

**1RF-15 - Mesa
Verde West
Recycling
Containment #2
FACILITY ID
[fOY1720856443]
AST Modification**

**[16696] OXY USA INC
Submitted on 01/25/2019**

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-147
Revised April 3, 2017

Recycling Facility Only

Type of action: ☐ Permit ☐ Registration ☒ Modification ☐ Closure ☐ Other (explain) _____

Be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.
Operator: Oxy USA, Inc. (For multiple operators attach page with information) OGRID #: 16696
Address: 5 Greenway Plaza, Ste. 110, Houston, Texas 77046
Facility or well name (include API# if associated with a well): Mesa Verde Recycling Facility
OCD Permit Number: _____ (For new facilities the permit number will be assigned by the district office)
U/L or Qtr/Qtr N Section 18 Township 24S Range 32E County: Lea
Surface Owner: ☒ Federal ☐ State ☐ Private ☐ Tribal Trust or Indian Allotment

2.
☒ **Recycling Facility:**
Location of recycling facility (if applicable): Latitude 32.213452 Longitude -103.714688 NAD83
Proposed Use: ☒ Drilling* ☒ Completion* ☒ Production* ☒ Plugging *
**The re-use of produced water may NOT be used until fresh water zones are cased and cemented*
☐ Other, requires permit for other uses. Describe use, process, testing, volume of produced water and ensure there will be no adverse impact on groundwater or surface water.
☒ Fluid Storage The facility feed tanks (primary/secondary synthetic liners) will meet siting criteria in 19.15.34.11
☒ Above ground tanks ☐ Activity permitted under 19.15.17 NMAC explain type _____
☐ Activity permitted under 19.15.36 NMAC explain type: _____ ☒ Other explain SEE ATTACHED
☐ Closure Report (required within 60 days of closure completion): ☐ Recycling Facility Closure Completion Date: _____

3.
Variances:
Justifications and/or demonstrations that the proposed variance will afford reasonable protection against contamination of fresh water, human health, and the environment.
Check the below box only if a variance is requested:
☐ Variance(s): Requests must be submitted to the appropriate division district for consideration of approval. If a Variance is requested, include the variance information on a separate page and attach it to the C-147 as part of the application.
If a Variance is requested, it must be approved prior to implementation.

4.
Operator Application Certification:
I hereby certify that the information and attachments submitted with this application are true, accurate and complete to the best of my knowledge and belief.
Name (Print): Dylan Allen Title: Environmental Specialist
Signature: [Signature] Date: 1/25/19
e-mail address: Dylan_Allen@oxy.com Telephone: 432-312-4530

5.
OCD Representative Signature: _____ Approval/Registration Date: _____
Title: _____ OCD Permit Number: _____
☐ OCD Conditions _____
☐ Additional OCD Conditions on Attachment _____

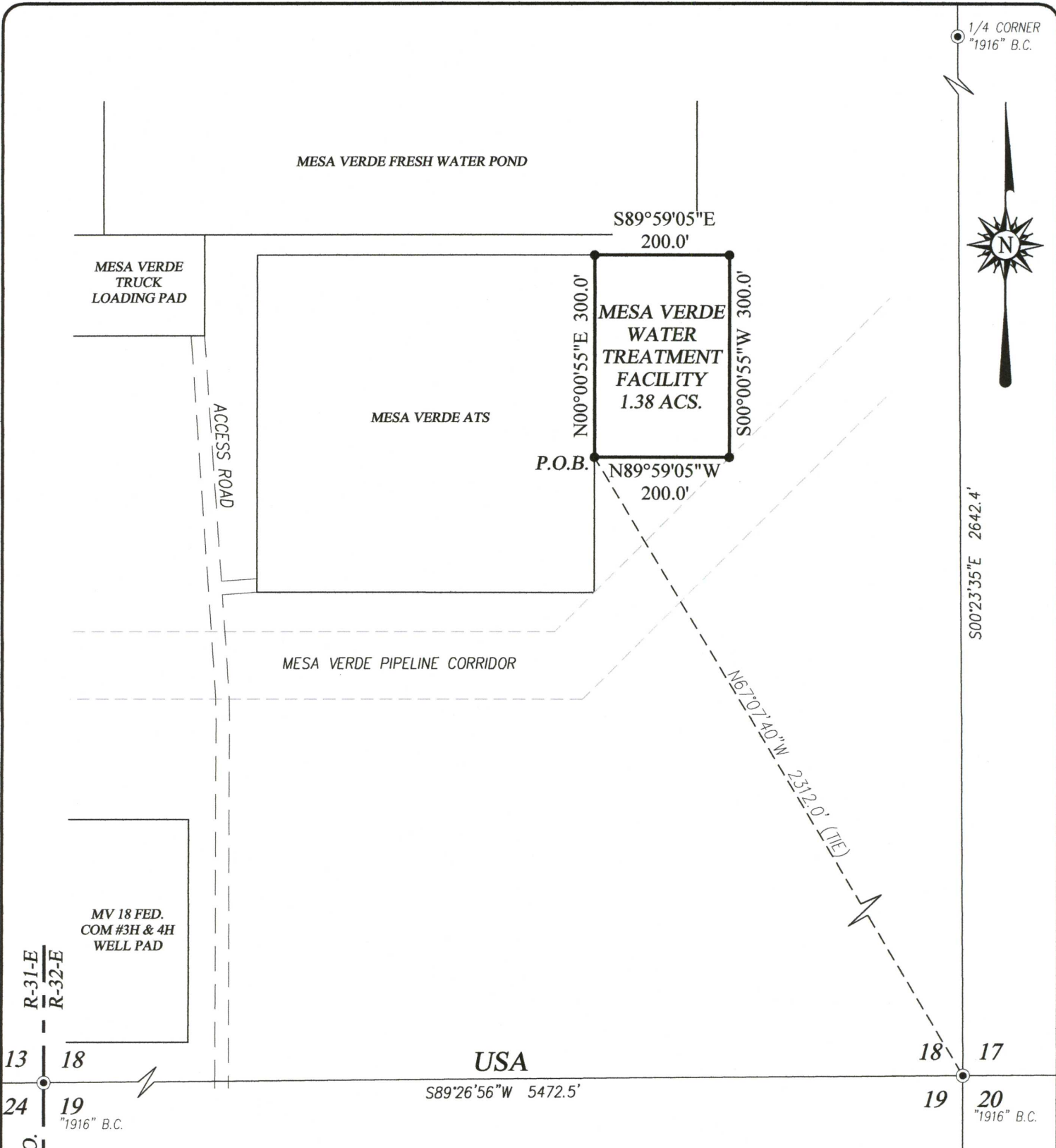
Modification

Oxy USA Inc. submits the following modification of the Mesa Verde Recycling Facility:

This modification is in regards to the addition of two synthetically lined ASTs. The ASTs have a total capacity of 60,000 bbl. each and are lined with two 30 mil (minimum) LLDPE or two 40 mil (minimum) HDPE liners. An additional 30 mil (minimum) LLDPE or 40 mil (minimum) HDPE shall be placed on the base of the tank and shall act as an additional protective layer and the foundation for the visual leak detection system should a breach occur through the upper primary and secondary liner. The AST subgrade shall be covered with a geocomposite or geotextile to protect the liner system. The ASTs shall be netted and maintain at least 2 ft. of freeboard capacity. The facility layout and design/construction specifications for the ASTs are attached. The ASTs may be constructed with an under mount manifold as opposed to over the top discharge/suction line. The ASTs will serve as pre-treatment tanks and act as a buffer system before the input to the recycling facility – preventing system upsets by providing steady flow.

These tanks will be located at a gunbarrel water polishing facility upstream of the recycling facility. The gunbarrel water polishing facility is located directly east of recycling facility. See the attached layout diagrams.

A copy of the C-147 will be submitted to the land owner (BLM).



DESCRIPTION

SURVEY OF A TRACT OF LAND SITUATED IN SECTION 18, TOWNSHIP 24 SOUTH, RANGE 32 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: BEGINNING AT THE SOUTHWEST CORNER OF THIS TRACT, WHICH LIES N75°07'21"W 2721.5 FEET FROM THE SOUTHEAST CORNER; THEN N00°00'55"E 300.0 FEET; THEN S89°59'05"E 200.0 FEET; THEN S00°00'55"W 300.0 FEET; THEN N89°59'05"W 200.0 FEET TO THE POINT OF BEGINNING, CONTAINING 1.38 ACRES MORE OR LESS.

