GW-054

BGT Modification

DATE:
04.26.12

Lowe, Leonard, EMNRD

From: Cox, Beverly J. <Beverly.J.Cox@conocophillips.com>
Sent: Thursday, August 02, 2012 1:57 PM
To: Lowe, Leonard, EMNRD
Cc: Jones, Brad A., EMNRD; Timmerman, Sherry A; Cox, Beverly J.
Subject: Wingate BGT Closure Report
Attachments: BGT Closure Rept Pt 1.pdf; BGT Closure Report Pt 2 - Appendix.pdf

The Wingate Fractionator Below Grade Tank closure report was mailed to Glenn today. The mail packet contains a hard copy report and a CD with the electronic version.

Attached is a copy of the report.

Thanks,

bj

Beverly J. Cox
Sr. Staff Environmental Technologist, CESCO
Commercial Activities
Gathering & Processing
832-486-2887 Cell: 281-236-4429

E-Mail
ATTACHMENT I

BGT Closure Rept Pt 1. pdf

1/9

ConocoPhillips

Gas Activities – Gathering & Processing
Beverly J. Cox
Sr. Staff Environmental Technologist
P.O. Box 2197
Houston, TX 77252
832-486-2887 Fax 832-486-6479

FedEx: 845 6911 7883

August 2, 2012

Oil Conservation Division
Energy Minerals and Natural Resources Department
Mr. Glenn von Gonten
1220 South St. Francis Drive
Santa FE, NM 87505

RE: Wingate Fractionator Below Grade Tank Retrofit Proposal

Mr. von Gonten,

Enclosed you will find the Wingate Fractionator Below Grade Tank Retrofit Closure report in paper and electronic compact disk format. This report outlines the activities taken to retrofit the facility below grade tank. The retrofit was completed on June 8, 2012. A small leak was detected from the primary liner around the main inlet pipe. A successful repair of this leak was completed on July 23, 2012.

Do not hesitate to call me should you have questions on the report or any of the work performed.

Sincerely,

Beverly J. Cox

Enclosure: paper and CD

cc: Sherry Timmerman –Wingate Fractionator
Scott Mansell – Project Engineer (electronic format)
Beverly Cox – Houston Environmental Project Support

2/9

110

1000

FedEx Express USA Airbill

FedEx Tracking Number 8452 6911 7883

Form I.D. No. 0215

>A11

Recipient's Copy

1 From Please print and press hard.

Date 8/2/12

Sender's FedEx Account Number 1157-0375-7

Sender's Name Bev Cox

Phone (281) 293-6096

Company CONOCOPHILLIPS COMPANY

Address 600 N DAIRY ASHFORD ST

Dept./Floor/Suite/Room

City HOUSTON State TX ZIP 77079-1175

2 Your Internal Billing Reference

First 24 characters will appear on invoice.

ORIGINAL

3 To

Recipient's Name Glenn von Gonten

Phone ( )

Company NM Oil Conservation

Address Energy Minerals & Nat. Resrucs Dept

To "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address 1220 South St. Francis Dr

Dept./Floor/Suite/Room

City Santa Fe State NM ZIP 87505

NO POUCH NEEDED.
See back for peel and stick application instructions.

4a Express Package Service

Packages up to 150 lbs. Delivery commitments may be later in some areas.

- ☐ FedEx Priority Overnight — Next business morning
- ☐ FedEx Standard Overnight — Next business afternoon
- ☐ FedEx First Overnight — Earliest next business morning delivery to select locations
- ☐ FedEx 2Day — Second business day
- ☒ FedEx Express Saver — Third business day

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service

Packages over 150 lbs. Delivery commitment may be later in some areas.

- ☐ FedEx 1Day Freight* — Next business day
- ☐ FedEx 2Day Freight — Second business day
- ☐ FedEx 3Day Freight — Third business day

* Call for Confirmation:

5 Packaging

* Declared value limit $500

- ☒ FedEx Envelope*
- ☐ FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
- ☐ Other

6 Special Handling

Include FedEx address in Section 3.

- ☐ SATURDAY Delivery — Available ONLY for FedEx Priority Overnight, FedEx 2Day, FedEx 1Day Freight, and FedEx 2Day Freight to select ZIP codes
- ☐ HOLD Weekday at FedEx Location — NOT available for FedEx First Overnight
- ☐ HOLD Saturday at FedEx Location — Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods?

One box must be checked.

- ☐ No
- ☐ Yes — As per attached Shipper's Declaration
- ☐ Yes — Shipper's Declaration not required
- ☐ Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous Goods (including Dry Ice) cannot be shipped in FedEx packaging.

☐ Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.

- ☒ Sender — Acct. No. in Section 1 will be billed.
- ☐ Recipient
- ☐ Third Party
- ☐ Credit Card
- ☐ Cash/Check

FedEx Acct. No. / Credit Card No.

Exp. Date

Total Packages	Total Weight	Total Declared Value†
1	LTR	$ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details.

FedEx Use Only

8 Release Signature

Sign to authorize delivery without obtaining signature.

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

447

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0272720495

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PULL AND RETAIN THIS COPY BEFORE AFFIXING TO THE PACKAGE.

ConocoPhillips

Wingate Fractionator
68 El Paso Circle
(PO Box 119, Rehoboth, NM 87322)
Gallup, NM 87301

Wastewater Below Grade Tank Retrofit Closure Report Outline

Ground Water Discharge Plan – GW 54

Wingate Fractionator Below Grade Tank
Closure Report

The retrofit project of the below grade tank (bgt) at the Wingate Fractionation Plant, Gallup, New Mexico was conducted the week of June 8, 2012. The project started on Monday, June 4, 2012 and was completed on Friday, June 8, 2012. Additional leak detection planning and testing continued through July 23, 2012.

The appendixes are configured to cover a specific task from start to finish. Each photo is labeled with the appendix prefix, letter and photo number sequence. Example: Appendix A-1 (first photo in appendix A), Appendix B-4 (fourth photo in appendix B), etc. Each Appendix Title is linked to the specific Appendix location.

Pre work consisting of physically isolating/severing (blind flanged) the three inlet pipe and severing the old out of service piping was conducted. Excavation next to the east wall of the bgt was conducted to reach the primary inlet line. Excavation was approximately 10-feet deep and the sides were shored, stabilized and barricaded so that the open hole would not present a hazard. **(Appendix A)**

Below is a summary of the bgt retrofit daily activities:

June 4, 2012

1. Equipment for the project was brought on site, staged and set up.
    a. Riley Industries performed the retrofit work, Total Safety provided the confined space entry (CSE) rescue team and ConocoPhillips performed the onsite safety and environmental supervision.
2. Job Safety Analysis (JSA), Lock out Tag out component review/witness and CSE monitoring was performed prior to work and entry into the bgt.
3. The walls, floor and internal pipe were washed with high pressure water to remove any scale or build up. **(Appendix B)**
4. All waste from this rinse was sent to the evaporation ponds.
5. Various small cracks, pitting of the cement and scale build up on the walls were observed. Some cracks have sealant. No signs of seepage on the walls or floor.
6. The bgt was forced air dried while blasting media and equipment was prepared. A exhaust fan was set up to suck out dust from the sand blasting and to keep air circulating thru the bgt.
7. The bgt walls, floor and extruding pipes were sand blasted to remove loose concrete, scale and to etch the surface. **(Appendix B)**
8. A large area of scale was removed by the sandblasting work and a slight weep was detected. This area was cleaned, a sealant applied and filled with cement. **(Appendix C; C1 & C2)**
9. Spent blasting media was vacuumed up and placed in a 55 gallon drum. The media will be sampled and disposed of per OCD guidance.
10. Area was secured for the night.

June 5, 2012

1. Job Safety Analysis (JSA), Lock out Tag out component review/witness and CSE monitoring was performed prior to work and entry into the bgt.
2. An old out of service line in the NW corner leaked back rinse water from the previous day. Prior to the start of the project this line was detached/severed several feet away

from the bgt. The protruding portion of this line will be cut flush with the wall and sealed during the cement patch phase of the project. **(Appendix C; C3 & C4)**

3. Started filling in the pitting areas and cracks with cement.
4. Cement floor installers performed inspection of floor and found that the high point of the floor was at the designed low point. The designed was reversed and the low point of the sump will now be on the SW corner (opposite of the original design low point). The switching of the low point area does not affect the construction of the project. The new drawing is located as **Appendix J**.
5. Using the NE corner of the sump floor as the high point, the floor was framed out with the slop going to the SW corner. **(Appendix C; C7 & C8)**
6. Cement was applied by hand and leveled to the framing. One diagonal side was poured and allowed to set up; then he other diagonal side was poured and allowed to set up. **(Appendix C; C6-C8)**
7. All cracks, pits, and wallow areas around the inlet pipes were filled with cement. **(Appendix D & E)**
8. Area was secured for the night.

June 6, 2012

1. Job Safety Analysis (JSA), Lock out Tag out component review/witness and CSE monitoring was performed prior to work and entry into the bgt.
2. All old piping was cut off flush with the wall, rebar steps were cut off and the rusted bottom portion of the main discharge pipe was cut off. All sharp edges were grinded down. All old cement protrusions were chipped off.
3. Half moon arches were cut out of two sides of bottom of the 4-inch square tubing pipe. This arch will allow liquid to flow into the pipe which will be positioned in the corner of the low point (SW corner). **(Appendix G; G1 & G2)**
4. More divots and anomalies were filled in with cement. Areas around the pipe were filled with cement. **(Appendix D)**
5. Scaffolding was erected to perform the final sand blasting. All walls and floor was sand blasted to prepare for the sealant.
6. The 4-inch square tubing that will be used for monitoring of leak detection was sand blasted.
7. Area was secured for the night.

June 7, 2012

1. Job Safety Analysis (JSA), Lock out Tag out component review/witness and CSE monitoring was performed prior to work and entry into the bgt.
2. Scaffolding was removed from the bgt.
3. Spent blast media was vacuumed and placed in the 55 gallon drum with the other spent blast media.
4. Applied the VF20 sealant to approximately 10-15 mils thick. Let VF20 set up for approximately 2 hours until tacky.
5. Applied VF380 for secondary liner to walls and floor. **(Appendix F)**.
6. Applied extra coating to the surface around all pipes. **(Appendix D & E)**
7. Applied VF380 to the 4-inch square tubing pipe. **(Appendix G; G3)**
8. Started installation of the Terra Drain system.
    a. Cut Terra Drain sheets to size and starting installing. **(Appendix H)**
    b. Terra Drain is delivered as a roll of material that is approximately 3-foot wide. The length is cut according to the measurements taken inside the bgt.
    c. The Terra Drain is then dry fitted to the wall.

d. The bottom quarter section of the Terra Drain is lifted and rolled upward allowing the wall to be sprayed with VF380.
e. The bottom quarter is then rolled back down onto the wet VF380 and pressed into place.
f. The rest of the Terra Drain sheet is rolled down until the area of tackiness is identified on the lower quarter section.
g. Approximately 1.5 feet of the wall is sprayed with VF380 and then covered with the Terra Drain and pressed into place. This is repeated until the entire length of the Terra Drain is installed. NOTE: VF380 becomes tacky at approximately 48 seconds; therefore small sections of Terra Drain are secured in place before moving to another section.
h. The edges of the joined Terra Drain is covered with geotextile material and adhered to by VF380.

9. The 4-inch pipe was installed into the pre-cut hole in the top of the bgt. **(Appendix G)**
   a. Geotextile material was installed to cover the space between the pipe and wall. The entire length of the pipe and wall was then encapsulated with VF380.
   b. The Terra Drain was then installed butting up against the corners of the pipe. Geotextile material was installed covering the edges where the drain system meets the pipe. **(Appendix H; H9 & H10)**
10. The area was secured for the night.

June 8, 2012

1. Job Safety Analysis (JSA), Lock out Tag out component review/witness and CSE monitoring was performed prior to work and entry into the bgt.
2. Completed installing the Terra Drain; fitting around the piping and on floor. **(Appendix H)**
3. All Terra Drain joints and open edges at the top was covered with geotextile material and sprayed with VF380.
4. The entire drain system was sprayed with VF380 (walls and floor) encapsulating the Terra Drain and up the wall, sealing the drain to the wall. The primary liner of VF380 was applied to approximate 80 mils thick. **(Appendix I)**
5. An evaluation of the completed liner system was conducted and determined and extra layer of protection would be added directly under the discharge of the primary wastewater line and the transfer pump suction line. Two steel plates approximately 3/16-inch thick was cut and the surfaces were roughed up to prepare the surface for VF380 application. These two plates will be positioned directly below the pump suction and the discharge of the primary wastewater line. **(Appendix I; I7 & I8)**
   a. The steel plates were positioned and sealed in place with VF380 on the top and bottom sides.
6. The VF380 was allowed to set up for approximately 1 hour.
7. The liner was visually inspected for pin holes and over/under spraying.
8. The sump was filled up with fire fighting utility water. Approximately 1 hour later the space between the liners was inspected and no water was found.
9. The cement top surface gap surround the 4-inch pipe was filled and sealed.
10. The 4-inch pipe top was secured / sealed off with plastic.
11. The area was secured and the contractor racked up equipment in preparation to move off location.

June 11, 2012

1. The plastic was removed from the 4-inch pipe and the space between the liners was gauged. Approximately 1.5 inches of water was detected between the liners.
    a. A phone call was placed to Brad Jones, OCD, and a message was left.
    b. An attempt to collect a sample was made but was not successful.
2. The potential reasons for the water were evaluated.
    a. A level of 1.5 inches of water was detected in-between the liners verses the 3-foot level of water inside the bgt. If there was a leak, then the level between the liners should be at the level in the bgt.
    b. The surface opening of the 4-inch pipe was sealed off with plastic from Friday, June 8th until Monday, June 11th. The sealing of the pipe restricted air flow thus potentially contributing to condensation build up.
    c. The water entering the bgt is hot verses the cool space between the liners and the ground temperature.
    d. It is highly probable that condensation would occur given the facts listed above.

June 12, 2012

1. A follow up phone call was placed to Brad Jones in addition to an email notifying him of the water that was found between the liners.
2. Upon discussion with Brad Jones, we feel that the liquid between the liners is a result of condensation.
3. A follow up email was sent to Leonard Lowe, OCD, copying Brad Jones and ConocoPhillips personnel capturing our phone conversation.
4. A vent cap was installed on the top of the 4-inch pipe at the surface.

June 13 - 20, 2012

1. The water between the liners was removed on June 13th.
2. The bgt liner space was inspected daily and no liquids were found.
3. A follow up email was sent to Leonard Lowe and Brad Jones updating the activities that have occurred and that no liquids have been detected since June 13th. Also stated that monthly monitoring will start in July.

June 26, 2012

1. A decision was made to conduct another leak test on the below grade tank.
    a. The space between the liners was checked and no fluids were found. During normal operation the tank maintains an approximate 3-foot level of water.
    b. The tank was then filled to a level of approximately 10-feet which is above the liner overlap and top of the Terra Strip Drain system.
    c. The high level was maintained for approximately 1-hour and the space between the liners was inspected again and no water was detected.

June 27, 2012

1. The space between the liners was inspected and liquid was found.
2. Notification was made to the State regarding the leak test that was performed and the liquid that was found between the liners.
    a. The bgt normal operation water level is approximately 3-feet. Since the tank has been back in operation from the retrofit, no leak has been detected during normal operation conditions.
    b. The leak has only occurred when the water is raised to a high level. It is undetermined if there is a true leak or if the water is condensation caused by the

temperature change from the normal operating water temperature and the cold water that is introduced into the tank to raise the level.

c. The facility will continue to operate at the normal water levels until another leak test is defined. Research is being conducted to determine a more accurate test to determine a true leak versus condensation.

June 29, 2012

1. Notice to the State was emailed regarding the contingency plans for the tank operation until a resolution can be determined.
2. The tank will be operated at an approximate 3-foot level. The space between the liners has been hydrovac'd to remove the fluid.

June 30 – July 15, 2012

1. The space between the liners was periodically monitored and no liquids detected. The liquid was maintained at an approximate 3-foot level during this time.
2. Discussions with Riley Industries continue to develop an accurate leak detection process.
1. On July 9, 2012, a meeting with Riley Industries was conducted to review the leak detection method.
2. Testing method will consist of:
    a. The tank will be filed up with water.
    b. A food grade dye will be added to the tank.
    c. The level will be held from approximately 1-hour.
    d. The space between the liners will be inspected for dyed liquids.
3. Ensure the bgt will continue to operate at the normal 3-foot level until test is completed.

July 16 - 17, 2012

1. The bgt was filled to approximately 10 feet and dye was added.
2. The water level was maintained for approximately 1 hour.
3. The space between the liners was check and no liquid was found. The next day the space between the liners was check again and a small amount of dyed water was found.
4. Preparation for repair started.
5. The repair will occur on Thursday, July 19, 2012.

July 19 - 20, 2012

1. The bgt was drained and area prepared for entry.
2. The liner was inspected and questionable area was found around the main 6-inch inlet pipe.
3. The area around all pipe entering the tank was built up by spraying several thick layers of VF 380.
4. Another layer of VF 380 was sprayed from just below the inlet piping to above the overlap of the top section of the Terra Drain.
5. The tank was filled within 10 feet of the top.
6. The water was held for 12 hours.
7. The space between the liners was inspected and found dry.
8. The tank was returned to normal operation on Friday afternoon.

July 23-27, 2012

1. The space between the liners was inspected and no liquids were found. The liner has had a successful repair.
2. Notification of successful repair was made to the State via email on July 25th.
3. Preparations have started to back fill the excavated area on the east side of the bgt.
4. Monthly monitoring of the space between the liners will start in August 2012.

