

Appendix II

JSA Form

Job Safety Analysis

Hazard/Risk Assessment

General Information/ Permits <small>(Audit: 1pt for complete/correct general information & 1pt for correct permit information)</small> SCORE = ____/2	Client: _____	Address: _____	
	Job Scope: _____		
	PSC Supervisor: _____	Required Permits	<input type="checkbox"/> NA <input type="checkbox"/> Confined Space Entry <input type="checkbox"/> Lock-out/Tag-out <input type="checkbox"/> Hot Work <input type="checkbox"/> Other: _____
	Date & Time: _____		

Hazards - Chemical <small>(Audit: 1pt for proper & accurate completion)</small> SCORE = ____/1	<input type="checkbox"/> NA <input type="checkbox"/> Acid (Corrosive) <input type="checkbox"/> Basic (Corrosive) <input type="checkbox"/> Ignitable <input type="checkbox"/> Toxic <input type="checkbox"/> PIH <input type="checkbox"/> Organic Peroxide <input type="checkbox"/> Oxidizer <input type="checkbox"/> Reactive (Air Water Cyanide Sulf de) <input type="checkbox"/> Unknown Chemicals <input type="checkbox"/> Gases <input type="checkbox"/> All <input type="checkbox"/> Other: _____ <input type="checkbox"/> Other: _____
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Hazards - Physical <small>(Audit: 1pt for proper & accurate completion)</small> SCORE = ____/1	<input type="checkbox"/> Access - Limited <input type="checkbox"/> Lighting (Inadequate) <input type="checkbox"/> Access - Confined Space* <input type="checkbox"/> Noise <input type="checkbox"/> Airborne Particles <input type="checkbox"/> Overhead Work <input type="checkbox"/> Energy Transfer - Equipment* <input type="checkbox"/> Pressurized Equipment <input type="checkbox"/> Energy Transfer - Static Electricity <input type="checkbox"/> Pinch Points <input type="checkbox"/> Engulfment (Blinds Installed/Valves Blocked) <input type="checkbox"/> Puncture Hazard (Sharps) <input type="checkbox"/> Equipment (Jammed/Faulty) <input type="checkbox"/> Slip/Trip/Fall (Above Ground) <input type="checkbox"/> Equipment (Opening) <input type="checkbox"/> Slip/Trip/Fall (Ground Level) <input type="checkbox"/> Heavy Equipment in Use <input type="checkbox"/> Surfaces (Hot/Cold) <input type="checkbox"/> Height Work/Fall Potential <input type="checkbox"/> Ventilation (Inadequate) <input type="checkbox"/> High Traffic Area <input type="checkbox"/> _____ <input type="checkbox"/> Housekeeping (Inadequate) <input type="checkbox"/> _____ <input type="checkbox"/> Lifting - Heavy <input type="checkbox"/> _____
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Hazards - Environmental <small>(Audit: 1pt for proper & accurate completion)</small> SCORE = ____/1	Hazard	Specific Conditions
	<input type="checkbox"/> Animals (Displaced/Encountered)	<i>Note Specifics Here</i>
	<input type="checkbox"/> Climate Conditions	<input type="checkbox"/> Cold <input type="checkbox"/> Heat
	<input type="checkbox"/> Weather Conditions	<i>Note Specifics Here</i>
	<input type="checkbox"/> Other:	<i>Note Specifics Here</i>
<input type="checkbox"/> Other:	<i>Note Specifics Here</i>	

Potential Route of Entry	<input type="checkbox"/> Dermal (Contact) <input type="checkbox"/> Ingestion <input type="checkbox"/> Injection <input type="checkbox"/> Inhalation (Breathing) <input type="checkbox"/> ALL
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SCORE = ____/12	Project Walk Through <small>(Audit: 1 point for complete & accurate box. Up to 3 points/step. Up to 12 points total)</small>
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Project Steps (4 Minimum)	Potential Risks	Safety Measures
1)		
2)		
3)		
4)		
5)		
6)		

