produced no flare at the blowie line, and had obvious water. The dust diminished rapidly when this sand was drilled and forced conversion to air-mist drilling. There were no other sands in the Dakota. The Dakota was about 85 feet thick in this well.

The top of the Cedar Mountain formation was reached at 1885'. This formation contained only one sandstone lens. This sand was at the base of the formation and was hard, tight, quartzitic and contained no shows of hydrocarbons. The Cedar Mountain was about 75 feet thick in the subject well.

The Brushy Basin section of the Morrison was topped at 1960'. The section had a large number of sandy siltstone beds separated by bentonitic shale. There were no well developed porous sandstone beds which would make favorable reservoir sands. No shows of hydrocarbons were encountered in this section. The Brushy Basin was about 290 feet thick in this well.

The top of the Salt Wash section of the Morrison was encountered at 2250'. The top contained a hard, quartzitic shaly sandstone from 2250' to 2265' without any shows. A second sand which had good porosity (18% according to the E-logs) was present at 2305' to 2320'; but this sand contained no shows and was obviously wet. Another thick porous sand was present at 2342' to 2368' (26'), but also was wet. This sand had an indicated porosity of 18% according to the E-logs. Numerous other thin sands which were mostly tight and quartzitic occurred in the lower portion of the Salt Wash. None contained any shows of hydrocarbons. The Salt Wash was about 280 ft. thick in the subject well.

The Curtis-Summerville formation was topped at 2530' in the subject well and consisted of red siltstone; gray, v.f.g; calcare-

ous sandstone; green and red calcareous shale; and white bentonite. No shows were observed in this formation. The Curtis-Summerville was about 50 ft. thick in this well.

The Entrada was topped at 2580' and about 70 feet of the sand were drilled. The top 20 feet was less porous (16% on the E-logs) than the rest (18% to 24%) but contained no shows of hydrocarbons. The resistivity was also low (15 ohms).

The formations with their tops, thicknesses, and datum points which were encountered in the subject well as determined from the E-logs are listed below:

<u>Formation</u>	<u>Depth to Top</u>	<u>Thickness</u>	<u>Datum</u>
Mancos	Surface	1800'	4778' K.B.
Dakota	1800'	85'	2978'
Cedar Mountain	1885'	75'	2893'
Morrison (Brushy Basin)	1960'	290'	2818'
(Salt Wash)	2250'	280'	2528'
Curtis-Summerville	2530'	50'	2248'
Entrada	2580'	—	2198'
Total Depth	2650'		

A detailed description of the samples from 1000' to total depth is attached hereto.

The datum points of the various formations were approximately 100' to 120' lower than those predicted on the prognosis. This indicates that the west flank of the structure is much steeper than anticipated and that the fault which is located just south of the well has a greater displacement (downthrown on the north side) than was estimated.

In conclusion, it is obvious that the down flank positions and graben blocks of the Cisco Springs anticlinal structure are less favorable for hydrocarbon production than near-axis positions; and probably the horst blocks may be more favorable - although this may be questionable.

The lack of good porous sand lenses in the Cedar Mountain and Morrison formations was also responsible for the absence of

hydrocarbon reservoirs. It is therefore concluded that well sites must be chosen on the basis of geophysical and geological data and such things as land and lease lines and distance from other wells should be secondary.

W. Don Ogigley

W. Don Ogigley
Consulting Geologist
AAPG Cert. #1296
APGS Cert. #3038

Inland Drills Corp.

Well # 22-1
 NE NW - 22 - 20S - 23E
 Sec. 4728 K.B.

Depth Time
 (M/min) ft

46 0860

5 X 5 TO 1/2 INCH * 7 X 10 INCHES
 KEUFFEL & ESSER CO. MADE IN U.S.A.

