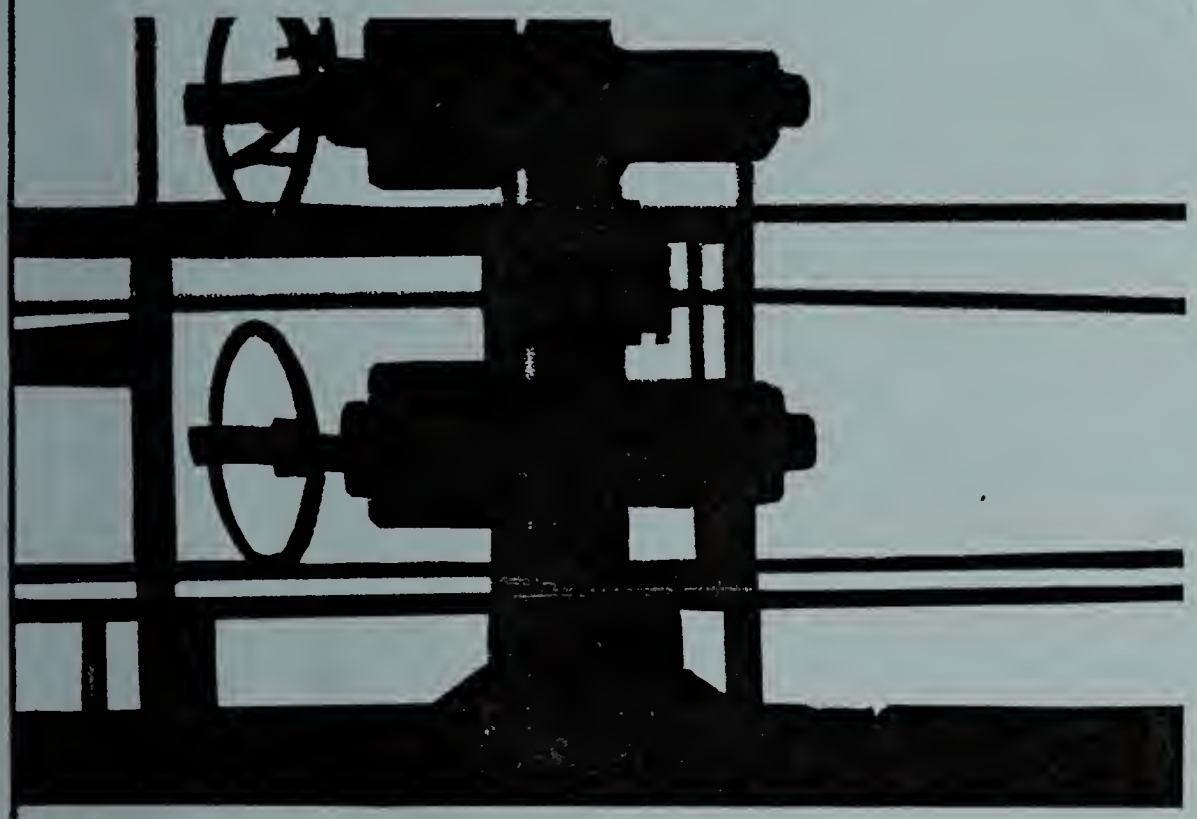
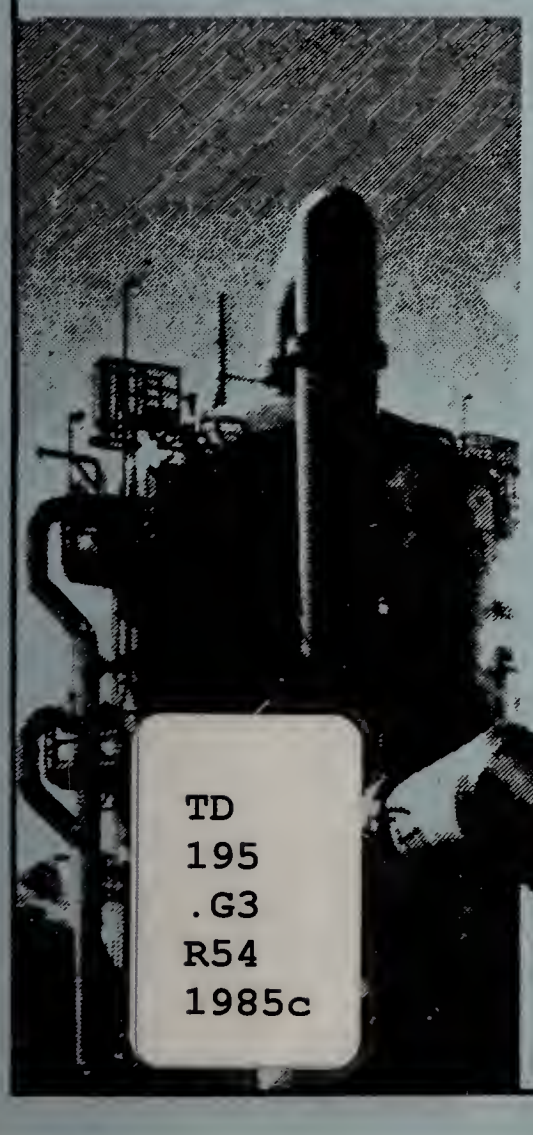
# RILEY RIDGE
# NATURAL GAS PROJECT
## SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

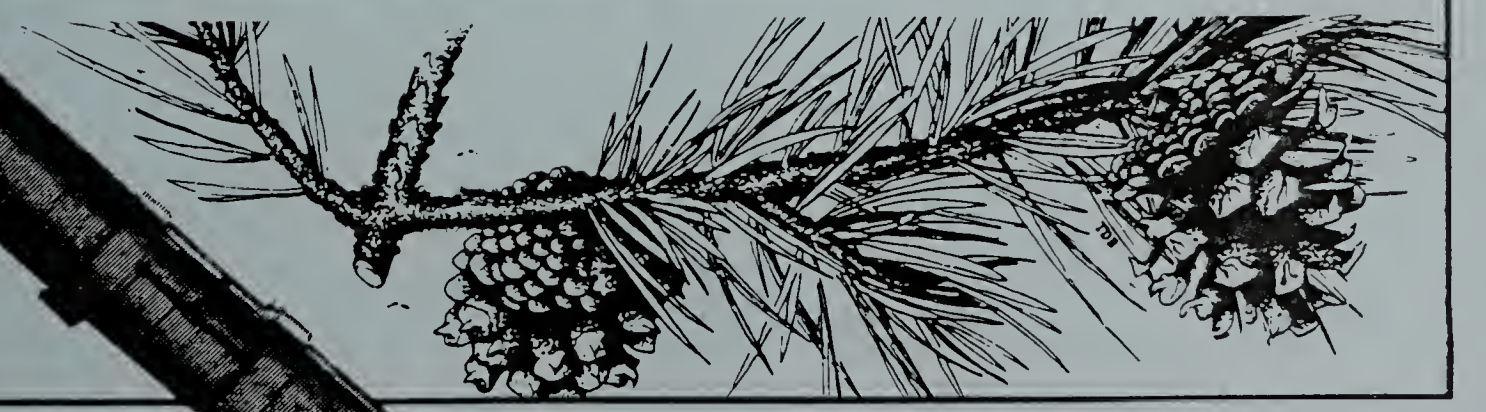
## EXXON LABARGE PROJECT
## WELL FIELD CHANGES

## FEBRUARY 1985

DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
DEPARTMENT OF AGRICULTURE
FOREST SERVICE







IN REPLY REFER TO:

# United States Department of the Interior

BUREAU OF LAND MANAGEMENT
ROCK SPRINGS DISTRICT OFFICE
P.O. Box 1869
Rock Springs, Wyoming 82902-1869
(307) 382-5350

Dear Reader:

In November 1984, a Riley Ridge Project update was distributed (Appendix A) that described a change in Exxon's well field development plans. Specifically, Exxon proposes to combine six well field dehydration facilities into one central dehydration facility off the well field. Five manifolds would be located in the well field to provide for the collection of gas-gathering pipelines from 6 to 13 wells into one large pipeline which would transport field gas to the central dehydration facility. The proposal is a change from that addressed in the Riley Ridge Natural Gas Project Environmental Impact Statement (EIS). Therefore, additional analysis of construction and operational impacts is required.

This Environmental Assessment (EA) and Decision Record on the Exxon proposed well field changes are provided for your information. Any comments you may have are certainly welcomed. Any comments received will be given consideration during the site-specific Environmental Reference Report and Decision Record completed on each application for permit to drill (APD), notice of sundry application, and rights-of-way applications as described in Attachment B and D of the Riley Ridge EIS Record of Decision (January 1984).

Comments should be directed to Donald H. Sweep, District Manager, Bureau of Land Management, P.O. Box 1869, Rock Springs, Wyoming 82902-1869, or Reid Jackson, Forest Supervisor, Bridger-Teton National Forest, P.O. Box 1888, Jackson, Wyoming 83001.

Sincerely,

Donald H. Sweep
District Manager

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

DEPARTMENT OF AGRICULTURE
FOREST SERVICE

# SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT WY-049-EA85-32

# RILEY RIDGE NATURAL GAS PROJECT EIS

## EXXON LABARGE PROJECT

## WELL FIELD CHANGES

LINCOLN AND SUBLETTE COUNTIES, WYOMING

March 1985

Prepared By

BUREAU OF LAND MANAGEMENT

ROCK SPRINGS DISTRICT

In Cooperation With

BRIDGER-TETON NATIONAL FOREST

EA No. WY-049-EA85-32

# EXXON LABARGE PROJECT
# WELL FIELD CHANGES
# SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT (EA)
# DECISION RECORD

## PROPOSED ACTION

Exxon proposes to construct, operate, and maintain one central dehydration plant facility on 60 acres of private land (Exxon owned) in Section 35, T. 28 N., R. 114 W.; and to construct, operate, and maintain a gas gathering system incorporating five manifold facilities, each on 4 to 6 acres of BLM and FS lands, within their Lake Ridge, Fogarty Creek, and Graphite Oil and Gas Units. This proposal is a change from that originally proposed by Exxon and analyzed by the BLM and FS in the Riley Ridge Natural Gas Project EIS which was completed in November 1983. The Riley Ridge EIS, in accordance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) regulations, is the environmental documentation of Exxon's overall LaBarge Project proposal. It was determined through the Riley Ridge EIS and accompanying Riley Ridge Natural Gas Project Record of Decision (ROD), which was completed in January 1984, that the overall project proposal is in conformance with applicable BLM and FS land use plans.

## ALTERNATIVE CONSIDERED

The alternative considered to Exxon's Proposed Action and analyzed in the subject EA is the same action that was analyzed in the Riley Ridge EIS. This alternative is referred to as the No Action alternative in the subject EA. Exxon, under the No Action Alternative, would construct, operate, and maintain a gas gathering system, incorporating six dehydration plant facilities, each on 8 acres of BLM or FS lands, within their Lake Ridge, Fogarty Creek, and Graphite Lease units; and construct, operate, and maintain a field office and storage yard on 40 acres of BLM land in section 1, T. 27 N., R. 114 W.

## DECISION AND RATIONALE

Decision: It is the decision of the Rock Springs District Manager of the Bureau of Land Management and the Bridger-Teton Forest Supervisor of the U.S. Forest Service to approve the change proposed by Exxon Company, U.S.A. Approval is contingent upon the site specific inventory, evaluation, and mitigation of resource impacts, and application of the required Federal mitigation measures and monitoring requirements, through the Environmental Reference Rport and Decision Record process described in the Riley Ridge ROD (Section VI and Attachments B and D).

An analysis of the impacts of deep well injection of stripped water from well field dehydration is not provided in the subject "Well Field Changes" EA. A separate impact analysis will be required prior to permitting an injection program.

Supporting Rationale: Based on the impacts to the resource values analyzed (air quality, water resources, soils/vegetation, wildlife/fisheries, health and safety, and visual resources), and as summarized in the comparative analysis presented in Chapter IV of the Well Field Changes EA, the impacts of the Proposed Action would be less than the No Action Alternative. A summary of the difference in resource impact in relation to the Proposed Action follows:

Air Quality - Operations Emissions

- o $NO_x$ and $SO_2$ emissions would be 0.88 and 0.004 tons/year lower.
- o A centralized dehydration facility would reduce frequency of upset.

Water Resources

- o Three fewer waste water injection wells would be required. This would reduce the risk of casing malfunction and aquifer contamination.

Soils/Vegetation

- o Negligible differences would exist in total acres disturbed.
- o Manifolds would result in 18 to 28 fewer acres of disturbance within the well field than the six individual dehydrations units. This is an important consideration because the steep mountainous terrain is much more sensitive to erosion.

Wildlife/Fisheries

- o Six fewer vehicles per day would be needed for well field manifold maintenance and monitoring.
- o Fourteen fewer workers per day would be needed for manifold maintenance and monitoring.
- o Fourteen fewer operational workforce personnel would be needed.
- o A traffic flow plan and schedule for manifold maintenance and monitoring would be readily developed to help avoid adverse impacts to critical seasonal wildlife habitat (e.g., elk calving).

Health and Safety

- o Five fewer dehydration plant facilities subject to upset.
- o A centralized dehydration plant facility affords better overall operation and maintenance control.

- A centralized dehydration plant facility located off the mountain significantly reduces seasonal access restrictions in the event of an emergency.

Visual Resources

- Manifolds would cause less visual impact in the well field than would dehydration units because their associated structures are fewer, smaller in size, and require a total of 18 to 28 fewer acres.

- A centralized dehydration facility would disturb 20 acres more than a field office - storage yard complex. The Proposed Action and No Action locations (within one mile of each other) are in the same visual management class (IV). The centralized dehydration facility would cause more impact because of the greater number of buildings and other structures, and greater space requirement.

Mitigation: All the appropriate required Federal mitigating measures contained in the Riley Ridge ROD (Attachments B and D) will be required. In addition, the mitigating measures contained in this supplemental EA will be included as required permit conditions.

Monitoring: All the appropriate required monitoring (air quality, groundwater, fisheries and surface water, cultural compliance, roads and erosion control, revegetation and restoration) described in Section VI of the Riley Ridge ROD will be required.

CONCLUSION

Based on the analysis of the well field changes supplemental EA, I find that this action is not expected to have a significantly different impact on the human environment than those which were analyzed in the Riley Ridge Natural Gas Project EIS and, therefore, conclude that no EIS is necessary. The proposed action is in conformance with applicable BLM and FS land use plans.

APPROVAL:

Donald K. Hamp — 3/6/85
District Manager, Rock Springs District — Date
Bureau of Land Management

Ted Jackson — 3-15-85
Forest Supervisor, Bridger-Teton National Forest — Date
U.S. Forest Service

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# CHAPTER I

# CHAPTER I

## DESCRIPTION OF ALTERNATIVES INCLUDING THE PROPOSED ACTION

### BACKGROUND

Exxon's LaBarge Project is a natural gas development project that includes a deep well gas field, gathering lines within the well field, trunk line to the treatment plant, the treatment plant, sales gas pipeline, and facilities for handling and carrying by-products (sulfur and carbon dioxide) to markets.

