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**BOPCO**

**SURFACE USE PLAN**

**FOR YELLOW CREEK FEDERAL WELLS**

**2-22-0242**

**LOCATED ON THE EXISTING WELL PAD YCF/XOM 2-22-1**

**LOCATED IN LOT #6**

**SECTION 2, T1S, R98W 6<sup>TH</sup> P.M.**

**RIO BLANCO COUNTY, COLORADO**

**LEASE NUMBER: COC-62048**

**SURFACE OWNERSHIP: FEDERAL**

**June 2008**

***NOTE: the following sections of BOPCO's original 13-Point Surface Use Plan for the existing YCF/XOM 2-22-1 well (dated October 13, 2006) are revised and updated to incorporate new data and current actions/procedures proposed by BOPCO that would apply to the proposed directional well described below. New text is in red. Those sections not included in this updated plan remain unchanged from the original SUP.***

**BOPCO L.P.**

**SURFACE USE PLAN**

**YELLOW CREEK FEDERAL 2-22-PAD**

**(ALL WELLS ON PAD)**

**Lot 6, Section 2, T1S, R98W 6<sup>TH</sup> P.M.**

**Rio Blanco County, Colorado**

**Lease Number: COC-62048**

**WELL LOCATION & INTRODUCTION:**

Proposed Well: YCF 2-22-0242

Location of Well

Surface: 1621' FNL 2087' FWL, Lat. 40.00.117°N, Long. 108.36.052°W

Production Depth: 610' FNL, 2437' FWL

The White River Field Office will be notified 48 hours prior to construction, 24 hours prior to moving in the drilling rigs and 24 hours prior to commencing reclamation work.

**4. LOCATON OF EXISTING AND/OR PROPOSED PRODUCTION FACILITIES:**

All production facilities are to be located off the proposed well pad, at a site adjacent to the existing access route to the well (refer to Sheets 3a and 3b in Attachment 2). The tank battery site facilities will include four, 400 barrel tanks, sales and dump lines and a quad pack. An insulated 2 inch flow line and a 1 inch trace line will connect the well head to the quad pack. Refer to Sheet 3b, dated May 8, 2008, for the production layout.

**5. Location and type of water supply:**

Approximately 3.9 acre-feet (or 30,000 bbl [barrels]) of water would be needed to drill and complete the proposed well. All fresh water for drilling, completion of the well, dust suppression and ancillary operations would come from either existing permits from the White River or from commercial culinary permits from the cities of Meeker or Rangely, Colorado, as shown below:

Structure	Approp. Date	Decree Date	Amount	Priority No.	Case No.
Imes, Reynolds & Mckell Ditch	11/16/1888	10/2/1899	13.1 cfs	119	C.A. 82
Imes, Reynolds & Mckell Ditch	1/1/1889	5/23/1902	2.20 cfs	130	C.A. 111
Imes, Reynolds & Mckell Ditch	5/18/1899	5/23/1902	1.60 cfs	131	C.A. 111
Imes, Reynolds & Mckell Ditch	11/18/1957	11/21/1966	1.00 cfs	629	C.A. 1269
Imes, Reynolds & Mckell Ditch	11/20/1957	11/21/1966	3.70 cfs	631	C.A. 1269
Imes, Reynolds & Mckell Ditch	5/4/1964	11/21/1966	2.05 cfs	739	C.A. 1269
George S. Witter Ditch	4/15/1887	10/2/1899	2.50 cfs	117	C.A. 83
George S. Witter Ditch	7/15/1898	10/2/1919	1.90 cfs	118	?
George S. Witter Ditch	5/1/1902	9/14/1916	2.60 cfs	216	C.A. 285
George S. Witter Ditch	11/7/1957	11/21/1966	7.90 cfs	616	C.A. 1269

Water would be provided by water-hauling trucks having a water holding capacity ranging between 100 and 180 barrels. Water would be stored on location in either a tank or from the rig tank.

To minimize the use of fresh water, drilling water from one well will be cleaned, tested and reused to the maximum extent possible, without causing damage to equipment or result in degradation of surface resources. Water needed for fracing purposes during well completion activities would come from BOPCO's "frac tank water station, located on BOPCO's YCF 32-33-1 well pad in T1N, R98W, section 32. This pad contains a collection of about 80 tanks capable of supplying water needed for frac actions for a single well. Frac water would be transported from the water station to the proposed well location via an 8-inch polyurethane buried pipeline located within road ROWs. Upon completion of frac actions, the water would be recollected at the frac tank water station, cleaned, tested and held for use by the next well scheduled for such activities.

## **7. Methods for handling waste disposal:**

### **A) Pit Construction:**

The proposed wells would be drilled and completed using a two-phase process:

- The first phase would involve a relatively small drill rig (Lang or its equivalent in size and capacity) using reverse circulation methods to complete surface drilling down to a depth of about 3500 feet, and to install surface casing. This phase would require a small cuttings pit (having measurements of approximately 15 feet x 40 feet x 12 feet deep). This pit would hold first-phase cutting returns, fresh water liquids and excess circulation cement.
  - The cuttings pit would be constructed on the cut side of each pad. The pit would not be located in a natural drainage or where surface run-off could enter the pit or damage the pit walls.



- Surface casing would involve cementing the drill hole from the surface to a depth of about 3500 feet, depending on the specific well.
- The second phase would involve a larger drill rig (H&P 317 or a skid-mounted rig of equivalent dimensions and capacity) to complete drilling activities down to the target depth. This phase would involve a closed loop system, involving a series of equipment and dewatering actions resulting in a "dry" location where a reserve pit is not required and drilling fluids are recycled. BOPCO would use a small drill cuttings pit, located on the well pad, having a measurement of approximately 50 feet by 50 feet by 12 feet deep, to hold only the dry cuttings material obtained from drilling. Prior to reclamation, these pits would be cleared of cuttings materials.

#### **9. Well-site layout:**

P) Tank Battery Disturbance = 0.46 acres (Refer to Sheet 3b in Attachment 2)

The cuttings pit will be constructed and operated to the following minimum standards:

- A) The cuttings pit would be fenced to prevent access for wildlife and unauthorized personnel. The fencing would be installed on three sides of the pit during drilling operations and on the fourth side with the drilling rig moves off location and until the pit is backfilled and reclaimed. In wild horse range, the fence height would not exceed 48 inches. On cattle allotments, the fence would be constructed of four strands of barbed wire.
- E) Once the drilling rig is moved off location, the reserve pit would be netted to protect migrating birds.

#### **10. Plans for restoration of the surface:**

- A) Restoration of the cuttings pit would involve using an excavator to remove as much of the drilling mud as possible, then, using a 50:50 mix of subsoil with fly ash (obtained from a commercial supplier), compact the mixture as layers until the pit is completely filled and level with the well pad.
- B) Protection and restoration of the surface would be completed in accordance with the attached reclamation plan (includes SWMP best practices).

