

## **STANDARD OPERATING PROCEDURES**

# ***INLAND PRODUCTION COMPANY***

## **STANDARD OPERATING PRACTICES**

### **MONUMENT BUTTE FIELD GREEN RIVER DEVELOPMENT PROGRAM Duchesne and Uintah Counties, Utah**

#### **DRILLING PROGRAM**

All operations will be conducted in such a manner that full compliance is made with applicable laws, regulations (43CFR3100), Onshore Oil and Gas Orders, Notices to Lessees, and the approved Plan of Operations. As Operator, Inland Production Company (Inland) is fully responsible for the actions of its subcontractors. A copy of these Standard Operating Practices as well as any Conditions of Approval (COAs) will be supplied to the field representative to ensure compliance.

#### **BLM Notification Requirements**

Location Construction:	48 hours prior to construction of location and access roads including, if applicable, the Ute Tribe Energy and Mineral Department, or private surface owner.
Location Completion:	Prior to moving the drilling rig.
Spud Notice:	At least 24 hours prior to spudding the well.
Casing String & Cementing:	At least 24 hours prior to running casing and cementing all casing strings.
BOP & Related Equipment Tests:	At least 24 hours prior to initiating pressure tests.
First Production Notice:	Within 5 days after new well begins or production resumes after well has been off production for more than 90 days.

Details of the on-site inspection, including date, time, and individuals present, will be submitted with the site specific APD.

1. **Estimated Tops of Important Geologic Markers:**

Within the Monument Butte Field, surface locations are in the Uinta Formation. The top of the Green River formation will be encountered between 1300'-1900'. The Mahogany Shale occurs between 2900'-3200'. The Wasatch Formation, occurring between 6300'-6900', will not be penetrated in a standard Monument Butte Field Green River development well.

2. **Estimated Depths of Anticipated Water, Oil, Gas, or Mineral Formations:**

Gilsonite may be encountered between 0'-3200'.

It is anticipated that oil & associated gas will be encountered in the Green River Formation, with economically producible hydrocarbons between 4000'-TD.

Fresh water may be encountered in the Uinta Formation, but would not be expected below about 600'. All water shows and water bearing geologic units shall be reported to the geologic and engineering staff of the Vernal Office prior to running the next string of casing or before plugging orders are requested. All water shows must be reported within one (1) business day after being encountered.

All usable (<10,000 ppm TDS) water and prospectively valuable minerals (as described by BLM at onsite) encountered during drilling will be recorded by depth and adequately protected. This information shall be reported to the Vernal Office.

Detected water flows shall be sampled, analyzed, and reported to the geologic & engineering staff of the Vernal Office. The office may request additional water samples for further analysis. Usage of the State of Utah form *Report of Water Encountered* is acceptable, but not required.

The following information is requested for water shows and samples where applicable:

Location & Sampled Interval	Date Sampled
Flow Rate	Temperature
Hardness	pH
Water Classification (according to State of Utah)	
Dissolved Iron (Fe) (ug/l)	Dissolved Calcium (Ca) (mg/l)
Dissolved Magnesium (Mg) (mg/l)	Dissolved Sodium (Na) (mg/l)
Dissolved Bicarbonate (NaHCO <sub>3</sub> ) (mg/l)	Dissolved Carbonate (CO <sub>3</sub> ) (mg/l)
Dissolved Sulfate (SO <sub>4</sub> ) (mg/l)	Dissolved Chloride (Cl) (mg/l)
Dissolved Total Solids (TDS) (mg/l)	

3. **Pressure Control Equipment:** (Schematic Attached)  
 Inland's minimum specifications for pressure control equipment for a standard Monument Butte Field Green River development well are as follows:

A Double Ram BOP with a hydraulic closing, plus either an Annular Bag type BOP or a Rotating BOP will be utilized. If no annular preventer is used, ramblocks will be changed to match casing outside diameter.

The BOP and related equipment shall meet the minimum requirements of Onshore Oil and Gas Order No. 2 for equipment and testing requirements, procedures, etc., for a 2M system, and individual components shall be operable as designed.

Function test of the BOP equipment shall be made daily. All required BOP tests and/or drills shall be recorded in the Driller's report.

Chart recorders will be used for all pressure tests. Test charts, with individual test results identified, shall be maintained on location while drilling and shall be made available to BLM representatives upon request.

If an air compressor is on location and is being utilized to provide air for the drilling medium while drilling, the special drilling requirements in Onshore Oil and Gas Order No. 2 regarding air or gas shall be adhered to. If a mist system is being utilized, the requirement for a deduster shall be waived.

Auxiliary well control equipment to be used as follows:

1. Kelly cock.
2. A bit float is not deemed necessary, but may be utilized to protect downhole mud motors.
3. A sub with a full opening (TIW) valve having threads compatible with all drill string tubulars shall be readily accessible to the drill crews at all times.

4. **Proposed Casing and Cementing Program:**

a. **Casing Design:**

<u>Purpose</u>	<u>Depth</u>	<u>Hole Size</u>	<u>Csg Size</u>	<u>Wt/ft</u>	<u>Grade</u>	<u>Type</u>
Surface	0 - 290'	12-1/4"	8-5/8"	24#	J-55	ST&C
Production	TD	7-7/8"	5-1/2"	15.5#	J-55	LT&C

With the exception of conductor casing, all casing shall be new or, if used, inspected and tested. Used casing shall meet or exceed API standards for new casing.

All casing strings shall have a minimum of 1 (one) centralizer on each of the bottom three (3) joints.

**b. Cement Design:**

<u>Function</u>	<u>Hole Size</u>	<u>Csg Dia.</u>	<u>Wt./ft.</u>	<u>Shoe Depth</u>	<u>Sacks of Cement</u>
Surface	12-1/4"	8-5/8"	24#	290' ± KB	145 sk +/- 10%
Production	7-7/8"	5-1/2"	15.5#	TD	275 lead / 450 tail

**Surface Pipe:** Flush: 20 bbls dyed water followed by 20 bbls gelled water.

145 Sacks Class G Cement +/- 10%, w/ 2% CaCl<sub>2</sub>, 1/4#/sk Cello-Flake  
 Weight: 15.8 PPG Yield: 1.17 cu ft/sk. H<sub>2</sub>O Req.: 5 Gal/sk

**Waiting On Cement:** A minimum of four (4) hours shall elapse prior to attempting any pressure testing of the BOP equipment which would subject the surface casing cement to pressure, and a minimum of six (6) hours shall elapse before drilling out of the wiper plug, cement, or shoe is begun. WOC time shall be recorded in the Driller's Log. Compressive Strength shall be a minimum of 500 psi prior to drilling out.