The major project actions and components were analyzed in the Riley Ridge Natural Gas Project Environmental Impact Statement (EIS) (BLM and FS 1983a), prepared jointly by the Bureau of Land Management (BLM) and Forest Service (FS). In addition to the proposed project, the Riley Ridge EIS evaluated component and treatment plant siting alternatives and a No Action Alternative.

Continued consultation and coordination between Exxon, Big Piney Ranger District (USFS), and Pinedale Resource Area (BLM) occurred during the summer and autumn of 1984. During this period it was determined that some changes could be made to the plans for design and operations of the well field that would reduce potential environmental impacts. For example, six separate dehydration facilities, with one or more located in each drilling unit (each with at least one associated waste water injection well), could be changed to one dehydration facility located at the southeast end of the well field (off the mountain) with three injections wells. Five manifold facilities would be placed in the well field; 3 in Fogarty Creek Unit and 2 in Lake Ridge Unit. These manifolds would combine flow lines from individual wells.

In November, 1984, the BLM and FS distributed information relative to Exxon's proposed change to a list of publics. A copy of that Exxon Project update is included in Appendix A.

This Environmental Assessment (EA) is being prepared as a Supplement to the Riley Ridge Natural Gas Project EIS. The proposed changes in the well field will be analyzed as the Proposed Action. For comparison purposes, project implementation plans analyzed and approved in the Riley Ridge EIS will be addressed briefly in the No Action Alternative.

This EA does not analyze the impacts of deep well injection fo stripped water from well field dehydration. A separate impact analysis and EA will be prepared prior to permitting.

Exxon has also proposed a change in the location of a portion of its sweetening plant at Shute Creek. The analysis of potential impacts of this site change will not be addressed in this EA. A separate environmental document addressing this change, outside of the well field, will be prepared.

## PURPOSE AND NEED

Exxon has proposed these well field changes for the purpose of implementing the LaBarge Project. The need for these changes is to reduce potential adverse environmental impacts, reduce operating costs, and to allow project implementation based on modified project plans.

## PROPOSED ACTION AND ALTERNATIVES

### PROPOSED ACTION

Exxon's overall proposal to drill gas wells and produce, gather, and transport natural gas to their Shute Creek treatment plant for processing would remain unchanged. The proposed well field changes include the addition of manifolds in the well field and the consolidation of individual dehydration units into a single facility located off the well field. A change in the location and number of dehydration facilities, from six in the well field (on the mountain) to one central facility near the east edge of the Dry Piney Unit (off the mountain), is proposed. This would not change the gathering system alignment (see Figure I.1), which is addressed in mitigation measure SV-1 of the Riley Ridge Record of Decision requiring the use of common rights-of-way when economically and technically feasible.

#### Manifolds

Proposed manifold locations were selected based on the pre-designed gathering system analyzed in the Riley Ridge EIS, and low impact opportunities. Five production manifold facilities would be constructed in the well field. Three manifolds would be located in the Fogarty Creek Unit (FC-36, FC-15, FC-3) and two manifolds would be located in the Lake Ridge Unit (LR-9, LR-28). The locations of the sites are shown on Exhibit I.1 - "Well Field Facilities." A typical plot plan showing major components is included as Exhibit I.2.

Equipment at the production manifolds is designed to combine gas flow from the individual well sites; to separate free water from the gas stream; and to direct the flow to large diameter, reduced pressure trunklines for transportation to the dehydration facility. Equipment would also be provided for pipeline operation and maintenance including pig launchers/receivers, a corrosion inhibitor injection system, and fuel gas distribution system.

Combining flow lines at the manifolds would eliminate the need for flares at the well sites. Flares would be required, however, at the production manifold locations to allow for handling of any gas released from the pipelines during startup, shutdown, or pressure relieving operations.

Facilities Layout - Each manifold site would include the major facilities described below:

> A manifold equipment building containing the pipeline manifold skid (permanently premounted, packaged equipment which can be readily slid

# GATHERING SYSTEM FLOW DIAGRAM
# THIRTY-NINE WELL

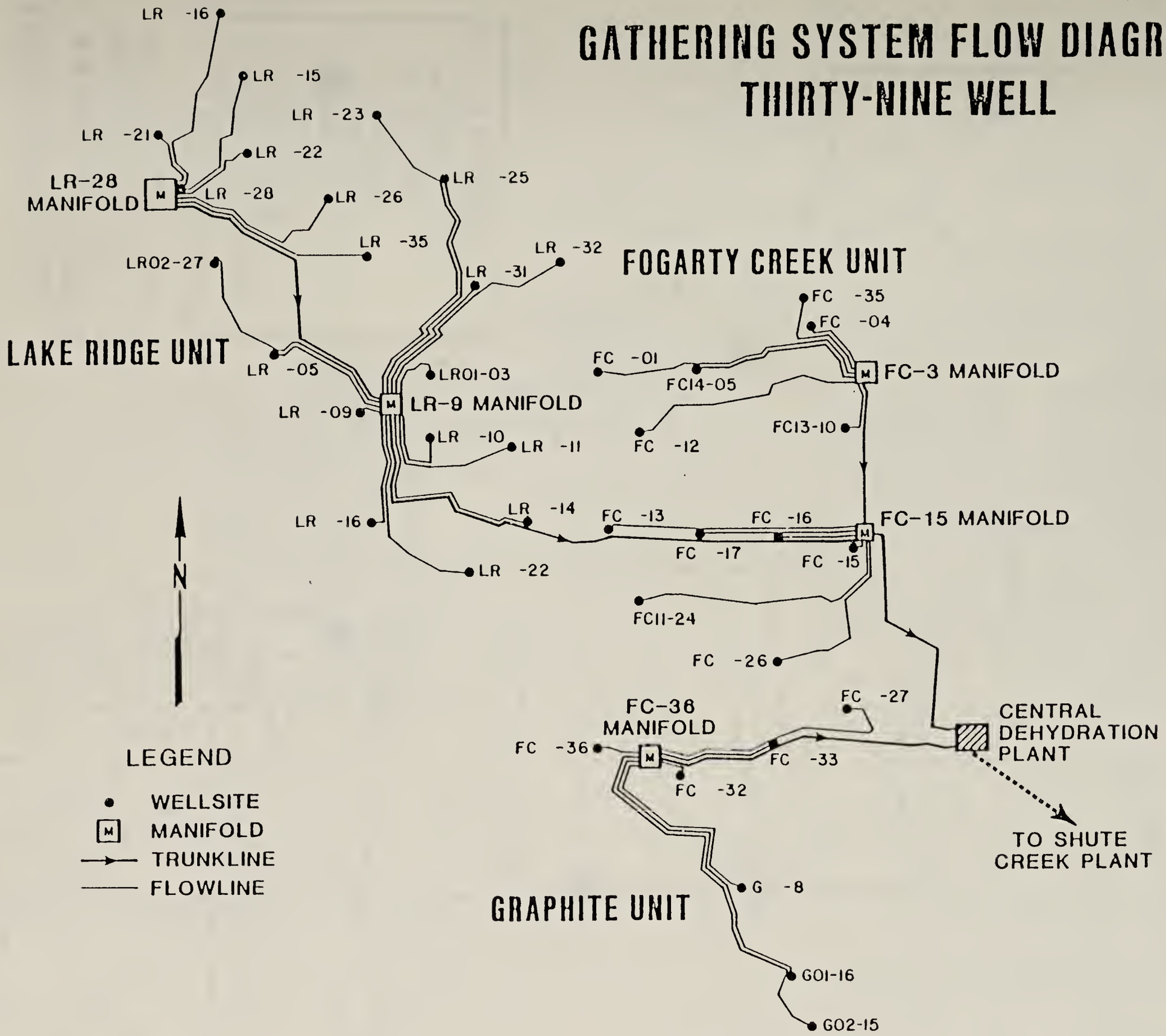
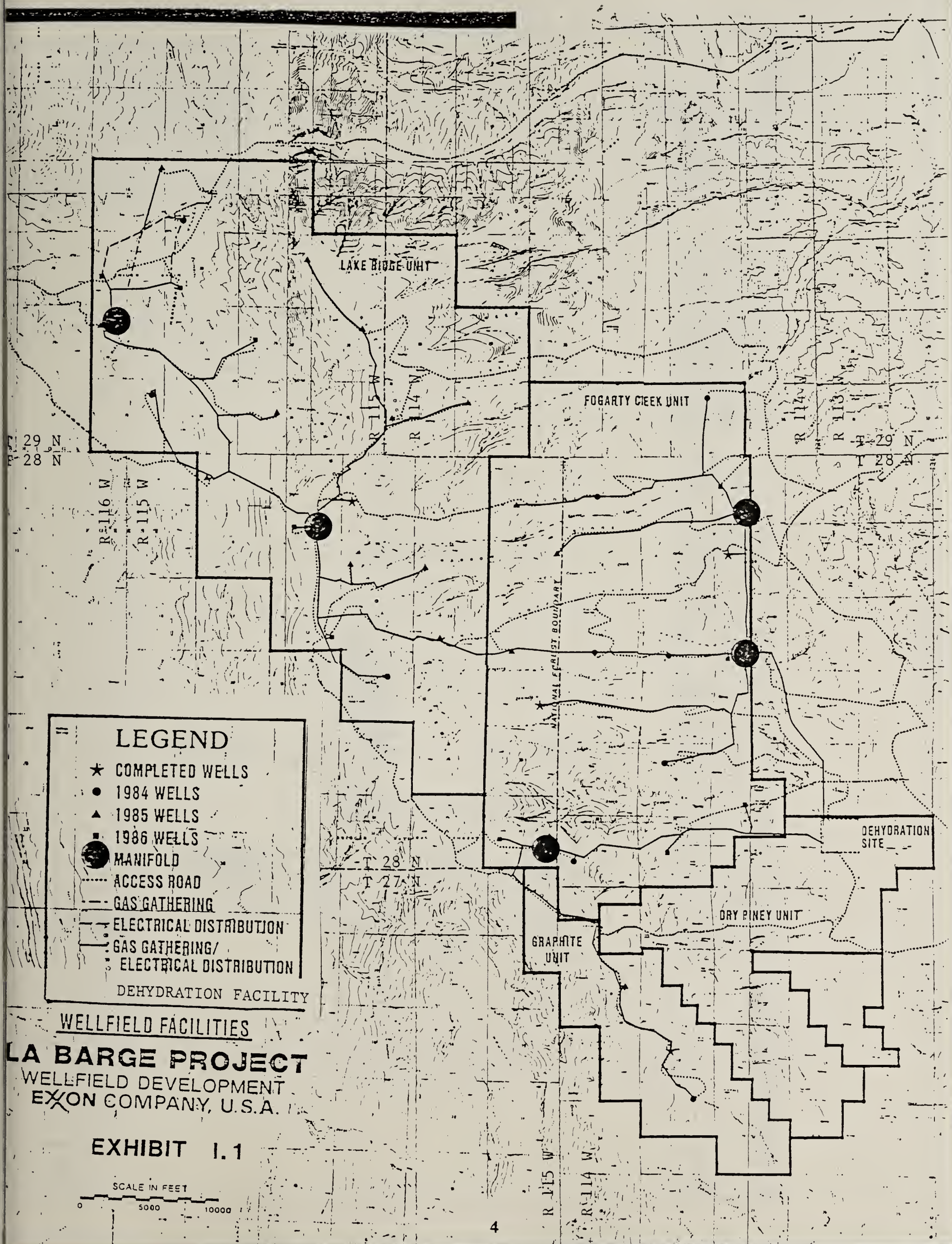



FIGURE 1.1


LAKE BIDDE UNIT
FOGARTY CREEK UNIT
DRY PINEY UNIT
GRAPHITE UNIT
DEHYDRATION SITE
NATIONAL FOREST BOUNDARY
T 29 N
T 28 N
T 27 N
R 116 W
R 115 W
R 114 W
R 113 W
LEGEND
COMPLETED WELLS
1984 WELLS
1985 WELLS
1986 WELLS
MANIFOLD
ACCESS ROAD
GAS GATHERING
ELECTRICAL DISTRIBUTION
GAS GATHERING/ ELECTRICAL DISTRIBUTION
DEHYDRATION FACILITY
WELLFIELD FACILITIES
LA BARGE PROJECT
WELLFIELD DEVELOPMENT
EXXON COMPANY, U.S.A.
EXHIBIT 1.1
SCALE IN FEET
0
5000
10000

| EQUIPMENT LIST | |
|---|---|
| EQUIPMENT NO. | DESCRIPTION |
| D-3101A - D | INSTRUMENT GAS DRYERS |
| FL-3101 | FLARES |
| H-3101A & B | MANIFOLD HEATERS |
| LB-3101A & B | TRUNDLINE LAUNCHING BARRELS |
| P-3101A & B | METHANOL INJECTION PUMPS |
| RB-3101A - H | FLOWLINE RECEIVING BARRELS |
| RB-3102 | LR-2B RECEIVING BARREL |
| RB-3103 | FUEL GAS RECEIVING BARREL |
| TK-3101 | METHANOL STORAGE TANK |
| V-3101 | BLOWDOWN COIL INLET SEPARATOR |
| V-3102 | RELIEF COIL INLET SEPARATOR |
| V-3103 | LIQUID FLASH DRUM |
| V-3104 | WATER STORAGE DRUM |
| V-3105A & B | FUEL GAS KNOCK-OUT DRUM |
| LB-3102 | FUEL GAS LAUNCH BARREL |