Page 1 - Hazards Audit Score	/17	AUDITOR: _____ 37 (GOAL) 34-36 (GOOD - Review w/ Crew) <34 (Review & Retrain)
Page 2 - Protection Score	/20	
TOTAL JSA SCORE	/37	

Job Safety Analysis

Safety & Protection Assignments

Personal Protective Equipment (PPE) <small>(Audit: 1pt per category - complete and accurate)</small> SCORE = ____/8	Protection Level		<input type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A			
	Head <input type="checkbox"/> NA	<input type="checkbox"/> Hard hat	<input type="checkbox"/> Suit hood	<input type="checkbox"/> Face shield	<input type="checkbox"/> _____	
	Eyes <input type="checkbox"/> NA	<input type="checkbox"/> Safety glasses	<input type="checkbox"/> Goggles	<input type="checkbox"/> Welding shield	<input type="checkbox"/> _____	
	Ears <input type="checkbox"/> NA	<input type="checkbox"/> Ear plugs	<input type="checkbox"/> Ear muffs	<input type="checkbox"/> _____	<input type="checkbox"/> _____	
	Hands <input type="checkbox"/> NA	<input type="checkbox"/> Cloth gloves	<input type="checkbox"/> Leather gloves	<input type="checkbox"/> PVC gloves	<input type="checkbox"/> Cut resistant gloves	
		<input type="checkbox"/> Blue Nitrile	<input type="checkbox"/> Green Nitrile	<input type="checkbox"/> Burn resistant gloves	<input type="checkbox"/> _____	
	Feet <input type="checkbox"/> NA	<input type="checkbox"/> Steel Toed Boots	<input type="checkbox"/> Tyvek Covers	<input type="checkbox"/> Steel toed metatarsals	<input type="checkbox"/> _____	
		<input type="checkbox"/> Chemical Boots	<input type="checkbox"/> Rubber boots	<input type="checkbox"/> Latex boot covers	<input type="checkbox"/> _____	
Body <input type="checkbox"/> NA	Suit Type = _____					
	<input type="checkbox"/> Work uniform	<input type="checkbox"/> Tape extremities	<input type="checkbox"/> Hooded suits required	<input type="checkbox"/> Rain suit		
	<input type="checkbox"/> Coveralls	<input type="checkbox"/> Fall protection	<input type="checkbox"/> Suit with hands/feet required	<input type="checkbox"/> _____		
Respirator <input type="checkbox"/> NA	<input type="checkbox"/> Air Purifying →	<input type="checkbox"/> Full Face	<input type="checkbox"/> Half Face	<input type="checkbox"/> Dust Mask →	Cartridge Type: _____	
	<input type="checkbox"/> Supplied Air →	<input type="checkbox"/> SCBA (Self Contained Breathing Apparatus) <input type="checkbox"/> Air Line				

Safety Equipment <small>*List location of equipment. (Audit: 1pt for proper & accurate completion. 1pt for listing location(s))</small> SCORE = ____/2	<input type="checkbox"/> Eye wash* _____	<input type="checkbox"/> Traffic cones	<input type="checkbox"/> 1st Aid Kit (w/ HF antidote if handling HF)
	<input type="checkbox"/> Safety shower* _____	<input type="checkbox"/> Caution tape	<input type="checkbox"/> Decontamination equipment/supplies
	<input type="checkbox"/> Fire Extinguisher* _____	<input type="checkbox"/> Fall protection	<input type="checkbox"/> Lock-out/Tag-out equipment
	<input type="checkbox"/> Fire Alarm* _____	<input type="checkbox"/> Handrail	<input type="checkbox"/> Grounding equipment
	<input type="checkbox"/> Non-sparking tools	<input type="checkbox"/> _____	<input type="checkbox"/> _____

Emergency Procedures <small>(Audit: 3pts for proper & accurate completion, otherwise 0pts)</small> SCORE = ____/3	<input type="checkbox"/> Call 911	<input type="checkbox"/> Follow Client Procedures below	<input type="checkbox"/> Follow PSC Procedures below
	Emergency Procedures: _____		
	<input type="checkbox"/> Establish Evacuation Point → (Location - _____) <input type="checkbox"/> Confirm Route Upwind → Wind Direction - N NE E SE S SW W NW (Circle Direction) <input type="checkbox"/> Communicate Route to Crew		