NOTE

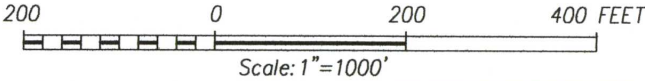
BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

I, RONALD J. EIDSON, NEW MEXICO PROFESSIONAL SURVEYOR No. 3239, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

RONALD J. EIDSON
DATE: 11/07/2017

LEGEND

- DENOTES FOUND CORNER AS NOTED
- DENOTES SET SPIKE NAIL



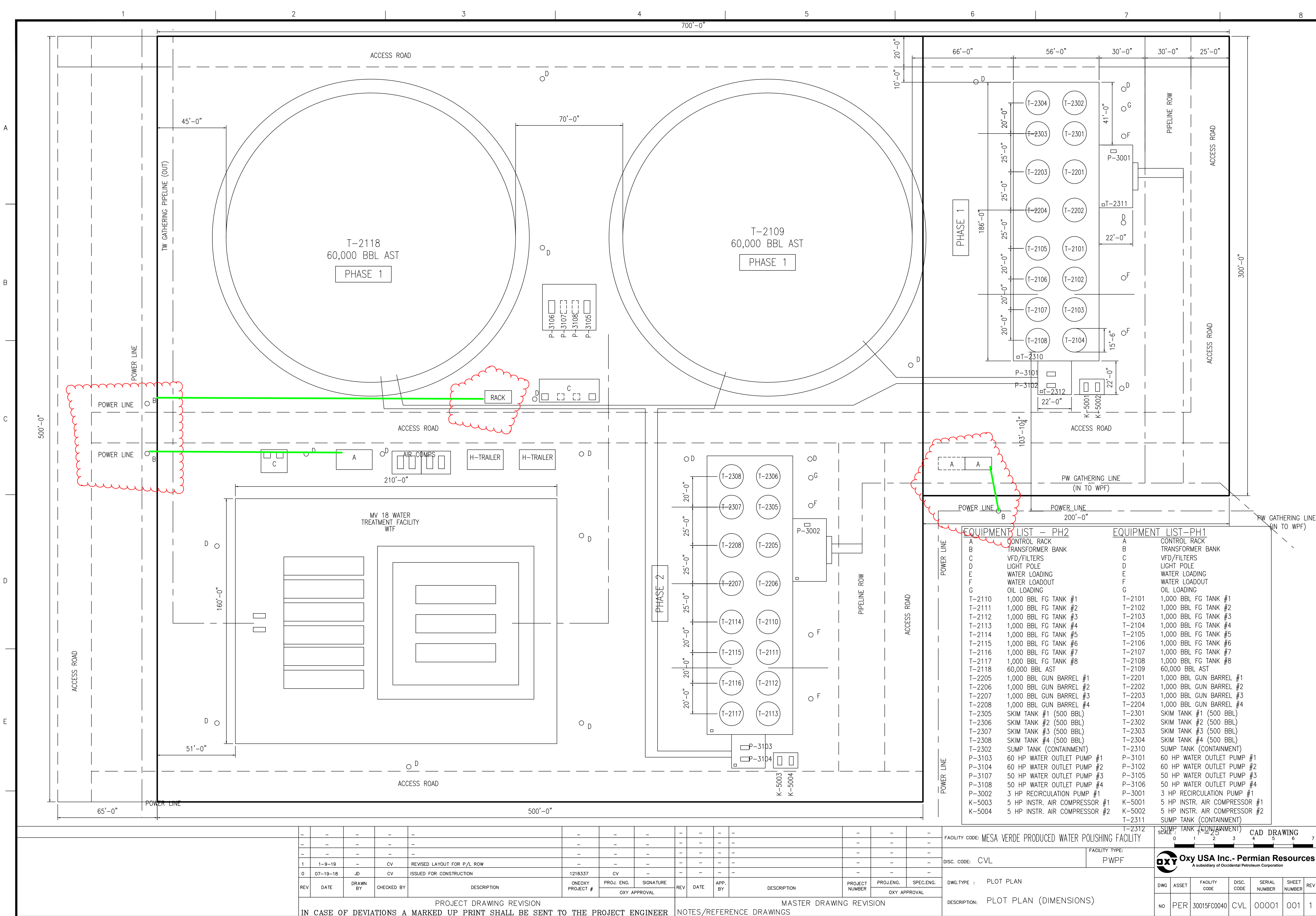
OXY U.S.A. INC.

**SURVEY FOR MESA VERDE
WATER TREATMENT FACILITY LOCATED IN
SECTION 18, TOWNSHIP 24 SOUTH,
RANGE 32 EAST, N.M.P.M.
LEA COUNTY, NEW MEXICO**



PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO HOBBS, N.M. 88240
(575) 393-3117 www.jwsc.biz
TBPLS# 10021000

Survey Date: 10/23/17	CAD Date: 11/6/17	Drawn By: DSS
W.O. No.: 17111016	Rev. :	Rel. W.O.:
		Sheet 1 of 1



EQUIPMENT LIST - PH2		
A	CONTROL RACK	
B	TRANSFORMER BANK	
C	VFD/FILTERS	
D	LIGHT POLE	
E	WATER LOADING	
F	WATER LOADOUT	
G	OIL LOADING	
T-2110	1,000 BBL FG TANK #1	
T-2111	1,000 BBL FG TANK #2	
T-2112	1,000 BBL FG TANK #3	
T-2113	1,000 BBL FG TANK #4	
T-2114	1,000 BBL FG TANK #5	
T-2115	1,000 BBL FG TANK #6	
T-2116	1,000 BBL FG TANK #7	
T-2117	1,000 BBL FG TANK #8	
T-2118	60,000 BBL AST	
T-2205	1,000 BBL GUN BARREL #1	
T-2206	1,000 BBL GUN BARREL #2	
T-2207	1,000 BBL GUN BARREL #3	
T-2208	1,000 BBL GUN BARREL #4	
T-2305	SKIM TANK #1 (500 BBL)	
T-2306	SKIM TANK #2 (500 BBL)	
T-2307	SKIM TANK #3 (500 BBL)	
T-2308	SKIM TANK #4 (500 BBL)	
T-2302	SUMP TANK (CONTAINMENT)	
P-3103	60 HP WATER OUTLET PUMP #1	
P-3104	60 HP WATER OUTLET PUMP #2	
P-3107	50 HP WATER OUTLET PUMP #3	
P-3108	50 HP WATER OUTLET PUMP #4	
P-3002	3 HP RECIRCULATION PUMP #1	
K-5003	5 HP INSTR. AIR COMPRESSOR #1	
K-5004	5 HP INSTR. AIR COMPRESSOR #2	

EQUIPMENT LIST-PH1		
A	CONTROL RACK	
B	TRANSFORMER BANK	
C	VFD/FILTERS	
D	LIGHT POLE	
E	WATER LOADING	
F	WATER LOADOUT	
G	OIL LOADING	
T-2101	1,000 BBL FG TANK #1	
T-2102	1,000 BBL FG TANK #2	
T-2103	1,000 BBL FG TANK #3	
T-2104	1,000 BBL FG TANK #4	
T-2105	1,000 BBL FG TANK #5	
T-2106	1,000 BBL FG TANK #6	
T-2107	1,000 BBL FG TANK #7	
T-2108	1,000 BBL FG TANK #8	
T-2109	60,000 BBL AST	
T-2201	1,000 BBL GUN BARREL #1	
T-2202	1,000 BBL GUN BARREL #2	
T-2203	1,000 BBL GUN BARREL #3	
T-2204	1,000 BBL GUN BARREL #4	
T-2301	SKIM TANK #1 (500 BBL)	
T-2302	SKIM TANK #2 (500 BBL)	
T-2303	SKIM TANK #3 (500 BBL)	
T-2304	SKIM TANK #4 (500 BBL)	
T-2310	SUMP TANK (CONTAINMENT)	
P-3101	60 HP WATER OUTLET PUMP #1	
P-3102	60 HP WATER OUTLET PUMP #2	
P-3105	50 HP WATER OUTLET PUMP #3	
P-3106	50 HP WATER OUTLET PUMP #4	
P-3001	3 HP RECIRCULATION PUMP #1	
K-5001	5 HP INSTR. AIR COMPRESSOR #1	
K-5002	5 HP INSTR. AIR COMPRESSOR #2	
T-2312	SUMP TANK (CONTAINMENT)	

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	1-9-19	-	CV	REVISED LAYOUT FOR P/L ROW	-	-	-	-	-	-	-	-	-	-
0	07-19-18	JD	CV	ISSUED FOR CONSTRUCTION	1218337	CV	-	-	-	-	-	-	-	-
REV	DATE	DRAWN BY	CHECKED BY	DESCRIPTION	ONEOXY PROJECT #	PROJ. ENG.	SIGNATURE	REV	DATE	APP. BY	DESCRIPTION	PROJECT NUMBER	PROJ.ENG.	SPEC.ENG.
						OXY APPROVAL							OXY APPROVAL	
PROJECT DRAWING REVISION								MASTER DRAWING REVISION						
IN CASE OF DEVIATIONS A MARKED UP PRINT SHALL BE SENT TO THE PROJECT ENGINEER								NOTES/REFERENCE DRAWINGS						

FACILITY CODE: MESA VERDE PRODUCED WATER POLISHING FACILITY

FACILITY TYPE: PWWF

DWG. TYPE: PLOT PLAN

DESCRIPTION: PLOT PLAN (DIMENSIONS)

SCALE: 0 1 2 3 4 5 6 7

Oxy USA Inc. - Permian Resources
A subsidiary of Occidental Petroleum Corporation

DWG	ASSET	FACILITY CODE	DISC. CODE	SERIAL NUMBER	SHEET NUMBER	REV
NO	PER	30015FC0040	CVL	00001	001	1



**Engineering and Standard
Operating Procedures (QA/QC)
for the
Above Ground Storage Tanks
(AST)
Also known as
Modular Large Volume Tanks
(MLVT)**

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The reader is hereby notified that all information, reports, drawings, plans, diagrams, and specifications contained herein are the confidential property of Well Water Solutions and Rentals, Inc. (“WWSR”) and constitute proprietary trade secret material. Ownership of any tangible and intangible property, including intellectual property, is and shall be reserved and retained by WWSR. Unless otherwise authorized by WWSR in advance by written permission: (a) any use of WWSR confidential property shall be limited to legitimate, good faith purposes associated with regulatory compliance; (b) no person shall allow or in any way assist the disclosure, transfer, dissemination or use of any confidential property except for regulatory compliance purposes; and (c) only original, signed versions of this document may be authorized for use and review, and reproduction of or digitally storing this document by any method is strictly prohibited. Any violation, breach or threatened breach, whether voluntary or inadvertent, of the aforementioned limitations and prohibitions will cause irreparable injury to WWSR and shall entitle WWSR to injunctive relief against, and recover all attorney fees and cost from, any person in breach or threatening to breach said prohibition.

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1.1

EMERGENCY ACTION PLAN**EMERGENCY PERSONNEL NAMES AND PHONE NUMBERS**

DESIGNATED RESPONSIBLE PERSONNEL (Highest ranking manager at the site, such as, crew supervisor or crew lead.)