#### **12. Lessees or Operator's representative and certification:**

- A) Representatives

Surface Use Plan  
Kally Moran  
Buys and Associates, Inc.  
300 East Mineral Avenue, Suite 10  
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Drill Plan  
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Attachment:

- 1 - Reclamation Plan for YCF/XOM 2-22 pad
- 2 - YCF/XOM 2-22-pad Well Pad Diagrams (12 sheets)



**Attachment 1 – Reclamation Plan for  
BOPCO's YCF/XOM 2-22 Pad**





**Plan for Surface Reclamation –  
BOPCO's Well XOM 2-22-1**

**Revision to Item 10 of this Well's Existing Surface Use Plan of Operations**

**Prepared for:**

BOPCO, L.P.  
9949 S. Oswego Street, Suite 200  
Parker, CO

And

Bureau of Land Management  
White River Field Office  
Meeker, Colorado

**Prepared by:**

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Vernal, UT 84078

**May 2008**

## **Plan for Surface Reclamation BOPCO's Well XOM 2-22-1**

The following Plan for Surface Reclamation (PSR) updates and replaces the existing PSR included in BOPCO's XOM 2-22-1 APD. This plan also includes site-specific Best Management Practices for the Storm Water Management Plan (SWMP) for this well. This well is located in Lot 6 of Section 2, T1S, R98W, 6<sup>th</sup> P.M. (see **Attachment 1** for map of location). BOPCO is preparing to drill another already approved well (2-22-2, also known as 2-22-0246) on the existing well pad. In addition, BOPCO proposes to drill the following six wells on the existing XOM 2-22-1 well pad during the year 2008: 2-22-0214, 2-22-0217, 2-22-0222, 2-22-0242, 2-22-0263, and 2-22-0256. Applications for Permit to Drill (APDs) for these wells have not yet been submitted.

The direction and specific work orders spelled out in this plan will apply to the existing well pad, the above-cited and any subsequent wells that may be placed on this pad site. This plan will also apply to the existing and any additional infrastructure associated with the XOM 2-22-1 well pad (i.e., pipelines [either surface and/or buried], additional access routes, etc.).

The original APDs for BOPCO's XOM 2-22-1 and 2-22-2 wells were approved by the BLM on November 22, 2006. Since that time, well XOM 2-22-1 has been drilled and has been in production. Some interim reclamation actions were completed on the pipeline collocated with the access road, and some areas not needed for production purposes. These reclamation actions included closure and reclamation of the reserve pit, and re-spreading of shrubs and trees that were removed during the construction process back onto the pipeline ROW.

Based on production data from the XOM 2-22-1, BOPCO proposes that six additional wellheads be placed on the existing pad site. Prior to the BLM making its decision on these applications, the BLM is requiring an updated PSR be submitted for the XOM 2-22-1, per the revised Onshore Shore Order #1 (subsection 4.j). This revision to the existing XOM 2-22-1's Surface Use Plan is in response to BLM's direction.

### **I. General Goals and Objectives**

The overall objectives of this PSR for BOPCO's XOM 2-22-1 well pad site and supporting infrastructure are:

- Minimize the surface impacts to other resources and authorized uses in the vicinity of the well pad site.
- Restore the landform and natural processes to re-establish and sustain a pre-disturbance productivity of the site, consistent with the 1997 White River Resource Management Plan (WRRMP).
- Be adaptive to changing environmental conditions.
- Apply all COAs outlined in the Record of Decision/EA associated with this well (EA No. CO-110-2006-228, dated November 14, 2006), also consider additional



applicable BLM's Conditions of Approval (WRRMP, Appendix 2) as a baseline to minimize surface impacts and enhance subsequent reclamation actions.

- Apply appropriate new techniques and/or methodologies that would minimize surface disturbance and enhance reclamation success.

Anecdotal and subjective surface monitoring of the XOM 2-22-1 well pad site reveals that interim reclamation on the pipeline ROW may not have been adequate, and that additional stormwater protection measures are necessarily during drilling of the six additional wells. This plan outlines new and additional interim and final reclamation actions that would need to occur to realize the objectives stated above.

The Yellow Creek Field is located in an area of highly variable soil types and structures, vegetation communities, and climatic regimes. Techniques and methodologies associated with arid rangeland reclamation specific to the intermountain states are expanding and being revised in response to new research findings. This plan considers applicable new findings. This plan is adaptive to changing physical environmental conditions and responsive to changes in trends and/or degree of success following reclamation. It is reasonable to expect that this plan, based on quantifiable and qualitative site-specific data, as well as continued advances in reclamation techniques and methodologies, may need additional updates in order to further realize the overall goals and objectives set out in this plan.

#### **Criteria for Determining Long-Term Success of This Plan**

To determine success, the following criteria would be used:

- Establish a self-sustaining, healthy, diverse, native or seeded plant community on the well pad site.
- Maintain sufficient desired vegetation density to a) control erosion and b) prevent non-native plant invasion. Specifically, erosion control is sufficient when gullyng, deep and excessive rilling, or slumping are not observed.
- Re-establish wildlife habitat or forage production.
- Revegetation success criteria will be as follows:
  - Total vegetative ground cover will be at least 70% of ground cover in a comparable, adjacent undisturbed area
  - Seeded or desirable plant species will consist of at least 90% of vegetative ground cover.

#### **Storm Water Management Plan Measures**

Best Management Practices described in the SWMP for the XOM 2-22-1 were implemented (refer to **Attachment 2**). A subsequent SWMP audit/ bi-weekly inspection was performed on April 19, 2008, and bi-weekly inspection was performed on May 2, 2008. Based on these inspections, additional BMPs are identified as being needed to meet the goals and objectives of this reclamation plan:

- Preservation of existing vegetation surrounding the well pad (successfully implemented).
- Loose, earthen berms on the northern and eastern portion of the well pad (successfully implemented).
- Berm along the north side of the well pad, just north of the v-ditch (successfully implemented).
- Brush barrels on the northern side of the well pad, north of the berms and v-ditch (successfully implemented).
- Tracking of topsoil piles located east and west of the well pad; and tracking of the excess material pile located south-east of the well pad (tracking not evident, but soil piles are stable, well armored with rocks, and do not need additional stabilizing measures prior to well drilling).
- Crowning/ditching of roads is determined to be inadequate. The access road to the location needs to be re-graded with appropriate crowning and ditching of the road.
- Culverts under the access road are determined to be inadequate. Inspections reveal the access road to the well location has at least 3 culverts or low water crossings with no inlet or outlet protection surrounding culverts. Correct by immediately implementing the following:
  - Suitable inlet and outlet protection may include rock checks designed to reduce the increased velocity of water through the culvert to the down stream side.
  - Armoring of the bank surrounding the inlet or upstream side of the culvert to reduce or eliminate the likelihood of flash floods washing out the culvert.
  - Locations of existing culverts in NAD 83 format:
    - 0723516E, 4431182N
    - 0724520E, 4430967N
    - 0724930E, 4431022N
  - Construct an additional culvert under the access road, where the access road meets the well pad. This culvert would divert water from the east road ditch, under the access road, and to the west side of the road. The pour point of the culvert would be armored and fanned to prevent a concentrated overland flow.
- Install fiber rolls (wattles) to reduce surface runoff and minimize surface erosion:
  - Around perimeter of slope near/at toe on the "downhill" side of the location.
  - At the toe slope of stock pile on the south and southwest corners of location.
  - Where appropriate, use existing "grubbed" vegetation in lieu of wattles distributed at toe of existing slopes.
- Re-grade and track slopes  $>3 : 1$ , particularly on south side.
- Trash is observed on location; remove trash to appropriate sites.



