

January 21, 2011

Alex Fischer, P.G.
Environmental Protection Specialist, Northwest Region
Environmental Supervisor -
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, CO 80203

RE: OXY USA WTP LP Form 28 Centralized E & P Waste Management Facility Submittal for Centralized Water Handling Facility Near Conn Creek, Facility Number 417559 SW¹/₄ of the SW¹/₄ of Section 29, Township 6 South, Range 97 West 6th Principal Meridian, Garfield County, Colorado

Responses to comments dated November 3, 2010

Dear Mr. Fischer:

Oxy is pleased to provide the following responses and supporting documentation in response to your letter dated November 3, 2010.

Comment 1:

Form 28, 16. Has groundwater monitoring for the site been provided? Answer: No.

Although Oxy plans to collect surface water samples of Conn Creek for analysis, groundwater monitoring has not yet been conducted. Oxy's Supplement indicates that groundwater is not believed to be present beneath the facility but that Oxy will attempt to collect quarterly groundwater samples from on-site monitoring wells (to be constructed) for the first year of operation and semiannually after the first year. Before facility startup, the proposed groundwater monitoring wells must be installed, after which the first groundwater and surface water sampling event will be conducted. The results of those tests will be provided to the COGCC.

Response 1:

Currently there are not sufficient flows in Conn Creek to accommodate water sampling. Additionally, because groundwater may not be present at the proposed monitoring well locations, baseline water sampling results may not be generated from those wells (see the attached diagrams for proposed locations of MW1, MW2 and MW3). As per discussion with Alex Fischer (COGCC), when water sources are available, water quality results from the monitoring wells and Conn Creek will be provided to the COGCC. Oxy anticipates that the groundwater monitoring wells will be installed in early May 2011, subject to Division of Water Resources (DWR) permitting. Oxy is seeking approval from the COGCC of the proposed monitoring well locations prior to DWR permit preparation and drilling operations to install the wells.

Comment 2:

Form 28,17. Has financial assurance been provided as required by Rule 704? Answer: No.

The Cost Estimate that was included in Attachment Q (Page 564 of the combined PDF document) should provide detailed breakdown for labor, equipment *et al* and not just be lump sum estimates. The Cost Estimate should reflect costs associated with each Scenario, including Closure, Abandonment and Reclamation. It should reflect options such as Treatment, Storage, and Re-use. In addition, cost estimates for tasks such as Investigation, Reporting, Remediation design/oversight for worst-case scenarios, spills, et al. must be provided and justified.

Response 2:

The attached Cost Estimate for the reclamation phase of the facility, including the abandonment and closure, has been updated to include the requested information. The cost estimate is intended to accommodate closure, abandonment and reclamation. Rule 704 of the COGCC regulations does not require details specific to Treatment, Storage, and Re-use. At the time of closure, Oxy does not intend to conduct any treatment, storage, and re-use operations. It should be noted that the revised estimates for complete reclamation are actually lower than the data originally provided to the COGCC. The original closure/reclamation cost calculations were developed using information from experienced Oxy field personnel as opposed to the revised estimates which were developed by professional construction contractors solicited by Oxy. The cost estimate inflation factor used to calculate future costs of reclamation for the proposed life of the facility is based on Consumer Price Index data from the US Government. Oxy will obtain the required COGCC financial assurance bond upon approval of the proposed amounts accompanying this document.

Comment 3:

Form 28, 18. Has a closure plan been provided? Answer: Yes

The Closure Plans included in the submittal do not account for the various activities associated with closure, nor do they detail what the assumed timelines will be. The budgeted amounts do not appear to be sufficient to cover the costs of the proposed activities. Please provide detailed breakdowns for the activities and costs associated with the closure plan as well as an appropriate time span for post-closure monitoring activities. When preparing cost estimates, please take into account that the facility is not expected to close for 25 years.

Response 3:

An updated Closure and Reclamation Plan is included in response to Comment 3. The Plan has been updated to reflect approximate timelines for closure and reclamation activities. As noted in Response #3 above, the approximate costs for closure and reclamation are also attached.

Comment 4:

Form 28, 20. Have permits and notifications required by local governments and other agencies been provided? Answer: Yes

Please provide any permits or notifications from Garfield County.

Response 4:

Oxy has been approved by Garfield County land use authorities for the operation of the Centralized Water Handling Facility. The Garfield County Resolution has been attached.

Comment 5:

Form 28 Supplement, Rule 908.b.(S).A.

Please revise Sheets 3 through 6 in Appendix Q as necessary to address the following: Identify the location of the specific proposed elements within the CWHFNCC, including gravity separation above ground storage tanks (ASTs), treatment units, filter equipment, and settling and storage AST batteries, as well as "ancillary infrastructure" such as electrical panels, pump houses, control/monitoring facilities and secondary containment structures for each of the ASTs. Identify the volume, contents, and purpose for each of the existing/proposed ASTs on the Site.

Response 5:

Please refer to the attached drawing labeled: Proposed Overall Site Plan Sheet 1 of 6, which addresses each of the items referenced in Comment 5.

Comment 6:

Form 28 Supplement, Rule 908.b.(5).D.

The Rule requires a fire lane and buffer zone around the active treatment equipment. Oxy has indicated that it has not designated a buffer zone/fire lane around the equipment because the treatment equipment will be located within a disturbed area on an existing pad, and the treatment area will lie entirely within the disturbed area. The intent of the rule is to allow fire-fighting access and a vegetation-free zone around the equipment, and the plans appear to satisfy that intent.

Response 6:

As noted above, the materials provided by Oxy in the original submittal satisfy that intent of the COGCC regulations.

Comment 7:

Form 28 Supplement, Rule 908.b.(5).E.

The submitted Stormwater Management Plan does not incorporate the final layout of the proposed CWHFNCC.

- Revise the sections describing the Nature of Construction Activity as they pertain to the proposed facility. The sections included in your package refer to well pads and well pad construction.
- The sequence of Construction Activities should reflect the activities associated with the construction of this specific facility.
- Demonstrate that the proposed stormwater-management features, such as ditches, can accommodate the appropriate flows. Demonstrate that the facility is designed with a run on control system that will prevent flow onto the facility during peak discharge, and include those calculations and design.

- Demonstrate that the facility is designed with a run-off control system to contain the appropriate volumes and include those calculations and design.

Response 7:

Since the facility is already constructed, Oxy does not anticipate any significant new construction activity for the CWHF. Maintenance activities that may require earth movement will occur in existing, previously disturbed locations and will be addressed according to the Stormwater Management Plan (SWMP). The enclosed drawings (see Response 5) as well as the enclosed updated SWMP effectively anticipate any potential impacts associated with operation and construction of the facility. The SWMP updates include:

- Modifications to the nature of construction activities include consideration of appropriate mitigations for operation and construction of the CWHF.
- Updates to the development phase to include the Central Water Handling Facility.

The SWMP is supplemented by details embedded in the Erosion Control, Grading and Drainage Plan drawings. The features imbedded within the Erosion Control Grading and Drainage Plan drawings have been designed by professionals to accommodate the appropriate flows. The layout of the facility is detailed in the Proposed Overall Site Plan Sheet 1 of 6.

Comment 8:

Form 28 Supplement, Rule 908.b.(6).

Please revise the mass balance flowchart to reflect monthly totals/averages as detailed by the Rule. The mass balance flowchart currently refers to barrels per day.

Response 8:

The attached mass balance flowchart has been revised to reflect monthly totals/averages.

Comment 9:

Form 28 Supplement, Rule 908.b.(7).B.v.

The Supplement indicates that Figure 7 illustrates the relationship between the location of the facility and the floodplain for nearby Conn Creek. While Figure 7 indicates the location of surface water bodies within a two-mile radius, it does not indicate the location of any recognized floodplains. Please provide a FEMA Flood Insurance Rate Map that indicates the facility is not located within a recognized floodplain.

Response 9:

According to Figure 8 (see attached), the FEMA-designated floodplain does not extend to the facility boundaries. Figure 8 was generated using GIS data from the FEMA floodplain data repository.

Comment 10:

Form 28 Supplement, Rule 908.b.(7).B.vi.

Although Oxy plans to collect surface water samples of Conn Creek for analysis, groundwater monitoring has not yet been conducted. Oxy's Supplement indicates that groundwater is not believed to be present beneath the facility but that Oxy will attempt to collect quarterly groundwater samples from on-site monitoring wells (to be constructed) for the first year of operation and semi-annually after the first year. Before facility startup, the proposed groundwater monitoring wells must be installed, after which the first groundwater and surface water sampling event will be conducted. The test results will be provided to the COGCC.

Response 10:

Please refer to Comment #1 and Response #1.

Comment 11:

Form 28 Supplement, Rule 908.b.(7).B.vii.

Please use the analytical results for samples collected from shallow groundwater and from nearby Conn Creek and provide an evaluation of the potential for the proposed CWHFNCC facility to affect shallow groundwater and nearby surface water.

Response 11:

As stated in our response to Comment 1, Oxy anticipates that the groundwater monitoring wells will be installed in early May 2011, subject to Division of Water Resources (DWR) permitting. When available, water quality results from the monitoring wells and Conn Creek will be provided to COGCC. Oxy is seeking approval from the COGCC of the proposed monitoring well locations prior to DWR permit preparation and drilling operations to install the wells.

Comment 12:

Form 28 Supplement, Rule 908.b.(7).C.iii.

Please provide details about existing and proposed water surface diversion structures, including their dimensions and grades (for all structures). The Site Map illustrating the location of stormwater structures (page 31 of the Stormwater Management Plan) does not appear to be the same facility, as the proposed facility illustrated in Figures 1 through to and Sheets 3 through 6 in Appendix Q.

Response 12:

The Stormwater Management Plan has been updated. Appropriate Stormwater Best Management Practices have been included in the attached diagrams.

Comment 13:

Form 28 Supplement, Rule 908.b.(7).C.iv.

Please provide details about existing and proposed surface water containment structures, including their dimensions and locations(for all structures).

Response 13:

These structures have previously been installed and are represented on the grading and drainage drawings.

Comment 14:

Form 28 Supplement, Rule 908.b.(9).B.i., ii.

Please provide a groundwater monitoring plan with an appropriate number of wells, located both hydraulically upgradient and hydraulically downgradient of the facility. If a variance is requested, please provide a written summary as an Attachment to the application of the requested variance for the project and the justification for the variance.

Response 14:

The plan has been modified to include a well at a location hydraulically up gradient from the facility. The newly proposed location is reflected in the drawing labeled: Facility-MW3.

Comment 15:

Form 28 Supplement, Rule 908.d.

Please review the previous comments in this letter related to the Closure Plan.

Response 15:

Please refer to Comment #3 and Response #3.

Comment 16:

Form 28 Supplement, Rule 908.f.

Please review the previous comments in this letter related to the Closure Plan.

Response 16:

Please refer to Comment #3 and Response #3.

Comment 17:

Form 28 Supplement, Rule 908.h.

Please provide copies of any approval notices, permits, or other similar types of notifications that have been issued to the facility from local governments or other agencies regarding the Construction or zoning of the facility to the Director for review before issuance of the operating permit.

Response 17:

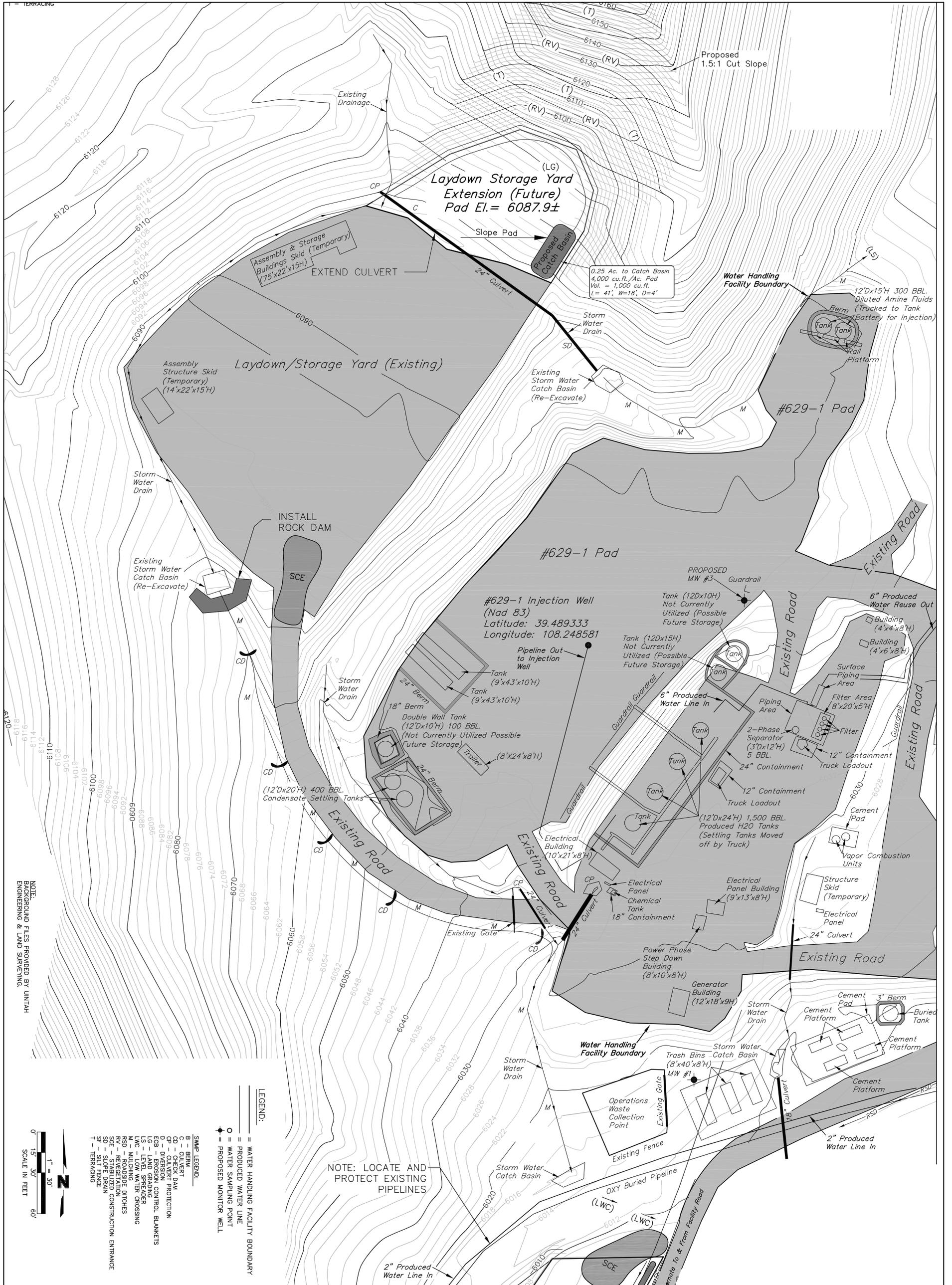
Please refer to Comment #4 and Response #4. Oxy will provide additional permits including monitoring well permits issued from the Colorado State Engineer's Office and air quality permits from the Colorado Department of Health and Environment when they are issued.

Should you have any questions in regards to the responses and documentation we have provided, or require additional information, please do not hesitate to contact me.

Sincerely,

Daniel Padilla
OXY USA WTP LP

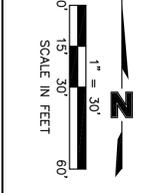
cc: Lorne C. Prescott, Olsson Associates
File copy



NOTE:
 BACKGROUND FILES PROVIDED BY UTAH
 ENGINEERING & LAND SURVEYING.

- LEGEND:**
- WATER HANDLING FACILITY BOUNDARY
 - PRODUCED WATER LINE
 - WATER SAMPLING POINT
 - PROPOSED MONITOR WELL
- SYMBOL LEGEND:**
- B - BERM
 - C - CULVERT
 - CD - CHECK DAM
 - CP - CULVERT PROTECTION
 - D - DIVERSION
 - D9 - LAND GRADING
 - LS - LEVEL SPREADER
 - LWC - LOW WATER CROSSING
 - M - MOUNDING DITCHES
 - MS - MULCHING
 - RS - REVEGETATION
 - RCE - STABILIZED CONSTRUCTION ENTRANCE
 - SD - SLOPE DRAIN
 - SF - SILT FENCE
 - T - TERRACING

NOTE: LOCATE AND PROTECT EXISTING PIPELINES



**CENTRAL WATER TREATMENT & STORAGE FACILITY
 FUTURE LAYDOWN / STORAGE YARD EXTENSION**

SECTION 29, T6S, R97W, 6th P.M.
 OXY USA WTP LP

GARFIELD COUNTY, COLORADO

REV. NO.	DATE	REVISIONS DESCRIPTION

UNCC
 UTAH NATURE CONSERVATION CORPORATION
 1000 WEST 1000 SOUTH
 SALT LAKE CITY, UT 84119
 TEL: 801-488-2222 FAX: 801-488-2222
 WWW: WWW.UNCC.UTAH.GOV

NOTE: THIS DOCUMENT HAS BEEN RELEASED BY UNCC ASSOCIATES ONLY FOR REVIEW BY REGULATORY AGENCIES AND OTHERS. THE INFORMATION IS SUBJECT TO CHANGE. THIS DOCUMENT IS NOT TO BE USED FOR CONSTRUCTION.

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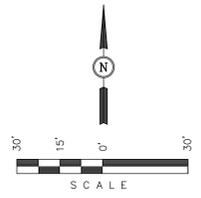
OLSSON ASSOCIATES

4690 Table Mountain Drive, Suite 200 Golden, CO 80403 TEL: 303.237.2072 FAX: 303.237.2659 www.oaconsulting.com

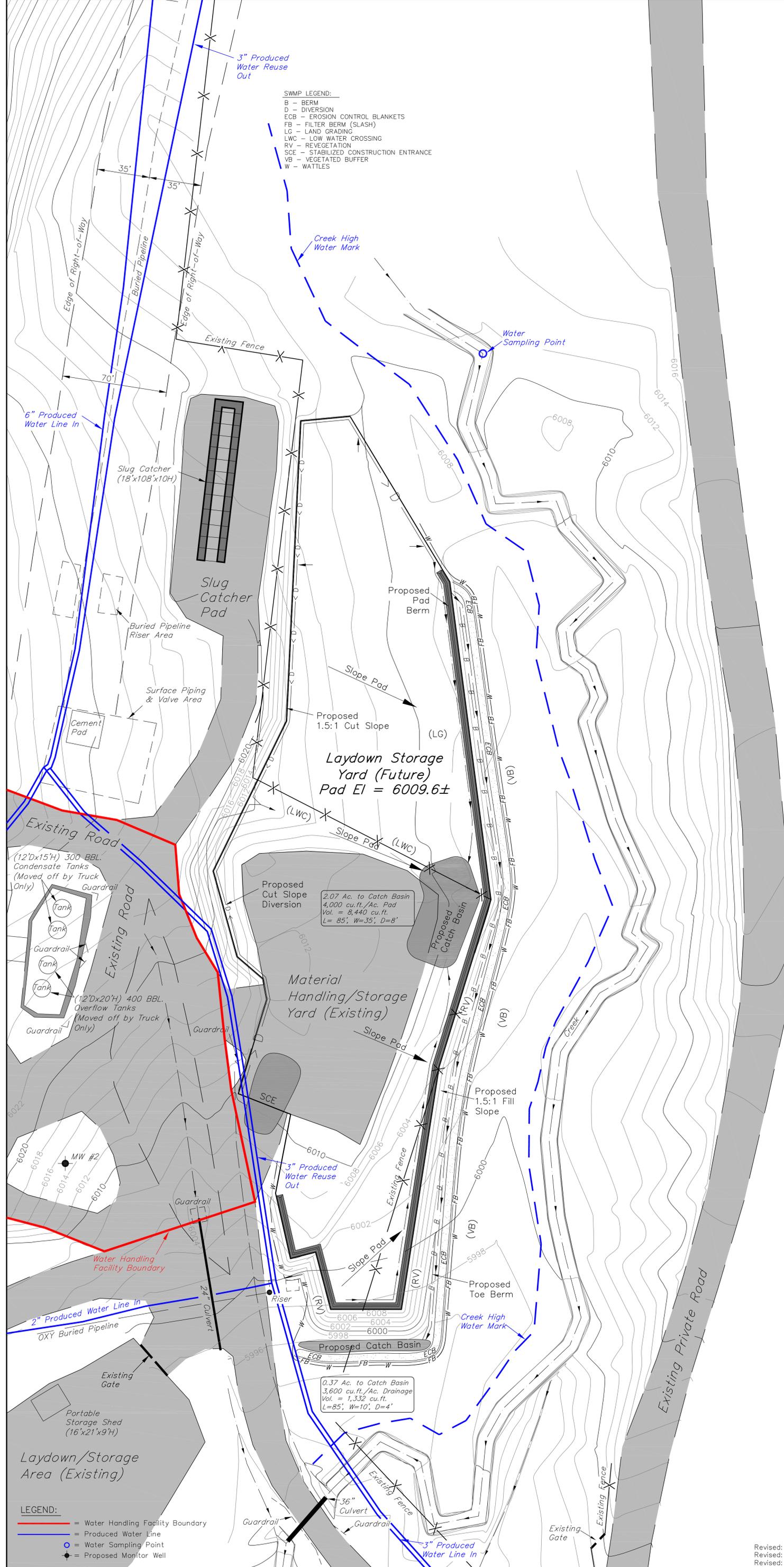
1 of 1
 SHEET

OXY USA WTP LP
CENTRAL WATER TREATMENT & STORAGE FACILITY

LOCATED IN
 SECTION 29, T6S, R97W, 6th P.M.
 GARFIELD COUNTY, COLORADO
 ZONE DISTRICT IS
 RESOURCE LAND-GENTLE SLOPE
 & LOWER VALLEY FLOOR



- SWMP LEGEND:**
- B - BERM
 - D - DIVERSION
 - ECB - EROSION CONTROL BLANKETS
 - FB - FILTER BERM (SLASH)
 - LG - LAND GRADING
 - LWC - LOW WATER CROSSING
 - RV - REVEGETATION
 - SCE - STABILIZED CONSTRUCTION ENTRANCE
 - VB - VEGETATED BUFFER
 - W - WATTLES



- LEGEND:**
- = Water Handling Facility Boundary
 - = Produced Water Line
 - = Water Sampling Point
 - = Proposed Monitor Well

EROSION CONTROL, GRADING & DRAINAGE PLAN
LAYDOWN/STORAGE YARD (Future)
 SHEET 4 OF 6

UINTAH ENGINEERING & LAND SURVEYING	
<small>85 SOUTH 200 EAST VERNAL, UTAH 84078 — SINCE 1964 — PHONE: (435) 789-1017 uelsh@uintahco.com</small>	
SCALE: AS SHOWN	DATE: 5-13-09
SURVEYED BY: B.J.	DRAWN BY: D.N.W., P.M.B.
	FILE: 2 3 1 6 6

Revised: 02-10-10 K.G.
 Revised: 01-25-10 K.G.
 Revised: 11-30-09 K.G.

COST ESTIMATE TO RECLAIM THE OXY CWHF FACILITY SITE

Disconnect, dismantle and remove all facility equipment.

Labor	\$ 37,000
Equipment	\$ 30,000
Crane	\$ 20,000
Trucking	\$ 45,000
Waste container rental	<u>\$ 10,000</u>
Subtotal	\$142,000

Site Remediation

Soil Sampling per Table 910-1	\$ 12,000
Labor and Equipment to regrade site and spread topsoil cover	\$ 50,000
Labor and materials to reseed	\$ 19,000
Stormwater	\$ 15,000
Revegetation monitoring	<u>\$ 5,000</u>
Subtotal	\$101,000

Contingency \$ 24,300

Total Cost Estimate \$267,300

Cost Estimate, Inflation Adjusted - Oxy Centralized Water Handing Facility

YEAR	INITIAL VALUE	Estimate of Inflationary Cost Per Year	Inflation Factor
1	\$267,300	\$5,346.00	0.02
2	\$272,646	\$5,452.92	
3	\$278,099	\$5,561.98	
4	\$283,661	\$5,673.22	
5	\$289,334	\$5,786.68	
6	\$295,121	\$5,902.42	
7	\$301,023	\$6,020.46	
8	\$307,044	\$6,140.87	
9	\$313,185	\$6,263.69	
10	\$319,448	\$6,388.96	
11	\$325,837	\$6,516.74	
12	\$332,354	\$6,647.08	
13	\$339,001	\$6,780.02	
14	\$345,781	\$6,915.62	
15	\$352,697	\$7,053.93	
16	\$359,751	\$7,195.01	
17	\$366,946	\$7,338.91	
18	\$374,285	\$7,485.69	
19	\$381,770	\$7,635.40	
20	\$389,406	\$7,788.11	

Final Estimated Cost	\$389,406
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Sources:

<http://stats.bls.gov/cpi/>

<http://oregonstate.edu/cla/polisci/sahr/sahr>

SITE CLOSURE AND RECLAMATION PLAN OXY CENTRALIZED E&P WATER MANAGEMENT FACILITY

The OXY USA WTP LP (Oxy) Centralized E&P Water Management Facility will be located on property owned by Oxy. Oxy estimates that the proposed facility will be in operation for an anticipated period of approximately twenty (20) years during development and production of Oxy's Garfield County operations. Upon termination of the development and production activities, the project area will be closed and reclaimed, as outlined below:

- All equipment and structures will be removed.
- Oxy will remove all safety and storm water BMPs, and other surface objects from the premises.
- Oxy will restore the site to pre-facility conditions by re-contouring and re-vegetating the site. Top soil will be redistributed across the site and will be reseeded with an approved seed mix (see attached seed mix recommendation).
- Oxy will monitor the site to ensure that 70 percent of the pre-existing vegetation is achieved, per the requirements of the CDPHE Stormwater Permit for the site.

If soil is disturbed as the result of construction activities, the soil should be stripped to a depth of approximately twelve (12) inches and stockpiled at the facility margins. The maximum depth of stockpiled shall be 24" or less to preserve soil viability. Topsoil stockpiles will be seeded as described below in the section on seeding methods and times.

ESTIMATED TIMEFRAMES FOR CLOSURE AND RECLAMATION ACTIVITIES

- Equipment removal: approximately 2 months
 - Including removal of all tanks, appurtenant equipment and capping of the injection well.
 - Re-contouring of the site to approximate the original topography, including redistribution of topsoil.
- Reseeding the site: approximately 2 weeks.
- Removal of initial post construction BMPs: approximately 2 weeks.
- Storm water oversight to ensure vegetation is re-established and in compliance with permitting criteria. Depending upon the season and weather conditions, this activity could take 3 to 9 months.
- Removal of final post construction BMPs: approximately 1 week.

RECLAMATION

Two phases of reclamation are planned. Soil stockpiles and areas disturbed by construction that will not be utilized during operation of the facility will be reclaimed immediately following facility construction. Final reclamation will be performed within one year of closure and removal of the facility. The objectives of reclamation will be as follows:

1. Stabilization of the disturbed areas will be conducted by providing wind and water erosion control to reduce soil loss.
2. Utilize the prescribed native seed mixtures and additional vegetation practices as described below to establish a self-sustaining vegetative rangeland cover for cattle pasture use.