Safety Notes <small>(Audit: 1pt for proper & accurate completion)</small> SCORE = ____/1	<input type="checkbox"/> Use proper equipment/tools (Good Condition)	<input type="checkbox"/> Inspect equipment/tools
	<input type="checkbox"/> Use proper lifting technique	<input type="checkbox"/> Use liftgate/load dock - Secure/chock vehicle
	<input type="checkbox"/> Pay attention to walking surface(s)	<input type="checkbox"/> Heavy equipment - authorized personnel only
	<input type="checkbox"/> Locate/review MSDS(s)	<input type="checkbox"/> Confirm/inspect anchor points
	<input type="checkbox"/> Employ safety watch as needed	<input type="checkbox"/> _____
	<input type="checkbox"/> _____	<input type="checkbox"/> _____

SCORE = ____/3 **CERTIFICATION** - The employee has reviewed, understands and will adhere to the JSA:
(Audit: 3pts if all employees sign & date, 0pts if not all employees sign & date - If MID-SHIFT required, it must be complete as well for the 3pts.)

PRE-JOB	Name (Print/Sign & Date)	MID-SHIFT	Name (Print/Sign & Date)

SCORE = ____/3 **MID-SHIFT EVALUATION/REVIEW** (To be completed: 1) If there are additional or modified task risks, 2) If the task goes past 4 hours (At the beginning of the 5th hour) or 3) If there is more than 3 hours between task activities.)
(Audit: 3pts for proper & accurate completion, 0pts if not properly & accurately completed)

<input type="checkbox"/> No additional or modified risks (Review JSA and Sign below)		<input type="checkbox"/> Yes - Additional/Modified Risks (Complete below section, review and sign)	
Additional/Modified Risk	Safety Modification to Eliminate Risk/Hazard		
1)			
2)			
3)			

JOB/SHIFT JSA CLOSE-OUT:	Date & Time:	PSC Supervisor Name (Print/Sign):
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Appendix III
Training Courses

1. Introduction – Hazardous Materials Regulatory Overview
 - 1.1. What is HAZWOPER
 - 1.2. CERCLA, RCRA, SARA, TSCA, EPA, DOT, NIOSH
2. 29 CFR 1910.1200 Hazard Communication
 - 2.1. Employee Right to Know
 - 2.2. MSDS
 - 2.3. Written Communication Program
3. Principles of Safety
 - 3.1. Accident Prevention Plan
 - 3.2. Fall Protection
 - 3.3. Hearing Conservation
 - 3.4. Hand Protection
 - 3.5. Biological Hazards
 - 3.6. Eye & face Protection
 - 3.7. Foot Protection
 - 3.8. Lockout, Tagout, Try
 - 3.9. Respiratory Protection
 - 3.10. Bonding & Grounding
4. Toxicology
 - 4.1. Acute vs. Chronic
 - 4.2. Exposure Limits
 - 4.3. Chemical Toxicology
 - 4.4. Radiological Toxicology
 - 4.5. Routes of Entry
5. Hazard Identification
 - 5.1. Hazard Descriptions
 - 5.2. DOT Classification
 - 5.3. Shipping Documents
6. Personal Protective Equipment
 - 6.1. Types of Protection
 - 6.2. Levels of Protection
 - 6.3. PPE Limitations
 - 6.4. Respiratory Protection Program
7. Fire Hazards
 - 7.1. Fire Triangle
 - 7.2. Extinguisher Types
 - 7.3. Location of Extinguishers
8. Handling Drums and Containers
 - 8.1. Inspection
 - 8.2. Handling
 - 8.3. Staging

- 8.4. Sampling
- 8.5. Consolidation

- 9. Confined Spaces 29 CFR 1910.146
 - 9.1. Hazardous Atmospheres
 - 9.2. Atmospheric Testing
 - 9.3. Entry Procedures
 - 9.4. Evacuation
 - 9.5. Site Security

- 10. Medical Surveillance
 - 10.1. OSHA Medical Requirements
 - 10.2. Medical Examinations
 - 10.3. Emergency & Non-emergency Treatment