**Long String:** Flush: 20 bbls dyed water followed by 20 bbls "Mud Clean".

Lead: Premium Lite II Cement + 3 lbs/sack BA-90 + 3% Potassium Chloride + .25 lbs/sack Cello Flake + 2 lbs/sack Kol Seal + 10% Bentonite + .5% Sodium Metasilicate  
 Weight: 11.0 PPG. Yield: 3.43 cu ft/sk. H<sub>2</sub>O Req.: 21.04 Gal/sk.

Tail: 50:50 Poz-Class G cement + 3% Potassium Chloride + .25 lbs/sack Cello Flake + 2% Bentonite + .3% Sodium Metasilicate.  
 Weight: 14.2 PPG. Yield: 1.59 cu ft/sk. H<sub>2</sub>O Req.: 7.88 Gal/sk.

**(Actual cement volumes will be calculated from open hole logs, plus 15% excess).**

The Vernal BLM Office shall be notified, with sufficient lead time, in order to have a BLM representative on location while running all casing strings and cementing.

The 8-5/8" surface casing shall in all cases be cemented back to surface. In the event that during the primary surface cementing operation the cement does not circulate to surface, or if the cement level should fall back more than 8 feet from surface, then a remedial surface cementing operation shall be performed to insure adequate isolation and stabilization of the surface casing.

The production casing cementing program shall be conducted as approved to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals.

If conductor drive pipe is used, it may be left in place if its total length is less than 20 feet below the surface. If the total length of the drive pipe is equal to or greater than 20 feet, it will be pulled prior to cementing surface casing, or it may be cemented in place. The minimum diameter for conductor drive pipe shall be 13 3/8".

As a minimum, usable water zones shall be isolated and/or protected by having a cement top for the production casing at least 200 feet above the base of the usable water. If gilsonite is encountered while drilling, it shall be isolated and/or protected via the cementing program.

Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a suitable preflush fluid, inner string cement method, etc., shall be utilized to help isolate the cement from contamination by the mud being displaced ahead of the cement slurry.

All casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string length or to 1500 psi, whichever is greater, but not to exceed 70% of the minimum internal yield. If pressure declines more than 10% in 30 minutes, corrective action shall be taken.

The following reports shall be filed with the Vernal Office Manager within 30 days after the work is completed:

Progress reports, Form 3160-5, "Sundry Notices and Reports on Wells," must include the following information:

Setting of each string of casing showing the size, grade, weight of casing set, depth, amounts and type of cement used, whether cement circulated or the top of the cement behind the casing, depth of the cementing tools used, casing test method and results, and the date of the work done. Spud date will be shown on the first reports submitted.

5. **Drilling Fluids Program:**

a. **Type and Characteristics of the Circulation Muds:**

From surface to  $\pm$  3800 feet will be drilled with either fresh water or an air/mist system, depending on the drilling contractor's preference. From about 3800 feet, or in the case of the air/mist system when hole conditions dictate, to TD, a fresh water system will be utilized. Clay inhibition and hole stability will be achieved with a KCL substitute named Treat-O-Clay manufactured by P-Chem. This fresh water system will typically contain Total Dissolved Solids (TDS) of less than 3000 PPM. Anticipated mud weight is 8.4 lbs/gal. If necessary to control formation fluids or pressure, the system will be weighted with the addition of bentonite gel, and if pressure conditions warrant, with barite.

No chromate additives will be used in the mud system on Federal and/or Indian lands without prior BLM approval to ensure adequate protection of fresh aquifers.

No chemicals subject to reporting under SARA Title III in an amount equal to or greater than 10,000 pounds will be used, produced, stored, transported, or disposed of annually in association with the drilling, testing, or completing of this well. Furthermore, no extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities, will be used, produced, stored, transported, or disposed of in association with

the drilling, testing, or completing of this well.

Hazardous substances specifically listed by the EPA as a hazardous waste or demonstrating a characteristic of a hazardous waste will not be used in drilling, testing, or completion operations.

6. **Evaluation Program:**

a. **Logging Program:**

(the log types run may change at the discretion of the geologist)

DLL/CALIPER: TD to base of surface casing.

FDC/CNL/GR: TD - 3,000'

CBL: A cement bond log will be run from TD to cement top.  
A field copy will be submitted to the Vernal BLM Office.

b. **Cores:** As deemed necessary.

c. **Drill Stem Tests:** No DSTs are planned in Green River Development Wells.

Drill stem tests, if they are run, will adhere to the following requirements: Initial opening of the drill stem test tools shall be restricted to daylight hours unless specific approval to start during other hours is obtained from the Authorized Officer (AO). However, DSTs may be allowed to continue at night if the test was initiated during daylight hours and the rate of flow is stabilized and if adequate lighting is available ( i.e., lighting which is adequate for visibility and vapor-proof for safe operations). Packers can be released but tripping shall not begin before daylight, unless prior approval is obtained from the AO. Closed chamber DSTs may be performed day or night.

Some means of reverse circulation shall be provided in case of flow to the surface showing evidence of hydrocarbons.

Separation equipment required for the anticipated recovery shall be properly installed before a test starts.

If a DST is performed, all engines within 100 feet of the wellbore that are required to be operational during the test shall have spark arresters or water-cooled exhausts.

7. **Abnormal Conditions:**

No abnormal temperatures or pressures are anticipated. No hydrogen sulfide has been encountered or is known to exist from previous drilling in the area at this depth. Maximum anticipated bottomhole pressure will approximately equal total depth in feet multiplied by a 0.4 psi/foot gradient.

8. **Anticipated Starting Dates and Notification of Operations:**

**a. Drilling Activity**

Anticipated Commencement Date: Upon approval of the site specific APD.  
Drilling Days: Approximately 7 days.  
Completion Days: Approximately 10 - 14 days.

**b. Notification of Operations**

The Vernal BLM office will be notified at least 24 hours **prior** to the commencement of spudding the well (to be followed with a Sundry Notice, Form 3160-5), of initiating pressure tests of the blowout preventer and related equipment, and running casing and cementing of all casing strings. Notification will be made during regular work hours (7:45 a.m.-4:30 p.m., Monday - Friday except holidays).

**Immediate Report:** Spills, blowouts, fires, leaks, accidents, or any other unusual occurrences shall be promptly reported in accordance with the requirements of NTL-3A or its revision.

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

Daily drilling and completion reports shall be submitted to the Vernal BLM Office on a weekly basis. Daily drilling reports also shall be submitted to the Vernal BLM Office after drilling operations are completed for each well, and daily completion records shall be submitted with the completion report for each well.