SEEDBED PREPARATION AND SLOPE RECONSTRUCTION

Seedbed preparation and soil tillage will be completed after the application of subsoil, topsoil, and any soil amendments. Soil tillage will be to a minimum depth of 4" utilizing a disk, chisel plow, or harrow. Seedbed preparation will also include removal of coarse fragments (rock material) that exceed 35% to 40% of the soil surface as well as rocks 8" in diameter that occupy more than 10% of the soil surface.

Cut and fill slopes will be backfilled and re-contoured to a slope of 3:1 – 2.5:1 or less in instances where necessary to match the existing natural contours. Following final contouring, all backfilled or ripped surfaces will be covered evenly with topsoil. Re-contouring should form a complex slope with heavy pocking. In areas with slope greater than 3 percent, imprinting of the seed bed is recommended. Final seedbed prep will consist of scarifying/imprinting the topsoil prior to seeding. Imprinting can be in the form of dozer tracks or furrows perpendicular to the direction of slope. When hydro-seeding or mulching, imprinting should be done prior to seeding, unless the mulch is to be crimped into the soil surface. If broadcast seeding and harrowing, imprinting will be done as part of the harrowing. Furrowing can be done by several methods, the most simple of which is to drill seed perpendicular to the direction of slope in a prepared bed. Other simple imprinting methods include deep hand raking and harrowing, always perpendicular to the direction of slope. All compacted areas will be ripped to depth of 18" with max furrow spacing of 2'. Where practicable, ripping will be conducted in two passes at perpendicular direction.

TOPSOIL

Following final contouring, all backfilled or ripped surfaces will be covered evenly with topsoil. The topsoil in the cut slope on the back of the pad will be heavily pocked using the excavator bucket to form an uneven soil surface complex which will aid in revegetation and help with slope stabilization. The fill slope, and remaining disturbed, and reclaimed areas will be track walked to aid in revegetation and slope stabilization. In areas that may not have been disturbed during the reclamation process or areas of suspected compaction that will be reseeded, measures will be taken to loosen and spread the topsoil. These measures may include scarifying the soil by racking or harrowing the soil.

FACILITY AND STRUCTURE REMOVAL

The facility will be abandoned in accordance with Colorado Oil and Gas Conservation Commission regulations; i.e. aboveground equipment will be removed from the site, pipelines will be purged and abandoned in place, concrete structures will be buried in place with a minimum of 3 feet of fill. Any residual liquids or other material present in the equipment or tanks will be removed and transported to the appropriate facility for disposal.

Soil sampling will be conducted in areas where obvious staining is present or there is other indication that material may have been released from site equipment. The samples collected will be analyzed for the analytes specified by Table 910-1 of the COGCC Rules. If necessary, a Form 27 Site Investigation and Remediation Workplan will be submitted to COGCC for approval prior to remediation of any contaminated areas. Groundwater sampling is not anticipated to be required during closure of the facility but will be implemented as needed.

BACKFILLING, GRADING, AND RE-CONTOURING

Reclaimed areas will be sloped to 3:1 – 2.5:1 or less to prevent the formation of erosion features.

TOPSOIL REPLACEMENT

Soil salvaged during construction activities will be redistributed over the soil surface after subsoil has been replaced and additional backfilling; grading, and re-contouring steps have been completed as described below. Soil will be replaced by using front-end loaders, trackhoes, and dozers. Soil will not be replaced when it is excessively wet and frozen so as to jeopardize soil structure.

SEEDING METHODS AND TIMES

Soil stockpiles and areas disturbed by construction that will not be utilized during operation of the facility will be seeded. If seeding is performed in the spring, it will be accomplished by May 15; if fall seeding is performed it will be completed after August 30 and before the soil freezes. Seeding efforts will consist of drill seeding with a rangeland drill to a planting depth of ¼” to ½” on slopes 3:1 or flatter. Broadcast seeding followed by harrowing or hand raking to lightly cover the seed with soil will be used on slopes steeper than 3:1, or on areas inaccessible for drill seeding equipment.

All areas to be reclaimed will be mulched no later than 24 hours after seeding with a weed-free straw or grass hay material. Grass hay mulch will be applied at 1 ½ tons per acre, or straw mulch will be applied at 2 tons per acre. Mulch material will be crimped into the soil surface with a commercial mulch crimper, a straight disc, or bulldozer tracks if too steep to otherwise crimp mulch in place.

SEED MIXTURES

Please see Table 1 for the seed mixtures that can be applied to reclamation efforts.

EROSION CONTROL BLANKETS

No erosion control blankets are anticipated at this time due to minimization of slopes. Refer to the site Stormwater Management Plan for other erosion control methods to be utilized.

WEED CONTROL PLAN

A qualified person will inspect the location on an annual basis. Based on this inspection, methods, materials, and timing of weed control measures will be specified.

TABLE 1

Stockpile and Disturbed Areas Reclamation

Common Name	Scientific Name	Pounds Pure Live Seed (PLS) per acre
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Western wheatgrass	<i>Pascopyrum smithii</i>	8.0
	TOTAL PLS	8.0

Final Reclamation Seed Mixture 1

Common Name	Scientific Name	Pounds Pure Live Seed (PLS) per acre
Alkali Sacaton	<i>Sporobolus airoides</i>	1.0
Sideoats Grama	<i>Bouteloua curtipendula</i>	2.0
Basin Wildrye	<i>Leymus cinereus</i>	2.0
Western wheatgrass	<i>Pascopyrum smithii</i>	4.0
	TOTAL PLS	9.0

Final Reclamation Seed Mixture 2 and 3

Low-Elevation Salt-Desert Scrub/Basin Big Sagebrush

Common Name	Scientific Name	Form	PLS lbs/acre*
Fourwing Saltbush	<i>Atriplex canescens</i>	Shrub	1.9
Shadscale	<i>Atriplex confertifolia</i>	Shrub	1.5
Galleta	<i>Pleuraphis [Hilaria] jamesii</i>	Bunch	2.5
Alkali Sacaton	<i>Sporobolus airoides</i>	Bunch	0.2
Streambank Wheatgrass	<i>Elymus lanceolatus ssp. psammophilus, Agropyron riparium</i>	Sod-forming	2.5
Slender Wheatgrass	<i>Elymus trachycaulus, Agropyron trachycaulum</i>	Bunch	1.8
Sandberg Bluegrass	<i>Poa sandbergii (Poa secunda)</i>	Bunch	0.3

*Based on 45 pure live seeds (PLS) per square foot, drill-seeded. Double this rate (90 PLS per square foot) if broadcast or hydroseeded.

Pinyon-Juniper Woodland, Mountain/Wyoming Big Sagebrush Shrubland

Common Name	Scientific Name	Form	PLS lbs/acre*
Indian Ricegrass	<i>Achnatherum [Oryzopsis] hymenoides</i>	Bunch	1.9
Galleta	<i>Pleuraphis [Hilaria] jamesii</i>	Bunch	2.5
Bluebunch Wheatgrass	<i>Pseudoroegneria spicata, Agropyron spicatum</i>	Bunch	2.8
Slender Wheatgrass	<i>Elymus trachycaulus, Agropyron trachycaulum</i>	Bunch	3.3
Muttongrass	<i>Poa fendleriana</i>	Bunch	0.6
Sandberg Bluegrass	<i>Poa sandbergii, Poa secunda</i>	Bunch	0.6

*Based on 60 pure live seeds (PLS) per square foot, drill-seeded. Double this rate (120 PLS per square foot) if broadcast or hydroseeded.

Final Reclamation Seed Mixture 4 and 5

Mixed Mountain Shrubland, Including Oakbrush

Common Name	Scientific Names	Form	PLS lbs/acre*
Thickspike Wheatgrass	<i>Elymus lanceolatus ssp. lanceolatus, Agropyron dasystachyum</i>	Sod-forming	3.4
Bluebunch Wheatgrass	<i>Pseudoroegneria spicata, Agropyron spicatum</i>	Bunch	3.7
Bottlebrush Squirreltail	<i>Elymus elymoides, Sitanion hystrix</i>	Bunch	2.7
Slender Wheatgrass	<i>Elymus trachycaulus, Agropyron trachycaulum</i>	Bunch	3.3
Canby Bluegrass	<i>Poa canbyi, P. secunda</i>	Bunch	0.6
Mutton Bluegrass	<i>Poa fendleriana</i>	Bunch	0.6
Letterman Needlegrass	<i>Achnatherum [Stipa] lettermanii</i>	Bunch	1.7
Columbia Needlegrass	<i>Achnatherum [Stipa] nelsonii, Stipa columbiana</i>	Bunch	1.7
Indian Ricegrass	<i>Achnatherum [Oryzopsis] hymenoides</i>	Bunch	1.9
Junegrass	<i>Koeleria macrantha, K. cristata</i>	Bunch	0.1

*Based on 60 pure live seeds (PLS) per square foot, drill-seeded. Double this rate (120 PLS per square foot) if broadcast or hydroseeded.

Spruce-Fir Forest, Including Mountain Meadows

Common Name	Scientific Names	Form	PLS lbs/acre*
Mountain Brome	<i>Bromopsis [Bromus] marginatus</i>	Bunch	5.8
Slender Wheatgrass	<i>Elymus trachycaulus, Agropyron trachycaulum</i>	Bunch	3.3
Letterman Needlegrass	<i>Achnatherum [Stipa] lettermanii</i>	Bunch	3.5
Blue Wildrye	<i>Elymus glaucus</i>	Bunch	4.8
Thickspike Wheatgrass	<i>Elymus lanceolatus ssp. lanceolatus, Agropyron dasystachyum</i>	Sod-forming	3.4
Idaho Fescue	<i>Festuca idahoensis</i>	Bunch	1.2
Wheeler Bluegrass	<i>Poa nervosa</i>	Sod-forming	0.6

*Based on 60 pure live seeds (PLS) per square foot, drill-seeded. Double this rate (120 PLS per square foot) if broadcast or hydroseeded

STATE OF COLORADO)
)ss
County of Garfield)

At a regular meeting of the Board of County Commissioners for Garfield County, Colorado, held in the Commissioners' Meeting Room, Garfield County Courthouse, in Glenwood Springs on, Monday, the 14th day of June A.D. 2010, there were present:

John Martin, Commissioner Chairman
Mike Samson, Commissioner
Trèsi Houpt, Commissioner
Deborah Quinn, Assistant County Attorney
Jean Alberico, Clerk of the Board
Ed Green (absent), County Manager

when the following proceedings, among others were had and done, to-wit:

RESOLUTION NO. 2010 - 95

A RESOLUTION CONCERNED WITH THE APPROVAL OF A LAND USE CHANGE PERMIT FOR MATERIAL HANDLING OF NATURAL RESOURCES (INCLUDING WATER STORAGE AND TREATMENT AND INJECTION WELL AND STORAGE: SUPPLIES, MACHINERY, EQUIPMENT, OR PRODUCTS ON A PARCEL OF LAND OWNED BY OXY USA WTP LP LOCATED IN THE SECTION 29, TOWNSHIP 6 SOUTH, RANGE 97 WEST IN GARFIELD COUNTY LOCATED 5.5 MILES NORTH OF THE INTERSECTION OF COUNTY ROADS 204 AND 213

PARCEL NO# 2169-214-00-026

Recitals

A. The Board of County Commissioners of Garfield County, Colorado, received an application from OXY USA WTP LP for a Land Use Change Permit to allow MATERIAL HANDLING OF NATURAL RESOURCES (INCLUDING WATER STORAGE AND TREATMENT and INJECTION WELL) and STORAGE: SUPPLIES, MACHINERY, EQUIPMENT, OR PRODUCTS as described on the site plan attached as Exhibit A hereto.

B. The project is located on a small portion of a larger 11,614-acre parcel which is located approximately 5.5 miles north of the intersection of County Roads 204 and 213 in Section 29, Township 6 South, Range 97 west of the 6th PM in Garfield County in the Conn Creek valley approximately 14 miles north of DeBeque, CO and whose legal description is recorded on a Deed recorded in the County Clerk and Records records having a reception # of

CR

10



759939, recorded on 12/10/2008.

C. The subject property is contained within the Resource Lands: Gentle Slopes / Lower Valley Floor zone district and a Land Use Change Permit for MATERIAL HANDLING OF NATURAL RESOURCES (INCLUDING WATER STORAGE AND TREATMENT and INJECTION WELL) and STORAGE: SUPPLIES, MACHINERY, EQUIPMENT, OR PRODUCTS requires a Limited Impact Review Process by Garfield County.

D. The Board of County Commissioners opened a public hearing on the 14th day of June, 2010 upon the question of whether the Land Use Change Permit application should be granted or denied, during which hearing the public and interested persons were given the opportunity to express their opinions regarding the application.

E. The Board of County Commissioners closed the public hearing on the 14th day of June, 2010 to make a final decision.

F. The Board on the basis of substantial competent evidence produced at the aforementioned hearing, has made the following determinations of fact:

1. Proper posting and public notice were provided as required for the public hearing before the Board of County Commissioners.
2. The public hearing before the Board of County Commissioners was extensive and complete, that all pertinent facts, matters and issues were submitted and that all interested parties were heard at that hearing.
3. The above stated and other reasons, the proposed Land Use Change Permit has been determined to be in the best interest of the health, safety, morals, convenience, order, prosperity and welfare of the citizens of Garfield County.
4. The application has met the requirements so long as specific conditions can be met for a Limited Impact Review (Article IV) and associated applicable Standards (Article VII) of the Garfield County Unified Land Use Resolution of 2008, as amended.

RESOLUTION

NOW THEREFORE, BE IT RESOLVED by the Board of County Commissioners of Garfield County, Colorado, that:

- A. The forgoing Recitals are incorporated by this reference as part of the resolution.
- B. The Land Use Change Permit to allow for MATERIAL HANDLING OF NATURAL

RESOURCES (INCLUDING WATER STORAGE AND TREATMENT and INJECTION WELL) and STORAGE: SUPPLIES, MACHINERY, EQUIPMENT, OR PRODUCTS is hereby approved subject to compliance with the following conditions:

1. That all representations made by the Applicant in the application, and at the public hearing before the Board of County Commissioners, shall be conditions of approval, unless specifically altered by the Board of County Commissioners.
2. All lighting associated with the property shall be directed inward and downward towards the interior of the property.
3. The Applicant shall provide a revised site plan verifying the boundaries of two of the proposed laydown yards to ensure the 35-foot buffer setback from Conn Creek from ordinary high water mark.
4. The Applicant shall reclaim the site once the project is completed in the following manner:
 - a) All equipment and structures will be removed;
 - b) OXY will remove all safety and storm water BMPs and other surface objects from the premises;
 - c) OXY will restore the site to pre-facility conditions by re-contouring and revegetating the site. Topsoil will be redistributed across the site and will be reseeded with an approved seed mix; and
 - d) OXY will monitor the site to ensure that 70% of the pre-existing vegetation is achieved.
 - e) All retaining walls made of wood, stone, vegetation or other materials that blend with the natural landscape shall be used to reduce the steepness of cut slopes and to provide planting pockets conducive to revegetation.
 - f) The Applicant shall meet with the County Vegetation Manager prior to issuance of a Land Use Change Permit so that every area disturbed shall have a time line approved for the reclamation of the site approved by the County and a security shall be provided to Garfield County in an amount of \$2,500 per disturbed acre to be reclaimed prior to the issuance of a Land Use Change Permit. Disturbed areas that are already covered by a reclamation security held by either Garfield County or the Colorado Oil and Gas Conservation Commission (COGCC) shall be excepted out of the security calculations for this project.
5. The Applicant shall provide copies to the Garfield County Planning Department of the approved VOC emission control permits / other applicable site permits from CDPHE prior to the issuance of a Land Use Change Permit as a condition of approval.



6. All vehicles hauling equipment and materials for this application shall abide by Garfield County's oversize/overweight system. All vehicles requiring oversize/overweight permits shall apply for them at Garfield County Road and Bridge Department. All vehicles applying for these permits shall have on file with Garfield County Road and Bridge Department a letter or e-mail from OXY USA stating said vehicles can obtain oversize/overweight permits under their road bond on file with Garfield County.
7. Because the slopes are greater than 20% in the proposed laydown yards / storage areas described on the site plan as Areas A and B attached as Exhibit A, the Applicant shall submit an engineering report and drawings that detail how the slope cuts can be engineered to satisfy standards in Section 7-210(H) of the ULUR. These engineering studies shall accompany a grading permit to be delivered to Garfield County Building & Planning Department prior to any site disturbance for these areas.
8. The Applicant shall adhere to Section 7.0 (Mitigation Recommendations) of the Wildlife and Sensitive Areas Report prepared by WestWater Engineering which are attached as Exhibit A of any Land Use Change Permit.
9. Flammable or explosive solids or gases shall be stored according to the manufacturer's standards and shall comply with the national, state and local fire codes and written recommendations from the appropriate local fire protection district.
10. No materials or wastes shall be deposited on the property in a form or manner that may be transferred off the property by any reasonably foreseeable natural cause or force.
11. All industrial wastes shall be disposed of in a manner consistent with statutes and requirements of CDPHE.
12. The volume of sound generated shall comply with the standards set forth in the Colorado Revised Statutes.

Dated this 20th day of December, A.D. 20 10.

ATTEST:

GARFIELD COUNTY BOARD OF
COMMISSIONERS,
COUNTY, COLORADO

Jean M Alberico
Clerk of the Board

[Signature]
Chairman





Reception#: 796191
 12/22/2010 11:58:33 AM Jean Alberico
 5 of 10 Rec Fee:\$0.00 Doc Fee:0.00 GARFIELD COUNTY CO

Upon motion duly made and seconded the foregoing Resolution was adopted by the following vote:

COMMISSIONER CHAIR JOHN F. MARTIN _____, Aye
COMMISSIONER MIKE SAMSON _____, Aye
COMMISSIONER TRÉSI HOUP _____, Aye

STATE OF COLORADO)
)ss
 County of Garfield)

I, _____, County Clerk and ex-officio Clerk of the Board of County Commissioners, in and for the County and State aforesaid, do hereby certify that the annexed and foregoing Resolution is truly copied from the Records of the Proceeding of the Board of County Commissioners for said Garfield County, now in my office.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said County, at Glenwood Springs, this ____ day of _____, A.D. 20 ____.

County Clerk and ex-officio Clerk of the Board of County Commissioners

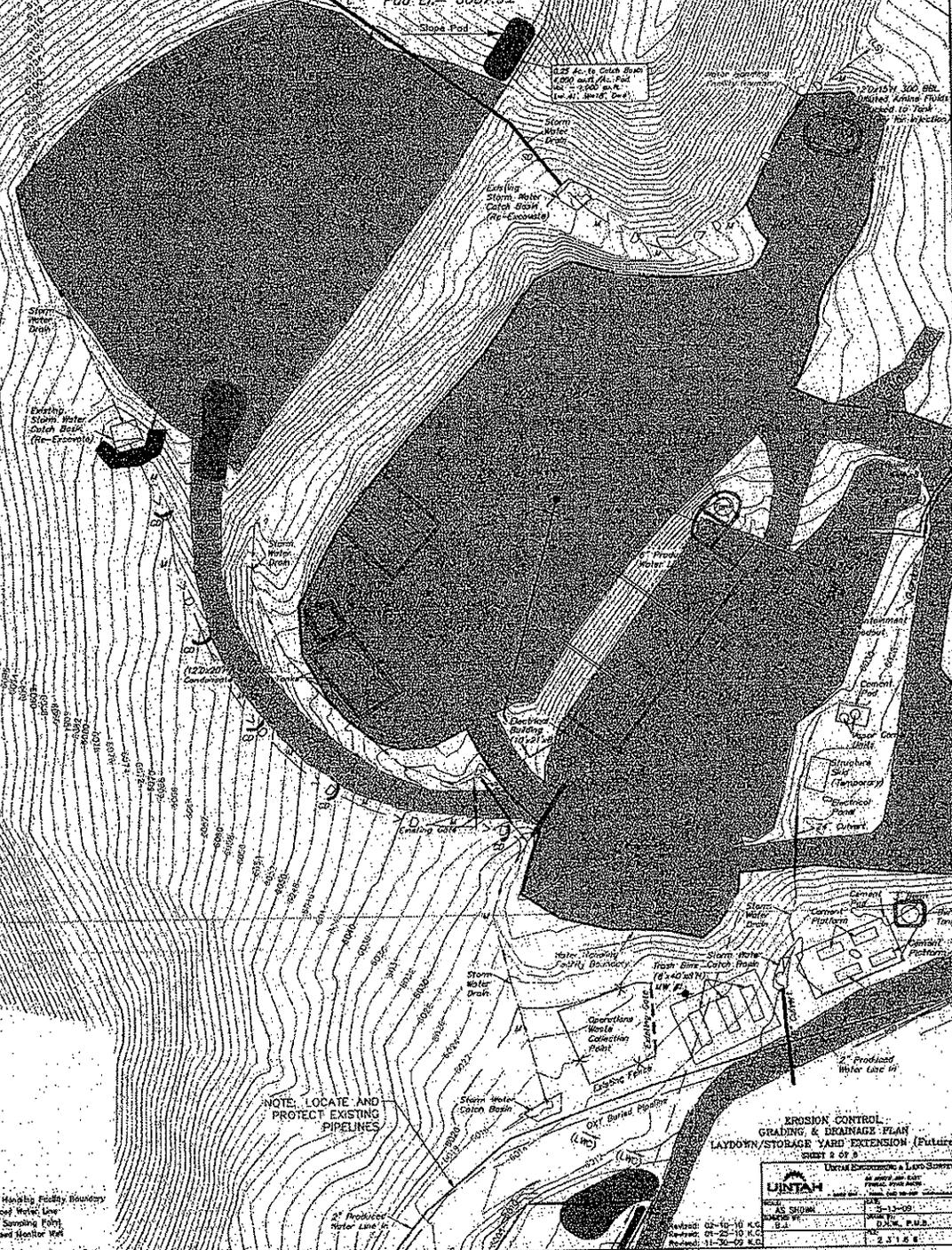
CENTRAL WATER TREATMENT & STORAGE FACILITY

LOCATED IN SECTION 29, T6S, R97W, 6th P.M. GARFIELD COUNTY, COLORADO. ZONE DISTRICT IS RESOURCE LAND-GENTLE SLOPE & LOWER VALLEY FLOOR.

- 1 - 1" = 100'
- 2 - 2" = 100'
- 3 - 3" = 100'
- 4 - 4" = 100'
- 5 - 5" = 100'
- 6 - 6" = 100'
- 7 - 7" = 100'
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- 99 - 99" = 100'
- 100 - 100" = 100'



Laydown Storage Yard Extension (Future)
Pad El = 6087.94



NOTE: LOCATE AND PROTECT EXISTING PIPELINES

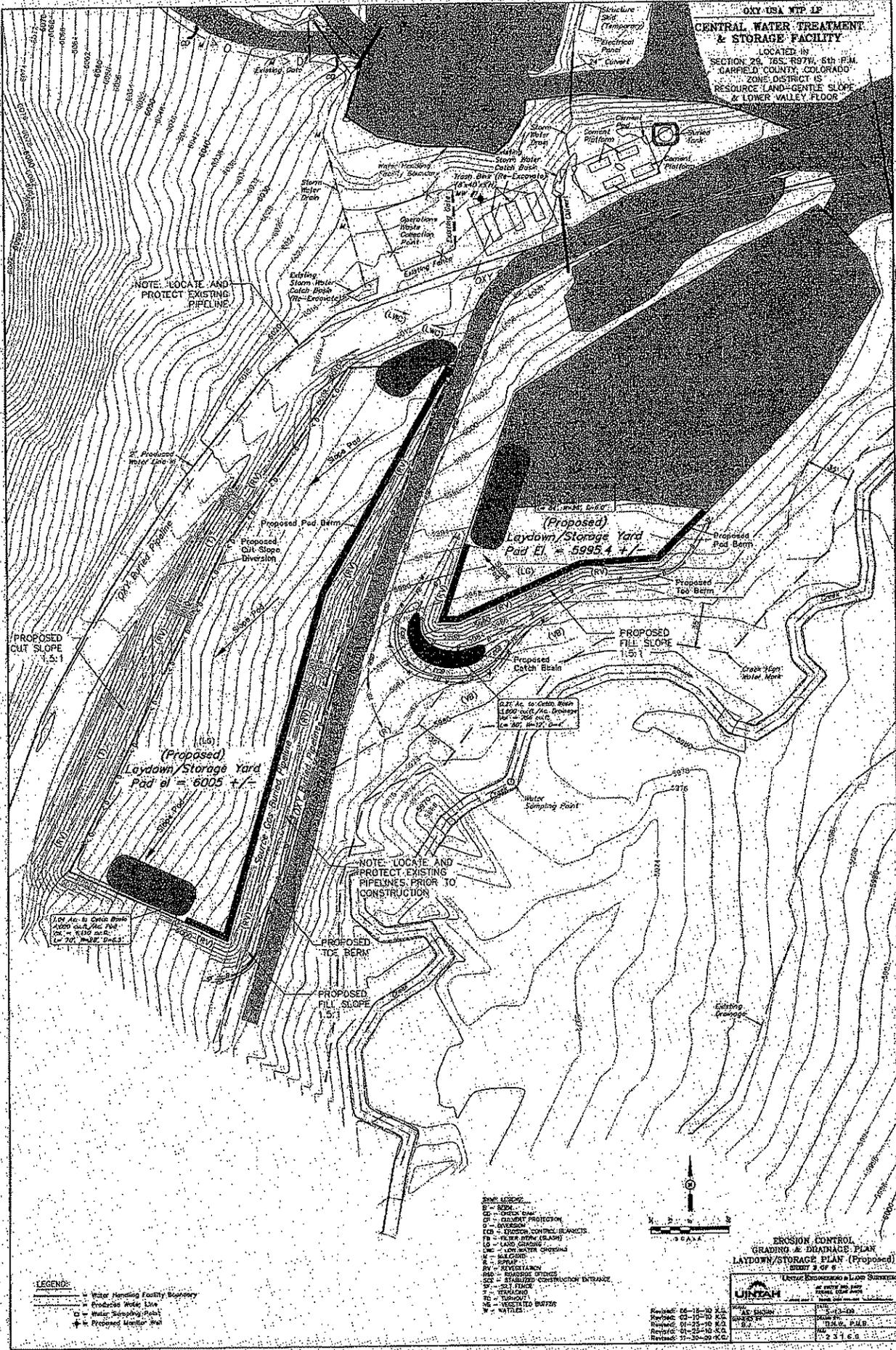
EROSION CONTROL GRADING & DRAINAGE PLAN LAYDOWN/STORAGE YARD EXTENSION (Future)

DATE: 02-10-10 K.C.	BY: J.M.P.
DATE: 01-22-10 K.C.	BY: J.M.P.
DATE: 11-30-09 K.C.	BY: J.M.P.

