Alton Coal Development, LLC

Coal Hollow Project

Mining and Reclamation Plan
Technical Review - Revisions

ALTON COAL DEVELOPMENT
COAL HOLLOW
PROJECT

December 2008

Chapters 6, 7 and AVF

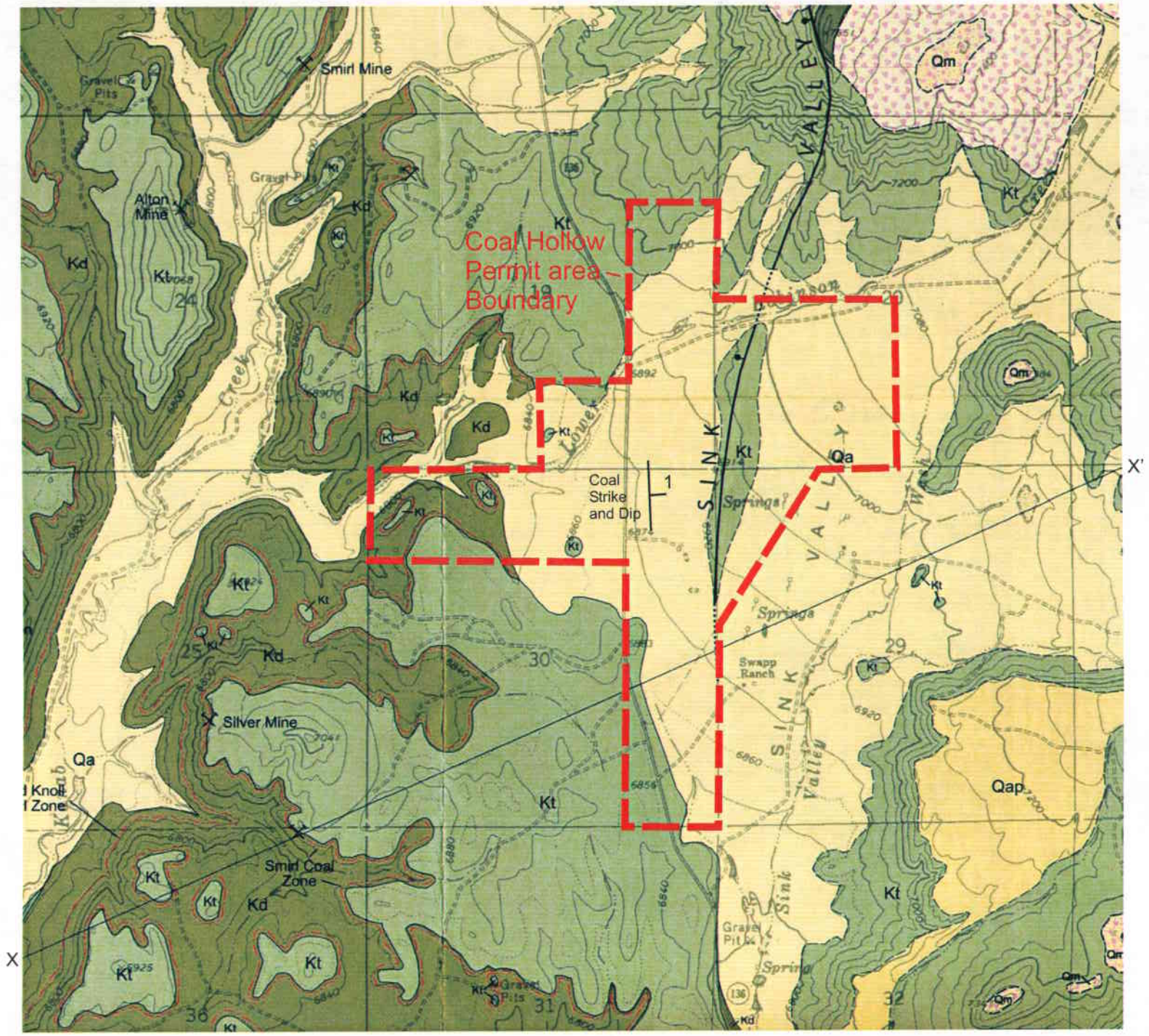
C/025/0005

File in:
☐ Confidential
☒ Shelf
☐ Expandable
Refer to Record No 0144 Date 12/8/2008
In C 0250005 2008 Incoming
For additional information Confidential

Insertion instructions

Replace the existing items in the permit application with the new items included:

Drawing 6-1
Drawing 6-1
Drawing 6-5
Drawing 6-9 Legend
Appendix 6-2 Sample identification table