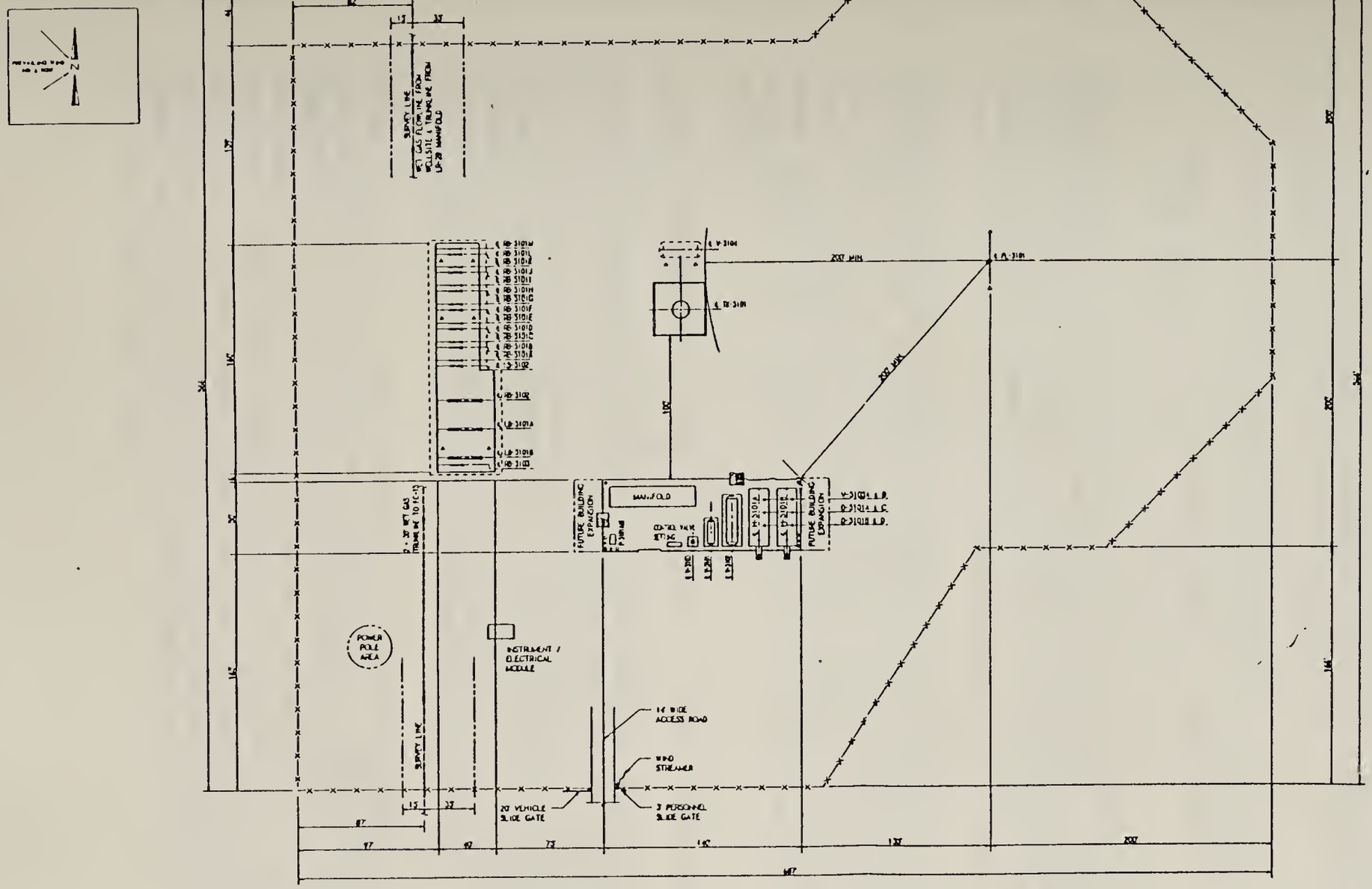



EXHIBIT II-G.1

**GENERAL NOTES**

LEGEND
- △ = H2S SENSORS
- □ = COMBUSTIBLE GAS DETECTORS
- ○ = FIRE DETECTORS

**REFERENCE DRAWINGS**

**REVISIONS**

| NO. | DESCRIPTION | BY | DATE | APP'D |
|---|---|---|---|---|
| 1 | MANIFOLD & GAS CONNECTS | AJG | 11/20/84 | |

**ENGINEERING/DESIGN RECORD**

ISSUE LEGEND
- A = CLIENT
- B = GENERAL CONTRACTOR
- C = FABRICATOR
- D = OTHER FIELD OFFICE
- DRWN = DRAWN
- APPR = APPROVAL
- CHKD = CHECKED
- FABN = FABRICATION
- CONST = CONSTRUCTION

ISSUE RECORD

| ISSUE | BY | DATE | COMMENTS |
|---|---|---|---|
| C | AJG | 11-21-84 | Rev'd |

Williams Brothers Engineering Company

EXXON COMPANY, U.S.A.

PLOT PLAN
LR-9 MANIFOLD
Lobarge Gas Gathering And Pipeline Systems

| SCALE | SIZE | DRAWING NO. | REV |
|---|---|---|---|
| 1"=40' | D | SK-00-098-D | 1 |

(HALF SCALE PRINT)

# EXHIBIT I.2

into place and bolted), production separator skid(s), production heater skid(s), chemical inhibitor injection pump, and methanol injection pump.

Pipeline "pig" launcher/receivers as required for each pipeline which terminates/originates at the manifold site.

An electrical/instrumentation building containing process controls and emergency shutdown system.

A flare skid with an 80-foot high, free standing flare stack.

An area for future compressor installation which may be required to maintain production rates beyond 1990.

Material storage and lay down areas.

Each four to six acre site would be enclosed by an 8-foot high chain link fence.

Construction - Construction activities for each manifold site would include construction staking, pre-construction conference, clearing and grubbing, topsoil stripping, grading, surfacing, foundation preparation, building construction, equipment placement and tie-in (piping and electrical), testing cleanup, and certification of construction (including as-built plans).

Operations and Maintenance - Operations of each site would be remotely monitored at the dehydration plant located in Section 35, T. 28 N., R. 114 W. The administration office and control room would be manned on a 24-hour basis. A minimum of 2 operations personnel, in separate vehicles, would visit each remote unit on a daily basis for routine equipment maintenance and monitoring. This means two round trips per day would be made to the well field.

Safety Systems - Two major components of the safety system are of importance.

Flare and Emergency Shutdown - A flare system would be installed to permit safe release of process fluids during startup and shutdown, and in the event of process upsets. Vessels and piping systems would automatically vent to the flare to prevent overpressure. The flare system at the manifolds would consist of a heater, relief valve, liquid knock-out drum, flare stack, and a buried water disposal tank for collection of stripped water before piping to the central dehydration unit for deep well injection.

Fire Protection - Spark arrestors would be provided on all internal combustion engines and all flumes used at the sites. Halon Systems, with automated shutdown of the High Volume Air Circulation (HVAC) System, will be utilized to extinguish fires which originate in control rooms or power distribution centers. Additional equipment would interrupt fuel flow to direct-fired heaters on pilot outage, low fuel gas pressure, and high temperature. Smoking would be strictly prohibited in areas housing process equipment, electrical gear, and storage areas. Flammable materials would be removed for a safe distance from flare stacks.

Waste Disposal - Free water would be separated from the gas stream at each manifold site. This water would be placed in the water gathering system and be disposed of by subsurface injection into wells located near the central dehydration facility. See Dehydration Facility for more detail.

Used lube oil and other hydrocarbon wastes would be collected in barrels and sold to qualified reclamation facilities.

Exxon would collect and remove all litter including broken equipment, work trash, and other man-produced material from well field units, plant sites, and other areas of operation and would be disposed of at approved sites.

Dehydration Facilities

The field dehydration facility would be located on Exxon Company, U.S.A. land in the NE 1/4 of Section 35, T. 28 N., R. 114 W. This facility would separate water and water vapor from the produced gas so that ice and hydrates would not form in the feed gas trunkline. (Hydrates are ice-like solids that form at temperatures above the freezing point of water when the water vapor content of natural gas exceeds certain well-defined limits.) The facility will also provide a central point for operation of the well field facilities including well sites, gathering system, dehydration system, and feed gas trunkline.

The dehydration facility would be designed initially for a production rate of 480 million standard cubic feet per day (MSCFD) with expansion capability to 1.32 billion SCFD. The 480 MSCFD of dehydration capacity includes:

Inlet Slug Catcher
Sour Water Disposal Equipment
Two Process Buildings (480 MSCFD Capacity)
One Utility Building
Inlet Filter/Separators
Inlet and Outlet Gas Heaters
Pig Launchers and Receivers
Electrical Power Distribution Centers
Fuel Gas Conditioning Equipment
Four Flare Stacks (Two high pressure (HP) and two low pressure (LP))
Two Water Wells
Sanitary Waste Leach Field
Utility Drain Water Evaporation Pond
Surface Runoff Sedimentation Pond
Administration Building

To provide additional capacity, plot space has been allocated for two additional process trains, compression facilities, associated power distribution centers, and expansion of the utility building (Exhibit I.3).

Facility Layout - The dehydration unit would occupy an area of approximately 60 acres. A plot plan illustrating major components is included as Exhibit I.3. Process components (excluding towers) will be housed in a metal building. A separate, adjacent building will contain the administrative offices and control room.

PUMP HOUSE
TANK FARM
FUTURE UTILITY
PLANT #3 UTILITY
PDC
TRANS
SEE NOTE #1
EVAP. POND
HOLD
PARKING
ADMIN BLDG
FIN FLR EL 101'
PLANT #2
L.O.F. EL 100'
PLANT #4 FUTURE
L.P. FLARE (TYP.)
H.P FLARE (TYP.)
L.P. FLARE K.O. DRUMS
HEATERS
PUBL DISPENSER AREA
PLANT #1
PLANT #3 FUTURE
FIN FLR EL 1136' - EL 100' (TYP EXCEPT AT ADMIN BLDG)
SUBSTATION (BY OTHERS)
FUTURE COMPRESSOR AREA
FUTURE
FUEL GAS CONDITIONING
FUTURE SOUR WATER HANDLING
INLET SEP
WET GAS RECEIVER AREA (BY OTHERS)
SLUG CATCHER (BY OTHERS)
INJ. PUMP BLDG (BY OTHERS)
TRUNK LINE (SEE NOTE #2)
SEDIMENTATION POND
N15·00
N10·00
N5·00
N0·00
E5·00
E10·00
E15·00
E20·00
E25·00

NOTES:
1. PLANT ROADS ARE NOT DEDICATED ROADS. SHOWN FOR TRAFFIC PATTERN AND ACCESS ONLY
2. TRUNK LINE INLET AND OUTLET BY OTHERS

# LABARGE DEHYDRATION SITE
## PLOT PLAN

**EXHIBIT 1.3**

Section 35, T. 28 N., R. 114 W.

Construction Techniques and Equipment - Construction activities for the dehydration site include construction staking, clearing and grubbing, topsoil stripping, grading, surfacing, foundation preparation, building construction, equipment placement and tie-in (piping and electrical), testing, cleanup, and certification of construction. The entire facility would be fenced as shown on Exhibit I.3.

Construction Staking - Initial staking would include slope staking to define cut/fill values around the perimeter of the site. Additional reference stakes would be set outside of the construction area to control earthwork operations.

Following site grading, stakes will be set to identify foundation areas and other site facilities.

Topsoil Stripping - Topsoil would be removed from the construction limits as available or to a minimum depth specified on the plans as approved by the Authorized Officer. Salvaged topsoil would be stockpiled in designated sites adjacent to the construction area.

Site Grading - The entire site would be graded to achieve the designated plan elevation. Earthwork would be balanced whenever practical. Material unsuitable for use as fill would be excavated and disposed of in a spoil pile or other designated area. Embankments would be layered in maximum lifts of 12 inches, with each lift smoothed and compacted to a minimum of 90 percent maximum dry density as determined by AASHTO T-99.

Surfacing - The dehydration site would be surfaced with a minimum of 6 inches compacted crushed aggregate. Surfacing would meet applicable specifications for gradation and hardness.

Process Description - The dehydration process would be as described in the Riley Ridge EIS.

Ancillary Systems - Two indirect-fired, glycol-bath gas heaters are provided to maintain gas temperatures during winter low-flow operations and at startup. These units would also be utilized to mitigate potential formation of solid $CO_2$ and ice in the flare stack.

The utility building would contain several systems. Instrument and breathing air compressors and conditioning equipment, gas turbine-driven electrical generators, potable and utility water treatment systems, and triethylene glycol (TEG) storage would be located inside the building. Heated ethylene glycol storage would be located outside the building.

Several "pig" (cleaning or inspection devices) launchers and receivers would be located at the manifold and dehydration sites. These would be utilized periodically to remove accumulated liquids from the gathering system piping, fuel gas distribution piping, and the feed gas trunkline. They would also provide the capability to evacuate the line during system shutdown. A fuel gas conditioning system is planned to be located north of the slug catcher area. The conditioning system would be designed to insure the availability of dry, lean fuel gas for distribution to the dehydration plant and field fuel system. This system would include an emergency backup system in the event of a power outage.

A water gathering pipeline system would be constructed to transport produced water separated at the manifold sites to the dehydration plant. At the dehydration plant, the water would be combined with the process water and pumped to subsurface injection wells. Fiberglass lines, two to six inches in outside diameter, would be utilized in the system. This piping would be installed in the same trench as the wet gas gathering trunklines (upstream of the dehydration plant).

The flare system includes two high-pressure flares (HP flares) which would be utilized for process gas venting and two low-pressure flares (LP flares) which would handle process upsets from the various process vessels and flash gas compressors.

The system has been designed so that venting would be infrequent. The large high-pressure flares, designed for 150 MSCFD capacity per flare, are intended for startup and pipeline depressuring for maintenance or shutdown. The flares would utilize fuel gas to assist in the flaring of sour gas and state-of-the-art flare tip design to insure total combustion of the low Btu gas.

Compression facilities would be required in the future to maintain system pressures and production rates over the life of the project. Compression would be required when well production rates begin to significantly decrease (as early as 1990).

Operations and Maintenance

The administration building would be a multi-purpose building housing office space, technician shops, garage, warehouse, change rooms, sanitary facilities, control room, and communication equipment. Maximum occupancy is estimated to be 30 to 35 people. The control room would be designed and fabricated for blast resistance and high volume air circulation (HVAC) would be supplied from an independent system. The control room facility would be manned by shifts of a minimum of two operators on a 24-hour basis.

Daytime personnel would include a field superintendent, field foremen, operators, mechanics, electricians, instrument technicians, gas tester/corrosion technician, maintenance crews, and a clerk/stenographer.

Fresh Water Requirements - Water makeup to the dehydration process would not be required. Water at the field dehydration facility would be needed only to provide potable water for personnel, washdown water, and dilution water for the gas gathering pipeline corrosion inhibitor system. Water requirements would be approximately 15 gallons per minute (gpm) (14 gpm utility and 1 gpm potable) and would be supplied by two water wells located at the site.

Waste Disposal - Stripped water recovered during dehydration operations would be disposed of by subsurface injection. The initial injection fluid is estimated to have good (near potable) water quality. All injection wells would be designed in accordance with applicable Wyoming Department of Environmental Quality and Wyoming Oil and Gas Commission and BLM requirements. Monitoring of injection fluid, injection wells, designated water wells, and spring sites will be in accordance with the Riley Ridge EIS and ROD.

Approximately 70 barrels (Bbl) of water per day would be recovered from each 240 MSCF of processed gas at the dehydration facility. This water would be combined with the 1,130 Bbl/240 MSCF of water separated at the manifolds and pumped to subsurface injection wells. Three wells would be drilled in 1985 to provide disposal capability for the planned 39 well production capacity (960 MSCFD). Water injection would total 4,800 barrels per day. At full capacity (1.32 BSCFD), 6,600 barrels per day would be injected.

The disposal wells would be completed to the Nugget Sandstone formation at a depth of 10,800 feet to 11,500 feet. Separate application would be made to the appropriate regulatory authorities to permit drilling, completion, and operation of the water disposal facilities.

Human wastes at the dehydration plant would be disposed of in a leach field to be constructed north of the administration building. Application for construction of the leach field has been made to the Wyoming Department of Environmental Quality.

Changed lube oil and other hydrocarbons would be stored in suitable containers and delivered to secondary refineries.

Wash water and water treatment system backflush would be disposed of in an evaporation pond to be located north of the flare stacks. A sedimentation pond is located in the southeast corner of the plot area for accumulation and clarification of surface runoff, prior to discharge to the adjacent creek.