- LEGEND:**
- Water Handling Facility Boundary
 - Proposed Water Line
 - Water Sampling Point
 - Proposed Monitor Well



Receipt #: 796191
12/22/2010 11:58:33 AM Jean Alberico
7 of 10 Rec Fee: \$0.00 Doc Fee: \$0.00 GARFIELD COUNTY CO



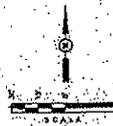
OXY USA WTP LP
CENTRAL WATER TREATMENT & STORAGE FACILITY
 LOCATED IN
 SECTION 26, T6S, R97W, 6th P.M.
 GARFIELD COUNTY, COLORADO
 ZONE DISTRICT IS
 RESOURCE LAND-GENTLE SLOPE
 & LOWER VALLEY FLOOR

NOTE: LOCATE AND PROTECT EXISTING PIPELINE

NOTE: LOCATE AND PROTECT EXISTING PIPELINES PRIOR TO CONSTRUCTION

LEGEND:
 --- Water Wastewater Facility Boundary
 --- Produced Water Line
 □ Water Sampling Point
 + Proposed Monitor Well

SYMBOLS:
 B = BERM
 CE = CATCH BASIN
 CP = CULVERT PROTECTION
 D = DIVERSION
 ED = EROSION CONTROL BLANKETS
 FB = FILTER STRIP (GRASS)
 LG = LAND GRASSING
 LWC = LOW WATER CROPPING
 M = MOUND
 R = RAMP
 S = SLOPE
 SW = STABILIZATION
 RW = ROADSIDE OFFSETS
 SE = STABILIZED CONSTRUCTION ENTRANCE
 ST = ST. PLACE
 T = TURNOUT
 VB = VEGETATED BUFFER
 W = WATER



EROSION CONTROL GRADING & DRAINAGE PLAN LAYDOWN/STORAGE PLAN (Proposed)
 SHEET 3 OF 5
 URS | CONSULTING ENGINEERS & ARCHITECTS
 1234 5th Street, Suite 100, Denver, CO 80202
 Phone: 303.733.1234
 Fax: 303.733.1235
 www.urscorp.com

Project: 06-18-10 X.L.	Drawn: J.S.	Scale: 1"=100'
Revised: 02-10-10 K.S.	Checked: M.P.	Project: 06-18-10 X.L.
Revised: 02-22-10 K.S.	Reviewed: J.S.	Project: 06-18-10 X.L.
Revised: 01-23-10 K.S.	Reviewed: J.S.	Project: 06-18-10 X.L.
Revised: 11-20-09 K.S.	Reviewed: J.S.	Project: 06-18-10 X.L.

Reception #: 786191
 12/22/2010 11:58:33 AM Jean Alberico
 8 of 10 Rec Fee: \$0.00 Doc Fee: 0.00 GARFIELD COUNTY CO

LAND USE CHANGE PERMIT

for

A parcel of land owned by Oxy USA WTP LP located in the Section 29, Township 6 South, Range 97 West in Garfield County located 5.5 miles north of the intersection of county roads 204 and 213 having a legal description found on a deed recorded in the County Clerk and Records records having a reception # of 759939, recorded on 12/10/2008.

PARCEL NO# 2169-214-00-026

In accordance with and pursuant to the provisions of the Garfield County Unified Land Use Resolution of 2008, as amended, and *Resolution No. 2010- 95* of the Board of County Commissioners of Garfield County, State of Colorado, hereby authorizes, by Land Use Change Permit, the following activity:

MATERIAL HANDLING OF NATURAL RESOURCES (INCLUDING WATER STORAGE AND TREATMENT and INJECTION WELL) and STORAGE: SUPPLIES, MACHINERY, EQUIPMENT, OR PRODUCTS (LIPA 5953)

The Land Use Change Permit is issued subject to the conditions set forth in the above-mentioned resolution, and shall be valid only during compliance with such conditions and other applicable provisions of the Garfield County Unified Land Use Resolution of 2008, as amended, Building Code, and other regulations of the Board of County Commissioners of Garfield County, Colorado.

ATTEST:

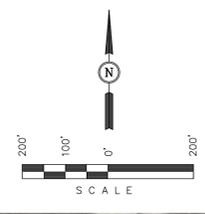


Jean M Alberico
Clerk of the Board

GARFIELD COUNTY BOARD OF
COMMISSIONERS, GARFIELD COUNTY,
COLORADO

[Handwritten Signature]
Chairman

OXY USA WTP LP
CENTRAL WATER TREATMENT & STORAGE FACILITY
 LOCATED IN
 SECTION 29, T6S, R97W, 6th P.M.
 GARFIELD COUNTY, COLORADO
 ZONE DISTRICT IS
 RESOURCE LAND-GENTLE SLOPE
 & LOWER VALLEY FLOOR



SHELL FRONTIER OIL & GAS INC. LANDS

OXY USA WTP LP LANDS PARCEL #216921400026

BLM LANDS

SAVAGE LTD. PARTNERSHIP LANDS



PROPOSED OVERALL SITE PLAN

UNTAH ENGINEERING & LAND SURVEYING
 85 SOUTH 200 EAST
 VERNAL, UTAH 84078
 - SINCE 1964 - PHONE: (435) 789-1017 unta@untahinc.com

SCALE: 1"=200'	DATE: 5-13-09	REV:
SURVEYED BY: B.J.	DRAWN BY: K.G., P.M.B.	
	FILE:	2 3 1 6 6

Revised: 01-25-10 K.G.

CENTRAL WATER TREATMENT & STORAGE FACILITY

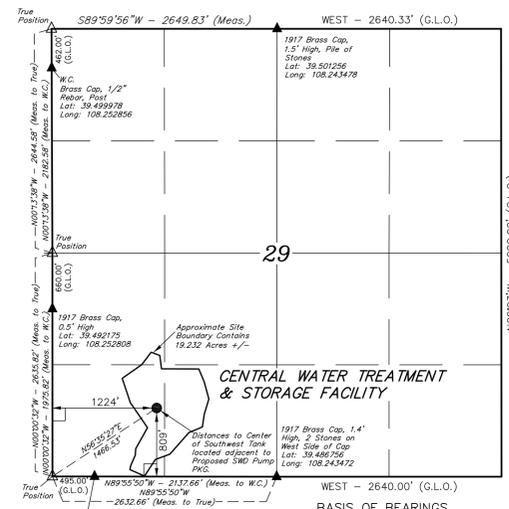
LOCATED IN
SECTION 29, T6S, R97W, 6th P.M.
GARFIELD COUNTY, COLORADO
ZONE DISTRICT IS
RESOURCE LAND-GENTLE SLOPE
& LOWER VALLEY FLOOR

GENERAL VICINITY MAP
The State Of Colorado



NO SCALE

T6S, R97W, 6th P.M.

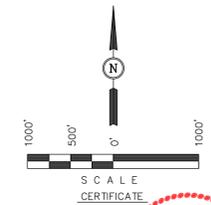


LEGEND:
 □ = 90° SYMBOL
 ● = PROPOSED WELL HEAD.
 ▲ = SECTION CORNERS LOCATED.

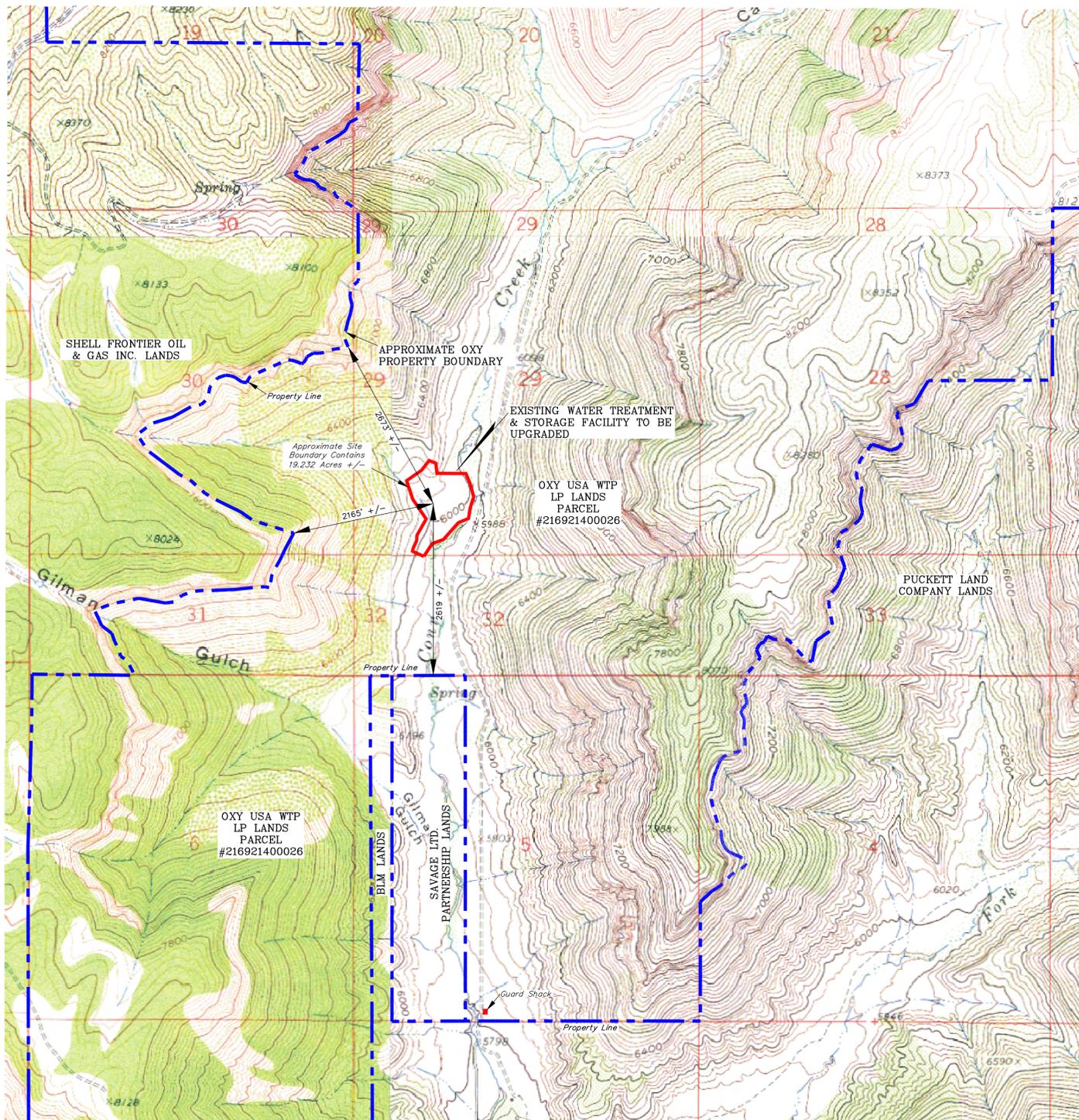
BASIS OF BEARINGS
 (NAD 83)
 LATITUDE = 39°29'20.31" (39.488975)
 LONGITUDE = 108°14'54.47" (108.248464)
 (NAD 27)
 LATITUDE = 39°29'20.39" (39.488997)
 LONGITUDE = 108°14'52.17" (108.247825)

BASIS OF ELEVATION

SPOT ELEVATION AT THE NORTHWEST CORNER OF SECTION 30, T5S, R95W, 6th P.M. TAKEN FROM THE FORKED GULCH QUADRANGLE, COLORADO, GARFIELD COUNTY, 7.5 MINUTE SERIES (TOPOGRAPHICAL MAP) PUBLISHED BY THE UNITED STATES DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY. SAID ELEVATION IS MARKED AS BEING 5966 FEET.



SCALE CERTIFICATE
 THIS IS TO CERTIFY THAT THE ABOVE PLAN WAS PREPARED AND LOCATION AS SHOWN WAS STAKED ON THE GROUND UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.
 REGISTERED ENGINEER AND LAND SURVEYOR
 STATE OF COLORADO



NOTE:
COMPRESSOR SITE BEARS S10°43'03"W
1962.09' FROM THE WATER TREATMENT
& STORAGE FACILITY.

VICINITY MAP
SCALE 1"=1000'

OXY USA WTP LP PARCEL NUMBER 216921400026 LEGAL DESCRIPTION

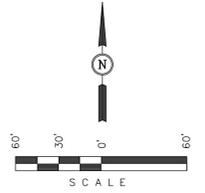
PROPERTY AREA SHOWN ABOVE DOES NOT SHOW ALL PARCELS OWNED BY OXY USA WTP LP IN THEIR ENTIRETY.
 THE FOLLOWING DESCRIPTION WAS PROVIDED BY CORDILLERAN, A DIVISION OF OLSSON ASSOCIATES ON 5-7-09:
 SEC. 21, NW 1/4, SEC. 21-6-97 DESC. SEC. 4 LOTS 9(40A) 16(40A) W1/2SW SEC. 5 LOTS 5 DESC. (40.14A)(40.03A)7(39.91A)8(E 1.62A)9(40A)10(40 DESC. A) 11(40A) 12(40A) 13(40A) 14(40A) 15(40A) 16(40A) DESC. S1/2 SEC. 6 LOTS 14(E1/2 20A) 15(40A) 16(40A) 17 DESC. (E1/2 20A) E1/2W1/2SE, E1/2SE SEC8 E1/2, E1/2W1/2, DESC. SWNW, W1/2SW SEC 9 ALL SEC 15 ALL SEC 16 ALL SEC. DESC. 17 ALL SEC. 18 E1/2, SENW SEC. 19 NE, E1/2NW, DESC. E1/2W1/2NW, THAT PT OF SESE LYING BELOW THE MAHG. DESC. MKR.(NET 14.76A) SEC 20 ALL SEC 21 ALL SEC 22 ALL DESC. SEC. 28 N1/2, THAT PT OF THE S1/2 LYING ABOVE THE DESC. MAHG. MKR.(NET 105.4A) SEC. 29 ALL SEC. 30 THAT PT DESC. OF THE E1/2 & SW LYING BELOW THE MAHG.MKR.(NET 151 DESC. 84A) SEC 31 THAT PT OF LOTS 5,6,7 LYING BELOW THE DESC. MAHG. MKR.(NET 117.73A) SEC32 LOTS 1(54.85A) 2(54. DESC. 85A) 3(54.87A) 4(54.87A) SEC. 33 THAT PT OF LOTS 3 DESC. LYING ABOVE THE MAHG. MKR.(NET80.27A) SEC. 4-7-97 DESC. THAT PT OF TRS 78,79,80&81 LYING ABOVE MAHG. MKR. DESC. (42.7A) SEC. 5 THAT PT OF TRS 80(125.42A) 81(130A) DESC. LYING IN SEC. 5 TR 82(80.05A) 83(80A) SEC. 6 TR 84 DESC. (160A) 85(160A) 86(152.97A) 87(153.73A) SEC7 TR 88 DESC. (160A) 89(160A) 90(153.63A) 91(153.73A) AKA PT OF DESC. TRIUMPH 47, PT OF DENVER MINING CLAIMS 3,4,5,6, PT DESC. OF DERE 2,3,5,6 DENVER 43,44, PT OF DENVER 42,111, DESC. 112 DENVER 45-52 BK:0652

PROPOSED OVERALL SITE PLAN

UINTAH ENGINEERING & LAND SURVEYING	
85 SOUTH 200 EAST VERNAL, UTAH 84078	
- SINCE 1964 - PHONE: (435) 789-1017 uel@uintahinc.com	
SCALE: AS SHOWN	DATE: 5-13-09
SURVEYED BY: B.J.	DRAWN BY: K.G., P.M.B.
	FILE: 2 3 1 6 6

CENTRAL WATER TREATMENT & STORAGE FACILITY

LOCATED IN
SECTION 29, T6S, R97W, 6th P.M.
GARFIELD COUNTY, COLORADO
ZONE DISTRICT IS
RESOURCE LAND-GENTLE SLOPE
& LOWER VALLEY FLOOR

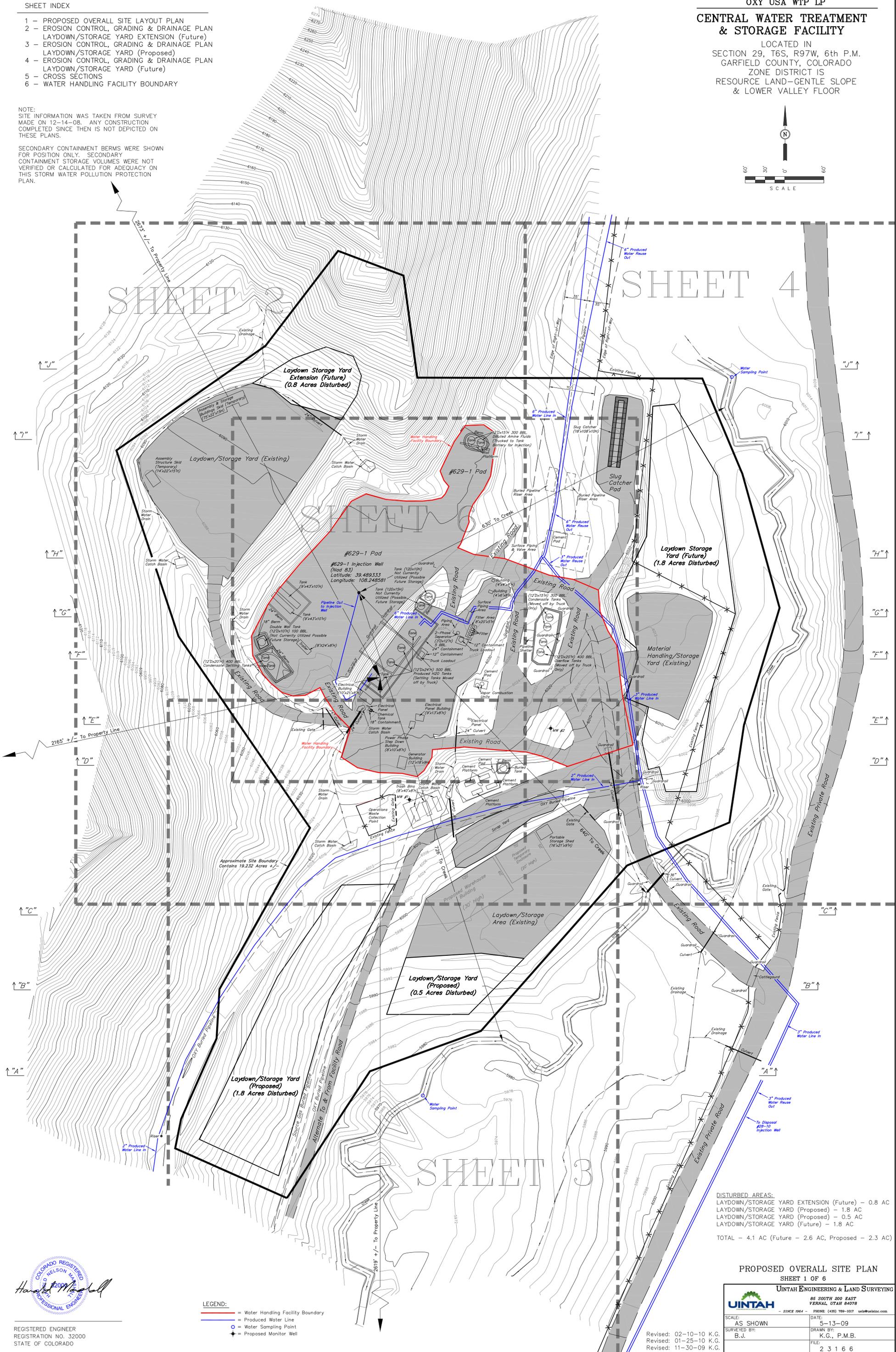


SHEET INDEX

- 1 - PROPOSED OVERALL SITE LAYOUT PLAN
- 2 - EROSION CONTROL, GRADING & DRAINAGE PLAN LAYDOWN/STORAGE YARD EXTENSION (Future)
- 3 - EROSION CONTROL, GRADING & DRAINAGE PLAN LAYDOWN/STORAGE YARD (Proposed)
- 4 - EROSION CONTROL, GRADING & DRAINAGE PLAN LAYDOWN/STORAGE YARD (Future)
- 5 - CROSS SECTIONS
- 6 - WATER HANDLING FACILITY BOUNDARY

NOTE:
SITE INFORMATION WAS TAKEN FROM SURVEY
MADE ON 12-14-08. ANY CONSTRUCTION
COMPLETED SINCE THEN IS NOT DEPICTED ON
THESE PLANS.

SECONDARY CONTAINMENT BERMS WERE SHOWN
FOR POSITION ONLY. SECONDARY
CONTAINMENT STORAGE VOLUMES WERE NOT
VERIFIED OR CALCULATED FOR ADEQUACY ON
THIS STORM WATER POLLUTION PROTECTION
PLAN.



DISTURBED AREAS:
 LAYDOWN/STORAGE YARD EXTENSION (Future) - 0.8 AC
 LAYDOWN/STORAGE YARD (Proposed) - 1.8 AC
 LAYDOWN/STORAGE YARD (Proposed) - 0.5 AC
 LAYDOWN/STORAGE YARD (Future) - 1.8 AC
 TOTAL - 4.1 AC (Future - 2.6 AC, Proposed - 2.3 AC)

PROPOSED OVERALL SITE PLAN SHEET 1 OF 6

UNTAH ENGINEERING & LAND SURVEYING
 85 SOUTH 200 EAST
 VERNAL, UTAH 84078
 SINCE 1964 - PHONE: (435) 789-1017 unta@untahinc.com

SCALE: AS SHOWN	DATE: 5-13-09
SURVEYED BY: B.J.	DRAWN BY: K.G., P.M.B.
	FILE: 2 3 1 6 6

Revised: 02-10-10 K.G.
 Revised: 01-25-10 K.G.
 Revised: 11-30-09 K.G.



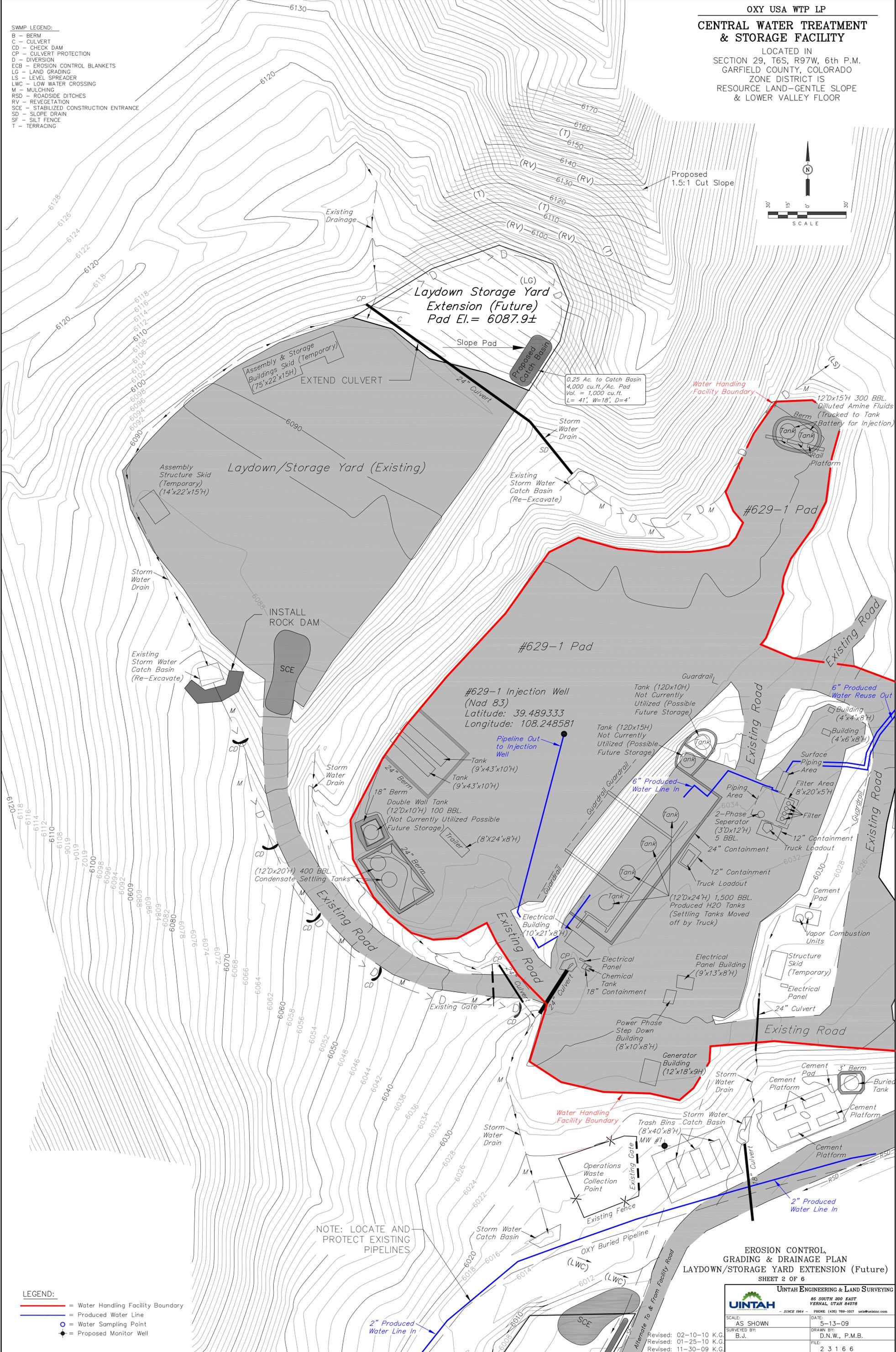
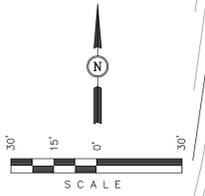
REGISTERED ENGINEER
REGISTRATION NO. 32000
STATE OF COLORADO

- LEGEND:**
- = Water Handling Facility Boundary
 - = Produced Water Line
 - = Water Sampling Point
 - + = Proposed Monitor Well

CENTRAL WATER TREATMENT & STORAGE FACILITY

LOCATED IN
SECTION 29, T6S, R97W, 6th P.M.
GARFIELD COUNTY, COLORADO
ZONE DISTRICT IS
RESOURCE LAND-GENTLE SLOPE
& LOWER VALLEY FLOOR

- SWMP LEGEND:**
- B - BERM
 - C - CULVERT
 - CD - CHECK DAM
 - CP - CULVERT PROTECTION
 - D - DIVERSION
 - ECB - EROSION CONTROL BLANKETS
 - LG - LAND GRADING
 - LS - LEVEL SPREADER
 - LWC - LOW WATER CROSSING
 - M - MULCHING
 - RSD - ROADSIDE DITCHES
 - RV - REVEGETATION
 - SCE - STABILIZED CONSTRUCTION ENTRANCE
 - SD - SLOPE DRAIN
 - SF - SILT FENCE
 - T - TERRACING



NOTE: LOCATE AND PROTECT EXISTING PIPELINES

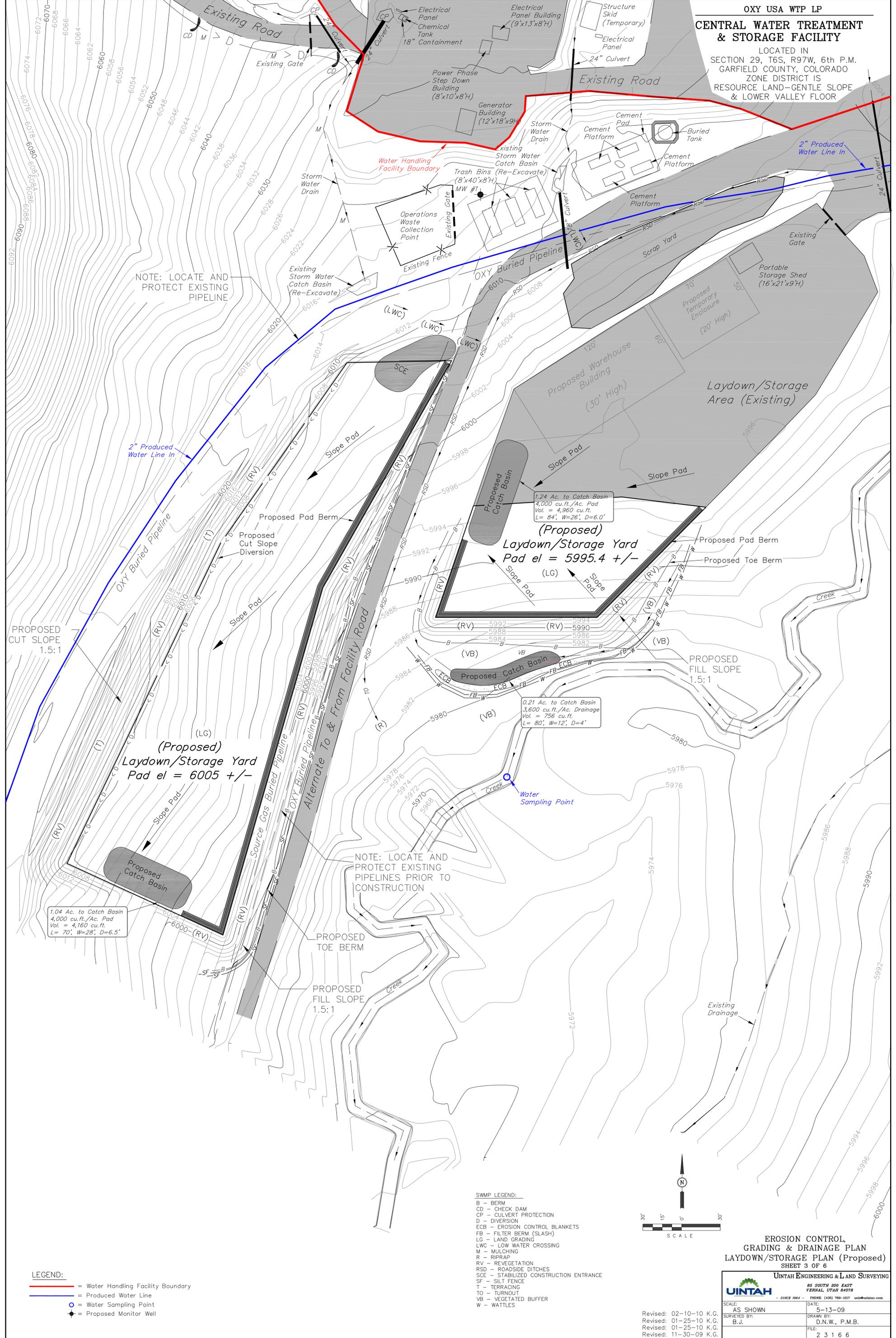
- LEGEND:**
- = Water Handling Facility Boundary
 - = Produced Water Line
 - = Water Sampling Point
 - = Proposed Monitor Well

EROSION CONTROL,
GRADING & DRAINAGE PLAN
LAYDOWN/STORAGE YARD EXTENSION (Future)
SHEET 2 OF 6

UINTAH ENGINEERING & LAND SURVEYING
85 SOUTH 200 EAST
VERNAL, UTAH 84078
SINCE 1964 - PHONE: (435) 789-1017 uelsh@uintah.com

SCALE: AS SHOWN	DATE: 5-13-09
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REVISED: 02-10-10 K.G.	FILE: 2 3 1 6 6
REVISED: 01-25-10 K.G.	
REVISED: 11-30-09 K.G.	