BGT Closure Report Pt 2 - Appendix.pdf

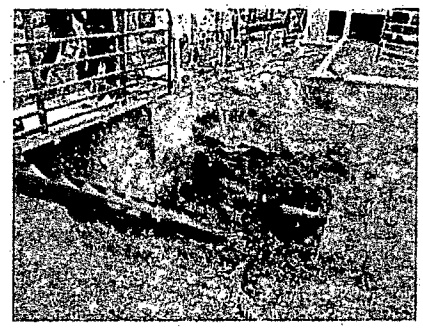
E-mail
ATTACHMENT II

Appendix A

Excavation of SE Sidewall

Appendix A
Excavation – BGT SE Sidewall

A1



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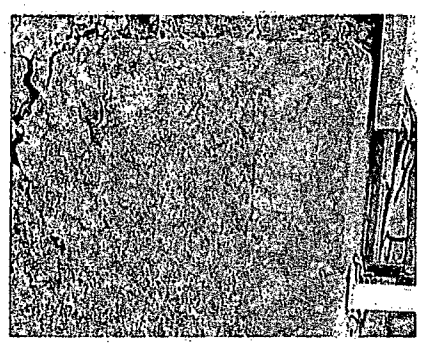

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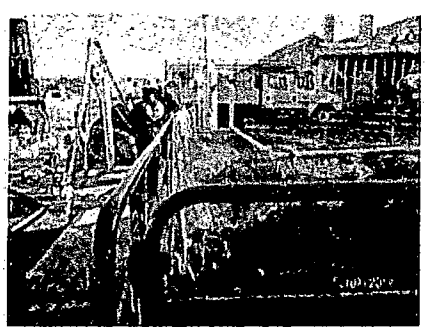
A4



A5

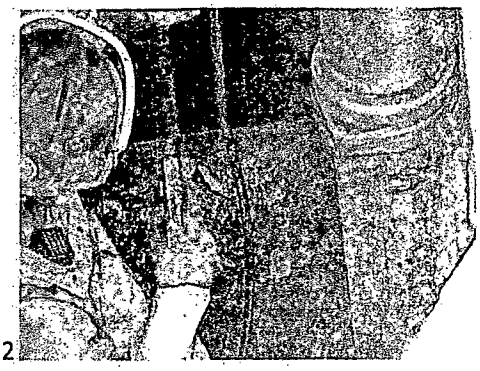
A6

Appendix B

Water Rinsing and Sand Blasting

Appendix B
Water Rinsing and Sand Blasting

B1



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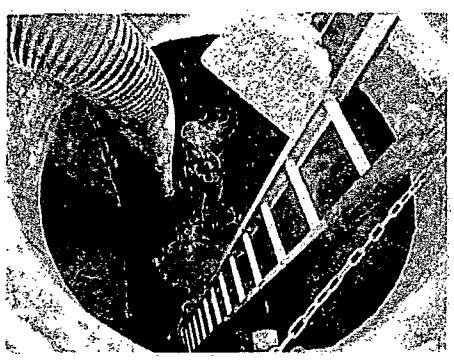

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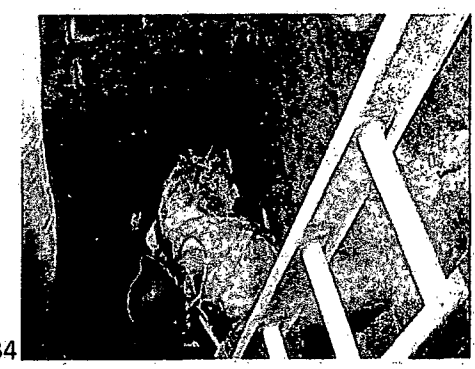


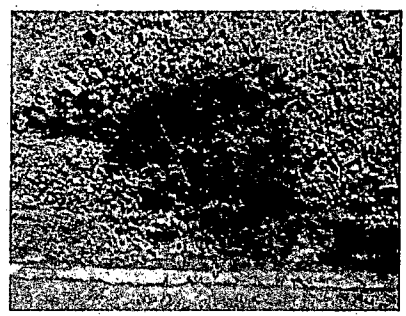
B4

Appendix C

Cement Repairs and Floor Installation

Appendix C
Cement Repairs & Floor Installation

C1



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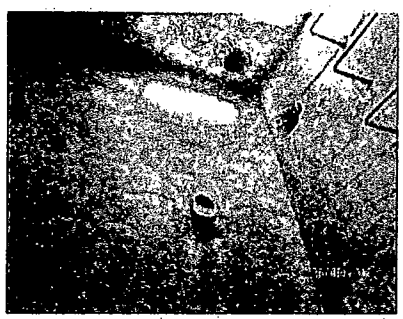

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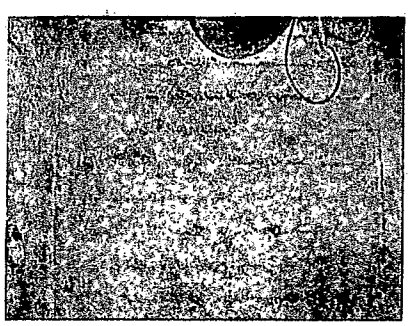

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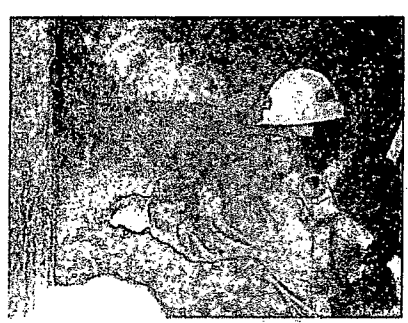

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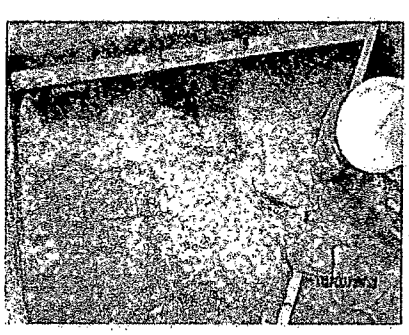


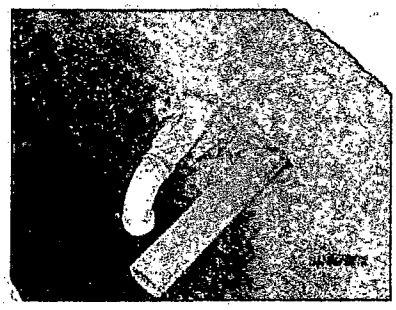
C7

C8

Appendix D

Grey-Black Water Inlet Pipe Repair and Coating

Appendix D
Grey-Black Water Inlet Pipe Repair, Fill and Coatings



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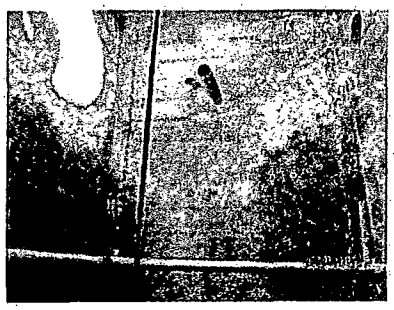

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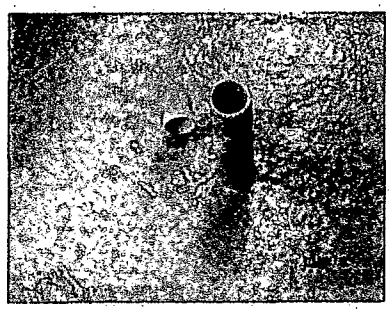


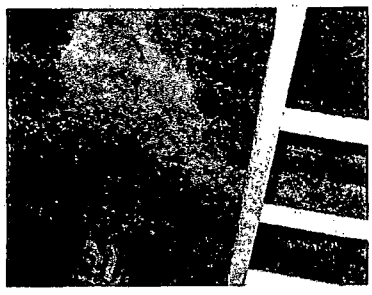
D4

D5

Appendix E

Primary Wastewater Inlet Pipe Repair and Coating

Appendix E
Primary Wastewater Inlet Pipe Repair, Fill and Coatings



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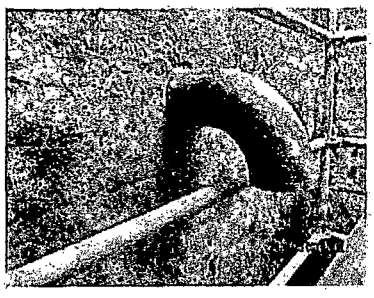
E2



E3

E4

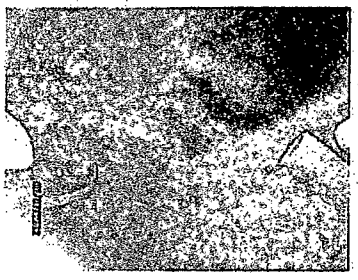
E5

E6

Appendix F

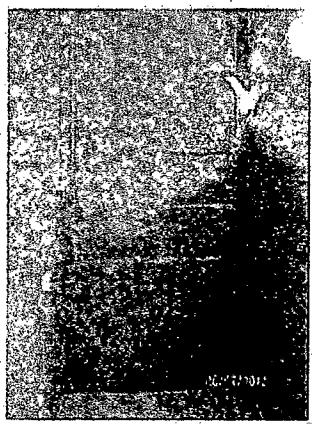
Secondary Liner Installation

Appendix F
Secondary Liner Installation



F 1

F 2



F 3

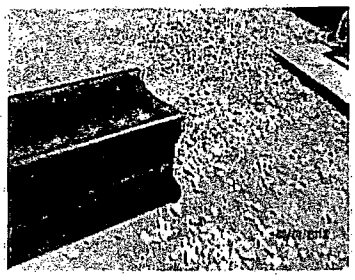
F4

F5

Appendix G

Monitoring Pipe Installation

Appendix G
Monitoring Pipe Installation



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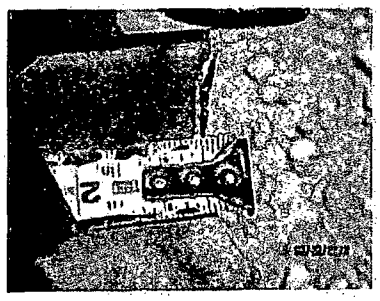

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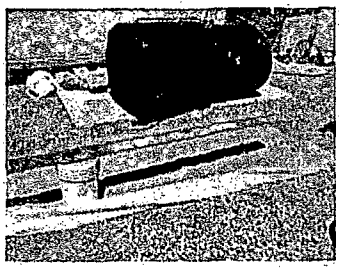

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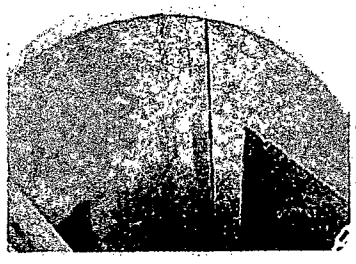

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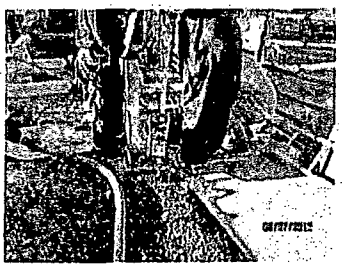

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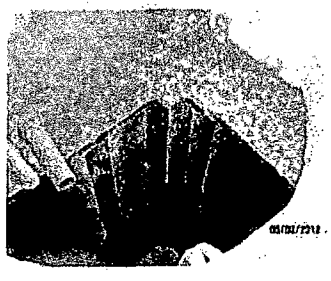

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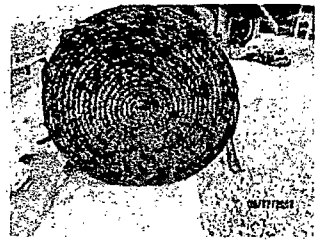
Appendix H

Terra Drain System Installation

Appendix H
Terra Drain System Installation



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H4

H5

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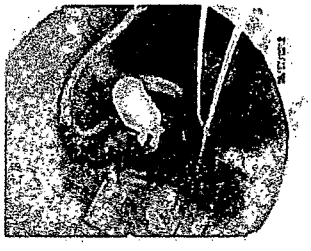

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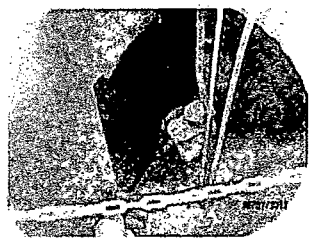

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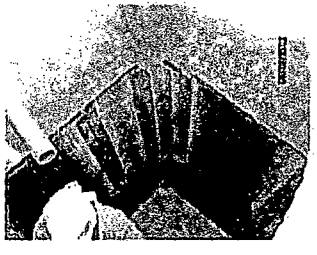

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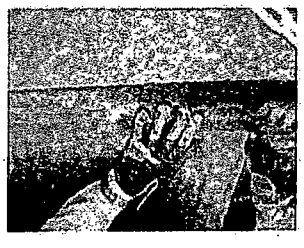

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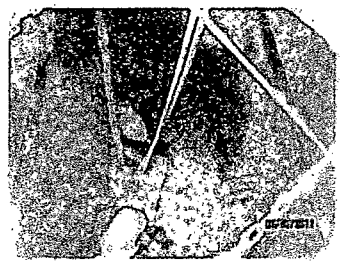
Appendix H – pt2
Terra Drain System Installation

H11



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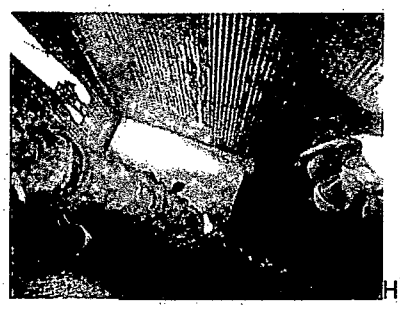


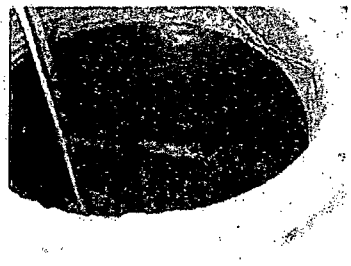
H13

H14

Appendix I

Primary Liner Installation and Metal Plates

Appendix I
Primary Liner Installation & Metal Plates



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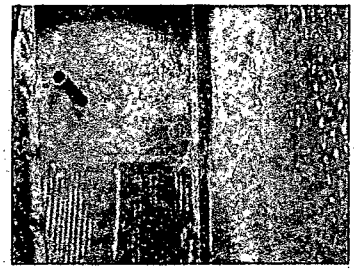

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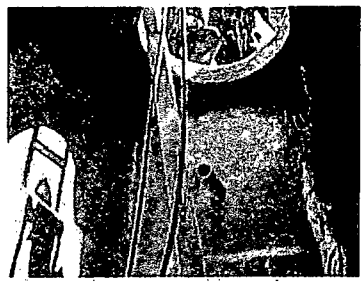

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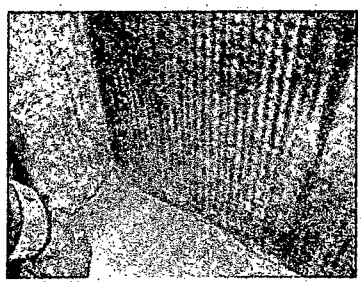

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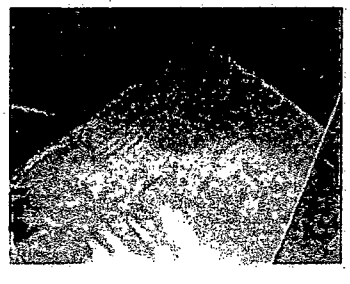

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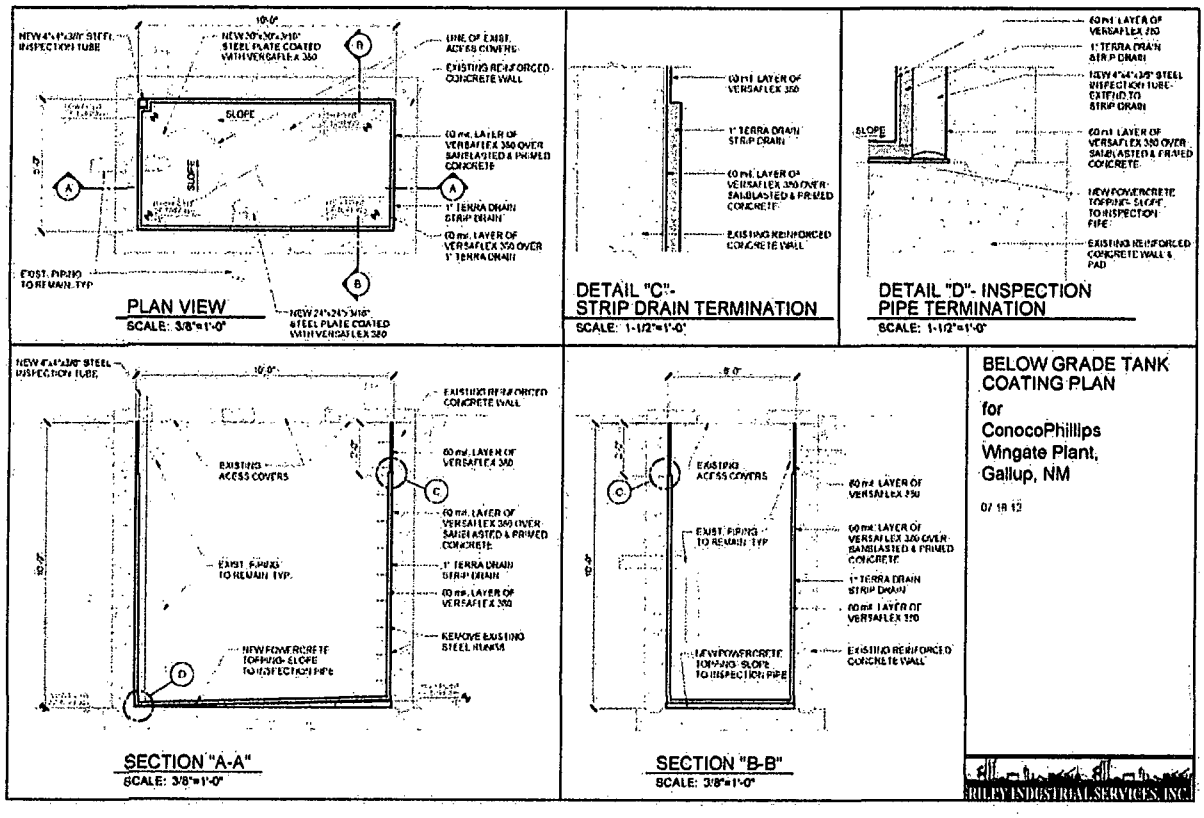
I10

Appendix J

Below Grade Tank Drawing

Appendix J
Below Grade Tank Drawing



State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

John Bemis
Cabinet Secretary

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

Jami Bailey
Division Director
Oil Conservation Division

April 26, 2012

Ms. Beverly J. Cox
ConocoPhillips Company
P.O. Box 2197
Houston, Texas 77252

Re: Wingate Fractionator Gas Plant Below-Grade Tank Retrofit Proposal
Operator: ConocoPhillips Company
Permit: GW - 054
Location: Sections 9-10 and 15-17, Township 17 North, Range & West, NMPM, McKinley County, New Mexico

Dear Ms. Cox:

The Oil Conservation Division (OCD) has reviewed ConocoPhillips Company's (ConocoPhillips) proposal, dated April 26, 2012, to retrofit an existing single-walled concrete below-grade tank located within the ConocoPhillips Wingate Fractionator Gas Plant facility boundary. The proposed below-grade tank retrofit design satisfies the minimum design specifications and operational requirements identified in Condition 11.a of ConocoPhillips August 7, 2007 discharge permit (GW-054). Based upon the information provided in the April 26, 2012 submittal, OCD hereby approves the retrofit proposal.

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

If there are any questions regarding this matter, please do not hesitate to contact me at (505) 476-3487 or brad.a.jones@state.nm.us.

Sincerely,

Brad A. Jones
Environmental Engineer

BAJ/baj

CC: OCD District III Office, Aztec

ConocoPhillips

Gas Activities – Gathering & Processing
Beverly J. Cox
Sr. Staff Environmental Technologist
P.O. Box 2197
Houston, TX 77252
832-486-2887 Fax 832-486-6479

Hand Delivery

April 26, 2012

Oil Conservation Division
Energy Minerals and Natural Resources Department
Mr. Glenn von Gonten
1220 South St. Francis Drive
Santa FE, NM 87505

RE: Wingate Fractionator Below Grade Tank Retrofit Proposal

Mr. von Gonten,

Enclosed you will find the Wingate Fractionator Below Grade Tank Retrofit Proposal. Based on recommendations from our January 26, 2012 meeting and follow up phone conversations, we have conducted additional research and made changes to the previous submitted project scope.

Some of the changes are:

- Addressed the concerns of the material to be used between the liners that will sufficiently provide adequate space, stability and free flow of liquids.
- Compatibility of material used and the constituents of the waste water
- Use of a manual leak detection system
- Provide grade to the below grade tank floor to create a low point for leak detection

We truly appreciate the OCD meeting with us to discuss the revise scope of work presented and allowing us to demonstrate the application model. We feel confident that we have addressed issues and concerns that were brought to our attention. Do not hesitate to call me should you have belated questions from this meeting or need more information.

