APPENDIX H – CIG'S RECLAMATION PLAN

Reclamation Plan

Colorado Interstate Gas Company

High Plains Expansion Project
Adams, Morgan, Weld Counties, Colorado

Prepared for:

Colorado Interstate Gas

P.O. Box 1087

Colorado Springs, CO 80944

Prepared by:

Bio-Resources, Inc.

135 East Center

Logan, Utah 84321

April 2007

TABLE OF CONTENTS

1.0 Introduction **1**

2.0 Soil Management **1**

2.1 Clearing, Grading, Topsoiling 1

2.2 Contouring, Decompaction, Topsoil Replacement 2

2.3 Rock 2

2.4 Cropland and Irrigated Pasture or Hayland 3

3.0 Seeding **4**

3.1 Seeding Dates 4

3.2 Seedbed Preparation 4

3.3 Drilling and Broadcasting 4

3.4 Seed Mixes 5

4.0 Mulch **13**

5.0 Wetlands and Riparian Areas **13**

5.1 Seeding 13

5.2 Trees and Shrubs 13

6.0 Monitoring **14**

7.0 References **14**

1.0 Introduction

Reclamation of the Colorado Interstate Gas Company (CIG) High Plains Expansion Project (Project) right-of-way must overcome difficulties resulting from typical soil conditions and harsh weather common to the easter plains of Colorado. While CIG has adopted the Federal Energy Regulatory Commission's (FERC) Upland Erosion Control, Revegetation, and Maintenance Plan (FERC 1/17/2003 Version), a site-specific reclamation plan is also important for success revegetation of the Project's disturbed areas.

This Reclamation Plan has been developed for CIG by Bio-Resources, Inc., in coordination with regional soil reclamation experts, wetlands and vegetation specialists, the FERC, and the local Natural Resource Conservation Service (NRCS).

Specifications included in this Reclamation Plan are intended to supplement the general FERC guidelines, which will remain in effect for this project, but the specifications in the Reclamation Plan will supercede those guidelines where they are contradictory. *Specifications that differ from the FERC guidelines are indicated in underlined italics.*

CIG, through its pipeline contractor, will have overall responsibility for the reclamation effort. CIG will require the pipeline contractor to subcontract the revegetation effort to a qualified revegetation contractor with local experience. All seedbed preparation after topsoil replacement will be performed by the revegetation contractor, who will be responsible for all discing, seeding, application of fertilizer and/or manure, mulching, crimping, etc.

2.0 Soil Management

2.1 Clearing, Grading, Topsoiling

Unless otherwise specified, the right-of-way width will be 100 feet. Exceptions include right-of-way widths of 75 feet in wetland areas and right-of-way widths greater than 100 feet in specified extra work areas. At some of the stream and creek crossings, some activities within the right-of-way may be limited to save riparian trees.

In shrubby or brushy areas, the right-of-way will be mowed with a bush hog or similar implement before any grading or topsoil removal is performed.

In areas where the ground is naturally level, the working and spoil sides of the right-of-way will not be cut or graded. To eliminate uneven soils around the base of plants, and to provide a smooth working surface, skimming with a maintainer (moving no more than two inches of topsoil) may be performed with the concurrence of the environmental inspector. The intention is to leave the topsoil, with its bank of native seeds and roots, as undisturbed as possible.

In naturally level areas, topsoil will be separated up to 12 inches in depth along the ditch line only. Topsoil from the ditch line will be placed immediately next to the ditch line on the working side, and will be leveled and compacted in a lift located under the skids and the string of pipe. If soil conditions become pulverized or powdered out by construction vehicles to a depth of six inches or

greater, and the pulverized soils are being lost off the right-of-way from wind or mixed with subsoils, the EI will direct CIG to change operations and begin salvaging topsoil from the working side as further described below.

Where right-of-way grading is necessary, topsoil will be segregated no less than six inches and no more than 12 inches where topsoil is available. In general, if topsoil is present at all, a six6-inch salvage is necessary to capture topsoil. A lesser depth would involve too small a volume of soil, which could be easily lost. The native seed base is contained in the top 12 inches of topsoil. Removal of deeper topsoil would dilute this seed base and slow the return of native vegetation. Further, most soils along the project are between six and 12 inches in depth.

Separation of salvaged topsoil and subsoil will be maintained throughout all construction activities.