- Fill in and re-grade or eliminate entirely the previously constructed diversion ditches. If ditches are left, suitable rock checks should be installed at appropriate intervals depending on slope.

## II. Surface Disturbance Specific to BOPCO's XOM 2-22-1 Well Pad Site

The original 13 Point Surface Use Plan, dated October 13, 2003, provides the following design information (**Attachment 2** provides the well pad layout):

The well pad was laid out in an east-west alignment, in a relative flat site (elevation ranges from 6,296 to 6,302 feet). The overall design dimensions of the pad site were 385 feet long by 295 feet wide (including the reserve pit area). The reserve pit was located in the SE corner of the well pad. The two western corners of the well pad were rounded to avoid excess cutting and filling during well pad construction. The apron area of the pad site included three topsoil stockpiles (located off the SW, NE, and S side of the well pad) and the excess material area (located off the SE corner of the well pad) and the flare pit (located on the SW corner of the well pad). The apron area was designed to involve predominately the southern and eastern edge of the pad. The planned access route involved approximately 7,100 feet of new construction, involving a temporary right of way (ROW) width of 30 feet during construction and a long-term running surface width of 18 feet. Of the 7,100 feet of road construction, approximately 6,020 feet of the road upgraded a small two track (referred to as the service road) and 1,080 feet was construction of a new road that accessed the well pad from the service road. The road accessed the well pad on the NW side of the pad and did not cross any fences, would not require any culverts or turnouts, and would not involve any major cuts or fills. Approximately 1,080 feet of pipeline would be buried south and west of the location and would parallel the access road, within the access road's ROW. The pipeline required a 15-foot wide permanent ROW, and 60-foot wide temporary ROW (which included the road ROW) during construction. **Table 1** provides the estimated surface disturbance associated with the XOM 2-22-1 well site as described in the original Surface Use Plan.

**Table 1. Estimated Surface Disturbance for BOPCO's XOM 2-22-1 as Originally Planned in APD**

	Square Feet	Acres
Well Pad, including reserve pit and apron area	193,406	4.44
Service road (6,020 feet x 30 feet)	180,600	4.15
Access road (1,080 feet x 30 feet)	32,400	0.74
Pipeline (1,080 feet x 30 feet)	32,400	0.74
<b><i>Estimated Total Designed Surface Disturbance</i></b>	<b><i>438,806</i></b>	<b><i>10.07</i></b>

In January 2008, BOPCO conducted an as-built survey of the XOM 2-22-1 well site. The survey revealed that 4.96 acres were disturbed associated with the well pad, reserve pit and apron areas of the well site (0.52 acres more than the 4.44 acres planned). This additional surface disturbance is associated with all sides of the pad; however, the majority of the disturbance is located off the northern side of the pad. A copy of the as-built survey plat is attached (refer to **Attachment 3**).



The as-built survey also revealed that the actual disturbance associated with the service and access road was 6.01 acres (1.12 acres more than the 4.89 acres planned). However, the actual disturbance associated with the pipeline was only 0.32 acres (0.42 acres less than the 0.74 acres planned). The pipeline was placed closer to the road, and did not require as large of a disturbance ROW as described in the APD for the well. The total disturbance associated with the XOM 2-22-1 well and associated road and pipeline, is 11.29 acres, or approximately 12 percent more than originally planned. **Table 2** provides the actual surface disturbance associated with the XOM 2-22-1 well site as described in the as-built survey dated March 7, 2008.

**Table 2. Actual As-Built Surface Disturbance for BOPCO's XOM 2-22-1**

	Square Feet	Acres
Well Pad, including reserve pit and apron area	216,058	4.96
Service Road (6,020 feet x approximately 37 feet)	222,156	5.10
Access Road (1,080 feet x approximately 37 feet)	39,639	0.91
Pipeline (1,080 feet x approximately 13 feet)	13,939	0.32
<i>Estimated Total Surface Disturbance</i>	<i>491,792</i>	<i>11.29</i>

### III. Reclamation Plan

#### A. Site Description

BOPCO's XOM 2-22-1 well pad is located on top of a ridge that is located above and west of Yellow Creek. The pad is located on a part of the ridge that slopes down toward the north-east. As shown in **Attachment 3**, an existing drainage that sloped down toward the west, was disturbed as part of the existing disturbance. There is also a small existing drainage on the west side of access road and well pad that drains to the north. Drainage from the well location is to the north-northeast into an unnamed drainage, which then drains to the east and into Yellow Creek. Water would travel approximately 0.9 miles along this path before entering Yellow Creek. Elevation at the existing well pad is approximately 6,300 feet above mean sea level (amsl). The site slopes down from the SW corner of the pad and off the NE corner.

Approximately one third of the well pad is located in an existing stand of sagebrush and perennial native bunchgrass. Pinyon-juniper trees occur on the other two thirds of the well pad, and occur to the west of the well pad. The pipeline and access road are located in a pinyon-juniper woodland, as does approximately half the service road. The western half of the service road occurs in open areas of various shrubs, grasses and forbs. The average annual precipitation, usually in the form of snow, varies between 12-18 inches.

The U.S. Department of Agriculture's Natural Resources Conservation Service/Soil Conservation Service (NRCS) has surveyed the soils and ecological site information for Rio Blanco County, including the Yellow Creek Field. These surveys show the predominant soils associated with the XOM 2-22-1 well pad site consist of Rentsac

Channery loam (approximately 50%) and Piceance fine sandy loam (approximately 50%). The northern half of the pipeline is located on the Rentsac Channery Loam, and the southern half occurs on the Redcreek-Rentsac complex. The western half of the access road is located in Piceance fine sandy loam soils; while the eastern portion of the road is partly located on Redcreek-Rentsac complex soils, and partly on Rentsac Channery Loam soils.

### Rolling Loam Ecological-Site Description

The Piceance fine sandy loam soil is associated with the Rolling Loam ecological site. This soil's characteristics include generally deep, medium to moderately coarse textures, exhibit good water-holding capacity and moderate water infiltration rates. These characteristics make this soil favorable for good plant growth. **Table 3** includes the dominant plant species associated with the Rolling Loam ecological site.