Solid wastes would be stored in containers at all times and disposed of periodically in authorized county-approved sanitary sites or landfills. Exxon would collect and remove all litter, including broken equipment, work trash, and other man-produced material from the work site and dispose of it in an approved landfill.

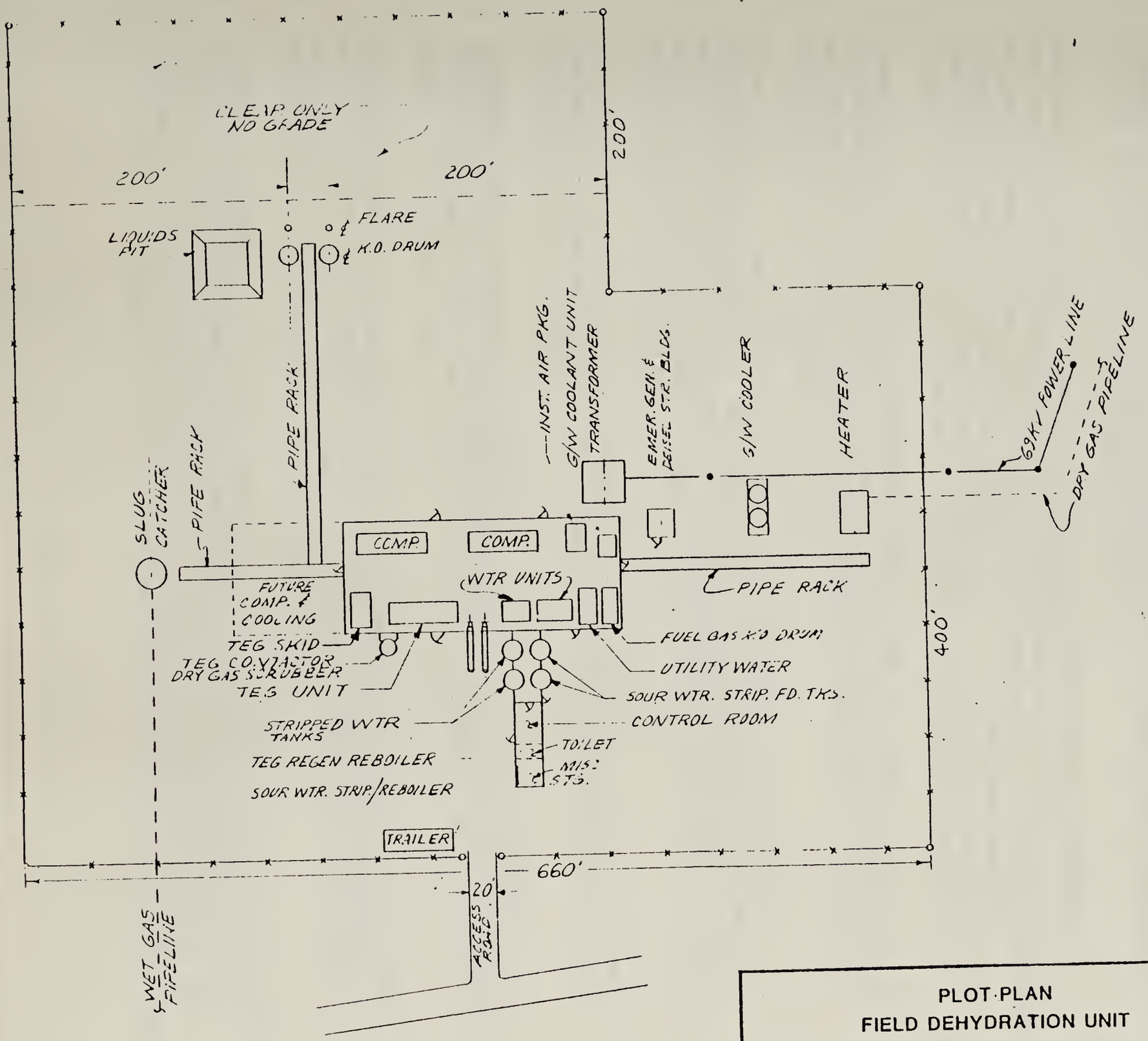
## NO ACTION ALTERNATIVE

The No Action Alternative would mean implementing the dehydration process presented in the Riley Ridge EIS. This would consist of the following.

### Dehydration Facilities

To provide a total dehydration capacity of 1.32 BSCFD within the well field, six dehydration facilities would be used. Each facility would have a dehydration capacity of 220 MSCFD.

Facility Layout - Each dehydration unit would occupy an area approximately 400 feet x 660 feet (6 acres) plus a flare stack area of 200 feet x 400 feet (2 acres) for a total of 8 acres. A plot plan illustrating major components is included as Exhibit I.4. Process components (excluding towers) would be housed in a metal building. A separate, adjacent building would contain the control room. Emergency living quarters would also be provided at the site.




EXXON COMPANY, U.S.A.

DATE:

| PLOT PLAN<br>FIELD DEHYDRATION UNIT | | EXXON COMPANY, U.S.A. (a division of Exxon Corporation)<br>PRODUCTION DEPARTMENT | | |
|---|---|---|---|---|
| DRAWN H. RISER<br>CHECKED W.F.D | ENGR. SECTION PROJECT REVISED 5-10-84 ODR<br>APPROVED W. F. DENNISON | DATE 5-2-84<br>SCALE 1"=80' | JOB NO. | FILE NO. |

EXHIBIT 1.4

The dehydration facilities would be located within the drilling units as follows: the Lake Ridge Unit facilities would be located in section 28, T. 29 N., R. 115 W. and two units adjacent to each other in Section 9, T. 28 N., R. 115 W.; a Graphite Unit facility would be constructed in Section 5, T. 27 N., R. 114 W.; Fogarty Creek Unit would include two facilities, one located in Section 15, T. 28 N., R. 114 W and the other in Section 3, T. 28 N., R. 114 W. The planned location of each dehydration site is illustrated on Exhibit I.5.

Construction Techniques and Equipment - Construction activities for each dehydration site would include construction staking, pre-construction conference, clearing and grubbing, topsoil stripping, grading, surfacing, foundation preparation, building construction, equipment placement and tie-in (piping and electrical), testing, cleanup, and certification of construction. Each of these activities is addressed below.

Clearing and Grubbing - Timber clearing limits would generally extend a minimum of 3 feet beyond the top of the cut slope and to the toe of the fill. An area adjacent to the flare stack with a minimum radius of 200 feet would be cleared of timber to reduce the danger of fire. A fire-break would be constructed around the perimeter of this area. All clearing operations in timbered areas will be conducted according to the approved clearing plan.

Topsoil Stripping - Topsoil would be removed from the construction limits as specified in a site-specific reclamation plan (Erosion Control Revegetation and Restoration Plan). Salvaged topsoil would be stockpiled in designated sites adjacent to the construction area.

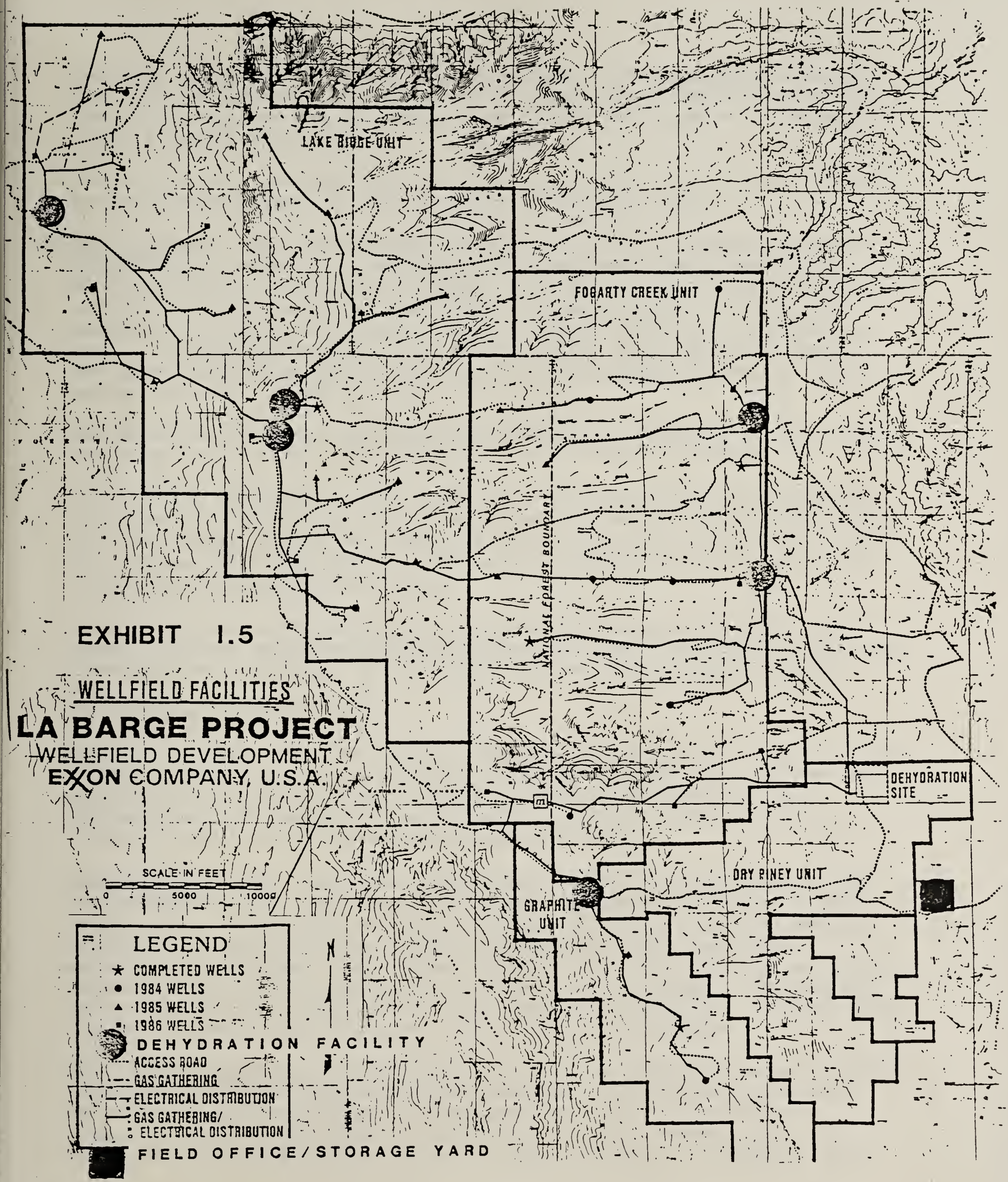
Site Grading - The entire 8 acre site would be graded to achieve the designated plan elevation. Earthwork would be balanced whenever practical. Material unsuitable for use as fill would be excavated and disposed of in a spoil pile or other designated area. Blasting would occasionally be required during excavation operations.

Surfacing - The dehydration site will be surfaced with a minimum of 6 inch compacted crushed aggregate. Surfacing will meet applicable specifications for gradation and hardness.

Operations and Maintenance - Operations of each site will be remotely monitored at the field office site in Section 1, T. 27 N., R. 114 W. (Exhibit I.5). The field office and control room would be manned in shifts of two people on a 24-hour basis.

Minimal operating requirements would be 2 operations personnel at each remote unit throughout the daylight hours on a daily basis for routing equipment maintenance/monitoring, plus 24-hour manning for at least one of the units. This equates to as many as 16 round trips per day.

Process Description - The field complex would be designed so that produced gas from each well is collected and transported to one of the dehydration units. Liquid water would first be removed from the gas in a separator, and the gas flow measured prior to any processing. The high pressure gas would then be contacted with triethylene glycol to remove sufficient water vapor to meet the


LAKE RIDGE UNIT
FOGARTY CREEK UNIT
NATIONAL FOREST BOUNDARY
DEHYDRATION SITE
DRY PINEY UNIT
GRAPHITE UNIT
EXHIBIT 1.5
WELLFIELD FACILITIES
LA BARGE PROJECT
WELLFIELD DEVELOPMENT
EXXON COMPANY, U.S.A.
SCALE IN FEET
0
5000
10000
N
LEGEND
COMPLETED WELLS
1984 WELLS
1985 WELLS
1986 WELLS
DEHYDRATION FACILITY
ACCESS ROAD
GAS GATHERING
ELECTRICAL DISTRIBUTION
GAS GATHERING/
ELECTRICAL DISTRIBUTION
FIELD OFFICE/STORAGE YARD

dew point specification of less than 15 lb./MSCF. The dehydrated gas would then pass through a scrubber to remove entrained glycol, the flow rate would then be metered, and the gas delivered to the dry gas trunkline for transport to the gas processing plant.

The produced and condensed water would be injected into one or more subsurface injection wells located at each of the six dehydration units.

Waste Disposal - Approximately 450 Bbl of water would be recovered for each 100 MSCF of processed gas. Produced water recovered at the dehydration facilities would be stripped of hydrogen sulfide and carbon dioxide to levels suitable for subsurface injection. Each unit would require drilling and completion of one or more disposal wells to handle injection of the produced water. An emergency pit would also be constructed at the disposal site to provide sufficient storage to allow continuous dehydration operations during maintenance of the injection wells.

Wash water, both sanitary and industrial, would be collected in an open drain system and treated to a quality suitable for subsurface injection.

At the remote dehydration sites, human waste would be handled by electrical incineration toilets which produce an innocuous ash which would be disposed of with other solid, dry wastes. No leach field system would be required. Used lube oil and other hydrocarbon wastes would be collected in barrels and sold to qualified reclamation facilities.

Exxon would collect and remove all litter including broken equipment, work trash, and other man-produced material from well field units, plant sites, and other areas of operation. Litter would be disposed of at approved sites.

Field Office And Storage Yard

General - The well field and feed gas trunkline would be operated from a field office located in Section 1, T. 27 N., R. 114 W. (Exhibit I.5). An area of approximately 40 acres used for storage of construction materials and equipment would be fenced. A mobile home(s) or travel trailer(s) would be placed on-site to house inventory and guard personnel.

Design - Engineering - The field office would consist of shops, control and communications rooms, administrative offices, meeting room, and shower and change rooms. Parking for employees, visitors and company vehicles would be provided. An outside storage area would be used to store replacement materials and equipment. The perimeter of the field office/storage yard would be fenced with a 6-foot high chain link fence. Approximately 1,000 feet of access road would be constructed to access the office facility. A double-lane (25-foot subgrade) road with gravel surfacing would be provided.

Construction Techniques and Equipment - Construction activities would include construction staking, pre-construction conference, clearing and grubbing, topsoil stripping, excavation and embankment construction, surfacing, foundation preparation, building construction, fencing, cleanup, and certification of construction. Each of these activities is addressed below.

Clearing and Grubbing - The site would be cleared of brush and vegetation. Initially, a 20-acre area would be cleared for storage of construction equipment. An additional 20 acres would be cleared as required for temporary storage. Clearing of temporary storage areas would be only as necessary for access and handling of materials.

Topsoil Stripping - All areas to receive surfacing and areas under structures would have approximately 6 inches of topsoil removed and stockpiled. All areas requiring significant grading (in excess of 6 inches) would have topsoil removed and stockpiled. The construction storage yard would not have topsoil removed except as noted above.