Segregated topsoil may not be used for padding the pipe.

Segregated topsoil in wind prone areas may be sprayed with water or an approved tacifier to form a crust to minimize soil losses due to wind blown transport of topsoil.

2.2 Contouring, Decompaction, Topsoil Replacement

Cleanup operations should commence immediately following backfill. The right-of-way will be restored to its natural contours. *If compaction has occurred on the working side or other parts of the right-of-way, it should be ripped to a depth no greater than 12 inches.* In places where topsoil has been segregated, compacted subsoil will be ripped before replacing the topsoil.

Final grading, decompaction, topsoil replacement, and installation of permanent erosion control structures must be completed within 20 days of backfill.

If trees or other forms of natural woody debris are going to be replaced on the right-of-way, they will be stockpiled. After seeding has been completed, debris will be placed back on the right-of-way.

2.3 Rock

Where necessary, surface rock will be removed from the trench or right-of-way and stockpiled along the edge of the work areas. During cleanup, salvaged surface rock will be spread to blend with off-right-of-way areas, to conceal the corridor from adjacent undisturbed areas and to act as a mulch to minimize erosion. If spreading rock over the right-of-way will prevent the safe operation and maintenance of the pipeline, *or if it will hamper successful reclamation*, it will be removed and properly disposed. Rock may be stockpiled on the right-of-way edge near existing roads *if directed by the EI and Chief Inspector and with landowner permission* to keep the public from driving on the right-of-way.

Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Rock that is not returned to the trench should be considered construction debris, unless it is approved for use as mulch (in areas with surface rock), or for some other use on the construction work areas by the landowner or land managing agency.

2.4 Cropland and Irrigated Pasture or Hayland

Ditch line topsoiling, rather than full right-of-way topsoiling, will be used on cropland and irrigated pasture or hayland, including Prime Farmland. This is a variance to the FERC plan, and is suggested as a way to eliminate as much soil handling as possible, minimizing mixing, loss, and wind erosion.

If rutting exceeds 6 inches in depth, significantly increasing the chance of topsoil mixing with subsoils, work will continue and the rutted area will be covered with at least an adequate volume of new topsoil to replace mixed soils and subsoils. This topsoil will be purchased in the immediate vicinity. This is another variance from the FERC Plan. This variance would allow for continuation of construction during inclement weather at the cost of supplying new topsoil. This departure from the FERC Plan will not apply to rangeland.

Topsoil and subsoil will be tested by an EI for compaction at regular intervals with a penetrometer or other appropriate device. Compaction on the right-of-way should approximate the compaction level in adjacent undisturbed areas. Severely compacted agricultural land will be plowed with a paraplow or other deep tillage implement. Where topsoil has been segregated, the subsoil will be plowed before replacing the topsoil.

Excess rock will be removed from at least the top 12 inches of soil in all actively cultivated or rotated croplands and pastures, hayfields, and residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the right-of-way should be similar to adjacent areas not disturbed by construction.

Trench breakers will be installed in the trench on both sides of irrigation ditches to prevent channeling of irrigation water along the trench.

In irrigated pasture, after the pipe is placed in the ditch, the following criteria must be used for backfill and compaction:

- Granular material will be placed on both sides of the pipe up to approximately the top of the pipe.
- Granular material will be water-settled by jetting or directing high pressure nozzles at the material to insure it is "washed" around the bottom half of the pipe.
- Backfill material (18 to 24 inches measured from top of pipe) will be placed in the ditch and leveled to allow compaction equipment to operate. Water will be added to the backfill material as necessary to achieve optimum compaction. The compaction equipment may be "wacker" packers, flat vibratory plates that are stand alone or mounted on a backhoe, or "sheepsfoot" rollers (either vibratory or non-vibratory). Extra care must be taken to avoid direct contact of the pipe with backfilling, leveling, or compacting equipment. The "aim" density is 92 to 95 percent.
- Additional lifts must be limited to a maximum of 12 inches. If compaction is not acceptable, the lifts will be reduced to eight inches.

- Topsoil will be restored and the right-of-way leveled to blend topographically with the adjacent undisturbed fields. Irrigation will be restored over the right-of-way.

