



MINERALS, LLC
1600 Stout St., Suite 1350
Denver, CO 80202

October 13, 2008

Chris Canfield
Environmental Protection Specialist
Oil and Gas Conservation Commission
707 Wapiti Court - Suite 204
Rifle, CO 81650

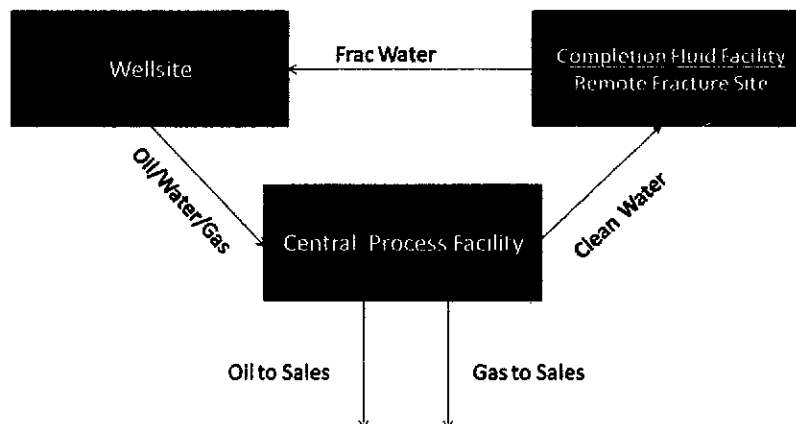
Re: Form 15 Application – Tepee Park Completion Fluids Facility
Garfield County, Colorado

Dear Mr. Canfield:

Enclosed is COGCC application Form 15 with attachments for a surface water impoundment referenced as the Tepee Park Completion Fluids Facility (CFF) owned and operated by Black Diamond Minerals, LLC. The site is located in the SW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 36, T7S, R94W, 6th P.M., Garfield County, Colorado. The enclosures include:

1. COGCC Form 15
2. Surface Impoundment (Pit) Plan and Profile Details
3. Topographic Site Map
4. Central Processing and Remote Fracture Stimulation Configuration
5. Sensitive Area Determination

Development in Tepee Park Ranch (TPR) is being done with the underlying objective to develop the natural gas reserves at the lowest lifecycle cost (capital, expense and final abandonment), with the least impact to the environment and by minimizing risks to the surrounding areas. In order to accomplish these objectives, a holistic approach to construction, drilling, completion, facility design and on-going operations was used.



The CFF is a critical piece in the overall scheme to manage gas, condensate and water produced from wells to be drilled in the Tepee Park Ranch area. The production facilities, including the CFF, were designed to utilize best practices developed in the Piceance Basin and offshore operations to process gas and condensate for sale and to process and re-use produced water as a fracturing fluid.

The flow process consists of three operations working in a closed-loop fashion, Drilling, Completion, and Production operations, as described below.

Step 1: Drilling Operations

Drilling operations take place on multi-well drilling pads. Black Diamond Minerals, LLC is planning to drill as many as 36 wells from one well pad. Pad drilling minimizes surface disturbance significantly by avoiding the need for more roads and well pads. However, since drilling so many wells from one location will take several years, it is also necessary to design a system to allow for simultaneous drilling, completion and production operations from the well pad at one time. In order to do this, two other best practices must be employed, namely remote fracturing and centralized processing of produced fluids.

Step 2: Completion Operations

Completion of wells is done remotely so as to be able to simultaneously drill and complete wells on the same pad, to avoid having to build larger well pad sites to accommodate all the equipment necessary to drill complete and produce from the same location and to conduct more efficient fracture stimulations over a shorter period of time. To accomplish these goals, completion operations depend upon a sufficient and reliable supply of water to fracture stimulate several wells in a day, otherwise the efficiencies don't exist.

From the Teepee Park CCF, truck mounted equipment will pump hydraulic fracturing fluids to newly drilled natural gas wells. The piping system consists of high-pressure steel "frac lines" that convey the fracturing fluids to the newly drilled wells. The distance between the CFF and the well pad is limited to the friction pressure experienced in the high-pressure frac line. A distance of approximately 2 miles between the CFF and the well pad is the estimated maximum distance that can be achieved currently before friction pressure becomes too high.

To insure a sufficient and reliable supply of water for completion operations exist, a lined, surface impoundment (pit) is the preferred choice for storage of this fluid. The use of portable, rental "frac tanks" could be used in lieu of a pit; however more surface space is taken and there is a higher risk of leaks. The proposed surface impoundment (pit) of 100' by 200' will hold over 25,000 bbls of fluid. This same amount of fluid would require over 50 "frac tanks". Frac tanks also have a greater risk of leaks because they require pipe connections and each connection is a potential leak point. Frac tanks also require trucking to and from the site.

Please note that the CCF surface impoundment (pit) will be double-lined with synthetic liners and have a leak detection system in place to catch any leak in the primary liner before it reaches any soil. The entire pit is built in "cut" soil.

Once a well is fracture stimulated, the produced fluids are initially processed using a portable "Flowback unit" This device is used to separate the solids (sand) from the fluids and to measure the gas, oil and condensate produced. The produced fluids are recombined and diverted into the 3-phase flowline that extends from the well pad to the Central Process Facility for final processing. By locating the processing equipment off-site, the size of the well pad can be reduced.

Step 3: Production Operations

Another best practice utilized in TPR is a Central Process Facility. The Central Process Facility separates the produced fluid into marketable gas and condensate and water. One specific objective of this facility is to deliver clean water, free of hydrocarbons, to the CFF for reuse as a stimulation fluid. In order to accomplish this, the facility will utilize multiple stages of liquid separation, filtering and coalescing units as needed.