OXY USA WTP LP
CENTRAL WATER TREATMENT & STORAGE FACILITY
 LOCATED IN
 SECTION 29, T6S, R97W, 6th P.M.
 GARFIELD COUNTY, COLORADO
 ZONE DISTRICT IS
 RESOURCE LAND-GENTLE SLOPE
 & LOWER VALLEY FLOOR

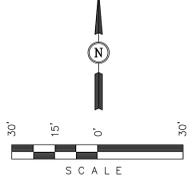


NOTE: LOCATE AND PROTECT EXISTING PIPELINE

NOTE: LOCATE AND PROTECT EXISTING PIPELINES PRIOR TO CONSTRUCTION

- LEGEND:**
- = Water Handling Facility Boundary
 - = Produced Water Line
 - = Water Sampling Point
 - = Proposed Monitor Well

- SWMP LEGEND:**
- B - BERM
 - CD - CHECK DAM
 - CP - CULVERT PROTECTION
 - D - DIVERSION
 - ECB - EROSION CONTROL BLANKETS
 - FB - FILTER BERM (SLASH)
 - LG - LAND GRADING
 - LWC - LOW WATER CROSSING
 - M - MULCHING
 - R - RIPRAP
 - RV - REVEGETATION
 - RSD - ROADSIDE DITCHES
 - SCE - STABILIZED CONSTRUCTION ENTRANCE
 - SF - SILT FENCE
 - T - TERRACING
 - TO - TURNOUT
 - VB - VEGETATED BUFFER
 - W - WATTLES



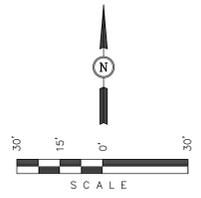
EROSION CONTROL, GRADING & DRAINAGE PLAN LAYDOWN/STORAGE PLAN (Proposed)
 SHEET 3 OF 6

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 85 SOUTH 200 EAST
 VERNAL, UTAH 84078
 SINCE 1964 - PHONE: (435) 789-1017 ues@uintahinc.com

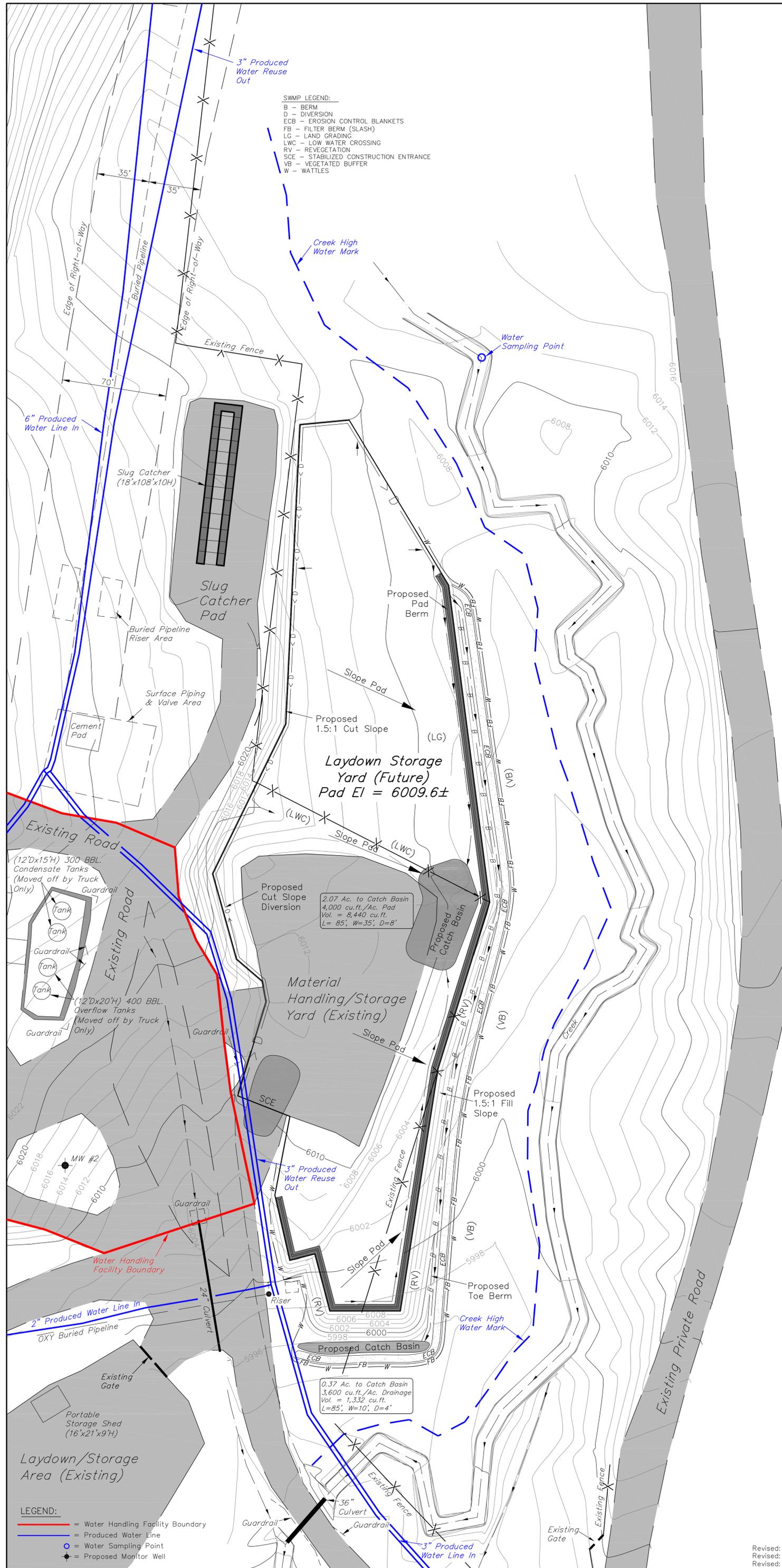
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Revised: 02-10-10 K.G.	Revised: 01-25-10 K.G.
Revised: 01-25-10 K.G.	Revised: 11-30-09 K.G.
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OXY USA WTP LP
CENTRAL WATER TREATMENT & STORAGE FACILITY

LOCATED IN
 SECTION 29, T6S, R97W, 6th P.M.
 GARFIELD COUNTY, COLORADO
 ZONE DISTRICT IS
 RESOURCE LAND-GENTLE SLOPE
 & LOWER VALLEY FLOOR



- SWMP LEGEND:**
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 - ECB - EROSION CONTROL BLANKETS
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 - LG - LAND GRADING
 - LWC - LOW WATER CROSSING
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 - SCE - STABILIZED CONSTRUCTION ENTRANCE
 - VB - VEGETATED BUFFER
 - W - WATTLES



- LEGEND:**
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 - = Water Sampling Point
 - = Proposed Monitor Well

EROSION CONTROL, GRADING & DRAINAGE PLAN
LAYDOWN/STORAGE YARD (Future)
 SHEET 4 OF 6

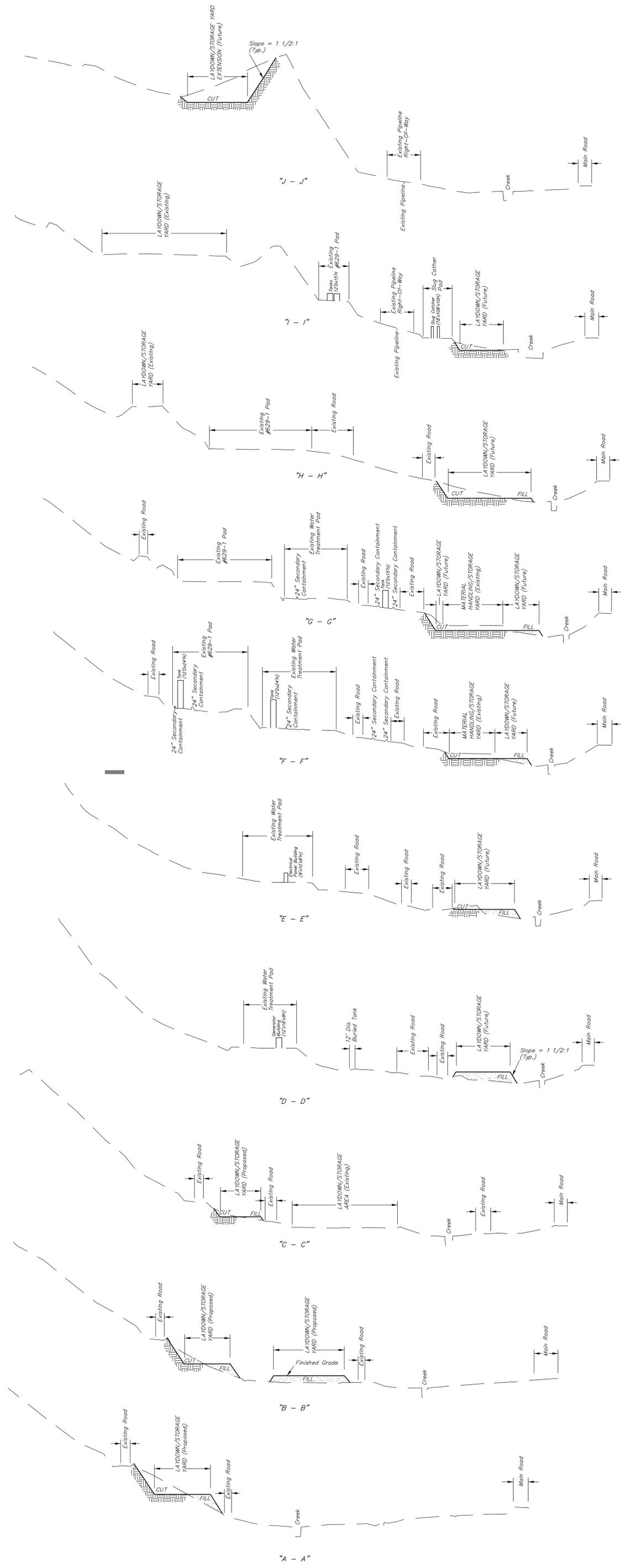
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<small>85 SOUTH 200 EAST VERNAL, UTAH 84078 — SINCE 1964 — PHONE: (435) 789-1017 uelsh@uintahco.com</small>	
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	FILE: 2 3 1 6 6

Revised: 02-10-10 K.G.
 Revised: 01-25-10 K.G.
 Revised: 11-30-09 K.G.

CENTRAL WATER TREATMENT & STORAGE FACILITY

LOCATED IN
SECTION 29, T6S, R97W, 6th P.M.
GARFIELD COUNTY, COLORADO
ZONE DISTRICT IS
RESOURCE LAND-GENTLE SLOPE
& LOWER VALLEY FLOOR

1" = 40'
X-Section
Scale
1" = 100'



LEGEND:
--- Existing Ground
— Finished Ground Grade

**CROSS SECTIONS
SHEET 5 OF 6**

UNTAH ENGINEERING & LAND SURVEYING <small>85 SOUTH 200 EAST VERNAL, UTAH 84078 — SINCE 1964 — PHONE: (435) 789-1017 uneh@unehinc.com</small>	
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B.J.	K.G., P.M.B.
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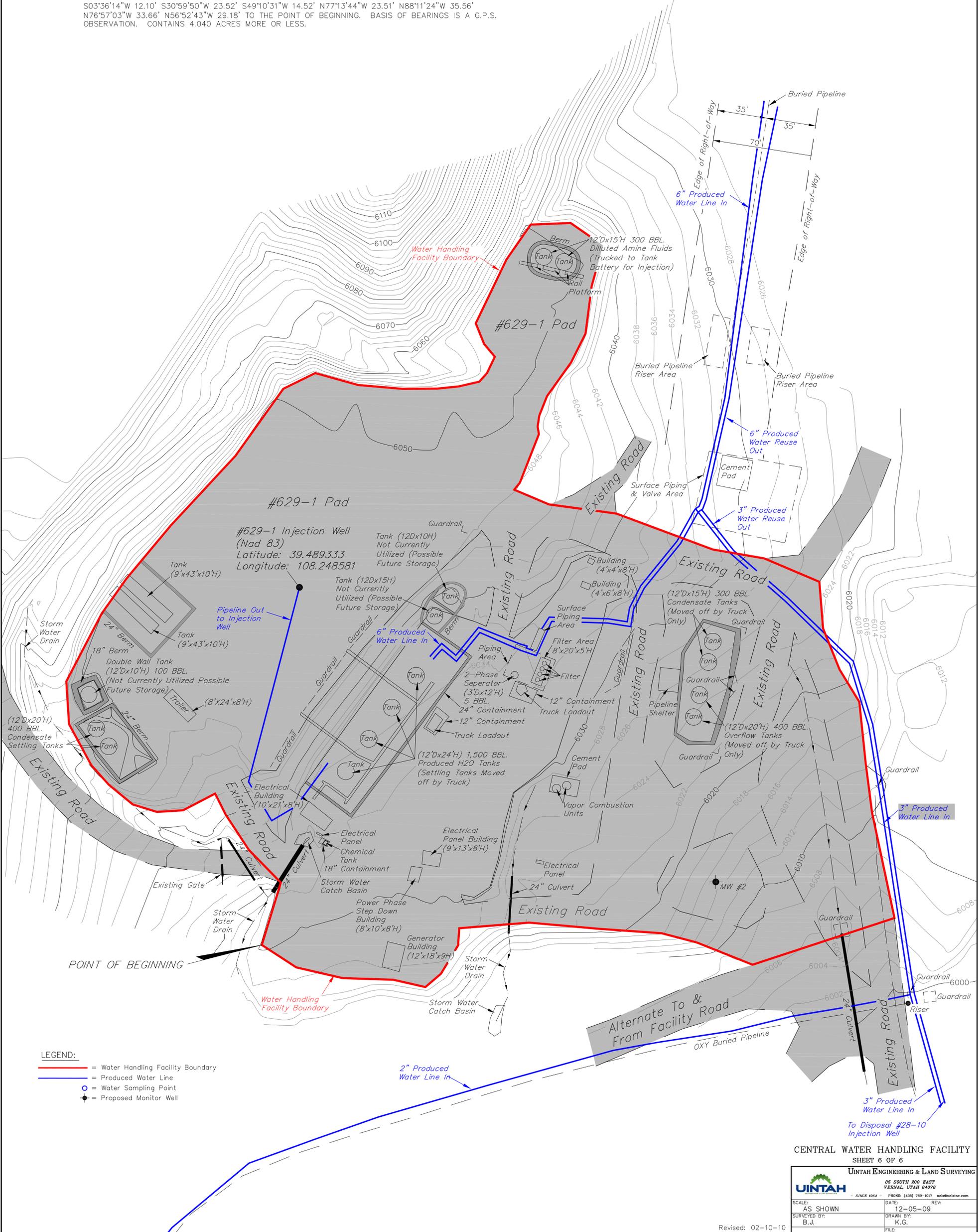
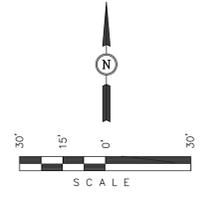
Revised: 01-25-10 K.G.
Revised: 11-30-09 K.G.

OXY USA WTP LP
**CENTRAL WATER TREATMENT
 & STORAGE FACILITY**

LOCATED IN
 SECTION 29, T6S, R97W, 6th P.M.
 GARFIELD COUNTY, COLORADO
 ZONE DISTRICT IS
 RESOURCE LAND—GENTLE SLOPE
 & LOWER VALLEY FLOOR

CENTRAL WATER HANDLING FACILITY SURFACE USE AREA DESCRIPTION

BEGINNING AT A POINT IN THE SW 1/4 SW 1/4 OF SECTION 29, T6S, R97W, 6th P.M. WHICH BEARS N44°22'21"E 957.94' FROM THE SOUTHWEST WITNESS CORNER OF SAID SECTION 29, THENCE N16°50'04"E 46.30' N44°15'44"W 32.33' N33°13'49"W 29.63' N26°40'14"W 17.03' S62°24'50"W 25.55' S86°23'32"W 18.50' N72°49'02"W 17.92' N50°25'48"W 21.89' N41°46'06"W 18.56' N28°25'41"W 33.21' N03°39'25"W 30.43' N27°25'48"E 54.31' N35°11'19"E 30.12' N39°43'51"E 49.25' N42°44'24"E 67.51' N35°22'32"E 58.22' N63°36'17"E 25.19' S74°27'08"E 31.74' S85°07'06"E 31.61' N89°36'46"E 24.27' N84°08'34"E 15.48' N76°48'06"E 14.75' N41°39'40"E 8.17' N25°19'42"E 12.80' N39°44'06"W 11.76' N22°03'30"W 15.82' N25°34'19"E 50.06' N34°36'17"E 30.30' N87°35'40"E 28.21' S55°12'44"E 27.98' S15°34'16"W 29.98' S07°20'56"W 34.02' S26°28'29"W 22.67' S35°21'07"W 29.60' S21°33'31"W 14.98' S08°13'18"W 7.82' S10°08'31"E 5.23' S21°14'46"W 37.05' S38°32'10"W 6.45' S67°02'24"E 26.82' S82°15'17"E 47.90' S69°29'00"E 72.86' S80°08'22"E 36.81' S66°57'46"E 42.43' S04°32'27"E 33.28' S21°52'21"E 31.49' S31°17'17"E 26.70' S05°57'09"E 45.17' S07°20'31"E 34.32' S11°58'59"E 76.18' S71°41'34"W 105.63' N68°14'10"W 42.69' N75°15'30"W 25.52' N85°56'09"W 44.11' N84°54'40"W 50.01' S85°21'26"W 49.49' S03°36'14"W 12.10' S30°59'50"W 23.52' S49°10'31"W 14.52' N77°13'44"W 23.51' N88°11'24"W 35.56' N76°57'03"W 33.66' N56°52'43"W 29.18' TO THE POINT OF BEGINNING. BASIS OF BEARINGS IS A G.P.S. OBSERVATION. CONTAINS 4.040 ACRES MORE OR LESS.



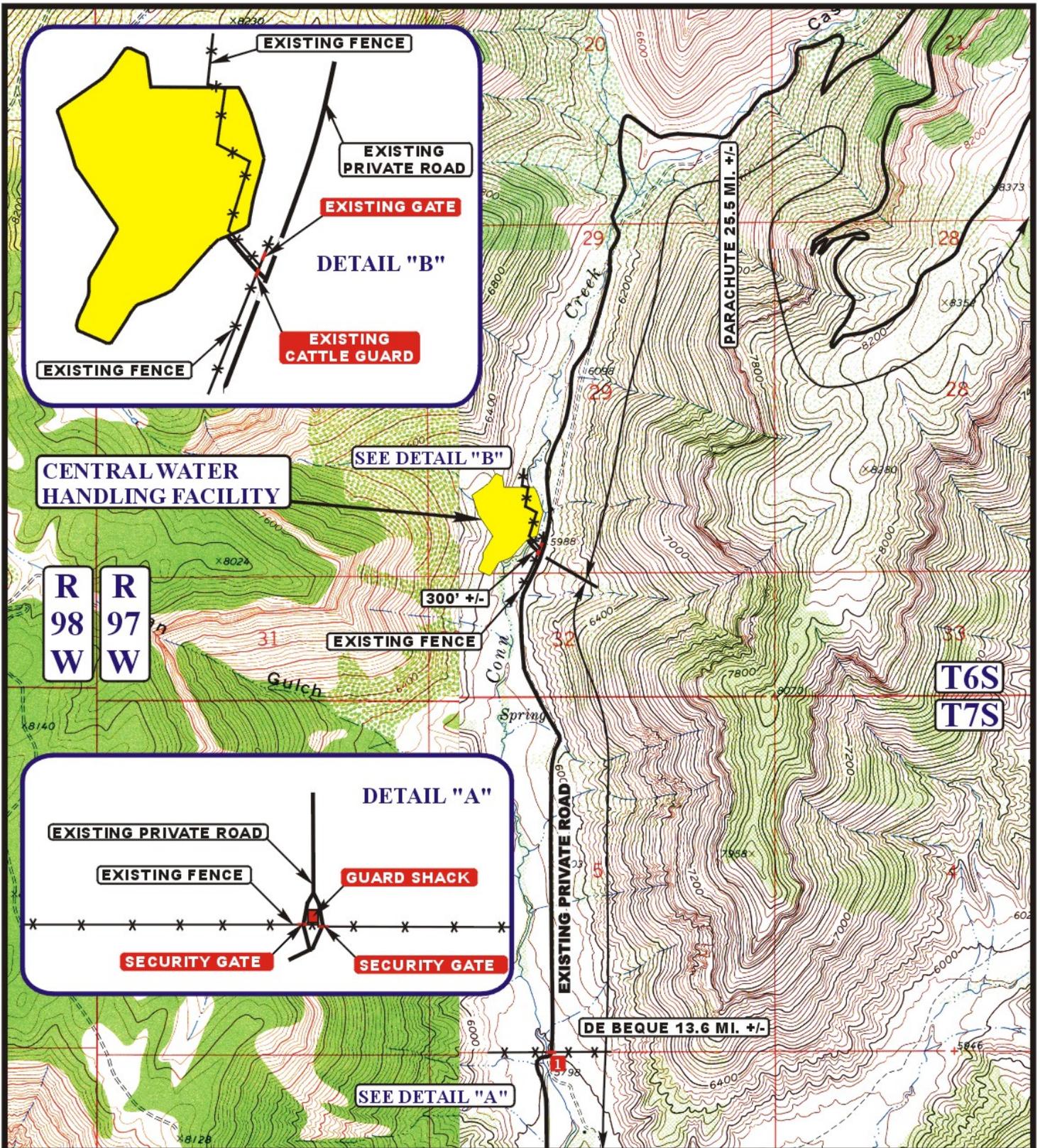
- LEGEND:**
- = Water Handling Facility Boundary
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 - = Proposed Monitor Well

CENTRAL WATER HANDLING FACILITY
 SHEET 6 OF 6

UINTAH ENGINEERING & LAND SURVEYING
 85 SOUTH 200 EAST
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SURVEYED BY: B.J.	DRAWN BY: K.C.	
	FILE: 2 3 1 6 6	

Revised: 02-10-10
 Revised: 01-25-10



LEGEND:

- EXISTING ROAD
- *-*- EXISTING FENCE
- 🚪 LOCKED GATE/GUARD STATION (SEE DETAIL "A")



OXY USA WTP LP

CENTRAL WATER HANDLING FACILITY
SECTION 29, T6S, R97W, 6th P.M.
SW 1/2

UETS Utah Engineering & Land Surveying
 85 South 200 East Vernal, Utah 84078
 (435) 789-1017 * FAX (435) 789-1813

TOPOGRAPHIC MAP 12 07 09
 MONTH DAY YEAR
 SCALE: 1" = 2000' DRAWN BY: Z.L. REV: J.H. 02-10-10 **B TOPO**

OXY NORTH

Stormwater Management Plan



Cascade Creek Common Plan of Development

Garfield County Colorado

Permit No. COR-038414

Prepared for:

OXY USA WTP LP

760 Horizon Drive, Suite 101

Grand Junction, Colorado 81506

Prepared by:

Olsson Associates

826 21 ½ Road

Grand Junction, Colorado 81505

November 2007

Revisions:

May 2009

January 2010

May 2010

December 2010

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INTRODUCTION

This Stormwater Management Plan (SWMP) is written to comply with the Colorado Department of Public Health and Environment's (CDPHE) General Permit No. COR-030000 issued on July 1, 2007 (expires on June 30, 2012) and related U.S. Environmental Protection Agency National Pollutant Discharge Elimination System (NPDES) stormwater regulations. This SWMP addresses construction activities associated with development of the natural gas resources for OXY USA WTP LP (Oxy), Cascade Creek Common Plan of Development. This field-wide SWMP was prepared to address stormwater management practices at areas disturbed by construction activities associated with natural gas development within Oxy's Cascade Creek Common Plan of Development. Oxy has obtained coverage under the general permit; Permit No. COR-038414, and a copy of this permit can be found in **(Appendix A)**.

