

ATTACHMENT 9

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN



May 20, 2010

Mr. Joby Adams
Chief Operating Officer
Greenback Produced Water Recovery, LLC.
P.O. Box 1489
Fort Collins, CO 80522

**Subject: Spill Prevention Control and Countermeasure Plan
Greenback Produced Water Recovery, LLC
Shaeffer Ranch Site
Rifle, CO
CGRS Project # 1-10270-11727aa**

Dear Mr. Adams:

Enclosed is one copy of the revised Spill Prevention Control and Countermeasure Plan (SPCC) that CGRS, Inc. (CGRS) prepared for the referenced Greenback Produced Water Recovery, LLC. facility near Rifle, Colorado. To actively implement the SPCC Plan, please complete the following.

1. The SPCC Plan requires your signature on page 1 in Section 1.2 "Management Approval Statement" and also the last page (Appendix J) "Certification of the Substantial Harm." Please sign these pages where indicated for implementation of the SPCC Plan.

CGRS appreciates the opportunity to provide professional environmental services to Greenback Produced Water Recovery, LLC. If you have any questions, please call Mr. Joby Adams or me at (970) 493-7780.

Sincerely,
CGRS, Inc.

Paul Sorensen, P.E.
Project Manager/Engineer

**SPILL PREVENTION CONTROL
AND COUNTERMEASURE PLAN**

Greenback Produced Water Recovery, LLC
Shaeffer Ranch Site
Rifle, Colorado
CGRS Project # 1-10270-11727aa

Prepared by:

CGRS, Inc
P.O. Box 1489
Fort Collins, CO 80522

May 11, 2010

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1.0 PLAN CERTIFICATION

1.1 Certifying Engineer's Statement [112.3(d)]:

The undersigned Registered Professional Engineer is familiar with the requirements of the Code of Federal Regulations, Title 40, Part 112 (40 CFR 112) and he or his agent has examined the facility. The undersigned Registered Professional Engineer attests that this Spill Prevention, Control, and Countermeasure (SPCC) Plan has been prepared in accordance with good engineering practices including applicable industry standards, and in accordance with the requirements of 40 CFR 112; that procedures have been established for required inspections and testing; and that the Plan is adequate for the facility. This certification in no way relieves the owner/operator of the facility of the owner/operators duty to prepare and fully implement this SPCC plan in accordance with the requirements of 40 CFR 112.




Date: 6/14/10

Paul Sorensen, P.E.
Colorado State Registration No: 23679
CGRS, Inc,



1.2 Management Approval Statement [112.7]:

This SPCC Plan is fully supported by the Greenback Produced Water Recovery, LLC. Greenback Produced Water Recovery, LLC. is committed to the prevention of discharges of oil to navigable waters or the environment, and maintains the highest standards for spill prevention, control, and countermeasures through periodic review, updating, and implementation of this Plan. Greenback Produced Water Recovery, LLC. will implement this Plan and amend it as needed due to expansions, modifications and improvements at the facility and will provide the manpower, equipment and materials required to expeditiously control and remove any quantity of oil discharged that may be harmful.


Mr. Joby Adams
Chief Operating Officer
Greenback Produced Water Recovery, LLC.

Date: 6/15/2010

2.0 GENERAL

2.1 SPCC Plan Description [112.7(a)(1)]

The following Spill Prevention, Control, and Countermeasure (SPCC) Plan has been developed as part of a comprehensive plan to minimize the potential for oil discharges at the Greenback Produced Water Recovery, LLC. (Greenback) facility. The plan is designed to guide personnel in their oil spill prevention activities in conformance with applicable federal requirements outlined in the Code of Federal Regulations (CFR), Title 40, Part 112 for facilities with aggregate aboveground oil storage capacity greater than 1,320 gallons. The SPCC Plan is maintained at the Greenback Shaeffer Ranch facility for use by oil handling personnel. It is available for inspection by regulatory officials during regular business hours.

2.2 Amendment and Review Procedures [112.5]

The SPCC Plan will be amended as needed by Greenback whenever there is a change in the facility design, construction, operation, or maintenance which materially affects the potential to discharge oil into navigable waters or adjoining shorelines. Any amendment to this SPCC Plan will be effective only if certified by a Professional Engineer in accordance with 40 CFR Part 112.3(d). In addition, Greenback will review and evaluate the current SPCC Plan at least once every five years. As a result of such review, the SPCC Plan will be updated and modified to include more effective prevention and control technology where applicable. All plan amendments will be certified by a Professional Engineer and fully implemented within six months of the date of the facility change. SPCC Plan reviews will be documented on a review log that will be maintained with the SPCC Plan. The SPCC Review Log form is provided in Appendix A.

2.3 Facilities Not Yet Operational [112.7]

All facilities described in the SPCC Plan are fully operational.

2.4 Deviations from Requirements [112.7(a)(2)]

The Greenback facility currently has no deviations from the SPCC requirements.

2.5 Facility Description [112.7(a)(3)]

The Greenback facility is a produced water treatment facility designed to treat produced water generated at oil and gas well drilling operations throughout the Piceance Basin of Garfield County Colorado. Produced water is transported to the site via truck or pipeline. The water treatment facility will incorporate a series of unit operations including filtration to remove bacteria, hydrocarbons, and solids; oil/water separation; clarification to remove fine suspended solids; and air stripping to remove dissolved petroleum. Treated effluent water will be stored in three lagoons for reuse or evaporation. Solids removed from the produced water will be transported off-site for disposal.

or sale, and oil recovered from the produced water will be stored in aboveground storage tanks (ASTs) on-site for off-site sale.

The facility operates 24-hours a day, 7 days a week, and 365 days a year. The facility includes three ASTs used for storage of reclaimed crude oil. Each tank has a capacity of 400 barrels (16,800-gallons). One AST is of fiberglass reinforced plastic (FRP) construction and two ASTs are of steel construction. The ASTs are shop manufactured in accordance with API 12P (FRP) and API 12F (steel) specifications. All three ASTs are located within a concrete secondary containment area with a total capacity of 18,236-gallons, including a freeboard allowance for precipitation from the 100-year, 24-hour precipitation event. There are no other oil storage containers 55-gallon in size or larger at this facility.

The facility is located in the Northeast $\frac{1}{4}$ of the Northeast $\frac{1}{4}$ of Section 12, Township 7 South, Range 93 West of the 6th Prime Meridian, Garfield County, Colorado. The regional topographical gradient slopes to the northwest toward Mamm Creek, located approximately 2 miles northeast of the subject property. The site is graded with a gentle slope toward the east side of the property where all on-site site surface water drainage flows into a detention pond. The site location and proximity to drainage are shown on Figure 1, Site Location Map. A site plan is included as Figure 2, which depicts the site features and oil storage container areas.

2.6 Facility Storage [112.7(a)(3)(i)]

The following table describes the ASTs associated with storage of oil products at this facility:

| AST Number | Capacity (gallons) | Construction | Installed | Contents |
|-------------------|---------------------------|---|------------------|---------------------|
| 1 | 16,800 | Vertical FRP Aboveground Tank; API 12P Shop Manufactured | 2010 | Crude Oil |
| 2 | 16,800 | Vertical, insulated Steel Aboveground Tank; API 12F Shop Manufactured | 2010 | Crude Oil |
| 3 | 16,800 | Vertical Steel Aboveground Tank; API 12F Shop Manufactured | 2010 | Water/Crude Oil Mix |
| Total | 50,400 | | | |

The total facility oil storage capacity for containers 55 gallons and larger in size is approximately 50,400 gallons.

2.7 Discharge Prevention Measures [112.7(a)(3)(ii)]

Greenback ensures that any releases due to spilling or overfilling do not occur. AST 1 is a vertical FRP tank referred to as the HWSB tank. The HWSB tank is an oilfield water-oil-solids separation tank also referred to as a "gunbarrel" tank. The HWSB effectively dehydrates crude oil, resulting in physical oil/water layers. The oil is removed from the upper layer, and the heavier water exists under a cone or spreader. Oil recovered through the HWSB is delivered to AST 2 (vertical, insulated, steel AST) where it is heated and further dehydrated. The

remaining heated crude oil then flows by gravity to AST 3 (vertical, uninsulated, steel AST), the "Oil Sales" tank. Discharge of oil from AST 3 occurs as needed based on monitored oil levels within the tank, currently anticipated to be 3 to 4 times per month. Oil levels in ASTs 2 & 3 are monitored by an ultrasonic level transmitter. Recovered oil is sold the loaded out as required to maintain adequate capacity to receive recovered oil; not to exceed 90% of the tank capacity. Each level transmitter is computer monitored by the treatment system operator. Tank filling occurs on a regular basis as part of the overall treatment system operation. The facility data management system continually records oil levels within each tank, and ullage (available tank capacity) is documented by the facility operator, and corresponding off-site oil sales are arranged as needed. An example Ullage Log is provided in Appendix B.

Greenback requires all oil off-load drivers to comply with Department of Transportation (DOT) regulations in 49 CFR Part 177 regarding tank unloading procedures. DOT requirements are provided in Appendix C. The following procedures are implemented when the AST is being offloaded:

- Vehicle's motor and lights are turned off, and the parking brake is set.
- The driver does not remain in the vehicle.
- Outlet valves are closed.
- Grounding procedures are followed.
- Ungrounded objects are removed from loading/unloading area.
- Flow is started slowly. The fill pipe is touching both the truck hatch and bottom of compartment.
- Transfer operator is present and attentive.
- Because liquid volumes change with temperature, tanker trucks are not filled above a level that will result in overflow after thermal expansion. The delivery of product is stopped when the liquid level in the tanker truck reaches a maximum of 95 percent of the tank capacity, based on sight gauge or stick measurements.

After loading is complete, the following procedures are followed:

- The driver checks the liquid level versus the compartment marker.
- The driver waits at least one minute before lowering any metal or conductive objects (gauge tapes, samplers, thermometers, etc.) into the compartment. This allows any static charge to dissipate.
- All loading valves are closed and loading arms disengaged. Signs of spillage are noted and remedial action taken if necessary.
- All hatches are closed tightly.
- Internal safety valves are closed.

Off-loading of oil is only accessible to authorized personnel by way of a key lock dispensing system. Greenback personnel are present and attentive until dispensing of oil is completed.