- 11. Site Emergencies
 - 11.1. Incident Management & Scene Control
 - 11.2. Site Safety Plan
 - 11.3. Emergency Training
 - 11.4. Site Security and Control
 - 11.5. Onsite Communication
 - 11.6. Emergency Identification and Prevention
 - 11.7. Emergency Response Procedures
 - 11.8. Evacuation Routes and Procedures
 - 11.9. Decontamination
 - 11.10. Decontamination Methods & Processes
 - 11.11. Follow-up

On The Job Training (OJT):

- 1. Standard Operating Procedures (SOPs)
- 2. Job Safety Analysis (JSA)

Petro-Chem General Employment Training Packet

Employee Name: _____ Employee #: _____

Area / Location: _____ Date: _____

	Date Completed	Trainer Signature
TRAINING & DOCUMENTATION		
NEW EMPLOYEE ORIENTATION CD		
I. Safe On Purpose		
II. Respiratory Protection		
III. Confined Space Entry		
IV. Heat & Cold Stress		
V. Lock-Out / Tag-Out		
VI. Personal Protective Equipment	c	
VII. PSC Safety Rules		
VIII. Material Handling / Proper Lifting Technique		
IX. PSC Scaffolding Requirements / Ladder Safety		
X. PSC Hazard Communication		
XI. Hearing Conservation		
XII. Electrical Safety Awareness		
XIII. Fire Extinguisher		
XIV. Hands On Training		
Safe On Purpose - Watch Card		
Safe On Purpose - JSA		
Respiratory Protection		
Confined Space Entry		
Lock-Out Tag-Out		
Personal Protective Equipment (PPE)		
Fire Extinguisher		

	Date Completed	Comments
MEDICAL SURVEILLANCE		
Drug Test Collection		
Pulmonary Function Testing (If necessary)		
CBC/SMAC Bloodwork		
Lead/Benzene Bloodwork - questionnaire		
Audiometric Testing		
Medical Questionnaire		
Blood Pressure		
Dr. written opinion fit for duty		

I hereby acknowledge that I have received, understand, and agree to comply with all the above training.

Employee Signature

I hereby acknowledge that the above training has been completed.

Manager or Authorized Representative

NOTES:

NOTE: Additional specific safety training may be conducted at the jobsite.

Petro-Chem Site Specific Training

Employee Name: _____ Employee #: _____
 Area / Location: _____ Start Date: _____

	Date Completed	Trainer Signature
Training Item		
I. Air Handling Systems:		
a) CMB Scrubber		
b) Vapor Balance System		
II. Tank Farm Operations (Loading/Unloading)		
a) TS1 Pump System		
b) TS2 Pump System		
c) TS3 Pump System		
d) TS4 Pump System		
e) Centrifugal Pump System - Recycling		
f) CMB Pump System		
III. LabPack Depacking/Commingling		
IV. Loosepack Consolidation/Commingling		
V. Solids Consolidation		
VI. Container Vacuuming		
VII. Container Emptying - CMB Pump Room		
VIII. Container Loading/Unloading		
IX. Sampling		
X. Inspections		

I hereby acknowledge that I have received, understand, and agree to comply with all the above training.

Employee Signature

I hereby acknowledge that the above training has been completed.

Manager or Authorized Representative

NOTES:

NOTE: See PCPG SOPs for specific content - all include housekeeping and H&S requirements

Petro-Chem Additional Training

SAFE ON PURPOSE

Employee Name: _____ Employee #: _____
 Area / Location: _____ Date: _____

	Date Completed	Trainer Signature
Service Line Specific		
I. 24 Hour HAZWOPER Training		
II. Benzene Hazard Awareness Training		
III. Hydrogen Sulfide Hazard Awareness Training		
IV. Lead Hazard Awareness Training		
V. Asbestos Training		
VI. Forklift Training		
VII. Bloodborne Pathogens		
VIII. CPR / First Aid Training		
IX. Overhead Cranes Hazard Awareness Training		
X. Rescue (intercompany/3rd party)		
XI. Supervisor Training		
XII. Smith System		
XIII. Benzene Awareness Training		
XIV. Hydrogen Sulfide Awareness Training		
XV. Lead Awareness Training		
XVI. Asbestos Awareness Training		
XVII. Arsenic Awareness Training		
XVIII. Other: _____		
XIX. Other: _____		
XX. Other: _____		
XXI. Other: _____		
XXII. Other: _____		

I hereby acknowledge that I have received, understand, and agree to comply with all the above training.