Map Symbols

- Contact - dashed where approximately located
- Normal Fault - dashed where approximately located or inferred; dotted where concealed; ball and bar on down-thrown side; X marks the point of reversal of offset on scissor(?) faults; arrows on cross section show offset
- Strike and dip of bedding
- Strike of vertical joint
- Horizontal joint
- A——A' Line of cross section
- Coal zone - approximately located
- Coal mine or prospect
- Approximate line of measured section (appendix)

2,000 feet

N

Qa	Alluvium
Qms	Landslide deposits
Qm	Mass-wasting debris
Qap	Pediment alluvium
Qb	Basalt
Tbh	Brian Head Formation
Tcw	White member of Claron Formation
Tcp	Pink member of Claron Formation
Kwk	Wahweap and Kaiparowits Formations (undivided)
Ksd	Drip Tank Member of the Straight Cliffs Formation
Ksj	John Henry Member of the Straight Cliffs Formation
Kss	Smoky Hollow Member of the Straight Cliffs Formation
Kst	Tibbet Canyon Member of the Straight Cliffs Formation
Kt	Tropic Shale
Kd	Dakota Formation
Jcw	Winsor Member of the Carmel Formation

20 Dec 08

Drawing 6-9 - Location map and legend (after Tilton, 2001).

RECEIVED
DEC 22 2008
DIV. OF OIL, GAS & MINING

Appendix 6-2

Sample identification table for acid and toxic forming laboratory analyses (Energy Laboratories laboratory reports)