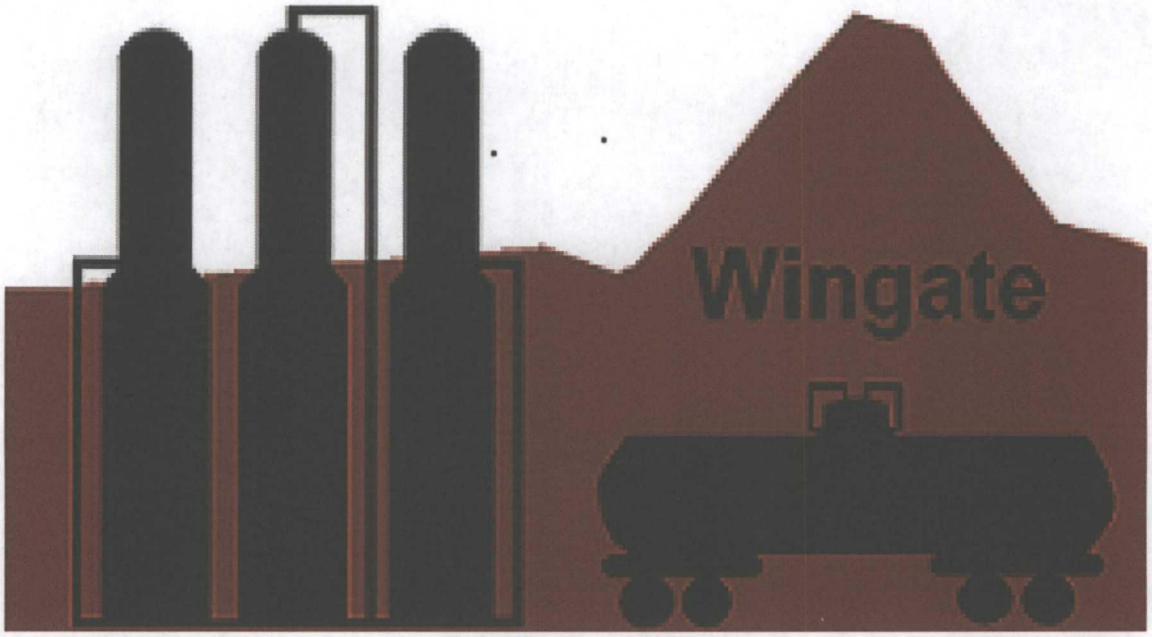
Sincerely,

Beverly J. Cox

Enclosure

cc: Lane Ayers, Manager, San Juan Gas Plants (electronic file)
Sherry Timmerman –Wingate Fractionator
Scott Mansell – Project Engineer
Mark Stockham, Riley Industrial Services, Inc., (electronic file)
Beverly Cox – Houston Environmental Project Support

ConocoPhillips

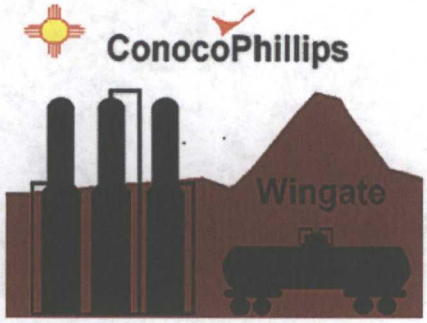


Waste Water Below Grade Tank Retrofit Project

June 2012

Wingate Fractionator

Gallup, New Mexico



Wingate Fractionator
68 El Paso Circle
(PO Box 119, Rehoboth, NM 87322)
Gallup, NM 87301

Wastewater Below Grade Tank Retrofit Outline

Ground Water Discharge Plan – GW 54

Facility Description

Section 1

ConocoPhillips

Facility and Below Grade Tank Description

ConocoPhillips' Wingate Fractionating Plant is located approximately one mile east of Gallup City Limits, New Mexico on U.S. Highway No. 66. It includes portions of Sections 9, 10, 15, 16 and 17, Township 15 North, Range 17 West lying north of BNSF Railroad in McKinley County, New Mexico. The exact location of the plant is at latitude 35° 32' 36" north and longitude 108° 38' 3"west. The elevation is 6593 feet above mean seal level.

The ConocoPhillips' Wingate Fractionating Plant is a processing plant, which fractionates natural gas liquids into usable products. The products of the facility are propane, n-butane, iso-butane, natural gas liquid (light gasoline), and mixed butane. Its feedstock is received via pipelines from two natural gas facilities.

The general wastewater below grade tank (bgt) provides a below grade waste collection point for the waste water from the regeneration/blowdown of the sodium zeolite ion exchanger, water softener, reverse osmosis unit, nano unit, boilers, cooling tower, wet surface air cooler, boiler house drains, and a partial stream the plant's septic tank waste water. The waste in the general waste bgt may include some surface water runoff. A level switch activates the bgt pump, pumping the waste water to the evaporation ponds.

The size of the bgt is approximately 6-foot 8-inchs by 11-foot 8-inchs and 12-feet deep. The main bgt inlet line enters the bgt approximately 5-foot 6-inches from the bottom of the bgt. Due to the depth of the bgt and the ground level grade of points that enter into the drain system, early identification of a bgt level problem will be detected long before the bgt will overflow. Some areas that will show a problem of water backup are the nano water system, RO water system, and boiler feed water pump water drain system. All of these areas are monitored on an hourly basis. Through operator training and process knowledge of the operators and maintenance personnel, the bgt is immediately inspected for fluid level issues if one of the systems mentioned above start to back up or experience problems.

Project Overview

Section 2

ConocoPhillips

Wastewater Below Grade Tank Retrofit Project Overview

Ground Water Discharge Plan – GW 54

This project addresses the New Mexico Oil conservation Division (OCD) requirement to upgrade the facility noncontact wastewater below grade tank (bgt) before August 17, 2012. This is based from an on-site inspection by the OCD and is part of a requirement of the existing Ground Water Discharge Plan – GW 54, Condition 11.

The wastewater bgt is a rectangular single wall concrete vault with a plate steel roof that was constructed in the 1950's. The wastewater bgt receives effluents from multiple facility process water units such as the cooling towers and boilers. Additional information on the wastewater bgt can be found in Section 1 – Facility and BGT Description. The primary objective of this project is to retrofit the existing wastewater bgt with secondary containment and leak detection.

As per section I(4)(c) of 19.15.17.12, ConocoPhillips Wingate Fractionation Plant is seeking approval to utilize alternative methods to retrofit the existing below grade non-contact waste water tank.

This project scope has been revised based upon the January 26, 2012 meeting between the OCD and Wingate Fractionator and various phone conversations thereafter. The following is a list of the changes from the original project submittal and additions as requested by the OCD:

1. Increase spacing between liners: concerns from OCD were expressed regarding the restricted space between the primary and secondary liners. Research was conduct to find a product/system that would establish adequate spacing between the two liners that would be compatible with the constituents of the waste water, temperature, Ph, support the weight of the water, and allow migration/flow of any liquids that would occur between the liners. A prefabricated soil drain by Hanes Geo Components was selected. The TerraDrain StripDrain (StripDrain) will be utilized between the primary and secondary liners allowing approximately 1-inch of space between the two and provide a solid stability to support the weight of the waste water and allow unrestricted flow of liquids to the low point of the bgt floor. This drain system is rated for 9000 pounds per foot

(as per ASTM D1621 test method). This is a new approach for utilizing the StripDrain design. Specification data for the StripDrain system can be found in section 5. The StripDrain has been used in athletic fields, residential/commercial drain systems, foundation drains, highway edge drains, golf courses and any location with standing water. The StripDrains reduce hydrostatic pressure and convey water away from the structure. The StripDrain can be installed vertically or horizontally.

2. Primary Liner Change: the original scope of work indicated that a prefabricated (RoboLiner with a VersaFlex 380 Polyurea coating) primary liner would be installed. Due to the installation of the StripDrain system, the prefabricated liner would no longer be utilized. The StripDrain provides the structural stability required for spraying the VersaFlex VF380 (VF380) material. As this material is sprayed onto the drain system milliage (mils) thickness measurements will be conducted ensuring consistency and proper thickness. The VF380 will seep thru the geotextile fabric and adhere to the tips of the cones adding additional polymer bonding. The VF380 is compatible with the constituents of the waste water. Refer to section 11 for details.

3. Utilization of a manual monitoring system: The original proposal listed the use of an electronic moisture detection system. Upon review of this system with the OCD, manual leak detection system has been selected due to the complexity and application of using electronic monitoring devices. A 4" square pipe will be placed in the low point collection system between the liners. This pipe will allow for manual monitoring for fluids and allow for sample collection should liquid be detected. The square pipe was selected because the shape allows for a better bonding surface when the liner is applied. See Section 4 for a detail bgt drawing.

4. Slopping of the floor: It was recommend by the OCD to slope the bgt floor allowing drainage to a single point. This was evaluated and the bgt floor will be sloped to one corner so that fluid would drain to the monitoring / sample collection point. See section 4 for detail drawing on constructing the sloped floor.

5. Compatibility between the liner material and the wastewater constituents were evaluated by ConocoPhillips and Hanes Geo Company. There were no issues or concerns between the liner material and the wastewater constituents. See documentation in section 11.

Project start date is scheduled for the early June 2012 plant turnaround. The bgt and facility will be down for approximately 5 days. The project will be documented and photographs will be taken during each progression stage. A final report will be submitted after the bgt is placed back in service.

Installation Scope

Section 3

ConocoPhillips

Installation Scope

A general installation overview of the bgt retrofit work consists of:

1. General:
    a. The term "Coating or Paint" used in this scope includes VF380.
    b. The Contractor performing the work shall have a minimum of five years of experience in all the painting processes and systems used on the project, including the specific methods of surface preparation and paint application.
    c. Delivery of product material to the site will be sealed with proper labeling.
    d. Container labeling will include manufacturer's name, type of paint, brand name, brand code, coverage, surface preparation, drying time, cleanup, color designation, and instructions for mixing and reducing.
    e. Paint materials shall be stored at a minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F in well ventilated areas, unless required otherwise by manufacturer's instructions..
    f. Paint shall be thoroughly mixed each time any is withdrawn from the container. Paint containers shall be kept tightly closed except while paint is being withdrawn.
    g. Paint shall be factory mixed to proper consistency for application at 70 degrees F, without thinning. In no case shall the wet film thickness of applied paint be reduced by addition of thinner or otherwise, below the thickness recommended by the manufacturer as necessary to obtain the recommended coverage at lower application temperature.
    h. Should thinning of the product be required, the contractor shall follow the manufacturer's recommendations for thinning at a lower application temperature.

2. Concrete wall and floor preparation:
    a. An existing 6-inch pipe will be utilized as the support casing for the 4-inch square sampling/monitoring pipe. The existing casing pipe will be cut down to approximately 3 feet above the surface. The existing casing pipe extends through the top of the cement roof and aligns with the low point in the floor. See section 4 for specification drawing details.

b. The walls, floor and ceiling concrete surfaces will be pressure washed using hot water with pressures of 2,500 pounds per square inch (psi) to remove any debris and/or contaminates that could be clinging to the surface of the tank.
c. Electric exhaust fans will be used to help dry out the concrete surfaces.
d. Wall and floor surfaces will be abrasive blast clean using a copper slag abrasive to remove loose concrete and etch the surfaces for the proper surface anchor profile; roughness of 60-grit sandpaper.
e. The spent abrasive material will be removed from the tank, profiled and disposed of according to OCD regulations. Any metal surfaces such as pipe will be blast cleaned to SSPC-SP5 white metal to extend out 6-inches.
f. The surfaces will be checked for bug holes and any other signs of deterioration. All anomalies will be repaired using Power-Crete, a fast settling concrete patch material. See section 9 for Power-Crete data.

3. Floor sloping: The floor is to be sloped so that any moisture or leaks will drain to one corner of the tank.
    a. At the opposite end of the tank from the low drain point, a chalk line will be marked 3-inches up from the floor. Another chalk line will be added from the 3-inch mark to the other end of the tank allowing the line to slope down flush with the existing floor. This chalk line will become the guidance line to ensure proper gradient of the new floor.
    b. Power-Crete material will be mixed with pea gravel and will be applied in the areas that require being over ½-inch in depth and toweled smooth into place. Areas that are less than ½-inch thick will not have any additional aggregate added.
    c. Once the initial slope has been achieved diagonally from the high point to the low point, a slope from the opposite sides (right to left) will be installed. Drawing details can be found in section 4. The Power-Crete floor will need approximately 8 hours to set up before additional work can begin.
    d. After the Power-Crete has been installed to the floor and the appropriate slope achieved, the new concrete material used for sloping and patching will be abrasive blasted to etch the surface. See 2.d and e of this section for more details on blasting and waste handling.
    e. All concrete surfaces will be primed using VersaFlex VF20 at 10 – 15 mils thick. The mils will be checked during application using a wet mil thickness gauge. This material is applied using rollers and brushes to form a penetrating sealer. See Manufacturer's data and application guide in section 10. The primer will be cured as per Manufacturer's requirements.

4. Secondary Liner: After the primer has been cured to the Manufacturer's requirements the secondary liner will be sprayed onto the primed cement.
    a. VF380 Elastomeric Polyurea coating (liner) system, 60 mils thick, will be applied to cover all walls and floor surfaces 100% to create a leak free coated surface.
    b. Coating is to be applied using Plural component heated spray equipment as recommended by the Manufacturer.
    c. The coating thickness will be checked during application using a wet mil thickness gauge.
    d. Any metal pipe extruding through the walls or floor will be coated out 6-inches to create a tight seal around these penetrations. This coating is now mechanically adhered to the concrete walls and will not slip down. Should there be any gaps between the pipe and cement walls, these gaps will be built-up flush to the surface with the VR380.
    e. Setup time for the secondary liner is extremely quick (within 40 seconds) to become "Tack-Free". Each sweeping spray motion applies approximately 20 mils of product. Each sweep will be check for proper mil thickness every 10-20 square feet. This method of application is recommended by the manufacturer.

5. Pipe installation:
    a. An existing 6-inch pipe will be utilized as the support casing for the 4-inch square sampling/monitoring pipe. The existing casing pipe will be cut down to approximately 3 feet above the surface. The existing casing pipe extends through the top of the cement roof and aligns with the low point in the floor. The 4" square pipe will be placed in the low point collection system between the liners. This pipe will allow for manual monitoring for fluids and allow for sample collection should liquid be detected. The square pipe was selected because the shape and metal surface allows for a better bonding when the liner is applied.
    b. The 4-inch metal pipe will have a half moon cut out on the bottom of the pipe that will allow liquid to flow into the opening. The pipe itself will set on the floor and is stabilized via the top insert. The pipe is encapsulated by the primary liner VF380 adding extra stability.
    c. The top of the pipe that extends above ground will be covered with a removable cap.

6. Drain system installation:
    a. The TerraDrain StripDrain (StripDrain) system is being used to establish a structurally sound 1-inch gap between the primary and secondary liner which will allow proper migration of fluids to the low point in the floor.

b. A 1-inch StripDrain system will be installed on the walls and floor of the bgt. The StripDrain system will go up the walls to within 24-inches of the ceiling.
c. The StripDrain will be sprayed with VF380. While the coating is tacky it will be positioned to the wall and floor and pushed onto the surface of the secondary liner so it will bond together.
d. Set up time for bonding is approximately 40 seconds

7. Primary liner installation:
   a. Approximately 60-80 mils of VF380 Polyurea will be applied to the StripDrain geotextile surface to form a structurally secured primary liner. Application method of the VF380 is the same as described in number 4 above.
   b. Dzolv solvent/cleaner product will be used to clean the secondary liner that extends above the StripDrain to ensure all debris is removed prior to spraying the primary liner onto the secondary liner. Product data can be found in section 8.
   c. The VF380 will extend above the StripDrain system bonding to the VF380 secondary liner creating a liner to liner adhesive bond to complete a double wall liner system within a contained cement bgt
   d. Set up time for the primary liner is approximately 40 seconds.
   e. At this time fresh water will be introduced into the tank and monitored for leaks between the liners.

8. Waste Handling: Bulk sludge/water inside the bgt will be pumped out using the existing pumps and through the Plant's normal processing procedures. Remaining residue will be vacuumed out and transferred to the evaporation ponds. All other waste generated after this point will be properly profiled and disposed of as per OCD regulations.

9. Health & Safety: Due to the structure of the bgt vault, this project will be permitted as a non-permitted confined space entry once all hazards have been removed. All portions of a permitted confined space entry will be followed even if rendered "non-permitted" confined space entry.

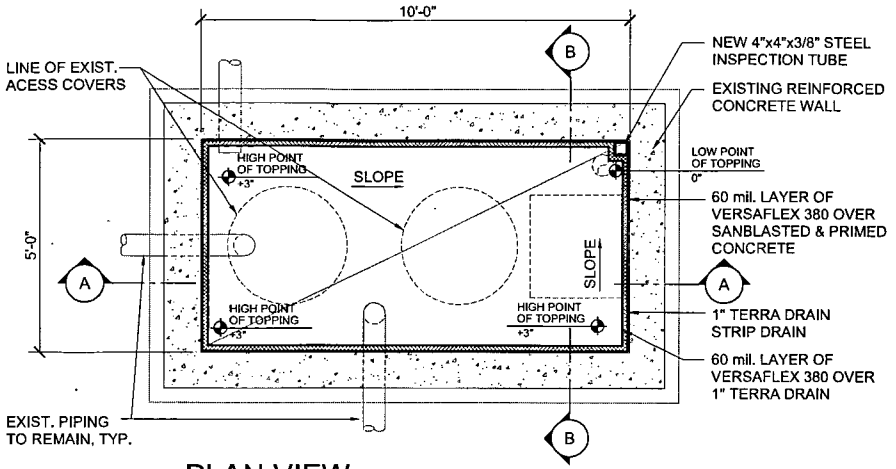
The day before the outage begins a crew will mobilize with equipment to the job site at Wingate Gas Plant. Equipment will be staged and prepared for the next day. Progress of the work throughout the project will be documented and photographed. A final report of the project will be submitted to the OCD.

Once the bgt becomes operational, monthly inspections will occur by either inserting an electronic water detector or strapping tape/stick. Fluids would be extracted utilizing a small portable pump device. Examples of these devices can be found is section 12. Records of the monthly bgt inspection will be retained on file at the plant. Additionally, a visual inspection of the bgts surface and pumps are performed daily as part of the plant operators' inspection rounds. An annual

bgt inspection, consisting of draining the bgt and inspecting the primary liner will be performed during each plant turnaround.