**Table 3. Dominant Vegetation for the Rolling Loam Ecological Site**

Common Name	Scientific Name
Big sagebrush	<i>Artemisia tridentata</i> spp <i>tridentata</i>
Low rabbitbrush	<i>Chrysothamnus</i>
Gray horsebrush	<i>Tetradymia canescens</i>
Serviceberry	<i>Amelanchier utahensis</i>
Western wheatgrass	<i>Agropyron smithii</i>
Needle-and-thread	<i>Stipa</i> species
Bluegrass species	<i>Poa</i> species
Buckwheat	<i>Eriogonum</i> species
Fleabane/daisies	<i>Erigeron</i> species
Globemallow	<i>Sphaeralcea</i> species
Phlox	<i>Phlox</i> species
Lupine	<i>Lupinus</i> species
American vetch	<i>Vicia Americana</i>

Source: NRCS, unpublished soil survey data. 1975.

The potential total annual production for this site can range from 500-1000 pounds of air dry vegetation per acres per year. The optimum growing season is April 15 to July 1. This ecological site is treeless; however invaders include pinyon and Utah juniper. Optimum ground cover is 30%.

### Pinyon-Juniper Woodland Ecological Site Description

Both the Redcreek-Rentsac soil complex and Rentsac Channery Loam soils are associated with the pinyon juniper woodland ecological site. Both soils are relatively shallow and are well-drained. Permeability for both soils is moderate and available water capacity is very low. In addition, runoff for both soils is rapid and the water erosion hazard is moderate to very high. These characteristics do not make these soils favorable for good plant growth. **Table 4** includes the dominant plant species associated with the Pinyon-Juniper ecological site.



**Table 4. Dominant Vegetation for the Pinyon-Juniper Woodland Ecological Site**

Common Name	Scientific Name
Pinyon pine	<i>Pinus edulis</i>
Juniper	<i>Juniperus osteosperma</i>
Big sagebrush	<i>Artemisia tridentata</i> spp <i>tridentata</i>
Low rabbitbrush	<i>Chrysothamnus</i>
Serviceberry	<i>Amelanchier utahensis</i>
Indian ricegrass	<i>Achnatherum hymenoides</i>
Junegrass	<i>Koeleria cristata</i>
Bluebunch wheatgrass	<i>Agropyron spicatum</i>
Western wheatgrass	<i>Agropyron smithii</i>
Beardless wheatgrass	<i>Agropyron inerme</i>

Source: NRCS, unpublished soil survey data. 1975.

The potential total annual production for this site can range from 250-500 pounds of air dry vegetation per acres per year. The optimum growing season is May to June. Ground cover can vary from 1 to 20% depending on tree canopy cover.

#### **B. General Practices**

The following practices will be completed prior to the initiation of any specific reclamation action:

- Clearly stake the specific area(s) to be worked and limit all work to be within these stakes.
- Take photos of the specific area(s) to be worked/reworked prior to and at the conclusion of the scheduled work.
- GPS the perimeter of the area to be worked and at the conclusion of the scheduled reclamation work. Using survey-grade or sub-meter accuracy GPS equipment, record total stations to identify and map all existing disturbed areas associated with well pads, access routes, pipeline routes, etc. Prepare either an "as-built survey" or have prepared an engineer's detailed drawing that identifies the specific areas of disturbance, including locations of topsoil, excess material piles cut and fill, SWMP actions, etc. This information will form the basis for the area to be reclaimed.
- BOPCO will conduct a pre-work meeting with any contractor and/or subcontractor associated with actions outlined in this plan. The purpose of such meetings is to ensure all reclamation actions are discussed and understood prior to initiating any such action.
- BOPCO will have a representative on site during all reclamation actions. Should a question arise as to the specific actions/processes to be undertaken, surface-disturbing actions will cease and the BLM will be consulted. Surface-disturbing actions will resume only after clarification and/or adjustments to the specific actions are agreed to by both the BLM and BOPCO.
- BOPCO will provide BLM with at least 24 hours notice prior to actual initiation of any reclamation action.

- Provide “as-built” drawings to the BLM within 30 days of the conclusion of all surface disturbing work.
- Earthwork for both interim and final reclamation actions will be completed within six (6) months of each well completion or plugging (weather permitting).
- Drill pit and reserve pits (if used) will be reclaimed in strict adherence to requirements established in Onshore Order #7. In general these requirements include: pits must be free of oil and other liquid and/or solid wastes prior to filling, pit liner must be removed to the solids level or treated to prevent re-emergence to the surface, pit area will be filled in and mounded slightly to allow for settling and positive drainage. Such actions would be completed within 90 days of completion of drilling activities for each well or at the direction of the BLM.

### **C. Interim Reclamation**

Interim reclamation “...consists of minimizing the footprint of disturbances by reclaiming all portions of the well site not needed for production operations” (BLM and USFS 2007). Prior to drilling the six additional wells on the well pad, BOPCO will carry out the immediate actions discussed below. Aside from these immediate actions, the well pad layout and well pad size will remain unchanged until after all six wells are drilled. After the drilling and completion phase of construction, BOPCO would initiate interim reclamation on an estimated 3.26 acres (see **Table 5**) associated with the XOM 2-22-1 well pad site.

#### **1. Immediate Actions**

- Implement identified SWMP measures as set out in section I of this plan. These include:
  - Rebuild the access road to proper shape of crown and ditch using a standard road design as described in the Good Book (BLM and USFS 2007), refer to section I of this plan.
  - Repair and install culverts as set out in section I of this plan.
  - Fill in and re-grade or eliminate entirely the previously constructed diversion ditches.

#### **2. Short-term Goals**

- Complete interim reclamation actions as set out in this section. Due to the nature of the proposed development, it is understood that interim reclamation actions may be conducted several times on sites previously reclaimed.
- At the completion of the second growing season following reclamation and reseeding (i.e., fall of 2011), demonstrate these actions are achieving, or causing to move the reclaimed areas toward, long-term success as set out above in Section I.



### 3. Givens and Assumptions

- Seed tags from any initial seeding of pipeline or other areas of the well pad have not been provided to the BLM, and therefore it must be assumed that seeding did not occur.
- The proposed six wells would all be drilled during the year 2008.
- The anticipated life of each of these wells is 20 years.
- The drill rig will be on the well pad throughout the entire 6-well drilling program.
- At the conclusion of drilling the final well, at a minimum 50% of the pad would be reclaimed. After all six wells have been drilled, a determination will be made if more acreage could be reclaimed. The remaining disturbance would be retained for production purposes for the life of the wells.
- As the service road is used for other well access, it will remain in its current state, but will be reclaimed after it is no longer necessary.
- Interim reclamation will occur on all areas not necessary for production, including the pipeline.
- The access route will be reduced from a 30-foot width to an 18-foot width for the life of the wells.
- **Table 5** provides the estimated acreage that will be reclaimed after the final well is drilled, and the remaining acreage that will be utilized for production purposes for the life of the wells.