Whether the well is completed as a dry hole or a producer, the "Well Completion and Recompletion Report and Log" (Form 3160-4) will be submitted not later than 30 days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3164. One copy of all logs, core descriptions, core analyses, well test data, geologic summaries, sample description, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations will be filed with Form 3160-4. Samples (cuttings, fluids, and/or gases) will be submitted when requested by the Authorized Officer (AO).

A completion rig will be used for completion operations. All conditions of this approved plan will be applicable during all operations conducted with the completion rig.

Operator shall report production data to the MMS pursuant to 30 CFR 216.5 using form MMS/3160. In accordance with Onshore Oil and Gas Order No. 1, a well will be reported on form 3160-6, "Monthly Report of Operations," starting with the month in which operations commence and continue each month until the well is physically plugged and abandoned. This report will be filed with the Vernal BLM Office.

The date on which production is commenced or resumed will be construed for oil wells

as the date on which liquid hydrocarbons are first sold or shipped from a temporary storage facility, such as a test tank, and for which a run ticket is required to be generated, or the date on which liquid hydrocarbons are first produced into a permanent storage facility, whichever occurs first; and for gas wells, as the date on which associated liquid hydrocarbons are first sold or shipped from a temporary storage facility, such as a test tank, and for which a run ticket is required to be generated, or the date on which gas is measured through permanent metering facilities, whichever occurs first.

Should the well be successfully completed for production, the AO will be notified when the well is placed in a producing status. Such notification will be sent by written communication not later than 5 days following the date when the well is placed on production.

Pursuant to Onshore Order No. 7, with the approval of the AO, produced water may be temporarily disposed of into unlined pits for a period of up to 90 days. During this period, an application for approval of the permanent disposal method must be submitted to the AO.

Pursuant to NTL-4A, lessees or operators are authorized to vent/flare gas during the initial well evaluation tests, not to exceed 30 days or the production of 50 MMCF of gas, whichever occurs first. An application must be filed with the AO and approval received for any venting/flaring of gas beyond the initial 30 days or authorized test period.

A schematic facilities diagram, as required by 43 CFR 3162.7-5(b.9.d), shall be submitted to the Vernal BLM Office within 60 days of installation or first production, whichever occurs first. All site security regulations, as specified in Onshore Oil & Gas Order No. 3, shall be adhered to. All product lines entering and leaving hydrocarbon storage tanks will be effectively sealed in accordance with 43 CFR 3162.7-5(b.4).

Well abandonment operations shall not be commenced without the prior approval of the AO. In the case of newly drilled dry holes or failures, and in emergency situations, oral approval will be obtained from the AO. A "Subsequent Report of Abandonment", Form 3160-5, will be filed with the Authorized Officer within 30 days following completion of the well for abandonment. This report will indicate placement of the plugs and current status of the surface restoration. Final Abandonment will not be approved until the surface reclamation work required by the approved APD or approved abandonment notice has been completed to the satisfaction of the AO or his representative, or the appropriate surface managing agency.

Pursuant to Onshore Oil and Gas Order No. 1, lessees and operators have the responsibility to see that their exploration, development, production, and construction operations are conducted in a manner which conforms with applicable Federal laws and regulations and with the State and local laws, to the extent to which they are applicable, to operations on Federal or Indian lands.

9. *Variances:*

Drilling operations may be conducted without an automatic igniter. The operator will ignite as

needed. The flowline length shall be, at a minimum, 80 feet.

The straight-run blooie line requirement will be waived. The flowline will contain two (2) 90-degree turns. Where possible, a straight-run blooie line will be used.

If a mist system is used, the requirement for a deduster shall be waived.

Oil and gas meters will be tested upon initial installation and at least quarterly if producing greater than 100 mcfpd on a month average, and semiannually if the well produces less than 100 mcfpd on a monthly average.

10. **Other Information:**

The location perimeter will be bermed to comply with SPCC requirements.

All off-lease storage, off-lease measurement, or commingling on-lease or off-lease will have prior written approval from the AO.

The oil and gas measurement facilities will be installed on the well location. The oil and gas meters will be calibrated in place prior to any deliveries. Tests for meter accuracy will be conducted following initial installation. The AO will be provided with a date and time for the initial meter calibration and all future meter proving schedules. A copy of the meter calibration reports will be submitted to the Vernal BLM Office. All meter measurement facilities will conform to Onshore Oil & Gas Order No. 4 for liquid hydrocarbons and Onshore Oil & Gas Order No. 5 for natural gas measurement.

Should gas be vented or flared without approval beyond the authorized test period, the operator may be directed to shut in the well until the gas can be captured or approval to continue venting or flaring as uneconomic is granted. The operator shall be required to compensate the lessor for that portion of the gas vented or flared without approval which is determined to be unavoidably lost.

The use of materials under BLM jurisdiction will conform to 43 CFR 3610.2-3. Mineral materials displaced in the ordinary course of conducting operations and/or construction activities may be used for oil and gas development purposes within the subject lease in accordance with BLM approved actions. Mineral materials may also be obtained by making application for a mineral material sale under the provisions of 43 CFR 3610.1-1.

Deviations from the proposed drilling and/or workover program shall be approved by the AO. Safe drilling and operating practices must be observed. All wells, whether drilling, producing, suspended, or abandoned, will be identified in accordance with 43 CFR 3162.

"Sundry Notice and Report on Wells" (form 3160-5) will be filed for approval for all changes of plans and other operations in accordance with 43 CFR 3162.3-2.

Section 102(b)(3) of the Federal Oil and Gas Royalty Management Act of 1982, as implemented by the applicable provisions of the operating regulations at Title 43 CFR 3162.4-1(c), requires that "not later than the 5th business day after any well begins production on which royalty is due

anywhere on a lease site or allocated to a lease site, resumes production in the case of a well which has been off production for more than 90 days, the operator shall notify the Authorized Officer by letter or sundry notice, Form 3160-5, or orally to be followed by a letter or sundry notice, of the date on which such production has begun or resumed."

Failure to comply with the royalty notice requirement in the manner and time allowed shall result in a civil penalty of up to \$10,000 per violation for each day such violation continues, not to exceed a maximum of 20 days. See section (109)(c)(3) of the Federal Oil and Gas Royalty Management Act of 1982 and the implementing regulations at Title 43 CFR 3162.4-1(b)(5)(ii).

APD approval is valid for a period of one year from the signature date. An extension period may be granted, if requested, prior to the expiration of the original approval period.

