Interim Reclamation Plan

Archer Field
Oil and Gas Development Plan

This Interim Reclamation Plan has been prepared by Chaco Energy Company (Chaco) for its Archer Field Oil and Gas Development Plan (OGDP) in Cheyenne County, Colorado. The Plan addresses the Energy & Carbon Management Commission (ECMC) requirement at Rule 304.c.(16) to prepare an Interim Reclamation Plan, the criteria in Rule 1003, and ECMC guidance. The Plan addresses the following locations:

Table 1. Locations

Location	Location ID	Qtr Qtr T12S R44W	Lat/Lon
Champlin 360 Amoco A #4	380504 (Re-entry)	NWSE Sec. 29	38.977390, -102.359945
Pelton 41-31 #1	380356 (Re-entry)	NENE Sec. 31	38.969823, -102.373764
Champlin Tank Pad	New	NWSW Sec. 29	38.977813, -102.369827
Pelton Tank Pad	New	NENE Sec. 31	38.970818, -102.372405

1.0 Site Descriptions

Chaco will re-enter and complete one previously plugged and abandoned conventional vertical well at each well pad location. The primary target is helium gas. Each well will be approximately 5,400 feet deep. Each well pad will have a new associated tank pad. The locations will be on fee surface for production of fee minerals.

Estimated disturbance acreages, land use, and vegetation are shown in Tables 2 - 5.

Table 2. Champlin 360 Amoco A#4

Disturbance	Land Use / Vegetation	Disturbance (ac)	Description
Oil and Gas Location	Crop Most recently wheat	2.07	New Disturbance
Working Pad Surface		1.80	
Production Pad		0.23	

Table 3. Pelton 41-31 #1

Disturbance	Land Use / Vegetation	Disturbance (ac)	Description
Oil and Gas Location	Rangeland Blue grama, buffalo grass, lambsquarter, soft brome	2.07	New Disturbance
Working Pad Surface		1.80	
Production Pad		0.23	

Table 4. Champlin Tank Pad

Disturbance	Land Use / Vegetation	Disturbance (ac)	Description
Oil and Gas Location	Rangeland Blue grama, cheatgrass, sunflower	1.06	New Disturbance
Working Pad Surface		0.87	
Production Pad		0.87	

Table 5. Pelton Tank Pad

Disturbance	Land Use / Vegetation	Disturbance (ac)	Description
Oil and Gas Location	Rangeland Blue grama, fourwing saltbrush, lambsquarter, soft brome, sunflower	0.66	New Disturbance
Working Pad Surface		0.52	
Production Pad		0.52	

Site elevations are listed in Table 6. Estimated durations for each phase of development are listed in Table 7.

Table 6. Site Elevations

Location	Elevation (feet)
Champlin 360 Amoco A #4	4,364
Pelton 41-31 #1	4,357
Champlin Tank Pad	4,390
Pelton Tank Pad	4,360

Table 7. Phases of Development

Phase	Duration (days)	
Construction	2	
Drilling (Re-entry)	2	For Well Pad Locations
Completion	1	
Interim Reclamation	1	
Production	20 years, est.	

2.0 Soil Description

Soil units and their boundaries are shown on the Form 2A, Soil Unit Maps. Soil units are described in Table 8.

Table 8. Soil Type by Location

Disturbance	Oil and Gas Location	Access	Off-location Flowline
Champlin 360 Amoco A #4	19: Keith-Richfield 54: Wiley Complex	19: Keith-Richfield	19: Keith-Richfield
Pelton 41-31 #1	20: Keith-Ulysses	19: Keith-Richfield 20: Keith-Ulysses 1422: Goshen	20: Keith-Ulysses 1422: Goshen
Champlin Tank Pad	19: Keith-Richfield	19: Keith-Richfield	N/A
Pelton Tank Pad	1422: Goshen	19: Keith-Richfield 1422: Goshen	N/A

19: Keith-Richfield silt loams, 0 to 2 percent slopes, well drained, 12.6 inches available water capacity, more than 80 inches to restrictive feature.

20: Keith-Ulysses silt loams, 1 to 4 percent slopes, well drained, 12.7 inches available water capacity, more than 80 inches to restrictive feature.

54: Wiley complex, 0 to 3 percent slopes, well drained, 11.5 inches available water capacity, more than 80 inches to restrictive feature.

1422: Goshen silt loam, untitled with respect to slope, well drained, 10.6 inches available water capacity, more than 80 inches to restrictive feature.

3.0 Oil and Gas Location Pre-Disturbance Vegetation Composition

The percent vegetation cover at each location is listed in Table 9. The finding is based on June 2023 environmental field review

Table 9. Percent Cover

Location	Vegetation Cover (percent)
Champlin 360 Amoco A #4	50

Location	Vegetation Cover (percent)
Pelton 41-31 #1	85
Champlin Tank Pad	60
Pelton Tank Pad	95

4.0 Identification of Reference Area

Reference Areas are required for locations in rangeland, forestry, recreation, or wildlife habitat. Reference area coordinates for the locations are listed in Table 10. Reference areas were determined based on a location with soil properties, vegetation, and cover consistent with the Oil and Gas Location.