3.0 Seeding

3.1 Seeding Dates

NRCS-recommended seeding window for the Project areas is from October 1 to May 1. *However, CIG plans to seed whenever the cleanup is complete, even if it is not in the recommended seeding season. This will permit establishment of at least some seed, and does not relieve CIG of its responsibility to achieve acceptable reclamation after construction. CIG will mulch all areas seeded outside the recommended season, at mulch rates described below for seeded areas.* This determination will need to be made on a site specific basis. For example, if the clean up reclamation happens very late in the season during muddy or frozen soil conditions, CIG will be able to do no more than temporary stabilization in the form of temporary erosion control structures and mulch. Final decompaction and grading would likely wait until the following spring with seeding to follow. However, this situation is not expected on this project.

Seeding and mulching shall be completed within 12 working days (14 calendar days) of final grading, weather permitting.

3.2 Seedbed Preparation

Decompaction of the right-of-way (ripping) will generally be performed by the cleanup crew. The seeding crew, however, may encounter surface compaction resulting from the use of a driving lane after cleanup, or due to surface crusting of soils after rain. There may also be clods left by ripping. The revegetation contractor will be equipped with discs or other tillage implements to deal with these conditions. To provide optimal conditions for drill seeding, soils are to be decompacted but firm to a depth of three to four inches.

Unnecessary discing should be avoided, since it is desirable to leave as much natural vegetation intact as possible.

3.3 Drilling and Broadcasting

Drill seeding is the preferred method and will be used whenever possible. The drill should be a reclamation-type drill, equipped with depth bands and with seedbox agitators and monitors capable of handling mixes of native seed species. One-half inch planting depth will be standard, with 6 to 10 inch drill spacing.

Seed may be broadcast rather than drilled in terrain where drilling is unsafe or impractical. Seed must be broadcast at double the drilling rate. Hand-operated or mechanically-powered cyclone type broadcasters should be used. Broadcast seed should be lightly covered or pressed into the soil with a cultipacker, roller, or sheep's-foot. Where such implements cannot be practically used, seeds are to be incorporated with a chain drag or by hand raking.

In areas of extremely sandy conditions (251A-MP 46.89 to 57.21) soils will be amended with corn stalks and manure. Dry corn stalk mulch will be applied at 3 tons per acre and 6 tons per acre of aged manure will also be applied. The stalks and manure will then be disked in to a depth of 6 inches. After disking, the area will be rolled to pack a seedbed for drilling.

3.4 Seed Mixes

All seed used will be certified unless certified seed is not available from any source. All seed tags will be provided to the reclamation Environmental Inspector.

Seed mixes to be used on the Project's rights-of-way are listed by milepost in Tables 1 through 4.

Table 1
Seed Mixes to be used on the High Plains Expansion Pipeline Line No. 250A

Starting Milepost	Ending Milepost	Distance (miles)	Site Characterization	Seed Mix
0.00	8.88	8.88	Loam, Sandy Loam, Fine Sandy Loam, Gravelly Sandy Loam	Mix1
8.88	10.39	1.51	CRP	Mix 4
10.39	11.14	0.75	Cultivated Agricultural Land	None
11.14	11.73	0.59	Loam	Mix1
11.73	11.91	0.18	Cultivated Agricultural Land	None
11.91	12.18	0.27	Loam	Mix1
12.18	12.37	0.19	Loamy Fine Sand	Mix2
12.37	12.72	0.35	Cultivated Agricultural Land	None
12.72	12.87	0.15	Loamy Fine Sand	Mix 2
12.87	13.50	0.63	Cultivated Agricultural Land	None
13.50	13.93	0.43	CRP	Mix 4
13.93	14.01	0.08	Sandy Loam	Mix 1
14.01	15.80	1.79	CRP	Mix 4
15.80	16.32	0.52	Cultivated Agricultural Land	None
16.32	17.37	1.05	CRP	Mix 4
17.37	17.62	0.25	Loam, Sandy Loam	Mix 1
17.62	19.20	1.58	CRP	Mix 4
19.20	19.72	0.52	Cultivated Agricultural Land	None
19.72	22.24	2.52	CRP	Mix 4
22.24	22.72	0.48	Fine sandy loam	Mix 1
22.72	25.58	2.86	Cultivated Agricultural Land	None
25.58	25.71	0.13	Pasture	Mix 3
25.71	26.21	0.50	Cultivated Agricultural Land	None
26.21	26.82	0.61	Pasture	Mix 3
26.82	27.71	0.89	Cultivated Agricultural Land	None
27.71	27.84	0.13	Pasture	Mix 3
27.84	29.20	1.36	Cultivated Agricultural Land	None
29.20	29.46	0.26	Pasture	Mix 3
29.46	29.50	0.04	Cultivated Agricultural Land	None