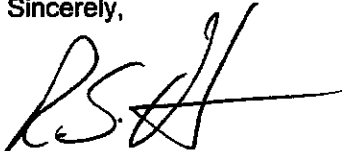
The above described closed-loop approach has several advantages and benefits over traditional operations:

- Virtual elimination of water trucking across public roads. The impact of this is lower risk to individuals (drivers and pedestrians), less risk for spills (driving near streams and rivers) and reduced dust, noise and road wear.
- Over-designed surface impoundment (pit) has the ability to detect a leak prior to contact with soil.
- Smaller well pad footprint by locating support facilities off-site.
- Less equipment is required and therefore there is less potential for equipment failures
- The overall time to develop the resources is reduced by:
 - Ability to conduct simultaneous drilling, completion and production operations from a single well pad
 - increase the number of frac jobs that can be done in a day by having a sufficient and reliable source of completion fluids

This facility will initially support wells to be drilled from two proposed multi-well pads. These well pads are shown on the attached site map in reference to the CFF.

We appreciate your consideration in this matter. If you have any questions or need additional information, please don't hesitate to call me at (303) 973-3228, extension 226.

Sincerely,



 Scott Hall
CEO

Enclosures

State of Colorado Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303)894-2100 Fax:(303)894-2109



FOR OGCC USE ONLY

EARTHEN PIT REPORT/PERMIT

This form is to be used for both reporting and permitting pits. Rule 903 describes when a Permit with prior approval, or a Report within 30 days, is required for pits. Submit required attachments and forms.

Complete the
Attachment Checklist

FORM SUBMITTED FOR:

☐ Pit Report

☒ Pit Permit

OGCC Operator Number: 10244

Name of Operator: Black Diamond Minerals, LLC

Address: 1600 Stout Street, Suite 1350

City: Denver State: CO Zip: 80202

Contact Name and Telephone:

Robert Vincent

No: 303-973-3228 ext 226

Fax: 303-346-4893

	Oper	OGCC
Detailed Site Plan	✓	
Topo Map w/ Pit Location	✓	
Water Analysis (Form 25)		
Source Wells (Form 26)		
Pit Design/Plan & Cross Sect	✓	
Design Calculations		
Sensitive Area Determ.	✓	
Mud Program		
Form 2A		

API Number (of associated well): n/a OGCC Facility ID (of other associated facility): n/a

Pit Location (QtrQtr, Sec, Twp, Rng, Meridian): SW NE Sec 36, T7S, R94W, 6th PM

Latitude: N 39.396093 Longitude: W 107.833496 County: Garfield

Pit Use: ☐ Production ☐ Drilling (Attach mud program) ☒ Special Purpose (Describe Use): Completion Fluid Facility (see attached)

Pit Type: ☒ Lined ☐ Unlined Surface Discharge Permit: ☐ Yes ☒ No

Offsite disposal of pit contents: ☐ Injection ☐ Commercial Pit/Facility Name: Pit/Facility No:

Attach Form 26 to identify Source Wells and Form 25 to provide Produced Water Analysis results.

Existing Site Conditions

Is the location in a "Sensitive Area?" ☒ Yes ☐ No Attach data used for determination.

Distance (in feet) to nearest surface water: 260 ft ground water: est 25 ft water wells: 10,900 ft

LAND USE (or attach copy of Form 2A if previously submitted for associated well) Select one which best describes land use:

Crop Land: ☐ Irrigated ☐ Dry Land ☐ Improved Pasture ☐ Hay Meadow ☐ CRP

Non-Crop Land: ☒ Rangeland ☐ Timber ☐ Recreational ☐ Other (describe):

Subdivided: ☐ Industrial ☐ Commercial ☐ Residential

SOILS (or attach copy of Form 2A if previously submitted for associated well)

Soil map units from USNRCS survey: Sheet No: n/a Soil Complex/Series No: n/a

Soils Series Name: NRCS sheet does not exist for this area Horizon thickness (in inches): A: ; B: ; C:

Soils Series Name: Horizon thickness (in inches): A: ; B: ; C:

Attach detailed site plan and topo map with pit location.

Pit Design and Construction

Size of pit (feet): Length: 200 Width: 100 Depth: 18

Calculated pit volume (bbls): 25,900 Daily inflow rate (bbls/day): 150 (annualized)

Daily disposal rates (attach calculations): Evaporation: n/a bbls/day Percolation: n/a bbls/day

Type of liner material: Synthetic Reinforced Polyethylene Thickness: Double lined - 36 mil (each)

Attach description of proposed design and construction (include sketches and calculations).

Method of treatment of produced water prior to discharge into pit (separator, heater treater, other): see attached for description

Is pit fenced? ☒ Yes ☐ No Is pit netted? ☐ Yes ☒ No

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: Scott Hall

Signed:

Title: CEO

Date: October 13, 2008

OGCC Approved: Title: Date:

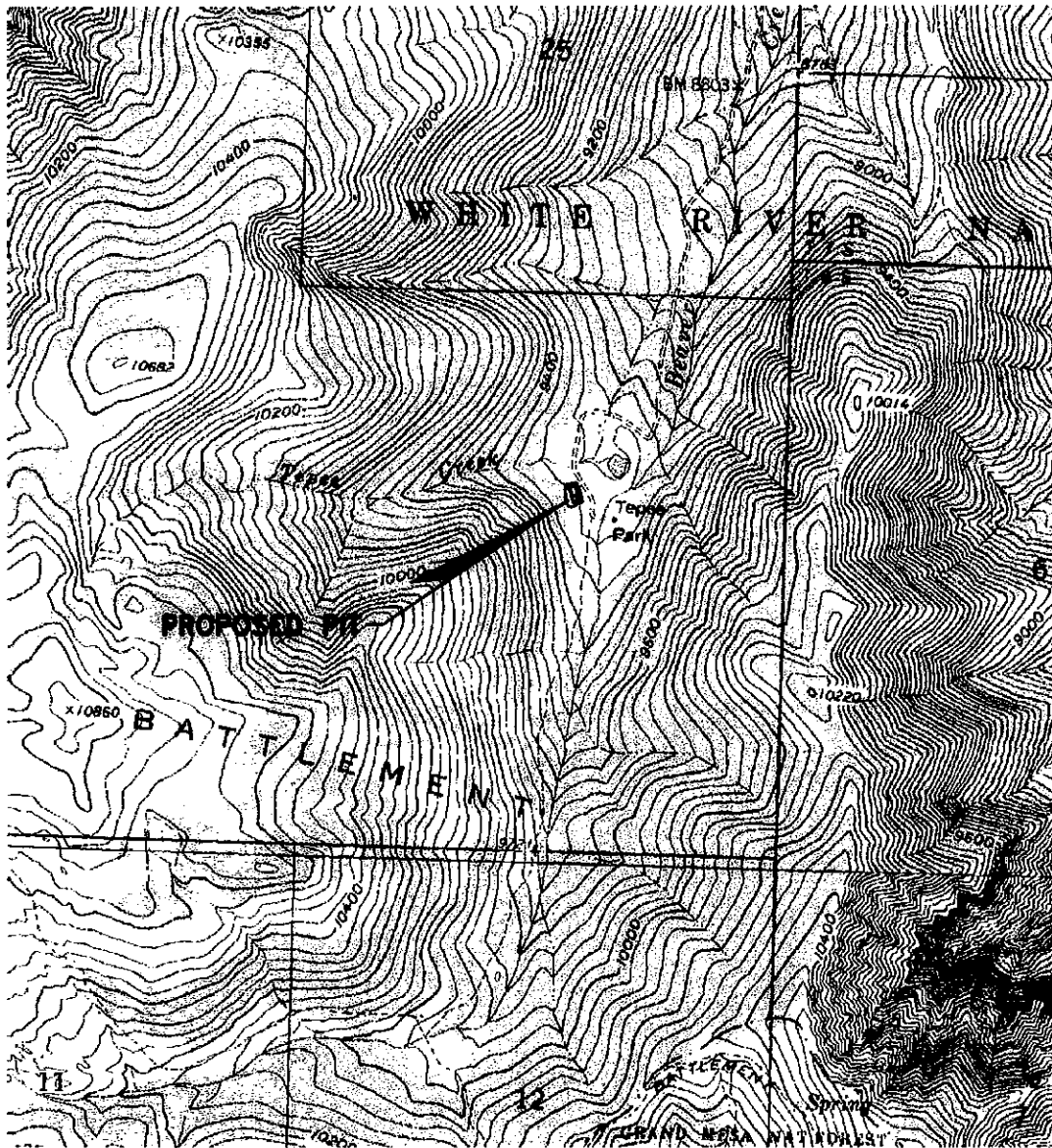
CONDITIONS OF APPROVAL, IF ANY:

FACILITY NUMBER:

BLACK DIAMOND MINERALS, LLC.

TEPEE PARK PIT

SECTION 36,
T7S, R94W, 6th P.M.
GARFIELD COUNTY, COLORADO



SCALE 1"=2000'



85 SOUTH 200 EAST
VERNAL, UTAH 84078
PHONE: (435) 789-1017

DATE: 8-25-08
DRAWN BY: D.G.W.
REVISED: 10-8-08

SHEET 1 OF 7

TEPEE PARK PIT

SECTION 36,
T7S, R94W, 6th P.M.
GARFIELD COUNTY, COLORADO

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**85 SOUTH 200 EAST
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UINTAH

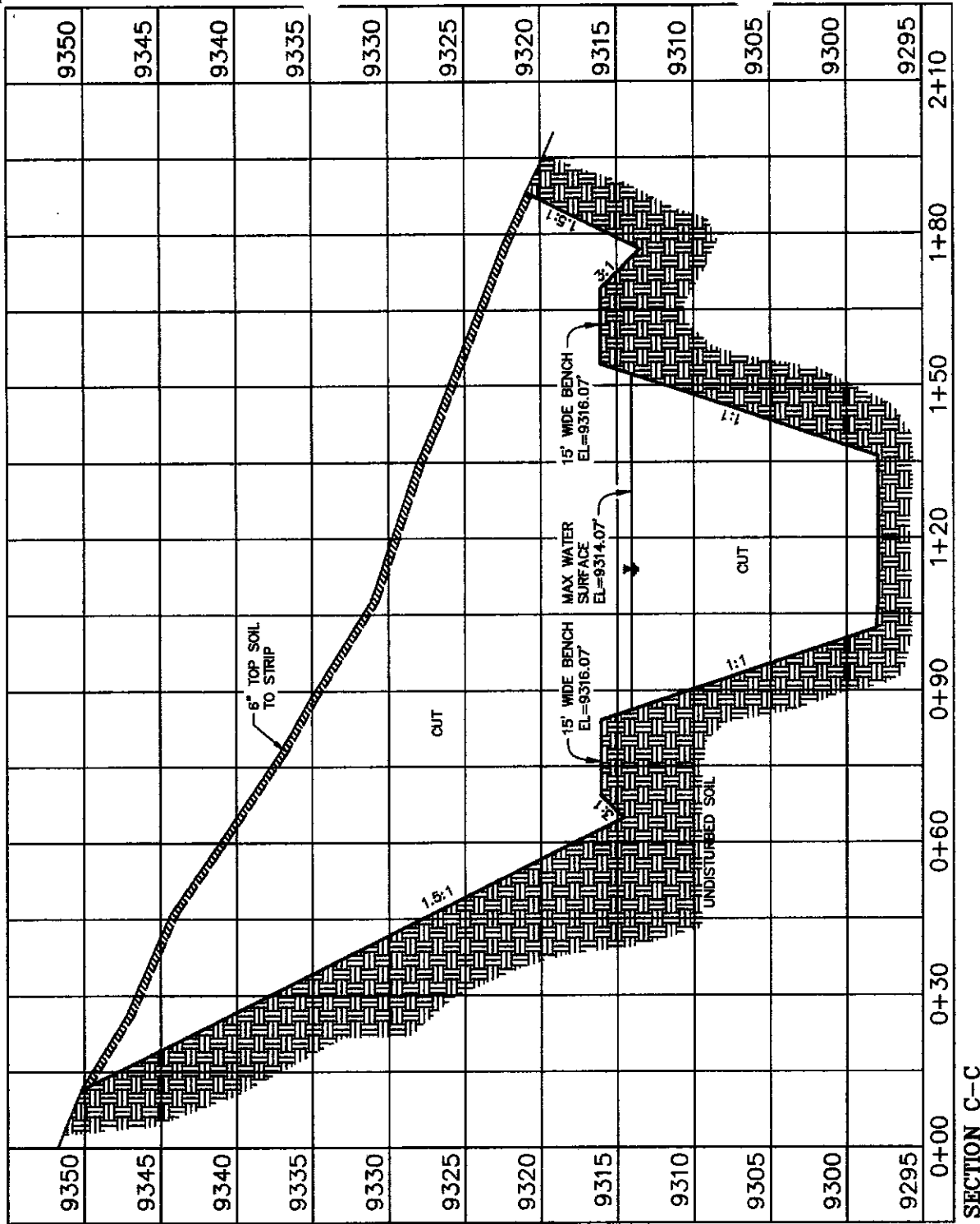
BASIS OF BEARINGS IS A LINE FROM THE NORTHEAST CORNER OF SECTION 36, T7S, R94W, 6th P.M. TO THE SOUTHWEST CLOSING CORNER OF SECTION 31, T7S, R93W, 6th P.M. WHICH FROM G.P.S. OBSERVATION BEARS N00°35'27"W.