**Table 5. As-Built Surface Disturbance and Initial Reclamation Acreages for BOPCO's XOM 2-22-1 Well**

	As-Built Acres	Action	Initial Reclamation Acreage
Well Pad, including reserve pit and apron area	4.96	50% reduction	2.48
Service Road (6,020 feet x approximately 37 feet)	5.10	No interim reclamation	0
Access Road (1,080 feet x approximately 37 feet)	0.91	Reduction to 18 foot running surface	0.46
Pipeline (1,080 feet x approximately 13 feet)	0.32	Re-seed entire area	0.32
<i>Estimated Total Designed Surface Disturbance</i>	<i>11.29</i>		<i>3.26</i>

### 4. Conditions and/or Requirements

#### Site Preparation

- Visually inspect and control any weeds on the site to be reclaimed to ensure that it is free of noxious and invasive weed plants prior to completing any reclamation actions.
- Minor/temporary re-contouring will be accomplished to return the reclaimed area's landform to a flat, gently sloping area. The site will be restored to maintain the gentle, natural drainage pattern to the north-northeast. The existing access



routes on the western end of the pad will be maintained to include proper drainage from the pad.

- Complete all ground work on the contour over areas to be revegetated.
- If soil is compacted, rip the soil to relieve soil compaction several days prior to reseeding.

### **Topsoil**

- Ensure all topsoil is free of excessive rock fragments having dimensions larger than "rock" size (8-10 inches) and comprise less than 5% of the topsoil. It may be appropriate to screen out any such rock fragments before distributing the topsoil.
- Pretest topsoil for pH and appropriate percentage of organic material. Adjust the pH as needed to support the seeded species. Add sufficient organic material, preferably straw, crimped into place, consistent with the topsoil composition as defined for the Piceance fine sandy loam soil.
- Spread topsoil over the entire staked area to be reclaimed.
- If the amount of topsoil is insufficient to satisfactorily cover the entire staked area, BOBCO would procure additional topsoil from a BLM-approved source.
- Prior to actual seeding, roughen the topsoil to prepare a friable topsoil structure.

### **Reseeding**

- Disturbed areas will be reseeded as soon as possible to reduce the potential for invasive species infestations.
- Apply seed using a rangeland-type drill seeder. If the area to be reclaimed is too small to effectively utilize a rangeland-type seed drill, broadcasting of the seed may be appropriate. If broadcasting, double the recommended seed amounts and rake or harrow the area to cover seed.
- Use a drill seeder that is of a size and properly equipped to complete the reseeding action. The drill seeder should also be equipped with the following: a) light-weight chains attached to the drill tubes to lightly cover the seed after deposition; and b) packer wheels to compact the seeded furrow and lessen the depth of soil overlying the planted seed.
- Apply seed during periods when maximum soil moisture is anticipated, i.e., late fall or early winter.
- Prior to actually setting seed, ensure sufficient topsoil moisture content exists.
- If insufficient soil moisture exists, gently sprinkle water from water trucks. Seeding may occur if insufficient moisture content exists, but there is at least a 60% probability of receiving moderate precipitation from an incoming storm event.
- Visually inspect the reseeded area. If a large percentage of seed is visible on the soil's surface, hand rake or harrow the area to cover the seed to minimize predation by birds and rodents. Leave the reseeded area roughened to improve surface water retention and prolong soil moisture.
- The seed mixture in **Table 6** would be used in the Pinyon-Juniper woodland ecological site, and the seed mixture in **Table 7** would be used in the Rolling Loam ecological site.

- Acquire site-adapted seed from a reputable and knowledgeable source. All acquired seed will be certified weed-free. All seed poundages will be pure-live seed. Following seeding, BLM will be provided with all seed bag tags.

**Table 6. Pinyon-Juniper Woodland Ecological Site Seed Mixture**

Common Name (cultivar)	Scientific Name	Rate <sup>1,2</sup>
<b>GRASSES</b>		
Western wheatgrass (Rosanna)	<i>Pascopyrum smithii</i>	2.0 lbs/acre
Bluebunch wheatgrass (Secar)	<i>Pseudoroegneria spicata</i>	2.0 lbs/acre
Thickspike wheatgrass (Critana)	<i>Elymus lanceolatus</i>	2.0 lbs/acre
Indian Ricegrass (Nezpar)	<i>Achnatherum hymenoides</i>	1.0 lbs/acre
Needle and Thread Grass <sup>3</sup>	<i>Hesperostipa comata</i>	
<b>FORBS</b>		
Utah sweetvetch	<i>Hedysarum boreale</i>	1.0 lbs/acre
Globemallow <sup>3</sup>	<i>Sphaeralcea parvifolia</i>	
<b>SHRUBS</b>		
Fourwing saltbush	<i>Atriplex canescens</i>	1.0 lbs/acre
<b>Pure Live Seed Total</b>		<b>11 lbs/acre</b>

Source: BLM, 1997. Table B-2, seed mix #3

<sup>1</sup> Rate numbers are in Pure Live Seed (PLS).

<sup>2</sup> Seed rates are specific to the drill seeder method. If broadcasting is used to disperse the seed, the seed rates above should be doubled.

<sup>3</sup> These are alternate species and are not included in the seed mix totals.

**Table 7. Rolling Loam Ecological Site Seed Mixture**

Common Name (cultivar)	Scientific Name	Rate <sup>1,2</sup>
<b>GRASSES</b>		
Western wheatgrass (Rosanna)	<i>Pascopyrum smithii</i>	2.0 lbs/acre
Indian Ricegrass (Nezpar)	<i>Achnatherum hymenoides</i>	1.0 lbs/acre
Bluebunch wheatgrass (Secar)	<i>Pseudoroegneria spicata</i>	2.0 lbs/acre
Thickspike wheatgrass (Critana)	<i>Elymus lanceolatus</i>	2.0 lbs/acre
Green Needlegrass	<i>Nassella viridula</i>	1.0 lbs/acre
<b>FORBS</b>		
Globemallow	<i>Sphaeralcea parvifolia</i>	0.5 lbs/acre
Utah sweetvetch <sup>3</sup>	<i>Hedysarum boreale</i>	
Balsamroot <sup>3</sup>	<i>Balsamorhiza spp</i>	
<b>SHRUBS</b>		
Fourwing saltbush <sup>3</sup>	<i>Atriplex canescens</i>	
<b>Pure Live Seed Total</b>		<b>8.5 lbs/acre</b>

Source: BLM, 1997. Table B-2, seed mix #2

<sup>1</sup> Rate numbers are in Pure Live Seed (PLS).

<sup>2</sup> Seed rates are specific to the drill seeder method. If broadcasting is used to disperse the seed, the seed rates above should be doubled.

<sup>3</sup> These are alternate species and are not included in the seed mix totals.