Surfacing - The field office parking area would receive gravel surfacing. Surfacing would also be applied to a road network within the yard to provide access to the storage areas.

Fencing - The remote dehydration units and field office perimeters would be fenced as shown on the drawings. The fence would be a 6-foot high chain link fence. The materials would be galvanized.

# CHAPTER II

## CHAPTER II

## AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES

For an overall description of the environment potentially affected by Exxon's LaBarge Project, refer to the Riley Ridge Natural Gas Project Draft Environmental Impact Statement (DEIS), and associated Technical Reports for Wildlife, Soil/Vegetation/Reclamation, Cultural Resources, Air Resources, and Sensitivity Analysis.

The proposed well field changes would not affect the following resources: endangered species; flood plains; wetlands; prime or unique farmland; Wilderness Study Areas (WSAs); Areas of Critical Environmental Concern (ACECs); cultural and historic resources or values; and wild or scenic rivers.

Specific impacts to the environment affected by the Proposed Action or the No Action alternative are discussed below. If a project component would not affect a portion of the environment, it is not listed.

### AIR QUALITY

PROPOSED ACTION

Manifolds

The five manifold sites would include 80-foot flare stacks to be used only as necessary to permit safe flaring of process fluids during start up and shutdown, and in the event of process upsets.

The maximum volume of gas flared at any time would be 70 MSCFD. The manifold system would be designed to provide the opportunity for shutting down individual lines without halting the entire gas flow. As discussed in the Riley Ridge EIS Air Resources Technical Report, wind patterns would generally allow rapid dispersion of flaring emissions ($NO_x$ and $SO_2$). As stated in Appendix B.4, "Well Field Oil and Gas Operating Measures" (page B-13, Riley Ridge DEIS): "Venting or flaring of hydrocarbons will be in accordance with Notice to Lessee-Venting or Flaring of Gas or Oil (NTL - 4A) and must receive prior approval of the Authorized Officer."

Incidental flaring of these 5 stacks is not expected to significantly affect air quality. (See Dehydration Facility discussion.)

Dehydration Facility

Exxon proposes to relocate their initially proposed dehydration units at one central location - NE/4 Section 35, T. 28 N., R. 114 W., as opposed to six units scattered throughout the well field. The wellhead heaters (total of 39 units) would remain at each well and would be distributed, as indicated in the EIS, over the 40,000 acres of the well field.

The central dehydration unit would be constructed as six 220 MSCFD processing capacity facilities with common utilities and support systems. The only process air emission would occur as a result of burning pipeline-quality natural gas (sweet gas) in reboilers and heaters. The estimated oxides of nitrogen ($NO_x$) and sulfur dioxide ($SO_2$) emission rate calculations for a 220 MSCFD and 1.32 BSCFD dehydration facility would be as indicted below. The estimated fuel gas rate per 220 MSCFD facility would be 88.88 thousand standard cubic feet per day (KSCFD) or 533.28 KSCFD for a 1.32 BSCFD design capacity. The fuel rate calculation will be the same as indicated for the No Action Alternative with the exception that 3.3 KSCFD of fuel gas per 100 MSCFD facility will no longer be required since the sour water stripper has been deleted (See No Action Alternative for fuel rate calculation). Using the AP-42 emission factors (Supplement 14) for industrial boilers rated at less than 10 million Btu/hr (100 lb $NO_x$ MSCFD fuel and 0.6 lb $SO_2$/MSCFD fuel), the following total emissions would result:

Oxides of Nitrogen

$$88.88 \text{ KSCFD} \times \frac{\text{MSCF}}{1000 \text{ KSCF}} \times \frac{100 \text{ lb } NO_x}{\text{MSCF}} \times \frac{365 \text{ day}}{\text{Yr}} \times \frac{\text{Ton}}{2000 \text{ lb}}$$

=1.622 ton/year $NO_x$ emissions at 220 MSCFD processing rate;
or 9.68 tons/year at 1.32 BSCFD.

Sulfur Dioxide

$$88.88 \text{ KSCFD} \times \frac{\text{MSCF}}{1000 \text{ KSCF}} \times \frac{0.6 \text{ lb } SO_2}{\text{MSCF}} \times \frac{365 \text{ day}}{\text{Yr}} \times \frac{\text{Ton}}{2000 \text{ lb}}$$

= 0.0097 ton/year $SO_2$ emissions at 220 MSCFD processing rate;
or .0582 tons/year at 1.32 BSCFD.

Therefore, the total estimated emissions from the well field facilities will be as follows:

| | $NO_x$ Tons/year | $SO_2$ Tons/year |
|---|---|---|
| Dehydration Units (1.32 BSCFD) | 9.68 | 0.058 |
| Wellhead Heaters (39 wells)[1/] | 11.70 | 0.078 |
| Total | 21.38 | 0.136 |

Based on the above analysis these emissions would not be significant, neither in emission rate nor in ambient air quality impact, and thus permitting requirements would be waived under authority of Section 21 K. (8) of the Wyoming Air Quality Standards (WAAQS) and Regulations (see Appendix B letters of correspondence between Wyoming Department of Environmental Quality - Air Quality Division and Exxon Company, U.S.A. for basis of emissions calculation).

1/ See Riley Ridge Natural Gas Project Air Resources Technical Report for well head heater emissions calculation.

The continuous operating dehydration facilities emissions are not anticipated to vary significantly from the above. Emissions during flaring (upset) could increase above those included in the Riley Ridge EIS Air Resources Technical Report (118 tons/year; see last paragraph discussion under the following No Action Alternative). However, it is believed that because of centralization of dehydration facilities and continuous manning of those facilities, the frequency of upsets would be reduced from that identified in the Riley Ridge EIS.

The wellhead heater emissions described in the above are the worst case situation; i.e., heaters required to operate full-time. Heaters would be required only during well commissioning or recommissioning and then only for a day or two. Average annual wellhead heater $NO_x$ emissions are actually at least an order of magnitude lower than those included in the above; i.e., about 1.2 tons/year $NO_x$ and 0.008 tons/year $SO_2$ for all 39 heaters.

NO ACTION

The method of dehydration proposed in the Riley Ridge EIS for the LaBarge Project would have up to six field dehydration units, each capable of dehydrating 220 MSCFD of well field gas at full capacity (1.32 BSCFD). Two of these units would be located adjacent to each other (Sec. 9, R. 115 W., T. 28 N.) with the remaining four distributed several miles apart in the well field. The exact locations of these units approximate the five manifold locations (see Exhibit I.5). These dehydration units would burn pipeline quality natural gas. The following are the fuel rate calculations for a 100 MSCFD facility and the $NO_x$ and $SO_2$ emission rate calculations for a 220 MSCFD and 1.32 BSCFD dehydration facility using the AP-42 emission factors (Supplement 14) for industrial boilers rated at less than 10 million Btu/hr. (100 lb $NO_x$/MSCF fuel and 0.6 lb $SO_2$/MSCF fuel).

| Emission Source | Average Heat Duty Btu/Hr | Fuel Gas Rate 2/ KSDFS |
|---|---|---|
| Building heat | 600,000 | 16.3 |
| Trithylene Glycol Reboiler | 889,300 | 24.1 |
| Sour Water Stripper Reboiler | 120,000 | 3.3 |
| Slug Vaporizer (Intermittent) | 0 | 0 |
| | TOTAL | 43.7 |

Based on the fuel gas rate required for 100 MSCFD, the fuel rate required for 220 MSCFD and 1.32 BSCFD would be 96.14 KSCFD and 576.84 KSCFD for 220 MSCFD and 1.32 BSCFD, respectively.

2/ Assuming fuel gas heating value (HHV) = 1,040 Btu/scf and overall thermal efficiency of 85 percent.

Oxides of Nitrogen

$$96.14 \text{ KSCFD} \times \frac{\text{MSCF}}{1000 \text{ KSCF}} \times \frac{100 \text{ lb } NO_x}{\text{MSCF}} \times \frac{365 \text{ day}}{\text{Yr}} \times \frac{\text{Ton}}{2000 \text{ lb}}$$

= 1.75 ton/year $NO_x$ emissions at 220 MSCFD dehydration unit; or 10.50 tons/year at 1.32 BSCFD capacity.

Sulfur Dioxide

$$96.14 \text{ KSCFD} \times \frac{\text{MSCF}}{1000 \text{ KSCF}} \times \frac{0.6 \text{ lb } SO_2}{\text{MSCF}} \times \frac{365 \text{ day}}{\text{Yr}} \times \frac{\text{Ton}}{2000 \text{ lb}}$$

= 0.011 ton/year $SO_2$ emissions at 220 MSCFD dehydration unit; or .063 tons/year at 1.32 BSCFD capacity.

In addition to the dehydration unit heaters, there would be wellhead heaters at each of the 39 wells. These wells would be distributed over the 40,000 acres of the well field. Wellhead heater fuel (sweet gas) consumption is estimated to be less than 15 KSCFD for a 30 MSCFD production well. $NO_x$ and $SO_2$ emissions from each well are calculated to be 0.3 ton/year $NO_x$ and 0.002 ton/year $SO_2$ using the previous AP-42 emission factors. Therefore, the total estimated emissions from the well field facilities will be:

| | $NO_x$ Tons/year | $SO_2$ Tons/year |
|---|---|---|
| Dehydration Units (1.32 BSCFD) | 10.50 | 0.063 |
| Wellhead Heaters (39 wells) | 11.70 | 0.078 |
| Total | 22.20 | 0.141 |

Since the $NO_x$ and $SO_2$ emission rates from these sources are less than the 40 tons/year significant emission rate, these sources would be exempt from the Wyoming Department of Environmental Quality - Air Quality Division permitting requirements (see Appendix B letters of correspondence between Wyoming Department of Environmental Quality - Air Quality Division and Exxon Company, U.S.A. for basis of emissions calculation).

The flaring of Exxon's dehydration units during very infrequent upset conditions (about 1/2-hour/year/unit) would probably result in $SO_2$ emissions of 118 tons/year, which is above EPA's de minimis levels of 40 tons/year. Upset conditions result from the malfunction of the dehydration units, thus requiring flaring of the well field gas. Since emissions from upsets are exempt from complying with PSD increments and ambient standards, these impacts are not significant in that regulatory framework. In the immediate vicinity of the dehydration units, relatively high short-term $SO_2$ concentrations could occur. These may be high enough to exceed the 3-hour NAAQS/WAAQS of 1,300 micrograms/cubic meter. However, during typical meteorological dispersion conditions (moderate to strong wind speeds), these concentrations would decrease very rapidly with distance downwind. At Big Piney, Marbleton, or LaBarge, $SO_2$ concentrations under such wind speeds would likely be

negligible. During calm conditions, atmospheric dilution of $SO_2$ would be much less. Effects on field workers could be significant if dehydration unit flaring occurs during such conditions. However, flaring would only occur about one-half hour per year per unit, and based on the frequency of calm or near calm winds observed at the Kemmerer Coal site, the probability of flaring occurring during calm winds is less than 1:100,000 for Exxon. Therefore, no significant impact is expected.

## WATER RESOURCES

### PROPOSED ACTION

#### Manifolds

In use, manifolds would separate free water from the gas stream. This waste water would be collected into the waste water gathering system for transport to the dehydration facility and eventual injection well disposal. Besides providing one source of waste water, manifolds would not in themselves create any direct impact to water quality.

Construction of manifolds would produce sediment as soil and vegetative cover would be disturbed. Proximity to streams for each location is listed below:

LR-28: 1/10 mile from 2 intermittent streams; both feed McKay Creek 1/2 mile downstream.

LR-9: 1/8 mile from 1 intermittent stream that feeds Black Canyon Creek 1 mile downstream.

FC-36: 1/4 mile from 1 intermittent stream that feeds Black Canyon Creek 1 mile downstream.

FC-3: 1/8 mile from Pine Grove Creek.

FC-15: 1/10 mile from Fogarty Creek.

Sound construction techniques and erosion control methods would be required as mitigation for these sites (see Chapter 3).

Cumulative sediment production for all activities in the well field is not likely to differ substantially from that analyzed in the Riley Ridge EIS.

#### Dehydration Facility

Surface Water - The dehydration facility would be located on a gentle ridge between two drainages, both of which drain into Black Canyon Creek. The north drainage is intermittent while the southern drainage is fed by a spring thus maintaining a perennial flow. The sedimentation pond that would be constructed and located in the southeast corner of the site would be designed to catch all surface runoff and sediment. Controlled discharge would then occur into the southern drainage. Increased sediment and/or contamination of the stream could occur if runoff exceeds sediment pond capacity.

Subsurface - Three wells would be drilled in 1985 to provide disposal capability for the planned 39 well production capacity (960 MSCFD). Water injection for 39 wells or 960 MSCFD would total 4,800 barrels per day. At full production (1.32 BSCFD) 6,600 barrels per day would be injected.

A separate application would be made to the appropriate regulatory agencies, including the Wyoming Oil and Gas Commission, Wyoming Department of Environmental Quality, and BLM. The agencies would determine the geologic formation into which injection would occur and permit the drilling, completion, operation, and monitoring of the water disposal program.

An analysis of the impacts of deep well injection of stripped water from well field dehydration is not provided in this document. A separate impact analysis will be conducted when information is obtained on the applicants engineering/drilling program, surface use program (43 CFR 3160 III.G.4), and structural geology of the formation pertinent to deep well injection.

NO ACTION

The six well field dehydration units would be located at or near the proposed manifold locations (Exhibit I.5). The same nearby streams could be affected as described for the manifolds under the Proposed Action (see Riley Ridge draft EIS). Construction of well field dehydration facilities would cause sedimentation to enter affected streams. Careful construction practices and erosion control mitigation measures would be required to reduce the sediment produced (see Chapter 3).

Well field dehydration sites would include one or more subsurface injection wells at each site for disposal of produced waste water. These injection wells would be drilled and cased in accordance with State of Wyoming requirements. This would reduce the potential for waste water (high in $H_2S$ and total dissolved solids) to enter subsurface aquifers. However, contamination of fresh water aquifers would occur if the well casing leaked. Each in-field dehydration facility would also include a waste water pit. If failure or leakage of these pits occurred, contamination of surface or subsurface waters would occur.

## SOIL/VEGETATION

PROPOSED ACTION

Manifolds

Each manifold site would disturb and occupy from 4 to 6 acres. This area would be cleared of vegetation and sustain soil disturbance. At the proposed locations identified on Exhibit I.1, manifold sites would occur on:

LR-28: Soil Mapping Unit (M.U.) 55/98 - Pishkun - Stanley - Rock Outcrop Complex, 10-40% slope; and/or Hub Variant - Irigul - Rock Outcrop Complex, 15-30% slope. Vegetation type is Mixed Pine. Rehabilitation unit (R.U.) - Not Sensitive.

LR-9: M.U. 97 - Farley - Stanley - Rock Outcrop Complex, 10-25% slope. Vegetation type is Bunchgrass. R.U. - D5 - Poor rating, consideration for slope, stoniness and depth to bedrock. SENSITIVE REHABILITATION UNIT.

FC-3: M.U. Unnamed Unit 1 - Vegetative type is Sagebrush Complex. R.U. - Not Sensitive.