SHEET 2 OF 7

BLACK DIAMOND MINERALS, LLC.

TEPEE PARK PIT

SECTION 36,
17S, R94W, 6th P.M.
GARFIELD COUNTY, COLORADO



SECTION C-C



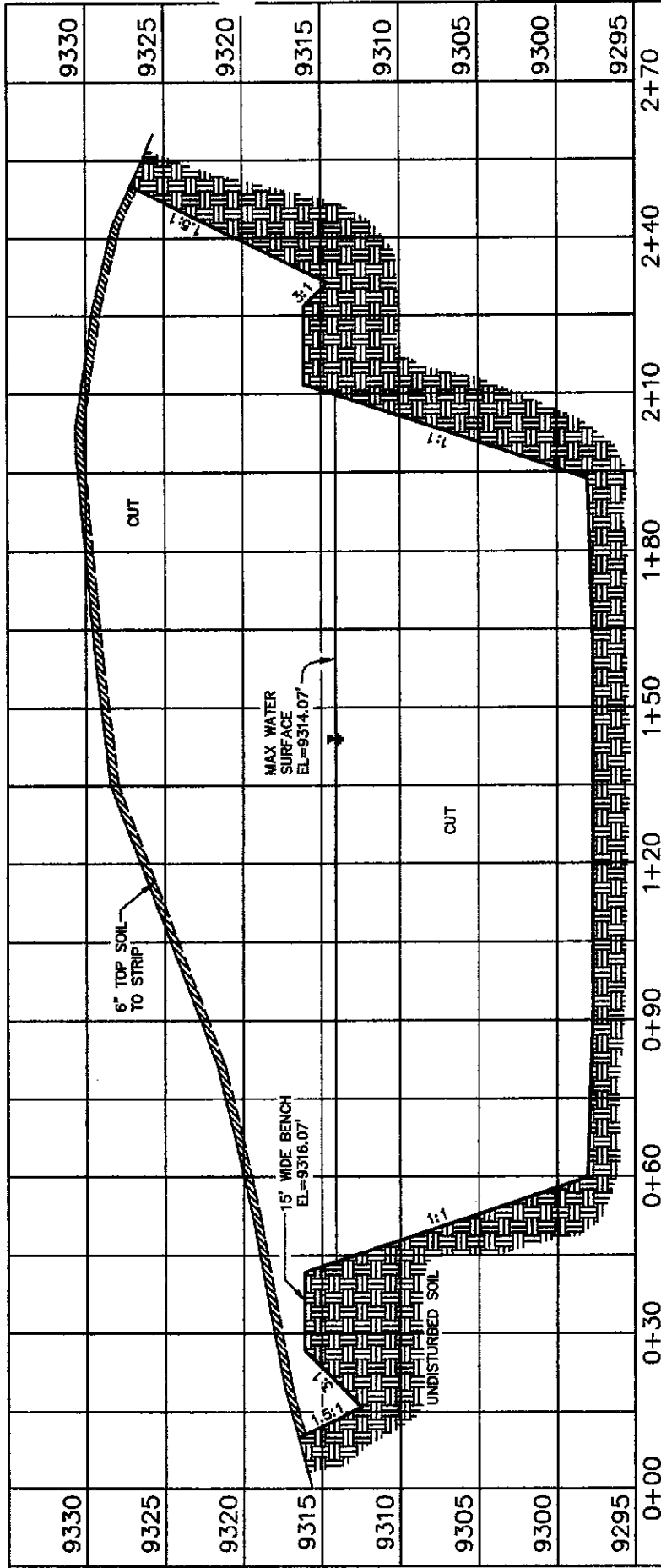
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86 SOUTH 200 EAST
VERNAL, UTAH 84078
PHONE (435) 789-1017

BLACK DIAMOND MINERALS, LLC.

TEPEE PARK PIT

SECTION 36,
T7S, R94W, 6th P.M.
GARFIELD COUNTY, COLORADO



SECTION D-D

PIT CHARACTERISTICS

TOTAL PIT VOLUME
5,384 cyd, 3.34 acre feet, 25,889 BBL

POND VOLUME EXCLUDING FREEBOARD
4,537 cyd, 2.81 acre feet, 21,819 BBL

SURFACE AREA AT MAX. LIQUID DEPTH
10,956 SQUARE FEET (0.252 ACRES)

EARTHWORK VOLUMES

RAW CUT = 17,975 CU. YDS.
FILL = 40 CU. YDS.
FILL+10% = 44 CU. YDS.
TOP SOIL = 708 CU. YDS.