## 5. Protection of Reseeded Areas

- Manage noxious and problem weeds so that they cause no further negative environmental, aesthetic or economic impact.
- Install a protective fence around the reseeded areas to reduce the possibility of foraging by wild horses, wildlife, and livestock. This fence would be located at



least 4 feet outside the reseeded area to further reduce possible foraging. No existing vegetation along this fence line would be removed; however, shrubs may be hand-cut to allow for placement of wire. Install a protective fence around the reseeded areas on well pads (not including road or pipeline ROWs) to reduce the likelihood of drawing foraging wild horses, wildlife, or livestock onto the pad site. Fences would be constructed to BLM, or other surface landowners', specifications, but as a general rule would be built to exclude wild horses, deer, elk and cattle. It may be appropriate to construct electric or "let-down" fences in sensitive areas such as foaling sites, migration corridors, etc. Maintain the protective fences until the reseeded areas achieve the desired density and are mature enough to withstand the pressure of foraging.

- Should monitoring determine protective fencing to be ineffective, work with other authorized users of the area to minimize drawing attention of foraging animals to the reseeded areas, e.g., relocating placement of salt for livestock and developing additional water sources away from the reclaimed areas. Consider working collaboratively with livestock operators and the BLM to adjust authorized livestock grazing periods or relocating fences to encompass larger topographic areas to further minimize grazing/foraging impacts on reclaimed areas.
- Ensure that permanent erosion and sediment controls are adequately installed. Permanent BMPs are required to prevent ongoing erosion problems over the life of the project because portions of the disturbed area are left unvegetated. Many of the structural controls that are built prior to construction would be maintained as permanent erosion control structures during production.
- Install a wild horse-proof cattleguard, or equally functioning equipment, at the entrance to the well pad if needed.
- Remove this protective fence after the end of the second growing year if the following condition is met or there is direct evidence that the reseeded area is making substantial progress towards meeting the established objective.
- Maintain this protective fence until the reseeded areas achieve the desired density and are mature enough to withstand the pressure of foraging.
- Work with other authorized users of the area to minimize drawing attention of foraging animals to the reseeded areas, i.e., request livestock operators to not put out salt, feed supplements, water facilities in the vicinity of the reseeded areas.

## **6. Monitoring and Follow-up Actions**

### **Monitoring**

The following monitoring strategy will be undertaken to provide quantifiable data needed to assess the success of this plan and to quickly identify changes in trends/progress towards realizing the overall objectives of this plan.

- Establish photo point(s) at permanent/long-term reference locations to provide a general view of the reclaimed areas associated with the well pad, apron and along the access route and pipeline corridor.
- Establish one, 100 meter (330-foot) transect outside the reclaimed area, on a site of similar soils and vegetation. The location of this site, which would be approved by the BLM, would serve as a representative reference location to determine the revegetation trend of the reclaimed area.
- Establish at least two, 100 meter (330 foot) transects within the revegetated areas associated with the well pad and apron areas and/or along the access route and pipeline corridor.
  - Establish frequency transects to determine presence/absence of seeded species.
  - Establish density transects to determine number of seeded species.
  - Establish a close-up photo point at mid-point along the transects.
- Beginning in 2009, take photos and record data from the transects during June or July, the period of maximum vegetative growth. Repeat these actions for at least 2 years to determine the level and/or trends of success of the actions outlined in this plan.
- If after 2 years interim reclamation actions are successful, i.e., meeting the overall objectives or making substantial progress towards meeting these objectives, reduce monitoring to every other year until final reclamation is completed and determined successful.
- Copies of all monitoring data and photos will be provided to the BLM by the end of each calendar year.

### **Follow-up Actions**

If after 2 growing seasons data reveals that the total vegetative ground cover in the reseeded areas is less than 70% of ground cover in a comparable, adjacent undisturbed area or seeded or desirable plant species consist of 90% or less of the existing vegetative ground cover, then the steps outlined above will be reassessed. It may be appropriate to repeat the actions outlined above or revise the plan to incorporate new or different methodologies or technologies, seed mixtures, etc.

**Table 8** outlines the specific actions and sets a time schedule for the implementation of these actions associated with the interim reclamation of BOPCO's XOM 22-2-1 well.

**Table 8. Interim Reclamation Actions and Time Schedule for BOPCO's XOM 22-2-1 Well**

Action	Subsequent Actions	Time Schedule
1. Implement identified SWMP measures.	<ul style="list-style-type: none"> <li>- Add a crown to the road surface to allow water to run off road.</li> <li>- Add ditches on either side of the access road.</li> <li>- Repair and/or install culverts as identified in section I of this plan</li> <li>- Fill in and re-grade or eliminate</li> </ul>	- Prior to drilling additional wells on the well pad.



Action	Subsequent Actions	Time Schedule
	entirely the previously constructed diversion ditches.	
2. Control noxious and invasive weeds per the approved PUP.	<ul style="list-style-type: none"> <li>- Submit Pesticide Use Proposal for the YCF XOM 2-22-1 to the BLM.</li> <li>- Work w/BLM and County, as appropriate, to obtain approval for PUP.</li> <li>- Inventory and flag all areas dominated by noxious and invasive weed species to be treated and controlled in 2008.</li> <li>- Control weeds in accordance with the approved PUP.</li> </ul>	<ul style="list-style-type: none"> <li>- Prior to August, 2008.</li> <li>- Prior to September, 2008.</li> <li>- No later than the 4-leaf stage of emerging vegetation in areas identified.</li> </ul>
3. Reseed all areas not necessary for production, including pipeline.	<ul style="list-style-type: none"> <li>- Follow site preparation and reseeded instruction as set out above in Item 3.</li> <li>- Prior to reseeding the pipeline, pull all shrubs and trees off of the ROW. Replace this vegetation after reseeding the area.</li> </ul>	<ul style="list-style-type: none"> <li>- After all directional wells have been drilled.</li> </ul>
4. Reduce the running width of the existing access route from 30 feet to 18 feet.	<ul style="list-style-type: none"> <li>- Follow establish road engineering practices and standards to reduce the surface areas of the existing access route, install appropriate water control structures to minimize erosion.</li> <li>- Follow site preparation and reseeded instructions as set out above in Item 3.</li> </ul>	<ul style="list-style-type: none"> <li>- After all directional wells have been drilled.</li> </ul>
5. Construct needed water control structures or install wattles to minimize effects of surface water runoff and topsoil loss.	<ul style="list-style-type: none"> <li>- Install per BLM direction, if provided.</li> </ul>	<ul style="list-style-type: none"> <li>- After all areas not necessary for production have been re-contoured.</li> </ul>
6. Protect reseeded areas.	<ul style="list-style-type: none"> <li>- Install protective fence around reseeded pad, apron and access route areas.</li> </ul>	<ul style="list-style-type: none"> <li>- Preferably prior to winter 2008 reseeded actions or no later than spring green-up in 2009.</li> </ul>
7. Initiate monitoring of reclamation actions.	<ul style="list-style-type: none"> <li>- Establish monitoring sites and record initial data as set out above in Item 5.</li> </ul>	<ul style="list-style-type: none"> <li>- Establish photo points at the conclusion of winter reseeded activities.</li> <li>- Record initial data in June/July 2009, or during the period of maximum vegetative growth.</li> </ul>

#### D. Final Reclamation

Final reclamation sets "...the course for eventual ecosystem restoration...., this means returning the land to a condition approximating or equal to that which existed prior to the disturbance." (BLM and USFS 2007). Final reclamation actions will be completed on the entire well pad, apron, access route and pipeline corridor areas, involving an estimated 16 acres of disturbance associated with the XOM 2-22-1. Final reclamation would be



completed following final plugging and abandonment actions of the final well located on the well pad site.