2.8 Discharge Controls [112.7(a)(3)(iii)]

AST-1 is a vertical FRP tank and ASTs 2 and 3 are vertical steel tanks. The fill connection to each AST is located inside a concrete secondary containment area sized to contain the entire contents of the largest tank plus freeboard for precipitation from the 100-year, 24-hr event. If a discharge occurs as a result of overfill, or during oil off-loading, the secondary containment basin will contain spilled oil on-site until cleanup measures are implemented.

All on-site surface drainage from the areas where oil storage containers are located and oil transfer is performed flows to an on-site detention basin located on the eastern property boundary adjacent to the private access road. The detention pond provides a second line of defense against off-site discharge of petroleum from this site. If a spill occurs while transferring oil outside the storage tank secondary containment area, spilled product would initially be contained by the transport containment area or by use of on-site spill kits. Any spill escaping these measures would ultimately be contained on-site in the detention basin. In addition, Greenback has equipment on-site, including a spill kit, pumps, and excavating/grading equipment that can rapidly be deployed to contain and cleanup spilled product from the detention basin and secondary containment structures.

2.9 Countermeasures: Discovery/Response/Cleanup [112.7(a)(3)(iv)]

Greenback employees are aware of the need to immediately report all spills of petroleum products to the plant manager, as yet to be named, and to Mr. Paul Sorensen, the primary owner's representative. If the primary contact is not available, an alternate on-site contact (as yet to be named), will be notified. In the event of a large spill requiring emergency response (i.e., spill spreads beyond the immediate spill area, enters surface water, requires special training or equipment, poses a danger of fire or explosion), the Garfield County Emergency Communications Authority would initially be contacted. If necessary, the Garfield County Emergency Communications Authority would in turn dispatch the Rifle Fire Protection District to respond. Additionally, emergency personnel from the Rifle Fire Protection District are on hand by calling 911. Spill response will be initiated as soon as possible to stop additional spillage and to implement containment measures. Greenback maintains an ample inventory of oil absorbent material that is readily available to respond to spills. Equipment is available, including pumps, excavation equipment (front end loader and backhoe), as well as manual tools, such as shovels and rakes, for use in containment and cleanup of potential spills. Discovery, response, and cleanup activities are described in more detail in the following sections.

2.10 Disposal [112.7(a)(3)(v)]

The final operation in spill response and cleanup is the disposal of impacted materials. Any plan for disposal used by Greenback must be coordinated through the appropriate regulatory agency. The agency for oversight is the Colorado Department of Public Health and Environment (CDPHE), Solid Waste Division. Impacted material must be disposed of at an appropriate facility permitted with the CDPHE to receive the type of waste being shipped and each shipment

documented using proper manifest or bill-of-lading forms. Greenback will submit a follow-up written report to the appropriate agency within 60 days following a release, or in accordance with requirements of the agency.

2.11 Notification Phone List [112.7(a)(3)(vi)]

A contact list and phone numbers for individuals, companies, and regulatory agencies to be notified in the event of leakage or spills is provided in Appendix D. Spills ultimately reaching navigable waters in harmful quantities as defined by 40 CFR 110.3 (that which violates applicable water quality standards or causes a sheen on the water surface) are required to be reported under 40 CFR 110.6. If a petroleum release occurs and the volume is greater than 25 gallons, it must be reported to the following regulatory agency within 24 hours:

Colorado Department of Public Health and Environment
Denver, Colorado
(877) 518-5608

In the event of a large spill requiring emergency response (ie: spill spreads beyond the immediate spill area, enters surface water, requires special training or equipment, poses a danger of fire or explosion), contact the following:

Garfield County Emergency Communications Authority
585 E 1st St.
Rifle, Colorado
911 (Emergency 24-Hour)
(970) 625-8095 (Main Number)

or

Rifle Fire Protection District
1850 Railroad Avenue
Rifle, Colorado
911 (Emergency 24-Hour)
(970) 625-1243

If the release reaches navigable water contact the following:

| | | |
|--|----|--|
| National Response Center Washington, DC 800-424-8802 (24-hour phone) | or | Region 8, US EPA Emergency Response Branch Denver, Colorado 800-227-8914 (24-hour phone) |
|--|----|--|

2.12 Discharge Notification Form [112.7(a)(4)]

An example form for spill documentation and reporting is provided in Appendix E. When contacting regulatory agencies, the following information should be provided:

- name and owner/operator of facility;
- responsible company/person, including mailing address and telephone number;
- name of person reporting the release;

- date and time of release;
- legal description of release location;
- type of substance;
- amount of substance released;
- waterway affected, including amount reaching water;
- cause of release;
- action taken to control, contain, and remove release; and
- other pertinent information specific to the release.

2.13 Discharge Procedures [112.7(a)(5)]

After identifying and locating a spill, the necessity for and feasibility of effective containment can be assessed. Containment must be initiated as soon as possible to prevent undue spreading of released product. The first action should be the elimination of any additional spillage. This may be accomplished by shutting off a pump or valve, placing a cap or a plastic or epoxy patch over the leak, putting a temporary plug in a puncture or tear, righting an overturned container, or other appropriate action.

Oil absorbent materials maintained at the facility will be used to contain and clean up spilled product. If required, excavation equipment and/or manual tools, such as shovels and rakes, will be used to erect earthen berms along the leading edge of the spill to prevent spreading. Materials recovered during cleanup will be placed in appropriate containers or stockpiled using an impermeable liner and cover (such as polyethylene sheeting) to prevent cross-contamination with unexposed media prior to disposal.

If the spill reaches surface water, it must be contained and removed. Mechanical methods of spill removal include suction hoses, excavation, the use of skimmers, and sorbent materials. The use of chemical or biological collecting agents is discouraged and can only be used with prior approval from both state and federal regulatory officials. Greenback instructs all personnel who operate the oil pumping systems on the location of the spill containment materials and deployment measures needed to contain and clean up a potential spill.

2.14 Discharge Prediction [112.7(b)]

A review of operations and failsafe engineering at the Greenback facility indicates a low potential for equipment failure. The following table describes storage containers and associated equipment where potential discharges could occur. The table includes predictions of the direction, rate of flow, and estimated total quantity of oil which could be discharged from the facility as a result of each type of major equipment failure.

| Type of Failure | Estimated Maximum Volume (gallons) | Estimated Flow Rate | Direction of Flow | Secondary Containment |
|---|------------------------------------|--------------------------|-------------------|--|
| AST-1 (HWSB: Water and Crude Oil) | | | | |
| Complete failure of tank | 16,800 | Gradual to instantaneous | East | Concrete Secondary Containment |
| Fluid Transfer | 500 | 300 to 500 gal/min | East | Concrete Secondary Containment |
| AST-2 (Crude Oil) | | | | |
| Complete failure of tank | 16,800 | Gradual to instantaneous | East | Concrete Secondary Containment |
| Oil transfer Pipe (miscellaneous drips/leaks) | 5 | 5 gal/min | East | Concrete Secondary Containment & Oil absorbents |
| AST-3 (Crude Oil) | | | | |
| Complete failure of tank | 16,800 | Gradual to instantaneous | East | Concrete Secondary Containment |
| Oil transfer Pipe (miscellaneous drips/leaks) | 5 | 5 gal/min | East | Concrete Secondary Containment & Oil absorbents |
| Oil sales pipe* | 300 | 300 gal/min | East | Transport Containment, On-site Detention, & Oil absorbents |

* Predicted releases associated with oil dispensing are based on the customer being present and either releasing the nozzle or engaging the emergency shutoff switch if the nozzle is not accessible or has malfunctioned within a conservative time frame of 1 minute.

2.15 Secondary Containment for Loading/Unloading Areas Other Than Rack [112.7(c)]

Oil sales/off-loading will be conducted within the produced water inlet area where a central trough will collect any spills from the crude oil transport and direct it back to the plant influent sump. The inlet trough and sump is sized to handle in excess of 3,000 gallons; the volume of the single largest compartment of the typical oil transport vehicle that may receive oil from this facility. Additional secondary containment is provided by the on-site detention basin in the event a spill escapes the confines of the influent sump.

2.16 Statement of Impracticability [112.7(d)]

Not applicable; secondary containment is provided for all petroleum storage containers at the facility.

3.0 INSPECTIONS, TESTS AND RECORDS

3.1 Inspections and Record-Keeping [112.7(e)]

Inspections are an integral part of the Greenback operations. Written procedures on inspection requirements are described in more detail in Section 9.6 of this plan. Documented visual inspections of the AST systems are performed at a minimum interval of once per month to ensure that there has been no failure of the tanks or associated equipment. Periodic certified inspections are also performed on the tanks, piping, and transfer equipment. Completed storage tank inspection reports are signed by the Greenback inspector or a certified inspector. Greenback management is responsible for all inspection reporting and documentation procedures. Written inspection records are kept on file with the SPCC Plan in the main office of the facility for a minimum period of three years. Monthly and annual inspection and recording forms are provided in Appendix F.

4.0 PERSONNEL TRAINING

4.1 Personnel Instruction [112.7(f)(1)]

Greenback provides training for personnel involved with handling oil products in the operation and maintenance of the AST systems to prevent discharges. Operations and maintenance training includes review of applicable owner's manuals and reference guides related to the ASTs and associated equipment, and general facility operations. Moreover, specific training to instruct personnel in discharge procedure protocols, applicable pollution control laws, rules, and regulations, which includes a complete review of the SPCC Plan, is provided. Training is provided upon initial employment of each new hire and during monthly safety meetings. Annually, refresher training is provided and spill response deployment exercises are reviewed and conducted. Initial employee training, monthly safety meetings and annual refresher training activities are documented, with documentation records maintained on file in the main office of the facility.

4.2 Designated Individual for Spill Prevention [112.7(f)(2)]

The designated individual for spill prevention and reporting at the Greenback Shaeffer Ranch facility is yet to be named. Paul Sorensen of CGRS, Inc. is the owner's representative in charge of spill prevention and reporting, and he can be contacted at 970-493-7780 (office) or 970-222-3064 (cell). The alternate contact, Mr. Joby Adams, can be contacted at 970-493-7780 (office) or 970-420-6821.