Top soil for footprint area within the disturbance limits (6" depth)

DISTURBANCE AREA (FOOTPRINT)

0.878 ACRES

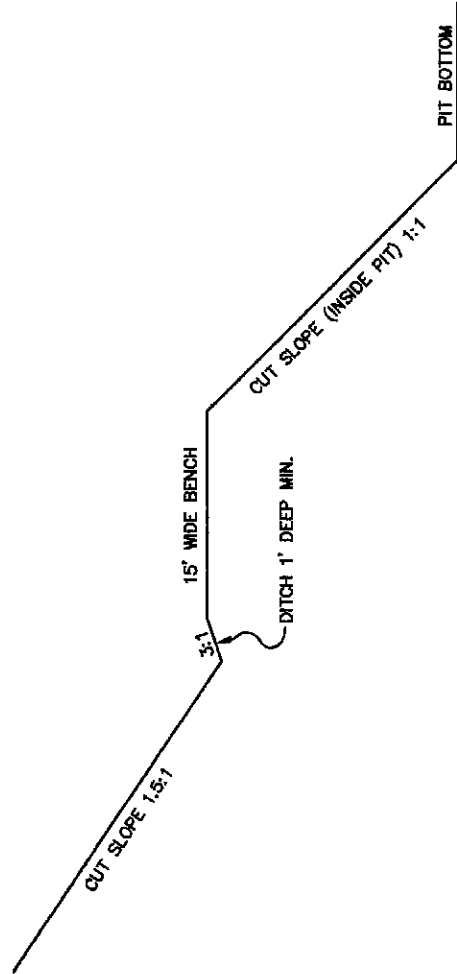


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BLACK DIAMOND MINERALS, LLC.
TEPEE PARK PIT

SECTION 36,
 T7S, R94W, 6th P.M.
 GARFIELD COUNTY, COLORADO



TYPICAL PIT SECTION

NO SCALE

CONTROL POINTS & DESIGN CORNERS

NORTHING	EASTING	ELEVATION	DESCRIPTION	APPROXIMATE CUT / FILL
100000.00	100000.00	5546.19	B.M. 5544	
58738.34	83280.40	7183.36	C.P. #20121	
35502.43	82081.56	9341.79	C.P. #20136	
35606.92	82247.81	9315.04	C.P. #20236	
41407.51	84108.92	8652.48	C.P. #20000	
48390.96	84318.57	8248.01	NE 24 7-94	
45756.15	84347.84	8465.33	E 1/4 24 7-94	
43110.91	84349.83	8476.72	NE 25 7-94	
40474.50	79027.57	10222.54	W 1/4 25-7-94	
40460.91	84347.44	8766.50	E 1/4 25-7-94	
37818.29	84342.20	9356.75	SE 25-7-94	
37778.74	79030.56	10212.03	SW W.C. 25-7-94	
40323.60	84346.74	8789.19	NW 31-7-93	
42972.04	84346.49	8478.83	W 1/4 30-7-93	
38255.82	84337.69	9207.31	SW CC SEC 31-7-93	
35682.19	82031.24	9316.07	PIT COR N	Cut 6.48
35712.15	82126.64	9316.07	PIT COR O	Fill 2.37
35521.34	82186.57	9316.07	PIT COR P	Cut 4.98
35491.38	82091.16	9316.07	PIT COR Q	Cut 23.20
35672.37	82050.04	9316.07	PIT COR R	Cut 5.59
35693.34	82116.83	9316.07	PIT COR S	Fill 0.00
35531.16	82167.76	9316.07	PIT COR T	Cut 8.94
35510.18	82100.98	9316.07	PIT COR U	Cut 21.03
35670.78	82105.05	9298.07	PIT COR V	Cut 20.43
35660.59	82072.61	9298.07	PIT COR W	Cut 23.48
35596.89	82093.40	9297.32	PIT COR X	Cut 31.77
35532.75	82112.76	9298.07	PIT COR Y	Cut 34.90
35542.93	82145.20	9298.07	PIT COR Z	Cut 29.80
35718.35	82137.73	9311.92	DITCH COR AA	Cut 0.50
35523.24	82192.64	9313.95	DITCH COR BB	Cut 6.24
35515.56	82188.39	9314.05	DITCH COR CC	Cut 6.44
35488.45	82092.08	9315.05	DITCH COR DD	Cut 23.96
35490.46	82088.24	9315.05	DITCH COR EE	Cut 24.91
35679.47	82022.60	9313.05	DITCH COR FF	Cut 10.44
35691.12	82028.43	9312.95	DITCH COR GG	Cut 8.84
35725.46	82127.31	9311.90	DITCH COR HH	Cut 0.52

ELEVATIONS SHOWN FOR PIT AND DITCH ARE DESIGN GRADE.
 CUT / FILL DISTANCES ARE FROM EXISTING GROUND.



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TEPEE PARK PIT

SECTION 36,
T7S, R94W, 6th P.M.
GARFIELD COUNTY, COLORADO

LEAK DETECTION SYSTEM COLLECTION TRENCH DETAIL

Diagram illustrating the construction of a lined ditch. The ditch is shown in cross-section, with a sloped side and a bottom. The lining consists of two layers: a primary liner and a secondary layer.

- PRIMARY LINER (36 MIL RPE)**: The bottom layer, indicated by a dashed line.
- 200 MIL GSE HYPERNET GEONET OR APPROVED EQUAL**: The secondary layer, indicated by a solid line with a wavy texture.
- ADEQUATELY ANCHOR LINERS ON TOP OF DIKE (AS SPECIFIED BY PIT LINER MANUFACTURER)**: A note indicating that the liners must be properly anchored on the dike.