In the event after-hours approval or notification is necessary, one of the following individuals will be contacted:

Ed Forsman (435)789-7077  
Petroleum Engineer

Jerry Kenczka (435)781-1190  
Petroleum Engineer

BLM FAX Machine (435)781-4410

# ***INLAND PRODUCTION COMPANY***

## **STANDARD OPERATING PRACTICES**

### **MONUMENT BUTTE FIELD GREEN RIVER DEVELOPMENT PROGRAM Duchesne and Uintah Counties, Utah**

#### **SURFACE USE PLAN OF OPERATIONS**

1. **Existing Roads:**

The location of each well will be shown on maps and described in the submitted, site specific APD.

All improvements to existing access roads will be described in the site specific APD and will comply with the Planned Access Road Standard Operating Practices described in Section 2 of this document.

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

2. **Planned Access Roads:**

Descriptions of the access road will be included in site specific APD. New access roads on BLM surface will be crowned (2 - 3%), ditched, and constructed with a running surface of 18 feet and a maximum disturbed width of 30 feet. The disturbed width may be wider than 30 feet when approved by BLM's Authorized Officer (AO) to accommodate large equipment, or to allow for intersections, sharp curves, steep grades, or other safe road construction and maintenance practices. Graveling or capping the roadbed will be performed as necessary to provide a well constructed and safe road. Prior to construction or upgrading, the proposed road shall be cleared of any snow and allowed to dry completely. Appropriate water control will be installed to control erosion. On Ute Tribal, private, and/or state surface, access roads will be constructed according to the surface owner's specifications. These specifications or Rights-Of-Way (ROWs) will be attached to the site-specific APD.

Unless specified in the site-specific APD, the following specifications will apply:

- No pipelines will be crossed with the new construction.
- The maximum grade will be less than 8%.
- There will be no turnouts.

- There will be no major cut and fills, culverts, or bridges. If it becomes necessary to install a culvert at some time after approval of the APD, the BLM will be notified of the installation via sundry.
- The access road will be centerline flagged during time of staking.
- There will be no gates, cattle guards, fence cuts, or modifications to existing facilities.

Surfacing material may be necessary, depending upon weather conditions.

Surface disturbance and vehicular traffic will be limited to the approved location and approved access route. Any additional area needed will be approved in advance.

Access roads and surface disturbing activities will conform to standards outlined in the BLM and Forest Service publication: Surface Operating Standards for Oil and gas Exploration and Development, 1989.

The road surface and shoulders will be kept in a safe and usable condition and will be maintained in accordance with the original construction standards. All drainage ditches and culverts will be kept clear and free-flowing and will be maintained according to original construction standards.

The access road ROW will be kept free of trash during operations. All traffic will be confined to the approved ROW. Road drainage crossings shall be of the typical dry creek drainage crossing type. Crossings shall be designed so they will not cause siltation or accumulation of debris in the drainage crossing nor shall the drainages be blocked by the roadbed. Erosion of drainage ditches by runoff water shall be prevented by diverting water off at frequent intervals by means of cutouts. Should mud holes develop, they shall be filled in and detours around them avoided. When snow is removed from the road during the winter months, the snow should be pushed outside of the borrow ditches, and the turnouts kept clear so that snowmelt will be channeled away from the road.

3. **Location of Existing Wells Within a 1-Mile Radius:**

A map will be provided with the site-specific APD showing the location of existing wells within a one mile radius.

4. **Location of Existing and Proposed Facilities:**

The following guidelines will apply if the well is productive.

- A dike will be constructed completely around those production facilities which contain fluids (i.e., production tanks, produced water tanks). These dikes will be constructed of compacted subsoil, be impervious, hold 110% of the capacity of the largest tank. If a Spill Prevention, Control, and Countermeasure (SPCC) Plan is required by the Environmental Protection Agency, the containment dike may be expanded with approval from the AO to meet SPCC requirements. The specific APD will address additional capacity if such is needed due to environmental concerns. (The use of topsoil for the

construction of dikes will not be allowed)

- All permanent (on site six months or longer) above the ground structures constructed or installed, including pumping units, will be painted a flat, non-reflective, earthtone color to match one of the standard environmental colors which are described by the five state Rocky Mountain Inter-Agency Committee. All facilities will be painted within six months of installation. The required color for the Operator's facilities in the Monument Butte Field is Desert Brown, Munsell standard color number 10YR.6/3, unless the AO determines that another color shall be used.
- A description of the proposed pipelines and a map will be included with the site-specific APD. Pipeline segments will be welded together on disturbed areas in or near the location (whenever possible), and dragged into place.

**5. Location and Type of Water Supply:**

Unless otherwise specified in the site-specific APD, water for drilling and completion purposes will be obtained from Johnson Water District. A temporary line may be used for water transportation from our existing supply line, from Johnson Water District, or trucked from Inland's water supply lines, located at the Wells Draw 21-4G-9-16 (NENW Section 4, T9S, R16E, SLM) , Section 34-8SR16E, Gilsonite State #7-32 (SW/NE, Section 32, T08S, R17E, SLM), Ashley 9-1-9-15 (NESE Section 1, T9S, R15E, SLM), Sandwash 1-25-8-16 (NE/NE Section 25, T8S, R16E, SLM), Pleasant Valley 42-8-9-17 (SENE Section 8, T9S, R17E SLM), Castle Draw 14-2-9-17 (SW/SW Section 2, T9S, R17E, SLM), Travis Federal #15-28 (SW/SE, Section 28, T08S, R16E, SLM), or other taps which may be installed on Inland's water system in the future. The system being tapped will have prior approval from the AO.

Water will be hauled to location over the roads marked on maps included with the site-specific APD.

**6. Source of Construction Materials:**

Surface and subsoil materials in the immediate area will be utilized.

Any gravel will be obtained from a commercial source.

The use of materials under BLM jurisdiction will conform to 43 CFR 3610.2-3.

**7. Methods of Handling Waste Materials:**

Drill cuttings will be contained and buried in the reserve pit.

Drilling fluids, including salts and chemicals will be contained in the reserve pit. Upon termination of drilling and completion operations, the liquid contents of the reserve pit will be used at the next drill site or will be removed and disposed of at an approved waste disposal facility within 120 days after drilling is terminated. Immediately upon well completion, any hydrocarbons in the pit shall be removed in accordance with 43 CFR 3162.7-1.

Unless specified in the site-specific APD, the reserve pit will be constructed on the location and will not be located within natural drainage ways, where a flood hazard exists or surface runoff will destroy or damage the pit walls. The reserve pit will be constructed so that it will not leak, break, or allow discharge of liquids.