4.3 Spill Prevention Briefings [112.7(f)(3)]

Greenback schedules and conducts spill prevention briefings at least annually during regularly scheduled safety meetings for all personnel involved with oil handling operations to assure adequate understanding of the SPCC Plan. These briefings highlight and describe spill events or failures, malfunctioning components, recently developed precautionary measures, and a review of spill response deployment measures. Employees acknowledge attendance

and understanding of these briefings with their signatures on an attendance form. An SPCC training attendance form is provided in Appendix G.

5.0 SECURITY

5.1 Fencing [112.7(g)(1)]

The Greenback facility is fully fenced and locked during non-business hours.

5.2 Master Flow/Drain Valves [112.7(g)(2)]

All piping on the ASTs enters the tops of the tanks. Drain valves located on each AST are directly connected to the plant influent sump, so any inadvertent opening of such drain valves would send fluid back into the plant sump.

5.3 Starter Controls Locked in the Off Position [112.7(g)(3)]

When not in use, the pump designated for AST off-loading is locked in the off position and can only be activated by plant operations personnel in response to an oil sales and directive for off-loading to proceed.

5.4 Loading/Unloading Connections Securely Capped [112.7(g)(4)]

The off-loading connection to AST-3 is securely capped and locked when not in use.

5.5 Lighting [112.7(g)(5)]

The entire facility yard is lighted by numerous overhead lights. Dedicated lights are provided at the oil storage/transfer area and outlying areas that will assist in the discovery of discharges occurring during hours of darkness both by operating personnel and non-operating personnel and to deter acts of vandalism.

6.0 TANK TRUCK LOADING/UNLOADING

6.1 Secondary Containment for Loading/Unloading Areas Including Racks [112.7(h)(1)]

The ASTs at the facility do not include loading/unloading racks. Oil sales/off-loading will be conducted within the produced water inlet area where a central trough will collect any spills from the crude oil transport and direct it back to the plant influent sump. The inlet trough and sump is sized to handle in excess of 3,000 gallons; the volume of the single largest compartment of the typical oil transport vehicle that may receive oil from this facility. Additional secondary containment is provided by the on-site detention basin in the event a spill escapes the confines of the influent sump.

6.2 Warning/Barrier Systems [112.7(h)(2)]

Oil transfer is performed by individual delivery truck drivers who are responsible for all tasks associated with product transfer, reducing the potential for vehicle departure before complete disconnect. A sign warning drivers to disconnect oil lines before departure is posted in the oil transfer area that states: **“Please Disconnect Oil Line Before Departing”**. Oil is removed from AST 3 using hoses connected via cam locks directly to AST outlet piping.

6.3 Bottom Drains of Vehicles Examined [112.7(h)(3)]

Greenback assures that prior to departure of any tank truck, the lowermost drain and all outlets of such vehicles are closely examined for leakage and, if necessary, tightened, adjusted, or replaced to prevent liquid leakage while in transit.

7.0 OTHER GENERAL REQUIREMENTS

7.1 Brittle Fracture/Other Failure Evaluation – Field Constructed Aboveground Containers [112.7(i)]

The Greenback facility does not include field-constructed ASTs.

7.2 Conformance with Stricter State Rules [112.7(j)]

No stricter discharge prevention and containment procedures are applicable to this facility.

8.0 FACILITY DRAINAGE

8.1 Drainage from Diked Areas [112.8(b)(1)]

The only diked area at the facility is the secondary containment for the crude oil ASTs. The secondary containment is equipped with a manual open/close type valve that is maintained in the closed position when not in use. When precipitation accumulates, the containment is drained to the parking lot and thence the on-site detention basin after inspection for the absence of oil or a visible sheen. When water is discharged, Greenback personnel document the date, time, and visible condition of the water. A Dike Water Drainage Log is provided in Appendix H.

8.2 Dike Drainage Valves – Manual, Open/Closed Designed [112.8(b)(2)]

The only dike drainage valve at the facility is located in the concrete secondary containment area. The secondary containment is equipped with a manual open/close type drain valve that is maintained in the closed position at all times when not in use.

8.3 Drainage System for Undiked Areas [112.8(b)(3)]

The site contains three (3) lagoons that cover approximately 40% of the site, with the balance of the site containing the facility building (produced water processing equipment), concrete or compacted roadbase entry/truck un-loading pad, and the stormwater detention basin. Storm water drainage that may occur in response to precipitation events will flow to the on-site detention basin located on the eastern (down-gradient) side of the property. When overland flow occurs, flow direction is to the east to the detention basin. If a spill occurs outside secondary containment or diked areas, spilled product would follow the surface grade and ultimately be contained on-site in the detention basin. Product and impacted water in the detention basin would be immediately removed by a vacuum truck.

8.4 Final Discharge Diversion System [112.8(b)(4)]

The secondary containment systems previously described will prevent potential discharges off the facility property. The facility yard and parking lot are relatively level and are surfaced with concrete or compacted roadbase, and the fence line perimeter is raised slightly in relation to the parking lot grade, which retains runoff on-site. Site grading directs surface runoff to the detention basin, the capacity of which is adequate to contain the largest predicted potential spill at the site until cleanup occurs. Initial response to a spill is to deploy oil absorbent materials to contain a spill to the immediate discharge location prior to reaching the detention basin. If required, cutoff trenches or earthen berms will be erected along the leading edge of the spill with available excavating equipment to assure oil is retained on-site until cleanup measures are completed.

8.5 Backup Pump for Lift Station and Transfer Systems [112.8(b)(5)]

The Greenback facility does not include drainage lift systems or drainage return transfer systems.

9.0 BULK STORAGE TANKS

9.1 Containers Compatible with Materials Stored [112.8(c)(1)]

All ASTs and portable containers used for storage of petroleum products at the facility are designed and shop manufactured for their intended use, with materials compatible with the oil products stored and conditions of storage, such as pressure and temperature. The ASTs are manufactured in accordance with oil field tank specifications API 12P (AST 1 – FRP) and API 12F (ASTs 2 & 3, steel tanks).

9.2 Secondary Containment [112.8(c)(2)]

Secondary containment for the ASTs is provided by the concrete secondary containment basin. The containment basin is designed to contain the total volume of the largest AST plus additional freeboard to contain precipitation from the 100-year, 24-hour precipitation event. The adjusted available holding capacity is approximately 18,236 gallons including precipitation freeboard and the volume occupied by other tanks in the containment area. This is well in excess of the largest tank volume of 16,800 gallons (400 barrel tanks). The secondary containment is

constructed of concrete; capable of preventing spilled product from escaping until cleanup occurs. Additional secondary containment provided at the facility is the detention basin, which would ultimately retain any spills on-site. Secondary containment volume calculations are included in Appendix I.

9.3 Rainwater Drainage Procedure [112.8(c)(3)]

As noted in Section 8.1, rainwater that accumulates within concrete containment areas at the facility will be drained to the ground and thence to the detention basin, but only after inspection for the absence of oil or a visible sheen. The dike drainage valve is normally closed; opened only to drain water after verification that no petroleum hydrocarbons are observable and resealed immediately after water is drained. Each discharge event is documented.

9.4 Buried Metal Tanks Corrosion Protection [112.8(c)(4)]

The facility does not operate buried tanks.

9.5 Partially Buried Tanks Protected Against Corrosion [112.8(c)(5)]

The facility does not operate partially buried tanks.

9.6 Integrity Testing [112.8(c)(6)]

Greenback assures that the ASTs and associated equipment are maintained in good condition. The ASTs, valves, transfer equipment, and aboveground piping components are readily accessible for visual inspection. Preventive spill measures include regular periodic inspections of the storage tanks and associated equipment and secondary containment systems following guidelines of the Steel Tank Institute (STI) Standard for the Inspection of Aboveground Storage Tanks SP001 July 2006 4th Edition. These activities include the following:

- On a monthly basis, the owner inspects the tanks, piping, and associated equipment for evidence of leakage. If needed, gaskets are replaced and threaded connections are tightened. Tanks are checked for the presence of water at the lowest possible points and removed if present. Secondary containment systems are checked for the presence of spills or leaks, which are removed if present. The dike drain valve is checked to assure it is operable and in the closed position. The ultrasonic level transmitters are tested to assure proper operation.
- On an annual basis, the owner inspects the condition of the tank containment structure. Tank foundations and supports are inspected for evidence of settling, cracking or distortion, proper water drainage and grounding. Inspections of the AST exteriors are performed to identify and repair damage to the tanks or surface coatings. Bolts on flanged manways, piping and equipment are inspected for tightness, wear and corrosion. Normal operating and emergency vents are inspected for proper operation and cleaned if needed. Tank liquid level sensing and overflow prevention devices are tested for proper operation. Electrical equipment, including grounding devices, control boxes and lights are inspected for proper operation.

- At a maximum 20 year interval, formal external inspections are performed on the ASTs by a Certified Tank Inspector. Based on the installation date of 2010, formal certified tank inspection should be performed no later than 2030. The formal inspections generally include items covered in the owner's monthly and annual inspections as well as comparison of tank conditions in relation to the original construction standards. In addition, leak detection equipment is checked to confirm proper operation.

Any leaks discovered during inspection are promptly evaluated and reported to the facility manager. Greenback assures that personnel who operate, maintain and inspect the AST systems are properly trained in the operation and maintenance of the systems, and characteristics of the fluids stored, which helps to reduce the probability for a spill. As noted in Section 3.1, monthly and annual inspection documentation forms are provided in Appendix F.

9.7 Internal Coils [112.8(c)(7)]

Internal coils are not present in the ASTs.

9.8 Engineered to Avoid Discharges [112.8(c)(8)]

An oil-water emulsion is delivered to AST 1 (HWSB) as an integral component of the overall wastewater treatment process. Oil that is removed from the HWSB is discharged to AST 2 and thence to AST 3 as it accumulates. Greenback arranges for crude oil sale and off-loading as needed, that is, when the oil storage volume in the tank is nearing capacity. The AST is equipped with an ultrasonic level transmitter that is directly connected to a programmable logic controller (PLC) in the plant operations office that provides instantaneous readings of the oil level within the tank. Monitoring of the transfer operation is done visually, with strict attention being paid to the volume received in accordance with the available transport capacity. Transport filling does not begin until the driver has verified and documented the available capacity of his truck.