This SWMP is intended to be revised as necessary to address planned developments, new disturbances, and other changes needed to manage stormwater and protect surface water quality.

Stormwater Runoff Permitting Requirements:

The Federal Clean Water Act [Section 402(p)] requires that discharges of pollutants to waters of the U.S. from any point source be regulated by NPDES permits. In November 1990 the EPA published final regulations that established application requirements for stormwater associated with construction activity for soil disturbances of 5 acres or more be regulated as an industrial activity and covered by an NPDES permit. In December 1999 the EPA published final Phase II NPDES regulations that established application requirements for stormwater associated with construction activity for soil disturbances to be regulated as an industrial activity and covered by an NPDES permit. These regulations became effective July 1, 2002.

On June 30, 2005, Colorado stormwater regulations went into effect to require Colorado Discharge Permit System permits for stormwater discharges from construction activities for (1 acre or greater) oil and gas activities. Federal permit coverage for these discharges was conditionally exempted from the Federal Clean Water Act by the 2005 Federal Energy Bill. On February 1, 2006, the CDPHE issued a letter clarifying that the CDPHE Water Quality Control Commission decided to maintain the existing requirements for stormwater permitting for oil and gas construction sites greater than 1 acre.

Oxy will be in charge of all aspects of the property and this project. Contractor(s) will perform the actual construction, drilling and operations, but all work will be supervised by Oxy and all decisions will be made by Oxy.

This SWMP will be revised as necessary to address new disturbances, construction or operation. Depending on the type and location of new facilities there may be a need for inclusion of new and different Best Management Practices (BMP's). In general, new development should be planned with consideration for stormwater quality (e.g. minimize disturbed area and maximize distance from surface water drainages, as practicable).

1.0 SITE DESCRIPTION

The Cascade Area is located in Garfield County, Colorado, northeast of the town of Debeque, Colorado (see Vicinity Map in **Section 2.0**). The multiple sites associated with this SWMP are in parts of Township 6 and 7 South and Ranges 96 and 97 West, Garfield County, Colorado.

Table 2 specifies the Section, Township and Range (s) of the Project Area.

Table 2: Specific Areas of Project

Township & Range	Section
Township 6 South, Range 97 West	3, 4, 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 26, 28, 29, 32, 33 and 34
Township 7 South, Range 96 West	9, 10, 15, 16, 17, 18, 19, 20, 26, 35, and 36
Township 7 South, Range 97 West	3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27 and 28

a.) Nature of Construction Activity

The Cascade Creek Common Plan of Development will have ongoing construction activities to support Oxy’s oil and gas drilling, completion and operations located on fee lands. Oxy also operates on Federally managed lands. The current drilling and development plan includes pad construction, access road construction and improvement, pit construction, well drilling, well completion, well testing, pipeline construction, installation of associated facilities including: compressor stations, treatment facilities, warehouses, offices, temporary employee housing, disposal facilities, fluid storage facilities and storage yards. The area of disturbance will be greater than five acres.

Oxy will be in charge of all aspects of the property and this project. Contractor(s) will perform the actual construction, drilling and operations, but all work will be supervised by Oxy and all decisions will be made by Oxy.

This SWMP will be revised as necessary to address new disturbances, construction or operation. Depending on the type and location of new facilities there may be a need for inclusion of new and different BMP’s. In general, new development should be planned with consideration of stormwater quality (e.g. minimize disturbed area and maximize distance from surface water drainages, as practicable).

The Cascade Creek well pads will be constructed using conventional cut and fill earthmoving techniques. Typically, the working pad surface will have dimension of approximately 200 feet by 400 feet. Specific pad dimensions vary depending on the planned drill rig, number of wells to be drilled from each pad, and local terrain conditions. The well pad will be graded to drain the pad surface and to direct stormwater runoff from surrounding areas away from the well pad and reserve pit. Each pad may have a reserve pit that is approximately 60 feet by 250 feet. Reserve pits will be used during drilling and completion activities to contain fluids and cuttings.

In areas that are disturbed by well construction, topsoil will be stripped and stockpiled near the site. Soil materials will be managed so that erosion and sediment transport are minimized. Nearby drainages will be protected by appropriate measures.

If the well is not productive, it will be plugged according to Colorado Oil and Gas Conservation Commission (COGCC) rules and the pad area reclaimed to approximate pre-construction contours. Reclamation and final stabilization will be conducted as described in **Section 4**.

b.) Proposed Sequence for Major Activities

Natural gas exploration, development and production activities are currently underway within the Cascade Creek Common Plan of Development. For new disturbances, BMP's will be installed prior to, during, and immediately following construction as practicable with consideration given to safety, access, and ground conditions (e.g. frozen ground) at the time of construction.

The development of natural gas wells is generally accomplished in three distinct work phases. The first phase is the Development (Construction/Drilling/Completion/Initial Reclamation), the second phase is the Production (Operation/Maintenance), and the third phase is the Abandonment and Final Reclamation. Each work phase is briefly discussed below. All BMP's will be installed in a phased approach as described in accordance Section 3.0 of this plan, and additionally in **Table 7**.

Development (Construction/Drilling/Completion/Initial Reclamation)

The Development phase includes the following activities; pad construction, access road construction and improvement, pit construction, well drilling, well completion, well testing, pipeline construction, installation of associated facilities including: compressor stations, treatment facilities, warehouses, offices, temporary employee housing, disposal facilities, fluid storage facilities and storage yards. During the development and construction phase the construction areas will be cleared and grubbed. Stormwater inspections will begin once the soil or vegetation is disturbed. Topsoil and other materials will be salvaged or stockpiled as necessary. The well pad will be constructed and graded with a gentle slope to drain surface water from the pad surface.

The service and access roads will also be constructed using conventional cut and fill earthmoving techniques. All roads will be graded to slope into the cut slope or crowned, allowing for drainage into the roadside ditch(s). The ditch(s) will provide containment for the surface run-off, directing it into roadside culverts. The culverts may be constructed with inlet and/or outlet sediment traps, and/or inlet or outlet rock armoring (etc). Additionally rock check dams may be used in roadside ditches with significant elevation drops. Perimeter controls, such as wattles and earth berms, will be used along the toe slope of the fill slopes and will be used in addition to or alone when slope stabilization is not adequate. Roadside berms will provide an added safety feature, they will be compacted and consist of plowed road material.

Initial pad reclamation is accomplished by backfilling the reserve pit, contouring disturbed soils to conform with the surrounding terrain, replacing stockpiled topsoil, seeding of disturbed soil areas in order to reestablish a cover vegetation, and construction of erosion and sediment control structures. The completion of a well (gas production) generally triggers a one-year time period in which the reclamation phase of work should be completed. A listing of approved seed mixtures per vegetation land cover classification system identification is provided in Table 3.

Production (Operation/Maintenance)

The production phase includes the operation and maintenance activities during natural gas production. Gas pipelines are installed during this phase of work. Typical well pad equipment includes a wellhead, a separation unit and one to several 210-400-barrel capacity aboveground storage tanks (ASTs) containing condensate or produced water. Smaller sized ASTs may contain lube oil, methanol, and triethylene glycol.

Reclamation activities during this phase include maintenance of re-vegetated areas and maintenance of the erosion and sediment control structures. Development of natural gas resources and associated construction activities will likely continue for the next 3 to 5 years. Natural gas wells in the Cascade Creek area are projected to produce for approximately 20 to 30 years.

Abandonment and Final Reclamation

When the natural gas production of a well is exhausted it will be abandoned. Upon well abandonment each borehole will be plugged, capped, and all surface equipment will be removed. Subsurface pipelines will be removed to specified locations and plugged. The pad area will be reclaimed by contouring disturbed soils to conform to the surrounding terrain, by replacing the stockpiled topsoil, by seeding of disturbed soil areas in order to reestablish cover vegetation, and by construction of erosion and sediment control structures as needed.

Once stabilization is achieved, defined as uniform vegetative cover established with a density of at least 70 percent of pre-disturbance levels, a well pad may be removed from this SWMP for sediment controls.

c.) Estimates of Site Acreages

The total permitted area of the Cascade Creek Common Plan of Development is approximately 25,000 acres. The total disturbed area is approximately 697 acres.

d.) Soil Data and Erosion Potential

Runoff characteristics are based on site topography, soil type, and soil/vegetative cover. The soil types in this permitted area are described below in the Cascade Creek Soil Descriptions.

1.) **DeBeque very channery loam:** This soil is typically found on 5 to 20% slopes and in deep, well drained soil is on toe slopes, in narrow drainageways, and on alluvial fans and old stream terraces. It formed in colluvium and alluvium derived dominantly from the Green River shale formation. The native vegetation is mainly serviceberry, snowberry, grasses, forbs, and scattered Rocky Mountain Douglas Fir. Elevation is 5,800 to 7,500 ft. The surface layer is very dark grayish brown very channery loam about 4 inches thick. The next layer is brown very channery sandy loam about 3 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray very channery sandy loam. Permeability is moderately rapid in the DeBeque soil. The available water capacity is low. Runoff is rapid and the hazard of water erosion is severe. The local roads rating class for DeBeque soil is somewhat limited because of the slope and frost action. The potential source of roadfill rating is good.

2.) **Happle very channery sandy loam:** This soil can be found on 3 to 12 % percent slopes and are mainly on south-facing mountain side slopes. The native vegetation is mainly scattered Rocky Mountain Douglas-fir, Twoneedle Pinyon, Juniper, True Mountain Mahogany, Indian Ricegrass, and Wheat Grass. Elevation is 7,700 to 8,200 feet. Haploborolls are shallow to deep and are well drained. They formed in colluvium and residuum derived dominantly from calcareous sandstone. No single profile is typical of the Haploborolls, but a common profile is the survey area has a surface layer that is about 6 inches of dark grayish brown loam over 5 inches of dark grayish brown gravelly sandy clay loam. The upper part of the subsoil is brown very stony loam about 11 inches thick. The lower part is very pale brown very cobbly sandy clay loam about 10 inches thick. Sandstone bedrock is at a depth of about 32 inches. Permeability is moderate in the Happle soil. The available water capacity is low. Runoff is slow, and the hazard of water erosion is severe. The local roads rating class for Happle soil is somewhat limited because of the slope and frost action. The potential source of roadfill rating is good.

3.) **Happle-Rock outcrop association:** This soil can be found on 25 to 65% slopes and on side slopes and canyon rims. The native vegetation is mainly Sagebrush, grass, and forbs. Elevation is 6,200 to 7,200. The Happle soil is deep and well drained. It formed in colluvium derived dominantly from the Green River shale formation. Typically, the surface layer is light gray very channery sandy loam about 7 inches thick. The next part is light gray very channery sandy loam about 7 inches thick. The lower part of the substratum to a depth of 60 inches or more is light gray extreme channery coarse sandy loam. Permeability is moderate in the Happle soil. The available water capacity is low. Runoff is rapid, and the hazard of water erosion is severe. The local roads rating class for Happle soil is very limited because of the slope and frost action. The potential source of roadfill rating is poor due to the slope.

4.) **Parachute-Irigul-Rhone association:** This soil is found on 25-50% slopes and on tops of mountains and ridges and on the crests and sides of hills. The native vegetation is mainly Gambel's Oak, Serviceberry, Sagebrush, and grasses. Elevation is 7,600 to 8,800 feet. The Irigul soil is shallow and well drained. It formed in residuum derived dominantly from sandstone or hard shale. Typically the surface layer is a very dark grayish brown loam about 10 inches thick. The next layer is dark grayish brown channery loam about 29 inches thick. The subsoil is brown very channery loam about 16 inches thick. Rippable, fractured siltstone is at a depth of about 55 inches. Permeability is moderate in the Irigul soil. The water capacity is very low. Runoff is rapid and the hazard of water erosion is very severe. Permeability is moderate in the Parachute soil. The available water capacity is very low. Runoff is rapid and the hazard of water erosion is very severe. The local roads rating class for Parachute soil is very limited because of the slope and frost action. The local roads rating class for Irigul soil is very limited because of the slope and depth to hard bedrock. The local roads rating class for Rhone soil is very limited because of the slope and frost action. The potential source of roadfill rating is poor due to the slope and the depth to bedrock.

5.) **Parachute-Rhone loams:** This soil is found on 5 to 30 % slopes and on ridge crests, mountain sides, upland slopes, and side slopes. The native vegetation is composed mainly of various shrubs and grasses. The parachute soil is moderately deep and is well drained. Typically, the surface layer is grayish brown loam about 10 inches thick. The subsoil is brown very channery loam about 15 inches thick. Rippable, fractured siltstone is at a depth of about 25 inches. Permeability is moderate in the Parachute soil. The available water capacity is very low. Runoff is rapid and the hazard of water erosion is very severe. Permeability is moderate in the Rhone soil. The available water capacity also is moderate. Runoff is medium or rapid, and the hazard of water erosion is moderate to very severe. The local roads rating class for Parachute soil is very limited because of the slope and frost action. The local roads rating class for Rhone soil is very limited because of the slope and frost action. The potential source of roadfill rating is poor due to the slope and depth to bedrock. The roadfill rating for the Rhone soil is fair due to the slope and depth to bedrock.

6.) **Tosca channery loam:** This soil is found on 25 to 80% slopes and is a deep, well drained soil on mountain side slopes and foot slopes. It formed in colluvium derived dominantly from Green River Shale. The native vegetation is mainly Serviceberry, Gambel's Oak, Snowberry, and grasses. Typically, the surface layer is dark grayish brown channery loam about 8 inches thick. The next layer is brown very channery loam about 7 inches thick. The lower part to a depth of 60 inches or more is very pale brown and light yellowish brown very channery loam. Permeability is moderate in the Tosca soil. The available water capacity is low. Runoff is rapid and the hazard of water erosion is very severe. The local roads rating class for Tosca soil is very limited because of the slope and frost action. The potential source of roadfill rating is poor due to the slope.

7.) **Utso-Rock outcrop complex:** This soil can be found on 40 to 90% slopes and is on side slopes. The native vegetation is mainly Rocky Mountain Douglas fir, Shrubs, and scattered grasses. The Utso soil is deep and well drained. It formed in colluvium derived dominantly from the Green River shale formation. Typically the surface layer is very dark grayish brown channery loam about 4 inches thick. The next layer is dark grayish brown very channery loam about 7 inches thick. The subsoil to a depth of 60 inches or more is grayish brown very channery loam. Permeability is moderate in the Utso soil. The available water capacity is low. Runoff is rapid and the hazard of water erosion is very severe. The local roads rating class for Utso soil is very limited because of the slope and frost action. The potential source of roadfill rating is poor due to the slope.

e.) Existing Vegetation Description

Cascade Creek Common Plan of Development well pads and facilities are surrounded by the following Colorado Land Cover Classification Systems:

- Low Elevation Salt-Desert Scrub/Basin Big Sagebrush
- Pinyon-Juniper Woodland, Mountain/Wyoming Big Sagebrush Shrubland
- Mixed Mountain Shrubland including Oakbrush
- Spruce-Fir, including Mountain Meadows

Vegetative cover surrounding Cascade Creek Common Plan of Development ranges from 30-85%. Please refer to **Tables 4 & 5** for the existing vegetation descriptions and percent ground cover.

f.) Potential Pollution Sources

Due to numerous sites within the Cascade Creek Common Plan of Development, a list of locations of potential pollution sources would be too expansive and not comprehensive. For an accurate location and listing of potential pollutants please refer to the site specific inspection forms. The following paragraphs list the possible pollutants.

Potential pollution sources associated with construction sites and natural gas development include:

- Sediment resulting from erosion of soil stockpiles and other areas cleared of vegetation;
- Sediment discharges from vehicle tracking;
- Leakage of fuels and lubricants from equipment and spills from fueling;
- Trash and debris from clearing activities, construction materials, and workers and;
- Leakage or spills from storage tanks and process equipment associated with the natural gas development activities.

The most common source of pollution from pad and access road construction is sediment, which can be carried away from the work site with stormwater runoff and impact the water quality of a receiving stream. Clearing, grading, and otherwise altering previously undisturbed land can increase the rate of soil erosion over pre-disturbance rates.

Petroleum products can also be potential stormwater pollutants. These products are used in construction activities to power or lubricate equipment and include: fuel, gear oil, hydraulic oil, brake fluid, and grease.

Debris from laydown areas, residue from equipment cleaning and maintenance, and solid waste generated from land clearing operations and human activity (trees, brush, paper, trash, etc.) present other potential pollution sources within the construction site. Additionally, one or more facilities may contain construction supplies such as various sized pipe, culverts, metal sheds, empty tanks, drums and vessels, fencing and stairs.

Construction of new production facilities may require the use of concrete. Concrete wash out waters will be managed to prevent them from reaching waters of the state. Typically concrete wash out waters will be diverted to the well pad flare pit or other type of earthen impoundment to capture and evaporate wash out water. These will be listed on the site specific information if they occur.

Loading and unloading of condensate and produced water from AST are common and regular activities within the Cascade Creek. Spills and or tank over flows can contaminate stormwater runoff.

Magnesium chloride solution or other chemical dust suppressants may be applied during the summer to unpaved roads to order to reduce fugitive dust generation. Magnesium chloride solution is used in the winter for roadway deicing and in the summer for dust suppression by county and state government entities. The solution is typically delivered to the site by contractors in Department of Transportation approved tanker trailers and generally is quickly applied to the road surface. Occasionally, depending on work site conditions, the tanker trailers may be staged along the road until ready for application (typically no longer than overnight). Within the project area vehicular speed limits range from 20-25 mph weather permitting; reduced speed limits should aid in reduction of fugitive dust clouding.

Spills or leaks from potential sources are described in the Spill Prevention Control and Counter Measure Plan (SPCC); the SPCC plan is located at the Grand Junction Regional Office. The Material Safety Data Sheets are located at the Grand Junction Regional Office; specific down-hole chemicals used during drilling can be found in **Table 8**. Response to certain events may require specialized training due to health and safety concerns.

g.) Anticipated allowable non-stormwater discharges

All discharges covered by this permit will be composed of entirely stormwater unless they meet the following qualifications. Discharges other than stormwater and those mentioned below will be covered by a separate permit. Discharges resulting from emergency fire fighting activities, uncontaminated springs, and irrigation return flow that are combined with stormwater can be discharged provided the non-stormwater component is identified in the SWMP.

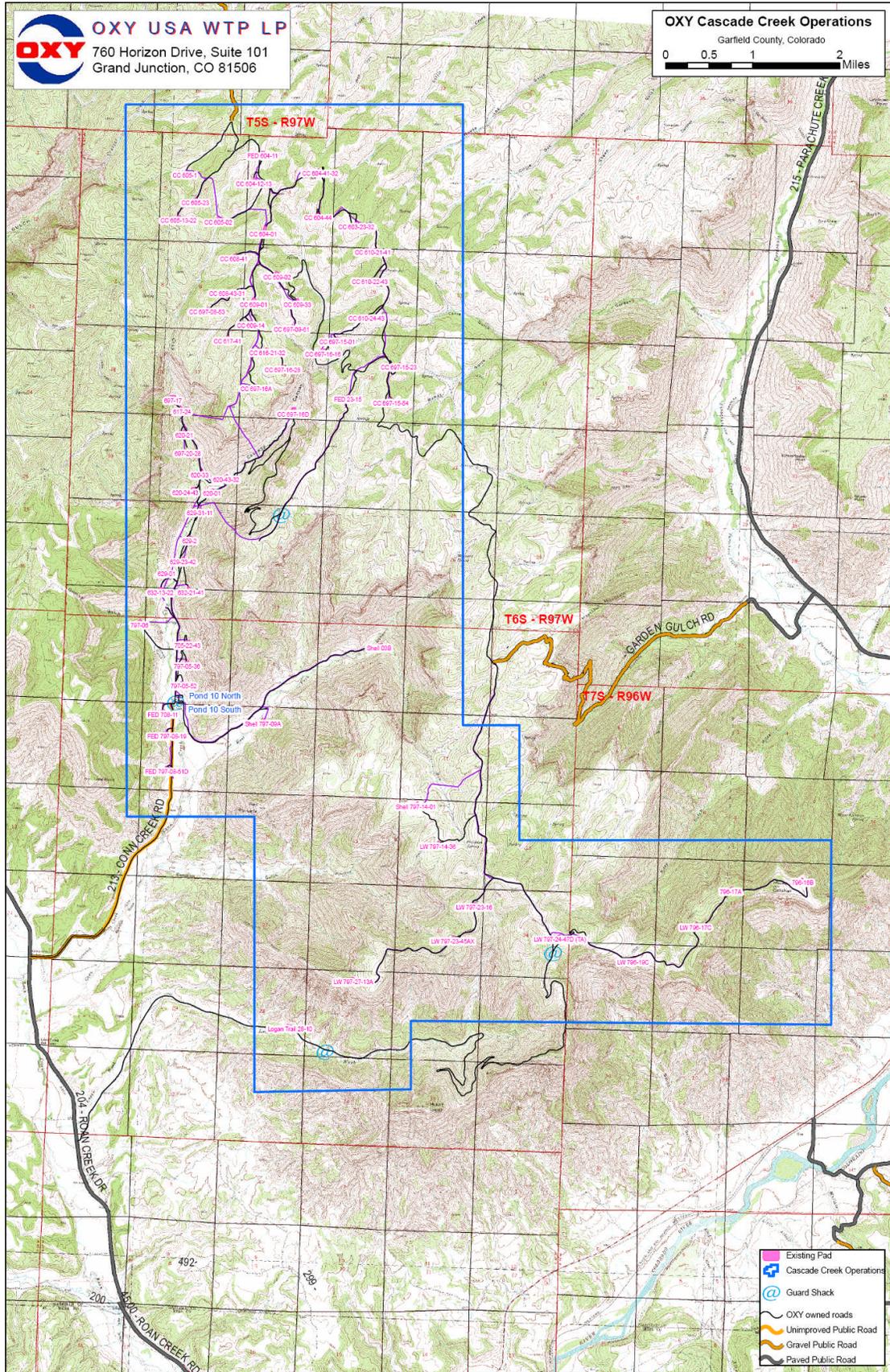
Discharges to the ground from concrete washouts and the washing of concrete truck chutes can be allowed if the source is identified in this SWMP, BMP's are in noted in the SWMP and in place to prevent the contamination of groundwater, and these discharges do not leave the site. Discharges to the ground of water from construction dewatering activities are covered by this permit provided the source is groundwater and/or groundwater combined with stormwater that is not contaminated exceeding the state threshold limits, the source is identified in the SWMP, BMP's are included the SWMP, and the discharges do not leave the site as runoff. At this time this is not anticipated but may be added to the SWMP if encountered.

h.) Receiving waters

From the project area stormwater runoff flows south, southwest to Roan Creek and then south to eventually join the Colorado River. stormwater receiving waters include unnamed tributaries to: Cascade Canyon, Conn Creek, McKay Gulch, Corral Gulch, Spring Creek, House Log Gulch, and Parachute Creek via Mount Callahan Spring. Other drainages include: Conn Creek, Cascade Canyon, Gilman Gulch, east Fork, Bowdish Gulch, Tourist Run and Little Creek. For a list of the receiving waters for the Cascade Creek Common Plan of Development, please refer to **Table 3-Oxy** receiving waters spreadsheet.

2.0 SITE MAP

The site map is on the following page. This page was intentionally left blank.



a.) Construction Site Boundaries

For an accurate description of the construction site boundaries, please refer to the site specific maps for each location. The boundaries are too numerous to be contained in one portion of the SWMP and must be described for each location.

b.) Areas of Ground Disturbance

For an accurate description of the areas of disturbance, please refer to the site specific maps for each location. The areas are too numerous to be contained in one portion of the SWMP and must be described for each location.

c.) Areas of cut and fill

For an accurate description of the areas of cut and fill, please refer to the site specific maps for each location. The areas are too numerous to be contained in one portion of the SWMP and must be described for each location.

d.) Storage Areas

For an accurate description of the storage areas, please refer to the site specific maps for each location. The areas are too numerous to be contained in one portion of the SWMP and must be described for each location.

e.) Location of Asphalt and Concrete Batch Plants

There will be no asphalt or concrete batch plants located within the permitted area.

f.) Locations of Structural BMP's

For an accurate description of the location of structural BMP's, please refer to the site specific maps for each location. The BMP's are too numerous to be contained in one portion of the SWMP and must be described for each location.

g.) Locations of Non-Structural BMP's

For an accurate description of the location of non-structural BMP's, please refer to the site specific maps for each location. The BMP's are too numerous to be contained in one portion of the SWMP and must be described for each location. An evaluation of the unique site specific features will be done and specific BMP's for these situations will be noted on a site specific narrative.

h.) Locations of Springs, Wetlands and Other Surface Waters

For an accurate description of the location of springs, wetlands, and other surface waters, please refer to the site specific maps for each location. The locations are too numerous to be contained in one portion of the SWMP and must be described for each location.

3.0 STORMWATER MANAGEMENT CONTROLS

a.) SWMP Administrator

Stormwater management involves several entities within Oxy as well as outside consultant(s). This SWMP was designed on behalf of Oxy, however the implementation and execution of the plan will be conducted by Oxy or their designee. The authorized officer(s) for this SWMP are listed below:

Legally Responsible Person/Local Contact:

Mr. Sean T. Norris
Regulatory Lead
Oxy
Office: 970-263-3628

Local Contact:

Gregory Gipp
Sr. Foreman Maintenance and Construction
Oxy
Cell: (970) 462-1207

b.) Identification of Potential pollutant Sources

1.) All disturbed and stored soils

All disturbed soils will be evaluated for erosion potential and potential to contribute to stormwater pollution and BMP's to prevent such occurrence will be implemented on a case by case basis. As part of the regular stormwater inspection, all disturbed and stored soils will be monitored to ensure sediment transport is not occurring. BMP's will be installed and maintained along these areas.

2.) Vehicle tracking of sediments

Vehicle tracking of sediments will be evaluated for erosion and pollution potential. BMP's will be chosen according to the potentials on a case by case basis.

3.) Management of contaminated Soils

There is a low potential for contaminated soils to contribute pollutants to stormwater discharge as BMP's will be installed before items necessary for well development, pipelines and gas treatment are put into place. Soils will be managed by containing contaminants and disposing of them at an appropriate disposal facility.