Name: _____

Phone: _____

EMERGENCY COORDINATOR:

Name: Brian Bullock

Phone: 307-267-3964

AREA MONITORS:

Controller: Mike Karaouni

Phone: 307-247-0791

US Sales Manager: Chad Campbell

Phone: 307-259-1987

TANKS

North Dakota: Jake Travers

Phone: 208-610-6692

Wyoming: JW Morris

Phone: 307-267-8075

WATER TRANSFER

Wyoming: Ben Ledford

Phone: 307-277-4681

WELL WATER SOLUTIONS AND RENTALS OWNERSHIP

CEO Chris Songe

Phone: 307-247-1143

PRESIDENT Sean Lovelace

Phone: 307-267-1878

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EVACUATION ROUTES

- Evacuation routes have been posted in each work area. The following information is marked on evacuation maps.
 1. Emergency exits
 2. Primary and secondary evacuation routes
 3. Locations of fire extinguishers
 4. Fire alarm pull station locations
 5. Assembly points
- Site personnel should know at least two evacuation routes.
- All emergency numbers listed in this manual are for the Casper WY area. All field employees shall list in the space provided all emergency numbers needed for the regions that they are working in on the following form and in the JSA (Pre Job Safety Analysis).

EMERGENCY PHONE NUMBERS

FIRE DEPARTMENT: Emergency 911
Non-emergency 307-237-7260 (Bar Nunn volunteer FD)

AMBULANCE: Emergency 911
Non-emergency 307-237-7260 (Bar Nunn volunteer FD)

POLICE: Emergency 911
Non-emergency 307-235-9282 (Sheriff's office dispatch)

POWER COMPANY: 1-888-221-7070 (Rocky Mountain Power)

WATER COMPANY: 307-265-7034 (Wardwell Water and Sewer district)

GAS COMPANY: 1-800-563-0012 (Source Gas)
Local Number 307-234-6216

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EMERGENCY REPORTING AND EVACUATION PROCEDURES

Types of emergencies to be reported by site personnel are:

- MEDICAL
- FIRE
- SEVERE WEATHER
- BOMB THREAT
- CHEMICAL SPILL
- EXTENDED POWER LOSS
- OTHER (specify)_____

(e.g., active shooter, terrorist attack/hostage)

MEDICAL EMERGENCY

- Call medical emergency phone numbers
 - Ambulance
 - Fire Department
 - Police

Provide the following information:

- a. Nature of medical emergency
- b. Location of the emergency (address, building number, room number)
- c. Your name and phone number you are calling from

- Do not move victim unless absolutely necessary
- Call the following personnel trained in CPR and First Aid to provide the required assistance prior to the arrival of professional medical help:

Brian Bullock 307-267-3964

Mike Karaouni 307-247-0791

Marc Collier 307-277-6043

- If trained personnel are not available, as a minimum, attempt to provide the following assistance:
 1. Stop the bleeding with firm pressure on the wounds (note: avoid contact with blood and other body fluids.)
 2. Clear the air passage using the Heimlich maneuver in case of choking.
- In case of rendering assistance to personnel exposed to hazardous materials, consult the SDS (Safety Data Sheet) and wear the appropriate PPE (personal protective equipment) attempt First Aid ONLY if trained and qualified.

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FIRE EMERGENCY

When fire is discovered:

- Activate the nearest fire alarm (if installed)
- Notify the local fire department by calling 911.

Be prepared to give location, (address, building number, room number) your name and number you are calling from.

- If alarm is not available, notify site personnel about the fire emergency by the following means.
 - Voice communication
 - Phone paging
 - Radio
 - Other (specify)_____

Fight fire ONLY if:

- The Fire Department has been notified.
- The fire is small and is not spreading to other areas.
- Escaping the area is possible by backing up to the nearest exit.
- The fire extinguisher is in working condition and personnel are trained to use it.

Upon being notified about the fire emergency, occupants must:

- Leave the building using the designated escape routes.
- Assemble in the designated area (specify location)
- Remain outside until the component authority (Designated official or designee) announces that it is safe to reenter.

Designated official, Emergency Coordinator, or supervisors must,

- Disconnect utilities and equipment unless doing so jeopardizes his/her safety.
- Coordinate an orderly evacuation of personnel.
- Perform an accurate head count of personnel reported to the designated area.
- Determine a rescue method to locate missing personnel.
- Provide the Fire Department personnel with the necessary information about the facility.
- Perform assessment and coordinate with ownership for office closing procedures.

Area monitors must:

- Ensure that all employees have evacuated the area.
- Report any problems to the Emergency Coordinator at the assembly area.
-

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EXTENDED POWER LOSS

In the event of extended power loss to the facility, certain precautionary measures be taken depending on the geographical location and environment of the facility:

- Unnecessary electrical equipment and appliances should be turned off in the event that power restoration would surge causing damage to electronics and effecting equipment.
- Facilities with freezing temperatures should turn off and drain the following lines in the event of a long term power loss.
 - Fire sprinkler system
 - Standpipes
 - Portable water lines
 - Toilets
- Add propylene-glycol (anti-freeze) to drains to prevent traps from freezing.
- Equipment that contains fluids that may freeze due to long term exposure to freezing temperatures should be moved to heated areas, drained of liquids, or provided auxiliary heat sources.

Upon restoration of heat and power:

- Electronics should be brought up to ambient temperatures before energizing to prevent condensate from forming on circuitry.
- Fire and portable water piping should be checked for leaks from freeze damage after the heat has been restored to the facility and water turned back on.

CHEMICAL SPILL

In the event of a spill, always consult the SDS and check safe distances and appropriate PPE (Personal Protective Equipment).

When a large spill has occurred:

- Immediately notify the designated official and Emergency Coordinator.
- Contain the spill with available equipment (e.g. pads, brooms, absorbent powder, etc.)
- Secure the area and alert other on site personnel.
- DO NOT attempt to clean the spill unless trained to do so.
- Attend to any injured personnel and call the medical emergency number, if required.
- Call a local spill clean-up company or the fire department (if arrangements have been made) to perform a large chemical spill clean-up.

Fire department Non-emergency 307-237-7260 (Bar Nunn volunteer FD)

- Evacuate building as necessary.

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When a small spill has occurred:

- Notify Supervisor
- If toxic fumes are present, secure the area (with caution tape or cones) to prevent other personnel from entering.
- Deal with the spill in accordance with the instructions described in the SDS.
- Small spills must be handled in a safe manner, while wearing the proper PPE.

TELEPHONE BOMB THREAT CHECKLIST

INSTRUCTIONS: BE CALM, BE COURTEOUS. LISTEN. DO NOT INTERRUPT THE CALLER.

YOUR NAME: _____ TIME: _____ DATE: _____

CALLER'S IDENTITY: SEX: MALE _____ FEMALE _____ ADULT _____ JUVENILE _____ APROX AGE _____

ORIGIN OF CALL: LOCAL _____ LON DISTANCE _____

☐ Loud ☐ Soft ☐ High pitch ☐ Deep ☐ Raspy ☐ Pleasant ☐ Intoxicated ☐ Other ACCENT ☐ Local ☐ Not local ☐ Foreign ☐ Region ☐ Race	☐ Fast ☐ Slow ☐ Distinct ☐ Distorted ☐ Stutter ☐ Nasal ☐ Slurred ☐ Other MANNER ☐ Calm ☐ Angry ☐ Rational ☐ Irrational ☐ Coherent ☐ Incoherent ☐ Deliberate ☐ Emotional ☐ Righteous ☐ Laughing	☐ Excellent ☐ Good ☐ Fair ☐ Poor ☐ Foul ☐ Other BACKGROUND NOISES ☐ Factory ☐ Trains ☐ Machines ☐ Animals ☐ Music ☐ Quiet ☐ Office ☐ Voices ☐ Machines ☐ Airplanes ☐ Street ☐ Party ☐ Traffic ☐ Atmosphere
Voice Characteristics	Speech	Language

BOMB FACTS

PRETEND DIFFICULTY HEARIN-KEEP CALLER TALKING-IF CALLER SEEMS

AGREEABLE TO FURTHER CONVERSATION, ASK QUESTIONS LIKE:

When will it go off? Certain Hour _____ Time Remaining _____

Where is it located? Building _____ Area _____

What kind of bomb? _____

What kind of package? _____

How do you know so much about the bomb? _____

What is your name and address? _____

If building is occupied, inform caller that detonation could cause injury or death.

Call the Sheriff at 307-235-9282 and relay information about the call.

Did the caller appear familiar with the shop or location (by his/her description of the bomb location)?

Write out the message in its entirety and any other comments on a separate sheet of paper and attach it to this checklist.

Notify your supervisor immediately.

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SEVERE WEATHER AND NATURAL DISASTERS

Tornado:

- When a warning is issued by sirens or other means, seek inside shelter. Consider the following:
 1. Small interior rooms on the lowest floor and without windows.
 2. Hallways on the lowest floor away from doors and windows.
 3. Rooms constructed with reinforced concrete, brick, or block with no windows.
- Stay away from outside walls and windows.
- Use arms to protect head and neck.
- Remain sheltered until the tornado threat is announced to be over.

Earthquake:

- Stay calm and await instructions from the Emergency Coordinator and/or the designated official.
- Keep away from overhead fixtures, windows, filing cabinets, and electrical power.
- Assist people with injuries in finding a safe place.
- Evacuate as instructed by the Emergency Coordinator and/or the designated official.

Flood:

If indoors:

- Be ready evacuate as directed by the Emergency Coordinator and/or the designated official.
- Follow the designated primary and secondary routes.

If outdoors:

- Climb to high ground and stay there.
- Avoid driving or walking through flood water.
- If car stalls, abandon it immediately and climb to higher ground.