Transfer of used oil to AST-2 is performed on a regular basis as part of normal treatment facility operation. Oil transfer is directly connected to the PLC providing continuous monitoring of the tank volumes and flowrates to and from each tank.

9.9 Plant Effluent Discharges into Navigable Water [112.8(c)(9)]

The Greenback facility does not regularly have plant effluent discharges to navigable waters. However, an NPDES discharge permit is in place for the eventuality of discharge to surface waters of plant treated water. Such discharge water, if needed, will have been treated to required effluent water quality limits.

9.10 Oil Leaks Promptly Corrected [112.8(c)(10)]

Any oil leaks identified through routine inspection are promptly corrected and reported to the facility manager or the identified alternate on-site contact. Any accumulation of oil in diked areas is promptly removed.

9.11 Mobile or Portable Oil Storage Tanks [112.8(c)(11)]

There is no portable oil storage at the Greenback facility.

10.0 FACILITY TRANSFER OPERATIONS

10.1 General

General safety features which are applicable to maintaining the integrity of transfer operations include:

- Valves and pipelines are examined monthly to assess the condition of the transfer equipment;
- Steel pipes aboveground have a coating of paint to help prevent corrosion; and
- If corrosion damage is found, additional examination and corrective action is taken as appropriate for the magnitude of the damage.

10.2 Buried Pipe Installations [112.8(d)(1)]

All piping at the facility is installed aboveground.

10.3 Terminal Pipe Connections Capped or Blank Flanged [112.8(d)(2)]

There are no out-of-service pipes associated with the AST systems. The terminal pipe connection where the tanker truck connects to off-load from AST 3 is a cam lock and is securely capped when not in use.

10.4 Aboveground Pipe Supports [112.8(d)(3)]

Greenback maintains adequate bracing on aboveground pipe runs to avoid excess movement that can cause stress and abrasion. Aboveground piping is of heavy gauge steel construction and is installed per engineer designed and/or manufacturer specifications. Piping is securely attached with threaded fittings to the tanks and the various piping components are supported with steel braces connected to the tank and concrete pads under the fill connection and dispenser to prevent pipe movement during fill connection and fuel transfer activities.

10.5 Testing and Inspection of Aboveground Pipes and Valves [112.8(d)(4)]

As discussed in section 9.6, valves and piping are examined monthly to assess the condition of the transfer equipment. If corrosion damage or leakage at valves or pipe connections is found, additional examination and corrective action will be taken commensurate with the magnitude of the damage.

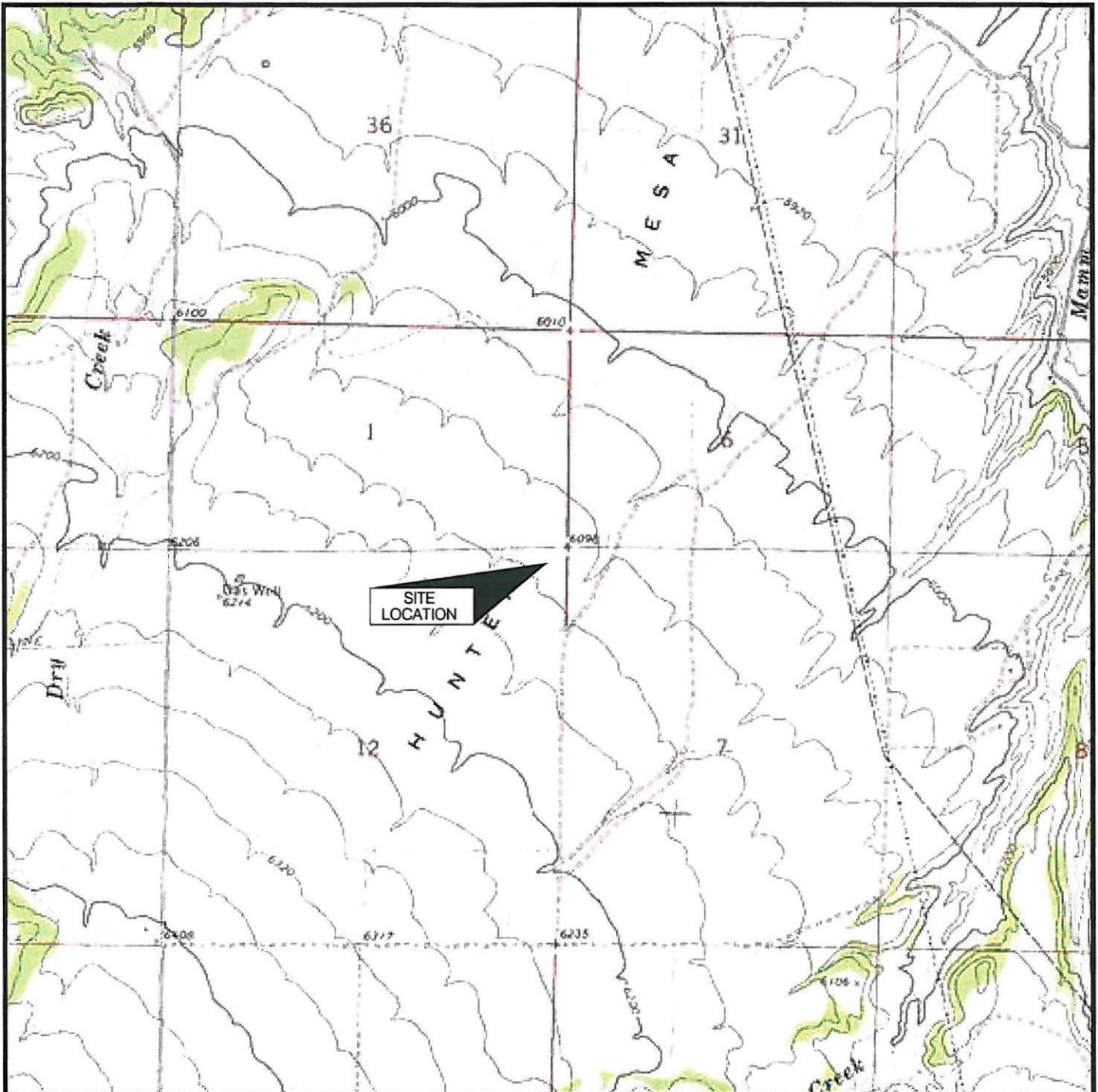
10.6 Warning for Trucks of Pipes [112.8(d)(5)]

All piping associated with AST-3 is located behind concrete traffic barriers and not susceptible to vehicular damage. Greenback instructs personnel operating in and near the AST to be aware of product piping and dispensing equipment and to use caution when approaching the area.

11.0 SUBSTANTIAL HARM [112.20(e)]

40 CFR 112.20 (f)(1) lists criteria under which “a facility could, because of its location, reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines...” if it meets any of the listed criteria. The Greenback facility does not meet the listed criteria, including: (1) does not transfer oil over water; and (2) has a total oil storage capacity of less than one million gallons. Because of the design of the tanks, no spill history at the facility, no proximity to drinking water intakes, and the well-trained personnel at this facility, no Facility Response Plan should be required. The required Certification of Applicability of the Substantial Harm Criteria, Part 112.20, Appendix D, Attachment C-II, has been completed and is maintained at the facility (Appendix I).