Sample ID	Lab ID	Sample location and type	Stratigraphic interval of sample	Lithologic description of sample
CH-05-05 Core Composite Samples				
Box 1 CH-5 Overburden	B06030458-001, B07110148-001	CH-05-05 core composite sample	Tropic shale; 94.3 to 104.3 feet above base	Carbonaceous shale/clayst., minor shaley siltst.
Box 2 CH-5 Overburden	B06030458-002, B07110148-002	CH-05-05 core composite sample	Tropic Shale; 84.3 to 94.3 feet above base	Carbonaceous shale/claystone
Box 3 CH-5 Overburden	B06030458-003	CH-05-05 core composite sample	Tropic Shale; 74.3 to 84.3 feet above base	Carbonaceous shale/claystone
Box 4 CH-5 Overburden	B06030458-004, B07110148-003	CH-05-05 core composite sample	Tropic Shale; 68.3 to 74.3 feet above base	Carbonaceous shale/claystone
Box 5 CH-5 Overburden	B06030458-005, B07110148-004	CH-05-05 core composite sample	Tropic Shale; 54.3 to 63.8 feet above base	Siltstone, bentonite, carbonaceous shale/clayst.
Box 6 CH-5 Overburden	B06030458-006, B07110148-011	CH-05-05 core composite sample	Tropic Shale; 44.3 to 54.3 feet above base	Carbonaceous shale/claystone, siltstone
Box 7 CH-5 Overburden	B06030458-007, B07110148-005	CH-05-05 core composite sample	Tropic Shale; 34.3 to 44.3 feet above base	Carbonaceous shale/claystone, siltstone
Box 8 CH-5 Overburden	B06030458-008, B07110148-006	CH-05-05 core composite sample	Tropic 21.8 to 34.3 feet above base	Carbonaceous shale/clayst., bentonite, minor lst.
Box 9 CH-5 Overburden	B06030458-009, B07110148-007	CH-05-05 core composite sample	Tropic Shale; 10.9 to 21.8 feet above base	Carbonaceous shale/claystone, bentonite
Box 10 CH-5 Overburden	B06030458-010, B07110148-008	CH-05-05 core composite sample	Tropic Shale; base to 10.9 feet above base	Carbonaceous shale/claystone, minor siltstone
Box 13 CH-5 Below	B06030458-011, B07110148-009	CH-05-05 core composite sample	Dakota Formation, beneath smirl coal seam	Siltstone, carbonaceous shale
CH-03-05 Core Composite Samples				
CH 3 Below Underburden	B06030458-012	CH-03-05 core composite sample	Dakota Formation, beneath smirl coal seam	Silty shale (immediately below coal)
CH-3 Above Underburden	B06030458-013, B07110148-010	CH-03-05 core composite sample	Tropic Shale; Base to 4.5 feet above base	Carbonaceous shale
CH-01-05 Cuttings Grab Samples				
CH-01-05, 3 ft	B07041015-001	CH-01-05 cuttings grab sample	Lower Robinson Creek Alluvium, 3 ft. bgs	Brown clayey soil
CH-01-05 6 ft	B07041015-002	CH-01-05 cuttings grab sample	Lower Robinson Creek Alluvium, 6 ft. bgs	Brown clayey soil
CH-01-05, 9-10 ft	B07041015-003	CH-01-05 cuttings grab sample	Lower Robinson Creek Alluvium, 9-10 ft. bgs	grayish brown silty clay alluvium
CH-01-05, 12 ft	B07041015-004	CH-01-05 cuttings grab sample	Lower Robinson Creek Alluvium, 12 ft. bgs	grayish brown silty clay alluvium
CH-01-05, 12-13 ft	B07041015-005	CH-01-05 cuttings grab sample	Lower Robinson Creek Alluvium, 12-13 ft. bgs	grayish brown silty clay alluvium
CH-01-05, 16 ft	B07041015-006	CH-01-05 cuttings grab sample	Lower Robinson Creek Alluvium, 3 ft. bgs	grayish brown silty clay alluvium
CH-01-05, 30 ft	B07041015-007	CH-01-05 cuttings grab sample	Lower Robinson Creek Alluvium, 30 ft. bgs	grayish brown silty clay alluvium
CH-01-05, 50 ft	B07041015-023	CH-01-05 cuttings grab sample	Lower Robinson Creek Alluvium, 50 ft. bgs	Dark gray clay alluvium
CH-03-05 Cuttings Grab Samples				
CH-03-05, 0-3 ft	B07041015-008	CH-03-05 cuttings grab sample	Lower Robinson Creek Alluvium, 0-3 ft. bgs	Brownish gray clay
CH-03-05, 3-6 ft	B07041015-009	CH-03-05 cuttings grab sample	Lower Robinson Creek Alluvium, 3-6 ft. bgs	grayish brown silty clay alluvium
CH-03-05, 9 ft	B07041015-010	CH-03-05 cuttings grab sample	Lower Robinson Creek Alluvium, 9 ft. bgs	grayish brown silty clay alluvium
CH-03-05, 16 ft	B07041015-011	CH-03-05 cuttings grab sample	Lower Robinson Creek Alluvium, 16 ft. bgs	grayish brown silty clay alluvium
CH-05-05 Excavation Grab Samples				
CH-05-05, 0-1 ft	B07041015-012	CH-05-05 excavation grab sample	Sink Valley Alluvium, W of fault, 0-1 ft. bgs	silty, clayey soil, brown
CH-05-05, 3 ft	B07041015-013	CH-05-05 excavation grab sample	Sink Valley Alluvium, 3 ft. bgs	silty, clayey soil, brown
CH-05-05, 9-10 ft	B07041015-014	CH-05-05 excavation grab sample	Sink Valley Alluvium, 9-10 ft. bgs	Silty sand and cobbles, alluvium, reddish
CH-05-05, 14 ft	B07041015-015	CH-05-05 excavation grab sample	Sink Valley Alluvium, 14 ft. bgs	Clay, silt, alluvium
CH-05-05 19 ft	B07041015-016	CH-05-05 excavation grab sample	Sink Valley Alluvium, 19 ft. bgs	Tight clay, alluvium
CH-06-05 Cuttings Grab Samples/Core Samples				
CH-06-05, soil	B07041015-017	CH-06-05 cuttings grab sample	Sink Valley Alluvium, 0-3 ft. bgs	Hard, clayey soil
CH-06-05, 5-10 ft	B07041015-018	CH-06-05 cuttings grab sample	Sink Valley Alluvium, 5-10 ft. bgs	Silty, sandy clay alluvium
CH-06-05, 10 ft	B07041015-019	CH-06-05 cuttings grab sample	Sink Valley Alluvium, 10 ft. bgs	Silty, sandy clay alluvium
CH-06-05, 20 ft	B07041015-020	CH-06-05 cuttings grab sample	Sink Valley Alluvium, 20 ft. bgs	Clay, grayish green to grayish brown, alluvium
CH-06-05, 35-40 ft	B07041015-021	CH-06-05 cuttings grab sample	Sink Valley Alluvium, 35-40 ft. bgs	Clay, grayish green to grayish brown, alluvium
CH-06-05, 42-49 ft	B07041015-022	CH-06-05 cuttings grab sample	Sink Valley Alluvium, 42-49 ft. bgs	Silty clay, bluish gray, alluvium
CH-06-05, 49.5-59.5 ft	B07110830-001	CH-06-05 core composite sample	Tropic Shale, 2.8 ft. above base	Carbanaceous shale
CH-06-05, 59.5-62.3 ft	B07110830-002	CH-06-05 core composite sample	Tropic Shale, base to 2.8 ft above base	Clayey siltstone, dark gray, mottled
CH-06-05, 79.5-83.5 ft	B07110830-003	CH-06-05 core composite sample	Dakota Formation, beneath smirl coal seam	Clayey siltstone, Organic siltstone/shale
CH-07 Cuttings Grab Samples				
CH-07 0 - 6 ft	B07120398-005	CH-07 cuttings composite sample	Soil/Weathered Tropic Shale, 0-6 ft. bgs	Clayey silt and clayey, silty soil, brown/reddish brown
CH-07 6 - 15 ft	B07120398-006	CH-07 cuttings composite sample	Weathered Tropic Shale, 6-15 ft. bgs	Clayey silt, brown and brownish gray