PVC PIPE (ASTM 2729)

SECONDARY LINER (36 MIL RPE).

GEOTEXTILE FABRIC OR BEDDING MATERIAL
UNDER BOTTOM LINER
AS APPROVED BY LINER MANUFACTURER

**GEOTEXTILE FABRIC APPROVED BY LINER MANUFACTURER
AROUND DRAIN ROCK**

8" PERFORATED PVC PIPE
(ASTM 2729)

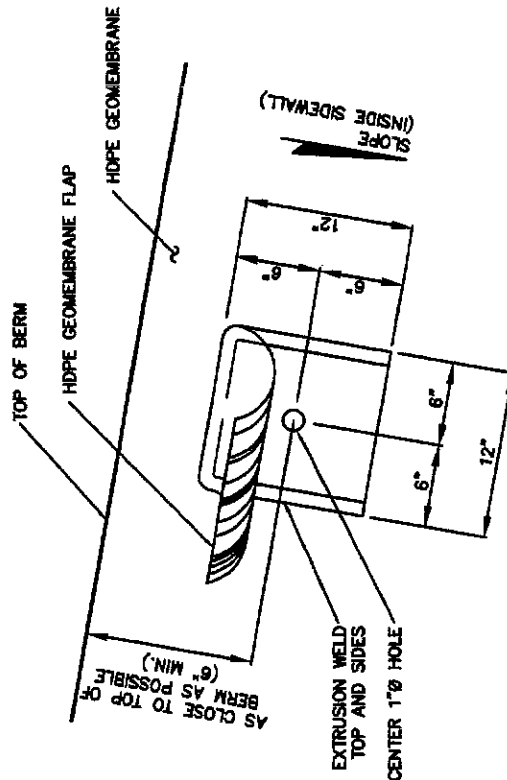
COLLECTION TRENCHES SHALL BE 24" WIDE, 12" DEEP, AND 24' LONG AND SHALL BE LOCATED AS SHOWN.

NOTES:

1. PERFORATE 8" PVC PIPE WITH 1/2" DIA. HOLES, 36 HOLES MINIMUM, THROUGH SECTION IN DRAIN SUMP.
2. WRAP PERFORATED PIPE WITH GEOTECH FABRIC.

VENT POCKET DETAIL

N.T.S.



*SHIRT POCKET™ VENTS SHALL BE INSTALLED THROUGH BOTH PRIMARY AND SECONDARY LINERS LOCATED AT 150' O.C. MAX. ALONG THE TOP INSIDE PERIMETER OF THE PONDS.

GENERAL NOTES

PIT LINERS SHALL BE 36 MIL RPE (REINFORCED POLYPROPYLENE).

PIT LINERS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. PIT SIDES AND BOTTOM SHALL BE FREE FROM SHARP EDGES CAPABLE OF PUNCTURING LINER MATERIAL. GEOTEXTILE FABRIC MAY BE USED AS BEDDING MATERIAL. A SMOOTH BEDDING SURFACE SHALL BE PROVIDED PRIOR TO LINER INSTALLATION.

THE LEAK DETECTION PIPE SHALL BE A PERFORATED PVC PIPE WITHIN THE COLLECTION AREA. THE OBSERVATION SUMP SHALL BE AN 8" DIAMETER PVC PIPE WITH END CAP.

POROUS MATERIAL (DRAIN ROCK) IN THE COLLECTION AREA SHALL BE 3" TO 1 1/2" CLEAN WASHED GRAVEL MATERIAL. MATERIAL DOES NOT NEED TO BE WELL GRADED BUT THE OVERALL MATERIAL SIZE MUST FALL WITHIN THE SPECIFIED RANGE. DRAIN ROCK SHALL BE FREE OF SHARP EDGES CAPABLE OF PUNCTURING LINER, OR NON-WOVEN GEOTEXTILE FABRIC (AS APPROVED BY LINER MANUFACTURER) SHALL BE USED TO PROTECT LINER. LINER MANUFACTURER SHALL APPROVE SUBGRADE PRIOR TO INSTALLATION OF LINER.

KNOTTED ROPE OR OTHER EMERGENCY EGRESS METHOD SHALL BE INSTALLED AROUND THE PERIMETER OF THE PIT LOCATED AND SPACED AS APPROVED BY OWNER.