FIGURES



COLORADO

■ QUADRANGLE LOCATION



SCALE 1:24000

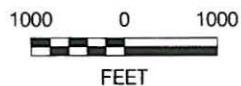


FIGURE 1

SITE LOCATION MAP

GREENBACK PRODUCED WATER TREATMENT FACILITY

RIFLE, COLORADO

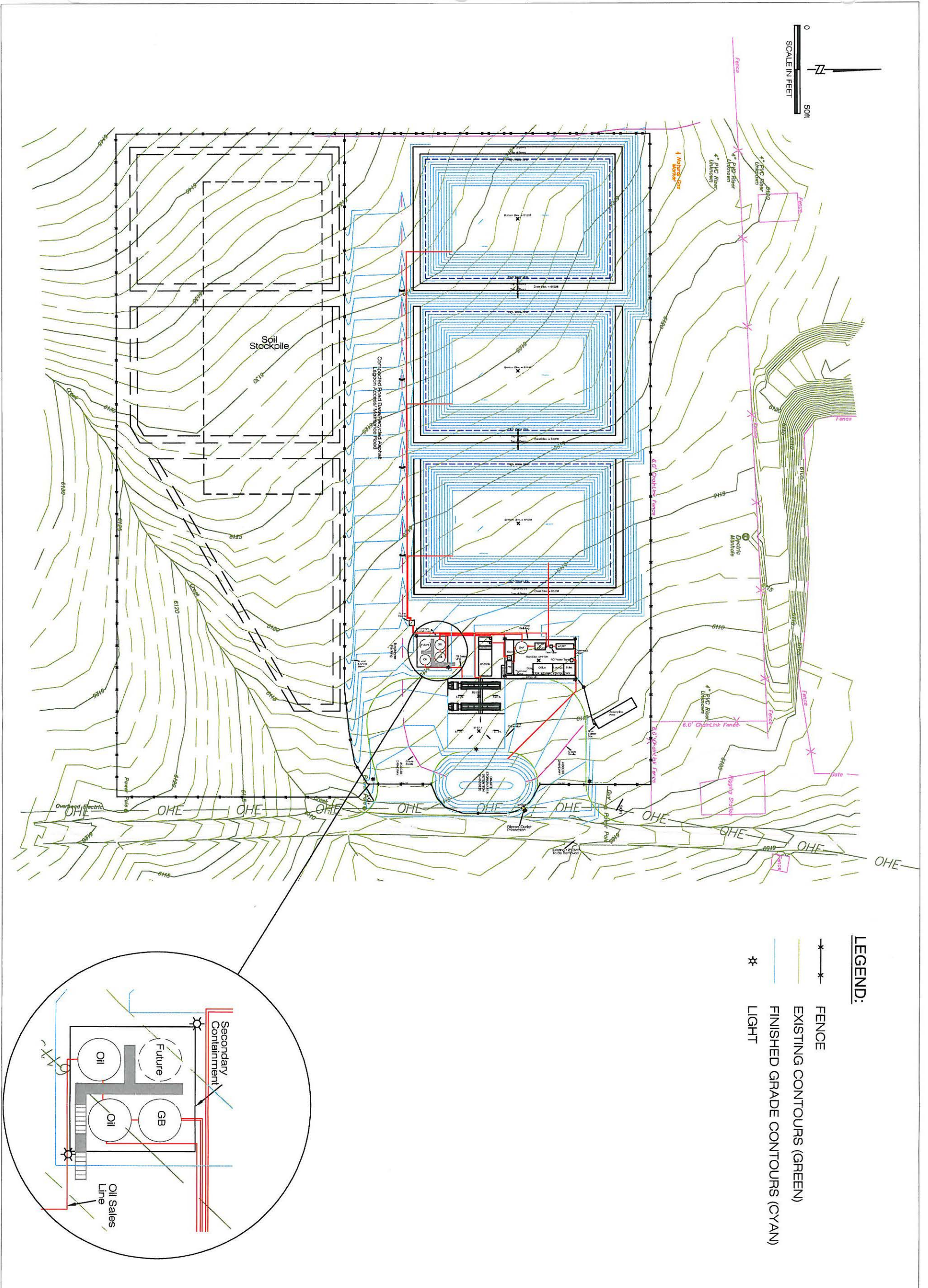
PROJECT NO.
11727aa

PREPARED BY
ARG

DATE
05/17/2010

REVIEWED BY
PCS





Sheet No.
C1

Sheet Title
**FIGURE 2
SPCC
SITE PLAN/AST
CONTAINMENT DETAIL**

Designed By:
Drawn By: ARG
Checked By: PCS
Date: MARCH 2010
Scale: 1" = 50'
SCALE IN FEET

**GREENBACK
PRODUCED WATER
MANAGEMENT**

RIFLE, COLORADO

CGRS ENVIRONMENTAL
CONSTRUCTION
COMPLIANCE

P.O. BOX 1489
FORT COLLINS, CO 80522
Tel. (970) 493-7780
Fax. (970) 493-7986

APPENDIX A
SPCC REVIEW LOG

**SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN
 REVIEW LOG FOR:
 Greenback Produced Water Recovery, LLC.
 Shaeffer Ranch Facility
 Rifle, Colorado**

In accordance with 40 CFR 112.5(b), a review and evaluation of this Spill Prevention Control and Countermeasure (SPCC) Plan will be conducted at least every five years. As a result of such a review and evaluation, the SPCC Plan will be amended within six months of completing said review and evaluation to include more effective and proven prevention and control technologies if: 1) such technologies will significantly reduce the likelihood of a spill event from the facility, and 2) if such technologies have been field-proven at the time of review. Any amendment to this SPCC Plan shall be certified by a Professional Engineer, in accordance with 40 CFR 112.3(d), within six months after a change in the facility design, construction, operation, or maintenance occurs which materially affects the facility's potential for the discharge of oil into or upon the navigable waters or the United States or adjoining shorelines (40 CFR 112.5(a)). Amendments to the plan shall be completed and implemented within six months of the facility changes.

1. I have completed review and evaluation of the SPCC Plan for the Greenback facility and (will / will not) amend the plan as a result.

| Date | Name | Signature | Title |
|---------------------------------|------|-----------|-------|
| Amendment (if applicable) _____ | | | |
| _____ | | | |

Certifying Engineer Statement (if applicable)

This plan amendment was prepared using sound engineering practices. I have examined the facility and find this plan conforms to the guidelines and provisions of 40 CFR 112.

| Date | Name | Signature |
|------|------|-----------|
| | | |

2. I have completed review and evaluation of the SPCC Plan for the Greenback facility and (will / will not) amend the plan as a result.

| Date | Name | Signature | Title |
|---------------------------------|------|-----------|-------|
| Amendment (if applicable) _____ | | | |
| _____ | | | |

Certifying Engineer Statement (if applicable)

This plan amendment was prepared using sound engineering practices. I have examined the facility and find this plan conforms to the guidelines and provisions of 40 CFR 112.

| Date | Name | Signature |
|------|------|-----------|
| | | |

**SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN
 REVIEW LOG FOR:
 Greenback Produced Water Recovery, LLC.
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3. I have completed review and evaluation of the SPCC Plan for the Greenback facility and (will / will not) amend the plan as a result.

| Date | Name | Signature | Title |
|---------------------------------|------|-----------|-------|
| Amendment (if applicable) _____ | | | |

Certifying Engineer Statement (if applicable)

This plan amendment was prepared using sound engineering practices. I have examined the facility and find this plan conforms to the guidelines and provisions of 40 CFR 112.

| Date | Name | Signature |
|------|------|-----------|
|------|------|-----------|

4. I have completed review and evaluation of the SPCC Plan for the Greenback facility and (will / will not) amend the plan as a result.

| Date | Name | Signature | Title |
|---------------------------------|------|-----------|-------|
| Amendment (if applicable) _____ | | | |

Certifying Engineer Statement (if applicable)

This plan amendment was prepared using sound engineering practices. I have examined the facility and find this plan conforms to the guidelines and provisions of 40 CFR 112.

| Date | Name | Signature |
|------|------|-----------|
|------|------|-----------|

APPENDIX B

ABOVEGROUND STORAGE TANK ULLAGE LOG

ABOVEGROUND STORAGE TANK ULLAGE LOG

Use a separate log sheet for each tank

Use either this form or its equivalent to document ullage (available capacity) calculations as required by §3-4-2(a)(4)(B) of Colorado's Storage Tank Regulations. Use the correct tank chart to convert from inches to gallons. If ullage is calculated by an ATG, it is acceptable to save the ATG inventory tape that shows the ullage in gallons. Keep these records at least six (6) months. However, it is advisable to keep records indefinitely, since they may be required as part of the compliance review concerning a claim for reimbursement from the Petroleum Storage Tank Fund. The requirement to determine ullage before delivery begins applies to all ASTs, including ASTs equipped with overfill prevention equipment that stops delivery or sounds an audible alarm.

| | | | | |
|-----------------------|--|------------|--------------------------------|--|
| Facility name | | | Fac. ID # (if known) | |
| Street address | | | Product in tank | |
| City | | ZIP | Tank capacity (gallons) | |

| Date | Gauge or stick reading | Conversions to gallons | Available Capacity | Quantity Added | Initials |
|------|------------------------|------------------------|--------------------|----------------|----------|
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**Report Suspected or Confirmed Leaks to the Div. of Oil & Public Safety Within 24 Hours:
303-318-8547**

APPENDIX C
DOT REQUIREMENTS

DOT LOADING AND UNLOADING OF TRANSPORT VEHICLES**173.30 Loading and unloading of transport vehicles.**

A person who loads or unloads hazardous materials into or from a transport vehicle or vessel shall comply with the applicable loading and unloading requirements of parts 174, 175, 176, and 177 of this subchapter.

[Amdt. 173-94, 41 FR 16064, Apr. 15, 1976]

174.67 Tank car unloading.

- a) In unloading tank cars, the following rules must be observed (see subpart F of this part for gases):
- 1) Unloading operations must be performed only by reliable persons properly instructed in unloading hazardous materials and made responsible for careful compliance with this part.
 - 2) Brakes must be set and wheels blocked on all cars being unloaded.
 - 3) Caution signs must be placed on the track or cars to give necessary warning to persons approaching the cars from the open end of a siding and must be left up until after the cars are unloaded and disconnected from the discharge connection. The signs must be of metal or other comparable material, at least 30 cm (12 inches) high by 38 cm (15 inches) wide in size, and bear the words, "STOP – Tank Car Connected", or "STOP – Men at Work", the word "STOP" being in letters at least 10 cm (3.9 inches) high and the other words in letters at least 5 cm (2 inches) high. The letters must be white on a blue background.
 - 4) Before a manhole cover or outlet valve cap is removed from a tank car, the car must be relieved of all interior pressure by cooling the tank with water or venting the tank by raising the safety valve or opening the dome vent at short intervals. However, if venting to relieve pressure will cause a dangerous amount of vapor to collect outside the car, venting and unloading must be deferred until the pressure is reduced by allowing the car to stand overnight or otherwise cooling the contents. These precautions are not necessary when the car is equipped with a manhole cover which hinges inward or with an inner manhole cover which does not have to be removed to unload the car, and when pressure is relieved by piping vapor into a condenser or storage tank.
- b) After the pressure is released, the seal must be broken and the manhole cover removed as follows:
- 1) Screw type. The cover must be loosened by placing a bar between the manhole cover lug and knob. After two complete turns, so that vent openings are exposed, the operation must be stopped, and if there is any sound of escaping vapor, the cover must be screwed down tightly and the interior pressure relieved as prescribed in paragraph (a)(4) of this section, before again attempting to remove the cover.
 - 2) Hinged and bolted type. All nuts must be unscrewed one complete turn, after which same precautions as prescribed for screw type cover must be observed.
 - 3) Interior type. All dirt and cinders must be carefully removed from around the cover before the yoke is unscrewed.
- c) When the car is unloaded through a bottom outlet valve, the manhole cover must be adjusted as follows:
- 1) Screw type. The cover must be put in place, but not entirely screwed down, so that air may enter the tank through the vent holes in threaded flange of the cover.
 - 2) Hinged and bolted type. A non-metallic block must be placed under one edge of the cover.
 - 3) Interior type. The screw must be tightened up in the yoke so that the cover is brought up within one-half inch of the closed position.
- d) When unloading through the bottom outlet of a car equipped with an interior manhole type cover, and in each case where unloading is done through the manhole (unless a special cover with a safety vent opening and a tight connection for the discharge outlet is used), the manhole must be protected by asbestos or metal covers against the entrance of sparks or other sources of ignition of vapor, or by being covered and surrounded with wet burlap or similar cloth material. The burlap or other cloth must be kept damp by the replacement or the application of water as needed.
- e) Seals or other substances must not be thrown into the tank and the contents may not be spilled over the car or tank.
- f) The valve rod handle or control in the dome must be operated several times to see that outlet valve in the bottom of tank is on its seat before valve cap is removed.
- g) The valve cap, or the reducer when a large outlet is to be used, must be removed with a suitable wrench after the set screws are loosened and a pail must be placed in position to catch any liquid that may be in the outlet chamber. If the valve cap or reducer does not unscrew easily, it may be tapped lightly with a mallet or wooden block in an upward direction. If leakage shows upon

starting the removal, the cap or reducer may not be entirely unscrewed. Sufficient threads must be left engaged and sufficient time allowed to permit controlled escape of any accumulation of liquid in the outlet chamber. If the leakage stops or the rate of leakage diminishes materially, the cap or reducer may be entirely removed. If the initial rate of leakage continues, further efforts must be made to seat the outlet valve (see paragraph (f) of this section). If this fails, the cap or reducer must be screwed up tight and the tank must be unloaded through the dome. If upon removal of the outlet cap the outlet chamber is found to be blocked with frozen liquid or any other matter, the cap must be replaced immediately and a careful examination must be made to determine whether the outlet casing has been cracked. If the obstruction is not frozen liquid, the car must be unloaded through the dome. If the obstruction is frozen liquid and no crack has been found in the outlet casing, the car may, if circumstances require it, be unloaded from the bottom by removing the cap and attaching unloading connections immediately. Before opening the valve inside the tank car, steam must be applied to the outside of the outlet casting or wrap casting with burlap or other rags and hot water must be applied to melt the frozen liquid.