Final reclamation of the XOM 2-22-1 site will follow the following steps:

- Restrip all topsoil and vegetation from all portions of the pad site not previously reshaped to blend with the surrounding contour.
- Recontour such areas back to the original contour, or at least on a contour that blends with the surrounding landform. Any remaining excavations and pits will be backfilled when they are dry and free of waste and graded to conform to the surrounding terrain as set out above for interim reclamation.
- Redistribute the topsoil, as outlined above for interim reclamation.
- Revegetate the site, as outlined above for interim reclamation.
- Water control structures will be installed temporarily to prevent erosion until the site is successfully stabilized.

The access road or service road, if determined by the BLM to be no longer needed, will be reclaimed as follows:

- Recontour the road back to the original contour.
- Final reseeding, including control of noxious weeds would be as outlined above for interim reclamation.
- Reapply topsoil material, as needed, as outlined above for interim reclamation.
- Construct waterbars and/or placing surface water control structure to prevent erosion until the site is successfully stabilized.
- Install barricades and signs, as needed, to prevent unwanted vehicle traffic while the route revegetated. Remove such barricades and signs when the route is successfully reclaimed.

Unless directed otherwise by the BLM, buried pipelines will remain in place.

Monitoring and follow-up actions associated with final reclamation will involve continuation of the established monitoring protocol for interim reclamation.

#### **REFERENCES:**

Department of Agriculture, Soil Conservation Service, Natural Resources Conservation Service. 1975. Unpublished soil survey data for Rio Blanco County, Colorado.

Department of the Interior, Bureau of Land Management. 1997. *White River Resource Management Plan*. White River Field Office. Meeker, Colorado. Pages C-8 thru C-10.

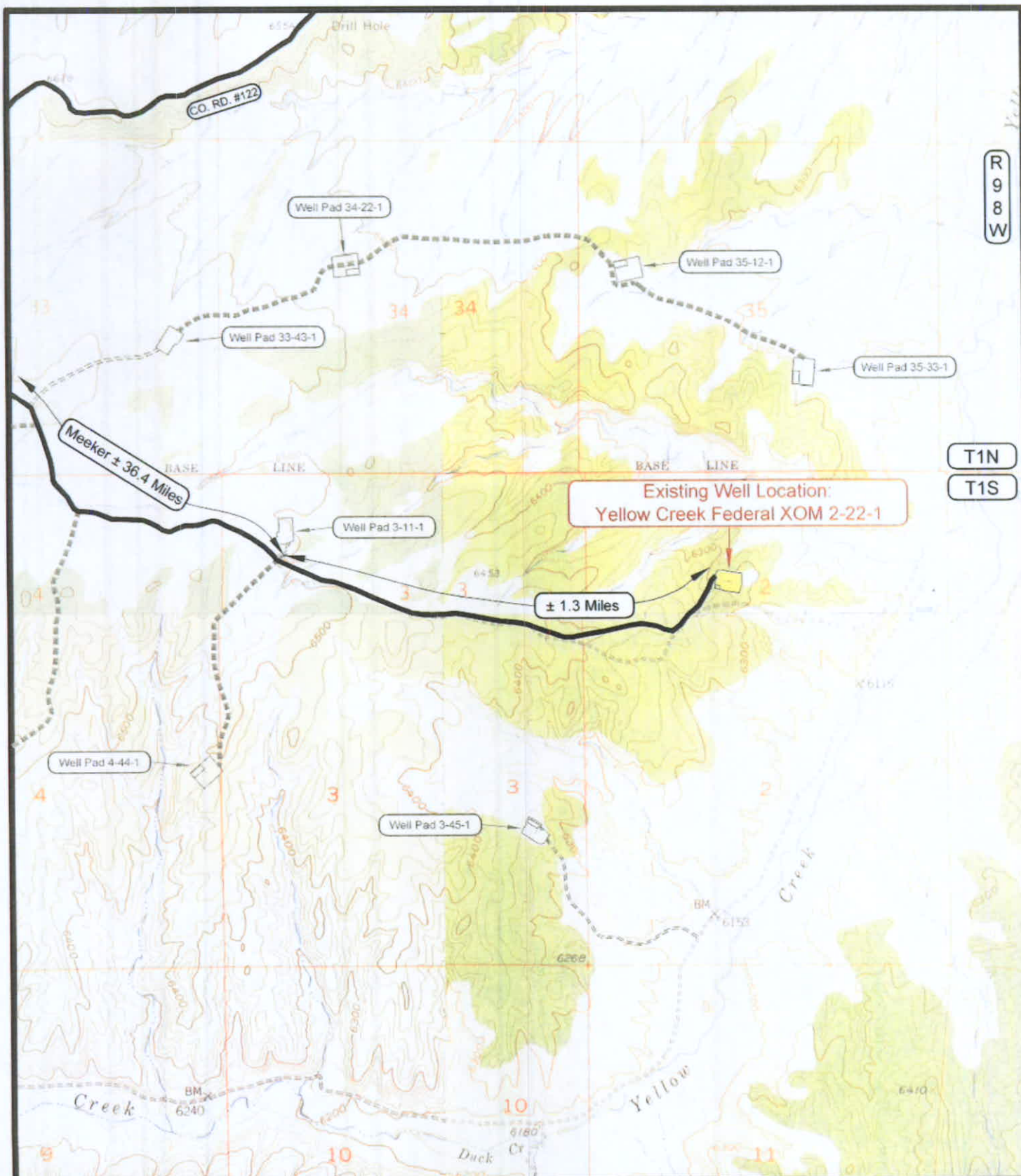
United States Department of the Interior and United States Department of Agriculture (BLM USFS). 2007. *Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development*. BLM/WO/ST-06/021+3071/REV 07. Bureau of Land Management. Denver, Colorado. 84 pp.

# **ATTACHMENT 1**

## **Location Map For BOPCO's XOM 2-22-1 Well**







#### LEGEND

- PROPOSED ACCESS ROAD  
 ■■■■ = SUBJECT WELL  
 ■■■■ = OTHER WELLS  
 — = EXISTING ROAD  
 — = EXISTING ROAD (TO BE IMPROVED)  
 (B-5460) = COUNTY ROAD CLASS & NUMBER  
 — = LEASE LINE AND / OR PROPERTY LINE

#### TOPOGRAPHIC MAP "B"

SCALE: 1" = 2000'

DRAWN BY: M.W.W.