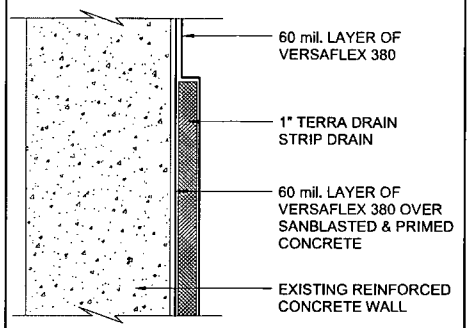
Below Grade Tank Drawing

Section 4



PLAN VIEW

SCALE: 3/8"=1'-0"



DETAIL "C"- STRIP DRAIN TERMINATION

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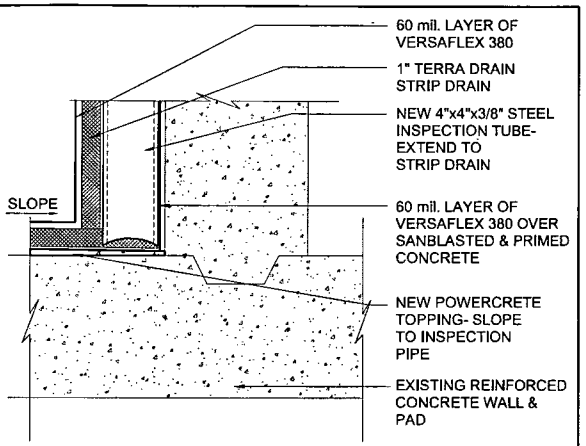
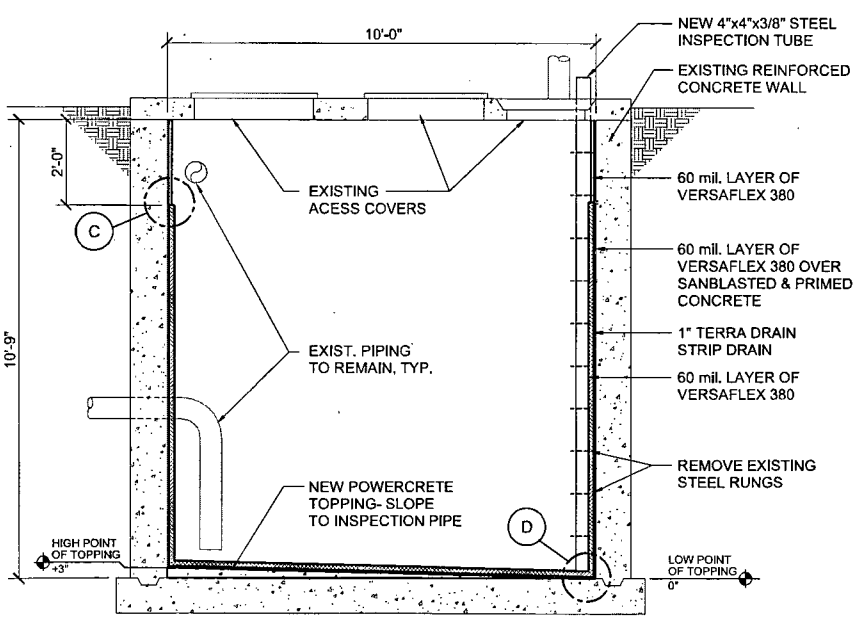


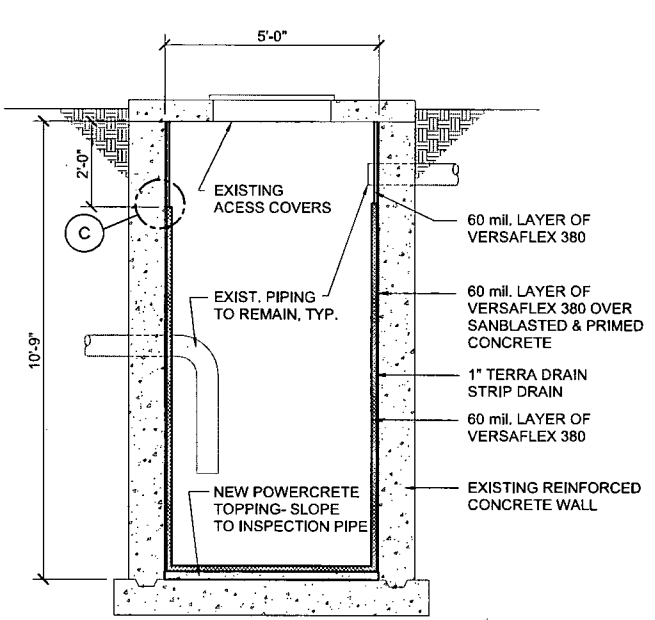
DETAIL "D"- INSPECTION PIPE TERMINATION

SCALE: 1-1/2"=1'-0"



SECTION "A-A"

SCALE: 3/8"=1'-0"



SECTION "B-B"

SCALE: 3/8"=1'-0"

BELOW GRADE TANK COATING PLAN

for

ConocoPhillips
Wingate Plant,
Gallup, NM

04.25.12

RILEY INDUSTRIAL SERVICES, INC.

TerraDrain StripDrain Data

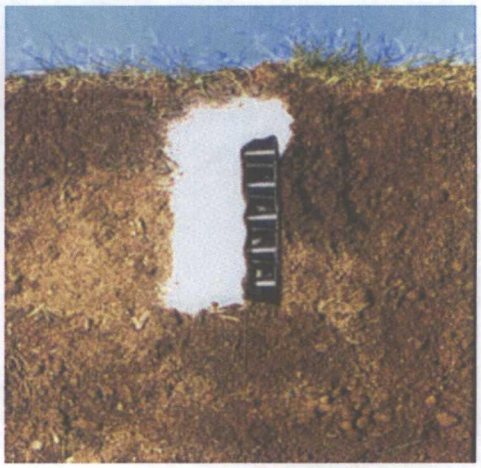
Section 5

HANES GEO COMPONENTS
A Leggett & Platt COMPANY

TerraDrain StripDrain

Fabric properties		US	SI
Material		Polypropylene	Polypropylene
Weight	ASTM D3776	4.0 oz/yd^2	136 gm/m^2
Grab Tensile	ASTM D4632	115 lbs	512 N
Puncture Strength	ASTM D6241	350 lbs	1384 N
Trapezoidal Tear	ASTM D4533	50 lbs	222 N
Mullen Burst	ASTM D3786	235 psi	1620 kPa
Elongation	ASTM D4632	60%	60%
AOS (US sieve)	ASTM D4751	70	210 micron
Permittivity	ASTM D4491	2.2 sec^{-1}	2.2 sec^{-1}
Permeability	ASTM D4491	0.39 cm/sec	0.39 cm/sec
Flow rate	ASTM D4491	150 gpm/ft^2	6111 lpm/m^2
UV Stability, 500 hr.	ASTM D4355	70%	70%
Fungus Resistance	ASTM D G21	No growth	No growth

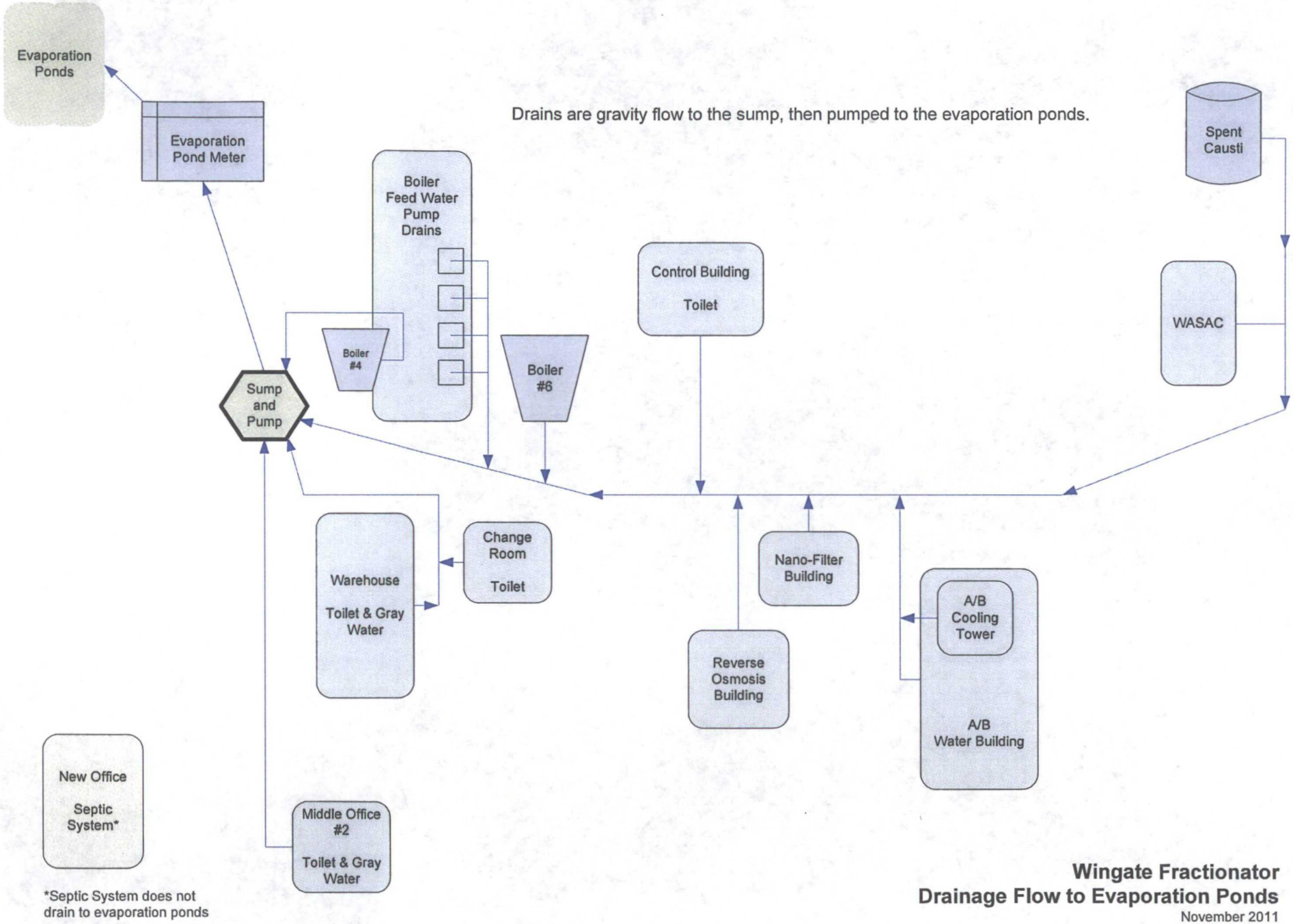
Core properties		US	SI
Material		Polymeric	Polymeric
Thickness	ASTM D4491	1 in	25 mm
Fungus resistance (core)	ASTM D G21	No Growth	No Growth
Drain properties			
Inplane flow capacity per unit width		21 gpm/ft	261 lpm/m
Hydraulic gradient = 0.l, loading = 10psi(66kPa)		ASTM D4716	ASTM D4716
Compressive Strength(mod)	ASTM D1621	9000 psf	455 KPa
Shear Strength	ASTM D1876	9000 psf	455 KPa
Peel Strength	ASTM D1876	38 lbs/ft	180 N/m
Standard width		6, 12, 18, 24, 36	152, 305, 460, 610, 915
Roll length		500', (100' for 6" & 36")	152, 30.5 m
Roll weight		16, 160, 240, 320, 95 lbs	8, 73, 109, 146, 44 kg



815 Buxton Street · Winston Salem, NC 27101
888-239-4539 · Fax: 336-747-1652
www.hanesgeo.com · info@hanesgeo.com

Below Grade Tank Inlet Drainage System

Section 6



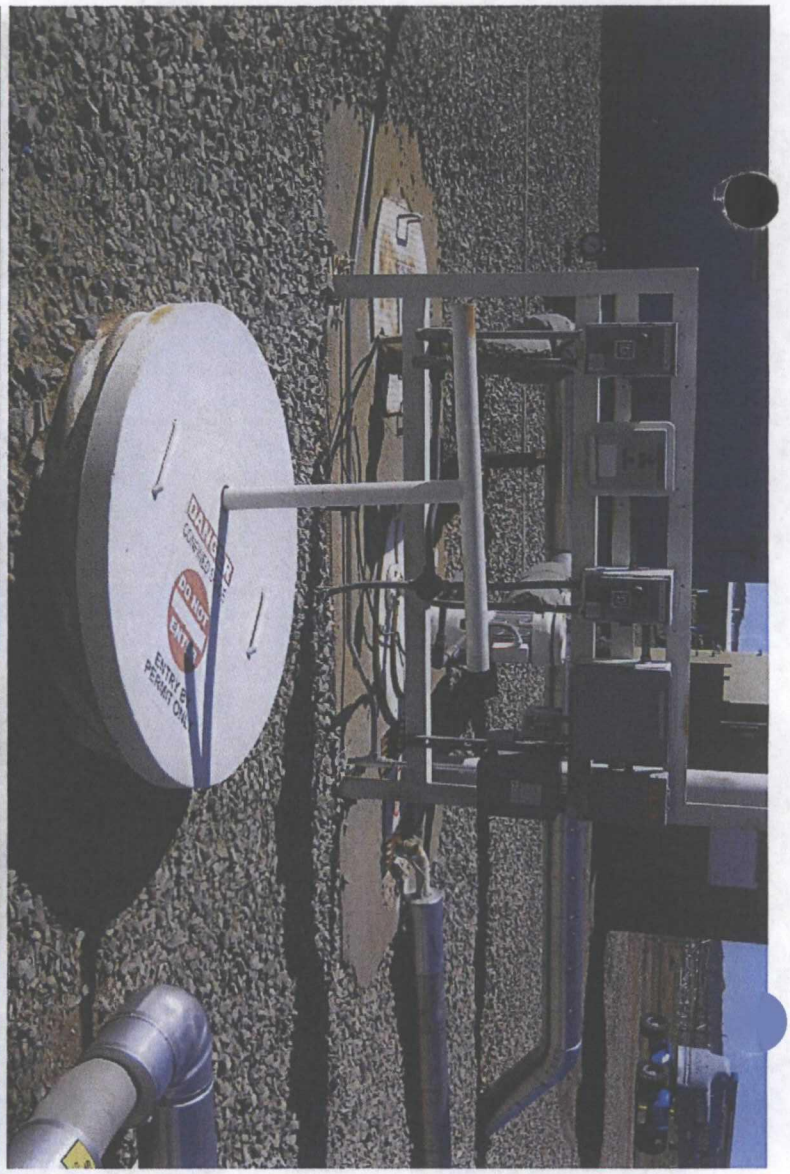
*Septic System does not drain to evaporation ponds

Wingate Fractionator
Drainage Flow to Evaporation Ponds
November 2011

Below Grade Tank Surface Photographs

Section 7


DANGER
DO NOT
ENTRY


DANGER
DO NOT
ENTRY


DANGER
DO NOT
ENTRY

Dzolv Solvent Cleaner Data

Section 8

VersaFlex Incorporated
87 Shawnee Avenue
Kansas City, KS 66105
(913) 321-9000
(913) 321-1490 (fax)

Product Data Sheet

Dzolv
Solvent/Cleaner

Product Description - ***VersaFlex*** **Dzolv** is a water soluble, dibasic ester based solvent containing no aromatics or petroleum distillates. **Dzolv** is designed to provide maximum cleaning effectiveness while incorporating a high flash point and low toxicity. **Dzolv** replaces most industrial solvents such as chlorinated hydrocarbons (methylene chloride, carbon tetrachloride and 1,1,1 trichlorethane) ketones (acetone, methyl ethyl ketone) and aromatic solvents (xylene, toluene, and naphthalene) when used on less than fully cured polymers.

Uses - **Dzolv** solvent/cleaner is designed to break down uncured polyurea, polyurethane, epoxies and polyester resins.

Effective with -

- Grease
- Oil
- Inks
- Waxes
- Rubber Residues
- Lacquers
- Latex Paint
- Oil Based Paint

Advantages -

- No VOC's
- Dilutes with Water
- Non Toxic
- Easy to Apply
- Non-flammable
- Flash Point > 200° F
- Low Odor
- Indefinite Shelf Life
- Will Not Cause Hazardous Polymerization
- Low evaporation rate
- Not R.C.R.A. or DOT regulated. **Dzolv**'s low toxicity and water solubility allow safe wash down and easy disposal through drains into sanitary systems.

Physical Properties -

Viscosity @ 25°C	N.D.
Appearance	Clear Liquid
Odor	Mild Sweet Odor
Specific Gravity @ 25°C	1.08
Flash Point	>200° F
Vapor Density (Air = 1)	N.D.

Limitations - **Notice:** Reacts violently with strong acids or bases.

Packaging -

- 55 Gallon Drums - Drum containers filled by weight, volume is closely approximated.
- 5 Gallon Pails

Shelf Life - One year, in original unopened factory containers under normal storage conditions of 55°F to 95°F.

Safety -

- Read Material Safety Data Sheet before using. Available @VersaFlex.com
- Keep out of reach of children
- Wear safety glasses and neoprene gloves

Preparation and Application - Dzolv should be used the same as any other solvent and cleaner. Apply liberally and employ baths where possible for stationary cleaning. Best to be applied by pump sprayer, followed by scrubbing the area to prepare the surface for delayed over coating. May also be applied by brush. If surface is not dry within approximately 15 minutes after application, wipe excess off and allow to dry thoroughly. May be used to clean various gun parts – consult VersaFlex.

Technical Services - Sales and Customer Support (913) 321-9000

Warranty - *VersaFlex* Incorporated will refund the price of or replace, at its election, product it finds to be defective provided the product has been used properly. Except as expressly stated above, the Company makes no warranty of merchantability and no warranty of fitness for any particular purpose, nor does it make any warranty, expressed or implied, of any nature whatsoever with respect to the product or its use. In no event shall the company be liable for delay caused by defects, for loss of use, for indirect, special or consequential damages, or for any charges or expenses of any nature incurred without its written consent.

Material Safety Data Sheet

VersaFlex INCORPORATED

Section 1: Product and Company Identification

Product Name: **DZolv**

Sold By:	**VersaFlex Incorporated** **87 Shawnee Avenue** **Kansas City, KS 66105** **913.321.9000**
FOR CHEMICAL EMERGENCY	Spill, leak, fire, exposure, or accident, call CHEMTREC day or night Domestic North America **800.424.9300** International **703.527.3887**
Fax Phone:	**913.321.1490**
TSCA Inventory:	All components of this product are included, or are exempt from inclusion, in the EPA Toxic Substance Control Act (TSCA) Chemical Substance Inventory.
Canadian DSL:	All components of this product are included, or are exempt from inclusion, in the Canadian Domestic Substance List (DSL).

Section 2: Composition/Information on Ingredients

Hazardous Components	CAS#	ACGIH TLV	OSHA PEL	% by Wgt
1-Methyl -2-pyrrolidinone	872-50-4	Not Determined	Not Determined	
Propylene carbonate	108-32-7	Not Determined	Not Determined	
Dibasic ester	Mixture	10mg/m3(8hr TWA)	Not Determined	
Dipropylene glycol monomethyl ether	34590-94-8	100 ppm	150 ppm	

Section 3: Hazards Identification

Emergency Overview:

Routes of Entry:

Route	Entry Risk
Inhalation	Possible
Ingestion	Possible
Skin Contact	Possible
Eye Contact	Possible

Potential Health Effects:

Inhalation	May cause nausea and respiratory tract irritation. May cause respiratory sensitization in susceptible individuals.
Ingestion	Irritation of the mouth, pharynx, esophagus and stomach can develop.
Skin Contact	Product is a slight skin irritant. May cause swelling and redness.
Eye Contact	Mild eye irritant. Vapors slightly uncomfortable. Splashes irritating and painful.

Acute Health Hazards: N/A

Chronic Health Hazards: N/A

Medical Conditions Generally Aggravated by Exposure: Skin and eye sensitization. Depending on individual skin sensitivity, chronic or prolonged exposure may result in irritation, blistering, burning and peeling of skin layers.

Carcinogenicity: OSHA: No data ACGIH: No data NTP: No data IARC: No data

Other:

Section 4: First Aid Measures

Eye Contact:	Immediately flush with plenty of water for at least 15 minutes. If redness, itching, or a burning sensation develops, seek medical attention.
Skin Contact:	Remove from skin immediately. Rinse with clean water for 20-30 minutes. Use soapy water if needed. If redness, itching, or a burning sensation develops, seek medical attention.
Ingestion:	Do NOT induce vomiting! Dilute with water and seek medical attention immediately.
Inhalation:	Move victim to fresh air immediately. Give oxygen and seek medical attention.