- h) Unloading connections must be securely attached to unloading pipes on the dome or to the bottom discharge outlets before any discharge valves are opened.
- i) Tank cars may not be allowed to stand with unloading connections attached after unloading is completed. Throughout the entire period of unloading, and while car is connected to unloading device, the car must be attended by the unloader.
- j) If necessary to discontinue unloading a tank car for any reason, all unloading connections must be disconnected. All valves must first be tightly closed, and the closures of all other openings securely applied.
- k) As soon as a tank car is completed unloaded, all valves must be made tight, the unloading connections must be removed and all other closures made tight, except that heater coil inlet and outlet pipes must be left open for drainage. The manhole cover must be reapplied by the use of a bar or wrench, the outlet valve reducer and outlet valve cap replaced by the use of a wrench having a handle at least 0.9 m (3.0 feet) long, and the outlet valve cap plug, end plug, and all other closures of openings and of their prospective housings must be closed by the use of a suitable tool.
- l) Railroad defect cards may not be removed.
- m) If oil or gasoline has been spilled on the ground around connections, it must be covered with fresh, dry sand or dirt.
- n) All tools and implements used in connection with unloading must be kept free of oil, dirt, and grit.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, app. A to part 1)

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976 as amended by Amdt. 174-26A, 41 FR 40685, Sept. 20, 1976; Amdt. 174-43, 48 FR 27699, June 16, 1983; Amdt. 174-68, 55 FR 52978, Dec 21, 1990; 56 FR 66280, Dec. 20, 1991]

(174C/Rail: Handling and Loading Preface/174.67 Tank car unloading., Heading)

thru

(174C/Rail: Handling and Loading Preface/174.67 Tank car unloading., 23)

177B Highway: Loading and Unloading

Subpart B – Loading and Unloading

Note: For prohibited loading and storage of hazardous materials, see *177.848*

177.834 General requirements

- a) Packages secured in a vehicle. Any tank, barrel, drum, cylinder, or other packaging, not permanently attached to a motor vehicle, which contains any Class 3 (flammable liquid), Class 2 (gases), Class 8 (corrosive), Division 6.1 (poisonous), or Class 7 (radioactive) material must be secured against movement within the vehicle on which it is being transported, under conditions normally incident to transportation.
- b) No hazardous materials on pole trailers. No hazardous materials may be loaded into or on or transported in or on any pole trailer.

- c) No smoking while loading or unloading. Smoking on or about any motor vehicle while loading or unloading any Class 1 (explosive), Class 3 (flammable liquid), Class 4 (flammable solid), Class 5 (oxidizing), or Division 2.1 (flammable gas) materials is forbidden.
- d) Keep fire away, loading and unloading. Extreme care shall be taken in the loading or unloading of any Class 1 (explosive), Class 3 (flammable liquid), Class 4 (flammable solid), Class 5 (oxidizing), or Division 2.1 (flammable gas) materials into or from any motor vehicle to keep fire away and to prevent persons in the vicinity from smoking lighting matches, or carrying any flame or lighted cigar, pipe, or cigarette.
- e) Handbrake set while loading and unloading. No hazardous material shall be loaded into or on, or unloaded from, any motor vehicle unless the handbrake be securely set and all other reasonable precautions be taken to prevent motion of the motor vehicle during such loading or unloading process.
- f) Use of tools, loading and unloading. No tools which are likely to damage the effectiveness of the closure of any package or other container, or likely adversely to affect such package or container, shall be used for the loading or unloading of any Class 1 (explosive) material or other dangerous article.
- g) Prevent relative motion between containers. Containers of Class 1 (explosive), Class 3 (flammable liquid), Class 4 (flammable solid), Class 5 (oxidizing), Class 8 (corrosive), Class 2 (gases) and Division 6.1 (poisonous) materials, must be so braced as to prevent motion thereof relative to the vehicle while in transit. Containers having valves or other fittings must be so loaded that there will be the minimum likelihood of damage thereto during transportation.
- h) Precautions concerning containers in transit; fueling road units. Reasonable care should be taken to prevent undue rise in temperature of containers and their contents during transit. There must be no tampering with such container or the contents thereof nor any discharge of the contents of any container between point of origin and point of billed destination. Discharge of contents of any container, other than a cargo tank, must not be made prior to removal from the motor vehicle. Nothing contained in this paragraph shall be so construed as to prohibit the fueling of machinery or vehicles used in road construction or maintenance.
- i) Attendance requirements.
 - 1) Loading. A cargo tank must be attended by a qualified person at all times when it is being loaded. The person who is responsible for loading the cargo tank is also responsible for ensuring that it is so attended.
 - 2) Unloading. A motor carrier who transports hazardous materials by a cargo tank must ensure that the cargo tank is attended by a qualified person at all times during unloading. However, the carrier's obligation to ensure attendance during unloading ceases when:
 - (i) The carrier's obligation for transporting the materials is fulfilled;
 - (ii) The cargo tank has been placed upon the consignee's premises; and
 - (iii) The motive power has been removed from the cargo tank and removed from the premises.
 - 3) A person "attends" the loading or unloading of a cargo tank if, throughout the process, he is awake, has an unobstructed view of the cargo tank, and is within 7.62 meters (25 feet) of the cargo tank.
 - 4) A person is "qualified" if he has been made aware of the nature of the hazardous material which is to be loaded or unloaded, he has been instructed on the procedures to be followed in emergencies, he is authorized to move the cargo tank, and he has the means to do so.
 - 5) A delivery hose, when attached to the cargo tank, is considered part of the vehicle.
- j) Prohibited loading combinations. In any single driven motor vehicle or in any single unit of a combination of motor vehicles, hazardous materials shall not be loaded together if prohibited by loading and storage chart, 177.848. This section shall not be so construed as to forbid the carrying of materials essential to safe operation of motor vehicles. (See Motor Carrier Safety Regulations part 393 of this title.)
- k) [Reserved]
- l) Use of cargo heaters when transporting certain hazardous material. Transportation includes loading, carrying, and unloading.
 - 1) When transporting Class 1 (explosive) materials. A motor vehicle equipped with a cargo heater of any type may transport Class 1 (explosive) materials only if the cargo heater is rendered inoperable by: (i) Draining or removing the cargo heater fuel tank; and (ii) disconnecting the heater's power source.
 - 2) When transporting certain flammable material –
 - (i) Use of combustion cargo heaters. A motor vehicle equipped with a combustion cargo heater may be used to transport Class 3 (flammable liquid) or Division 2.1 (flammable gas) materials only if each of the following requirements are met:
 - A) It is a catalytic heater.

- B) The heater's surface temperature cannot exceed 54 °C (130 °F) – either on a thermostatically controlled heater or on a heater without thermostatic control when the outside or ambient temperature is 16 °C (61 °F) or less.
- C) The heater is not ignited in a loaded vehicle.
- D) There is no flame, either on the catalyst or anywhere in the heater.
- E) The manufacturer has certified that the heater meets the requirements under paragraph (l)(2)(i) of this section by permanently marking the heater “MEETS DOT REQUIREMENTS FOR CATALYTIC HEATERS USED WITH FLAMMABLE LIQUID AND GAS.”
- F) The heater is also marked “DO NOT LOAD INTO OR USE IN CARGO COMPARTMENTS CONTAINING FLAMMABLE LIQUID OR GAS IF FLAME IS VISIBLE ON CATALYST OR IN HEATER.”
- G) Heater requirements under 393.77 of this title are complied with.
- (ii) Effective date for combustion heater requirements. The requirements under paragraph (l)(2)(i) of this section govern as follows:
 - A) Use of a heater manufactured after November 14, 1975, is governed by every requirement under (l)(2)(i) of this section;
 - B) Use of a heater manufactured before November 14, 1975, is governed only by the requirements under (l)(2)(i) (A), (C), (D), (F) and (G) of this section until October 1, 1976; and
 - C) Use of any heater after September 30, 1976, is governed by every requirement under paragraph (l)(2)(i) of this section.
- (iii) Restrictions on automatic cargo-space heating temperature control devices. Restrictions on these devices have two dimensions: Restrictions upon use and restrictions which apply when the device must not be used.
 - A) Use restrictions. An automatic cargo-space-heating temperature control device may be used when transporting Class 3 (flammable liquid) or Division 2.1 (flammable gas) materials only if each of the following requirements is met:
 - 1) Electrical apparatus in the cargo compartment is non sparking or explosion proof.
 - 2) There is no combustion apparatus in the cargo compartment.
 - 3) There is no connection for return of air from the cargo compartment to the combustion apparatus.
 - 4) The heating system will not heat any part of the cargo to more than 54 °C (129 °F).
 - 5) Heater requirements under 393.77 of this title are complied with.
 - B) Protection against use. Class 3 (flammable liquid) or Division 2.1 (flammable gas) materials may be transported by a vehicle, which is equipped with an automatic cargo-space-heating temperature control device that does not meet each requirement of paragraph (l)(2)(iii)(A) of this section, only if the device is first rendered inoperable, as follows:
 - 1) Each cargo heater fuel tank, if other than LPG, must be emptied or removed.
 - 2) Each LPG fuel tank for automatic temperature control equipment must have its discharge valve closed and its fuel feed line disconnected.
- (m) Tanks constructed and maintained in compliance with Spec.106A or 110A (Secs. 179.300, 179.301 of this subchapter) that are authorized for the shipment of hazardous materials by highway in part 173 of this subchapter must be carried in accordance with the following requirements:
 - 1) Tanks must be securely chocked or clamped on vehicles to prevent any shifting.
 - 2) Equipment suitable for handling a tank must be provided at any point where a tank is to be loaded upon or removed from a vehicle.
 - 3) No more than two cargo carrying vehicles may be in the same combination of vehicles.
 - 4) Compliance with Secs. 174.200 and 171.204 of this subchapter for combination rail freight, highway shipments and for trailer-on-flat-car service is required.
- (n) Specification 56, 57, IM 101, and IM 102 portable tanks, when loaded, may not be stacked on each other nor placed under other freight during transportation by motor vehicle.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

Editorial Note: For Federal Register citations affecting 177.834, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

177B Highway: Loading and Unloading**Subpart B – Loading and Unloading**

Note: For prohibited loading and storage of hazardous materials, see *177.848*

177.837 Class 3 (flammable liquid) materials

(See also 177.834 (a) to (j).)