Blizzard:

If indoors:

- Stay calm and await instructions from the Emergency Coordinator or the designated official.
- Stay indoors.
- If there is no heat:
 1. Close off unneeded rooms and areas.
 2. Stuff towels or rags in cracks under doors.
 3. Cover windows at night.
- Eat and drink. Food provides the body energy and heat. Fluids prevent dehydration.

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- Wear layers of loose-fitting, lightweight, warm clothing if available.

If outdoors:

- Find a dry shelter. Cover all exposed parts of the body.
- If shelter is not available:
 1. Prepare a lean-to, windbreak, or snow cave for protection from the wind.
 2. Build a fire for heat and to attract attention. Place rocks around the fire to absorb and reflect heat.
 3. DO NOT eat snow. It will lower your core body temperature. Melt it first.

If stranded in a car or truck:

- Stay in the vehicle!
- Run the motor for about ten minutes every hour. Open the window a little for fresh air to avoid carbon monoxide poisoning. Make sure the exhaust pipe is not blocked.
- Make yourself visible to rescuers.
 1. Turn on the dome light at night when running the engine.
 2. Tie a colored cloth to the antenna or door.
 3. Raise the hood after the snow stops falling.
- Exercise to keep blood circulating and to keep warm.

1.2



Company Information

Company

Name_____

Location_____

Company Man_____

Phone_____

Victim Information

Name_____

Category: Injury Illness (circle one)

Location_____

Job Title_____

Department_____

Date_____

Incident Information

What was the injury or illness?_____

Time work began?_____

What happened? (short explanation of how the incident occurred)_____

What object or substance directly harmed the employee?_____

Unsafe acts by people: (circle all that apply)

Operating without permission

Operating at unsafe speeds

Servicing Equipment with power

Making a safety device inoperative

Using defective equipment

Using equipment incorrectly

Unsafe lifting

Taking an unsafe position or posture

Distraction, teasing, or horseplay

Failure to wear PPE

Failure to use available equipment

Other_____

Did you see the potential incident while performing the job? YES or NO

Explain_____

Did you notify the supervisor of the unsafe acts or conditions prior to the incident?

YES or NO

Explain_____

Where was the supervisor prior to and during the incident?_____

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How could this incident have been avoided? (circle all that apply)

Stop the activity	Train supervisor	Routinely inspect for the hazard
Guard the hazard	Redesign task steps	PPE
Train employee	Write a new policy or procedure	
Other _____		

Was there corrective action taken? YES or NO
What correction action was taken? _____

List all unsafe conditions leading to injury. _____

What happened? (short explanation of how injury occurred) _____

Was the supervisor notified of unsafe acts or conditions prior to injury? YES or NO
Explain _____

Where was the supervisor prior to/during to the injury? _____

How could this injury have been avoided? _____

Was corrective action taken? YES or NO
What corrective action was taken? _____



NEAR MISS REPORT

A near miss is a potential hazard or incident that has not resulted in any personal injury. Unsafe working conditions, unsafe employee work habits, improper use of equipment or use of malfunctioning equipment have the potential to cause work related injuries. It is everyone's responsibility to report and /or correct these potential accidents/incidents immediately. Please complete this form as a means to report these near-miss situations.

Department/Location _____ Date: _____

Time _____ ☐ am ☐ pm

Please check all appropriate conditions:

☐ Unsafe Act

☐ Unsafe equipment

☐ Unsafe Condition

☐ Unsafe use of equipment

Description of incident or potential hazard : _____

Employee Signature _____ Date _____

(optional)

NEAR MISS INVESTIGATION

Description of the near-miss condition: _____

Causes (primary and contributing) _____

Corrective action taken (Remove the hazard, replace, repair, or retrain in the proper procedures for the task)

Signed: _____ Date Completed _____

Not completed for the following reason: _____

Management _____ Date _____

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JSA will be filled out prior to the start of the day or different new task.



COMPANY
LOCATION
SUPERVISOR
DATE :

Task Description:

[illegible][illegible][illegible]

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1.4

TRUCK PRETRIP CHECKLIST

Operator	Date
Truck #	Gas/Diesel

OPERATOR MUST COMPLETE CHECKLIST AT THE START OF THE DAY

Mileage Beginning _____ **Mileage Ending** _____

Visual checks	OK	Service	N/A	Notes
Tire Condition				
Head/Tail lights				
Warning lights				
Fluid Levels				
Battery conn.				
Seatbelts				
Mirrors				
Gauges				
Fluid leaks				
Oil change				
Horn				
Steering				
Ops check				
Check oil				
Check coolant				
Diesel additive				
Battery levels				
Tire pressure				
Brakes				
Brake fluid				
Power steering				
Belts/hoses				
In service?	Yes	No		



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TRAILER PRETRIP CHECKLIST

Operator	Date
Trailer #	Dual Tandem/Single

Pre-trip	Ok	Service	Notes
Check gooseneck, connection, safety latch, & emergency Brake away			
All lights and connection			
Tires, pressure, hub, and lugs			
Deck boards, condition, clean, broken			
Min 12 straps and 4 chains and ratchet boomers			
Date of last DOT inspection with proof and registration			
In service?	Yes	No	



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FORKLIFT PRE USE CHECKLIST

FORKLIFT # _____ LOCATION _____

DAY _____ SHIFT _____ TIME _____

ITEM INSPECTED	OK	HIGH	LOW	AMOUNT ADDED
Fuel level				
Oil level				
Leaks under lift				
Forks, backrest, and Carriage				
Mast, Chain, Hydraulic lines				
Check Frame for cracks				
Tires, tire pressure, Axles				
Overhead Guard				
Fuel tank and connections				
Hydraulic cylinders and levels				
Battery and Cables				
Seat and Seatbelt				
Horn and backup alarm				
Lights and ops manual				
Gauges and instruments				
Brakes and Emergency brake				
Hydraulic controls and lift				
Steering				
Check boom for leaks and cracks				
All glass and wipers				
All Mirrors				



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BACKHOE PRE USE CHECKLIST

BACKHOE # _____ LOCATION _____

DAY _____ SHIFT _____ TIME _____

ITEM INSPECTED	OK	HIGH	LOW	AMOUNT ADDED
Fuel level				
Oil level				
Leaks oil, hydraulic, fuel				
Check belts and hoses for cracks				
Battery and cables				
Inspect frame for cracks				
Check Hydraulic lines and fittings				
Check steps and handles				
Check bucket and teeth				
Inspect stabilizers and pads				
Lights and signals				
Horn and backup alarm				
All glass and wipers				
Instruments and gauges				
Steering				
Check tires and pressure				
Check all brakes				
Grease all points daily				



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Aerial lift pre-use inspection checklist



Operator _____ Date _____ Aerial or scissor lift ID _____			
Unit type:		Location	
1. Safety Precautions	OK, NO, NA	2. Check Operations	OK, NO, NA
Windy		Horn	
Less than 20-25 MPH		Guage	
PPE		Brakes	
Wheel chock or Brake		Lights	
Working surface -Level		Steering	
Power Lines or Electrical Source		Attatchments or Accessories	
Load Limits		Back up Alarm	
Outriggers		Warning lights	
Other		Other	
3. Vehicle Inspection	OK, NO, NA	4. Platform Lift Inspection	OK, NO, NA
Oil Level		Lift and travel controls and switches	
Hydraulic Oil level		Placards, Decals, and Control ID labels	
Fuel Level		Handrails, Guardrails, and Safety Chains	
Check lift and area for leaks		Platform deck and toeboards	
Coolant level		Other	
Tire pressure and condition of tires			
Battery and charger			
Ground control switches			
Other			
Comments			

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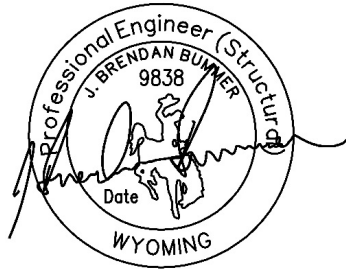
2.1

Modular Large Volume Tank

STRUCTURAL DESIGN SPECIFICATIONS

Prepared for:
WELL WATER SOLUTIONS
Casper, Wyoming

July 1, 2014



Prepared by:
PILLAR STRUCTURAL ENGINEERING
1964 E. 1st Street
Casper, Wyoming 82601
(307) 265-3900
(307) 265-3559 fax
www.pillarse.com

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Structural Design Specifications

Project: Modular Large Volume MLVT

Project No.: 14-06087

Date: July 1, 2014

Pages 1-8: General References
Project Summary
Structural Design Certification
MLVT Erection Operations Manual
MLVT Inspection and Testing Specifications

Attachments: Design Drawings

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GENERAL REFERENCES

Manual of Steel Construction – Load and Resistance Factor Design, Third Edition, American Institute of Steel Construction.

Welded Steel Tanks for Oil Storage – API Standard 650, Eleventh Edition, June 2007, American Petroleum Institute.

Tank Inspection, Repair, Alteration, and Reconstruction – API Standard 653, Fourth Edition, April 2009, Addendum 1, August 2010, American Petroleum Institute.

PROJECT SUMMARY

These specifications have been prepared for Well Water Solutions, a supplier of MLVT's located in Casper, WY.

The specifications herein include the structural design certification, MLVT erection operations manual, and MLVT inspection and testing specifications. All other components of the policy requirements including site preparation and liner certification and installation are provided and certified by others. These specifications have been prepared as general guidelines specific to the MLVT's provided only by Well Water Solutions.

2.2

PILLAR STRUCTURAL ENGINEERING

June 30, 2015

Well Water Solutions and Rental, Inc.
2130 W. 40th
Casper, WY 82604
Attn: Sean Lovelace

Re: Portable Frac Tank Certification – Pinned Seams

Dear Mr. Lovelace:

Per your request our office has performed a structural analysis of the portable frac tanks as well as the associated accessories. This analysis was performed to determine that the tanks meet the required strength criteria under operating conditions according to the AISC Manual of Steel Construction.