Section 5: Fire-Fighting Measures

Flammable Limits:	Not Determined
Flash Point, (Method Used):	165Y F/74YC (Tag Closed Cup)
Autoignition Temperature:	

NFPA Hazard Rating:

Health: 2	**Hazard Scale**	**Protective Equipment**
Flammability: 2	0=LEAST	A=SAFETY GLASSES
Reactivity: 0	1=SLIGHT	B=SAFETY GLASSES, GLOVES
Other: B	2=MODERATE	C=SAFETY GLASSES, GLOVES AND APRON
	3=HIGH	D= SAFETY GLASSES, GLOVES , APRON and
	4=EXTREME	RESPIRATOR

HMIS Hazard Rating:

Health: 2
Flammability: 2
Reactivity: 0
Protection: B

Extinguishing Media:	Foam/Carbon dioxide/Dry chemical/Water fog
Special Fire Fighting Procedures:	Remove all ignition sources. Wear self-contained breathing apparatus and complete personal protective equipment when entering confined areas where potential for exposure to vapors or products exist. Water may cause frothing.
Unusual Fire and Explosion Hazards:	Closed containers may rupture due to build-up of pressure when exposed to extreme heat.
Hazardous Decomposition Products:	

Section 6: Accidental Release Measures

Accidental Release Measures:	Dilute with water.

Section 7: Handling and Storage

Handling & Storage Precautions:	Prevent all skin and eye contact. Avoid breathing vapors. Re-seal partially used containers. Wash with soap and water before eating or drinking. Protect from moisture contamination. Exothermic generation of carbon dioxide may cause dangerous pressure. Keep away from all ignitable sources as well as extreme heat.

Section 8: Exposure Control/Personal Protection

Ventilation:	Not required
Respiratory Protection:	Not required
Eye Protection:	Chemical tight goggles; full face shield if splashing is possible.
Skin Protection:	Coveralls and impervious foot covering is recommended.
Other Protective Clothing or Equipment:	Use impervious gloves, neoprene or rubber.
Work/Hygienic Practices:	Good air flow in working area. Eyewash station and safety shower should be available.

Section 9: Physical and Chemical Properties

Appearance:	Colorless	
Odor:	Mild sweet odor	
Physical State:	Liquid	
ph As Supplied:		
ph (Other):		
Boiling Point:	N/A	
Melting Point:	No Data	
Freezing Point:		
Vapor Pressure (mmHg):	No Data	
Vapor Density (Air=1):	No Data	
Specific Gravity (Water=1):	1.08	
Evaporation Rate (Butyl Acetate=1):	<1	
Solubility in Water:	Reacts, appreciable>10%	
Percent Solids by Weight:		
Percent Volatile:	By Weight:	By Volume:
Volatile Organic Compounds (VOC):	With Water:	Without Water:
Molecular Weight:		
Viscosity:		

Section 10: Stability and Reactivity

Stability:	Stable
Conditions to Avoid (*Stability*):	No Data
Incompatibility (*Materials to Avoid*):	No Data
Hazardous Decomposition or Byproducts:	No Data
Hazardous Polymerization:	Will not occur.
Conditions to Avoid (Polymerization):	

Section 11: Toxicological Information

Toxicological Information: No Data

Section 12: Ecological Information

Ecological Information: No Data

Section 13: Disposal Considerations

Waste Disposal Method:	Use excess product in an alternate beneficial application. Dispose of according to current local, state and federal regulations.
RCRA Hazard Class:	Non-Regulated

Section 14: Transport Information

U.S. Department of Transportation

Proper Shipping Name: Dzolv Blend
Hazard Class: Non-Regulated, NOI
ID Number:
Packing Group:
Label Statement:

Water Transportation

Proper Shipping Name: Dzolv Blend
Hazard Class: Non-Regulated, NOI
ID Number:
Packing Group:
Label Statement:

Air Transportation

Proper Shipping Name: Dzolv Blend
Hazard Class: Non-Regulated, NOI
ID Number:
Packing Group:
Label Statement:

Other Agencies:

Section 15: Regulatory Information

U.S. Federal Regulations

TSCA (Toxic Substance Control Act): Section 12(b) Export Notification. This product contains the following chemical substances subject to the reporting requirements of TSCA 12(b) if exported from the United States: There are no TSCA 12(b) Chemicals in this product.

CERCLA (Comprehensive Response Compensation and Liability Act): CERCLA section 103(a) specifically requires the person in charge of a vessel or facility to report immediately to the National Response Center (NRC) a release of a hazardous substance whose amount equals or exceeds the assigned RQ. The following hazardous substances are contained in this product: Chemical Name- See Section 2

SARA Title III (Superfund Amendments and Reauthorization Act): This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendments and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

311/312 Hazard Categories: Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard: See Section 3

313 Reportable Ingredients: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372: Chemical Name- See Section 2

State Regulations: California Proposition 65. The chemicals(s) noted below and contained in this product are known to the state of California to cause cancer, birth defects or other reproductive harm. Unless otherwise specified in Section 2 of this MSDS, these chemicals are present at <0.1%: There are no proposition 65 chemicals known to exist in this product.

International Regulations:

Section 16: Other Information

Other Information:

Preparation Information:

Disclaimer: To the best of our knowledge, the information contained in this MSDS is accurate. It is intended to assist the user in his evaluation of the product's hazards, and safety precautions to be taken in its use. The data in this MSDS relate only to the specific material designated herein. We do not assume liability for the use of, or reliance on this information, nor do we guarantee its accuracy or completeness.

Power-Crete Data

Section 9

SINGLE COMPONENT
STRUCTURAL REPAIR MATERIAL
USE DOWN TO 32° F

POWER-CRETE®

RAPID SETTING
8900 PSI COMPRESSIVE STRENGTH
READY FOR SERVICE IN 8 HOURS

PRODUCT DESCRIPTION

POWER-CRETE is a one component structural concrete repair material suitable for a wide range of applications. It is portland cement based with select graded silica and proprietary modifiers to enhance strength and durability. This unique combination of materials gives a repair which is dimensionally stable, extremely strong, has an outstanding bond to a concrete surface and provides structural integrity. **P-100 Primer** is used with **POWER-CRETE** to insure a consistent and reliable bond. **POWER-CRETE** has an outstanding bond, compressive strength, flexural strength, wear resistance and high early strength.

PRODUCT APPLICATION

POWER-CRETE is a fast-setting trowel grade repair material for horizontal application. It may be used to repair parking decks, bridge structures, pier and deck supports, water and sewage treatment plants, factory and warehouse floors, manholes, for concrete topping and other similar applications.

Use **POWER-CRETE** when the repair must be ready for service in 8 hours. Use in cold weather, down to 32°F. It may be used for interior or exterior repairs, above or below grade. **POWER-CRETE** may be used for 1/2" to 6". Suitable for applications with vehicle and forklift traffic.

PRODUCT FEATURES

- High Early Strength
- Ready for Service in 8 Hours
- Apply from 1/2" to 6"
- Use down to 32°F
- High Compressive and Flexural Strength
- Outstanding Bonding
- Wearing Surface
- Interior or Exterior Use, Above or Below Grade

PRODUCT TEST RESULTS (Typical)

Working Time: 20 Minutes
Color: Light Gray

Compressive Strength (ASTM C-109, Air Cured)

1 day	3 Days	7 Days	28 Days
4265	6925	7775	8900

Flexural Strength (ASTM C-348, Air Cured)

3 Days	7 Days	28 Days
879	1227	1790

Bond Strength (ASTM C-1042, Air Cured)

28 Days
1490

Shrinkage (ASTM C-596)

7 Days	28 Days
0.01%	0.01%

SURFACE PREPARATION – All concrete surfaces must be clean and structurally sound; free of oil, grease, dust, sealers, coatings, release agents, curing compounds, etc. Remove all contaminates mechanically by chipping, shotblasting, scabbling or bushhammering. Remove dust by vacuum or blowing with compressed air. All bonding surfaces must be clean and sound, mechanically abraded to 1/8" profile and in a saturated, surface dry condition for application of **POWER-CRETE**.

MIXING – **POWER-CRETE** may be mixed with a heavy duty high speed drill and paddle mixer or in a paddle type mortar mixer for higher volume. Place water in mixing container and add powder slowly while mixing. Mix thoroughly for 3 minutes. Use 3 quarts of water per 50 lb. bag. DO NOT MIX more material than can be placed in 15 minutes. Use ice water to extend working time, if needed.

APPLICATION – Use **P-100 Primer** to insure a good bond. Apply a smooth, even coat of P-100 and let it dry (about 1/2 hour at 70°F), then place **POWER-CRETE**. **P-100** will re-emulsify when wet **POWER-CRETE** comes in contact with it. Placement should be full depth and continuous to avoid cold joints. Do not dilute **P-100** when used with **POWER-CRETE**.

Do not featheredge **POWER-CRETE**. Saw cut to obtain straight edge with minimum 1/2" thickness.

Finish **POWER-CRETE** to desired surface finish. Repaired area may be opened for use in 8 hours; more time is required in cold weather.

Normally, any required coatings may be applied after 24 hours. Check moisture content before applying non-breathable coatings, such as epoxy.

Paints and coatings may be applied over **POWER-CRETE** as you would over concrete. Concrete pigments may be added to match a desired color. Lubricate trowel with water to prevent dragging.

CURING – After finishing, follow proper concrete curing procedures. In adverse weather conditions, follow ACI recommended procedures for hot/cold weather. Wet cure after material is hard for 24 hours or apply a high solids water base curing compound. Weathering and surface oxidation may cause a bonding problem with exterior applications.

USE OF AGGREGATE – Addition of pea gravel is not recommended or required for product performance.

PRECAUTIONS– Do not featheredge **POWER-CRETE**. Do not use below 32° F. The best temperature to use is 50°F to 90° F. Always make a trial installation under actual job conditions to be sure you get the desired results before using on larger areas. Do not allow material to freeze for 12 hours after application.

COVERAGE - One 50 lb. bag of **POWER-CRETE** yields .41 cu. ft. and will cover 45 sq. ft. at 1/8" thickness.

PACKAGING - **POWER-CRETE** is packaged in 50 lb. bags with moisture resistant lining, 70 bags per pallet.

CONTAINS PORTLAND CEMENT. Avoid eye contact or prolonged contact with skin. Wash thoroughly after handling. In case of eye contact flush with plenty of water for at least 15 minutes. Consult a physician immediately. Keep out of the reach of children.

CONTAINS SILICA SAND AND FREE SILICA. Do not breathe dust. Avoid inhalation by wearing respirator. Continuous exposure and inhalation may cause silicosis and crystalline silica is classified as a known human carcinogen.

LYONS MANUFACTURING, INC.
8900 Forney Road ♦ Dallas, TX 75227 ♦ 214/381-8100
www.lyonsmanufacturing.com

6/99

Distributed by:

MATERIAL SAFETY DATA SHEET

POWER-CRETE

Date Issued: December 1, 1995 Date Revised: February 23, 2005

HMIS Rating

Health	2
Flammability	0
Reactivity	0
Personal Protection	C

SECTION I Product and Company Identification

Manufacturer:
Lyons Manufacturing, Inc.
8900 Forney Rd.
Dallas, TX 75227-4505

Telephone No. 214/381-8100
Fax No. 214/381-8158
Website: www.lyonsmanufacturing.com

Emergency Phone: 214/381-8100
Product Name: POWER-CRETE
CAS No: Not established
Chemical Family: Cementitious Mortar

SECTION II Composition/Information on Ingredients

Ingredient Name:	CAS Number
Portland Cement	65997-15-1
Silica Sand	14808-60-7

SECTION III Hazards Identification

Eye Hazards:
Eye Irritant: Cement dust can cause inflammation of the cornea. Irrigate immediately with water. Consult a physician if necessary.
Skin Hazards:
May cause skin irritation. Avoid skin contact. Wet cement may dry the skin and cause alkali burns. Extremely sensitive people may develop an allergic dermatitis.
Ingestion Hazards:
Unlikely to occur; could cause irritation, nausea, diarrhea, ulceration of the digestive tract.
Inhalation Hazards:
May cause respiratory tract irritation. Cement dust can cause inflammation of nose passages. Prolonged exposure to respirable silica can cause silicosis, a scarring of the lungs.

SECTION IV First Aid Measures

Eye: Irrigate eyes thoroughly with water. Consult a physician
Skin: Wash skin thoroughly with soap and water. Remove contaminated clothing. If necessary, consult a physician.
Ingestion: Dilute immediately with water. Consult a physician.
Inhalation: Remove to fresh air. If breathing has stopped, begin artificial respiration. Consult a physician.

SECTION V Fire Fighting Measures

Flash point: >212°
Fire and explosion Hazard: None known
Extinguishing Media: Water fog, dry chemical or CO_2
Fire Fighting Instructions: Firefighters should wear full protective gear and self-contained breathing apparatus.

SECTION VI Accidental Release Measures

Scoop and sweep up. Place in containers for disposal in approved landfill.

SECTION VII Handling and Storage

Handling Precautions: Store in cool dry area. Use only in a well ventilated area. Keep out of reach of children. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Work/Hygienic Practices: Wash exposed areas thoroughly with soap and water after handling.
Storage: Keep container closed when not in use.

SECTION VIII Exposure Controls/Personal Protection

Engineering Controls: Have good general and local exhaust ventilation in area.
Eye/Face Protection: Use safety glasses with side shields.
Skin Protection: Avoid skin contact. Wear long sleeved, body covering clothes and rubber or plastic gloves.
Respiratory Protection: Use a properly fitted NIOSH-approved respirator
Other/General Protection:

Ingredients – Exposure Limits:

Cement – Portland
ACGIH TLV–TWA – 10 mg/m3
OSHA PEL–TWA – 15 mg/m3 (total dust)
OSHA PEL-TWA – 5 mg/m3 (respirable dust)

Silica, Quartz
ACGIH TLV-TWA 0.1 mg/me (Notice of Intended Change)

ACGIH TLV-TWA 0.05 mg/m3 (Proposed)
OSHA PEL-TWA 30/%SiO2+2 mg/m3
OSHA PEL-TWA 10/%SiO2+2 mg/m3
OSHA PEL-TWA 250/%SiO+5 mppcf

SECTION IX Physical and Chemical Properties

Appearance: Gray or White Mortar
Odor: No odor
Chemical Type: Mixture
Physical State: Solid
Solubility: Partially soluble

SECTION X Stability and Reactivity

Stability: Stable
Hazardous Polymerization: Will not occur
Conditions to Avoid (Stability:) None known
Incompatible Materials: None known
Hazardous Decomposition Products: None known; material is highly alkaline, avoid contact with acids.

SECTION XI Toxicological Information

Conditions Aggravated by Exposure: Eye disease, skin disorders, chronic respiratory conditions.
Ingredient(s) – Carcinogenicity:
Silica - Listed on the National Toxicology Program
Listed in the IARC Monographs
Crystalline silica is classified as a known human carcinogen.

SECTION XII Ecological Information

No information available

SECTION XIII Disposal

Dispose in accordance with applicable federal, state and local regulations.

SECTION XIV Transportation Information

Not regulated by Federal or State DOT

SECTION XV Regulatory Information

U. S. Federal Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)

All ingredients of this product are listed or are excluded from listing under the U. S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

SARA Hazard Classes

Immediate Health Hazard
Chronic Health Hazard

SARA Section 313 Notification:
Does not contain any ingredient regulated under Section 313 of the Emergency Planning and Community Right-to-know Act of 1986 or 40CFR 372.

State Regulations:
California – Proposition 65: The chemicals noted above and contained in this product are known to the State of California to cause cancer, birth defects, or other reproductive harm.
Various other states – workplace hazard and/or hazardous substance.

SECTION XVI Other Information

HMIS Rating:

Health	2
Fire	0
Reactivity	0
PPE	C

Disclaimer

The information in this Material Safety Data Sheet is accurate to the best of Lyons knowledge or is obtained from sources believed by Lyons to be accurate, but no warranty is expressed or implied regarding the accuracy of the data or the results to be obtained from its use. Since job and other conditions of use vary widely and are outside Lyons control, Lyons assumes no responsibility for any injuries which may occur in connection with any use of this product or information.

While MSDS do not change often, if in doubt, please contact Lyons Manufacturing, Inc. at 214/381-8100 for the most recent version or visit our website at www.lyonsmanufacturing.com.

VF20 Primer Data

Section 10

Site Menu

ISO 9001 Certified

VersaFlex Incorporated is an ISO 9001:2008 certified manufacturer. This certification indicates our commitment to consistently providing quality products in the marketplace. VersaFlex utilizes a systematic monitoring and evaluating process of raw materials to ensure that each batch of product meets the required guidelines established.

View Certificate

Customer Survey

Please take a moment to respond to our customer survey.
Click Here to Start

VF 20 Modified Urethane Primer

VersaFlex **VF 20** is a two-component isocyanate and resin blend primer for porous substrate applications. The low viscosity of **VF 20** allows for maximum penetration of concrete. In hard trowelled concrete situations, **VF 20** may be diluted to further reduce viscosity. **VF 20** has a working time of 45 minutes. Apply **VF 20** at 8-10 mils on concrete allowing product to penetrate the surface, or 2-4 mils on steel.. Ponding on the surface is to be avoided.

Applications & Uses

VersaFlex **VF 20** primer may be used with ***VersaFlex*** rapid curing polyurea sealants and spray coatings systems. It is designed for use in both interior and exterior priming situations. Allow **VF 20** to properly cure prior to topcoating.

Advantages

- Low viscosity, 100% Solids
- **No VOC's**
- Odorless
- Penetrating sealer
- Formulated as a *System* with ***VersaFlex*** Products
- Eliminates pin-holes
- Applied by spray, roller or brush
- Increases adhesion of coating systems to concrete & metal

Ideal for Applications in:

- Primer/Sealer for porous & non-porous substrates

Printer Friendly Send to a Friend Views: 6234

Product Documents (PDF Format)

- MSDS Sheet A
- MSDS Sheet B
- Data Sheet
- Material Processing Sheet

VersaFlex Incorporated
87 Shawnee Avenue
Kansas City, KS 66105
(913) 321-9000
(913) 321-1490 (fax)

Material Processing & Handling Information

Material: **VF 20**

Material Type: Concrete or Metal Primer/Sealer

Application: Concrete or Masonry Substrates

Application Process: Spray, squeegee, soft woven roller or soft nylon brush.

Process Equipment:	**Pump Capacity**	**Dispensing Gun**
Airless:	.33 gpm (min.)	FTX or Contractor Gun w/ ¼" hose
Tip Size	0.013 – 0.019	Pump Pressure – dependent upon tip and equipment
Process Temperature:	Ambient	
Mix Ratio:	1:1	
Mix Instructions:	Mix 1 part 'A', to 1 part 'B'. **VF 20** may be mixed as a 1:1:1 blend with acetone to reduce viscosity and extend working time. Apply at a uniform rate using airless sprayer, squeegee or roller. Areas with excessive primer absorption should be recoated until uniform film coverage is achieved. Back rolling wet primer with roller will help reduce pinholes and avoid ponding of the primer. Mixed material has a working time of 45 minutes. Do not add *cabosil or silica fume* as they will adversely affect the performance.	
Moisture Content:	Concrete and masonry surfaces must be dry. Maximum 5% (using Tramex Concrete Moisture Meter)	
Application Temperature:	20°F and higher. Note that **VF 20** will cure at these temperatures, but cure times will be extended with colder temperatures. Frozen concrete substrates with high moisture content will affect coating adhesion and long-term performance.	
Dew Point:	Substrate temperature must be 5°F above dew point and rising before application of coating materials.	
Surface Prep:	Prior to application of **VF 20** primer insure that all concrete surfaces are prepared to SSPC SP13/NACE No. 6, Surface Preparation of Concrete standard.	

Surface contaminants: Check for soluble salts on surfaces to be coated. Test with Chlor*Test. If amount of soluble salts exceeds recommended limits, treat with Chlor*Rid. Repeat process until acceptable limits are reached.
Maximum amounts of soluble salts (micrograms per square centimeter):
Chlorides - 3 immersion, 7 non-immersion
Nitrates - 5 immersion, 10 non-immersion
Sulfates - 10 immersion, 20 non-immersion

Adhesion Testing: Adhesion to concrete: Minimum 150 psi.