FC-15: M.U. - Unnamed Unit 17. Vegetative type is Sagebrush Complex. R.U. - Not Sensitive.

FC-36: M.U. - Unnamed Unit 220, 0-35% slope. Vegetative type is Mixed Pine. R.U. - Not Sensitive.

Construction of each manifold site would include clearing and grubbing of vegetation, topsoil stripping, grading, and surfacing of the site with 6 inches of aggregate.

Cumulatively, 5 manifold sites would disturb 20 to 30 acres of soil and vegetation (depending on the final size of each site). The disturbed surface would be graded and surfaced to reduce erosion of subsoil. Topsoil would be spread around the perimeter of the site and seeded to prevent its loss. Additional impact to vegetation would occur from clearing of adjacent timber within 10 feet of the facility's perimeter fence - two sites occur in timbered areas.

Site reclamation would occur after an estimated project life of 50 years. On one site (LR-9) rehabilitation may not be totally successful, some permanent loss of topsoil and soil fertility would occur (4-6 acres).

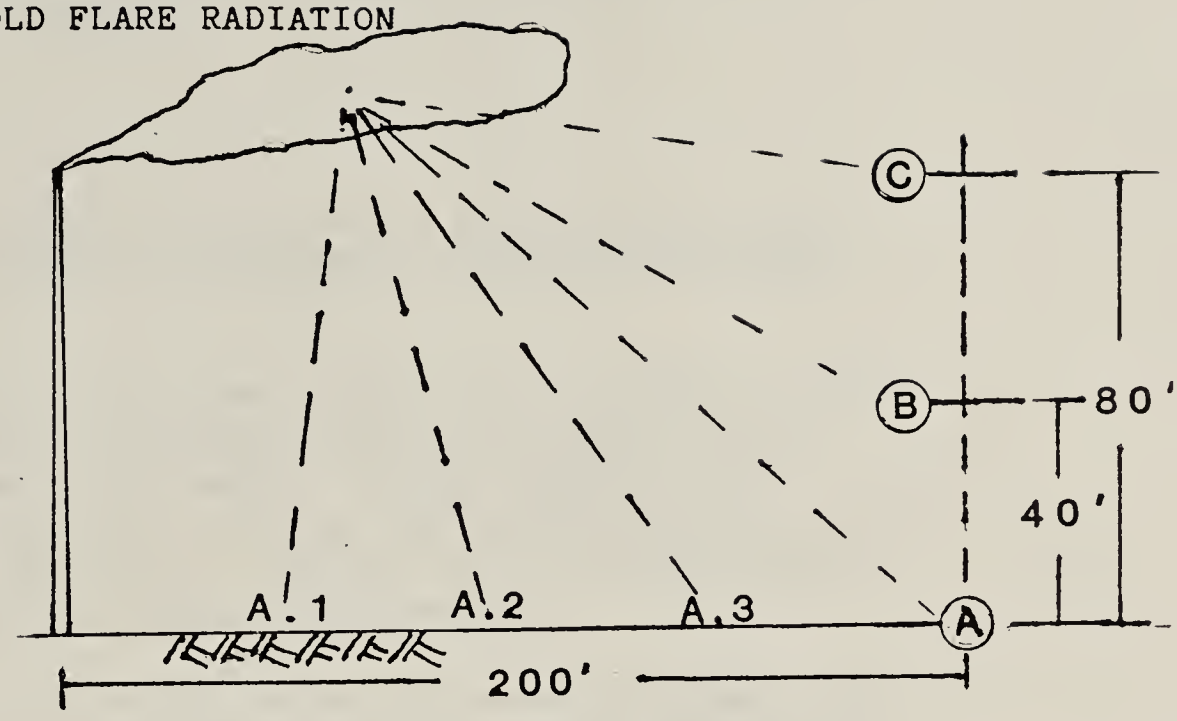
Heat from the flare stack under operation could reach 470 Btu/hr/ft$^2$ (see Figure II.1). Additional clearing of timber could be required to avoid spontaneous combustion of timber and other vegetation within ignition distance of the flare stack. If clearing were not undertaken, the risk of wildfire resulting from the ignition of vegetation by heat of the flare stack would be greater. The site-specific required clearing of vegetation would be determined for each site and documented in a Sundry Notice Referencing Exclusion EA as described in Attachment D of the Riley Ridge Project Record of Decision.

Dehydration Facility

The dehydration facility is located on deep, gravelly soils on a rolling ridge slope and fan. The effective rooting depth is 60 inches. The texture is loamy to clayey, with high rock content. Slopes are 5-15 percent with an erosion hazard of slight to moderate. The vegetation is that of the sagebrush complex. It is characterized by the dominance of the "low" sagebrush species, black sagebrush (Artimesia nova) and alkali sagebrush (Artimesia longitoba). Bluebunch Wheatgrass (Agropyron spectrum) is most commonly associated with this complex. The production estimate for this site can be found in the Soil/Vegetation/Reclamation Technical Report. Construction of the facility would permanently disturb approximately 60 acres with about two-thirds of the area (40 acres) permanently occupied by unit facilities, parking lot, access

Figure II.1

LABARGE PROJECT
MANIFOLD FLARE RADIATION




Radiation Levels (per API RP521)[1/]

| | | |
|---|---|---|
| A. | Ground level, 200' from stack base | 236 Btu/hr/ft$^2$ |
| A.1 | Ground level, 50' from stack base | 360 Btu/hr/ft$^2$ |
| A.2 | Ground level, 100' from stack base | 450 Btu/hr/ft$^2$ |
| A.3 | Ground level, 150' from stack base | 370 Btu/hr/ft$^2$ |
| B. | At 40' elev., 200' from stack base | 350 Btu/hr/ft$^2$ |
| C. | At 80' elev., 200' from stack base | 470 Btu/hr/ft$^2$ |

Notes

1. Exxon guidelines specify that 500 Btu/hr/ft$^2$ is maximum value for continuous personnel exposure.

2. Assumes 20 MPH wind

3. Flare height is 80'

4. Based on relief of 70 MSCFD (design FC 36, LR28, and FC3 manifolds)

5. For reference, solar radiation in hot climate may be as high as 300 Btu/hr/ft$^2$

6. 3,000 Btu/hr/ft$^2$ considered highest permissible where personnel have access

7. Calculations based on API RP 521

Source: Exxon Company, U.S.A.

1/ API - RP 521
API - American Petroleum Institute
RP - Recommended Practice
521 - Pressure Release (method for calculating heat transfer)

roads, and the entire area would be fenced with a chain link fence. This facility, therefore, would effectively remove 60 acres of forage or 6 AUMs (10 ac/AUM) from available use. All areas within the facility complex, not occupied by a structure, would be reclaimed.

NO ACTION

Each of six infield dehydration facilities would occupy eight fenced acres. These areas would be graded and surfaced, disturbing 48 acres by removing vegetation and topsoil.

Dehydration facility locations would be the same, or nearly the same, as the five proposed manifold locations (see Soil/Vegetation description for the manifold sites). Construction of each unit would include clearing and grubbing of vegetation, topsoil, stripping, grading, and surfacing of the site with 6 inches of compacted crushed aggregate. Topsoil would be spread and reseeded on the soil surface outside the area of disturbance.

Reclamation would occur after the project life of an estimated 50 years. At the LR-9 site, where two dehydration facilities would be located adjacent to each other, 16 acres would be disturbed. Rehabilitation may not be totally successful, since some permanent loss of topsoil and soil fertility would occur.

## WILDLIFE AND FISHERIES

PROPOSED ACTION

### Manifolds

Operation of manifolds during the production phase would entail a minimum of 2operations personnel in separate vehicles visiting each unit on a daily basis for routine equipment maintenance/monitoring. This would mean the equivalent of two round trips per day into the well field.

Wildlife habitat and fisheries areas that would be affected are: 3/

LR-28: Mule deer summer range; on the edge but within perimeter of elk calving ground.

LR-9: Mule deer summer range; on the edge but outside elk calving area; inside elk migration corridor.

FC-36: Mule deer summer range; 1/4 mile from edge but outside elk critical winter range; 1/2 mile from a stocked Colorado Cutthroat Trout stream.

3/ Manifold sites located on/near edges of habitat may be inside or outside. This is due to "approximate" boundary lines on sensitivity analysis overlays.

FC-3: Within a migration corridor for mule deer, mule deer summer range; moose critical winter range; on the perimeter, but within elk calving area and winter/year long range; 1/4 mile from undetermined strain purity Colorado Cutthroat Trout stream.

FC-15: Mule deer summer range; on the edge but outside elk calving area; within 1/8 mile of undetermined purity strain Colorado Cutthroat Trout.

Daily disturbance of these locations would have greater adverse impact between May 15 and June 30 in elk calving areas; and between November 15 and April 1 in moose critical winter range. Use of access roads to enter and leave manifold sites would be the disturbance factor. Location of these access roads has been addressed in the Riley Ridge EIS.

Operation of manifolds would not add significantly to cumulative impacts to wildlife or fisheries in the well field.

Dehydration Facility

The dehydration facility would not affect any critical wildlife habitat. Approximately 60 acres of pronghorn and mule deer summer habitat and moose winter and yearlong habitat would be, in the long term (50 years), taken out of production.

Construction activity would occur through 1986. Associated peak manpower requirements of 533 workers would cause displacement of terrestrial wildlife species. An unquantified increase in road kills and poaching would occur.

Operational activity would require approximately 35 personnel working at and out of the field office located at the dehydration facility. Only 4-6 of these workers would be associated with manifold maintenance and monitoring. Well field and dehydration facilities would be monitored and maintained daily.

NO ACTION

Approximately 40 field personnel would be required for normal operations. All field facilities would be monitored and maintained on a daily basis.

Operation of infield dehydration facilities would entail a minimum of 2 operations personnel in separate vehicles visiting each unit on a daily basis for routine maintenance and monitoring. Also, 24-hour manning of at least one unit would be required. The field office, located just outside of the well field, would be occupied and operated 24 hours a day.

Vehicle use and human presence would cause most of the disturbance to wildlife. Because dehydration facilities would occupy the same, or nearby locations as manifolds, the impacts would be similar to those addressed under the proposed action.

## HEALTH AND SAFETY

PROPOSED ACTION

### Manifolds

Manifold locations would be centralized to combine sour gas flowlines from 6 to 13 individual wells. Flare stacks would be located at these sites to ensure safe flaring of sour ($H_2S$) gas during startup, shutdown, or pressure relieving operations. No other potential release of sour gas is anticipated. However, an emergency shutdown system would be designed and implemented. Locations of Sensitive Receptors nearest to Manifold sites, as portrayed on Sensitivity Analysis overlay No. 14, are:

LR-28: 5/8 mile south of an important recreational access road.

LR-9: 1-1/4 miles north-northwest of an important recreational access road.

FC-36: 3/4 mile northeast of Lake Mountain WSA. Three (3) miles south of residential/recreational access road.

FC-3: 1/2 mile northeast and 1/2 mile northwest of residential or recreational access road; and 1-1/2 miles and 1-7/8 miles south of permanent residence/structure.

FC-15: 1 and 1-1/8 mile south-southwest of a seasonally occupied residence/structure.

None of the 5 manifold locations would pose a significant risk to sensitive receptors. Cumulative impacts to health and safety from the addition of Manifolds would not be substantially different than that addressed in the Riley Ridge EIS. The operational contingency plan for the well field would address the manifolds.

### Dehydration Facility

The likelihood of a rupture and exposure to toxic $H_2S$ at the dehydration facility is less than a rupture to a trunkline. Nevertheless, public access to hazardous areas within the facility would be restricted. The facility would have gas-assisted flares for the emergency combustion of the sour gas in the event of system upset. The closest sensitive receptor to the facility is Dry Piney Camp, 1-3/4 miles south. The risk to occupants at this camp to a lethal or significant dose of $H_2S$ would be negligible (well below the acceptable risk levels specified in the Riley Ridge ROD and Risk Assessment).

Exxon would perform operations and maintain equipment in a safe and conscientious manner. All precautions necessary to provide adequate protection for the health and safety of life and the protection of property would be taken. Health and safety requirements prescribed in the right-of-way

grant would be followed. Exxon would also comply with all other pertinent health and safety requirements prescribed under applicable laws and regulations.

Safe handling of hydrogen sulfide would be considered during facility operation. Safety provisions are necessary for emergency situations to protect employees and individuals in the immediate vicinity. It is standard Exxon practice to implement an employee safety program based upon training, detection, symptoms, characteristics, safety practices, first aid, and proper use of personal protection equipment. All personnel working at the field facilities would receive this training.

Exxon would develop a community contingency and evacuation plan for accidental release of hydrogen sulfide gas in accordance with appropriate Federal and State regulations. These plans would be coordinated with public safety organizations including community civil defense organizations, sheriff, highway patrol, fire departments, local residents, and livestock operators and other local inhabitants. Plans would include early warning and mass alert systems, and human evacuation procedures.

A system for detecting hazardous concentrations of hydrogen sulfide would be utilized. Sensors would be located at critical locations in the area to automatically detect hydrogen sulfide and warn the affected personnel. The sensor readings would be continuously monitored at the field office control building. Respiratory protection equipment would be strategically located to be readily accessible to work areas in case of an emergency.

In addition to the hydrogen sulfide safety measures, the Emergency Contingency Plan would provide preparedness for emergency situations such as electrical power failure, winter storms, accidents, and fires.

NO ACTION

As well field dehydration facilities would be at the same location, or near to, proposed manifold locations, there would be no substantial difference in proximity to sensitive receptors.

Most risk in the well field would occur from the miles of smaller-diameter feed gas pipelines. Several feed gas lines would meet at infield dehydration facilities. Each facility, however, would be equipped with emergency shut-in mechanisms and fuel-gas assisted flare stacks to reduce risks associated with the handling of sour gas. Well field dehydration facilities would be covered by the Operational Contingency Plan.

## VISUAL RESOURCES

PROPOSED ACTION

Manifolds

Manifold facilities would consist of a manifold equipment building; an electrical/instrumentation building; an 80-foot tall, free standing flare stack; and other cleared and surface area for future expansion and storage. The entire area would be surrounded by an 8-foot chain link fence.

Construction of manifold facilities would occur in the following visual management class and visual quality level designations:

LR-28,9: FC-36: These sites are located on National Forest and have a Visual Quality Level of Modification (FS): Under this objective, management activities may visually dominate the original characteristic landscape. However, activities of vegetative and landform alteration must borrow from naturally established form, line, color, or texture so completely and at such a scale that its visual characteristics are those of natural occurrences within the surrounding area or character type.

LR-28 has high ability to absorb change; Conifer/Aspen/Sage/ Meadow Mosaic; landform-moderate ability to absorb change.

LR-9 has high ability to absorb change; low vegetation; Landform - moderate ability to absorb change.

FC-36 has high ability to absorb change; Conifer; Landform - moderate ability to absorb change.

FC-3: This site is located on public land and has a visual Resource Management Level of Class II: This visual quality objective provides for management activities which are not visually evident. Contrasts may be seen but should not attract attention.

FC-3 has low visibility; steeply sloping sage/ridge complex.