The tanks range in diameter from approximately 81 to 190 feet and are 11 feet, 8 inches in height and are designed to store water. They are constructed of individual steel reinforced panels that are connected together with a patent pending steel pin system.

The following tanks sizes were included in the analysis:

- 10,000 BBL – Approximately 81'Ø
- 20,000 BBL – Approximately 108'Ø
- 30,000 BBL – Approximately 135'Ø
- 40,000 BBL – Approximately 156'Ø
- 50,000 BBL – Approximately 176'Ø
- 55,000 BBL – Approximately 183'Ø
- 60,000 BBL – Approximately 190'Ø

The tanks are constructed of the following materials:

- Tank Panels – ASTM A36, 36 ksi Steel Plate
- Horizontal & Vertical Framing – ASTM A500, Grade B, 46 ksi Structural Steel Tubing
- Connecting Pins - ASTM A36, 36 ksi Steel Round Bar



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Page 2 of 2

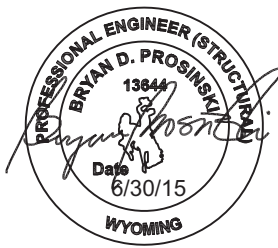
Our office has determined that the portable frac tanks, as described herein, are capable of supporting the operating load conditions in conformance with the AISC Manual of Steel Construction.

Calculations of this analysis can be provided upon request.

If you have any questions or require additional information please contact our office.

Sincerely,

Bryan Prosinski, P.E., S.E.
Pillar Structural Engineering



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June 30, 2015

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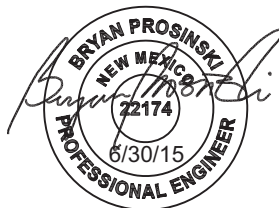
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Sincerely,

J. Brendan Bummer, P.E.
Pillar Structural Engineering



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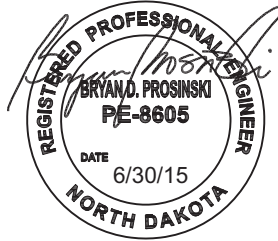
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Box 7866 5014 Industrial Road, Drayton Valley, Ab. T7A 1L5 Ph: (780) 542-3096 Fax: (780) 542-6405

Engineering Compliance

July 6, 2015

KFE Project #151055

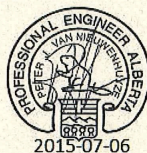
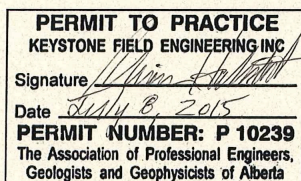
Water Well Solutions and Rentals, Inc.
Attn: Scott Sandler
2130 W. 40th
Casper, Wyoming (USA) 82604

Attention: Mr. Scott Sandler

Re: Portable Frac Tank Engineering Review and Compliance – Pinned Seams
Sizes: 10K, 20K, 30K, 40K, 50K, 55K and 60K Tanks

A structural engineering review was conducted by Peter Vann (P. Eng) of Keystone Field Engineering Inc. for the above noted tank sizes. It was determined that the 'pinned' tank panel connections are capable of supporting the operating load conditions; and the panel lift points are of suitable construction according to the Canadian Handbook of Steel Construction (latest addition). The certified liner for the tanks shall have a minimum bonded seam strength of 40 ppi.

If you have any questions, please contact the office at 780-542-3096.



Peter Vann, P. Eng
Structural Engineer

KEYSTONE FIELD ENGINEERING INC.
PV/ kj
Reference:
Drawings completed by Nalco FabTech

www.keystonefieldeng.com

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2.3

I. MLVT ERECTION OPERATIONS MANUAL

A. PRE CHECKS

1. Complete JSA prior to any work commencing
2. Confirm MLVT location and inspect for proper compliance with WYOGC requirements and site preparation recommendations.
3. Inspect trenches for proper construction according to site preparation recommendations.
4. Check weather conditions for the entire day to assure there will be proper weather conditions. If wind exceeds 15-20 MPH consider stopping work or consider deploying liner once all but one MLVT panels have been erected to provide a satisfactory wind block.
5. Review compaction tests for conformance with site preparation recommendations.
6. Comply with MLVT Inspection and Testing Specifications.

B. TOOLS, MATERIALS, and EQUIPMENT

1. Hard Hat
2. FRC Clothing
3. Gloves and Safety Glasses
4. Fall Arrest Gear
5. Box Knife
6. Drills with Deep Well Sockets
7. Telehandler Attachment
8. Telehandler (9,000 lb. or larger)
9. Optional Telehandler Man Basket with OSHA Certified Load Rating
10. Man Lift

C. MLVT ERECTION PROCEDURE

1. Inspect ditches, find center of MLVT and paint the ring for the MLVT. 40K=156'Ø, 30K=135' Ø, 20K=108' Ø, 10K=82' Ø.
2. Once the ring is painted make a mark 15' out from the ring around the outside. This mark is used as a reference point to assure there is enough liner to go over the MLVT walls once they are erected.
3. Unroll and position the 10 ounce geotextile fabric to all sides of the ring. Ensure the center mark labeled on the geotextile fabric is in the center of the MLVT. Adjust the geotextile if necessary.
4. Once the geotextile fabric is laid out and free of large wrinkles unroll and pull the liner out past the edges of the geotextile fabric. All layers should overlap each other and the liner should extend past the 15' mark. Once you have ensured the geotextile fabric and liner are square and centered it is ok to then begin to fill the trenches with water. Take care not to walk on liner that has no geotextile fabric underneath it. Make sure boots are clean and free of rocks before walking on any liner.
5. Once the geotextile fabric and liner are pulled out, begin to set the ring by first folding the geotextile fabric and the liner back onto itself to expose the MLVT diameter line for the MLVT panel ring.

-
6. Put telehandler attachment on telehandler (Remove round bar holding forks onto telehandler and reinsert through custom attachment and re-secure bar to carriage.) and use attachment to place the first panel on the line. Secure the panel in place to secondary equipment with a certified chain. Secondary equipment may be a backhoe or other large machinery.
 7. Continue to set panels in a counter clockwise fashion by placing the female holes of the new panel onto the male pins of the previous panel. Set the rest of the ring in this same manner. (At each panel joint secure a 16 ounce geotextile strip to top pin of the panel and drape to the inside of the MLVT. Spray glue or tape in place on the interior joint to provide added liner protection at these points.)
 8. Hang one to two fill lines and secure them with ratchet straps to give the water trucks a place to continue filling the MLVT as the remainder of the panels are erected.
 9. Once there are enough panels (about half) in place for the MLVT to hold itself erect, begin pulling liner up the wall and placing temporary clips to hold in place. Take care to leave sufficient slack in the liner. Ensure that the person in the man basket has on the appropriate fall arrest gear.
 10. Before setting the last panel hang the manifold and connect the suction line and strainer box. (Make sure suction hose is connected in a straight alignment to assure good suction.)
 11. Set the last panel of the MLVT.
 12. Begin setting the permanent clips by adjusting liner in a straight and loose manner to allow for tightening as water is added to the MLVT. Ensure that personnel setting the clips are wearing the proper fall arrest gear.
 13. When the liner is adjusted correctly, place 2 clips per panel and tighten the bolts with impact drills.
 14. Continue setting clips in this manner until all clips are placed. It is very critical to have around 12-16 inches of water in the MLVT before all clips are installed. Monitor the MLVT closely until the minimum required amount of water is in the MLVT. If there is not at least 12 inches of water in the MLVT, install the clips only on every other panel. This will break any vacuum created from wind and will prevent the liner from shifting. Once the required amount of water is in the MLVT it must be fully clipped.
 15. Once all clips are set, trim back the excess liner and discard.
 16. Hang all remaining plumbing and secure with ratchet straps.
 17. Walk location and pick up ALL trash.
 18. Secure all materials and trash to be removed from location and leave location.

2.4

II. MLVT INSPECTION AND TESTING SPECIFICATIONS

A. VISUAL INSPECTION FREQUENCY

1. MLVT owner to visually inspect each panel as they are offloaded.
2. MLVT owner to visually inspect each panel and panel connection once the MLVT is erected.
3. Operator, contractor, or MLVT owner to conduct routine visual inspections of the exterior panels and panel connections of the MLVT as required by the WYOGC.
4. MLVT owner to visually inspect each panel and panel connection as they are disassembled.
5. MLVT owner to verify thickness of every panel a minimum of every 50 set-ups.
6. Design Engineer of Record to perform annual visual observation of each MLVT in production.

B. VISUAL INSPECTION GUIDELINE

1. Inspect for deficiencies in the MLVT panels, panel connections, and connection components. Deficiencies include but are not limited to; damaged panels or panel connection components, excessive corrosion of steel, cracked welds, paint coatings, etc.
2. Inspect for any indication of tank settlement.
3. Inspect for any indication of leaks.
4. Inspect for any indication of tank panel and/or panel connection fatigue.

C. MAGNETIC PARTICLE EXAMINATION

1. Magnetic Particle Examination must be performed by a certified inspector a minimum of every 50 MLVT set-ups.
2. The examination must include ALL welded joints.
3. Any deficiencies found must be repaired by a certified welder. If deficiencies cannot be adequately repaired, consult design engineer for appropriate recommendations.

D. RECORDS

1. Records of all inspections must be kept.
2. A log of each MLVT must be kept by MLVT owner indicating dates and duration of each service, inspections and examinations performed, and repairs or alteration performed.