Application: Apply in one or two coats as required using spray, squeegee, roller or brush. Re-apply thin coat of primer at half original coverage rate if open time exceeds 72 hours. VF 20 may be tacky dry before topcoating (tacky but not wet), 1 - 4 hours depending on temperature, humidity and ventilation. Allow primer to properly cure prior to topcoating.

Finished result of applied primer should resemble a sealed/low sheen look. Any dulled down areas should be re-applied with primer.

Application Rate: Spray, squeegee or roll primer at 150 to 400 square feet per gallon over surfaces to receive coating system. Coverage rates will vary depending on porosity of substrate.

Coverage Rates- Theoretical Square Feet Per Gallon. *Note: 1604 mil inches per gallon. Totally dependent on substrate texture and condition.

Mils	10	15	50	60	80	100	125
Sq. Ft.	160	107	32	27	20	16	13

	Storage Temp	Storage	Special Handling
A Side	50°F min 70°F optimum	Keep dry. Keep from freezing. Store in covered temperature controlled environment if possible.	Keep containers closed and protected from atmospheric contamination.
B Side	50°F min 70°F optimum	Keep dry. Keep from freezing. Store in covered temperature controlled environment if possible.	Keep containers closed and protected from atmospheric contamination.

Safety: Please consult product MSDS for full details.

Safety glasses, rubber gloves, protective clothing, organic vapor or fresh air respirator.

Material Safety Data Sheet

VersaFlex INCORPORATED

Section 1: Product and Company Identification

Product Name: **VF 20- Part A Modified Urethane Primer**

Sold By:	**VersaFlex Incorporated** **87 Shawnee Avenue** **Kansas City, KS 66105** **913.321.9000**
FOR CHEMICAL EMERGENCY	Spill, leak, fire, exposure, or accident, call CHEMTREC day or night Domestic North America **800.424.9300** International **703.527.3887**
Fax Phone:	**913.321.1490**

Section 2: Composition/Information on Ingredients

Hazardous Components	CAS#	ACGIH TLV	OSHA PEL
Diphenylmethanediisocyanate	9016-87-9		02 ppm Cei
Diphenylmethane 4,4'- diisocyanate	101-68-8		
Propylene carbonate	108-32-7		
Methylenediphenyl diisocyanate	70644-56-3		

Section 3: Hazards Identification

Emergency Overview:

Routes of Entry:

Route	Entry Risk
Inhalation	Possible
Ingestion	Possible
Skin Contact	Possible
Eye Contact	Possible

Potential Health Effects:

Inhalation	May cause nausea and respiratory tract irritation. May cause respiratory sensitization in susceptible individuals.
Ingestion	No significant signs or symptoms of any adverse health hazard.
Skin Contact	Product is a slight skin irritant. May cause swelling and redness.
Eye Contact	Mild eye irritant. Vapors slightly uncomfortable. Splashes irritating and painful.

Acute Health Hazards: No information is available on the acute health hazards of this product. Based upon data from testing of similar products, no significant effects are expected.

Chronic Health Hazards: If misted or at high concentrations, may cause pallor, nausea, anesthetic or narcotic effects.

Medical Conditions Generally Aggravated by Exposure: Skin and eye sensitization. Depending on individual skin sensitivity, chronic or prolonged exposure may result in irritation, blistering, burning and peeling of skin layers.

Carcinogenicity: OSHA: No data ACGIH: No data NTP: No data IARC: No data

Other:

Section 4: First Aid Measures

Eye Contact:	Immediately flush with plenty of water for at least 15 minutes. If redness, itching, or a burning sensation develops, seek medical attention.
Skin Contact:	Remove from skin immediately. Rinse with clean water for 20-30 minutes. Use soapy water if needed. If redness, itching, or a burning sensation develops, seek medical attention.
Ingestion:	Do NOT induce vomiting! Dilute with water and seek medical attention immediately.
Inhalation:	Move victim to fresh air immediately. Give oxygen and seek medical attention.

Section 5: Fire-Fighting Measures

Flammable Limits:	Not established
Flash Point, (Method Used):	>200° F (Pensky-Marten Closed)
Autoignition Temperature:	

NFPA Hazard Rating:

		Hazard Scale	Protective Equipment
Health:	2	0=LEAST	A=SAFETY GLASSES
Flammability:	1	1=SLIGHT	B=SAFETY GLASSES, GLOVES
Reactivity:	1	2=MODERATE	C=SAFETY GLASSES, GLOVES AND APRON
Other:	D	3=HIGH 4=EXTREME	D= SAFETY GLASSES, GLOVES , APRON and RESPIRATOR

HMIS Hazard Rating:

Health:	2
Flammability:	1
Reactivity:	1
Protection:	D

Extinguishing Media:	Foam/Carbon dioxide/Dry chemical/Water fog
Special Fire Fighting Procedures:	Remove all ignition sources. Wear self-contained breathing apparatus and complete personal protective equipment when entering confined areas where potential for exposure to vapors or products exist.
Unusual Fire and Explosion Hazards:	Closed containers may rupture due to build-up of pressure when exposed to extreme heat.
Hazardous Decomposition Products:	

Section 6: Accidental Release Measures

Accidental Release Measures:	Avoid contact with material. Persons not wearing appropriate protective equipment should be excluded until the spill is cleaned up. Stop spill at source, pump liquid to salvage container. Remaining liquid may be taken up on clay, diatomaceous earth, or other absorbent. Treat with 3-8% concentration of ammonium hydroxide or 5-10% sodium carbonate. Add 10 parts neutralizing solution/part isocyanate. Let stand 48 hours.

Section 7: Handling and Storage

Handling & Storage Precautions:	Prevent all skin and eye contact. Avoid breathing vapors. Re-seal partially used containers. Wash with soap and water before eating or drinking. Protect from moisture contamination. Exothermic generation of carbon dioxide may cause dangerous pressure. Keep away from all ignitable sources as well as extreme heat. Don not expose to excessive moisture.

Section 8: Exposure Control/Personal Protection

Ventilation:	Adequate ventilation required. Local exhaust may be required in some areas. Special exhausting generally not required. Mechanical exhaust usually adequate.
Respiratory Protection:	Respiratory masks should be worn at all times when adequate ventilation does not exist. A NIOSH/MSHA respirator is acceptable.
Eye Protection:	Chemical tight goggles; full face shield if splashing is possible.
Skin Protection:	Coveralls and impervious foot covering is recommended.
Other Protective Clothing or Equipment:	Use impervious gloves, neoprene or rubber.
Work/Hygienic Practices:	Good air flow in working area. Eyewash station and safety shower should be available. Gloves and respiratory equipment should be worn at all times.

Section 9: Physical and Chemical Properties

Appearance:	Amber to brown	
Odor:	Faint odor	
Physical State:	Liquid	
ph As Supplied:		
ph (Other):		
Boiling Point:	N/A	
Melting Point:	No data	
Freezing Point:		
Vapor Pressure (mmHg):	.000004 (mmHg)	
Vapor Density (Air=1):	8.5	
Specific Gravity (Water=1):	1.22	
Evaporation Rate (Butyl Acetate=1):	Slower than	
Solubility in Water:	Insoluble	
Percent Solids by Weight:		
Percent Volatile:	By Weight:	By Volume:
Volatile Organic Compounds (VOC):	With Water:	Without Water:
Molecular Weight:		
Viscosity:		

Section 10: Stability and Reactivity

Stability:	Stable
Conditions to Avoid (*Stability*):	Avoid excessive heat, open flame, sparks and strong oxidizing agents. Protect from atmospheric moisture. Replace outage with inert dry nitrogen.
Incompatibility (*Materials to Avoid*):	Avoid water, acid, base (alkalis, ammonia), alcohols, metal compounds.
Hazardous Decomposition or Byproducts:	Isocyanate vapors or mist, carbon dioxide, carbon monoxide, nitrogen oxides.
Hazardous Polymerization:	May occur.
Conditions to Avoid (Polymerization):	Avoid incompatible reactants, especially strong bases, water or temperatures over 160° Centigrade.

Section 11: Toxicological Information

Toxicological Information: No Data

Section 12: Ecological Information

Ecological Information: No Data

Section 13: Disposal Considerations

Waste Disposal Method:	Dispose of according to current local, state and federal regulations.
RCRA Hazard Class:	Non-Regulated

Section 14: Transport Information

U.S. Department of Transportation

Proper Shipping Name: Polymeric diphenylmethane diisocyanate
Hazard Class: Non-regulated (in 55 gallon drums), NOI
ID Number:
Packing Group:
Label Statement:

Water Transportation

Proper Shipping Name: Polymeric diphenylmethane diisocyanate
Hazard Class: Non regulated, NOI
ID Number:
Packing Group:
Label Statement:

Air Transportation

Proper Shipping Name: Polymeric diphenylmethane diisocyanate
Hazard Class: Non regulated, NOI
ID Number:
Packing Group:
Label Statement:

Other Agencies:

Section 15: Regulatory Information

U.S. Federal Regulations

TSCA (Toxic Substance Control Act):
CERCLA (Comprehensive Response Compensation and Liability Act):
SARA Title III (Superfund Amendments and Reauthorization Act):
311/312 Hazard Categories:
313 Reportable Ingredients:

State Regulations:

International Regulations:

Section 16: Other Information

Other Information:

Preparation Information:

Disclaimer: To the best of our knowledge, the information contained in this MSDS is accurate. It is intended to assist the user in his evaluation of the product's hazards, and safety precautions to be taken in its use. The data in this MSDS relate only to the specific material designated herein. We do not assume liability for the use of, or reliance on this information, nor do we guarantee its accuracy or completeness.

Material Safety Data Sheet

VersaFlex INCORPORATED

Section 1: Product and Company Identification

Product Name: **VF 20- Part B Modified Urethane Primer**

Sold By:	**VersaFlex Incorporated** **87 Shawnee Avenue** **Kansas City, KS 66105** **913.321.9000**
FOR CHEMICAL EMERGENCY	Spill, leak, fire, exposure, or accident, call CHEMTREC day or night Domestic North America **800.424.9300** International **703.527.3887**
Fax Phone:	**913.321.1490**

Section 2: Composition/Information on Ingredients

Hazardous Components	CAS#	ACGIH TLV	OSHA PEL
Castor Oil	8001-79-4	Not Determined	Not Determined

Section 3: Hazards Identification

Emergency Overview:

Routes of Entry:

Route	Entry Risk
Inhalation	Possible
Ingestion	Possible
Skin Contact	Possible
Eye Contact	Possible

Potential Health Effects:

Inhalation	No adverse effects
Ingestion	No adverse effects
Skin Contact	No adverse effects
Eye Contact	No adverse effects

Acute Health Hazards: No adverse effects

Chronic Health Hazards: No adverse effects

Medical Conditions Generally Aggravated by Exposure: No adverse effects

Carcinogenicity: OSHA: No data ACGIH: No data NTP: No data IARC: No data

Other:

Section 4: First Aid Measures

Eye Contact:	Not expected to require first aid measures.
Skin Contact:	Not expected to require first aid measures.
Ingestion:	Not expected to require first aid measures.
Inhalation:	Not expected to require first aid measures.

Section 5: Fire-Fighting Measures

Flammable Limits:	
Flash Point, (Method Used):	440° Farenheit (Pensky-Marten Closed)
Autoignition Temperature:	

NFPA Hazard Rating:

Health:	0
Flammability:	1
Reactivity:	0
Other:	A

Hazard Scale	Protective Equipment
0=LEAST	A=SAFETY GLASSES
1=SLIGHT	B=SAFETY GLASSES, GLOVES
2=MODERATE	C=SAFETY GLASSES, GLOVES AND APRON
3=HIGH	D= SAFETY GLASSES, GLOVES , APRON and RESPIRATOR
4=EXTREME	

HMIS Hazard Rating:

Health:	0
Flammability:	1
Reactivity:	0
Protection:	A

Extinguishing Media:	Any suitable means
Special Fire Fighting Procedures:	None required
Unusual Fire and Explosion Hazards:	
Hazardous Decomposition Products:	

Section 6: Accidental Release Measures

Accidental Release Measures:	Standard non-toxic spill procedures apply to this product.

Section 7: Handling and Storage

Handling & Storage Precautions:	

Section 8: Exposure Control/Personal Protection

Ventilation:	
Respiratory Protection:	
Eye Protection:	Chemical tight goggles.
Skin Protection:	Coveralls and impervious foot covering is recommended.
Other Protective Clothing or Equipment:	Use impervious gloves, neoprene or rubber.
Work/Hygienic Practices:	Good air flow in working area. Eyewash station and safety shower should be available. Gloves and respiratory equipment should be worn at all times.

Section 9: Physical and Chemical Properties

Appearance:	Light yellow viscous liquid
Odor:	Slight
Physical State:	Liquid
ph As Supplied:	
ph (Other):	
Boiling Point:	N/A
Melting Point:	Not applicable
Freezing Point:	
Vapor Pressure (mmHg):	Not applicable
Vapor Density (Air=1):	Not applicable
Specific Gravity (Water=1):	.95
Evaporation Rate (Butyl Acetate=1):	
Solubility in Water:	insoluble

Percent Solids by Weight:

Percent Volatile: By Weight: By Volume:

Volatile Organic Compounds (VOC): With Water: Without Water:

Molecular Weight:

Viscosity:

Section 10: Stability and Reactivity

Stability: Stable

Conditions to Avoid (*Stability*):

Incompatibility (*Materials to Avoid*):

Hazardous Decomposition or Byproducts: Carbon dioxide, carbon monoxide

Hazardous Polymerization: Will not occur

Conditions to Avoid (Polymerization):

Section 11: Toxicological Information

Toxicological Information: No Toxic

Section 12: Ecological Information

Ecological Information:

Section 13: Disposal Considerations

Waste Disposal Method: Dispose of according to current local, state and federal regulations.

RCRA Hazard Class: Non-Regulated

Section 14: Transport Information

U.S. Department of Transportation

Proper Shipping Name: Castor Oil

Hazard Class: Non-Regulated, NOI

ID Number:

Packing Group:

Label Statement:

Water Transportation

Proper Shipping Name: Castor Oil

Hazard Class: Non-Regulated, NOI

ID Number:

Packing Group:

Label Statement:

Air Transportation

Proper Shipping Name: Castor Oil

Hazard Class: Non-Regulated, NOI

ID Number:

Packing Group:

Label Statement:

Other Agencies:

Section 15: Regulatory Information

U.S. Federal Regulations

TSCA (Toxic Substance Control Act):

CERCLA (Comprehensive Response Compensation and Liability Act):

SARA Title III (Superfund Amendments and Reauthorization Act):

311/312 Hazard Categories:

313 Reportable Ingredients:

State Regulations:

International Regulations:

Section 16: Other Information

Other Information:

Preparation Information:

Disclaimer: To the best of our knowledge, the information contained in this MSDS is accurate. It is intended to assist the user in his evaluation of the product's hazards, and safety precautions to be taken in its use. The data in this MSDS relate only to the specific material designated herein. We do not assume liability for the use of, or reliance on this information, nor do we guarantee its accuracy or completeness.

VF380 Liner Data

Section 11

Site Menu

- Product Information
- Polyurea Systems
- FAQs
- Product Application Bulletins
- Image Gallery
- Polyurea News Archive
- Miscellaneous Notes, Drawings and Certificates
- Training Classes
- Search

ISO 9001 Certified

VersaFlex Incorporated is an ISO 9001:2008 certified manufacturer. This certification indicates our commitment to consistently providing quality products in the marketplace. VersaFlex utilizes a systematic monitoring and evaluating process of raw materials to ensure that each batch of product meets the required guidelines established.

View Certificate

Customer Survey

Please take a moment to respond to our customer survey.
Click Here to Start

VF 380 Aromatic Spray Polyurea (geotextile coating)

VersaFlex **VF 380** is a 100% solids elastomeric polyurea developed for applications such as geotextile lining membranes. **VF 380** may also be applied to concrete and steel substrates. **VF 380** is a volatile free, odorless system applied with 1:1 mix ratio with plural component spray equipment.

Spray Gun Configuration

Applications & Uses

VersaFlex **VF 380** provides less shrinkage with improved elongation characteristics. As a result, **VF 380** makes an excellent polyurea for liners, geotextile coatings, and applications where resilience and durability are required. **VF 380** can be applied at a thickness of 10 to 200 mils in a single application.

Advantages

- 100% Solids
- 1:1 Mix Ratio by Volume
- Rapid Cure
- Immediate Return to Service
- Applied by Plural Component Spray
- Odorless
- **No VOC's**
- **Low curing stress shrinkage**
- Operating Temperatures -40°F to 350°F

Ideal for Applications in:

- Waterproofing Membranes
- Geotextile Coatings
- Foam Coatings
- Flexible Membranes
- Liners
- Metal Parts
- Crude Oil Condensate Tanks
- Oil Production Water Containments
- Typical ambient waste water and hydrogen sulfide exposures

Product Documents (PDF Format)

- MSDS Sheet A
- MSDS Sheet B
- Data Sheet
- Material Processing Sheet
- Chemical Resistance Chart

Printer Friendly | Send to a Friend | Views: 6195

Miscellaneous Equipment Data

Section 12

VersaFlex International
87 Shawnee Avenue
Kansas City, KS 66105
(913) 321-9000
(913) 321-1490 (fax)

Product Data Sheet

VF 380
(PV 380)

Elastomeric Polyurea

USGBC LEED, EQ Credit 4:
Low – emitting VOC Compliant Materials

Product Description - ***VersaFlex*** **VF 380** is a 100% solids elastomeric polyurea developed for applications such as geotextile lining membranes. **VF 380** may also be applied to concrete and steel substrates. **VF 380** is a volatile free, odorless system applied with 1:1 mix ratio with plural component spray equipment.

Uses - ***VersaFlex*** **VF 380** provides less shrinkage with improved elongation characteristics. As a result, **VF 380** makes an excellent polyurea for liners, geotextile coatings, and applications where resilience and durability are required. **VF 380** can be applied at a thickness of 10 to 200 mils in a single application.

Ideal for Applications In -

- Waterproofing Membranes
- Geotextile Coatings
- Foam Coatings
- Flexible Membranes
- Liners
- Metal Parts
- Crude Oil Condensate tanks
- Oil production water containments
- Typical ambient waste water & hydrogen sulfide exposures.

Advantages -

- 100% Solids
- 1:1 Mix Ratio by Volume
- Rapid Cure
- Immediate Return to Service
- Applied by Plural Component Spray
- Odorless
- No VOC's
- Low curing stress shrinkage
- Operating Temperatures -40°F to 350°F

Physical Properties -

(Typical) 1:1 Mix Ratio		
Cured Film Properties	Test Method	Typical Value
Solids Content		100%
Shore A Hardness	ASTM D2240	80-85
Elongation	ASTM D412	650%
Tear Strength	ASTM 624	>275 psi
Tensile Strength, psi	ASTM D412	>2500 psi*
Moisture Vapor Transmission	ASTM E-96	0.02 perm
Flexibility	ASTM-D-2794	>160in-lbs
Gel Time		30 seconds
Tack Free		45 seconds
*Full properties achieved between 40-60 days		
Tested in accordance to EPA 9090A		
LARR Approval (CA)		

Limitations - **VF 380** should not be used for direct contact with extremely high or low pH attack. Composite systems are available. Consult ***VersaFlex***.

Coverage Rates -

Theoretical Square Feet Per Gallon

Mils	10	15	50	60	80	100	125
Sq. Ft.	160	107	32	27	20	16	13

Note: 1604 mil inches per gallon. Totally dependent on substrate texture and condition.

Packaging -

- One Hundred Ten Gallon Kit: 55 gallons of 'A' side and 55 gallons of 'B' side - Drum containers filled by weight, volume is closely approximated.