FC-15: This site is located on public land and has a Visual Resource Management Level of Class III : Management activities remain visually subordinate to the characteristic landscape when managed according to this designation although they can be evident.

FC-15 has low visibility; Mosaic.

(See overlays Sensitivity Analysis 16, 17, and 18.)

Mitigation measures to reduce visual intrusion including painting "all permanent structure...a flat, non-contrasting color that is harmonious with the adjacent landscape..." will be used in accordance with the mitigation requirements of the Riley Ridge EIS/ROD.

Cumulative visual impacts to the area from the Riley Ridge Natural Gas Project would not be substantially different with the change to infield manifolds.

Dehydration Facility

The proposed facility would be located in a Class IV management area. It has a sagebrush grassland (disturbed) landscape condition. The management objective for a Class IV area is as follows:

Class IV (BLM), Modification (FS): Under this objective, management activities may visually dominate the original characteristic landscape. However, activities of vegetative and landform alteration must borrow from naturally established form, line, color, or texture so completely and at such a scale that its visual characteristics are those of natural occurrences within the surrounding area or character type.

Due to its character and visibility the dehydration facility would result in adverse visual impact. The impacts would be due primarily to the structures contrast. However, because of the enclosing landform (Cretacious Mountain and Hogsback Ridge) the visual impact would be confined to the upper Dry Piney Basin itself. The area could be viewed from a short stretch (1.5 miles) of county road 23-134 (Calpet Road) and from Beaver Creek and Black Canyon Creek access roads to the Wyoming Range.

NO ACTION

Well field dehydration facilities would consist of: a process component building, control room building, and emergency living quarters; 2 flare stacks with fuel oil drums; liquid pit; powerline; transformer; and other miscellaneous tanks and small buildings. The entire area would be surrounded by a 6-foot high, chain link fence. A fire-break would be constructed around the perimeter of the area.

The Visual Quality Levels (VQL) and Visual Resource Management (VRM) classes would be the same, or similar to those identified for the proposed manifold locations. However, the dehydration sites would be larger with more individual buildings than at manifold facilities, thus the visual contrast would be greater.

Mitigation measures to reduce visual intrusion, including painting permanent structures "...a flat, non-contrasting color that is harmonious with the adjacent landscape..." would be used in accordance with Riley Ridge EIS.

## UNAVOIDABLE ADVERSE IMPACTS

PROPOSED ACTION

Implementation of the BLM and FS committed and required federal mitigation measures would reduce impacts associated with the project as proposed. Those impacts that would remain following mitigation are described below.

Manifolds

Operational flaring would produce negligible emissions. However, dehydration unit upsets would require flaring of well field gas at the manifolds. Construction would result in the temporary loss of soil cover, and sediment would be transported to streams if control measures are not implemented. Daily visits of personnel to manifold locations would disturb wildlife, particularly elk during calving season. Manifold buildings and equipment would intrude on the visual landscape.

Dehydration Facility

Operational flaring emissions would be below the WAAQS de minimis levels, but upset conditions (1/2 hour/year/unit) would result in $SO_2$ emissions which would be above EPA's de minimis levels of 40 tons/year. The required mitigation for water resources are designed to reduce contamination of groundwater aquifers from operation of waste water injection. The acreage enclosed would be removed as a livestock and wildlife forage source for the life of the project. The facility buildings and ancillary structures and equipment would cause a residual visual impact.

NO ACTION

Same as proposed action, except that increased soil and vegetation disturbance would occur, increasing the potential for sediment buildup in streams.

## IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Significant impacts and consequences would not differ from those described in the Riley Ridge draft EIS (pages 4-141 and 142)..

## SHORT-TERM USE AND LONG-TERM PRODUCTIVITY

Long-term environmental consequences would not differ from those described in the Riley Ridge Draft EIS (page 4-140).

# CHAPTER III

# CHAPTER III

## MITIGATION AND MONITORING

### MITIGATION

All the "Required Federal measures and Applicants' Standard Operating Procedures Designed to Reduce Environmental Impacts" listed in the Riley Ridge Natural Gas Project Record of Decision (attachment B) will continue to be required. Additional mitigation measures that would be required for implementation of the proposed action are as follows:

1. A plan for the daily maintenance and operations visits to manifolds and well sites shall be prepared as part of the well field Construction and Use Plan. This plan would include a typical daily maintenance and monitoring schedule and traffic flow pattern so that all activity occurs during daylight hours and in a manner that would result in the least disturbance to wildlife, particularly during elk calving season, May 15 to June 30.

2. Reclamation of manifold site LR-9 will include transplanting containerized seedlings for trees and shrubs; broadcast seeding of adapted grass species; and use of mechanical stabilization and control structures where necessary.

3. Upon receipt of APDs, BLM will conduct a detailed analysis of existing oil and gas wells penetrating the Nugget Sandstone to determine if injection wells should be permitted.

4. Exxon shall develop and implement a groundwater monitoring plan which will be maintained throughout the life of the project to monitor potential impacts on groundwater, provide quick detection of potential problems, and determine long-term water quality trends due to waste water well injection. Data trends monitored during injection will be compared to the pre-operational trends.

   The methods used to monitor groundwater impacts will be defined in a groundwater monitoring plan.

### MONITORING

The following Monitoring Plans will be implemented in accordance with the Riley Ridge Natural Gas Project Record of Decision.

1. Air Quality Related Values (AQRV)
2. Fisheries and Surface Monitoring (including monitoring stations above and below the point of discharge into Black Canyon Creek)
3. Groundwater Monitoring

# CHAPTER IV

# CHAPTER IV

## COMPARATIVE ANALYSIS OF PROPOSED ACTION AND ALTERNATIVES

A comparison of environmental impacts between the Proposed Action and the No Action alternative is presented in Table IV-1. The impacts presented assume application of the required mitigation described in Chapter III. The numbers presented represent the worst impact that might be expected for the resource values and associated impacting activity addressed in this Environmental Assessment. Other resource values and associated activities impacting those values not presented in Table IV-1 are considered to be the same as presented in Chapter 2 of the Riley Ridge DEIS and Section 2 of the Riley Ridge FEIS. Only those impacts that differ substantially from the Riley Ridge EIS are presented in the table.

TABLE IV-1. COMPARISON OF MITIGATED RESOURCE IMPACTS

| Resource | Proposed Action | No Action [1] | |
|---|---|---|---|
| Air Quality Operational Emissions | | | |
| Dehydration Facility | | | |
| $NO_x$ (Tons/year/1.32 BSCFD) | 9.68 | 10.56 | (+0.88)[2] |
| $SO_2$ (Tons/year/1.32 BSCFD) | 0.059 | 0.063 | (+0.004) |
| Water Resources | | | |
| Number of Waste Water Injection Wells | 3 | 6 | (+3) |
| Soils/Vegetation | | | |
| Surface Acres Disturbed | | | |
| Dehydration Facility(s) | 60 | 48 | (-12) |
| Manifolds | 20 to 30 | 0 | (-20 to 30) |
| Field Office/Storage Yard | 0 [3] | 40 | (+40) |
| TOTALS | 80 to 90 | 88 | (+8 to -2) |
| Wildlife/Fisheries | | | |
| Daily Operations Activity | | | |
| (Well Field Manifold vs. Dehydration Units) | | | |
| Number of Vehicles | 2 | 8 | (+6) |
| Workers in Well Field (No.) | 2 | 16 | (+14) |
| Total Operational Workforce (No.) | 6 | 20 | (+14) |
| Health and Safety | | | |
| Facilities Subject to Upset | | | |
| Dehydration Facilities | 1 | 6 | (+5) |
| Manifolds | 5 | 0 | (-5) |
| Visual Resources | | | |
| Number of Facility Sites with Significant Visual Change | 5 | 6 | (+1) |
| Number of Facility Sites with Highly Significant Visual Change | 1 | 1 | (0) |
| Number of Facility Sites Located in the Following Visual Resource Value Designations: | | | |
| Class II (BLM), Retention (FS) | 1 | 1 | (0) |
| Class III (BLM), Partial Retention (FS) | 1 | 1 | (0) |
| Class IV (BLM), Modification (FS) | 4 | 5 | (+1) |

1/ No Action means that proposed in the Riley Ridge Natural Gas Project EIS for field gas dehydration.

2/ Number shown in parenthesis is the difference between No Action and the Proposed Action.

3/ The Field Office/Storage Yard is included with the dehydration facility under the Proposed Action.

# CHAPTER V

## CHAPTER V

## CONSULTATION AND COORDINATION

This document was prepared by the Rock Springs District after consultation with Exxon Company, U.S.A.; Pinedale Resource Area, BLM; and Big Piney Ranger District and Forest Supervisors Office of the Bridger-Teton National Forest.

Scoping was accomplished through the consultation noted above, and the issuance of a Riley Ridge Project Update (Appendix A) soliciting comments. A list of persons and agencies who were sent a copy of the Project Update is included in Appendix A.

Four letters were received on the Project update expressing the following concerns.

1. Additional disturbance increases potential of erosion and heightens likelihood of siltation and encroachment of streams.

2. Protection of the quantity and quality of groundwater.

3. Cultural resources protection.

These concerns were considered in the preparation of the Well Field Changes EA.

In addition, the following "disciplines" will be added to the interdisciplinary team identified in Appendix A (section IV.A) to review issues and concerns associated with proposed development.

Soil Scientist
Engineer - Civil and Petroleum
Petroleum Geologist

# APPENDICIES

APPENDIX A



RILEY RIDGE PROJECT UPDATE
OIL AND GAS WELL FIELD PROPOSALS-EXXON COMPANY, USA

I. DESCRIPTION OF PROPOSED PROJECTS OR ACTIVITIES

A. Location and General Size of Area(s) Involved

Exxon Company, USA has submitted a request to the Forest Service and Bureau of Land Management to initiate the construction of 60 miles of pipeline/powerline and access. Inaddition Exxon is proposing to construct five manifold* sites. The manifolds were not addressed in the Riley Ridge FEIS and would replace proposed dehydration sites.

B. Relationship to Other Plans and Documents

Management Direction for both agency lands is contained in the Riley Ridge Natural Gas Project Environmental Impact Statement (January, 1984). Inaddition there is Forest Service direction in the Big Piney Land Management Unit Plan, and BLM direction in the BLM-Piney Management Framework Plan (June, 1974).

Exxon will provide the agencies with plan and profile drawings of each segment of the pipeline/powerline as well as each manifold site, and all manifold facilities as they are proposed.

Use authorizations (i.e., Sundry Notices, leases, permits) for roads, powerlines, pipelines, wellsite facilities will be handled through the normal APD process as long as the facilities remain on-lease. Off-lease actions will be handled through ROW or Special Use procedure.

C. Nature of Decisions to be Made

Decision to be made regarding the wellfield proposal involve:

1. A determination of whether or not the proposals are in conformance with existing Forest Service and BLM policies, regulations, land management direction and the Riley Ridge Environmental Impact Statement Record of Decision.

2. The location of pipelines, powerlines and manifolds that best coordinate other resource management activities, address issues and concerns, and minimizes environmental impacts.

3. A determination of appropriate mitigation, management and monitoring requirements for the proposed wellfield projects.

*Manifold is an accessory system of piping that combines several flows from gas wells into one larger trunk line. Each will have emergency flaring facilities, buildings to house equipment and security fences.

4. A determination of the propriety of substituting manifolds for dehydration sites. Manifolds are considered to be lesser impact.

## II. IDENTIFIED LAND AND RESOURCE MANAGEMENT ISSUES, CONCERNS, AND OPPORTUNITIES

### A. Known Issues

1. Public Health and Safety--Flaring of gas, $H_2S$ safety
2. Protect wildlife values
3. Visual quality

### B. Identified Management Concerns

1. The ability of the soil and hydrologic characteristics of the project area(s) to support the proposal.
2. Construction and reclamation practices.
3. Destruction of archaeological values.
4. Wildfire.
5. Colorado Cutthroat protection.
6. Livestock distribution.
7. Off Road vehicle uses.

### C. Opportunities

1. Wildlife Habitat Improvement
2. Improved Transportation System
3. Utility/Facility Upgrading

## III. TIMING NEEDS OR REQUIREMENTS

The public and other resource management agencies are encouraged to participate throughout this environmental analysis process. Please address all comments to the Big Piney District Ranger, Box 218, Big Piney, Wyoming 83113; or Area Manager, Pinedale Resource Area, Box 768, Pinedale, Wyoming 82941.

## IV. PUBLIC PARTICIPATION

### A. Interdisciplinary Needs

Based upon the Sensitivity Analysis review and our current understanding of the issues, concerns, opportunities and established objectives from other plans, an interdisciplinary team made up of the following has been identified to review proposed developments:

| | | | |
|---|---|---|---|
| Hydrology | Reclamation | Engineering | Visuals |
| Archaeology | Forestry | Wildlife | Range |

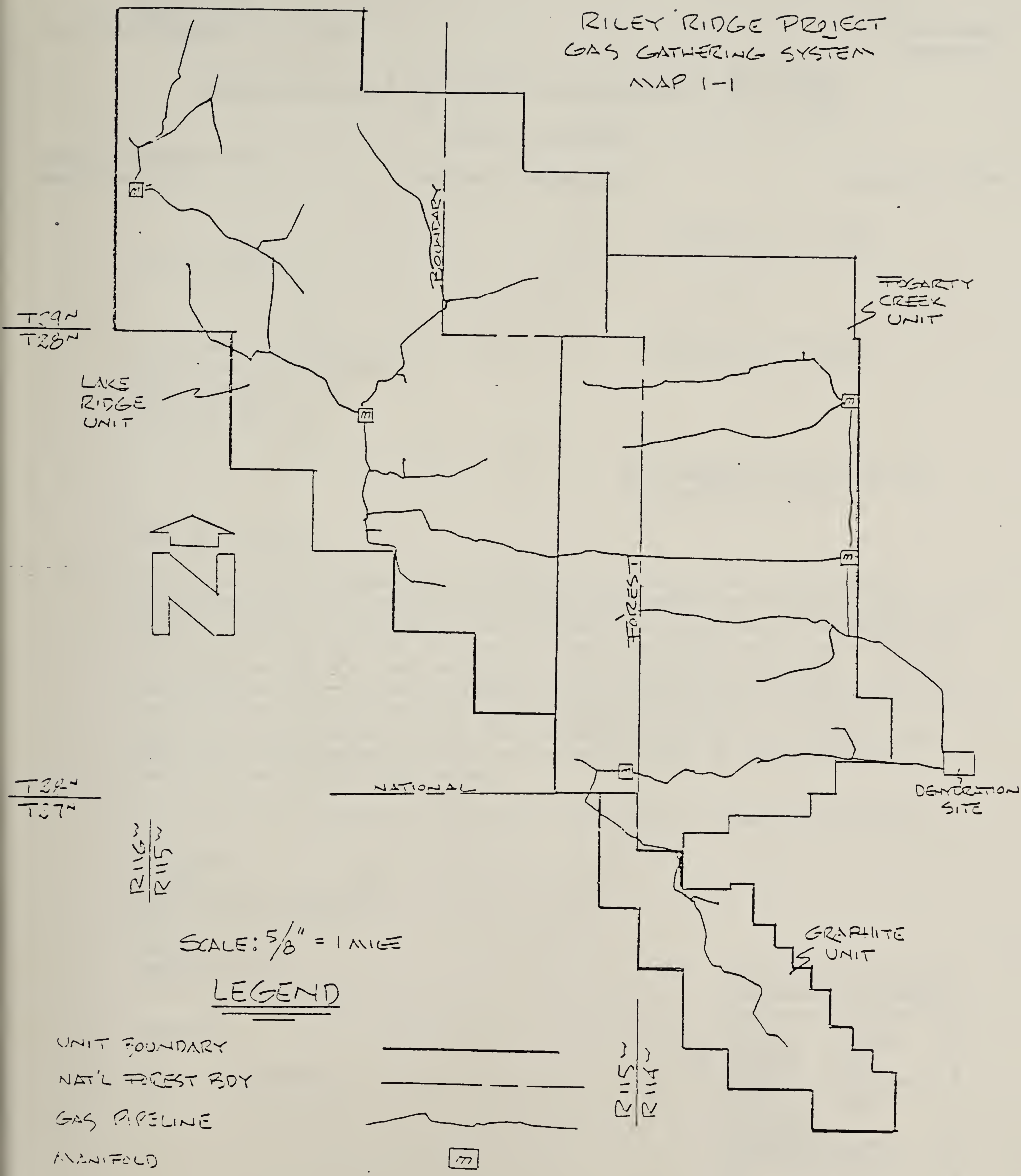
### B. Consultation and Coordination with other Agencies, Groups, and Individuals