DATE SURVEYED: 01-02-08

DATE DRAWN: 05-08-08

REVISED:

#### BOPCO, L.P.

#### YCF XOM 2-22-0242

Other wells on this pad: YCY XOM 2-22-0214, YCF XOM 2-22-0216,  
 YCF XOM 2-22-0212, YCF XOM 2-22-0263, YCF XOM 2-22-0265,  
 YCF XOM 2-22-0246 & YCF XOM 2-22-0234  
 SECTION 2, T1S, R98W, 6th P.M.

#### Timberline

Engineering & Land Surveying, Inc.  
 38 WEST 100 NORTH VERNAL, UTAH 84078

(435) 789-1365

SHEET  
 7  
 OF 10





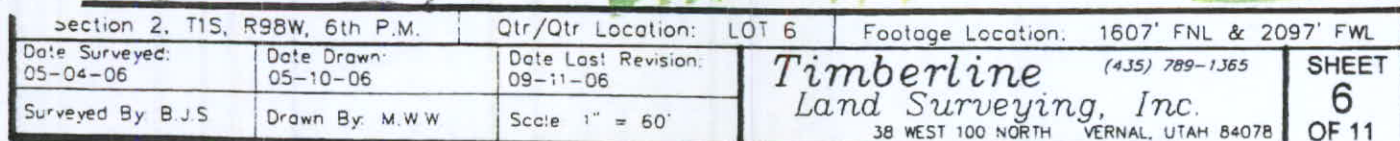
## **ATTACHMENT 2**

### **Storm Water Management Plan Diagram For BOPCO's XOM 2-22-1 Well**





TYPICAL RIG LAYOUT - YELLOW CREEK FEDERAL XOM 2-22-1  
Other wells on this pad: YELLOW CREEK FEDERAL XOM 2-22-2







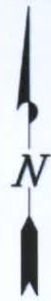
**ATTACHMENT 3**

**As-Built Survey Plat  
For  
BOPCO's XOM 2-22-1 Well Pad**

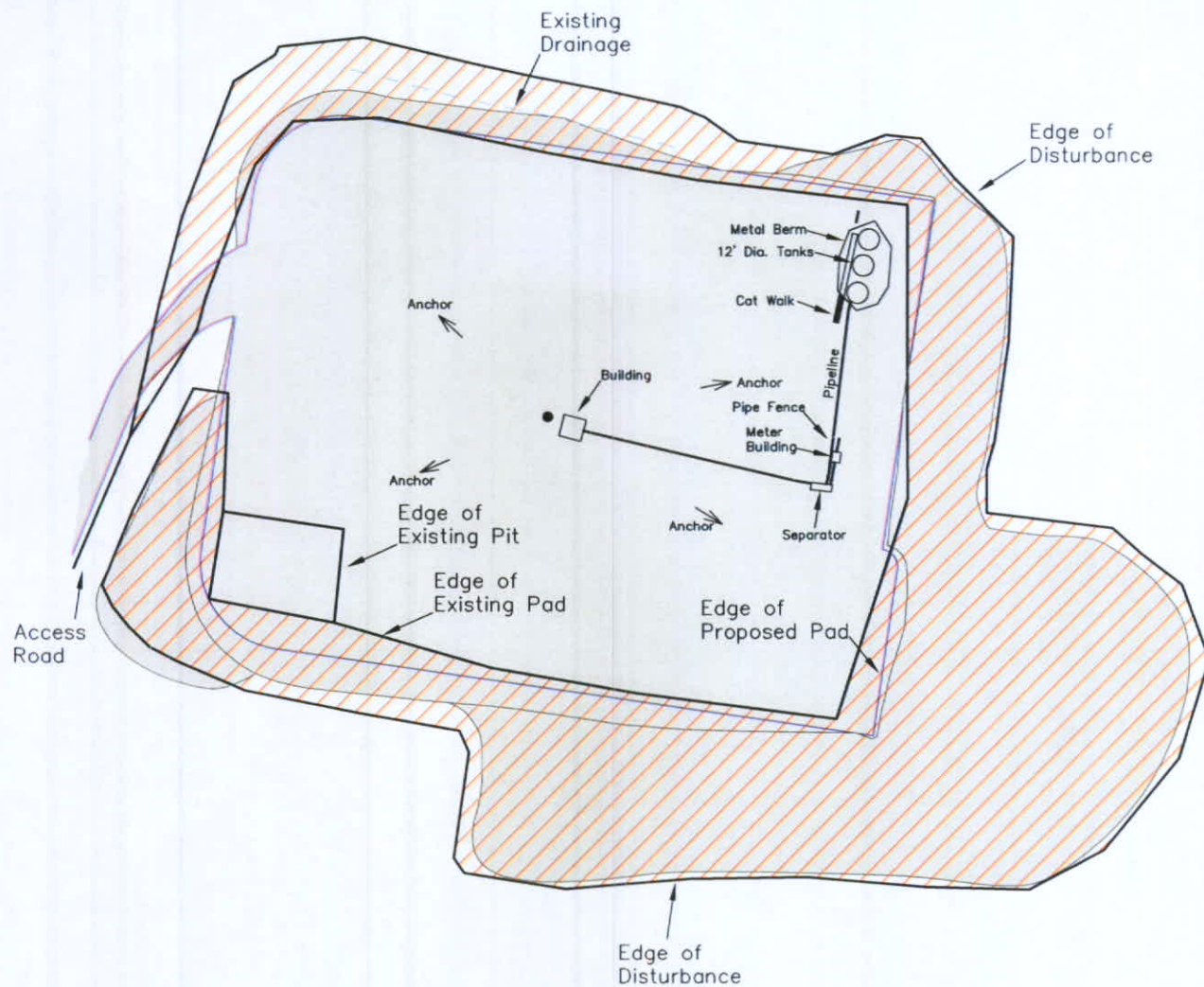




**BOPCO, L.P.**  
**DIAGRAM - YELLOW CREEK FEDERAL XOM 2-22-1**



Graded Ground Pad Elevation= 6308.6'



Disturbed Area  
 Actual = ±4.96 Acres  
 Proposed = ±4.44 Acres

- = Anticipated Area
- = As-Built Area Used

**FIGURE 1-12**

Section 2, T1S, R98W, 6th P.M.		Qtr/Qtr Location: LOT 6	Footage Location: 1632' FNL & 2093' FWL
Date Surveyed: 01-02-08	Date Drawn: 02-22-08	Date Last Revision:	<b>Timberline</b> (435) 789-1365 <b>Land Surveying, Inc.</b> 38 WEST 100 NORTH VERNAL, UTAH 84078
Surveyed By: B.J.S.	Drawn By: M.W.W.	Scale: 1" = 100'	



**Attachment 2 – BOPCO's YCF/XOM 2-22-Pad  
Well Pad Diagrams  
(dated May 8, 2008)**

In order to conserve paper, please refer to original  
APD application for well pad diagrams.