Mixing - **VF 380** must be spray applied using approved plural component equipment. Use 1:1 ratio pump, with appropriate material heaters as required for individual application.

Colors - Standard color is charcoal gray, light gray, or black. Other colors available upon request. Consult ***VersaFlex***.

Shelf Life - One year, in original, unopened factory containers under minimum storage conditions of 70°F.

Clean Up - Cured product may be disposed of without restriction. Excess liquid 'A' and 'B' material should be mixed together and allowed to cure, then disposed of in the normal manner. Product containers that are "drip free" may be disposed of according to local, state and federal laws.

Safety - Review Material Safety Data Sheet information @ ***VersaFlex.com.***

Basic safety for personal protection is:

- Long-sleeve overalls or disposable Tyvex overalls
- Rubber gloves
- Respirator
- Splash shield or safety glasses with splash guards
- Rubber or leather boots
- Do not use near high heat or open flame
- Do not take internally
- Keep out of the reach of children

Surface Preparation and Application – Please review the Material Processing & Handling Information for preparation and application procedures. Substrate priming is not required on all substrates, consult ***VersaFlex*** for recommendations. Also, please consult the ***VersaFlex*** Spray Gun Configuration Recommendation PDF for specific modules and tips.

Technical Services - Sales and Customer Support (913) 321-9000

Warranty - ***VersaFlex Incorporated*** will refund the price of or replace, at its election, product it finds to be defective provided the product has been used properly. Except as expressly stated above, the Company makes no warranty of merchantability and no warranty of fitness for any particular purpose, nor does it make any warranty, expressed or implied, of any nature whatsoever with respect to the product or its use. In no event shall the company be liable for delay caused by defects, for loss of use, for indirect, special or consequential damages, or for any charges or expenses of any nature incurred without its written consent.

VersaFlex Incorporated
87 Shawnee Avenue
Kansas City, KS 66105
(913) 321-9000
(913) 321-1490 (fax)

Material Processing & Handling Information

Material: **VF 380 - Elastomeric Polyurea**

Material Type: Abrasion Resistant Fast Set Spray Polyurea Coating

Application: Concrete, Tile, CMU, Wood and other porous substrates

Application Process: High pressure heated equipment with impingement gun

Process Equipment:	Pumps	Dispensing Gun
Graco:	EXP-1 (Electric) EXP-2 (Electric) EXP-3 (Pneumatic) H-XP2 (Hydraulic) H-XP3 (Hydraulic)	Fusion AP (Air Purge) Fusion MP (Mechanical Purge) GX-7 Standard (Mechanical Purge) GX-8 (Mechanical Purge) Probler (Air Purge) Probler P2 (Air Purge)
Gusmer:	FF 2500 (Hydraulic) FF 3500 (Hydraulic) H-20/35 (Pro Hydraulic)	GX-7 Standard (Mechanical Purge) GX-7 400 (Mechanical Purge) GX-7 DI (Mechanical Purge) GX-8 (Mechanical Purge) GAP Pro (Air Purge)
GlasCraft:	MX, MXII (Pneumatic) MH, MHII, MHIII (Hydraulic) SuperMaxi, Guardian A Series	Probler (Air Purge) Probler P2 (Air Purge)
Gama:		Master Gun (Air Purge)

Process Temperature:	170° F optimum (150°F min, 190°F max)
Process Pressure:	2,000 - 2,500 psi optimum (1,700 psi min, 3,500 psi max.)
Gel Time:	30 seconds
Tack Free:	45 seconds
Light Traffic:	60 - 120 minutes
Full Cure:	7 days
Moisture Content:	Calcium chloride test: 3 lb./24 hr./1,000 ft^2 Tramex concrete moisture meter: 5% maximum
Application Temperature:	-20°F and higher **VF 380** will cure at sub-freezing temperatures, but the effects from these conditions may impact the application in a variety of ways. It is recommended that material and equipment ambient temperatures be kept at 50°F or above. Frozen concrete substrates with high moisture content will affect coating adhesion and long-term performance.
Dew Point:	Substrate temperature must be 5°F above dew point and rising before application of coating materials.
Surface Prep:	Abrasive blast per ICRI Technical Guideline No. 03732 or SSPC SP13. Achieve a concrete surface profile of ICRI CSP-3 to CSP-5.

Surface contaminants:	Check for soluble salts on surfaces to be coated. Test with Chlor*Test. If amount of soluble salts exceeds recommended limits, treat with Chlor*Rid. Repeat process until acceptable limits are reached. Maximum amounts of soluble salts (micrograms per square centimeter): Chlorides - 3 immersion, 7 non-immersion Nitrates - 5 immersion, 10 non-immersion Sulfates - 10 immersion, 20 non-immersion
Substrate Parging:	Formed walls with honeycombing or concrete surfaces with large exposed aggregate. Recommended that the surface is rubbed or parged to eliminate surface defects. Use Five Star Structural Concrete.
Surface Primer:	Concrete & other porous substrates: ***VersaFlex*** Quick Mender (8 to 10 wet mils): Two-component sealer and primer. Maximum overcoat time: 24 hours, after which a light recoat is required (2 to 4 wet mils). Do not use Quick Mender on steel. All substrates: ***VersaFlex*** VF 20 (8 to 10 wet mils): Two-component primer. Maximum overcoat time: 72 hours, after which a light recoat is required. Steel only: ***VersaFlex*** PW-1 (4 to 6 wet mils): Single component primer. Maximum overcoat time: 24 hours, after which a light recoat is required. (1 to 2 wet mils).
Adhesion Testing:	Adhesion to concrete: Minimum 150 psi. Cohesive failure of concrete is optimum. Pull values will vary depending on concrete strength.
Coating Application:	Coating thickness will vary depending on intended use, surface roughness and profile. The International Concrete Repair Institute (ICRI) has developed a standard for Concrete Surface Profile (CSP) ranging between 1 (smoothest) and 9 (Roughest). The following chart gives approximate minimum coating thickness to achieve a continuous coating using the ICRI CSP standard. CSP-1 & CSP-2 45 – 55 mils CSP-3 55 - 60 mils CSP-4 60 – 65 mils CSP-5 65 – 70 mils CSP-6 70 – 75 mils CSP-7 75 – 80 mils CSP-8 80 - 85 mils CSP-9 85 – 90 mils ***** Please consult the VersaFlex Spray Gun Configuration Recommendation PDF for specific modules and tips.***

	Storage Temp	Storage	Special Handling
'A' Side	70°F min.	Keep dry. Keep from freezing. Store in covered temperature controlled environment if possible.	Use dry air desiccant for intake vent on drum.
'B' Side	70°F min.	Keep dry. Keep from freezing. Store in covered temperature controlled environment if possible.	Mix well with mixer to re-disperse any settled pigment.

Safety:	Please consult product MSDS for full details. Safety glasses, rubber gloves, protective clothing, organic vapor or fresh air respirator.

Aromatic Chemical Resistance-

R=Recommended
C=Recommended Conditionally (washdown within 1 hour of spillage)
N=Not Recommended
1=Suitable for immersion and/or splash and spillage conditions
2=Suitable for occasional or intermittent contact for up to 72 hours

Test Procedure: **ASTM D3912** 25°C Exceeds 1 Year

Test Media	
Acetic Acid 10%	C
Ammonium Hydroxide 10%/20	R
Diesel Fuel	R
Gasoline	R
Hydraulic Fluid	R
Hydrochloric Acid 5%/10%	R
Methanol	R
Motor Oil	R
MTBE	R
MTBE/Gasoline 5%	R
NaCl/Water 10%	R
Phosphoric Acid 10%	R
Potassium Hydroxide 10%/20%	R
Sodium Hydroxide 10%/20%/50%	R
Sugar/Water 10%	R
Sulfuric Acid 5%/10%	R
Skydrol	2
Toluene	C
Water	R
2-Methylbutane	R

Test Procedure: **ASTM B117**, after 1000 hours

Test	Result
Blistering, Bare Steel	None
Corrosion from Scribe,mm	4.0
Adhesion, psi, Elcometer	>2000

Note: Applied at 2-mil blast profile, KTA-Tator panels. No primer.

Test Procedure: **ASTM D1308** 25°C Exceeds 1 Year

Test Media	
Acetone	C
Antifreeze	R
Benzene	R
Benzoic Acid	R
Butyl Alcohol	R
Butyl Cellosolve	R
Carbon Dioxide	R
Calcium Hypochlorite	N
Chlorine (5000 ppm in water)	2
Citric Acid	R
Cylloexanol	R
Dichloroacetic Acid	C
Dimethyl Formamide	N
Ethanol	2
Ethylene Glycol	1
Gasoline	R
Hexane	R
Hydraulic Oil	R
Lactic Acid 10%	1
Methylene Chloride	C
Methyl Ethyl Ketone	C
Methanol	R
Mineral Spirits	R
Monobutyl Ether	R
Nitric Acid 20%	C
Phenol	2
Skydrol	2
Sodium Bicarbonate	R
Sodium Chloride	R
Sodium Hydroxide 50%	R
Sodium Hypochlorite 10%	2
Stearic Acid	R
Sulfuric Acid 70%	N
Trichloroethylene	C
Trisodium Phosphate	R
Toluene	C
Vinegar	R
Xylene	C

Test Procedure: **ASTM D 5322**

Jet Fuel A	R

WATER ANALYSIS REPORT

4000023991
CONOCO PHILLIPS
68 EL PASO CIRCLE
Gallup, NM
UNITED STATES 87316

Sampled: 01-OCT-2010
Reported: 04-NOV-2010
Field Rep: Muir, Charles Ron 91002070

	CT MAKEUP U1007125	COOLING TOWER U1007130	NW WSAC U1007126	NE WSAC U1007127
pH	7.4	7.2	8.3	8.2
Specific Conductance, at 25°C, µmhos	512	1440	6170	5470
Alkalinity, "P" as $CaCO_3$, ppm	0	0	< 2	0
Alkalinity, "M" as $CaCO_3$, ppm	83	34	139	129
Sulfur, Total, as SO_4, ppm	169	749	3780	3260
Chloride, as Cl, ppm	2.8	46	270	232
Hardness, Total, as $CaCO_3$, ppm	215	640	3170	2720
Calcium Hardness, Total, as $CaCO_3$, ppm	115	348	1720	1500
Magnesium Hardness, Total, as $CaCO_3$, ppm	99	290	1440	1220
Copper, Total, as Cu, ppm	< 0.05	< 0.05	0.06	0.07
Iron, Total, as Fe, ppm	0.1	0.54	1.0	1.9
Sodium, as Na, ppm	26	131	762	635
Zinc, Total, as Zn, ppm	0.02	0.06	0.46	0.60
Manganese, Total, as Mn, ppm	< 0.01	< 0.01	0.04	0.05
Phosphate, Total, as PO_4, ppm	< 0.4	11.2	24	27

Legend
Result: xxx.x
Median: xxx.x(x) # of previous results

WATER ANALYSIS REPORT

4000023991
CONOCO PHILLIPS
68 EL PASO CIRCLE
Gallup, NM
UNITED STATES 87316

Sampled: 01-OCT-2010
Reported: 04-NOV-2010
Field Rep: Muir, Charles Ron
91002070

	CT MAKEUP U1007125	COOLING TOWER U1007130	NW WSAC U1007126	NE WSAC U1007127
Phosphate, Total Inorganic, as PO_4, ppm	< 0.2			
Phosphate, Ortho-, as PO_4, ppm	< 0.2	5.7	I	I
Phosphate, Filtered Ortho-, as PO_4, ppm			10.1	9.5
Silica, Total, as SiO_2, ppm	8.1	23	87	81
Solids, Total Suspended mg/l		< 10	25	41
Solids, Total Dissolved mg/l, at 105°\tab		1220	6610	5460
Halogen Resistant Azole, ppm		2.4		
STP, Threshold, ppm		7.6		

Legend
Result: xxx.x
Median: xxx.x(x) # of previous results

WATER ANALYSIS REPORT

4000023991
CONOCO PHILLIPS
68 EL PASO CIRCLE
Gallup, NM
UNITED STATES 87316

Sampled: 01-OCT-2010
Reported: 04-NOV-2010
Field Rep: Muir, Charles Ron
91002070

	MW WSAC U1007128	ME WSAC U1007129	SW WSAC U1007131	SE WSAC U1007132
pH	7.9	7.9	8.0	8.2
Specific Conductance, at 25°C, µmhos	6100	6140	6190	5910
Alkalinity, "P" as $CaCO_3$, ppm	0	0	0	0
Alkalinity, "M" as $CaCO_3$, ppm	194	195	204	172
Sulfur, Total, as SO_4, ppm	3730	4040	3860	3590
Chloride, as Cl, ppm	263	264	284	252
Hardness, Total, as $CaCO_3$, ppm	3220	3470	3370	3070
Calcium Hardness, Total, as $CaCO_3$, ppm	1710	1850	1820	1630
Magnesium Hardness, Total, as $CaCO_3$, ppm	1490	1610	1530	1430
Copper, Total, as Cu, ppm	0.08	0.08	< 0.5	0.06
Iron, Total, as Fe, ppm	2.3	2.3	2.2	1.2
Sodium, as Na, ppm	750	813	678	718
Zinc, Total, as Zn, ppm	0.39	0.40	0.44	0.27
Manganese, Total, as Mn, ppm	0.05	0.05	< 0.1	0.03
Phosphate, Total, as PO_4, ppm	41	43	43	30

Legend
Result: xxx.x
Median: xxx.x(x) # of previous results

WATER ANALYSIS REPORT

4000023991
CONOCO PHILLIPS
68 EL PASO CIRCLE
Gallup, NM
UNITED STATES 87316

Sampled: 01-OCT-2010
Reported: 04-NOV-2010
Field Rep: Muir, Charles Ron
91002070

	MW WSAC U1007128	ME WSAC U1007129	SW WSAC U1007131	SE WSAC U1007132
Phosphate, Ortho-, as PO_4, ppm	I	I	I	13.9
Phosphate, Filtered Ortho-, as PO_4, ppm	17.5	18.5	18.0	
Silica, Total, as SiO_2, ppm	106	111	119	94
Solids, Total Suspended mg/l	38	< 10	33	11.0
Solids, Total Dissolved mg/l, at 105°\tab	6240	6100	6260	5900

Legend
Result: xxx.x
Median: xxx.x(x) # of previous results

WATER ANALYSIS REPORT

4000023991
CONOCO PHILLIPS
68 EL PASO CIRCLE
Gallup, NM
UNITED STATES 87316

Sampled: 01-OCT-2010
Reported: 04-NOV-2010
Field Rep: Muir, Charles Ron
91002070

Result Legend

I - A chemical or physical interference prevented the labs ability to perform this test.

Material Safety Data Sheet

VersaFlex INCORPORATED

Section 1: Product and Company Identification

Product Name: **VF 380-Part A**

Sold By:	**VersaFlex Incorporated** **87 Shawnee Avenue** **Kansas City, KS 66105** **913.321.9000**
FOR CHEMICAL EMERGENCY	Spill, leak, fire, exposure, or accident, call CHEMTREC day or night Domestic North America **800.424.9300** International **703.527.3887**
Fax Phone:	**913.321.1490**
TSCA Inventory:	All components of this product are included, or are exempt from inclusion, in the EPA Toxic Substance Control Act (TSCA) Chemical Substance Inventory.
Canadian DSL:	All components of this product are included, or are exempt from inclusion, in the Canadian Domestic Substance List (DSL).

Section 2: Composition/Information on Ingredients

Hazardous Components	CAS#	ACGIH TLV	OSHA PEL	% by Wgt
4,4'Diphenylmethane Diisocyanate	101-68-8	0.005 ppm	02 ppm Cei	
Polypropylene carbonate	108-32-7	Not Determined	Not Determined	

Section 3: Hazards Identification

Emergency Overview:

Routes of Entry:

Route	Entry Risk
Inhalation	Possible
Ingestion	Possible
Skin Contact	Possible
Eye Contact	Possible

Potential Health Effects:

Inhalation	May cause nausea and respiratory tract irritation. May cause respiratory sensitization in susceptible individuals.
Ingestion	No significant signs or symptoms of any adverse health hazards.
Skin Contact	Product is a slight skin irritant. May cause swelling and redness.
Eye Contact	Mild eye irritant. Vapors slightly uncomfortable. Splashes irritating and painful.

Acute Health Hazards: No information is available on the acute health hazards of this product. Based upon data from testing of similar products, no significant effects are expected.

Chronic Health Hazards: If misted or at high concentrations, may cause pallor, nausea, anesthetic or narcotic effects.

Medical Conditions Generally Aggravated by Exposure: Skin and eye sensitization. Depending on individual skin sensitivity, chronic or prolonged exposure may result in irritation, blistering, burning and peeling of skin layers.

Carcinogenicity: OSHA: No data ACGIH: No data NTP: No data IARC: No data

Other:

Section 4: First Aid Measures

Eye Contact:	Immediately flush with plenty of water for at least 15 minutes. If redness, itching, or a burning sensation develops, seek medical attention.
Skin Contact:	Remove from skin immediately. Rinse with clean water for 20-30 minutes. Use soapy water if needed. If redness, itching, or a burning sensation develops, seek medical attention.
Ingestion:	Do NOT induce vomiting! Dilute with water and seek medical attention immediately.
Inhalation:	Move victim to fresh air immediately. Give oxygen and seek medical attention.

Section 5: Fire-Fighting Measures

Flammable Limits:	Not determined
Flash Point, (Method Used):	>200° Fahrenheit (Pensky Marten Closed)
Autoignition Temperature:	

NFPA Hazard Rating:

Health: 2
Flammability: 1
Reactivity: 1
Other: D

Hazard Scale	Protective Equipment
0=LEAST	A=SAFETY GLASSES
1=SLIGHT	B=SAFETY GLASSES, GLOVES
2=MODERATE	C=SAFETY GLASSES, GLOVES AND APRON
3=HIGH	D= SAFETY GLASSES, GLOVES , APRON and
4=EXTREME	RESPIRATOR

HMIS Hazard Rating:

Health: 2
Flammability: 1
Reactivity: 1
Protection: D

Extinguishing Media:	Foam/Carbon dioxide/Dry chemical/Water fog
Special Fire Fighting Procedures:	Remove all ignition sources. Wear self-contained breathing apparatus and complete personal protective equipment when entering confined areas where potential for exposure to vapors or products exist.
Unusual Fire and Explosion Hazards:	Closed containers may rupture due to build-up of pressure when exposed to extreme heat.
Hazardous Decomposition Products:	

Section 6: Accidental Release Measures

Accidental Release Measures:	Avoid contact with material. Persons not wearing appropriate protective equipment should be excluded until the spill is cleaned up. Stop spill at source, pump liquid into salvage container. Remaining liquid may be taken up on clay, diatomaceous earth, or other absorbent. Treat with 5-8% concentration of ammonium hydroxide or 5-10% sodium carbonate. Add 10 parts neutralizing solution/part isocyanate. Let stand 48 hours.

Section 7: Handling and Storage

Handling & Storage Precautions:	Prevent all skin and eye contact. Avoid breathing vapors. Re-seal partially used containers. Wash with soap and water before eating or drinking. Protect from moisture contamination. Exothermic generation of carbon dioxide may cause dangerous pressure. Keep away from all ignitable sources as well as extreme heat. Do not expose to excessive moisture.

Section 8: Exposure Control/Personal Protection

Ventilation:	Adequate ventilation required. Local exhaust may be required in some areas. Special exhausting generally not required. Mechanical exhaust usually adequate.
Respiratory Protection:	Respiratory masks should be worn at all times when adequate ventilation does not exist. A NIOSH/MSHA respirator is acceptable.
Eye Protection:	Chemical tight goggles; full face shield if splashing is possible.
Skin Protection:	Coveralls and impervious foot covering is recommended.
Other Protective Clothing or Equipment:	Use impervious gloves, neoprene or rubber.
Work/ Hygienic Practices:	Good air flow in working area. Eyewash station and safety shower should be available. Gloves and respiratory equipment should be worn at all times.