4.) Loading and unloading operations

Loading and unloading operations have a low potential for contributing to stormwater discharge, however operations will be evaluated and identified for potential for pollution. The following is the procedure for dealing with liquid loading and unloading procedures;

Oxy/Cascade Creek Water Handling Procedure:

- Authorization for Cascade Creek on-lease water movement shall be approved by Oxy Plant Operator, Production Technician or Production Coordinator
- Point of origin and discharge shall be identified prior to the movement of any water (produced, flowback or fresh).
- Discharge valve at point of discharge shall be verified in open position and secured in open position.
- Operator shall drive distribution system route verifying all risers are blind flanged (tapped w/needle valve) and valves are properly secured open.
- Operator shall be present at discharge point before transfer pumps are started and engaged.
- Operator shall inspect transfer pump according to check-list to identify and correct any operational issues.
- Point of origin operator shall notify point of discharge operator of intent to engage and pump water.
- Point of origin operator shall monitor rate and pressure maintaining acceptable limits within the design capabilities of distribution system.
- Point of discharge operator shall monitor discharge into permitted water storage pond.
- Point of discharge operator shall then drive distribution route and inspect for leaks or spills.
- Upon completion of water movement, lines shall be purged of all liquids to prevent freezing, pumps shall be drained and properly secured, and all valves shall be secured properly.

Spills will be handled according to the SPCC guidelines.

5.) Outdoor storage activities

Storage activities will be evaluated for potential to pollute stormwater runoff. Appropriate BMP's will be implemented on a case by case basis. Containment and prevention of contact with stormwater will be achieved by keeping materials with potential for pollution covered or enclosed in containers or packaging.

6.) Vehicle and equipment maintenance and fueling

Procedures require the operators to ensure that no fluids or materials are spilled. If they are spilled, they will be immediately contained and disposed of at an appropriate disposal facility.

7.) Significant dust or particulate generating processes

Dust and particulate generating processes will be evaluated and regulated by the application of water to eliminate possible wind erosion or transport. Speed limits will also be enforced to decrease dust. Magnesium chloride will also be used as necessary to limit dust and particulate.

8.) Routine maintenance activities

Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, & oils will be very infrequent. When applying pesticides or herbicides, wind and moisture conditions will be evaluated and if either are found to be present and could possibly lead to contamination, such procedures will be delayed and attempted again when conditions are conducive to application without elevated pollution possibilities.

9.) On-site waste management practices (waste piles, liquid wastes, dumpsters, etc.)

Waste management will be enacted on all sites. Trash receptacles will be located on all active sites. Good housekeeping principles will be enacted throughout the entire permitted area. Disposal will be by contractors with appropriate handling equipment.

10.) Concrete truck/equipment washing

Concrete truck/equipment washing including the concrete truck chute and associated fixtures and equipment will be infrequent within the permitted area. These procedures are covered under the permit. If washing of concrete trucks and equipment takes place, the water will be contained in an earthen basin. The location will be noted on site specific maps.

11.) Dedicated asphalt and concrete batch plants

Will not be present within the permitted area.

12.) Non-industrial waste sources

Non-industrial waste sources such as worker trash and portable toilets will be contained in receptacles designed for the specific purpose. These will be disposed of by contractors with specially designed equipment and dispose of according to local requirements at appropriate facilities.

13.) Other

Other areas or procedures where potential spills can occur will be evaluated on a case by case basis and BMP's will be implemented according to the specific potential for pollution.

c.) BMP's for Stormwater Pollution Prevention

The selection of erosion and sediment control BMP's is contingent upon site specific conditions (e.g. construction, vegetation, precipitation, and evaporation). The objective of erosion and sediment controls is to minimize the release of sediments. This can be accomplished through these of structural and/or nonstructural controls. They types and locations of structural BMP's for well pad construction, pipelines and road improvements are shown under individual tabs for each area of disturbance.

1.) Structural Practices

There are numerous structural practices to be used within the project area including: fiber rolls, silt fence, straw-bales, temporary stockpile areas, diversions, roadside

ditches, check dams, rip-rap, rundowns, water bars, turnouts and sediment traps. Individual BMP's are located on the corresponding facility or access road site maps.

2.) Non-Structural Practices

Non-structural erosion and sediment control BMP's use techniques such as phased construction, minimizing disturbances to existing vegetation, re-establishment/replacement of vegetation, mulching, erosion control blanket products, surface roughening, land grading, terracing, use of hydraulic tackifier and soil binders, utilizing dust control techniques and stabilizing stream banks.

Common non-structure BMP's to be implemented at the Project area include: temporary and permanent re-vegetation, erosion control blankets, mulching, preservation of natural vegetation and surface. The description of non-structural BMP's available and/or implemented will be found in the BMP manual. The location of non-structural practices will be found in the site specific maps.

3.) Phased BMP installation

For a list of phased BMP installations, please refer to Figure 2.

4.) Materials Handling and Spill Prevention

Fuels and Materials Management

Petroleum products which may be present at the construction site include: gasoline, diesel fuel, lubricant oils, hydraulic oils, used oils, and solvents. Gasoline and diesel fuel will be stored in portable storage tanks with secondary containment. Lubricant, hydraulic, and miscellaneous oils and solvents will be stored in 55-gallon or smaller containers which will have secondary containment.

Pollutants from petroleum products used during construction activities adhere easily to soil particles and other surfaces. In case of a spill or leak, soils contaminated with petroleum products will be contained and removed to a proper disposal site. Proposed soil erosion and sediment control practices will aid in retention of spills or leaks. Use of secondary containment and drip pans will reduce the likelihood of spills or leaks contacting the ground. Proposed maintenance and safe storage practices will reduce the chance of petroleum products contaminating the road site. Oily wastes such as crankcase oil, cans, rags, and paper containing oils will be placed in proper receptacles and disposed of or recycled. An additional source of petroleum contamination is leaks from equipment and vehicles. Routine daily inspections will be conducted to identify leaks and initiate corrective actions, if needed. Please refer to the site specific SPCC Plan.

The following guidelines for storing and managing petroleum products will be used:

- All product containers will be clearly labeled.
- Drums will be kept off the ground within secondary containment and stored under cover if needed.

- Fuel tanks will be stored within secondary containment.
- Lids of drummed materials will be securely fastened.
- Emergency spill response procedures will be available on-site. Persons trained in handling spills will be on call at all times.
- Spill clean up and containment materials (absorbent, shovels, etc.) will be easily accessible. Spills will be immediately cleaned up and contaminated materials will be properly stored on site until they can be disposed of in accordance with applicable regulations.
- Storage areas and containers will be regularly monitored for leaks and repaired or replaced as necessary. Contractors and subcontractors should be reminded about proper storage, handling and transferring of petroleum products or other hazardous materials during safety meetings.

Spills or releases of more than 25 gallons of refined petroleum crude oil products such as gasoline, diesel fuel, oil, or derivatives of mineral, animal or vegetable oil shall be reported to the state of Colorado Division of Oil and Public Safety at (303) 318-8547 within 24 hours.

E & P Waste

Oxy's HES and Regulatory Departments will coordinate agency reporting and statements. All spills and releases of exploration and production waste or produced fluid exceeding 5 barrels (210 gallons) including those contained within unlined berms, shall be reported in writing on the COGCC Spill/Release Report Form 19 within 10 days of discovery of the spill.

All spills/releases that exceed 20 barrels (840 gallons) of exploration and production liquids/waste shall be verbally reported to the COGCC at (303) 894-2100 within 24 hours of discovery.

Spills or releases of any size that impact or threaten to impact any waters of the state, residence or occupied structure, livestock or public byway, shall be verbally reported to the COGCC as soon as practical after discovery (COGCC Rule 906). If the spill may reach waters of the state (which includes surface water, ground water and dry gullies or storm sewers leading to surface water), it must also be reported immediately to the CDPHE at (877) 518-5608.

A hazardous substance release in any amount which enters or threatens to enter waters of the state shall be reported to CDPHE. All spills, leaks, or overflows that result in the discharge of pollutants will be documented.

Other Chemicals Products Management

Additional materials will be used and stored on site for use in construction. These materials will be stored appropriately and managed to minimize spills and leaks.

Storage areas will be regularly inspected and any minor spills or leaks will be cleaned up immediately. Contaminated material will be contained and disposed of at an appropriate facility capable of disposing of the materials according to local regulations.

Materials Management

The construction contractor will maintain a laydown or staging area for equipment and materials storage on site. These areas will be maintained with good housekeeping and will be inspected on a regular basis for spills, leaks, and potential of materials commingling with stormwater runoff. Any contaminated materials will be contained and disposed of at an appropriate facility capable of disposing of the materials according to local regulations.

5.) Dedicated Concrete or Asphalt Batch Plants

There will be no dedicated Concrete or Asphalt batch plants within the permitted area. This SWMP will be amended if this changes in the future.

6.) Vehicle Tracking Control

Vehicle tracking will be minimized by the construction of roads and travel areas by good engineering principles. Roads will be properly graded to control runoff and erosion. Road surfaces will be upgraded by the addition of gravel or roadbase being placed on the roadway surface. BMP's will be installed along roadways to control runoff and sediment. When conditions exist where the roadway is being damaged by traffic and the erosion potential is severely increased, Oxy may decide to shutdown access to that section or sections of road in order to reduce or eliminate the potential of erosion or discharge. These sites will be noted in the SWMP.

7.) Waste Management and Disposal including Concrete Washout

Waste Management and Disposal

Well pad construction and drilling will generate various other wastes during the course of construction. Other wastes may include the following:

- Sagebrush, shrubs and trees from clearing operations;
- Trash and debris from construction materials and workers;
- Drill cuttings, drilling fluids; and
- Sanitary sewage.

Each of these wastes will be managed so as to not contribute to stormwater pollution. Construction trash and debris will be collected in containers and hauled off-site for disposal in suitable landfills. Sanitary waste will be containerized in portable toilets or other storage tanks with waste materials regularly pumped and transported off-site for disposal at approved facilities. Drill cuttings and fluids will be contained and disposed of in accordance with COGCC rules and regulations at appropriate facilities designed for this specific purpose.

8.) Groundwater and Stormwater Dewatering

If groundwater is encountered during construction activities, a groundwater dewatering permit will be acquired from the CDPHE and monitoring will be conducted in accordance with the permit requirements.

4.0 FINAL STABILIZATION AND LONG TERM STORMWATER MANAGEMENT

Areas which have been disturbed are considered to be stabilized when a uniform vegetative cover with a density of 70 percent of the pre-disturbance levels has been established or when an equivalent permanent, physical erosion reduction method is in-place. The disturbed areas will be seeded and mulched for final stabilization. **Table 6** contains approved seed mixtures and distribution rates for the Cascade Creek. Typical Pure Live Seed (PLS) application rates are recommended to be doubled if seeding is performed by hydroseed or broadcasting.

Areas not used for facilities, access roads, materials storage yards, or other work areas will be stabilized with vegetation. Areas that are stabilized with vegetation will be considered to have achieved final stabilization when a uniform stand of vegetation with a density of at least 70 percent of the pre-disturbance has been established. Sprayed on mulches and other slope stabilization materials may be used in combination with seeding techniques in select areas to promote and establish surface vegetation cover. Areas which may include facilities, access roads, materials storage yards, and other work areas surface areas maybe stabilized with the use of permanent, physical erosion reduction methods which include, but are not limited to:

- Surface hardening – covering of the soil surface with hardened products such as concrete or asphalt pavement.
- Surface covering – covering of the surface soil with structure that inhibits contact of precipitation with the soil surface which is generally considered to be placement of a structure (building or tank) over the soil surface.
- Gravel surfacing – gravel surfacing will be applied in areas such as access roads, materials storage yards, and other work surfaces. Some gravel may be lost due to erosion from intense precipitation events or due to vehicle traffic. Gravel surfaces will be periodically inspected to determine the need for gravel replacement. Gravel surfaces will be replaced or repaired (through grading) when inspection reveals that the gravel surface is no longer effectively covering the soil surface.

INACTIVATION NOTICE

On a site-specific basis the Permittee no longer requires coverage under the CPDHE permit if all soil disturbing activities are complete. At that time, the Permittee will submit and Inactivation Notice form that is signed in accordance with I.F.1 of the issued permit. An inactivation notice form includes:

- Permit certification number;
- The permittee's name, address, telephone number;
- Name, location, and county for the construction site for which the Inactivation Notice is being submitted;

- A site map showing the selected area(s) for Inactivation;
- Certification that the site has finally reached stabilization, and a description of the final stabilization methods.

Once the site has reached 70% vegetative coverage, a CDPHE termination form will be submitted, at this time the terminated site will be in the COGCC stormwater program, Once the CDPHE termination form is complete, the site will be move from the routine CDPHE stormwater inspection into the COGCC stormwater inspection program. Please refer to the COGCC Stormwater Program for terminated CDPHE sites, additionally copies of termination forms are located in **Appendix B**. After the well is exhausted, the equipment will be removed, and the site will be moved back into the CDPHE program until 70% vegetation is once again achieved. Once the site has again reached 70% vegetative cover, the site will then again be moved back into the COGCC stormwater Program.

5.0 INSPECTION AND MAINTENANCE

To meet requirements of the stormwater General Permit, inspection and maintenance of erosion and sediment controls must occur during the construction project. Continued inspection and maintenance is required for specific structures after construction is completed. A complete list of active inspection locations, site diagrams and site specific stormwater BMP's are provided in the inspection report book kept with the SWMP. The inspection program will include the following:

- 1.) A qualified person familiar with the SWMP and control measures will conduct the inspections.
- 2.) Inspections will cover these areas of the construction site:
 - Disturbed areas
 - Material storage areas
 - BMP's
 - Surface water diversions
 - Down gradient areas
- 3.) A log of inspections will be kept at the Grand Junction Regional Office:
Grand Junction Oxy Office
760 Horizon Drive Ste 101
Grand Junction, Colorado 81506
- 4.) Sediment control BMP's will be inspected for evidence of deterioration, undercutting and build up of sediment.
- 5.) Following each inspection, the SWMP will be updated as necessary to include additional controls designed to correct identified problems. Revisions to the SWMP will be made as soon as practicable.
- 6.) A signed inspection report summarizing the scope of the inspection, the name of the person conducting the inspection, date of inspection and observations will be prepared and placed into the SWMP Inspection Report book. Inspection reports will be retained for at least 3 years from the date that the site is finally stabilized.

- 7.) Actions taken to modify any stormwater control measure will be recorded and maintained with the SWMP. Once adequate corrective action(s) have been taken, or where a report does not identify any incidents requiring corrective action, the report shall be signed indicating the site is in compliance. An updated diagram will accompany each report.
- 8.) As outlined in section 3.c.4 deficiencies found during the SPCC plan for sites where drilling or completions activities are occurring during the inspection will not be noted on the stormwater inspection paperwork. SPCC inspections will occur monthly. Any deficiencies will be directed to the appropriate department for corrective action.

6.) Inspections

Site inspections will be conducted with the following permit requirements and minimum schedules.

a.) Minimum Inspection Schedule

A thorough inspection will be made at least every 14 calendar days. Also, post-storm event inspection will be conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion (see post storm stipulation below). Provided the timing is appropriate, the post-storm inspection may be used to fulfill the 14-Day routine inspection requirement. A more frequent inspection schedule than the minimum inspections described may be necessary to assure that BMP's continue to operate as needed to comply with the permit. The following conditional modifications to this minimum inspection schedule are allowed:

- 1) Post-Storm Event Inspections at Temporarily Idle Sites - if no construction activities will occur following a storm event, post-storm event inspections will be conducted prior to recommending construction activities but no later than 72 hours following the storm event. The occurrence of any such delayed inspection will be documented in the inspection record. Routine inspections will still be conducted at least every 14 calendar days.
- 2.) Inspections at Completed Sites/Areas - for sites or portions of sites that meet the following criteria but where final stabilization has not yet been achieved due to a vegetative cover that has not become established, an inspection will be conducted at least once every month and post-storm event inspections are not required. This reduced inspection schedules allowed *only* if:
 - i) All construction activities that will result in surface ground disturbance area completed;
 - ii) All activities required for final stabilization, in accordance with SWMP, have been completed, with the exception of application of seed that has not occurred due to seasonal conditions or the necessity for additional seed application to augment previous efforts; and
 - iii) The SWMP must be amended to indicate those areas that will be inspected in accordance with the reduced schedule allowed for in this subsection.

- 3.) Winter Conditions Inspections Exclusion – inspections will not be performed at sites where construction activities are temporarily halted, snow cover exists over the entire site for an extended period and melting conditions posing a risk of surface erosion do not exist. This exception is applicable only during the period where melting conditions do not exist and applied to the routine 14-day and monthly inspections as well as post-storm event inspections. The following information will be documented in the inspection record for use of this exclusion: Dates when snow cover occurred, date when construction ceased, and date melting conditions began. Inspections, as described above, are required at all other time.

b.) Inspection Requirements

1) Inspection Scope – The construction site perimeter, all disturbed areas, material and/or waste storage areas that are exposed to precipitation, discharge location and locations where vehicles access the site will be inspected for evidence of, or the potential for, pollutants leaving the construction site boundaries or discharging to state waters. All erosion and sediment control practices identified in the SWMP will be evaluated to ensure they are maintained and operating correctly.

2) Inspection Report/Records – The permittee shall keep a record of inspections. Inspection reports must identify any incidents of non-compliance with the terms and conditions of the permit. Inspections records must be retained for three years from expiration or inactivation of permit coverage. At a minimum, the inspection report must include:

- i) The inspection date;
- ii) Name(s) and title(s) of personnel making the inspection;
- iii) Location(s) of discharges of sediment or other pollutants from the site;
- iv) Location(s) of BMP's that need to be maintained;
- v) Location(s) of BMP's that failed to operate as designed or proved inadequate for a particular location;
- vi) Location(s) where additional BMP's are needed that were not in place at the time of inspection;
- vii) Deviations from the minimum inspection schedule as provided in Section C.6.a of the permit;
- viii) Description of corrective action for items 3, 4, 5, and 6, above, dates corrective action(s) taken, and measures taken to prevent future violations, including requisite changes to the SWMP, as necessary; and
- ix) After adequate corrective action(s) has been taken, or where a report does not identify any incidents requiring corrective action, the report shall contain a signed statement indicating the site is in compliance with the permit to the best of the signer's knowledge and belief.

c.) Required Actions Following Site Inspections

Where site inspections note the need for BMP maintenance activities, BMP's must be maintained in accordance with the SWMP and Part I.D.7 of the permit. Repair, replacement, or installation of new BMP's determine necessary during site inspection to address ineffective or inadequate BMP's must be conducted in accordance with Part I.D.8 of the Permit. SWMP updates required as a result of deficiencies in the SWMP noted during site inspections shall be made in accordance with Part I.D.5.c of the permit.

7.) BMP Maintenance

All erosion and sediment control practices and other protective measures identified in the SWMP will be maintained in effective operating condition. Proper selection and installation of BMP's and implementation of comprehensive Inspection and Maintenance procedures, in accordance with the SWMP. For specific maintenance and inspection guidelines refer to BMP. BMP's that are not adequately maintained in accordance with good engineering, hydrologic and pollutions control practices, include removal of collected sediment outside the acceptable tolerances of the BMP's, are considered to be no longer operating effectively and will be removed or repaired in accordance with the BMP manual.

The Stormwater inspection report will give maintenance and corrective actions with a number priority system. The following is a classification of the BMP maintenance/corrective priority system:

1. Corrective action/maintenance items priority **1** require immediate corrective action. The deficient BMP will be repaired within 3 days;
2. Corrective action/maintenance items priority **2** require corrective action within 10 days;
3. Corrective action/maintenance items priority **3** require corrective action within 30 days;
4. Corrective action/maintenance items priority **4** require corrective action 30 days to 6 months.

8.) Replacement and Failed BMP's

Adequate site assessment will be performed as part of comprehensive Inspection and Maintenance procedures, to assess the adequacy of BMP's at the site, and the necessity of changes to those BMP's to ensure continued effective performance. Where site assessment results in the determination that new or replacement BMP's are necessary, the BMP's will be installed per the BMP manual.

Where BMP's have failed, they will be addressed as soon as possible, to minimize the discharge of pollutants. When new BMP's are installed or BMP's are replaced, the SWMP will be updated.

The SWMP will be modified as necessary whenever there is a change in design, construction or operation that changes the potential for pollutant discharge to waters of the state. Table 1 summarized changes in the SWMP.

An inspection report summarizing the scope of the inspection, the name of the person conducting the inspection, date of inspection, and observations relating to the implementation will be prepared. An example of an inspection report is provided in **Appendix C**.

Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."


SIGNATURE _____ DATE 12/14/2010
Sean T. Norris
Regulatory Lead
Oxy USA WTP LP

Appendix A
Stormwater General Permit No. COR-038414

STATE OF COLORADO

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
TELEPHONE: (303) 692-3500



**CERTIFICATION TO DISCHARGE
UNDER
CDPS GENERAL PERMIT COR-030000
STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION**

Certification Number **COR038414**

This Certification to Discharge specifically authorizes:

Oxy USA WTP LP

LEGAL CONTACT:
Heidi Reed, Sr. EHS Advisor
Oxy USA WTP LP
2754 Compass Drive Ste. 170
Grand Junction, CO 81506
Phone # 970/263-3609
jfrey@cordcomp.com

LOCAL CONTACT:
Joanna Fry, ,
Phone # 970/ 263-7800
heidi_reed@oxy.com

During the Construction Activity: Gas/Oil Field Exploration and/or Development
to discharge stormwater from the facility identified as **Cascade Creek Development**
which is located at:

**13 miles north of Debeque, map in file
Debeque, Co 81630**

**Latitude 39/30/45, Longitude 108/14/10
In Garfield County**

to: Cascade Creek -- Colorado River

Anticipated Activity begins 07/01/2005 continuing through 05/17/2007
On 5 acres (5 acres disturbed)

Certification is effective: 07/01/2007 Certification Expires: 06/30/2012

Annual Fee: \$245.00 (DO NOT PAY NOW – A prorated bill will be sent shortly.)

Appendix B
CDPHE Termination Forms

Appendix C
Stormwater Field Inspection Report

STORMWATER INSPECTION LOG



Location ID: BLACKMAN 14-12
Well Field: BRUSH CREEK
Type Infrastructure: WELL PAD / ACCESS

Applicable Regulatory Agency: COGCC

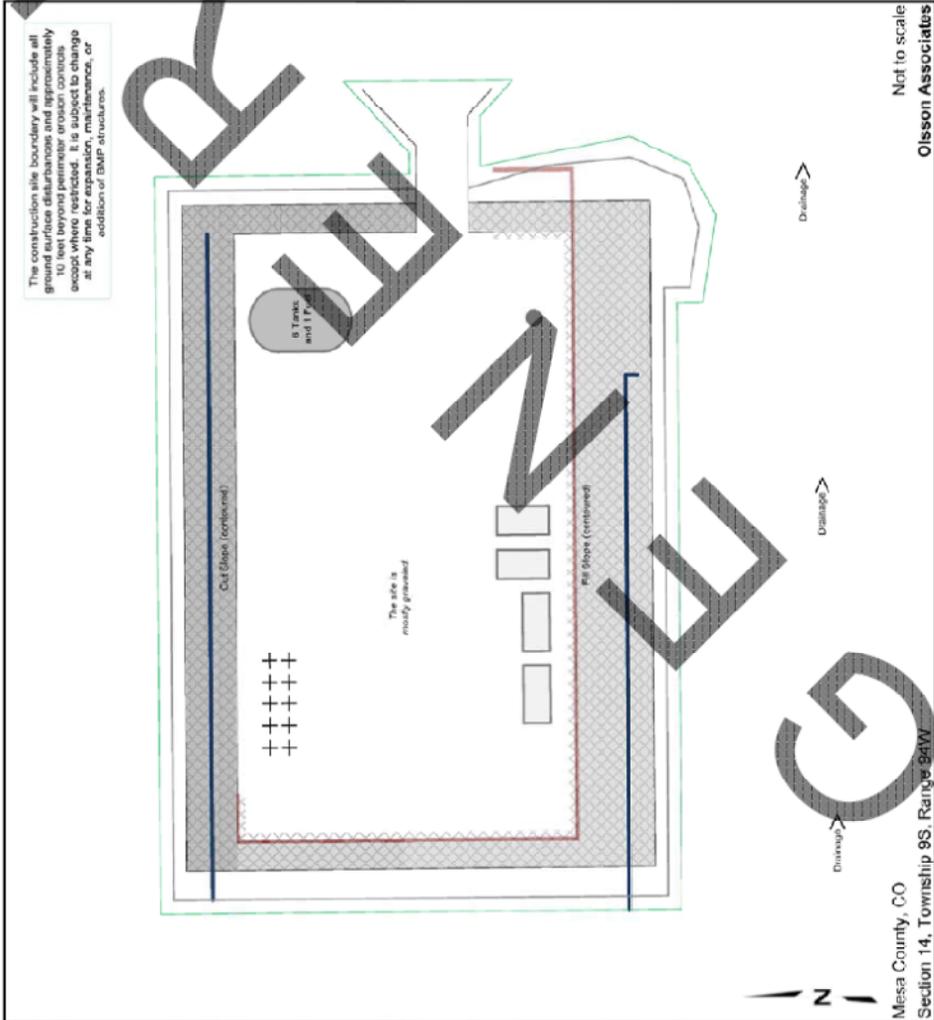
REQUIRED ACTIONS

BMP LOC ID	BMP Type	M	CA	Work Description / Comments	P

INSPECTIONS

Current Inspection Cycle:	Semi-Annual
Inspection Date:	
Winter/Other Exclusion:	
Inspector Name and Title:	

SITE MAP



SITE STATUS

Construction Start:	
Site Complete / Seeded:	
Site Stabilized (70%):	Jun-10
CDPHE Inactivation Letter:	Jul-10
COGCC Inactivation (80%):	

The site complies with COGCC regulations based on Required Actions, Site Inspection Cycles, Exclusions, and Site Status as noted above.