If it is determined at the onsite inspection that a pit liner is necessary, the reserve pit will be lined with a synthetic reinforced liner a minimum of 12 mil thick, with sufficient bedding used to cover any rocks. The liner will overlap the pit walls and be covered with dirt and/or rocks to hold it in place. Trash or scrap that could puncture the liner will not be disposed of in the pit.

Reserve pit leaks are considered an undesirable event and will be orally reported to the AO.

After first production, produced wastewater will be confined to the approved pit or storage tank, or removed and disposed of at an approved facility, for a period not to exceed 90 days. During the 90-day period, in accordance with Onshore Order # 7, an application for approval of a permanent disposal method and location will be submitted for the Authorized Officer's approval.

On BIA administered lands, production fluids will be contained in leak-proof tanks. All production fluids will be disposed of at approved disposal sites. Produced water, oil, and other byproducts will not be applied to roads or well pads for control of dust or weeds.

The indiscriminate dumping of produced fluids on roads, well sites, or other areas will not be allowed.

Any spills of oil, gas, salt water, or other noxious fluids will be immediately cleaned up and removed to an approved disposal site.

A chemical porta-toilet will be furnished with the drilling rig.

Garbage, trash, and other waste materials will be collected in a portable, self-contained, fully enclosed trash cage during operations. Trash will not be burned on location.

All debris and other waste material not contained in the trash cage will be cleaned up and removed from the location immediately after removal of the drilling rig.

No chemicals subject to reporting under SARA Title III (hazardous materials) in an amount greater than 10,000 pounds will be used, produced, stored, transported, or disposed of annually in association with the drilling, testing, or completing of wells within the Monument Butte Field (MBF). Furthermore, extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities, will not be used, produced, stored, transported, or disposed of in association with the drilling, testing, or completing of wells within the MBF. Specific APDs shall address any modifications from this policy.

Attachment 1 contains the EPA List of Nonexempt Exploration and Production Wastes.

## 8. Ancillary Facilities:

### **Surface gas lines:**

- No installation of surface gas lines will be performed during periods when the soil is too wet to adequately support installation equipment. If such equipment creates ruts in excess of three (3) inches deep, the soil will be deemed too wet to adequately support the equipment.
- Where possible, surface gas lines shall be placed as close to existing oil field roads as possible without interfering with normal road travel or road maintenance activities. For lines that are installed cross-country (not along access roads), travel along the lines will be infrequent and for maintenance needs only. If surface disturbance occurs along the lines, the operator will reclaim the land to the satisfaction of the AO of the appropriate surface management agency.
- All surface lines will be either black or brown in color.

9. **Well Site Layout:**

A Location Layout Diagram describing drill pad cross-sections, cuts and fills, and locations of the mud tanks, reserve pit, pipe racks, trailer parking, spoil dirt stockpile(s), and the surface material stockpile(s) will be included with the site-specific APD.

The diagram will describe rig orientation, parking areas, and access roads, as well as the location of the following:

- The reserve pit.
- The stockpiled topsoil (first six inches); All brush removed from the well pad during construction will be stockpiled with the topsoil. Topsoil shall not be used in the construction of facility berms.
- Access road.

All pits will be fenced according to the following minimum standards:

- 39-inch net wire will be used with at least one strand of barbed wire on top of the net wire. Barbed wire is not necessary if pipe or some type of reinforcement rod is attached to the top of the entire fence.
- The net wire shall be no more than two inches above the ground. The barbed wire shall be three inches over the net wire. Total height of the fence shall be at least 42 inches.
- Corner posts shall be cemented and/or braced in such a manner to keep the fence tight at all times.
- Standard steel, wood, or pipe posts shall be used between the corner braces.

Maximum distance between any 2 fence posts shall be no greater than 16 feet.

- All wire shall be stretched using a stretching device before it is attached to corner posts.
- The reserve pit fencing will be on three sides during drilling operations, and on the fourth side when the rig moves off location. Pits will be fenced and maintained until cleanup.
- If flare pits are utilized, they will be located downwind from the prevailing wind direction and constructed in accordance with appropriate BLM guidelines and regulations.

10. **Plans for Reclamation of the Surface:**

**Producing Location:**

- Topsoil will be stripped and salvaged to provide for sufficient quantities to be respread to a depth of at least four to six inches (more if readily available on-site) over the disturbed areas to be reclaimed. Topsoil will be stockpiled separately from subsoil materials. Topsoil salvaged from the reserve pit will be stockpiled separately near the reserve pit.

Topsoil that will be stored more than one year before reclamation begins:

- will be windrowed, where possible, to a maximum depth of three (3) to four (4) feet near the margin of the well site;
  - will be broadcast seeded with the seed mixture specified in the approved permit immediately after windrowing;
  - will be "walked" with heavy equipment to crimp the seeds into the soil.
- Immediately upon well completion, the location and surrounding area will be cleared of trash and debris and all unused tubing and materials not required for production.
  - Before any dirt work associated with location restoration takes place, the reserve pit shall be as dry as possible. All debris in it will be removed. Other waste and spoil materials will be disposed of immediately upon completion of operations.
  - If a synthetic, nylon-reinforced liner is used, the excess liner will be cut off and removed and the remaining liner will be torn and perforated while backfilling the reserve pit. Alternatively, the pit will be pumped dry, the liner folded into the pit, and the pit backfilled. The liner will be buried to a minimum of four (4) feet deep. The AO will provide a seed mixture to revegetate the reserve pit and other unused disturbed areas at

the time of the onsite.

- The reserve pit and that portion of the location not needed for production facilities/operations will be recontoured to approximate the natural contours. The reserve pit will be reclaimed within 120 days from the date of well completion, weather permitting. This will be completed by the backfilling and crowning of the pit to prevent water from standing. Topsoil will be respread, and the pit area reseeded immediately following the respreading of the topsoil. The appropriate seed mixture will be provided by the AO.