Section 9: Physical and Chemical Properties

Appearance:	Pale yellow to amber		
Odor:	Faint odor		
Physical State:	Liquid		
ph As Supplied:	No Data		
ph (Other):	No Data		
Boiling Point:	N/A		
Melting Point:	Not determined		
Freezing Point:	No Data		
Vapor Pressure (mmHg):	.000004		
Vapor Density (Air=1):	8.5		
Specific Gravity (Water=1):	1.1031		
Evaporation Rate (Butyl Acetate=1):	Slower than		
Solubility in Water:	Negligible (<1%)		
Percent Solids by Weight:	100%		
Percent Volatile (grams/liter):	By Weight: 0%	By Volume:	0%
Volatile Organic Compounds (VOC) (grams/liter):	With Water: 0%	Without Water:	0%
Viscosity:	255 cps		

Section 10: Stability and Reactivity

Stability:	Stable
Conditions to Avoid (*Stability*):	Avoid excessive heat, open flame, sparks and strong oxidizing agents. Protect from atmospheric moisture. Replace outage with inert dry nitrogen.
Incompatibility (*Materials to Avoid*):	Avoid water, acid, base (alkalis, ammonia), alcohols, metal compounds.
Hazardous Decomposition or Byproducts:	Isocyanate vapors or mist, carbon dioxide, carbon monoxide, nitrogen oxides.
Hazardous Polymerization:	Will not occur under normal circumstances.
Conditions to Avoid (Polymerization):	Avoid incompatible reactants, especially strong bases, water or temperatures over 160° Centigrade.

Section 11: Toxicological Information

Toxicological Information: No Data

Section 12: Ecological Information

Ecological Information: No Data

Section 13: Disposal Considerations

Waste Disposal Method:	Use excess product in an alternate beneficial application. Dispose of according to all local, state and federal regulations.
RCRA Hazard Class:	Non-Regulated

Section 14: Transport Information

U.S. Department of Transportation

Proper Shipping Name: Methylene diphenyl diisocyanate prepolymer
Hazard Class: Non-Regulated (in 55 gallon drums), NOI
ID Number:
Packing Group:
Label Statement:

Water Transportation

Proper Shipping Name: Methylene diphenyl diisocyanate prepolymer
Hazard Class: Non-Regulated, NOI
ID Number:
Packing Group:
Label Statement:

Air Transportation

Proper Shipping Name: Methylene diphenyl diisocyanate prepolymer
Hazard Class: Non-Regulated, NOI
ID Number:
Packing Group:
Label Statement:

Other Agencies:

Section 15: Regulatory Information

U.S. Federal Regulations

TSCA (Toxic Substance Control Act): Section 12(b) Export Notification. This product contains the following chemical substances subject to the reporting requirements of TSCA 12(b) if exported from the United States: There are no TSCA 12(b) Chemicals in this product.

CERCLA (Comprehensive Response Compensation and Liability Act): CERCLA section 103(a) specifically requires the person in charge of a vessel or facility to report immediately to the National Response Center (NRC) a release of a hazardous substance whose amount equals or exceeds the assigned RQ. The following hazardous substances are contained in this product: Chemical Name- See Section 2

SARA Title III (Superfund Amendments and Reauthorization Act): This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendments and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

311/312 Hazard Categories: Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard: See Section 3

313 Reportable Ingredients: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372: Chemical Name- See Section 2

State Regulations: California Proposition 65. The chemicals(s) noted below and contained in this product are known to the state of California to cause cancer, birth defects or other reproductive harm. Unless otherwise specified in Section 2 of this MSDS, these chemicals are present at <0.1%: There are no proposition 65 chemicals known to exist in this product.

International Regulations:

Section 16: Other Information

Other Information:

Preparation Information:

Disclaimer: To the best of our knowledge, the information contained in this MSDS is accurate. It is intended to assist the user in his evaluation of the product's hazards, and safety precautions to be taken in its use. The data in this MSDS relate only to the specific material designated herein. We do not assume liability for the use of, or reliance on this information, nor do we guarantee its accuracy or completeness.

Material Safety Data Sheet

Section 1: Product and Company Identification

Product Name: **VF 380-Part B**

Sold By:	**VersaFlex Incorporated** **87 Shawnee Avenue** **Kansas City, KS 66105** **913.321.9000**
FOR CHEMICAL EMERGENCY	Spill, leak, fire, exposure, or accident, call CHEMTREC day or night Domestic North America **800.424.9300** International **703.527.3887**
Fax Phone:	**913.321.1490**
TSCA Inventory:	All components of this product are included, or are exempt from inclusion, in the EPA Toxic Substance Control Act (TSCA) Chemical Substance Inventory.
Canadian DSL:	All components of this product are included, or are exempt from inclusion, in the Canadian Domestic Substance List (DSL).

Section 2: Composition/Information on Ingredients

Hazardous Components	CAS#	ACGIH TLV	OSHA PEL	% by Wgt
Glycerine, propoxylated aminated (MW>=5000)	64852-22-8			
Tripropyleneglycoldiamine (MW>=2000)	9046-10-0			
Amino Functional Reactive Resin	N/A			
Diethyltoluenediamine	68479-98-1			

Section 3: Hazards Identification

Emergency Overview:

Routes of Entry:

Route	Entry Risk
Inhalation	Possible
Ingestion	Possible
Skin Contact	Possible
Eye Contact	Possible

Potential Health Effects:

Inhalation	May cause nausea and respiratory tract irritation. May cause respiratory sensitization in susceptible individuals.
Ingestion	Moderately toxic, cause abdominal cramps, nausea, swelling.
Skin Contact	Product is a slight skin irritant. May cause swelling and redness.
Eye Contact	Mild eye irritant. Vapors slightly uncomfortable. Splashes irritating and painful.

Acute Health Hazards: Acute ingestion causes burning of the mouth, throat, and stomach with abdominal pain. Acute inhalation of vapors and mist can cause nasal discharge and pain in the eyes.

Chronic Health Hazards: If misted or at high concentrations, may cause pallor, nausea, anesthetic or narcotic effects.

Medical Conditions Generally Aggravated by Exposure: Skin and eye sensitization. Depending on individual skin sensitivity, chronic or prolonged exposure may result in irritation, blistering, burning and peeling of skin layers.

Carcinogenicity: OSHA: No data ACGIH: No data NTP: No data IARC: No data

Other:

Section 4: First Aid Measures

Eye Contact:	Immediately flush with plenty of water for at least 15 minutes. If redness, itching, or a burning sensation develops, seek medical attention.
Skin Contact:	Remove from skin immediately. Rinse with clean water for 20-30 minutes. Use soapy water if needed. If redness, itching, or a burning sensation develops, seek medical attention.
Ingestion:	Do NOT induce vomiting! Dilute with water and seek medical attention immediately.
Inhalation:	Move victim to fresh air immediately. Give oxygen and seek medical attention.

Section 5: Fire-Fighting Measures

Flammable Limits:	Class IIIB
Flash Point, (Method Used):	>200° Fahrenheit (Pensky Marten Closed)
Autoignition Temperature:	

NFPA Hazard Rating:

		Hazard Scale	Protective Equipment
Health:	3	0=LEAST	A=SAFETY GLASSES
Flammability:	1	1=SLIGHT	B=SAFETY GLASSES, GLOVES
Reactivity:	0	2=MODERATE	C=SAFETY GLASSES, GLOVES AND APRON
Other:	B	3=HIGH 4=EXTREME	D= SAFETY GLASSES, GLOVES , APRON and RESPIRATOR

HMIS Hazard Rating:

Health:	3
Flammability:	1
Reactivity:	0
Protection:	B

Extinguishing Media:	Foam/Carbon dioxide/Dry chemical/Water fog
Special Fire Fighting Procedures:	Remove all ignition sources. Wear self-contained breathing apparatus and complete personal protective equipment when entering confined areas where potential for exposure to vapors or products exist.
Unusual Fire and Explosion Hazards:	Closed containers may rupture due to build-up of pressure when exposed to extreme heat.
Hazardous Decomposition Products:	

Section 6: Accidental Release Measures

Accidental Release Measures:	Standard hydrocarbon spill procedures apply to this product.

Section 7: Handling and Storage

Handling & Storage Precautions:	Prevent all skin and eye contact. Avoid breathing vapors. Re-seal partially used containers. Wash with soap and water before eating or drinking. Protect from moisture contamination. Exothermic generation of carbon dioxide may cause dangerous pressure. Keep away from all ignitable sources as well as extreme heat.

Section 8: Exposure Control/Personal Protection

Ventilation:	Adequate ventilation required. Local exhaust may be required in some areas. Special exhausting generally not required. Mechanical exhaust usually adequate.
Respiratory Protection:	Respiratory masks should be worn at all times when adequate ventilation does not exist. A NIOSH/MSHA respirator is acceptable.
Eye Protection:	Chemical tight goggles; full face shield if splashing is possible.
Skin Protection:	Coveralls and impervious foot covering is recommended.
Other Protective Clothing or Equipment:	Use impervious gloves, neoprene or rubber.
Work/ Hygienic Practices:	Good air flow in working area. Eyewash station and safety shower should be available. Gloves and respiratory equipment should be worn at all times.

Section 9: Physical and Chemical Properties

Appearance:	Gray or color of pigment additive		
Odor:	Slight ammonia odor		
Physical State:	Liquid		
ph As Supplied:	No Data		
ph (Other):	No Data		
Boiling Point:	N/A		
Melting Point:	Not determined		
Freezing Point:	No Data		
Vapor Pressure (mmHg):	Not determined		
Vapor Density (Air=1):	Not determined		
Specific Gravity (Water=1):	1.01		
Evaporation Rate (Butyl Acetate=1):	Slower than		
Solubility in Water:	1-10%		
Percent Solids by Weight:	100%		
Percent Volatile (grams/liter):	By Weight: 0%	By Volume:	0%
Volatile Organic Compounds (VOC) (grams/liter):	With Water: 0%	Without Water:	0%
Viscosity:			

Section 10: Stability and Reactivity

Stability:	Stable
Conditions to Avoid (*Stability*):	Avoid excessive heat, open flame, sparks and strong oxidizing agents. Protect from atmospheric moisture. Replace outage with inert dry nitrogen.
Incompatibility (*Materials to Avoid*):	Avoid strong oxidizers, acids.
Hazardous Decomposition or Byproducts:	Carbon dioxide, carbon monoxide, nitrogen oxides.
Hazardous Polymerization:	Will not occur under normal circumstances.
Conditions to Avoid (Polymerization):	Avoid incompatible reactants, especially strong bases, water or temperatures over 160° Centigrade.

Section 11: Toxicological Information

Toxicological Information: No Data

Section 12: Ecological Information

Ecological Information: No Data

Section 13: Disposal Considerations

Waste Disposal Method:	Use excess product in an alternate beneficial application. Dispose of according to current local, state and federal regulations.
RCRA Hazard Class:	Non-Regulated

Section 14: Transport Information

U.S. Department of Transportation

Proper Shipping Name: Poly Amine Blend
Hazard Class: Non-Regulated, NOI
ID Number:
Packing Group:
Label Statement:

Water Transportation

Proper Shipping Name: Poly Amine Blend
Hazard Class: Non-Regulated, NOI
ID Number:
Packing Group:
Label Statement:

Air Transportation

Proper Shipping Name: Poly Amine Blend
Hazard Class: Non-Regulated, NOI
ID Number:
Packing Group:
Label Statement:

Other Agencies:

Section 15: Regulatory Information

U.S. Federal Regulations

TSCA (Toxic Substance Control Act): Section 12(b) Export Notification. This product contains the following chemical substances subject to the reporting requirements of TSCA 12(b) if exported from the United States: There are no TSCA 12(b) Chemicals in this product.

CERCLA (Comprehensive Response Compensation and Liability Act): CERCLA section 103(a) specifically requires the person in charge of a vessel or facility to report immediately to the National Response Center (NRC) a release of a hazardous substance whose amount equals or exceeds the assigned RQ. The following hazardous substances are contained in this product: Chemical Name- See Section 2

SARA Title III (Superfund Amendments and Reauthorization Act): This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendments and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

311/312 Hazard Categories: Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard: See Section 3

313 Reportable Ingredients: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372: Chemical Name- See Section 2

State Regulations: California Proposition 65. The chemicals(s) noted below and contained in this product are known to the state of California to cause cancer, birth defects or other reproductive harm. Unless otherwise specified in Section 2 of this MSDS, these chemicals are present at <0.1%: There are no proposition 65 chemicals known to exist in this product.

International Regulations:

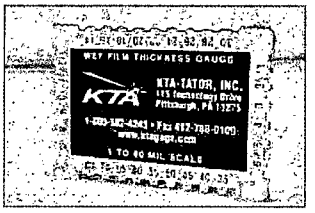
Section 16: Other Information

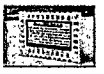
Other Information:

Preparation Information:

Disclaimer: To the best of our knowledge, the information contained in this MSDS is accurate. It is intended to assist the user in his evaluation of the product's hazards, and safety precautions to be taken in its use. The data in this MSDS relate only to the specific material designated herein. We do not assume liability for the use of, or reliance on this information, nor do we guarantee its accuracy or completeness.

KTA Aluminum Wet Film Thickness Gages





These credit card-sized (2.25" x 3.25") inexpensive, lightweight aluminum notch-type gages contain a silk screened KTA logo and contact information, and are used measure the thickness of the wet paint film immediately after application. The gage is placed squarely on freshly coated surface, withdrawn, and the wet coating thickness is read directly from the wetted steps (the highest wetted step indicates the wet film thickness). Measurements can be made in mils on one side of the gage (1-80 mils) or in micrometers (microns) on the opposite side of the gage (25-2032 microns). Conforms to ASTM D713 and D4414. Made in the USA.

Manufacturer: KTA-Tator, Inc.
SKU: WFG-Al

geotech
Environmental Equipment, Inc.

1-800-833-7958

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EQUIPMENT & SUPPLIES

- Ground Water Sampling Equipment
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Water Level & Pressure Equipment

Water Level Meters

Geotech ET with optional carry bag

Geotech ETL

Geotech ET & ETL Portable Water Level Meters

The Geotech ET and ETL Portable Water Level Meters are designed to provide reliable and accurate measurements of groundwater levels. Water level readings are taken at the top of the casing with accuracy to within 1/100 of a foot (3mm).

- ET has an extremely durable polypropylene storage reel with rugged solid aluminum frame
- ETL is on a lightweight steel and aluminum storage reel for easy transportation and durability in the field
- Highly accurate Polyethylene coated steel tape marked in engineering or metric increments
- Field serviceable 5/8" (1.59cm) probe with stainless steel conductors for durability
- An optional 3/8" (.95cm) non-field replaceable probe is available
- Adjustable sensitivity to prevent false triggering
- Audible and visible alarms activated when the probe makes contact with water
- Easily replaced 9 volt battery
- Water resistant padded carrying case to protect instrument (optional)
- Built in reel hanger on ET models and included tape guide for longer tape life.
- MDPE and Tefzel® coated steel tape available upon request

Call 1-800-833-7958

Get A Quote

Geotech ET & ETL Specifications
Geotech ET和ETL便携式水位计 Specifications
Geotech ET Manual
Geotech ETL Manual

1500' WLM

Geotech 1500' – 3000' Water Level Meters

The Geotech Water Level Meters are portable instruments used to accurately measure water levels in monitoring wells and bore holes. The meter detects water levels with a 5/8" (15.8mm) O.D. stainless steel weighted probe attached to a polyethylene tape marked to 1/100 of a foot (3mm).

- Choice of highly accurate Polyethylene coated steel tape marked in engineering or metric increments
- Field serviceable 5/8" (15.8mm) probe with stainless steel conductors for durability
- Adjustable sensitivity to prevent false triggering
- Audible and visible alarms activated when the probe makes contact with water
- Easily replaced 9 volt battery
- MDPE or Tefzel® coated steel tape available upon request

Call 1-800-833-7958

Get A Quote

Geotech 1500'-3000' Water Level Meters Specifications
Geotech 1500'-3000' Water Level Meters Manual

GEOTECH ENVIRONMENTAL EQUIPMENT, INC.
2650 East 40th Avenue
Denver, Colorado 80205
303-320-4764
1-800-833-7958

Other Locations
California
Florida
Michigan
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Go To Geotech

Purge Pumps

geotech

geosquirt™ 12V DC Purge Pump

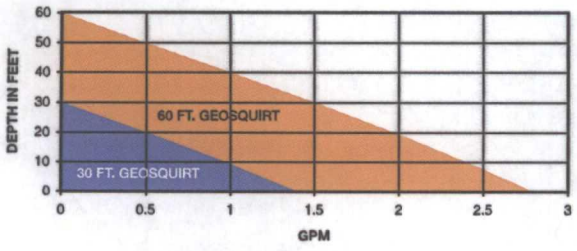
The geosquirt™ Purge Pump is designed for purging shallow wells up to a maximum depth of 55 feet (17 m). The pump is completely sealed and designed to be operated while completely submerged in water.

FEATURES

- **Operates to depths of 55' (17 m)**
- **Very economical and reliable**
- **Flow rates up to 2.5 GPM (11 LPM)**
- **Ideal for 2" (5 cm) diameter or larger monitoring well**
- **Operates with 3.5 amps (Single), 7.0 amps (Dual)**
- **Requires an independent 12V DC power supply**
- **Optional portable reel system with tubing**

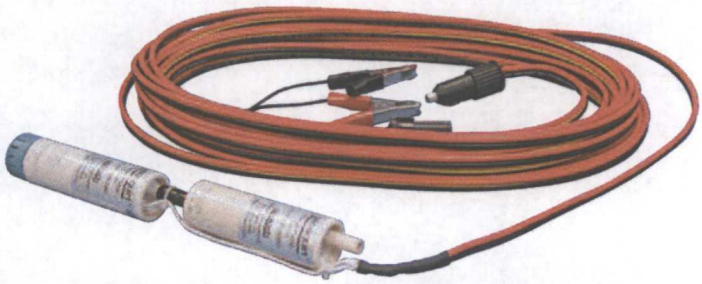
OPERATION

The geosquirt™ purge pump can be purchased alone or as a complete system with reel and tubing. It is used to pump large quantities from shallow wells. Pump should be allowed to cool for 5 minutes for every 15 minutes of operation. It can operate in water temperatures as high as 140° F (60°C), but must be submerged at all times.



geosquirt™ Pumping Curves

Single Stage geosquirt™ with 30 ft. (9 m) Motor Lead



Dual Stage geosquirt™ with 60 ft. (18 m) Motor Lead

SPECIFICATIONS

Dimensions	1.5" D x 13" L (4 cm D x 33 cm L)
Outlet	Requires 3/8" (10 mm) I.D. tubing
Permanent Optional Outlet	Optional fitting allows 1/2" (13 mm) tubing
Power	Requires an independent 12V DC source
Current Draw	3.5 amps (Single), 7.0 amps (Dual)
Principle of Operation	Intermittently rated centrifugal pump
Operating Temperature	In water up to 140°F (60°C) (do not freeze pump)
Flow Rate	Up to 2.5 GPM (11 LPM) dependent on depth
Max. Recommended Depth	55 feet (17 m)
Material of Casing	ABS plastic
Material of Pump Impeller	Stainless steel
Material of Seal	Rubber
Length of Motor Lead	30, 60 feet (9 m, 18 m)
Recommended Pumping Duration	15 minutes, then cool for 5 minutes, then resume operation, etc.

CALL GEOTECH TODAY (800) 833-7958

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