2.5

23. STANDARD DRAWING PANEL, WELLS SOLUTIONS WATER SERVICE TANK PANEL, DRAWING NO. 40-001

CK	ITEM	QTY	DESCRIPTION	WIDTH	LENGTH	MATERIAL	C LENGTH (in.)	WEIGHT
1	14		BAR, ROUND, 5/8" (LOOK PIN)		6 1/2 in	A36	6.50	
2	2		D-RING, 1/2" B3B, WORKING LOAD 4080 lbs			A29/A29M -91 1045(C-1045), MODIFIED TO WELD DOWN		2
3	2		FBAR, 1"	10 in	131 1/2 in	A36	131.50	37.3
4	2		FBAR, 10GA	3 in	43 1/8 in	A36	86.25	99
5	2		PAD EYE, #2			CROSSBY GROUP, S-264		0
6	7		PIN, 2" DIA		4 1/2 in	KUSTOM KONSEPTS, A1018	31.50	3
7	7		PIN, 3" DIA		4 1/2 in	KUSTOM KONSEPTS, A1018	31.50	8
8	2		PLATE, 3/16"	3 in	5 in	A36	10.00	2
9	1		PLATE, 3/16"	96 in	240 in	A36	240.00	156
10	6		SHEET, 10GA	2 1/2 in	3 3/4 in	A36	22.50	3
11	1		SHEET, 10GA	42 1/2 in	240 in	A36	240.00	50
12	2		TUBE, 4" x 2" x 1/4" (MITER BOTH ENDS)		52 in	A500B CLEAN COAT	104.00	55
13	3		TUBE, 4" x 2" x 3/16"		37 1/4 in	A500B CLEAN COAT	74.50	43
14	3		TUBE, 4" x 2" x 3/16"		42 3/4 in	A500B CLEAN COAT	128.25	74
15	2		TUBE, 4" x 2" x 3/16"		44 in	A500B CLEAN COAT	86.00	50
16	2		TUBE, 4" x 2" x 3/16"		132 in	A500B CLEAN COAT	264.00	151
17	1		TUBE, 4" x 2" x 3/16" (MITER BOTH ENDS)		137 1/2 in	A500B CLEAN COAT	131.50	78
18	2		TUBE, 4" x 2" x 3/16" (ROLL TO 155'-6 7/8" I.D.)		236 3/8 in	A500B CLEAN COAT	472.75	271
19	2		TUBE, 4" x 2" x 3/16" (ROLL TO 155'-6 7/8" I.D.)		253 7/8 in	A500B CLEAN COAT	507.75	291

INSIDE EDGE OF TANK

OUTSIDE EDGE OF TANK

INSIDE EDGE OF TANK

OUTSIDE EDGE OF TANK

NOTES:

-THIS DRAWING REFLECTS ONE (1) ASSEMBLY -TWENTY THREE (23) PANELS REQUIRED FOR ENTIRE TANK ASSEMBLY

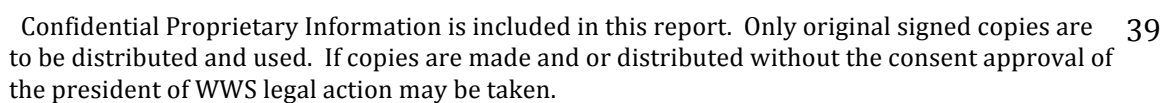
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2	STANDARDIZE NOTATIONS	1/17/2012	JUV
1	ADDED ITEMS 7, 8, & 16 FOR CONSTRUCTION REF(1050-901)	12/09/11	D5G
0	CHANGED HEIGHT AND LOCATION OF PINS REV(1078-40-901)	9/1/2011	CJD

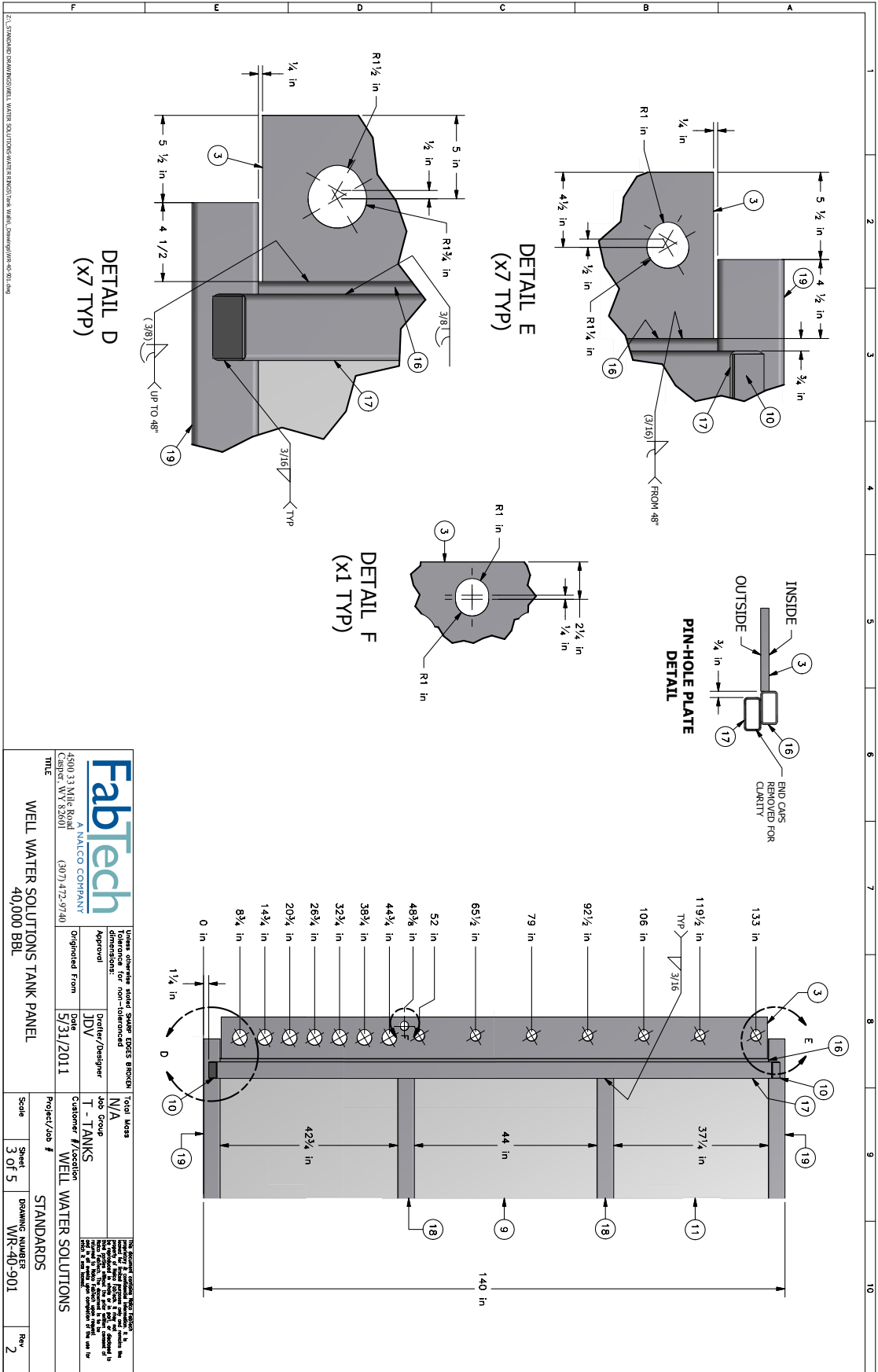
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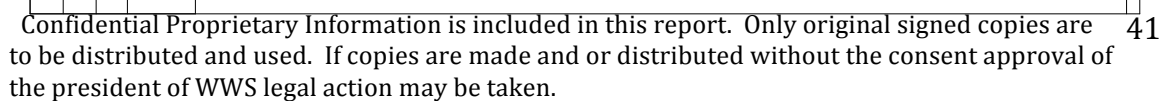
Originated From: JUV
Date: 5/31/2011
Total Mass: N/A
Job Group: T - TANKS
Customer #/Location: WELL WATER SOLUTIONS
Project/Job #:
Scale: Sheet 1 of 5
Drawing Number: WR-40-901
Rev: 2