Table 10. Reference Areas

Location	Reference Area
Champlin 360 Amoco A #4	NA for cropland
Pelton 41-31 #1	38.969917, -102.372519
Champlin Tank Pad	38.976749, -102.370111
Pelton Tank Pad	38.971022, -102.373459

5.0 Known Weed Infestations

No weed infestations were identified at any of the Oil and Gas Locations during the June 2023 environmental field review.

6.0 Off-Location Flowlines

Off-location flowlines will be buried underground from each wellhead to the associated tank pad. Off-location flowlines are shown on the Form 2A, Related Location and Flowline Maps. Flowline disturbance is listed by location in Table 11.

Table 11. Flowline Disturbance

Location	Flowline (feet)	Flowline (acres)
Champlin 360 Amoco A #4	2,653	0.12
Pelton 41-31 #1	237	0.01
Champlin Tank Pad	NA	
Pelton Tank Pad	NA	

The off-location flowlines will be 3-inch steel. The flowline trench will be an estimated 2 feet wide and 4 feet deep with approximately 3 feet of soil cover. Soil removed during flowline trenching will be segregated based on changes in physical characteristics. It will be windrowed along the flowline trench. After flowline installation and integrity testing, the trench will be backfilled. The soil layers will be replaced in the order in which they were removed.

In cooperation with the surface owner, the operator will identify appropriate soil amendments to promote vegetative growth. A perennial or crop will be identified in cooperation with the surface owner to provide cover and prevent blowing soil, erosion, and weed propagation. The area will be monitored for vegetation growth. Where needed, the soil will be amended or reseeded to promote revegetation.

7.0 Access Roads

Locations will have unpaved access roads. Access road locations are shown on the Form 2A, Access Road Maps. Chaco will repurpose existing access. Where new access is needed, it will be 15 feet wide. Disturbance for new access is listed by location in Table 12.

Table 12. Disturbance for *New* Access

Location	*New* Access (feet)	Access Road (acres)
Champlin 360 Amoco A #4	2,480	0.85
Pelton 41-31 #1	40	0.01
Champlin Tank Pad	0	0.00
Pelton Tank Pad	90	0.03

Access roads will be cleared and bladed sufficient to support the workover rig and equipment. Access roads will remain in place during production. During final reclamation, the access roads will be reclaimed in the same manner as the Oil and Gas Location.

8.0 Removal of Drilling, Re-entry, Completion Equipment and All Associated Debris and Waste Materials (1003.a)

After well re-entry and completion, locations will be downsized to the production acreages shown in Tables 2 - 5. The workover rig operator and Chaco will clear equipment and stored materials in preparation for interim reclamation. Any open holes, cellars, rat holes, or other boreholes will be backfilled per industry standards. During final reclamation, surface equipment, tanks, abandoned flowline risers, and any debris will be removed from the location.

9.0 Management of Waste Material

Waste materials will not be left onsite after well re-entry and completion or after construction of tank pads. Waste material, volume, and final disposal is described in the Form 2A, Waste Management Plan.

10.0 Identification of Interim Reclamation Areas no Longer in Use (1003.b)

The disturbance shown as Production Pad in Tables 2 – 5 will not be reclaimed. Reclaimed areas are shown on the Form 2A, Facility Layouts.

During production, well pads will contain only a wellhead and buried off-location flowline. Tank pads will contain a separator, storage tanks inside of lined steel secondary containment, on-location flowlines, and an enclosed combustor.

11.0 Compaction Alleviation (1003.c)

To decompact soil layers, areas to be reclaimed will have any gravel or surface material removed. It will be redistributed during interim reclamation and trucked off site during final reclamation. Trucking off site will use a front end loader. Chaco has confirmed landowner re-use of material on driveways and access roads because the aggregate is valuable material for road surfacing.

Areas to be reclaimed will be ripped to an estimated depth of 18 inches unless restrictive features are encountered at a shallower depth. On the Champlin 360 Amoco A #4 crop land, such compaction alleviation will be undertaken when the soil moisture at the time of ripping is below 35% of field capacity, in accordance with Rule 1003.c. Decompaction will be used to improve the soil structure and to promote soil aeration, water infiltration, and microbial activity, which will promote plant growth.

12.0 Recontouring

The Oil and Gas Locations are relatively flat, as shown on the Form 2A, Construction Layout Drawings. There will be minimal cut, fill, and topsoil disturbance. Topsoil will be stockpiled on the location and will be restored on the reclaimed areas. Reclaimed areas will be blended with the surrounding surface to restore the natural grade and hydrology patterns. Stormwater wattles will be placed to protect the area from stormwater run on and runoff.