Stormwater Coord: _____

WORK AUTHORIZATION (OXY USE ONLY)
Work is Authorized: _____
Field Visit/Estimate Required: _____
Invoicing - Charge to: _____
WORK COMPLETION (BMP CONTRACTOR USE ONLY)
Date Work Completed: _____
Signature: _____
Company: _____

MAP LEGEND

INFRASTRUCTURE	BMPs
— Fence	— Irrigation ditch
+ Wellhead	— Earthen berm
□ Separator	— Site boundary
● Pole	— Vegetation is growing (contractor seed)
▭ Tank/wreathen berm	

TABLES

Table 3
Receiving Waters

Table 3
Receiving Waters

Site	Receiving Waters
28-10	Logan Wash
28-10 SWD Offload	Logan Wash
603-23-32	Unnamed Intermittent Tributary to Cascade Canyon
604-01	Unnamed Intermittent Tributary to Cascade Canyon and Unnamed Intermittent Tributary to Conn Creek
604-12-13	Conn Creek
604-44	Unnamed Intermittent Tributary to Cascade Canyon
605-02	Conn Creek
605-1	Unnamed Intermittent Tributary to Spring Creek
605-13-22	Unnamed Intermittent Tributary to Spring Creek and Unnamed Intermittent Tributary to Conn Creek
605-23	Spring Creek and Conn Creek
608-41 and Pipeline	Unnamed Intermittent Tributary to Conn Creek
608-43-31/Pond 5	Unnamed Intermittent Tributary to Conn Creek
609-01	Unnamed Intermittent Tributary to Conn Creek
609-02/Pond 4	Cascade Canyon
609-14	Unnamed Intermittent Tributary to Conn Creek and Unnamed Intermittent Tributary to Cascade Canyon
609-33	Cascade Canyon
610-22-43	Unnamed Intermittent Tributary to Cascade Canyon
610-24-43	Unnamed Intermittent Tributary to Cascade Canyon
616-21-32	Unnamed Intermittent Tributary to Cascade Canyon
617-24	Conn Creek
617-41/Pond 9/Pond 11	Unnamed Intermittent Tributary to Conn Creek
620-1	Cascade Canyon
620-21	Conn Creek
620-24-43	Unnamed Intermittent Tributary to Conn Creek
620-33	Conn Creek
620-43-32	Cascade Canyon
629-01	Unnamed Intermittent Tributary to Conn Creek
629-2	Conn Creek
629-23-42	Cascade Canyon
629-31-11	Conn Creek
632-13-22	Conn Creek
632-21-41	Unnamed Intermittent Tributary to Conn Creek
697-08-53/Pond 6	Unnamed Intermittent Tributary to Conn Creek
697-09-61	Unnamed Intermittent Tributary to Cascade Canyon
697-15-01	Unnamed Intermittent Tributary to Cascade Canyon
697-15-23	Unnamed Intermittent Tributary to Corral Gulch

697-15-54/Pond 1	Unnamed Intermittent Tributary to East Fork and Unnamed Intermittent Tributary to McKay Gulch
697-16-16	Cascade Canyon
697-16-28	Unnamed Intermittent Tributary to Cascade Canyon
697-16A	Unnamed Intermittent Tributary to Cascade Canyon
697-16A2	Unnamed Intermittent Tributary to Cascade Canyon
697-16D	Cascade Canyon
697-17	Conn Creek
697-20-28	Conn Creek
705-22-43	Unnamed Intermittent Tributary to Conn Creek
796-16B	Unnamed Intermittent Tributary to Parachute Creek via Mount Callahan Spring
796-17A	Unnamed Intermittent Tributary to Riley Gulch
796-17C	Unnamed Intermittent Tributary to Riley Gulch
796-19C	Unnamed Intermittent Tributary to Riley Gulch
797-03B	Baker Gulch and Tourist Run
797-03B Pipeline	East Fork Conn Creek
797-05-36	Unnamed Intermittent Tributary to Gilman Gulch
797-05-52	Unnamed Intermittent Tributary to Gilman Gulch
797-06	Gilman Gulch
797-09A	East Fork
797-14-01	Bowdish Gulch
797-23-16	Unnamed Intermittent Tributary to Bowdish Gulch
797-23-45AX	Unnamed Intermittent Tributary to Bowdish Gulch
797-24-47D	Unnamed Intermittent Tributary to Riley Gulch
797-27-13A	Unnamed Intermittent Tributary to Bowdish Gulch
Baker Canyon / East Fork Road	Tourist Run, East Fork Conn Creek
Cascade Canyon Access (Mesa Mountain Rd)	Cascade Canyon
Cascade Creek Access	Conn Creek
Central Water Facility	Conn Creek
Conn Creek Plant	Conn Creek
Conn Creek Plant II	Conn Creek
Control Facility	Conn Creek
Fed 23-15	Unnamed Intermittent Tributary to Cascade Canyon
Fed 604-11	Conn Creek
Fed 708-11	Unnamed Intermittent Tributary to Conn Creek
Fed 797-08-19	Conn Creek
Fed 797-08-51D	Unnamed Intermittent Tributary to Conn Creek
Leg Off Pipeline	Conn Creek
Long Trail 16" Pipeline	Unnamed Intermittent Tributary to Conn Creek
Man Camp	Unnamed Intermittent Tributary to Cascade Canyon
Mesa 8" Waterline	Cascade Canyon, Little Creek, House Log Gulch

Mesa 16" Pipeline	Unnamed Intermittent Tributaries to Conn Creek
Mesa Warehouse	Unnamed Intermittent Tributary to Corral Gulch
Mesa Lower Loop Road	Cascade Canyon
Mesa North Leg Road	Conn Creek
Mesa South Leg Road	Unnamed Intermittent Tributary to Conn Creek, Unnamed Intermittent Tributary to Cascade Canyon
Mesa Upper Loop Road A	Cascade Canyon, Little Creek, House Log Gulch
Mesa Upper Loop Road B	Unnamed Intermittent Tributary to East Fork Conn Creek
Meter Station	Tourist Run
Mount Callahan Road	Unnamed Intermittent Tributaries to Ripley Gulch
Pit	Unnamed Intermittent Tributary to Cascade Canyon
Pond 10	Conn Creek
Pond 12	Unnamed Intermittent Tributary to Conn Creek
Pond 2/610-21-41	Unnamed Intermittent Tributary to Cascade Canyon and Unnamed Intermittent Tributary to House Log Gulch
Pond 3/604-41-32	Little Creek
Pond 7	Unnamed Intermittent Tributary to Conn Creek
Pond B / Pond 13	Unnamed Intermittent Tributary to Cascade Canyon

Table 4
Cascade Creek Valley Vegetation Descriptions

**Table 4
Lower Cascade Creek Vegetation Descriptions**

Facility Name	Vegetation Description	Percent Ground Cover
Baker Canyon / East Fork Road		
Cascade Creek Access Road		
617-24	Grasses, Scrub Oak, Serviceberry	85%
620-1	Grasses, Scrub Brush, Service Berry	65%
620-21	Grasses, Scrub Oak	50%
620-24-43	Grasses, Sagebrush, Scrub Oak, Serviceberry	65%
620-33	Grasses, Sagebrush, Scrub Oak, Serviceberry	60%
620-43-32	Grasses, Sagebrush, Scrub Oak, Serviceberry	65%
629-01		
629-2	Grasses, Sagebrush, Serviceberry	70%
629-23-42	Grasses, Sagebrush, Serviceberry	65%
629-31-11	Grasses, Sagebrush, Scrub Oak, Serviceberry	70%
632-13-22	Grasses, Sagebrush	65%
632-21-41	Grasses, Sagebrush Scrub Oak, Serviceberry	68%
697-17		
697-20-28	Grasses, Scrub Oak, Serviceberry	60%
705-22-43	Grasses, Sagebrush	60%
708-11	Grasses, Sagebrush	80%
797-03B	Grasses, Sagebrush, Scrub Oak, Serviceberry	70%
797-05-36	Grasses, Sagebrush, Scrub Oak, Serviceberry	70%
797-05-52	Grasses, Sagebrush	75%
797-06	Grasses, Sagebrush, Scrub Oak, Serviceberry	75%
797-08-19	Grasses, Sagebrush	80%
797-08-51D	Grasses, Sagebrush	80%
797-09A	Grasses, Greasewood, Pinyon Pine, Sagebrush, Salt Brush, Scrub Oak	75%
797-03B Pipeline		
Central Water Handling Facility/ 629-1	Grasses, Sagebrush, Scrub Oak, Serviceberry	70%

CC I Gas Treatment Facility	Grasses, Sagebrush, Scrub Oak, Serviceberry	55%
CC II Control Facility	Grasses, Sagebrush	70%
CC II CF Control Building	Grasses, Sagebrush	70%
Leg Off Pipeline		
Pond 10	Grasses, Sagebrush Scrub Oak, Serviceberry	70%
Pond 12		
Logan Trail 28-10	Grasses, Sagebrush	70%
Logan Trail 28-10 SWD Offload		

**Table 5
Upper Cascade Creek Vegetation Descriptions**

Facility Name	Vegetation Description	Percent Ground Cover
Cascade Canyon Mtn. Road	Grasses, Sagebrush, Serviceberry	60%
Mesa Lower Loop Road		
Mesa North Leg Road		
Mesa South Leg Road		
Mesa Upper Loop Road A		
Mesa Upper Loop Road B		
Mount Callahan Road		
Fed 23-15	Grasses, Sagebrush, Scrub Oak Serviceberry	80%
603-23-32	Aspen, Grasses, Scrub Oak	70%
604-1	Grasses, Scrub Oak, Serviceberry	70%
604-11	Grasses, Rabbitbrush	70%
604-12-13	Grasses, Rabbitbrush, Sagebrush, Scrub Oak, Serviceberry	75%
604-41-32	Aspen, Grasses, Sagebrush, Scrub Oak	70%
604-44/ Pond 3	Aspen, Grasses, Sagebrush	70%
605-1	Grasses	70%
605-2	Aspen, Grasses, Rabbitbrush, Sagebrush, Serviceberry, Scrub Oak	75%
605-13-22	Grasses, Sagebrush, Scrub Oak, Serviceberry	75%
605-23	Aspen, Grasses, Sagebrush, Scrub Oak, Serviceberry	75%
608-41	Aspen, Grasses, Rabbitbrush, Sagebrush, Scrub Oak, Serviceberry	70%
608-43-31/ Pond 5	Aspen, Grasses, Rabbitbrush, Scrub Oak, Serviceberry	85%
609-1	Grasses, Sagebrush, Scrub Oak, Serviceberry,	70%
609-2/ Pond 4	Grasses	65%
609-14	Grasses, Scrub Oak	75%
609-33	Aspen, Grasses, Scrub Oak	65%
610-21-41/ Pond 2	Grasses, Scrub Oak	75%

610-22-43	Aspen, Grasses, Scrub Oak	80%
610-24-43	Aspen, Grasses, Scrub Oak	85%
616-21-32	Aspen, Rabbitbrush, Sagebrush, Serviceberry	80%
617-41/ Pond 9	Grasses, Scrub Oak, Serviceberry	50%
697-08-53	Grasses, Rabbitbrush, Sagebrush, Scrub Oak, Serviceberry	65%
697-09-60	Grasses, Sagebrush, Scrub Oak, Serviceberry	80%
697-15-01	Grasses, Sagebrush, Scrub Oak	80%
697-15-23	Aspen, Grasses, Scrub Oak	80%
697-15-54/ Pond 1	Grasses, Scrub Oak	75%
697-16-16	Sagebrush, Scrub Oak, Serviceberry	75%
697-16-28	Grasses, Sagebrush, Scrub Oak, Serviceberry	75%
697-16A	Sagebrush, Scrub Oak, Serviceberry	75%
697-16A2	Sagebrush, Scrub Oak, Serviceberry	60%
697-16D	Grasses, Sagebrush, Scrub Oak, Service Berry	60%
796-16B	Sagebrush, Scrub Oak, Serviceberry	65%
796-17A	Sagebrush, Scrub Oak, Serviceberry	75%
796-17C	Grasses, Sagebrush	75%
796-19C	Grasses, Sagebrush	70%
797-14-01D	Grasses, Sagebrush, Scrub Oak	70%
797-23-16	Aspen, Grasses, Scrub Oak	90%
797-23-45AX	Grasses, Sagebrush	65%
797-24-47D (TA)	Grasses, Sagebrush	85%
797-27-13A	Grasses, Sagebrush, Scrub Oak, Serviceberry	75%
16" Pipeline		
8" Waterline		
Long Trail Pipeline		
Man Camp	Sagebrush, Scrub Oak, Serviceberry	65%
Mesa Warehouse		
Meter Station		
Pit		
Pond 7	Grasses, Sagebrush, Scrub Oak, Serviceberry	75%
Pond B (604-44)	Grasses, Sagebrush, Scrub Oak, Serviceberry	65%

Pond G		
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Table 6
Seed Mixtures

**Table 6
Cascade Creek Approved Seed Mixes
Colorado Land Cover Classification Systems**

Suggested Seeding for Low-Elevation Salt-Desert Scrub/Basin Big Sagebrush

Common Name	Scientific Names	Form	PLS lbs/acre*
Plant both of the following (5% each, 10% total)			
Fourwing saltbush	<i>Atriplex canescens</i>	shrub	2.5
Shadscale	<i>Atriplex confertifolia</i>	shrub	2.0
And two of the following (25% each, 50% total)			
Bottlebrush squirreltail	<i>Elymus elymoides, Sitanion hystrix</i>	bunch	3.4
Streambank wheatgrass	<i>Elymus lanceolatus ssp. psammophilus, Agropyron riparium</i>	sod-forming	4.2
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	bunch	4.7
And one of the following (20% total)			
Indian ricegrass	<i>Achnatherum [Oryzopsis] hymenoides</i>	bunch	3.7
Sandberg bluegrass	<i>Poa sandbergii, Poa secunda</i>	bunch	0.6
And one of the following (10% total)			
Alkali sacaton	<i>Sporobolus airoides</i>	bunch	0.15
Salina wildrye	<i>Leymus salinus</i>	bunch	1.0
And one of the following (10% total)			
Galleta	<i>Pleuraphis [Hilaria] jamesii</i>	bunch/sod-forming	1.6
Sand dropseed	<i>Sporobolus cryptandrus</i>	bunch	0.05

*Based on 60 pure live seeds (PLS) per square foot, drill-seeded. Double this rate (120 PLS per square foot) if broadcast or hydroseeded

Low-Elevation Salt-Desert Scrub/Basin Big Sagebrush

Common Name	Scientific Name	Form	PLS lbs/acre*
Fourwing Saltbush	<i>Atriplex canescens</i>	shrub	1.9
Shadscale	<i>Atriplex confertifolia</i>	shrub	1.5
Galleta	<i>Pleuraphis [Hilaria] jamesii</i>	bunch	2.5
Alkali Sacaton	<i>Sporobolus airoides</i>	bunch	0.2
Streambank Wheatgrass	<i>Elymus lanceolatus ssp. psammophilus, Agropyron riparium</i>	sod-forming	2.5
Slender Wheatgrass	<i>Elymus trachycaulus, Agropyron trachycaulum</i>	bunch	1.8
Sandberg Bluegrass	<i>Poa sandbergii (Poa secunda)</i>	bunch	0.3

*Based on 45 pure live seeds (PLS) per square foot, drill-seeded. Double this rate (90 PLS per square foot) if broadcast or hydroseeded.

Suggested Seeding for Pinon-Juniper Woodland and/or Mountain/Wyoming Big Sagebrush Shrubland

Common Name	Scientific Names	Form	PLS lbs/acre*
Plant both of the following (15% each, 30% total)			
Bottlebrush squirreltail	<i>Elymus elymoides</i> , <i>Sitanion hystrix</i>	bunch	2.0
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i> , <i>Agropyron spicatum</i>	bunch	2.8
And two of the following (20% each, 40% total)			
Thickspike wheatgrass	<i>Elymus lanceolatus</i> ssp. <i>Lanceolatus</i> , <i>Agropyron dasystachyum</i>	sod-forming	3.4
Slender wheatgrass	<i>Elymus trachycaulus</i> , <i>Agropyron trachycaulum</i>	bunch	3.3
Western wheatgrass	<i>Pascopyrum</i> [<i>Agropyron</i>] <i>smithii</i>	sod-forming	4.8
And two of the following (15% each, 30% total)			
Indian ricegrass	<i>Achnatherum</i> [<i>Oryzopsis</i>] <i>hymenoides</i>	bunch	2.8
Galleta	<i>Pleuraphis</i> [<i>Hilaria</i>] <i>jamesii</i>	bunch/sod-forming	2.5
Muttongrass	<i>Poa fendleriana</i>	bunch	0.4
Sandberg bluegrass	<i>Poa sandbergii</i> , <i>Poa secunda</i>	bunch	0.4

*Based on 60 pure live seeds (PLS) per square foot, drill-seeded. Double this rate (120 PLS per square foot) if broadcast or hydroseeded

Pinyon-Juniper Woodland, Mountain/Wyoming Big Sagebrush Shrubland

Common Name	Scientific Name	Form	PLS lbs/acre*
Indian Ricegrass	<i>Achnatherum</i> [<i>Oryzopsis</i>] <i>hymenoides</i>	bunch	1.9
Galleta	<i>Pleuraphis</i> [<i>Hilaria</i>] <i>jamesii</i>	bunch	2.5
Bluebunch Wheatgrass	<i>Pseudoroegneria spicata</i> , <i>Agropyron spicatum</i>	bunch	2.8
Slender Wheatgrass	<i>Elymus trachycaulus</i> , <i>Agropyron trachycaulum</i>	bunch	3.3
Muttongrass	<i>Poa fendleriana</i>	bunch	0.6
Sandberg Bluegrass	<i>Poa sandbergii</i> , <i>Poa secunda</i>	bunch	0.6

*Based on 60 pure live seeds (PLS) per square foot, drill-seeded. Double this rate (120 PLS per square foot) if broadcast or hydroseeded.

Mixed Mountain shrubland, Including Oakbrush

Common Name	Scientific Names	Form	PLS lbs/acre*
Thickspike Wheatgrass	<i>Elymus lanceolatus ssp. lanceolatus</i> , <i>Agropyron dasystachyum</i>	sod-forming	3.4
Bluebunch Wheatgrass	<i>Pseudoroegneria spicata</i> , <i>Agropyron spicatum</i>	bunch	3.7
Bottlebrush Squirreltail	<i>Elymus elymoides</i> , <i>Sitanion hystrix</i>	bunch	2.7
Slender Wheatgrass	<i>Elymus trachycaulus</i> , <i>Agropyron trachycaulum</i>	bunch	3.3
Canby Bluegrass	<i>Poa canbyi</i> , <i>P. secunda</i>	bunch	0.6
Mutton Bluegrass	<i>Poa fendleriana</i>	bunch	0.6
Letterman Needlegrass	<i>Achnatherum [Stipa] lettermanii</i>	bunch	1.7
Columbia Needlegrass	<i>Achnatherum [Stipa] nelsonii</i> , <i>Stipa columbiana</i>	bunch	1.7
Indian Ricegrass	<i>Achnatherum [Oryzopsis] hymenoides</i>	bunch	1.9
Junegrass	<i>Koeleria macrantha</i> , <i>K. cristata</i>	bunch	0.1

*Based on 60 pure live seeds (PLS) per square foot, drill-seeded. Double this rate (120 PLS per square foot) if broadcast or hydroseeded.

Spruce-Fir Forest, Including Mountain Meadows

Common Name	Scientific Names	Form	PLS lbs/acre*
Mountain Brome	<i>Bromopsis [Bromus] marginatus</i>	bunch	5.8
Slender Wheatgrass	<i>Elymus trachycaulus</i> , <i>Agropyron trachycaulum</i>	bunch	3.3
Letterman Needlegrass	<i>Achnatherum [Stipa] lettermanii</i>	bunch	3.5
Blue Wildrye	<i>Elymus glaucus</i>	bunch	4.8
Thickspike Wheatgrass	<i>Elymus lanceolatus ssp. lanceolatus</i> , <i>Agropyron dasystachyum</i>	sod-forming	3.4
Idaho Fescue	<i>Festuca idahoensis</i>	bunch	1.2
Wheeler Bluegrass	<i>Poa nervosa</i>	sod-forming	0.6

*Based on 60 pure live seeds (PLS) per square foot, drill-seeded. Double this rate (120 PLS per square foot) if broadcast or hydroseeded

Federal Well Pads

Common Name	Scientific Names	Form	PLS lbs/acre*
Western wheatgrass	<i>Pascopyrum smithii</i>	sod-forming	2
Pubescent wheatgrass	<i>Agropyron Trichophorum</i>	sod-forming	3
Thickspike wheatgrass	<i>Elymus lanceolatus ssp. lanceolatus</i>	sod-forming	2
Indian ricegrass	<i>Achnatherum hymenoides</i>	bunch	2
Fourwing saltbush	<i>Atriplex canescens</i>	shrub	2
Shadscale	<i>Atriplex confertifolia</i>	shrub	2
Crested wheatgrass	<i>Agropyron cristatum</i>	bunch	1
Russian wildrye	<i>Psathyrostachys juncea</i>	bunch	1

*Rate for drill seeding. Use 1.5 times the application rate for broadcast seeding.

Granite Seed Company Mixes

Cascade Mesa Mix

Common Name	Scientific Names	Form	% Pure (approx)
Western wheatgrass	<i>Pascopyrum smithii</i>	sod-forming	15.39
Mountain brome grass	<i>Bromus marginatus</i>	bunch	14.74
Meadow brome grass	<i>Bromus biebersteinii</i>	sod-forming	11.95
Slender wheatgrass	<i>Elymus trachycaulus ssp. trachycaulus</i>	bunch	11.53
Russian wildrye	<i>Psathyrostachys juncea</i>	bunch	10.58
Perennial ryegrass	<i>Lolium perenne</i>	bunch	9.14
Canby bluegrass	<i>Poa canbyi, P. secunda</i>	bunch	8.85
Orchardgrass	<i>Dactylis glomerata</i>	sod-forming	7.53
Tall wheatgrass	<i>Thinopyrum ponticum</i>	bunch	6.32

Low Elevation Logan Wash 28-10

Common Name	Scientific Names	Form	% Pure (approx)
Western wheatgrass	<i>Pascopyrum smithii</i>	sod-forming	30.20
Slender wheatgrass	<i>Elymus trachycaulus ssp. trachycaulus</i>	bunch	19.26
Bluebunch wheatgrass	<i>Pseudoroegneria spicata, Agropyron spicatum</i>	bunch	16.34
Indian ricegrass	<i>Achnatherum hymenoides</i>	bunch	16.01
Bottlebrush squirreltail	<i>Elymus elymoides, Sitanion hystrix</i>	bunch	11.92
Sandberg bluegrass	<i>Poa sandbergii, Poa secunda</i>	bunch	2.38

(PJ) Logan Wash 28-10

Common Name	Scientific Names	Form	% Pure (approx)
Bluebunch wheatgrass	<i>Pseudoroegneria spicata, Agropyron spicatum</i>	bunch	19.28
Shadscale saltbush	<i>Atriplex confertifolia</i>	shrub	18.51
Fourwing saltbush	<i>Atriplex canescens</i>	shrub	18.42
Streambank wheatgrass	<i>Elymus lanceolatus ssp. psammophilus, Agropyron riparium</i>	sod-forming	17.23
Indian ricegrass	<i>Achnatherum hymenoides</i>	bunch	14.87
Galleta grass	<i>Pleuraphis [Hilaria] jamesii</i>	bunch	6.77
Alkali sacaton	<i>Sporobolus airoides</i>	bunch	0.63

Table 7
BMP Selection Guideline

**Table 7
BMP Selection Guidelines**

Clearing Stage	Production Stage	Reclamation Stage
Pads	Pads	Pads
Wattles Riprap Rundown Sediment Trap Silt Fence Straw Bale Barrier Surface Roughening Terracing Vegetative Buffer Water Bar Diversion	Wattles Riprap Rundown Sediment Trap Silt Fence Straw Bale Barrier Surface Roughening Terracing Vegetative Buffer Water Bar Diversion Gravel Surfacing Berm Check Dams Drainage Dip Erosion Control Blanket Revegetation Mulching / Hydromulch Slope Stabilization	Wattles Riprap Rundown Sediment Trap Surface Roughening Terracing Vegetative Buffer Water Bar Diversion Gravel Surfacing Berm Check Dams Drainage Dip Erosion Control Blanket Revegetation Mulching / Hydromulch Slope Stabilization
Pipelines	Pipelines	Pipelines
Wattles Riprap Rundown Sediment Trap Silt Fence Straw Bale Barrier Surface Roughening Terracing Vegetative Buffer Water Bar Diversion	Wattles Riprap Rundown Sediment Trap Silt Fence Straw Bale Barrier Surface Roughening Terracing Vegetative Buffer Water Bar Diversion Check Dams Drainage Dip Mulching / Hydromulch Revegetation Slope Stabilization	Wattles Riprap Rundown Sediment Trap Surface Roughening Terracing Vegetative Buffer Water Bar Diversion Check Dams Drainage Dip Erosion Control Blanket Mulching / Hydromulch Revegetation Slope Stabilization

Access Roads	Access Roads	Access Roads
Wattles Riprap Rundown Sediment Trap Silt Fence Straw Bale Barrier Surface Roughening Terracing Vegetative Buffer Water Bar Diversion Gravel Surfacing Roadside Ditches Turnouts Low water crossing	Wattles Riprap Rundown Sediment Trap Silt Fence Straw Bale Barrier Surface Roughening Terracing Vegetative Buffer Water Bar Diversion Gravel Surfacing Check Dams Berm Culverts / Culvert Protection Drainage Dip Erosion Control Blanket Mulching / Hydromulch Revegetation Roadside Ditches and Turnouts Slope Stabilization Low water crossing Retaining Wall	Wattles Riprap Rundown Sediment Trap Surface Roughening Terracing Vegetative Buffer Water Bar Diversion Gravel Surfacing Check Dams Berm Culverts / Culvert Protection Drainage Dip Erosion Control Blanket Mulching / Hydromulch Revegetation Roadside Ditches and Turnouts Slope Stabilization Low water crossing
Facilities	Facilities	Facilities
Wattles Riprap Rundown Sediment Trap Silt Fence Straw Bale Barrier Surface Roughening Terracing Vegetative Buffer Water Bar Diversion Gravel Surfacing	Wattles Riprap Rundown Sediment Trap Silt Fence Straw Bale Barrier Surface Roughening Terracing Vegetative Buffer Water Bar Diversion Gravel Surfacing Berm Check Dams Drainage Dip Erosion Control Blanket Mulching / Hydromulch Revegetation Slope Stabilization	Wattles Riprap Rundown Sediment Trap Surface Roughening Terracing Vegetative Buffer Water Bar Diversion Gravel Surfacing Berm Check Dams Drainage Dip Erosion Control Blanket Mulching / Hydromulch Revegetation Slope Stabilization