85 SOUTH 200 EAST
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DATE: 8-25-08

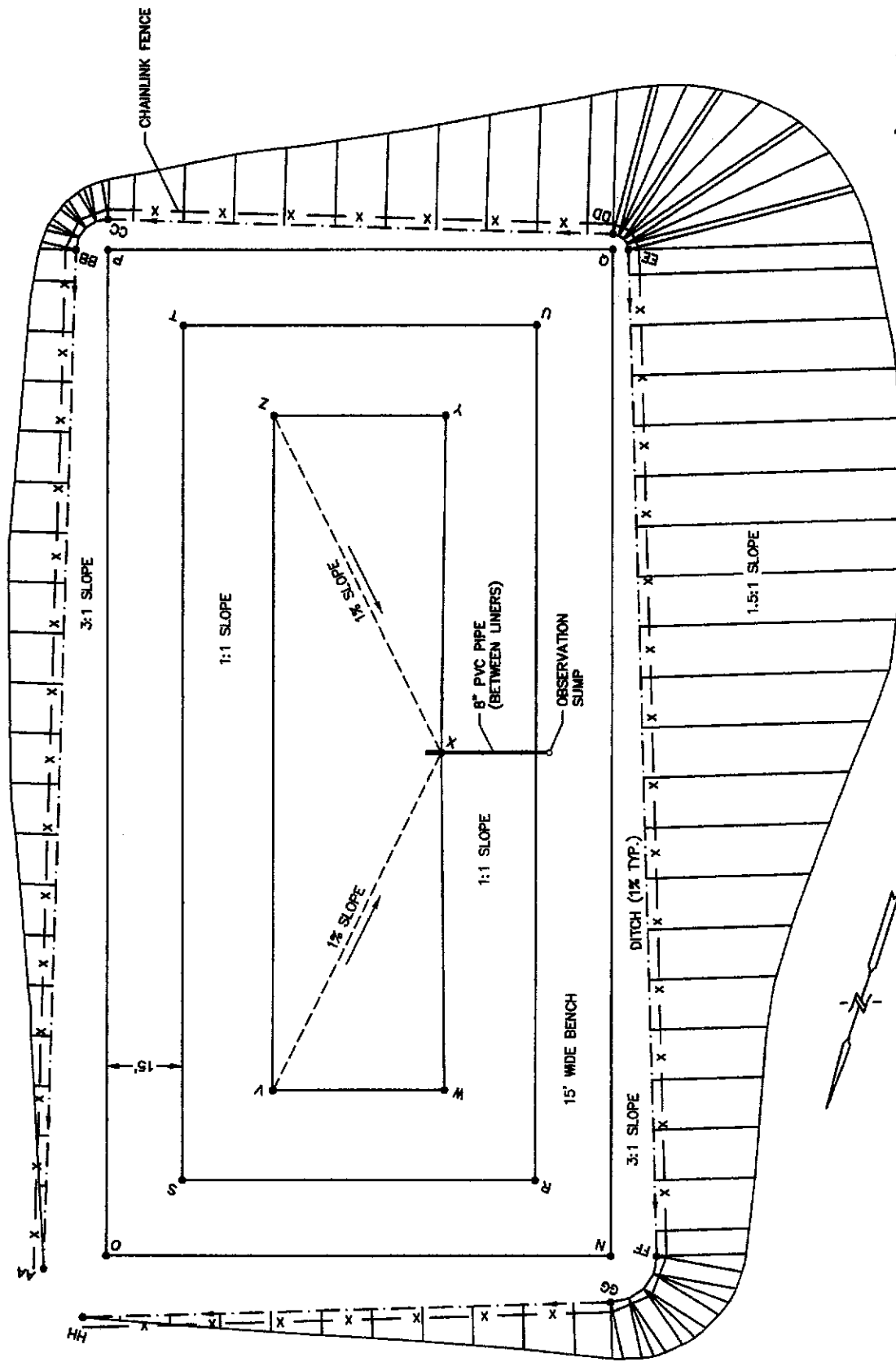
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REVISÉ: 10-8-08

TEPPE PARK PIT

SECTION 36,
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GARFIELD COUNTY, COLORADO



SHEET 7 OF 7

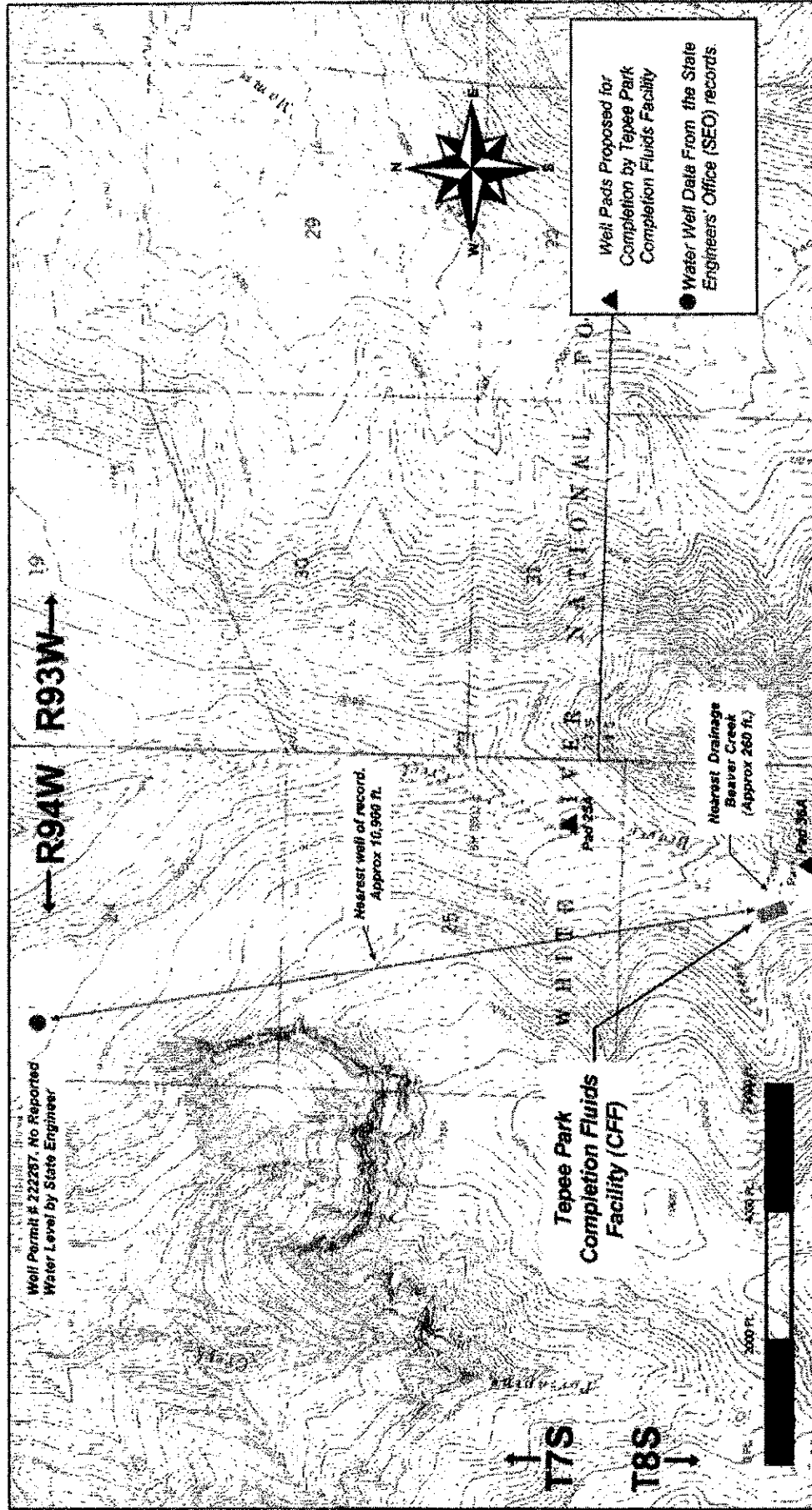
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KINTAH
TRANSFORMING INDUSTRIES