Employee Signature

I hereby acknowledge that the above training has been completed.

Manager or Authorized Representative

NOTES:

NOTE: Additional specific safety training may be conducted at the jobsite.

RCRA Training Course

Revision: 2
May 05, 2009

1. Introduction – RCRA Regulatory Overview
 - 1.1. 40 CFR 270
 - 1.2. 40 CFR 264
 - 1.2.1. General Facility Standards
 - 1.2.2. Preparedness & Prevention
 - 1.2.3. Contingency Plan & Emergency Procedures
 - 1.2.4. Manifest System, Recordkeeping and Reporting
 - 1.2.5. Use & Management of Containers
 - 1.2.6. Tank Systems
 - 1.2.7. Subpart BB
 - 1.2.8. Subpart CC
 - 1.2.9. General Requirements for Ignitable, Reactive or Incompatible Wastes
 - 1.3. MDEQ Part 111 of Act 451

2. MDEQ License
 - 2.1. Standard/General Operating Conditions
 - 2.2. Container Management Units
 - 2.3. Tank Management Units
 - 2.4. Environmental Monitoring
 - 2.5. Manifests
 - 2.6. Recordkeeping
 - 2.7. Permit Modifications

3. MDEQ Permit Attachments
 - 3.1. Waste Analysis Plan
 - 3.2. Inspection Plan
 - 3.3. Personnel Training Plan
 - 3.4. Contingency Plan
 - 3.5. Closure Plan
 - 3.6. Process Information
 - 3.7. Environmental Monitoring
 - 3.8. Corrective Action Inspection

Petro-Chem Site Specific Training

Employee Name: _____ Employee #: _____
 Area / Location: _____ Start Date: _____

	Date Completed	Trainer Signature
Training Item		
I. Air Handling Systems:		
a) CMB Scrubber		
b) Vapor Balance System		
II. Tank Farm Operations (Loading/Unloading)		
a) TS1 Pump System		
b) TS2 Pump System		
c) TS3 Pump System		
d) TS4 Pump System		
e) Centrifugal Pump System - Recycling		
f) CMB Pump System		
III. LabPack Depacking/Commingling		
IV. Loosepack Consolidation/Commingling		
V. Solids Consolidation		
VI. Container Vacuuming		
VII. Container Emptying - CMB Pump Room		
VIII. Container Loading/Unloading		
IX. Sampling		
X. Inspections		

I hereby acknowledge that I have received, understand, and agree to comply with all the above training.

Employee Signature

I hereby acknowledge that the above training has been completed.

Manager or Authorized Representative

NOTES:

NOTE: See PCPG SOPs for specific content - all include housekeeping and H&S requirements

Appendix IV

Training by Position

Petro-Chem

PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

JOB TITLE:	<u>Materials Manager</u>	INCENTIVE ELIGIBLE:	_____
JOB FAMILY:	<u>Waste Treatment</u>	CAR ALLOWANCE:	_____
JOB FUNCTION:	<u>Management & Compliance</u>	REPORTS TO:	_____
JOB CODE:	<u>100152</u>	PAY RANGE:	_____
FLSA	<u>Exempt</u>	JOB LOCATION:	_____
DATE PREPARED:	<u>5/15/08</u>	DEPARTMENT:	_____
DATE REVISED:	_____	DIVISION:	<u>ESD</u>

JOB SUMMARY:

Manages the appropriate treatment and pricing of all inbound and outbound waste materials received and/ or shipped from waste operating facilities to ensure achievement of financial, compliance, and service goals in accordance with appropriate regulations and PSC policies, practices and procedures.