- a) Engine stopped. Unless the engine of the motor vehicle is to be used for the operation of a pump, no Class 3 (flammable liquid) material shall be loaded into, or on, or unloaded from any motor vehicle while the engine is running.
- b) Bonding and grounding containers other than cargo tanks prior to and during transfer of lading. For containers which are not in metallic contact with each other, either metallic bonds or ground conductors shall be provided for the neutralization of possible static charges prior to and during transfers of Class 3 (flammable liquid) materials between such containers. Such bonding shall be made by first connecting an electric conductor to the container to be filled and subsequently connecting the conductor to the container from which the liquid is to come, and not in any other order. To provide against ignition of vapors by discharge of static electricity, the latter connection shall be made at a point well removed from the opening from which the Class 3 (flammable liquid) material is to be discharged.
- c) Bonding and grounding cargo tanks before and during transfer of lading.
 - 1) When a cargo tank is loaded through an open filling hole, one end of a bond wire shall be connected to the stationary system piping or integrally connected steel framing, and the other end to the shell of the cargo tank to provide a continuous electrical connection. (If bonding is to the framing, it is essential that piping and framing be electrically interconnected.) This connection must be made before any filling hole is opened, and must remain in place until after the last filling hole has been closed. Additional bond wires are not needed around All-Metal flexible or swivel joints, but are required for nonmetallic flexible connections in the stationary system piping. When a cargo tank is unloaded by a suction-piping system through an open filling hole of the cargo tank, electrical continuity shall be maintained from cargo tank to receiving tank.
 - 2) When a cargo tank is loaded or unloaded through a vapor-tight (not open hole) top or bottom connection, so that there is no release of vapor at a point where a spark could occur, bonding or grounding is not required. Contact of the closed connection must be made before flow starts and must not be broken until after the flow is completed.
 - 3) Bonding or grounding is not required when a cargo tank is unloaded through a nonvapor-tight connection into a stationary tank provided the metallic filling connection is maintained in contact with the filling hole.
- d) Manholes and valves closed. A person shall not drive a cargo tanks and motor carrier shall not require or permit a person to drive a tank motor vehicle containing a Class 3 (flammable liquid) material (regardless of quantity) unless:
 - 1) All manhole closures on the cargo tank are closed and secured; and
 - 2) All valves and other closures in liquid discharge systems are closed and free of leaks.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

Editorial Note: For Federal Register citations affecting *177.837*, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

APPENDIX D
EMERGENCY SPILL RESPONSE CONTACTS

EMERGENCY SPILL RESPONSE CONTACTS

In the event of leakage or spills, the following individuals and/or companies are to be contacted:

Primary On-Site Contact Te Be Determined (970) office
Greenback (970) cell phone
Rifle, Colorado (970) fax

Alternate On-Site Contact: Te Be Determined (970) office
Greenback (970) cell phone
Rifle, Colorado (970) fax

Local Emergency Contacts Are:

- Garfield County Emergency Communications Authority: 24 Hour Emergency - **911**
585 East 1st Street
Rifle, Colorado 81650
Main Phone: 970-625-8095

- Rifle Fire Protection District: 24 Hour Emergency - **911**
1850 Railroad Avenue
Rifle, Colorado 81650
Main Phone: 970-625-1243

Emergency Response Contractors / Waste Disposal Vendors:

- _____
- _____
- _____

If a petroleum release occurs and is greater then 25 gallons contact:

- Colorado Department of Public Health and Environment
Denver, Colorado
(877) 518-5608 (24-Hour Phone)

If the release reaches navigable water, contact:

- National Response Center or US EPA Region VIII Response Center
Washington, DC Denver, Colorado
(800) 424-8802 (24-hour phone) (800) 227-8914 (24-hour phone)

SPILL RESPONSE PROCEDURES
Greenback Produced Water Recovery, LLC.
Shaeffer Ranch Facility
Rifle, Colorado

- After identifying and locating a spill, containment must be initiated as soon as possible to prevent undue spreading of released product. The first action should be the elimination of any additional spillage by pressing the emergency shutoff button, shutting off a pump or valve, placing a cap or a plastic or epoxy patch over the leak, putting a temporary plug in a puncture or tear, righting an overturned container, or other appropriate action.
- Spill response materials maintained at the facility will be used to contain and clean up spilled product. Place portable dike materials or erect berms with granular absorbent or earthen material along the leading edge of the spill to prevent spreading. Apply absorbent pads or granular absorbent to the spilled product for clean up.
- Using the Emergency Contact List for reference:
 1. Alert and notify on-site supervisory personnel.
 2. If the spill exceeds the capabilities of on-site facility personnel (ie: spill spreads beyond the immediate spill area, enters surface water, requires special training or equipment, poses a danger of fire or explosion), immediately contact the local fire authority by calling 911.
 3. If the spill enters surface water, contact the National Response Center at (800) 424-8802.
- Materials recovered during cleanup must be placed in appropriate containers (such as DOT rated drums) or stockpiled using an impermeable liner and cover (such as polyethylene sheeting) to prevent cross-contamination with unexposed media prior to disposal.

APPENDIX E
SPILL DOCUMENTATION FORM

SPILL RESPONSE NOTIFICATION FORM

Fill out this form as completely as possible prior to calling regulatory agencies. Refer to the Emergency Contact List for guidance on regulatory agencies to notify and telephone numbers.

RELEASE INFORMATION

| | | | | | |
|--|------------|--|-----------------------------------|-------------------|-----------------|
| Notification Person Name: | | Date: | Time: | | |
| Agency Being Notified: | | Phone Number: | | | |
| Facility Name: | | | | | |
| Address: | | City: | State: | Zip Code: | |
| Telephone Number: | | Fax Number: | | | |
| Owner/Operator Name: | | | | | |
| Address: | | City: | State: | Zip Code: | |
| Primary Contact Name / Position: | | | | | |
| Work Phone: | | Cell Phone: | Other (24-Hour): | | |
| Location of Release: | Address: | | | | |
| Section: | Township: | Range: | County: | | |
| Latitude: _____ Degrees _____ Minutes _____ Seconds | | Longitude: _____ Degrees _____ Minutes _____ Seconds | | | |
| Date/Time of Release: | | Date/Time of Discovery: | | | |
| Type of Oil Released: | | Quantity Released: | Duration of Release: | | |
| Describe Source and Cause of Release: | | | | | |
| Actions Taken to Stop, Contain, Remove and Mitigate Impacts of the Release: | | | | | |
| Impacted Media: (Check All That Apply) | Soil: | Water: | Air: | Stormwater Sewer: | Sanitary Sewer: |
| | Dike/Berm: | Oil-Water Separator: | | Other: | |
| Did Oil Reach a Waterway: Yes/No | | Quantity Released to Waterway: | Waterway Name: | | |
| Number of Injuries: | | Number of Deaths: | Was Evacuation Required: Yes / No | | |
| Environmental Impacts: | | | | | |
| Was There Damage: Yes / No | | | Damage Cost: \$ | | |
| Notification Person: | | | | | |
| Work Phone: | | Cell Phone | Other (24-Hour) | | |
| Any additional information about the incident that was not recorded elsewhere: | | | | | |
| Local Agency Notified: | | | | | |
| State Agency Contacted: | | | | | |
| Federal Agency Notified: | | | | | |
| State/Local Agency On-Scene: | | | | | |
| Other: | | | | | |

APPENDIX F

MONTHLY INSPECTION AND RECORDING FORM

ABOVEGROUND STORAGE TANK "MONTHLY" VISUAL INSPECTION FORM

Facility Name/Address: Greenback Produced Water Recovery, LLC., Shaeffer Ranch Facility, Rifle, Colorado

Inspection Date:

Tanks Inspected (ID #'s):

(1) Tank Containment

| | | |
|--|------------------------|---|
| Secondary containment system free of tank product, water, debris and fire hazards? | __ No __ Yes | If "no," describe and record action taken to correct problem and date done. |
| Secondary containment drain valve(s) operable and closed? | __ No __ Yes __ N/A | If "no," describe and record action taken to correct problem and date done. |
| Containment entry/exit clear and unobstructed | __ No __ Yes | If "no," describe and record action taken to correct problem and date done. |

(2) Leak Detection

| | | |
|---|--------------|---|
| Visible leaks on tanks, tank seams, connections, fittings or valves? | __ No __ Yes | If "yes," identify tank, describe, record corrective action taken, and date done. |
| Visible leaks on aboveground pipes, fittings, flanges, pumps or valves? | __ No __ Yes | If "yes," describe, record corrective action taken and date done. |
| Concrete surfaces and ground free of evidence of leakage or spillage? | __ No __ Yes | If "no," describe, record corrective action taken and date done. |

(3) Tank Components

| | | |
|---|------------------------|---|
| Ladder or platform structure secure with no sign of severe corrosion or damage | __ No __ Yes __ N/A | If "no," describe, record corrective action taken and date done. |
| Is tank gauge readable and in good condition and do stick readings and tank gauge readings match? | __ No __ Yes | If "no," describe, have tank gauge calibrated and record date done. |
| Is overfill prevention equipment in good operating condition? | __ No __ Yes | If "no," describe, record corrective action taken and date done. |
| Is audible/visual overfill alarm operable? | __ No __ Yes __ N/A | If "no," describe, record corrective action taken and date done. |
| Check tank openings: Are all openings properly sealed | __ No __ Yes | If "no," describe, seal openings and record date done. |