**Black Diamond Minerals, LLC
COGCC Form 15 - Surface Water Impoundment
Tepee Park Completion Fluids Facility Site Map ***



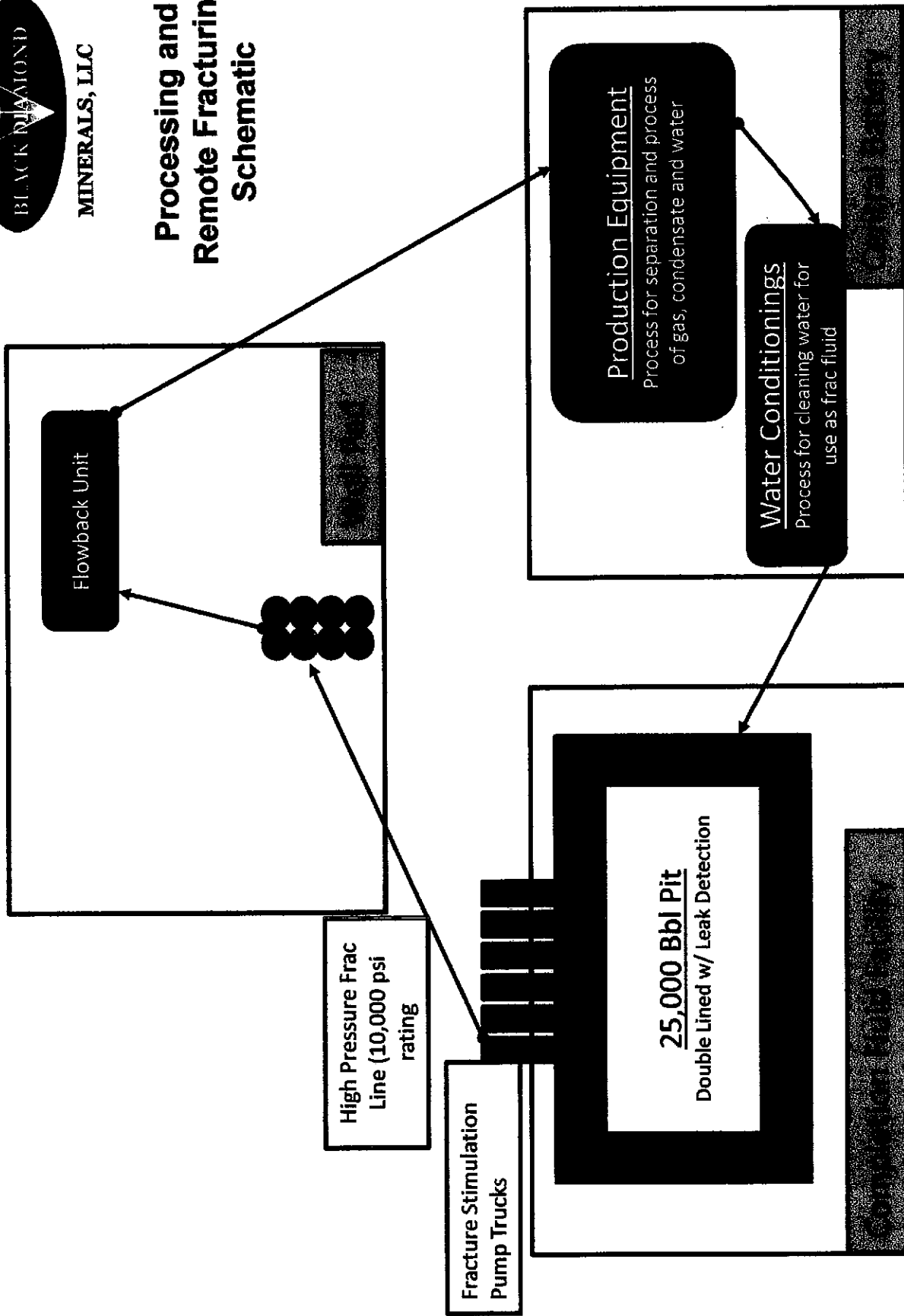
*USGS Quadrangle base map

Prepared by Fox Engineering Solutions, LLC
October 1, 2008



MINERALS, LLC

Processing and Remote Fracturing Schematic



Black Diamond Minerals, LLC
Sensitive Area Determination*
Tepee Park Completion Fluids Facility

<u>Sensitive Area Factors</u>	<u>Comments</u>	<u>Sensitive Area Determination</u>
Quality of Produced or Stored Water	Exceeds Total Dissolved Solids of 1.25 x Background	Yes
Presence of unconfined aquifers or recharge areas	Unconfined Aquifer Present	Yes
Hydraulic conductivity of soils or geologic material under pit	Unavailable as reported by NRCS Soil Survey. Field survey - loamy silt underlain with shale. (CO 654)	Yes
Presence of WQCC classified area or wellhead protection area	Area not designated in WQCC Regulation 42 as of 10-1-08.	No
Proximity to public or domestic water supply wells	Domestic well ~10,000 ft. away.	No
Depth and quality of ground water	Excellent water quality. Depth to Water Estimate = 25- 35 ft.	Yes
Conclusion: Inside Sensitive Area		

* Per Colorado Oil and Gas Conservation Commission Rule 901.1 - Sensitive Area Operations and Figure 901-1 Sensitive Area Determination Decision Tree.