#### **Dry Hole/Abandoned Location:**

- At the time of final abandonment, the intent of reclamation will be to return disturbed areas to near natural conditions. All disturbed surfaces will be recontoured to the approximate natural contours, with reclamation of the well pad and access road to be performed within six (6) months, weather permitting, after final abandonment. The surface of disturbed areas will be recontoured to blend all cuts, fills, road berms, and borrow ditches to be natural in appearance as compared to the surrounding terrain. Abandoned well sites, road, and other disturbed areas will be restored as near as practical to their original condition. Where applicable, these conditions may include the reestablishment of irrigation systems, the reestablishment of appropriate soil conditions, and the reestablishment of vegetation as specified.
- After recontouring of disturbed areas, any stockpiled topsoil will be spread over the surface, and the area reseeded immediately. The location and access road will be revegetated to the satisfaction of the AO of the appropriate surface management agency. The seed mixture will be that provided at the time of the onsite or, the AO will be contacted at the time of reclamation for the appropriate seed mixture. Seed will be drilled on the contour to an appropriate depth. Reseeding operations will be performed immediately after completion of reclamation operations.
- Dry mulch may be considered as one method to enhance the re-establishment of desired native plant communities. If straw or hay mulch is used, the straw or hay must be certified "weed-free" and the certification documentation submitted to the AO prior to its application.
- At final abandonment, the casing will be cut off at the base of the cellar or 3 feet below the final restored ground level. The Operator will cap the casing with a metal plate a minimum of 0.25 inches thick. The cap will be welded in place and the well location and identity will be permanently inscribed on the cap. The cap will be constructed with a weep hole.

11. **Surface Ownership:**

The ownership of the access roads will be specified on the site-specific APD.

The ownership of well pad will be specified on the site-specific APD.

12. **Other Information:**

All lease and/or unit operations will be conducted in such a manner that full compliance is made with all applicable laws, regulations, Onshore Oil and Gas Orders, the approved Plan of Operations, and any applicable Notice to Lessees. A copy of these conditions will be furnished to the Operator's subcontractors to promote compliance.

All travel will be restricted to approved travel routes.

The Operator will control noxious weeds along rights-of-way for roads, pipelines, well sites, or other applicable facilities. A list of noxious weeds may be obtained from the BLM or the appropriate County Extension Office. On BLM administered land, it is required that a Pesticide Use Proposal be submitted and approved prior to the application of herbicides or other pesticides or possibly hazardous chemicals.

Drilling rigs and/or equipment used during drilling operations on this location will not be stacked or stored on Federal Lands after the conclusion of drilling operations or at any other time without BLM authorization. If BLM authorization is obtained, such storage is only a temporary measure.

Unless previously conducted, a Class III archeological survey will be conducted on all Federal and/or Tribal lands. All personnel will refrain from collecting artifacts and from disturbing any significant cultural resources in the area. The Operator is responsible for informing all persons in the area who are associated with this project that they may be subject to prosecution for knowingly disturbing historic or archaeological sites or for collecting artifacts. All vehicular traffic, personnel movement, construction, and restoration activities shall be confined to the areas examined, as referenced in the archaeological report, and to the existing roadways and/or evaluated access routes. If historic or archaeological materials are uncovered during construction, the Operator is to immediately stop work that might further disturb such materials and contact the AO and the Ute Tribe Energy and Mineral Department.

Within five working days, the AO will inform the Operator as to:

- Whether the materials appear eligible for the National Historic Register of Historic Places;
- The mitigation measures the Operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,
- A time frame for the AO to complete an expedited review under 36 CFR 800.11 to

confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

If the Operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise the Operator will be responsible for mitigation costs. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that required mitigation has been completed, the Operator will then be allowed to resume construction.

On surface administered by the BIA, all Surface Use Conditions of Approval associated with the BIA Concurrence letter and Environmental Analysis Mitigation Stipulations will be adhered to, including:

- Any/all contractors used by Inland will have acquired a Tribal Business License and have access permits prior to construction.
- If the surface rights are owned by the Ute Indian Tribe and mineral rights are owned by another entity, an approved right-of-way will be obtained from the BIA before the Operator begins any construction activities. The BIA right-of-way application will be delivered under separate cover. If the surface is owned by another entity and the mineral rights are owned by the Ute Indian Tribe, a right-of-way will be obtained from the other entity.
- Upon completion of the APD and right-of-way construction, the Ute Tribe Energy and Mineral Department will be notified so that a Tribal Technician can verify an Affidavit of Completion.
- Operator's employees, including subcontractors, will not gather firewood along roads constructed by the Operator. If woodcutting is required, a permit will be obtained from the Forestry Department of the BIA pursuant to 25 CFR 169.13 "Assessed Damages Incident to Right-of Way Authorization." The Operator, subcontractors, vendors and their employees or agents may not disturb saleable timber (including firewood) without a duly granted wood permit from the BIA Forester.
- All roads constructed by the Operator on the Uinta and Ouray Indian Reservation will have appropriate signs. Signs will be neat and of sound construction. The sign will state: (a) that the land is owned by the Ute Indian Tribe, (b) the name of the Operator, (c) that firearms are prohibited to all non-Ute Tribal members, (d) that permits must be obtained from the BIA before cutting firewood or other timber products, and (e) only authorized personnel permitted.
- All well site locations on the Uinta and Ouray Indian Reservation will have an appropriate sign indicating the name of the Operator, the lease serial number, the well name and number, the survey description of the well (either footages or the quarter/quarter section, the section, township, and range).

**13. Lessee's or Operator's Representative and Certification:**

Michael Guinn  
 District Engineer  
 Inland Production Company  
 Rt. 3, Box 3630  
 Myton UT 84052  
 (435) 646-3721

Kevin Weller  
 Drilling/Reservoir Engineer  
 Inland Resources, Inc.  
 410 17<sup>th</sup> Street, Suite 700  
 Denver, CO 80202  
 (303) 893-0102

Jon Holst  
 Permitting Agent  
 Inland Production Company  
 2507 Flintridge Place  
 Fort Collins, CO 80521  
 (970) 481-1202

Brad Mecham  
 Operations Manager  
 Inland Production Company  
 Rt. 3, Box 3630  
 Myton, UT 84052  
 (435) 646-3721

Certification: All lease and/or unit operations will be conducted in such a manner that full compliance is made with all applicable laws, regulations, Onshore Oil and Gas Orders, the approved Plan of Operations, and any applicable Notice to Lessees.

The Operator will be fully responsible for the actions of its subcontractors. A complete copy of the approved "Application for Permit to Drill" will be furnished to the field representative(s) to ensure compliance and shall be on location during all construction and drilling operations.

Site specific certification will be submitted with the site specific APD.

\_\_\_\_\_  
 Michael Guinn

\_\_\_\_\_  
 Date

**Attachment 1****EPA's LIST OF NONEXEMPT EXPLORATION AND PRODUCTION WASTES**

While the following wastes are nonexempt, they are not necessarily hazardous.