13.0 Re-establish and Stabilize Drainage Features

During interim reclamation, Oil and Gas Locations will be recontoured to blend with the pre-disturbance surface and restore natural drainage patterns. Reclamation during the first growing season will stabilize the soils to avoid stormwater runoff. While vegetation is establishing, wattles will be placed, as needed, along the downgradient perimeter to prevent erosion runnels and avoid soils or sediment from leaving the locations.

14.0 Establish Desired Plant Community (1003.e)

Segregated soil horizons will be replaced in their original relative positions and contoured to reestablish natural grades. The areas will be tilled to establish a seedbed. In cooperation with the surface owner, the operator will identify appropriate soil amendments to promote vegetative growth. A perennial or crop will be identified in cooperation with the surface owner and, as appropriate, county agricultural extension to provide cover and prevent blowing soil, erosion, and weed propagation.

15.0 Seedbed Preparation and Seeding (1003.e)

Salvaged topsoil will be replaced and contoured to maximize erosion control and soil stability. Soil amendment may be introduced at this stage to promote moisture retention and soil stabilization. Seedbed preparation will be conducted immediately before seeding to ensure that the seedbed provides the maximum benefit for revegetation success. The reclamation provider will confirm whether drill seeding will be performed to further promote vegetation. Drill seeding is typically conducted on slopes flatter than 3:1.

Interim reclamation will be performed during the first growing season after well re-entry is complete and within the anticipated 3 months for cropland and 6 months for non-cropland described in Rule 1003.b. Early spring and fall typically are preferred seeding periods to coincide with increased precipitation and conditions favorable to seed germination.

16.0 Fencing

Fencing will be installed with approval from the landowner if needed to restrict unauthorized access and discourage unnecessary surface disturbance, in accordance with Rules 603.h and 1002.a.(1). Livestock fencing will be placed around wellheads.

17.0 Management of Invasive Plants (1003.f)

The site operator will be trained on noxious and invasive weeds to monitor at the location. Weed treatment will be conducted, where needed, to prevent establishment and spread of noxious weeds. The weed treatment will be conducted according to Colorado Department of Agriculture recommendations by weed species.

18.0 Proposed Interim Reclamation Drawing

Interim reclamation areas are shown on the Form 2A, Facility Layout Drawings. Layout drawings show surface flow direction and stormwater controls for control of erosion and stormwater runoff.

19.0 Reclamation Monitoring, Inspection, Maintenance, and Reporting

The site operator will be on location daily to monitor locations, wellheads, tanks, surface flowlines, and other equipment. Vegetative success will be monitored as part of these routine site visits. Invasive weeds, evidence of erosion, and areas requiring reseeding will be identified and addressed through weed treatment, adapting stormwater controls, and application of additional seed and soil amendment or fertilizer.

Vegetative success is considered at least 80 percent of pre-disturbance reference area cover, consistent with Rule 1003.e.(2). A plant count for plant density will be conducted to assess percent cover and to gauge plant height. Documentation will include the operator’s maintenance records for the location, stormwater inspections, and Change Management Checklist.

20.0 Interim Reclamation Completion Notice, Form 4 [1003.e.(3)]

Chaco will submit a Form 4 Sundry Notice describing the reclamation procedures, any mitigation measures, any changes to the final land use, and the total vegetative cover. A minimum of four photos will be taken during the growing season showing each cardinal direction to document the success of interim reclamation. One photo will document the total cover of live vegetation of adjacent or nearby undisturbed land or the reference area.

21.0 Interim Reclamation Best Management Practices

Best management practices are listed in Table 13.

Table 13. Best Management Practices

Best Management Practices
• **Topsoil** - Topsoil will be stockpiled on each location and will be restored on the reclaimed area. Salvaged topsoil will be replaced and contoured to maximize erosion control and soil stability.
• **Erosion control** – Erosion controls will be installed and maintained at each location to prevent stormwater run on, runoff, and erosion. Erosion controls are shown on Facility Layout Drawings.
• **Weed control** – The locations will be monitored for the presence of invasive weeds. Invasive weeds will be treated to prevent them from establishing or spreading.
• **Seed mix** – The operator will use certified weed-free seed mix identified in coordination with the surface owner and, as appropriate, local agricultural extension office.
• **Seeding method and Timing** – Drill seeding or other method to promote vegetative success will be conducted during the first favorable growing season and within 3 months of completion of well development on cropland and within 6 months on non-cropland.
• **Fencing** – Fencing will be installed with approval from the landowner if needed to restrict unauthorized access and discourage unnecessary surface disturbance. Livestock fencing will be installed around wellheads.
• **Recontouring** - Disturbed areas will be recontoured to blend with the pre-disturbance surface and restore natural drainage patterns.
• **Monitoring** – Locations will be monitored for vegetative success. Locations will be reseeded where needed to establish 80 percent of pre-disturbance cover.