Table 8
Down-Hole Chemicals

**Table 8
Down-Hole Chemicals/MSDS Inventory**

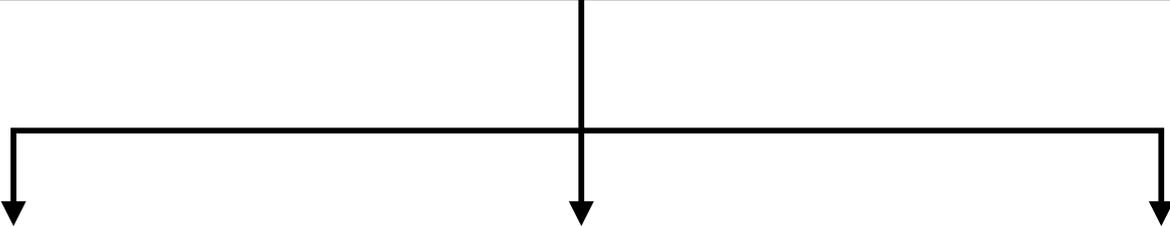
MSDS Product Name	Product Use/Chemical Description	Chemical Manufacturer
Frac-cide - 1000	Biocide	BJ Services Company
High Perm CLB-LT	Encapsulated oxidizing breaker	BJ Services Company
Hih Perm CRB	Encapsulated persulfate salt	BJ Services Company
Hih Perm CRE	Hemicellulase enzyme encapsulated	BJ Services Company
GBW-21	Breaker - water	BJ Services Company
GBW-12CD	Hemicellulase enzyme	BJ Services Company
S-8C Sand 100 Mesh	Silica Sand 100 mesh	BJ Services Company
XLW-22C	Crosslinker - proprietary blend	BJ Services Company
GS-1A	Gel stabilizer, sodium thiosulfate anhydrous	BJ Services Company
FRW-14	Friction reducer, polyacrylamide	BJ Services Company
GBW-5	Breaker - water, ammonium persulfate	BJ Services Company
Flo-back 30	Surface tension reducer, surfactant	BJ Services Company
Clay Treat -3C	Clay Control, ammonium compound & polymers	BJ Services Company
Hydrochloric acid (HCL)	Acid, inorganic acid	BJ Services Company
Ferrotrol 300L	Iron control, citric acid solution	BJ Services Company
BC-3	Breaker catalyst	BJ Services Company
GW-45LE	Gellant - water	BJ Services Company
XLW-14	Crosslinker, blend of triethanolamine & n-propanol	BJ Services Company
Inflo-150	Surface tension, silicones, fluorocarbon surfactants, alkanolamines, fatty alcohol in water and methanol	BJ Services Company
BF-9L	Buffer, proprietary blend of inorganic salts	BJ Services Company
NE-940	Non-emulsifier, a blend of polyglycols in alcohol	BJ Services Company
CI-25	Inhibitor - acid, a blend of quaternary salts, alcohols, formamide, and ethoxylated nonylphenols	BJ Services Company
Magnacide 575	Microbiocide	Baker Hughes
Clayfix II - Water	Additive, alkylated quaternary chloride	Halliburton
CAT-3 Activator	Activator, EDTA copper chelate	Halliburton
BA-40L	Buffer, potassium carbonate	Halliburton
CL-23 Crosslinker	Crosslinker, ammonium chloride, zirconium complex	Halliburton
Clayfix II Material	Additive, organic salt, alkylated quaternary chloride	Halliburton
10% Hydrochloric acid	Acid, inorganic acid	Halliburton
7.5% Hydrochloric acid	Acid, inorganic acid	Halliburton
15% Hydrochloric acid	Acid, inorganic acid	Halliburton
LGC - VI ZD	Liquid gel concentrate, guar gum synthetic mineral oil blend	Halliburton
Losurf-300 Nonionic Surfactant	Surfactant, light aromatic solvent	Halliburton
CL-37 Crosslinker	Crosslinker, glycerine, propanol, triethanolamine zirconate	Halliburton
HAI-404M	Corrosion inhibitor, chloromethylnaphthalene	Halliburton
Losurf-300M	Surfactant, 1,2,4 Trimethylbenzene	Halliburton
CAT-4	Activator, diethylenetriamine	Halliburton
FR-56	Friction reducer, hydrotreated light petroleum distillate	Halliburton

GasPerm 1000	Surfactant, isopropanol	Halliburton
CAT-4 Winter Blend	Activator, diethylenetriamine & methanol	Halliburton
Vicon NF Breaker	Breaker, chlorous acid, sodium salt	Halliburton
HAI-404	Corrosion inhibitor, chloromethylnaphthalene quinoline quaternary amine	Halliburton

Total Feed Water (Influent)			
Type	Percent	BBM	MGM
Water	95	85500	3.591
Condensate	5	4500	0.189
Total	100	90000	3.78



Onsite			
Type	Percent	BBM	MGM
Water	95	85500	3.591
Condensate	5	4500	0.189
Total	100	90000	3.78



Injection Well 629-1			
Type	Percent	BBM	MGM
Water	100	22500	0.945
Condensate	0	0	0
Total	100	22500	0.945

Injection Well 28-10			
Type	Percent	BBM	MGM
Water	100	52500	2.205
Condensate	0	0	0
Total	100	52500	2.205

Disposal and/or Reuse			
Type	Percent	BBM	MGM
Water	70	10500	0.441
Condensate	30	4500	0.189
Total	100	15000	0.63

Explanation

BBM Barrels Per Month
 MGM Million Gallons Per Month

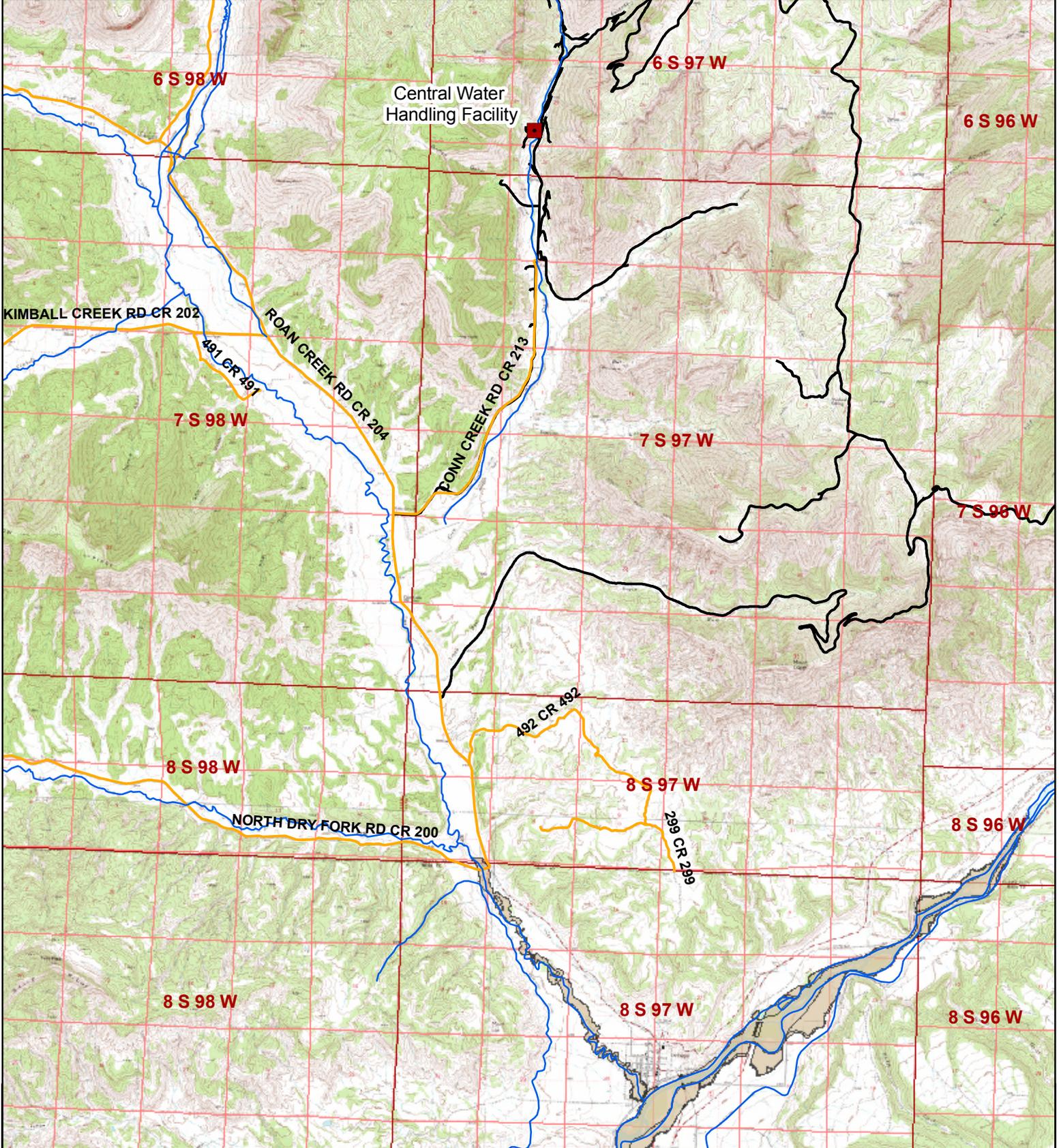
PROJECT NO:	009-0420
DRAWN BY:	CWW
DATE:	01/27/2010

Representative Mass Flow Balance
 OXY USA WTP LP
 Central Water Handling Facility
 Conn Creek, Garfield County, Colorado



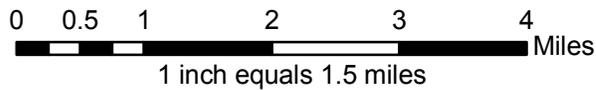
826 21½ Road
 Grand Junction, CO 81505
 TEL 970.263.7800
 FAX 970.263.7456

FIGURE	1
--------	---



Site Location (not to scale)

- Central Water Handling Facility
- Parcels
- Streams
- Existing Private Roads
- County Roads
- De Beque Canyon Floodway



PROJECT NO:	009-0420
DRAWN BY:	Leslie Booth GIS Analyst
DATE:	05/04/09

**CENTRAL WATER HANDLING FACILITY
 FLOODPLAIN MAP**
 OXY USA WTP LP
 GARFIELD COUNTY, COLORADO
 SWSW, SECTION 29, T6S, R97W, 6TH PM

OLSSON
ASSOCIATES

826 21-1/2 ROAD
 GRAND JUNCTION,
 CO 81505
 TEL 970.263.7800
 FAX 970.263.7456

EXHIBIT
4

**OXY CENTRALIZED E&P WATER MANAGEMENT
FACILITY
GARFIELD COUNTY, COLORADO**

**GROUNDWATER AND SURFACE WATER
SAMPLING AND ANALYSIS PLAN**

**OXY USA WTP LP
760 Horizon Drive, Suite
Grand Junction, CO 81506**

**REVISION DATE:
March 2010**

TABLE OF CONTENTS

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ATTACHMENTS

Attachment A Proposed Sampling Location Diagram

Attachment B Analyte and Sample Container List

1.0 INTRODUCTION

This groundwater and surface water sampling and analysis plan (SAP) is intended for use at OXY USA WTP LP's (Oxy) Centralized E&P Waste Management Facility (CWMF) to monitor the quality of ground water and surface water, and to assure quality and consistency in data collection. The SAP will be used to accomplish the following:

- Collection of groundwater samples from wells and surface water from streams;
- Collection of groundwater and surface water field data;
- Documentation of data collection activities;
- Decontamination procedures; and
- Analytical Program and Quality Assurance.

The primary objectives of this SAP are to:

- To provide consistency in data collection;
- To guarantee consistency with regulatory requirements;
- To sufficiently document all field activities;
- Monitor groundwater and surface water quality; and
- Determine compliance with applicable standards.

2.0 FIELD DATA COLLECTION ACTIVITIES

The field data collection methods and procedures that will be used to assess potential impacts from the operation of the CWMF are described in this section. The locations where samples will be collected are shown on Figure A-1. Recommendations and requirements of the Colorado Oil and Gas Conservation Commission (COGCC) Rules and Regulations, Rules of Practice and Procedure, and Oil and Gas Conservation Act (as Amended), USEPA protocol and practical experience have been incorporated into this sampling and analysis plan.

2.1 Documentation

One of the most important data collection tasks is the recording of information that can be easily transferred and interpreted by those not familiar with the field activities that are being recorded. Each page should be legible when copied and an indelible-ink pen should be used for all recordings. Sampling personnel will maintain bound field logbooks that have numbered or dated pages or field data sheets to record all data collection activities. Notes

should be taken in a manner such that the information can readily be transferred to a database or similar data tabulation and storage system. If field data sheets are used, a logbook should also be maintained that identifies the individuals present during sampling and describes the task or tasks accomplished and any other pertinent information that is not addressed on the data sheet. All entries into the logbook will include the date and initials of the person making the entry and/or page numbers on the top of the page. In addition to the specific information identified for each of the field activities described above, other general information should be recorded in the log book, such as, equipment used for the activity; daily weather conditions (~temperature, ~wind direction, absence or presence of precipitation); locations and times of sampling; any extra level of effort that was extended to perform the duties; and any individuals present during the sampling activities, including any visitors or members of the general public. Field equipment calibration records will be kept in the Oxy field office or other centralized location.

2.2 Groundwater Sampling

The following procedures apply to the collection of groundwater samples from domestic water supply wells. Prior to collecting a groundwater sample, a minimum of three well volumes of water should be removed from the well or by dewatering the well at least once using dedicated or disposable bailers with bottom loading valve assemblies, clean stainless bailers or a clean pump and tubing. If the well is dewatered, the water level in the monitoring wells should be allowed to recover to a minimum of 90 percent of the original water level, if possible. The groundwater samples collected from domestic wells should be collected from the wellhead tap or other sampling port located upstream of any water treatment system or holding tank used for the water supply system. Samples collected from domestic wells will follow the protocols established by the Colorado Department of Public Health and Environment (CDPHE). The individual collecting the samples should wear disposable "exam-type" gloves to prevent cross contamination of the samples and/or the domestic water supply. The gloves should be changed following the collection of each sample from each sample location.

At a minimum, field parameters including pH, temperature, and conductivity, when possible, should be measured and recorded prior to the collection of the sample. It is imperative that all instruments be calibrated according to respective manufacturer specifications and that the calibration and response of all instruments be checked daily before sampling activities begin. Each sample will be given a distinct ID (i.e. sample location or well number) and labeled with the requested analyses, date, time and initials of the sampler.

2.3 Surface Water Sample Collection

The following procedures apply to the collection of samples from flowing creeks or streams. Prior to collecting the samples, care should be taken to not disturb the surface water upstream of the sampling location.

The sample team leader will estimate the depth and width of the channel. If possible, the flow velocity will then be estimated by measuring the time required for a floatable object to travel a given reach of stream. A discharge estimate can be determined by multiplying the width (ft) X depth (ft) X velocity (ft/second). When quantitative measurements are not possible, make a qualitative description of flow including an estimate of discharge. Take photographs to aid in documenting the qualitative description.

For surface water samples collected from the bank of a stream, collect the water sample either by using a peristaltic pump with new tubing, or by dipping the collection bottle into the water. Obtain the field parameters outlined below for the surface water samples and record on the field data sheet.

At a minimum, field parameters including pH, temperature, and conductivity, when possible, should be measured and recorded prior to the collection of the sample. Initial field parameters also should be measured and recorded so that well development and collection of formation water can be proven. It is imperative that all instruments be calibrated according to respective manufacturer specifications and that the calibration and response of all instruments be checked daily before sampling activities begin. Each sample will be given a distinct ID (i.e. sample location or well number) and labeled with the requested analyses, date, time and initials of the sampler.

2.4 Analytical Program and Quality Assurance

All sampling activities will adhere to strict chain-of-custody protocols. Each sample container will be sealed and the individual(s) performing the sampling will complete and sign the applicable chain-of-custody forms.

Water samples collected for volatile analyses, such as benzene, toluene, ethylbenzene, & xylene (BTEX), should be placed in clean preserved or non-preserved sample containers with zero headspace, labeled, and placed into an iced cooler immediately. Samples collected for dissolved metal analyses should be field filtered using a portable peristaltic sampling pump and a 0.45 micron in-line filter prior to collection in a clean non-preserved sampling container. Samples collected for other analyses should be placed into the appropriate sample containers that contain the appropriate sample preservative as designated by the laboratory. All samples should be shipped in iced coolers and delivered to the laboratory under chain-of-custody procedures.

Generally if sample collection involves the collection of 10 or more samples then the need for high-quality data for the samples collected should be attempted. These laboratory quality assurance/quality control (QA/QC) measures are based on guidance published in the most current edition of the EPA Test Methods for Evaluating Solid Waste SW-846. Laboratory quality assurance samples will include one duplicate sample per 20 samples collected plus matrix spike/matrix spike duplicates as specified by the EPA laboratory methods. Equipment blank samples should be collected if using an external pump and associated tubing is used after the collection of five samples using distilled water. Trip blanks may be submitted along

with other environmental samples if high volatiles are expected. If there is a potential for cross-contamination of the samples from hydrocarbon emission sources in the vicinity of the sample collection activities such as a well head, compressors or generators, then a field blank containing distilled water should be collected by removing the cap on the sample container during the entire time of volatile sampling.

Surface and groundwater samples will be analyzed as listed in Attachment B. Associated holding times for each analyses are also listed. All samples should be shipped to the laboratory in iced coolers under chain-of-custody procedures by overnight courier.

Baseline samples will be collected from all sampling locations as part of the process for permitting the facility by the COGCC, and these baseline samples will be analyzed for the entire suite of analytes shown in Attachment C. Routine samples collected from wells and surface water sampling locations will be collected semi-annually and analyzed for BTEX, TDS, Chlorides, and Sulfates. As outlined in Section 3.0 below, these results will be compared to the baseline results to determine if there is any indication of impact. In the event that there is such an indication, samples will be collected for the full suite of analyses to further characterize the impact.

2.5 Decontamination

This procedure applies to all down-hole equipment placed in wells for groundwater level measurements, and to all sample collection equipment. The sampling equipment used will be thoroughly cleaned prior to initiation of sampling activities and between each use at the site. Decontamination of field instruments, small items (slip caps) or delicate materials (i.e. soft plastics) will include an alconox wash and scrubbing with bristle brush or paper towel as appropriate to remove potential contaminants, followed by a methanol rinse, and then a deionized water rinse. Prior to placing anything into a domestic well, the items must be washed by a Clorox bleach solution.

2.6 Personal Protective Equipment

Reasonable caution, including use of proper handling techniques and use of personal protective equipment (PPE), should be practiced whenever hazardous or unknown substances are encountered during sampling activities. PPE to be used includes, but may not be limited to, safety glasses, hard hat, and rubber gloves and steel-toed boots. The Oxy Health, Environmental, and Safety Specialist, the Oxy Employee Safety Manual, and appropriate Material Safety Data Sheets should be consulted for further guidance.

3.0 DATA MANAGEMENT

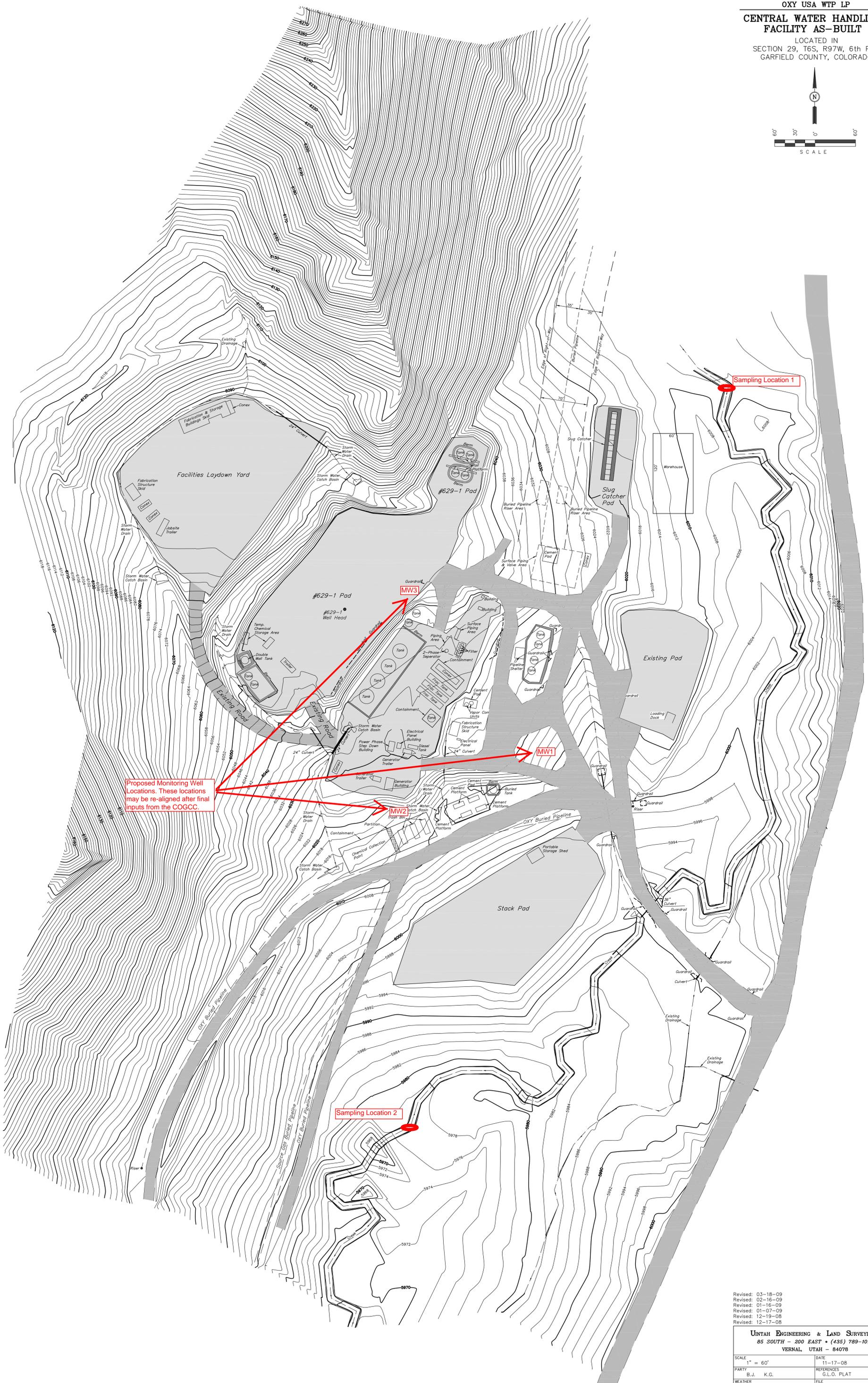
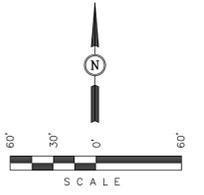
All analytical data received from the laboratories will be compiled in a spreadsheet detailing location information, site identification, sample collection date, sample source, and field parameters. The results of the routine semi-annual sampling at each location will be compared with the baseline results from that location to determine if there is any indication

that the operation of the facility may have impacted groundwater or surface water. In addition, water quality standards from various entities including the Environmental Protection Agency, and the CDPHE, Water Quality Control Commission (CDPHE-WQCC) will be compared with all incoming analytical data to verify that certain analytes are within appropriate levels for human consumption.

All analytical results will be provided annually to the COGCC in either a hard copy or electronic data deliverable format, depending upon the preference of COGCC staff. All submittals to the COGCC will be labeled with Facility ID Number as assigned by the COGCC. Any results that indicate potential impact from the facilities operation will be promptly reported to the COGCC.

ATTACHMENT A
PROPOSED SAMPLING LOCATION DIAGRAM

OXY USA WTP LP
**CENTRAL WATER HANDLING
 FACILITY AS-BUILT**
 LOCATED IN
 SECTION 29, T6S, R97W, 6th P.M.
 GARFIELD COUNTY, COLORADO



Proposed Monitoring Well Locations. These locations may be re-aligned after final inputs from the COGCC.

Revised: 03-18-09
 Revised: 02-16-09
 Revised: 01-16-09
 Revised: 01-07-09
 Revised: 12-19-08
 Revised: 12-17-08

UNTAH ENGINEERING & LAND SURVEYING 85 SOUTH - 200 EAST • (435) 789-1017 VERNAL, UTAH - 84078	
SCALE 1" = 60'	DATE 11-17-08
PARTY B.J. K.G.	REFERENCES G.L.O. PLAT
WEATHER COOL	FILE 2 3 1 1 4

ATTACHMENT B
ANALYTE AND SAMPLE CONTAINER LIST

OXY Analyte and Sample Container List

Analysis		Method	Reporting/Detection Limit	Min. Volume	Container	Preservative	Holding time
BTEX/MTBE	Benzene	SW8021B/ 8015	0.5 µg/L	2 x 40 mL	Glass vial with septum cap	4°C	7 days
	Toluene	"	2.0 µg/L	"	"	"	"
	Ethylbenzene	"	0.5 µg/L	"	"	"	"
	m,p-Xylene	"	1.5 µg/L	"	"	"	"
	o-Xylene	"	1.5 µg/L	"	"	"	"
	MTBE	"	2.0 µg/L	"	"	"	"
Dissolved Methane		SW8015M	0.008 mg/L	3 x 40 mL	Glass vial with septum cap	4°C	7 days
Ammonia		SM 4500-NH3 F/ 350.1	0.10 mg/L	500 mL	Polyethylene bottle	4°C, H ₂ SO ₄	28 days
H ₂ S/Sulfide		SM 4500-S F/9030B/376.2	0.05 mg/L	500 mL	Polyethylene bottle	4°C, Zn Acetate	7 days
Total Metals	Calcium	SW6020/6010B	0.40 mg/L	250 mL	Polyethylene bottle	4°C, HNO ₃	6 months
	Iron	"	0.10 mg/L	"	"	"	"
	Magnesium	"	0.03 mg/L	"	"	"	"
	Manganese	"	0.01 mg/L	"	"	"	"
	Potassium	"	0.13 mg/L	"	"	"	"
	Selenium	"	0.005 mg/L	"	"	"	"
	Sodium	"	0.50 mg/L	"	"	"	"
Anions	Fluoride	SM 4500-F C/9056	0.10 mg/L	250 mL	Polyethylene bottle	4°C	48 hours
	Bromide	E300/9056	0.05 mg/L	"	"	"	"
	Chloride	E300/9056	0.5 mg/L	"	"	"	"
	Nitrate	E300/9056	0.10 mg/L	"	"	"	"
	Nitrite	E300/9056	0.10 mg/L	"	"	"	"
	Sulfate	E300/9056	0.50 mg/L	"	"	"	"
pH	9040A/E150.1	---	500 mL	Polyethylene bottle	4°C	7 days	
TDS	160.1/SM 2540C	1.0 mg/L	"	"	"	"	
Specific Conductivity	9050A	1.0 µmho/cm	"	"	"	"	
Total Alkalinity/Bicarbonate/Carbonate		SM2320B/310.2	5.0 mg/L	250 mL	Polyethylene bottle	4°C	24 hours
BART		---	---	125 mL	Polyethylene bottle	4°C	24 hours
Isotopic Gas Analysis	NG-2/SIW	---	---	1 L	Amber glass bottle with septum cap	4°C	24 hours
				1 L	Plastic bottle with septum cap & bactericide.	4°C	14 days

Olsson Associates
Water Sampling Field Form



Client:	Project #	Date	
Gas well pad:		Olsson Staff	
Landowner:			

Address	Mailing address
Phone(s)	Alternate contact

Sample source	GPS Location N
Sample ID	(NAD 27) W

Description/location (document the sample collection point's physical location on the site and within the water system (i.e. before filtration, before/after pressure tank or storage, etc.)

Well information	
Pump: Y () N () Voltage:	Construction (casing material):
Sampling Eq. Used:	Maintenance
Casing diameter (in)	Permit #
1 Casing volume (gal)	Age
Water level TOC (ft)	Use
Total depth TOC (ft)	Frequency of use
	Well gas methane (ppm)

Purge Information		
Start time	Average rate (gpm)/Total Volume (gal)	End
Sample		
Flow rate (gpm)	Time	

Water quality		
Observations	Color	
	Odor	
	Sediment	
	Effervescence	
	Other	

Laboratory Analytes			
Diss. Meth.	Alk./Carb./Bicarb.	BART	
BTEX	Calcium	Oil & Grease	
MTBE	Iron		
H2S/Sulfide	Potassium		
Ammonia	Magnesium		
Chloride	Manganese		
Nitrate/Nitrite	Selenium		
Sulfate	Sodium		
TDS	pH		
Fluoride	SpC		
Bromide	Other (specify on reverse)		

Field parameters	Meter			Expected value ranges
	Calibration date			
	Readings	Initial	Final	
	Time			---
Temp (°C)			0-35	
SpC (mS/cm)			0-12	
DO (mg/L)			0-120	
pH			6.5-9.5	
Salinity (%)				
TDS (mg/L)			0-6	
DO sat (%)			0-400	
Turb (NTU)			0-2,000	

Landowner Comments

Olsson Associates
Water Sampling Field Form

Olsson Staff
Comments

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