- Unused fracturing fluids or acids
- Gas plant cooling tower cleaning wastes
- Painting wastes
- Oil and gas service company wastes, such as empty drums, drum rinsate, vacuum truck rinsate, sandblast media, painting wastes, spent solvents, spilled chemicals, and waste acids
- Vacuum truck and drum rinsate from trucks and drums, transporting or containing nonexempt waste
- Refinery wastes
- Liquid and solid wastes generated by crude oil and tank bottom reclaimers
- Used equipment lubrication oils
- Waste compressor oil, filters, and blowdown
- Used hydraulic fluids
- Waste solvents
- Waste in transportation pipeline-related pits
- Caustic or acid cleaners
- Boiler cleaning wastes
- Boiler refractory bricks
- Incinerator ash
- Laboratory wastes
- Sanitary wastes
- Pesticide wastes
- Radioactive tracer wastes
- Drums, insulation and miscellaneous solids

**HAZARDOUS MATERIALS TABLE**

**Table A-1  
Hazardous and Extremely Hazardous Materials Potentially Utilized or  
Produced During Construction, Drilling, Production, and Reclamation Operations  
by the Castle Peak and Eightmile Flat Oil and Gas Expansion Project,  
Duchesne and Uintah Counties, Utah**

Source	Approximate Quantities Used or Produced Per Well <sup>1</sup>	Hazardous Substances <sup>2</sup>	Extremely Hazardous Substances <sup>3</sup>	CAS No.
<b>Drilling Materials</b>				
Bentonite	20,000 lbs			
Lime	2,000 lbs	Calcium hydroxide		1305-62-0
Mica	233 lbs	Fine mineral fibers		-
<b>Cementing and Plugging Materials</b>				
Calcium chloride flake	200 lbs			
Cellophane flake	185 lbs			
Cements	38,400 lbs			
Chemical wash	234 gal	Ammonium hydroxide		1336-21-6
		Hydrocarbon solvent		
		Xylene		
		Isophropal alcohol		
Extenders	22,675 lbs	Aluminum oxide		1344-28-1
		Pozzolin		
		Alumina calcium oxide		
		Iron oxide		
		Silica		
Retarder	38 lbs	Calcium ligno sulfate		
Salt	2,100 lbs	Potassium chloride		
<b>Fracturing Materials</b>				
Biocides	4 gal	Hydroxymethyl sulfate		
		Phosphonium petrakis		
Breakers	130 lbs	Ammonium persulfate		7727-54-0
Clay stabilizer	85 gal	Fine mineral fibers		
		Methanol		67-56-1
Crosslinkers	65 gal	Boric acid		
		Methanol		67-56-1
Gelling agent	400 gal	Guar		
pH buffers	100 gal	Sodium hydroxide		1310-73-2
Sands	250,000 lbs	Fine mineral fibers		
Surfactants	180 gal	Isopropyl alcohol		67-63-0
		Methanol		67-56-1
Non-Emulsifer		Methanol		
		2-Ethylatxanol		
		Isophropanol		
		Ethoxylated		
<b>Production Products</b>				
Natural gas	.25-800 mcfpd	n-Hexane		110-54-3
		PAHs <sup>4</sup>		
		POM <sup>5</sup>		
Liquid hydrocarbons	<5-350 bpd	Benzene		71-43-2
		Ethyl benzene		100-41-4
		n-Hexane		110-54-3
		PAHs		
		POM		
		Toluene		108-88-3
		m-Xylene		108-38-3
		o-Xylene		95-47-6
		p-Xylene		106-42-3
Produced water/drill cuttings	<20 bpd water and an unknown quantity of cuttings	Barium		7440-39-3
		Cadmium		7440-43-9
		Chromium		7440-47-3
		Lead		7439-92-1
		Manganese		7439-96-5

**Table A-1 (Continued)**

Source	Approximate Quantities Used or Produced Per Well <sup>1</sup>	Hazardous Substances <sup>2</sup>	Extremely Hazardous Substances <sup>3</sup>	CAS No.
		Radium 226		
		Uranium		
		Other radionuclides		
Fuels				
Diesel fuel	>36,300 gal	Benzene		71-43-2
		Cumene		98-82-8
		Ethylbenzene		100-41-4
		Methyl tert-butyl ether		1634-04-4
		Naphthalene		91-20-3
		PAHs		
		POM		
		Toluene		108-88-3
		m-Xylene		108-38-3
		o-Xylene		95-47-6
		p-Xylene		106-42-3
Gasoline	Unk	Benzene		71-43-2
		Cumene		98-82-8
		Cyclohexane		110-82-7
		Ethylbenzene		100-41-4
		n-Hexane		110-54-3
		Methyl tert-butyl ether		1634-04-4
		Naphthalene		91-20-3
		PAHs		
		POM		
			Tetraethyl lead	78-00-2
		Toluene		108-88-3
		m-Xylene		108-38-3
		o-Xylene		95-47-6
		p-Xylene		106-42-3
Natural gas	Unk	n-Hexane		110-54-3
		PAHs		
		POM		
Propane	Unk	Propylene		115-07-1
Geophysical Survey Materials				
Explosives, fuses, detonators, boosters, fuels	Unk	Aluminum		7429-90-5
		Ammonium nitrate		6484-52-2
		Benzene		71-43-2
		Cumene		98-82-8
		Ethylbenzene		100-41-4
		Ethylene glycol		107-21-1
		Lead compounds		7439-92-1
		Methyl tert-butyl ether		1634-04-04
		Naphthalene		91-20-3
		Nitric acid		7697-37-2
		Nitroglycerine		55-63-0
		PAHs		
		POM		
		Toluene		108-88-3
		m-Xylene		108-38-3
		o-Xylene		95-47-6
		p-Xylene		106-42-3
Pipeline Materials				
Coating	Unk	Aluminum oxide		1334-28-1
Cupric sulfate solution	Unk	Cupric sulfate		7758-98-7
		Sulfuric acid		7664-93-9
Diethanolamine	Unk	Diethanolamine		111-42-2
LP Gas	Unk	Benzene		71-43-2
		n-Hexane		110-54-3
		Propylene		115-07-1