CH-07 15 - 19 ft	B07120398-007	CH-07 cuttings composite sample	Weathered Tropic Shale, 15-19 ft. bgs	Clayey silt, brownish gray
CH-07 19 - 27 ft	B07120398-008	CH-07 cuttings composite sample	Weathered Tropic Shale, 19-27 ft bgs	Silty clay, dark gray and greenish gray
CH-07 27 - 36 ft	B07120398-009	CH-07 cuttings composite sample	Tropic Shale, 65-74 feet above base	Silty claystone, dark gray
CH-07 36 - 46 ft	B07120398-010	CH-07 cuttings composite sample	Tropic Shale, 55-65 feet above base	Silty Claystone, dark gray
CH-08 Cuttings Grab Samples/Core Samples				
CH-08 0 - 6 ft	B07120398-011	CH-08 cuttings composite sample	Sink Valley Alluvium, 0' to 6'	Clayey silt and very-fine-grained sand, brown
CH-08 6 - 11 ft	B07120398-012	CH-08 cuttings composite sample	Sink Valley Alluvium, 6' to 11'	Silty fine-grained sand, sandstone cobble, yellowish brown
CH-08 11 - 20 ft	B07120398-013	CH-08 cuttings composite sample	Sink Valley Alluvium, 11' to 20'	Clayey silt and silty fine-grained sand, grayish brown
CH-08 20 - 30 ft	B07120398-014	CH-08 cuttings composite sample	Sink Valley Alluvium, 20' to 30'	Silty clay, minor fine-grained sand,bluish gray
CH-08 30 - 40 ft	B07120398-015	CH-08 cuttings composite sample	Sink Valley Alluvium, 30' to 40'	Silty clay, minor fine-grained sand, yellowish brown
CH-08 40 - 50 ft	B07120398-016	CH-08 cuttings composite sample	Tropic Shale, 33.8-43.8 feet above base	Claystone and silty claystone, brownish gray
CH-08 50 - 60 ft	B07120398-017	CH-08 cuttings composite sample	Tropic Shale, 23.8-33.8 feet above base	Claystone and silty claystone, gray and greenish gray
CH-08 60 - 70 ft	B07120398-018	CH-08 cuttings composite sample	Tropic Shale, 13.8-23.8 feet above base	Claystone and silty claystone, gray and greenish gray
CH-08 70 - 79 ft	B07120398-001	CH-08 cuttings composite sample	Tropic Shale, 4.6-13.8 feet above base	Claystone and silty claystone, gray and greenish gray
CH-08 79.2 - 82.3 ft	B07120398-002	CH-08 composite core sample	Tropic Shale 0.6-4.6 feet above base	Clayey siltstone, dark gray to black
CH-08 82.3 - 83.8 ft	B07120398-003	CH-08 composite core sample	Tropic Shale, 0-0.6 feet above base	Organic-rich siltstone/very-fine-grained sandstone, gray
CH-08 101 -103 ft	B07120398-004	CH-08 cuttings composite sample	Dakota Formation, 0-2 feet below upper contact	Silty claystone/siltstone, gray
Coal Samples				
CH-08 Coal Composite	B07120636-001	CH-08 core/cuttings composite sample	Smirl Coal Zone sample	Black bituminous coal
CH-01-05 Coal Grab Sample	B07120524-001	CH-01-05 coal grab sample	Smirl Coal Zone sample	Black bituminous coal
CH-03-05 Coal Composite	B07120636-003	CH-03-05 core grab sample	Smirl Coal Zone sample	Black bituminous coal
Robinson Creek Outcrop Coal	B07120636-004	Outcrop sample in Robinson Creek drainage	Smirl Coal Zone sample	Black bituminous coal