(4) Other Conditions

| | | |
|---|------------------------|---|
| Check tank for the presence of water at lowest point: Is water present? | __ No __ Yes | If "yes," have water removed and record date done. |
| If double-wall tank, check the interstitial space for liquid: Is liquid present? | __ No __ Yes __ N/A | If "yes," describe, record corrective action taken and date done. |
| If double-wall tank equipped with interstitial monitoring equipment, is it operating properly? | __ No __ Yes __ N/A | If "no," describe, record corrective action taken and date done. |
| Are there other conditions that should be addressed for continued safe operation or that may affect the site SPCC plan? | __ No __ Yes | If "yes," describe, record corrective action taken and date done. |

Additional Comments:

| | | |
|-----------------------|------------------|-------------|
| Inspector Name | Signature | Date |
|-----------------------|------------------|-------------|

PORTABLE CONTAINER "MONTHLY" VISUAL INSPECTION FORM

Facility Name/Address: Greenback Produced Water Recovery, LLC., Shaeffer Ranch Facility, Rifle, Colorado

Inspection Date:

Mobile/Portable Container Area Inspected:

| Item Inspected | Status | Comments |
|---|---------------------|----------|
| (1) Container Storage Area / Containment | | |
| Containers are positioned within the designated storage area? | __No __Yes | |
| Debris, spills or fire hazards present in the storage containment area? | __No __Yes | |
| Is water present in outdoor storage containment area? | __No __Yes __N/A | |
| Are dike drain valves operable and in a closed position? | __No __Yes __N/A | |
| Are storage area egress pathways clear and gates/doors operable? | __No __Yes | |
| (2) Leak Detection | | |
| Visible signs of leakage on or around the containers or on the floor of the storage area? | __No __Yes | |
| (3) Container Condition | | |
| Noticeable container distortions, buckling, denting or bulging? | __No __Yes | |
| Are container openings properly sealed when not in use? | __No __Yes | |

Comments:

Inspector Name

Signature

Date

ABOVEGROUND STORAGE TANK "ANNUAL" VISUAL INSPECTION FORM

Facility Name/Address: Greenback Produced Water Recovery, LLC., Shaeffer Ranch Facility,
Rifle, Colorado

Inspection Date:

Tanks Inspected (ID #'s):

| Item Inspected | Status | Comments |
|--|---------------------|--|
| (1) Tank Containment | | |
| Secondary containment structure in satisfactory condition? | __No __Yes | If "no," describe and record action taken to correct problem and date done. |
| Secondary containment drain pipes and valves fit for continued service? | __No __Yes __N/A | If "no," describe and record action taken to correct problem and date done. |
| (2) Tank Foundation and Supports | | |
| Evidence of tank settlement or foundation washout? | __No __Yes | If "yes," describe and record action taken to correct problem and date done. |
| Evidence of cracking or deterioration of the concrete pad or tank foundation ring? | __No __Yes | If "no," describe and record action taken to correct problem and date done. |
| Tank supports in satisfactory condition? | __No __Yes | If "no," describe and record action taken to correct problem and date done. |
| Water able to drain away from the tank? | __No __Yes | If "no," describe and record action taken to correct problem and date done. |
| Grounding strap secured and in good condition? | __No __Yes | If "no," describe and record action taken to correct problem and date done. |
| (3) Cathodic Protection | | |
| Cathodic protection system functional? | __No __Yes __N/A | Record rectifier reading if applicable: |
| (4) Tank External Coating | | |
| Evidence of tank shell paint coating failure? | __No __Yes | If "yes," describe and record action taken to correct problem and date done. |
| (5) Tank Shell/Heads | | |
| Noticeable tank shell/head distortions, buckling or bulging? | __No __Yes | If "yes," describe and record action taken to correct problem and date done. |
| Evidence of tank shell/head corrosion or cracking? | __No __Yes | If "yes," describe and record action taken to correct problem and date done. |
| (6) Tank Manways, Piping and Equipment within Secondary Containment | | |
| Flanged liquid level manway bolts and seals tight, no signs of wear, corrosion or leakage? | __No __Yes | If "no," describe and record action taken to correct problem and date done. |
| Flanged pipe connection bolts and seals tight, no signs of wear, corrosion or leakage? | __No __Yes | If "no," describe and record action taken to correct problem and date done. |

ABOVEGROUND STORAGE TANK "ANNUAL" VISUAL INSPECTION FORM

| Item Inspected | Status | Comments |
|--|------------------------|--|
| (7) Tank Roof | | |
| Standing water present on tank roof? | __ No __ Yes | If "yes," describe and record action taken to correct problem and date done. |
| Evidence of tank roof paint coating, cracking, peeling or blistering? | __ No __ Yes | If "yes," describe and record action taken to correct problem and date done. |
| Holes or other evidence of corrosion on roof? | __ No __ Yes | If "yes," describe and record action taken to correct problem and date done. |
| (8) Venting | | |
| Normal and emergency vents free of obstructions? | __ No __ Yes | If "no," describe and record action taken to correct problem and date done. |
| Emergency vent operable and lifts as required? | __ No __ Yes | If "no," describe and record action taken to correct problem and date done. |
| (9) Insulated Tanks | | |
| If tank insulated, is insulation missing or damaged? | __ No __ Yes __ N/A | If "yes," describe and record action taken to correct problem and date done. |
| Noticeable areas of moisture on the insulation? | __ No __ Yes __ N/A | If "yes," describe and record action taken to correct problem and date done. |
| Is there mold on the insulation? | __ No __ Yes __ N/A | If "yes," describe and record action taken to correct problem and date done. |
| Is insulation sufficiently protected from water intrusion? | __ No __ Yes __ N/A | If "no," describe and record action taken to correct problem and date done. |
| (10) Level and Overfill Prevention Instrumentation | | |
| Has tank liquid level sensing device been tested to ensure proper operation? | __ No __ Yes | If "yes," record date done. If "no," when will it be tested? |
| Does tank liquid level sensing device operate as required? | __ No __ Yes | If "no," describe and record action taken to correct problem and date done. |
| Are overfill prevention devices in proper working condition? | __ No __ Yes | If "no," describe and record action taken to correct problem and date done. |
| (11) Electrical Equipment | | |
| Are tank grounding lines in good condition? | __ No __ Yes | If "no," describe and record action taken to correct problem and date done. |
| Is electrical wiring for control boxes and lights in good condition? | __ No __ Yes | If "no," describe and record action taken to correct problem and date done. |
| Additional Comments: | | |
| | | |
| Inspector Name | Signature | Date |

APPENDIX G
SPCC TRAINING SIGNOFF SHEET

APPENDIX H
DIKE WATER DRAINAGE LOG

APPENDIX I

SECONDARY CONTAINMENT VOLUME CALCULATIONS

APPENDIX J
SELF-DETERMINATION CRITERIA

**CERTIFICATION OF THE APPLICABILITY OF
THE SUBSTANTIAL HARM CRITERIA CHECKLIST**

FACILITY NAME: GREENBACK PRODUCED WATER RECOVERY, LLC

FACILITY ADDRESS: SHAEFFER RANCH FACILITY, RIFLE, COLORADO

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?
Yes _____ No

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?
Yes _____ No

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III or a comparable formula¹) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife and sensitive environments, see Appendices I, II, and III to DOC/NOAA's "Guidance for Facility and Vessel Response Plans: Fish and Wildlife and Sensitive Environments" (see Appendix E, section 13, for availability) and the applicable Area Contingency Plan.
Yes _____ No

4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III or a comparable formula¹) such that a discharge from the facility would shut down a public drinking water intake²?
Yes _____ No

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil discharge in an amount greater than or equal to 10,000 gallons within the last 5?
Yes _____ No

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Dan Packard

Name (please type or print)

Signature

Title

Date

Bulk Oil Tanks Secondary Containment Volume Calculations

Greenback Produced Water REcovery, LLC.
 Shaeffer Ranch Site
 Rifle, Colorado
 CGRS Project # 1-10270-11727aa

1. Volume of Largest Tank (cu. ft.)

= Tank Volume x 0.1337cu. ft./gal. conversion factor

16,800 gals. x 0.1337 cu. ft./gal. = **2246.16** cubic feet

2. Total Diked Area

Section 1 Volume 3368.75 cubic feet

Section 2 Volume 0 cubic feet

Total Volume = **3,369 cubic feet**
 = **25,202 gallons**

Section 1

Enter Height **2.75** feet

Enter Width **35** feet

Enter Length **35** feet

Section 2

Enter Height **0** feet

Enter Width **0** feet

Enter Length **0** feet

3. Base Area of Vertical Tanks (within the containment)

Size A Volume 588 cubic feet

Size B Volume 0 cubic feet

Total Volume = **588 cubic feet**
 = **4,400 gallons**

Tank Sizes

Size A

Enter Diameter **12** feet

Enter Height **2.6** feet

Quantity **2** each

Size B

Enter Diameter **0** feet

Enter Height **0** feet

Quantity **0** each

4. Available Diked Area

= (Total Diked Area) – (Base Area of Tanks)

= **3,369** - **588** = **2,781** cubic feet
20,802 gallons

5. Estimated Freeboard Allowance

Section 1 Volume 343 cubic feet

Section 2 Volume 0 cubic feet

= **Total Freeboard** = **343 cubic feet**
2,566 gallons

Section 1

Enter Height **0.28** feet

Enter Width **35** feet

Enter Length **35** feet

Section 2

Enter Height **0** feet

Enter Width **0** feet

Enter Length **0** feet

6. Adjusted Available Diked Area

= (Available Diked Area) – (Recommended Freeboard Allowance)

= **2,781** - **343** = **2,438** cubic feet
Available Volume in Diked Area = **18,236** gallons

Note: Freeboard allowance is based on a historical 24-hour storm event for the region from the National Oceanic and Atmospheric Administration's (NOAA) Atlas 2, Volume III, Figure 31. Horizontally mounted tanks do not significantly impinge on available containment volumes.