Table 1

Seed Mixes to be used on the High Plains Expansion Pipeline Line No. 250A

Starting Milepost	Ending Milepost	Distance (miles)	Site Characterization	Seed Mix
29.50	30.22	0.72	Pasture	Mix 3
30.22	30.61	0.39	CRP	Mix 4
30.61	30.93	0.32	Pasture	Mix 3
30.93	30.97	0.04	CRP	Mix 4
30.97	31.30	0.33	Pasture	Mix 3
31.30	31.97	0.67	CRP	Mix 4
31.97	32.21	0.24	Cultivated Agricultural Land	None
32.21	32.26	0.05	Pasture	Mix 3
32.26	35.96	3.70	Cultivated Agricultural Land	None
35.96	36.58	0.62	Pasture	Mix 3
36.58	41.20	4.62	Cultivated Agricultural Land	None
41.20	41.77	0.57	Sandy Loam	Mix 1
41.77	42.01	0.24	Pasture	Mix 3
42.01	44.48	2.47	Cultivated Agricultural Land	None
44.48	44.57	0.09	Pasture	Mix 3
44.57	45.38	0.81	Cultivated Agricultural Land	None
45.38	45.49	0.11	Pasture	Mix 3
45.49	46.52	1.03	Cultivated Agricultural Land	None
46.52	47.53	1.01	CRP	Mix 4
47.53	47.96	0.43	Pasture	Mix 3
47.96	48.04	0.08	Sandy Loam, Clay Loam	Mix 1
48.04	48.86	0.82	Cultivated Agricultural Land	None
48.86	48.92	0.06	Pasture	Mix 3
48.92	48.94	0.02	Cultivated Agricultural Land	None
48.94	49.60	0.66	Pasture	Mix 3
49.60	50.49	0.89	Cultivated Agricultural Land	None
50.49	53.13	2.64	Pasture	Mix 3
53.13	53.63	0.50	Cultivated Agricultural Land	none
53.63	54.12	0.49	CRP	Mix 4
54.12	56.63	2.51	Pasture	Mix 3
56.63	58.13	1.50	Cultivated Agricultural Land	None
58.13	58.64	0.51	Pasture	Mix 3
58.64	59.55	0.91	Cultivated Agricultural Land	None
59.55	59.60	0.05	Loam, Sandy Loam	Mix 1
59.60	61.70	2.10	Sand, Loamy Sand	Mix 2
61.70	62.20	0.50	Fine Sandy Loam	Mix 1
62.20	62.40	0.20	Loamy Sand	Mix 2
62.40	62.72	0.32	Loam, Sandy Loam	Mix 1
62.72	63.47	0.75	Cultivated Agricultural Land	None
63.47	63.65	0.18	Pasture	Mix 3
63.65	63.83	0.18	Cultivated Agricultural Land	None

Table 1

Seed Mixes to be used on the High Plains Expansion Pipeline Line No. 250A

Starting Milepost	Ending Milepost	Distance (miles)	Site Characterization	Seed Mix
63.83	63.95	0.12	Industrial	None
63.95	64.00	0.05	Pasture	Mix 3
64.00	64.56	0.56	Cultivated Agricultural Land	None
64.56	65.11	0.55	Pasture	Mix 3
65.11	66.18	1.07	Cultivated Agricultural Land	None
66.18	66.32	0.14	Loam	Mix 1
66.32	69.70	3.38	Cultivated Agricultural Land	None
69.70	70.07	0.37	Pasture	Mix 3
70.07	71.56	1.49	Cultivated Agricultural Land	None
71.56	72.02	0.46	Loam	Mix 1
72.02	77.71	5.69	Cultivated Agricultural Land	None
77.71	78.04	0.33	CRP	Mix 4
78.04	84.80	6.76	Cultivated Agricultural Land	None

Table 2
Seed Mixes to be used on the High Plains Expansion Pipeline Line No. 251A