The following will be sent a copy of this Scoping Statement:

Wyoming Game and Fish Department
Phil Riddle, District IV Supervisor
Tom Toman, District I Supervisor
Glenn Dunning, Fisheries Supervisor
Bruce Marker, Environmental Specialist, Cheyenne
Pinedale Roundup
Star Valley Independent
Kemmerer Gazette
Rock Springs Daily Rocker-Miner
Wyoming State Clearinghouse
Sublette County Commissioners
Sublette County Planning Commission
Lincoln County Commissioners
Lincoln County Planning Commission
Lincoln-Uinta Council of State Governments
State Representative Dan S. Budd, Sublette County
State Representative Alan Stauffer, Lincoln County
State Representative Clyde Wolfley, Lincoln County
State Senator Boyd Eddins, Lincoln County
State Senator John Turner, Sublette-Teton Counties
Phil Hocker, Sierra Club
Howie Wolke, Earth First!
Henry C. Phibbs III
Bart Koehler, SEACC
Tom Robinson, The Wilderness Society
Brent Bergen, Wyoming Wildlife Association
Jack Ourada, Overthrust Wildlife Association
Zac Reisner, Sublette County Outfitters Association
Jim Borzea, Bridger-Teton Committee
Low Gardner, Lincoln County Outfitters Association
Ole Skinner, Sublette County Outfitters Association
Overthrust Industrial Association
Rocky Mountain Oil and Gas Association
Wyoming Association of Petroleum Landmen
Resource Control International, Inc.
Walter Andrew
Dru Roberts
Hugh Wardell
Bill Milleg
John Chrisman
Jay McGinnis
Dick and Alice Schaffer
Walter Yose
Tom Harrower
C and G Enterprises
Cecil Jones
Steve Hoffman
Pam Redfield, Office Manager for U.S. Senator Malcolm Wallop
Robin Bailey, Field Officer for U.S. Senator Alan K. Simpson
Tony Padilla, Field Officer for Congressman Richard Cheney
Bridger-Teton National Forest Grazing Advisory Board
Debra Beck, Wyoming Outdoor Council
Exxon Company, USA
Bureau of Land Management, Pinedale Resource Area
Bureau of Land Management, Rock Springs Unit

Map 1-1 Gas Gathering System

# RILEY RIDGE PROJECT
## GAS GATHERING SYSTEM
## MAP 1-1



THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

*Department of Environmental Quality*

AIR QUALITY DIVISION

EQUALITY STATE BANK BLDG.
401 W. 19TH STREET

CHEYENNE, WYOMING 82002

TELEPHONE 777-7391

July 31, 1984



Mr. Thomas J. Tibbitts
Regulatory Affairs Manager
Exxon Company, U.S.A.
P.O. Box 1600
Midland, TX 79702

RE: LaBarge Project Central
Dehydration Facility

Dear Mr. Tibbitts:

The Air Quality Division has reviewed your request to waive permitting requirements for the installation of three 200 MMSCFD dehydration units at one central location as opposed to six 100 MMSCFD units scattered throughout the well field. The Division previously waived permitting requirements for the six units and 39 well head heaters by letter dated April 27, 1984. It is our determination that the centralization of the dehydration facilities will still result in small pollutant rates and insignificant impacts. Therefore, permitting requirements for the facilities described by your letter of July 3, 1984, are hereby waived pursuant to Section 21 k (8) of the Wyoming Air Quality Standards and Regulations.

If we may be of further service to you, feel free to contact this office.

Sincerely,

Randolph Wood
Administrator
Air Quality Division

RW:CAC/ct

cc: Lee Gribovicz

129.

EXXON COMPANY, U.S.A.
POST OFFICE BOX 1600 • MIDLAND, TEXAS 79702

PRODUCTION DEPARTMENT
MIDCONTINENT DIVISION

THOMAS J. TIBBITTS
REGULATORY AFFAIRS MANAGER

July 3, 1984

LaBarge Project - Central
Field Dehydration Facility

Wyoming Department of Environmental Quality
Air Quality Division
401 West 19th Street
Cheyenne, WY 82002

Attention: Mr. Randolph Wood, Administrator

Dear Mr. Wood:

Pursuant to your letter of April 27, 1984 on the captioned subject, Exxon is hereby informing the Division of several changes in the location and fuel combustion rates of the proposed equipment to facilitate review of the revisions.

Exxon will relocate all of the proposed dehydration units (600 MSCFD processing capacity) at one central location -- NE/4 Section 35, Range 114W, Township 28N. The wellhead heaters (total of 39 units) will remain at each well and will be distributed as indicated previously over the 40,000 acres of the wellfield.

The dehydration units will be constructed as three 200 MSCFD processing capacity facilities with common utilities and support systems. The only process air emission will occur as a result of burning pipeline quality natural gas in reboilers and heaters. The estimated $NO_x$ and $SO_2$ emissions rate calculations will be the same as indicated in the Exxon letter of March 26, 1984 with the exception that 3.3 KSCFD of fuel gas per 100 MSCFD facility will no longer be required for the sour water stripper since this piece of equipment has been deleted. Therefore, the estimated fuel gas rate per 200 MSCFD facility will be 80.8 KSCFD or 242.4 KSCFD for the 600 M design capacity. Using the same AP-42 emission factors (Supplement 14) for industrial boilers rated at less than 10 million BTU/hr (100 lb $NO_x$/MSCFD fuel and 0.6 lb $SO_2$/MSCFD fuel), the following total emissions result:

$\underline{NO_x}$

$$242.4 \text{ KSCFD} \times \frac{\text{MSCF}}{1000 \text{ KSCF}} \times \frac{100 \text{ lb } NO_x}{\text{MSCF}} \times \frac{365 \text{ day}}{\text{Yr}} \times \frac{\text{Ton}}{2000 \text{ lb}}$$

$$= 4.4 \text{ Ton/year } NO_x \text{ emissions at 600 MSCFD processing rate}$$

$SO_2$

$$242.4 \text{ KSCFD} \times \frac{\text{MSCF}}{1000 \text{ KSCF}} \times \frac{0.6 \text{ lb } SO_2}{\text{MSCF}} \times \frac{365 \text{ day}}{\text{yr}} \times \frac{\text{Ton}}{2000 \text{ lb}}$$

= 0.027 Ton/year $SO_2$ emissions at 600 MSCFD processing rate

Therefore, the total estimated emissions from the wellfield facilities will be as follows.

| | $NO_x$ | $SO_2$ |
|---|---|---|
| Dehydration Units (600 MSCFD) | 4.4 Tons/yr | 0.027 Tons/yr |
| Wellhead Heaters (39 wells) | 11.7 Tons/yr | 0.078 Tons/yr |
| Total | 16.1 Tons/yr | 0.105 Tons/yr |

Based on the above analysis we request concurrence from the Division that these emissions will be insignificant, both in emission rate and ambient air quality impact, and that permitting requirements can be waived under authority of Section 21 K.(8) of the Wyoming Air Quality Standards and Regulations.

If you have any questions or comments on this request, please contact B. J. Grady at 915/683-0502.

TJT:ag

xc: F. S. Clark
C. A. Kemp/N. R. Latimer
M. H. Nash

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

*Department of Environmental Quality*

AIR QUALITY DIVISION

EQUALITY STATE BANK BLDG.
401 W. 19TH STREET

CHEYENNE, WYOMING 82002

TELEPHONE 777-7391

April 27, 1984

T. J. Tibbitts, Regulatory Affairs Manager
Exxon Company USA
P.O. Box 1600
Midland, TX 79702

RE: LaBarge Project Field Dehydration Facilities

Dear Mr. Tibbitts:

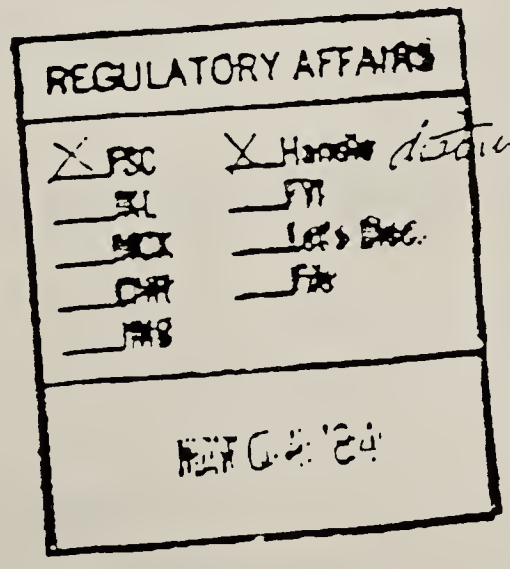
The Air Quality Division has reviewed your letter of March 26, 1984 requesting a permit applicability determination regarding the referenced field dehydration equipment to be installed as part of the LaBarge wellfield development. The Division has confirmed your emission estimates which total 16.5 TPY of $NO_x$ and 0.11 TPY of $SO_2$ from the fuel fired equipment for six, 100 MMSCFD dehydrator facilities and 39 wellhead heaters, distributed throughout the 40,000 acre wellfield. It is the Division's determination that the emissions from this equipment will be insignificant, both in emission rate and ambient air quality impact. Therefore, under authority of Section 21 k.(8) of the Wyoming Air Quality Standards and Regulations, the Division hereby waives the permitting requirements for this equipment as presented by your proposal. If significant changes are made to the number, type, or fuel combustion rates of the proposed equipment, please notify the Division in order to facilitate additional review of such revisions.

Please feel free to contact this office with any further questions you have regarding this matter.

Sincerely,

Randolph Wood
Administrator
Air Quality Division

RW/LG:dcn



EXXON COMPANY, U.S.A.
POST OFFICE BOX 1600 • MIDLAND, TEXAS 79702

PRODUCTION DEPARTMENT
MIDCONTINENT DIVISION

THOMAS J TIBBITTS
REGULATORY AFFAIRS MANAGER

March 26, 1984

LaBarge Project Field
Dehydration Facilities

Wyoming Department of Environmental Quality
Air Quality Division
401 West 19th Street
Cheyenne, WY 82002

Attention: Mr. Randolph Wood, Administrator

Dear Mr. Wood:

As noted in your February 13, 1984 letter, Exxon Company, U.S.A. agreed at the February 2 meeting to provide the Division with a list of heaters and their emission rates associated with the field dehydration facilities when they became available. Exxon is providing this information for the purpose of waiving permitting requirements or, if this is not possible, then permitting such units separate from the gas processing plant.

At its maximum design capacity of 600 MSCFD, the LaBarge Project will have up to six field dehydration units, each capable of dehydrating 100 MSCFD of well-field gas. At this time two of these units will be located adjacent to each other with the remaining four distributed several miles apart in the wellfield. The exact locations of the original four units have been provided to the Division in previous correspondence. These dehydration units will burn pipeline quality natural gas. The following are the $NO_x$ and $SO_2$ emission rate calcultions for one 100 MSCFD dehydration facility using the AP-42 emission factors (Supplement 14) for industrial boilers rated at less than 10 million BTU/hr. (100 lb $NO_x$/MSCF fuel and 0.6 lb $SO_2$/MSCF fuel).

| Emission Source | Average Heat Duty BTU/Hr | Fuel Gas Rate[1] KSCFD |
|---|---|---|
| Building heat | 600,000 | 16.3 |
| Triethylene Glycol Reboiler | 889,300 | 24.1 |
| Sour Water Stripper Reboiler | 120,000 | 3.3 |
| Slug Vaporizer (Intermittent) | 0 | 0 |
| | TOTAL | 43.7 |

[1] Assuming fuel gas heating value (HHV) = 1040 Btu/scf and overall thermal efficiency of 85%.

$$NO_x = 43.7 \text{ KSCFD} \times \frac{\text{MSCF}}{1000 \text{ KSCF}} \times \frac{100 \text{ lb } NO_x}{\text{MSCF}} \times \frac{365 \text{ day}}{\text{yr}} \times \frac{\text{ton}}{2000 \text{ lb}}$$

= 0.80 ton/year $NO_x$ emissions per 100 MSCFD dehydration unit.

$$SO_2 = 43.7 \text{ KSCFD} \times \frac{\text{MSCF}}{1000 \text{ KSCF}} \times \frac{0.6 \text{ lb } SO_2}{\text{MSCF}} \times \frac{365 \text{ day}}{\text{yr}} \times \frac{\text{ton}}{2000 \text{ lb}}$$

= 0.0048 ton/year $SO_2$ emissions per 100 MSCFD dehydration unit.

In addition to the dehydration unit heaters, there will be wellhead heaters at each of the 39 wells. These wells will be distributed over the 40,000 acres of the wellfield. Wellhead heater fuel consumption is estimated to be less than 15 KSCFD for a 30 MSCFD production well. $NO_x$ and $SO_2$ emissions from each well are calculated to be 0.3 ton/year $NO_x$ and 0.002 ton/year $SO_2$ using the previous AP-42 emission factors.

Therefore, the total $NO_x$ emissions from wellfield facilities will be six dehydration units at 0.8 ton/year each plus 39 wellhead heaters at 0.3 ton/year each, for a total of 16.5 ton/year. The $SO_2$ emissions will total 0.11 ton/year. As we previously mentioned these emissions will originate from sources distributed throughout the 40,000 acre wellfield.

Since the $NO_x$ and $SO_2$ emission rates from these sources are less than the 40 ton/year significant emission rate, we request that these sources be exempted from the Division's permitting requirements.

If you have any questions or comments on this request, please contact B. J. Grady at 915/683-0502.

Respectfully submitted,

T. J. Tibbitts

T. J. Tibbitts
by F. S. Clark

TJT:ag