**Table A-1 (Continued)**

Source	Approximate Quantities Used or Produced Per Well <sup>1</sup>	Hazardous Substances <sup>2</sup>	Extremely Hazardous Substances <sup>3</sup>	CAS No.
Pipeline primer	Unk	Naphthalene		91-20-3
		Toluene		108-88-3
Potassium hydroxide solution	Unk	Potassium hydroxide		1310-58-3
Rubber resin coatings	Unk	Acetone		67-64-1
		Coal tar pitch		68187-57-5
		Ethyl acetate		141-78-6
		Methyl ethyl ketone		78-93-3
		Toluene		108-88-3
		Xylene		1330-20-7
Emissions				
Gases	127 tons <sup>6</sup>	Formaldehyde		50-00-0
			Nitrogen dioxide	10102-44-0
			Ozone	10028-15-6
			Sulfur dioxide	7446-09-5
			Sulfur trioxide	7446-11-9
Hydrocarbons	492 tons <sup>7</sup>	Benzene		71-43-2
		Ethylbenzene		100-41-4
		n-Hexane		100-54-3
		PAHs		
		Toluene		108-88-3
		m-Xylene		108-38-3
		O-Xylene		95-47-6
		P-Xylene		106-42-3
Particulate matter	24 tons <sup>8</sup>	Barium		7440-39-3
		Cadmium		7440-43-9
		Copper		7440-50-8
		Fine mineral fibers		
		Lead		7439-92-1
		Manganese		7439-96-5
		Nickel		7440-02-0
		POM		
		Zinc		7440-66-6
Miscellaneous Materials				
Acids	Unk	Hydrochloric acid		
Antifreeze, heat control, and dehydration agents	300 gal	Acrolein		107-02-8
		Cupric sulfate		7758-38-7
		Ethylene glycol		107-21-1
		Freon		76-13-1
		Potassium hydroxide		1310-58-3
		Sodium hydroxide		1310-73-2
		Triethylene glycol		112-27-6
Batteries	Unk	Cadmium		7440-43-9
		Cadmium oxide		1306-19-0
		Lead		7439-92-1
		Nickel hydroxide		7440-02-0
		Potassium hydroxide		1310-58-3
		Sulfuric acid		7664-93-9
Biocides	Unk	Formaldehyde		50-00-0
		Isopropyl alcohol		67-63-0
		Methanol		67-56-1
Corrosion inhibitors	Unk	4-4' methylene dianiline		101-77-9
		Acetic acid		64-19-7
		Ammonium bisulfite		10192-30-0
		Basic zinc carbonate		3486-35-9
		Diethylamine		109-89-7
		Dodecylbenzenesulfonic acid		27176-87-0
		Ethylene glycol		107-21-1
		Isobutyl alcohol		78-83-1

**Table A-1 (Continued)**

Source	Approximate Quantities Used or Produced Per Well <sup>1</sup>	Hazardous Substances <sup>2</sup>	Extremely Hazardous Substances <sup>3</sup>	CAS No.
		Isopropyl alcohol		67-63-0
		Methanol		67-56-1
		Napthalene		91-20-3
		Sodium nitrite		7632-00-0
		Toluene		108-88-3
		Xylene		1330-20-7
Emulsion breakers	Unk	Acetic acid		64-19-7
		Acetone		67-54-1
		Ammonium chloride		12125-02-9
		Benzoic acid		65-85-0
		Isopropyl alcohol		67-63-0
		Methanol		67-56-1
		Napthalene		91-20-3
		Toluene		108-88-3
		Xylene		1330-20-7
		Zinc chloride		7646-85-7
Fertilizers	Unk	Unk		
Herbicides	Unk	Unk		
Lead-free thread compound	25 gal	Copper		7440-50-8
		Zinc		7440-66-6
Lubricants	Unk	1,2,4-trimethylbenzene		95-63-6
		Barium		7440-39-3
		Cadmium		7440-43-9
		Copper		7440-50-8
		n-Hexane		110-54-3
		Lead		7439-92-1
		Manganese		7439-96-5
		Nickel		7440-02-0
		PAHs		
		POM		
		Zinc		7440-66-6
Methanol	200 gal	Methanol		67-56-1
Motor oil	220 gal	Zinc compounds		
Paints	Unk	Aluminum		7429-90-5
		Barium		7440-39-3
		n-Butyl alcohol		71-36-3
		Cobalt		7440-48-4
		Lead		7439-92-1
		Manganese		7439-96-5
		PAHs		
		POM		
		Sulfuric acid		7664-93-9
		Toluene		108-88-3
		Triethylamine		121-44-8
		Xylene		1330-20-7
Paraffin control	Unk	Carbon disulfide		75-15-0
		Ethylbenzene		100-41-4
		Methanol		67-56-1
		Toluene		108-88-3
		Xylene		1330-20-7
Photoreceptors	Unk	Selenium		7782-49-2
Scale inhibitors	Unk	Acetic acid		64-19-7
		Ethylene diamine tetra		60-00-4
		Ethylene glycol		107-21-1
		Formaldehyde		50-00-0
		Hydrochloric acid		7647-01-0
		Isopropyl alcohol		67-63-1
		Methanol		67-56-1
		Nitritotracetic acid		139-13-9
Sealants	Unk	1,1,1-trichloroethane		71-55-6

**Table A-1 (Continued)**

Source	Approximate Quantities Used or Produced Per Well <sup>1</sup>	Hazardous Substances <sup>2</sup>	Extremely Hazardous Substances <sup>3</sup>	CAS No.
		n-Hexane		110-54-3
		PAHs		
		POM		
Solvents	Unk	1,1,1-trichloroethane		71-55-6
		Acetone		67-64-1
		t-Butyl alcohol		76-65-0
		Carbontetrachloride		56-23-5
		Isopropyl alcohol		67-63-0
		Methyl ethyl ketone		108-10-1
		Methanol		67-56-1
		PAHs		
		POM		
		Toluene		108-88-3
		Xylene		1330-20-7
Starting fluid	Unk	Ethyl ether		60-29-7
Surfactants	Unk	Ethylene diamine		107-15-3
		Isopropyl alcohol		67-56-1
		Petroleum naphtha		8030-30-6

<sup>1</sup>These numbers are based on: 1) 450 sks or 50/50 poz at 14.4; 2) 300 sks of prem II at 11.0; 3) ave, 250,000 # frac job.  
lbs = pounds; gal = gallons; bpd = barrels per day; mmcf/d = million cubic feet per day; Unk = unknown quantities to be listed based on information availability.

<sup>2</sup>Hazardous substances are those constituents listed under the Consolidated List of Chemicals Subject to Reporting Under Title III of SARA, as amended.

<sup>3</sup>Extremely hazardous substances are those defined in 40 CFR 355.

<sup>4</sup>PAHs = polynuclear aromatic hydrocarbons.

<sup>5</sup>POM = polycyclic organic matter.

<sup>6</sup>Value includes nitrogen oxides (NO<sub>x</sub>) 107 tons per well) and sulfur dioxide (SO<sub>2</sub>) (20 tons per well) emission estimates only, as adapted from BLM (1996b).

<sup>7</sup>Value includes volatile organic compound (VOC) emission estimates only, as adapted from BLM (1996b).

<sup>8</sup>Value includes particulate matter less than 10 microns diameter (PM<sub>10</sub>) emission estimates only, as adapted from BLM (1996b).