Starting Milepost	Ending Milepost	Distance (miles)	Site Characterization	Seed Mix
0.00	0.13	0.13	Industrial	None
0.13	7.86	7.73	Cultivated Agricultural Land	None
7.86	8.06	0.20	Loam	Mix 1
8.06	15.00	6.94	Cultivated Agricultural Land	None
15.00	15.85	0.85	Sandy Loam, Loam	Mix 1
15.85	19.58	3.73	Cultivated Agricultural Land	None
19.58	19.81	0.23	Loam	Mix 1
19.81	25.26	5.45	Cultivated Agricultural Land	None
25.26	25.45	0.19	Loam	Mix 1
25.45	29.57	4.12	Cultivated Agricultural Land	None
29.57	29.61	0.04	CRP	Mix 4
29.61	31.33	1.72	Cultivated Agricultural Land	None
31.33	31.47	0.14	Loam	Mix 1
31.47	38.89	7.42	Cultivated Agricultural Land	None
38.89	39.45	0.56	Pasture	Mix 3
39.45	41.03	1.58	CRP	Mix 4
41.03	42.51	1.48	Cultivated Agricultural Land	None
42.51	42.55	0.04	Pasture	Mix 3
42.55	43.36	0.81	Cultivated Agricultural Land	None
43.36	43.57	0.21	Pasture	Mix 3
43.57	43.78	0.21	CRP	Mix 4
43.78	44.48	0.70	Pasture	Mix 3
44.48	46.88	2.40	Cultivated Agricultural Land	None
46.88	57.20	10.32	Sand	Mix 2
57.20	57.63	0.43	Pasture	Mix 3
57.63	57.94	0.31	Cultivated Agricultural Land	None

Table 3
Seed Mixes to be used on the High Plains Expansion Pipeline Line No. 252A

Starting Milepost	Ending Milepost	Distance (miles)	Site Characterization	Seed Mix
0.00	0.04	0.04	Sandy Loam	Mix 1
0.04	0.08	0.04	Sand	Mix 2
0.08	0.18	0.10	Sandy Loam	Mix 1
0.18	3.54	3.36	Sand, Loamy Sand	Mix 2
3.54	5.95	2.41	Cultivated Agricultural Land	None
5.95	6.01	0.06	Loamy Sand	Mix 2
6.01	7.01	1.00	Cultivated Agricultural Land	None
7.01	7.19	0.18	Pasture	Mix 3
7.19	7.24	0.05	Loamy Sand	Mix 2

Table 3
Seed Mixes to be used on the High Plains Expansion Pipeline Line No. 252A

Starting Milepost	Ending Milepost	Distance (miles)	Site Characterization	Seed Mix
7.24	7.34	0.10	Pasture	Mix 3
7.34	7.42	0.08	Loamy Sand	Mix 2
7.42	8.29	0.87	Pasture	Mix 3
8.29	8.44	0.15	Cultivated Agricultural Land	None
8.44	9.20	0.76	Pasture	Mix 3
9.20	9.67	0.47	Cultivated Agricultural Land	None
9.67	9.71	0.04	Pasture	Mix 3
9.71	10.06	0.35	Cultivated Agricultural Land	None
10.06	10.11	0.05	Pasture	Mix 3
10.11	11.12	1.01	Cultivated Agricultural Land	None
11.12	11.27	0.15	Industrial	None
11.27	11.52	0.25	Cultivated Agricultural Land	None
11.52	11.82	0.30	Sandy Loam	Mix 1
11.82	12.37	0.55	Cultivated Agricultural Land	None
12.37	12.57	0.20	Pasture	Mix 3
12.57	13.04	0.47	Cultivated Agricultural Land	None
13.04	14.87	1.83	Pasture	Mix 3

Table 4
Seed Mixes to be used on the High Plains Expansion Pipeline Line No. 253A

Starting Milepost	Ending Milepost	Distance (miles)	Site Characterization	Seed Mix
0.00	0.66	0.66	Cultivated Agricultural Land	None
0.66	1.08	0.42	Industrial	None
1.08	2.58	1.50	Cultivated Agricultural Land	None
2.58	2.73	0.15	Industrial	None
2.73	6.03	3.30	Pasture	Mix 3
6.03	6.07	0.04	Industrial	None

Irrigated hay land and irrigated pasture will likely be seeded with mixes stipulated by the landowners or will be seeded by the landowners themselves. If there are no such stipulations, Mix 3 will be used.