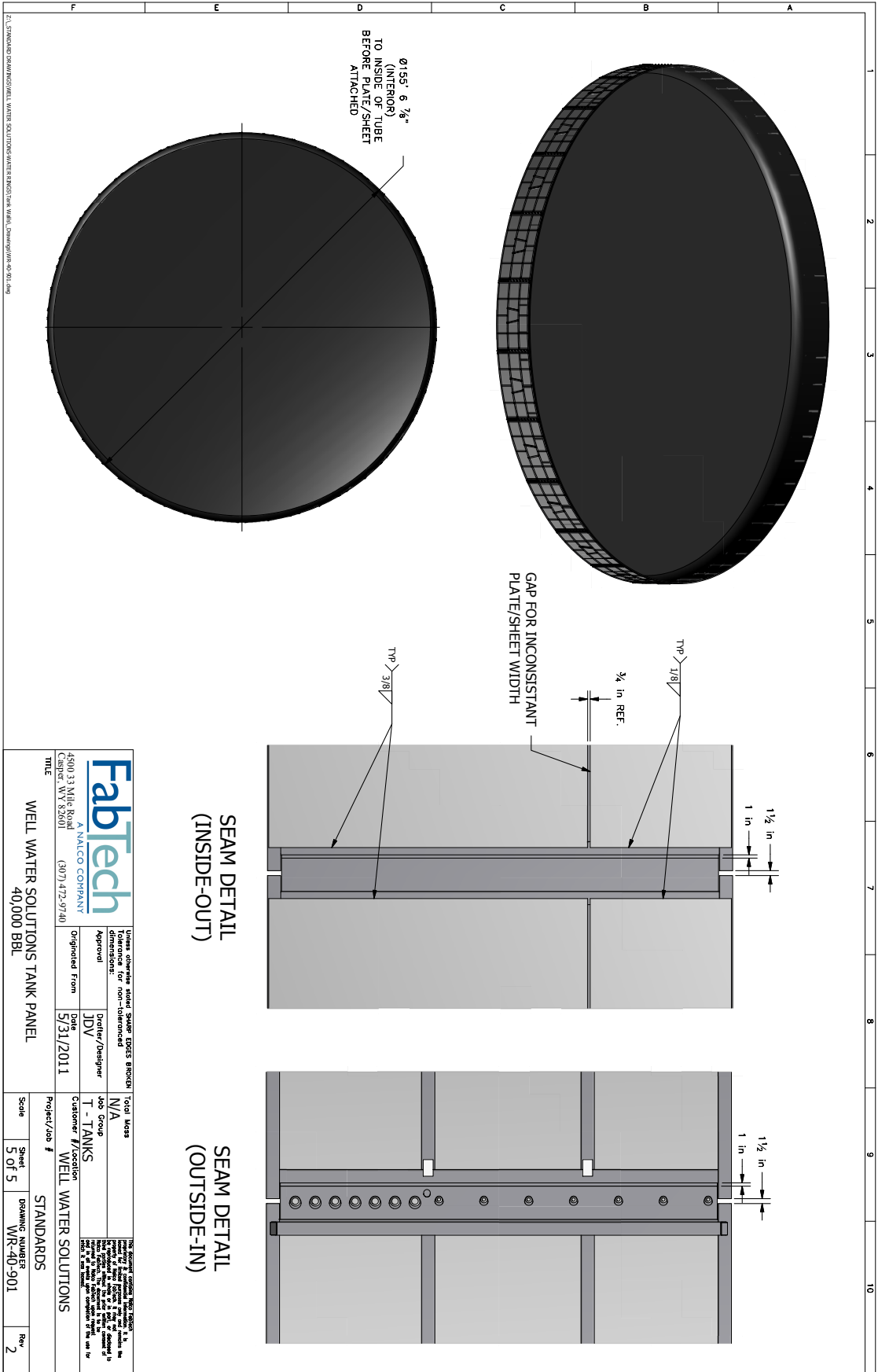
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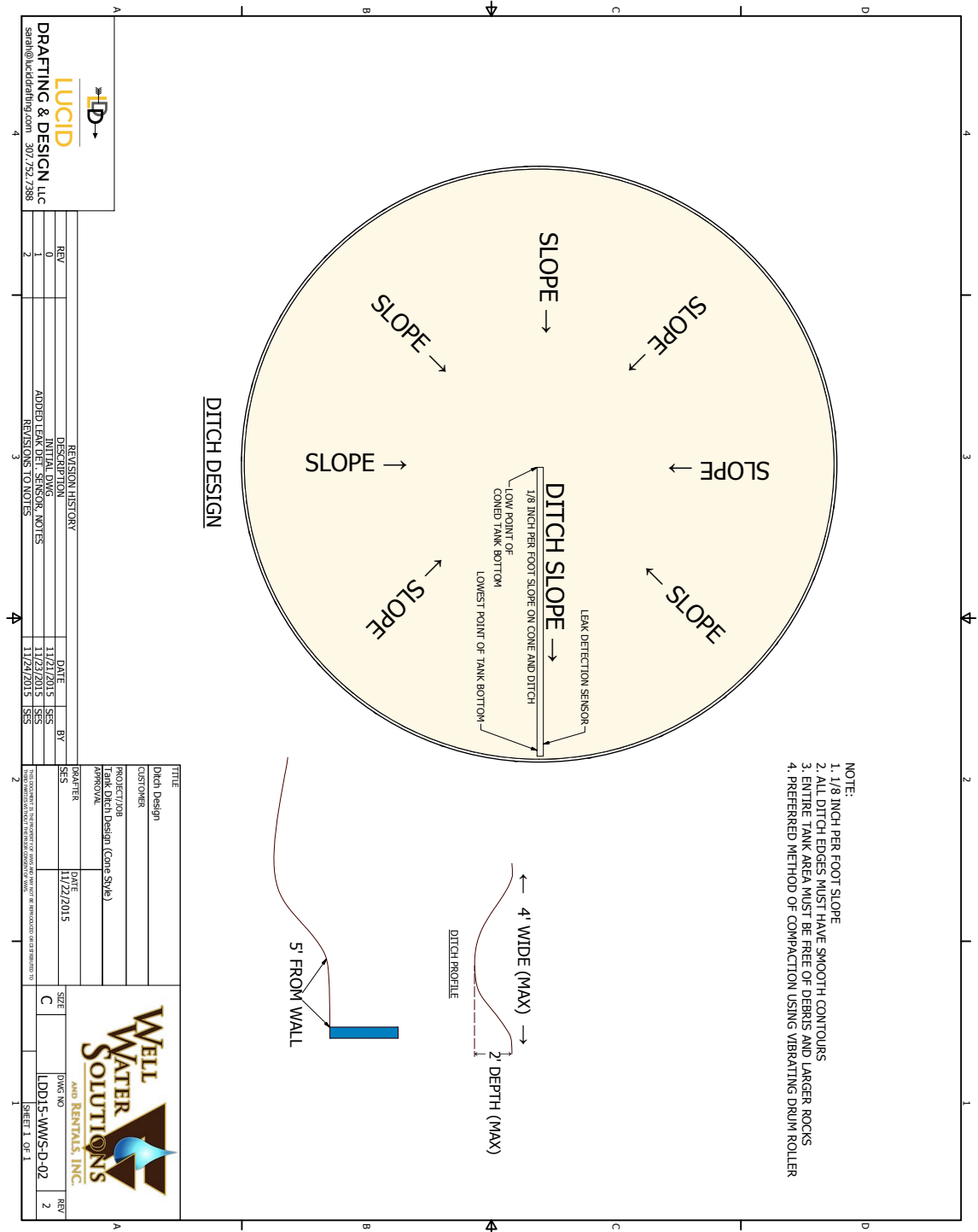
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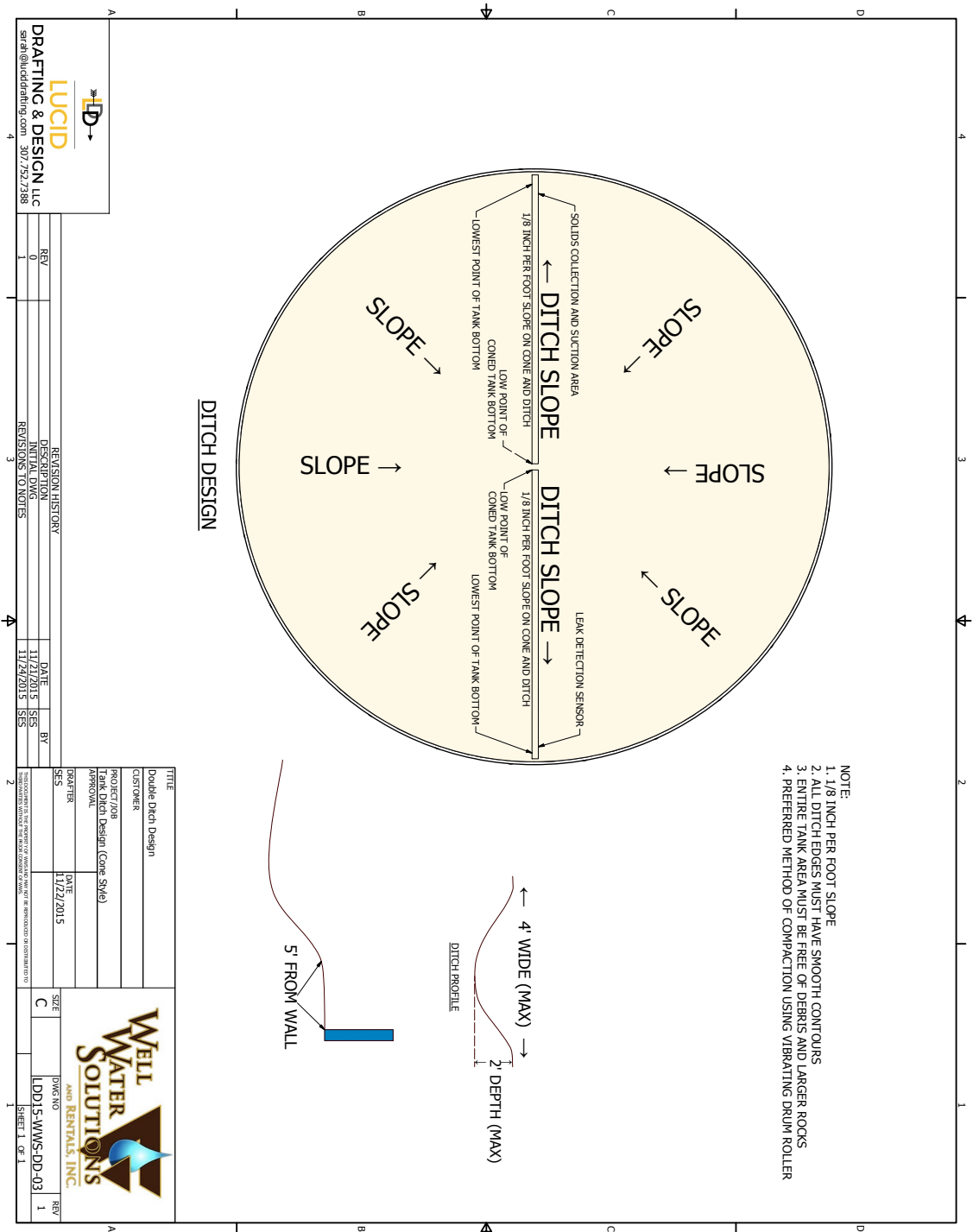


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3.1



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4.1

November 20, 2015

To whom it may concern:

Referenced Project: Unknown

Referenced Material: SuperGeo L40B

Material Description: 40 mil Nominal Linear Low Density Polyethylene Black/Black
Smooth provided in fabricated panels approximately 200' X 200'.