In actively cultivated cropland, seeding is not required unless requested by the landowner. Industrial lands, by definition, have been fully disturbed by previous activities to the point that no vegetation exists. Therefore, no seeding will be performed in these areas.

Seed mixes and seeding rates for the High Plains Expansion are listed in Tables 5 through 8.

Table 5
High Plains Expansion Seed Mix 1
Seed mix for loam and clay loam, sandy loam, fine sandy loam, and gravelly sandy loam

Species	Variety	Seeding Rate (drilled PLS lbs/acre)	% of Species in Mix
Western Wheatgrass	Arriba or Barton	3.3	35%
Sideoats Grama	Niner or El Reno	1.9	20%
Blue Grama	Hachita or Lovington	1.4	15%
Switchgrass	Blackwell or Nebraska 28	0.9	10%
Green Needlegrass	Lodorm	0.9	10%
Yellow Indiangrass	Llama or Cheyenne	0.9	10%
	Total	**9.3**	**100%**

Table 6
High Plains Expansion Seed Mix 2
Seed mix for loamy sand, loamy fine sand, and sand

Species	Variety	Seeding Rate (drilled PLS lbs/acre)	% of Species in Mix
Switchgrass	Blackwell	1.9	20%
Sideoats Grama	El Reno	1.9	20%
Sand Bluestem	Woodward	2.9	30%
Yellow Indiangrass	Cheyenne	1.4	15%
Prairie Sandreed	Goshen	1.4	15%
Total		**9.5**	**100%**

Table 7
High Plains Expansion Seed Mix 3
Seed mix for irrigated hayland and pasture

Species	Variety	Seeding Rate (drilled PLS lbs/acre)	% of Species in Mix
Pubescent Wheatgrass		6.4	40
Intermediate Wheatgrass		6.4	40
Smooth Bromegrass		1.6	10
Orchardgrass	Paiute	1.6	10
	Total	**16.0**	**100%**

A total of 13.3 miles of land enrolled in the Conservation Reserve Program (CRP) occurs along CIG's proposed Route (Table 8).

Table 8
High Plains Expansion Seed Mix 4
Seed Mix for Conservation Reserve Program (CRP) Land

Species	Variety	Seeding Rate (drilled PLS lbs/acre)	% of Species in Mix
Western wheatgrass		1.5	15
Switchgrass		1	10
Big bluestem		2	20
Green needlegrass		1	10
Sideoats grama		0.5	5
Yellow indiangrass		2	20
Little bluestem		1	10
Blue grama		0.5	5
Purple prairieclover		0.5	5
	Total	**10**	**100%**

Table 9
High Plains Expansion Seed Mix 4
Seed Mix for Conservation Reserve Program (CRP) Land

Species	Variety	Seeding Rate (drilled PLS lbs/acre)	% of Species in Mix
Western wheatgrass		1.5	15
Switchgrass		1	10
Big bluestem		2	20
Green needlegrass		1	10
Sideoats grama		0.5	5

Yellow indiangrass		2	20
Little bluestem		1	10
Blue grama		0.5	5
Purple prairieclover		0.5	5
	Total	**10**	**100%**

Table 8
High Plains Expansion Seed Mix 4
Seed Mix for Conservation Reserve Program (CRP) Land

Species	Variety	Seeding Rate (drilled PLS lbs/acre)	% of Species in Mix
Western wheatgrass		1.5	15
Switchgrass		1	10
Big bluestem		2	20
Green needlegrass		1	10
Sideoats grama		0.5	5
Yellow indiangrass		2	20
Little bluestem		1	10
Blue grama		0.5	5
Purple prairieclover		0.5	5
	Total	**10**	**100%**

Certified, blue-tagged seed shall be supplied where a named variety is specified. Vendor shall indicate on the bid whether certified or common seed is being offered, as well as the origin of the seed. The blue tags which are removed to mix the seed shall be given to the revegetation contractor and the environmental inspector; in addition, mix tags showing the weighted averages of the ingredients shall be attached to each bag. As the bags are used, the crew will save the mix tags and turn them over to the environmental inspector.

The environmental inspector will sample seed in the following way:

- For lots of one to six bags, each bag will be sampled.
- For lots of more than 6 bags, samples will be taken from five bags plus at least 10 percent of the total number of bags.

Samples will be obtained by plunging the hand into different areas of the bags to extract a handful of seeds. Seeds will be placed into sample bags and labeled. Mix tags and seed samples will be kept stored and available for analysis for five years.

4.0 Mulch

Mulch will be applied on all slopes over five percent (except in actively cultivated cropland) concurrent with or immediately after seeding. The mulch to be used will be certified weed-free straw or hay.

Mulch will be spread uniformly to cover at least 75 percent of the ground surface at a rate of *1.5 tons/acre. The rate of 1.5 tons/acre is a slight variance to the standard. However, in our experience 1.5 tons/acre does give at least a 75 percent ground cover, providing equal protection to the resource. A rate of two tons/acre or more, tends to form a matted thatch that does not crimp easily; 1.5 tons/acre does crimp well, and so provides a greater protection to the resource. This rate has been confirmed with the NRCS (Communication, March 2007)*

Mulch will be crimped into the soil with a Finn crimper or similar implement.

CIG will mulch all areas seeded outside the recommended season, including level ground. In other words, all areas seeded before October 1.

5.0 Wetlands and Riparian Areas

Reclamation guidelines specified in the CIG's Wetland and Waterbody Construction and Mitigation Procedures (Resource Report 1, Appendix 1B) will be implemented in the construction right-of-way within wetland areas. Streambanks, wetlands, and riparian areas with standing water or predominantly hydrophilic vegetation will be allowed to revegetate naturally.

5.1 Seeding

Streambanks, wetlands, or riparian areas with predominantly upland vegetation will be seeded with the mixes called for in Table 1 for those areas.

Streambanks, wetlands, and riparian areas with standing water or predominantly hydrophilic vegetation will be allowed to revegetate naturally; that is, they will not be seeded.

5.2 Trees and Shrubs

Unless blading is required to create a safe working area in wetland and riparian areas, the contractor will limit pulling of tree stumps and grading to directly over the trenchline. On the rest of the right-of-way, trees and shrubs will be cut just above ground level, leaving existing root systems in place. Small woody and herbaceous vegetation may also be mowed or crushed to clear the right-of-way.

Where required by landowners, FERC, or U. S. Army Corps of Engineers (COE) permit conditions, tree cuttings, containerized plants, or transplants, will be used to restore woody plant communities, stabilize riparian areas, and provide a visual screens to conceal the right-of-way. Potential species include willow and cottonwood. Willow species will be planted as non-rooted cuttings; cottonwoods as rooted cuttings. Tree cuttings will be obtained from adjacent areas within the surveyed corridor

that were identified and approved by the land-management agency. Locally obtained tree cuttings will be used to ensure that plants are adaptable to the environment and are a genetic stock consistent with existing plants.

Tree cuttings will be between 16 and 24 inches long, obtained during the dormant season (February to May) and planted within two weeks of cutting, or stored under refrigeration, until needed.

Willow cuttings will be spaced with an average of 10 feet/center; cottonwoods will be spaced at 15 feet/center. Plantings will be randomly placed to promote a natural distribution, but the recommended average plant density will be maintained. Species will not be planted within 12.5 feet either side of the pipeline's centerline.

Tree cuttings will be inserted into the ground approximately six inches or to the second node and will be covered with a fine plastic netting to deter browsing.

6.0 Monitoring

CIG's effort to reclaim areas disturbed during construction will be evaluated annually over a period of approximately three years or until CIG has received concurrence from all invoved agencies that reclamation has been considered successful. CIG intends to begin monitoring in the summer of 2009, the first growing season following construction. If plant density and cover are insufficient, seeding efforts will continue until revegetation is successful. Noxious weed monitoring will occur annually, and then as needed, to comply with state and federal law after successful reclamation.

Revegetation shall be considered successful if, upon visual survey, the density and cover of non-nuisance vegetation is similar to that of adjacent undisturbed areas. If revegetation is a success, a final inspection will be made in the third year following reclamation.

7.0 References

Federal Energy Regulatory Commission, (FERC), Office of Pipeline Regulation. Upland Erosion Control, Revegetation, and Maintenance Plan, 1/17/2003 Version.

Federal Energy Regulatory Commission, (FERC), Office of Pipeline Regulation. Wetland and Waterbody Construction and Mitigation Procedures, 1/17/2003 Version.

Natural Resource Conservation Service (NRCS). 2007. Email communications between Bio Resources, Inc. and Eugene Backhaus, State of Colorado NRCS Resource Conservationist. March 25, 2006