Brawler Industries' SuperGeo L40B is compatible and approved for use with processed water containing 1000 ppm oil and bleach. Brawler Industries estimates the exposed life of SuperGeo L40B to be a minimum of 15 years and would issue a warranty for 10 years against UV degradation.

Please see below for additional information required.

Tensile strength at break – 200 lb/in per ASTM D6693 (On data sheet)

Elongation at break – 800 % per ASTM D6693 (On data sheet)

Puncture resistance – 90 lbs per ASTM D1004 (On data sheet)

Hydrostatic burst strength – N/A

Axi-symmetric strain – 60 % per ASTM D5617 (On data sheet)

Flexibility cycles without cracking – N/A

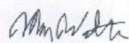
Uv resistance % at 30000 hrs – N/A

Coeff of thermal expansion - <2 %

Chem resistance to oil, bleach – See above – No issues with given concentration level

Complete material description – See above

Seaming method, results – Wedge welding, Hot Air, or Extrusion Welding approved



Marlyn Waltner
Director of Market Development
Brawler Industries, LLC

SuperGeo™ LL Smooth



Properties	Test Method	Nominal Values
40 mil		
Thickness, mil	ASTM D5199	40
Density, g/cm ³ (max)	ASTM D1505	.939
Tensile Properties (MD and TD) • Strength at Break, lb/in width (mm) • Elongation at Break, %	ASTM D6693, Type IV	200 800
2% Modulus-lb/in. (max.)	ASTM D5323	2400
Tear Resistance, lb	ASTM D1004	30
Puncture Resistance, lb)	ASTM D4833	90
Axi-Symmetric Break Resistance Strain- %	ASTM D5617	60
Carbon Black Content, %	ASTM D4218 (2)	2.0-3.0
Carbon Black Dispersion	ASTM D5596	Note (3)
Oxidative Induction Time (OIT) (a) Standard OIT (min. ave.) ----- or ----- (b) High Pressure OIT (min. ave.)	ASTM D3895 ASTM D5885	100 400
Oven Aging at 85°C (a) Standard OIT (min. ave.) -% retained after 90 days ----- or ----- (b) High Pressure OIT (min. ave.) -% retained after 90 days	ASTM D5721 ASTM D3895 ASTM D5885	85 83
UV Resistance (5) (a) Standard OIT (min. ave.) ----- or ----- (b) High Pressure OIT (min. ave.) -% retained after 1600 hrs	ASTM D7238 ASTM D3895 ASTM D5885	N.R. (6) 89
Roll Length, ft		910
Roll Width, ft		22
Roll Area, ft ²		20,020

This data is provided for informational purposes only. Brawler Industries, LLC makes no warranties as to the suitability of the fitness for a specific use or merchantability of products referred to, no guarantee of satisfactory results upon contained information or recommendations and disclaims all liability from resulting loss or damage. This information is subject to change without notice, please check with Brawler Industries, LLC for current updates.



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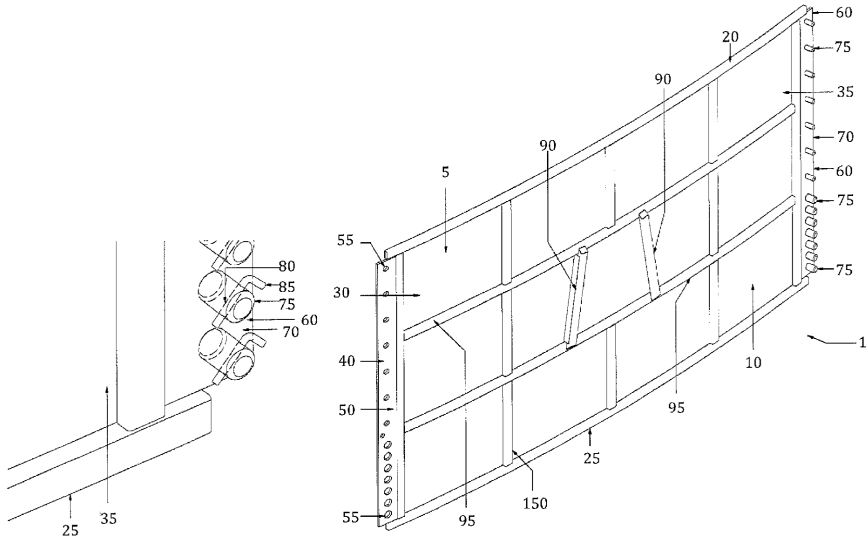
5.0

PATENTS AND PATENT PROTECTION

Well Water Solutions & Rentals Inc. has the first two patents in this field that protects two separate hinge connection designs. Also included in the patents are the quick connecting attachment and the industries safest and strongest liner clamp design to date.



(12)	United States Patent Lovelace et al.	(10) Patent No.: US 8,376,167 B2 (45) Date of Patent: Feb. 19, 2013
(54)	PORTABLE RESERVOIR FRAME	(58) Field of Classification Search 220/1.6, 220/4.12, 4.16, 4.17, 9.4, 23.9, 495.06, 495.08, 220/567, 681, 693 See application file for complete search history.
(75)	Inventors: Sean Michael Lovelace , Casper, WY (US); Christopher Jason Songe , Casper, WY (US)	(56) References Cited U.S. PATENT DOCUMENTS 1,875,666 A * 9/1932 Schwemlein 220/693 3,233,251 A * 2/1966 Barrera 52/245 3,648,303 A * 3/1972 Stewart et al. 52/5 4,124,907 A * 11/1978 Laven 52/169.7
(73)	Assignee: Energy Innovations, LLC , Casper, WY (US)	FOREIGN PATENT DOCUMENTS CA 2692016 7/2010 * cited by examiner
(*)	Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.	<i>Primary Examiner</i> — Anthony Stashick <i>Assistant Examiner</i> — Christopher McKinley (74) <i>Attorney, Agent, or Firm</i> — Gordon Silver, Ltd.; Ronald C. Gorsché
(21)	Appl. No.: 13/469,883	ABSTRACT (57) A portable reservoir frame composed of interlocking panels secured by a series of flanges having holes and pegs. An inner liner to hold liquid inside the reservoir frame is presented.
(22)	Filed: May 11, 2012	16 Claims, 11 Drawing Sheets
(65)	Prior Publication Data US 2012/0223073 A1 Sep. 6, 2012	
	Related U.S. Application Data	
(63)	Continuation of application No. 13/245,492, filed on Oct. 21, 2011.	
(51)	Int. Cl. B65D 6/00 (2006.01)	
(52)	U.S. Cl. 220/4.17; 220/4.16; 220/693; 220/567; 220/4.12	



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US008365937B2

(12) **United States Patent**
Lovelace et al.

(10) **Patent No.:** **US 8,365,937 B2**
(45) **Date of Patent:** **Feb. 5, 2013**

(54) **PORTABLE RESERVOIR FRAME**

(75) Inventors: **Sean Michael Lovelace**, Casper, WY
(US); **Christopher Jason Songe**, Casper,
WY (US)

(73) Assignee: **Energy Innovations, LLC**, Casper, WY
(US)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(21) Appl. No.: **13/469,845**

(22) Filed: **May 11, 2012**

(65) **Prior Publication Data**
US 2012/0234829 A1 Sep. 20, 2012

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2009/0127255 A1 * 5/2009 Rood, Jr. 220/1.5

Related U.S. Application Data
(63) Continuation of application No. 13/426,286, filed on
Mar. 21, 2012, which is a continuation-in-part of
application No. 13/245,492, filed on Oct. 21, 2011.

(51) **Int. Cl.**
B65D 6/00 (2006.01)

(52) **U.S. Cl.** **220/4.17**; 220/4.16; 220/693; 220/567;
220/4.12

(58) **Field of Classification Search** 220/565,
220/567, 1.6, 4.16, 4.12, 9.4, 495.06, 495.08,
220/23.9, 4.17, 693, 681
See application file for complete search history.

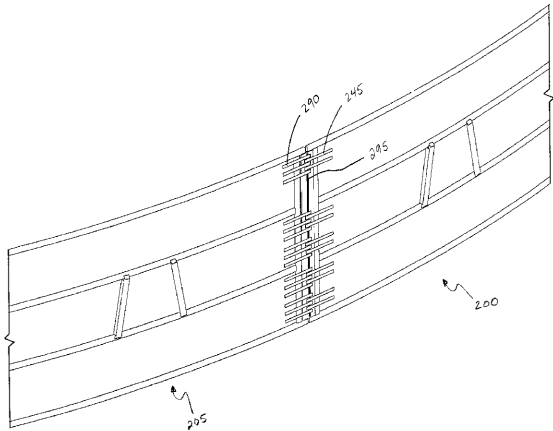
(56) **References Cited**
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1,875,666 A * 9/1932 Schwemlein 220/693

FOREIGN PATENT DOCUMENTS
CA 2692016 7/2010
* cited by examiner
Primary Examiner — Anthony Stashick
Assistant Examiner — Christopher McKinley
(74) *Attorney, Agent, or Firm* — Gordon Silver Ltd.; Ronald
C. Gorsché

(57) **ABSTRACT**

A portable reservoir frame having a number of interlocking
panels secured by a plurality of interleaved knuckle members
is provided.

20 Claims, 20 Drawing Sheets



Reference Photos



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Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 352504

CONDITIONS

Operator: OXY USA INC P.O. Box 4294 Houston, TX 772104294	OGRID: 16696
	Action Number: 352504
	Action Type: [C-147] Water Recycle Long (C-147L)

CONDITIONS

Created By	Condition	Condition Date
vvenegas	None	6/10/2024