PRINCIPAL DUTIES AND RESPONSIBILITIES:

- Supervises operation and regulatory review of inbound and outbound waste profiles.
- Determines appropriate treatment requirements and pricing. Provides technical support to other departments on profiling and regulatory issues. Recertifies all waste approvals.
- Develops and maintains accurate disposal cost information. Maintain comprehensive and accurate waste pricing and disposal.
- Ensures that pricing accurately reflects required treatment and disposal cost with agreed margin.
- Works to minimize disposal expense by proper management of wastes, identification of alternative methods of disposal and cost control of final disposal options.
- Maintains efficient flow and approval of customer profiles within agreed time frames.
- May supervise lab personnel. Reviews lab analytical results.
- Maintains waste generator files.
- Provides technical support to sales and outside customers on waste pricing and disposal issues.

SCOPE:

- Number of Reports:
 - Direct 2
 - Indirect 0
- Number of facilities: 1
- Geography: Location

MEASURES OF PERFORMANCE:

- Productivity
- Cost Effectiveness
- Efficiency
- Safety

EDUCATION/CREDENTIALS:

- Bachelor's degree from a 4-year college or university; with preferred emphasis on Chemistry



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

JOB RELATED EXPERIENCE:

- Prefer 2-3 years of related job experience

DEMONSTRATED KNOWLEDGE, SKILLS AND ABILITIES:

- Good analytical and problem solving skills
- Good communication and leadership skills
- Experience with local, state and federal agencies and regulations
- Strong computer skills with emphasis in Microsoft Excel and Word

WORKING CONDITIONS:

- Treatment Plant

ESSENTIAL ABILITIES AND WORKING CONDITIONS

Environmental Demands

Please place a check mark in the appropriate box to indicate the physical and mental demands of this position: (Modifications may be made to reasonably accommodate individuals with disabilities.)

ACTIVITY	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY				FUNCTION	
	NONE	UP TO 1/3	1/3 TO 2/3	MORE THAN 2/3	Essential	Non Essential
Standing on hard surfaces	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Distinguishing all shades/hues/variations of colors	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Walking	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Sitting	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Twisting	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Stooping	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Crouching	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Crawling	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Talking	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x
Hearing	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x
Reaching	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Seeing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	x
Balancing	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Pushing up to _____ lbs.	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Pulling up to _____ lbs.	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Grasping	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Lifting or carrying up to __15__ lbs.	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Feeling	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

Motion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Precise hand movements	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reasoning or problem solving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reading	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Performing math calculations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Adhering to deadlines under pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Learning or retaining technical information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Interacting with customers or visitors	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

APPLICABLE WORKING CONDITIONS

Please check the appropriate box to indicate the applicable working conditions.

WORKING CONDITIONS	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY					
	DAILY	WEEKL Y	MONTHL Y	1 – 4 TIMES A YEAR	RARELY	NEVER
Inside work: protected from weather conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outside work: no effective protection from weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Both inside and outside work: activities occur both inside and outside an enclosed office/building	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Extreme cold: below 32 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Extreme heat: above 100 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Noise: employees must shout to be heard over ambient noise level (hearing protection required)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vibration: exposure to oscillating movements of extremities or whole body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Potential hazards: moving parts, electricity, gas, scaffolding, chemicals, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Terminal viewing: extended viewing of screens	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Atmospheric conditions (in non-confined spaces): fumes, odors, mists, gases, poor ventilation, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Oils: air and/or skin exposure to oils and other cutting fluids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Respirator: the employee is required to wear a respirator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Physical stamina: due to emergency or work load demands, subject to extended work hours requiring stamina beyond normal demands or levels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
None: employee is NOT substantially exposed to adverse	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

environmental conditions (work occurs in typical office or administrative environment)

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NOTE: This job description is not intended to be all-inclusive. Employee may perform other duties as required to meet the ongoing needs of the organization

Employee Signature

Date



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

JOB TITLE:	Driver II Over the Road	INCENTIVE ELIGIBLE:	No
JOB FAMILY:	Transportation	CAR ALLOWANCE:	No
JOB FUNCTION:	Pick up and delivery	REPORTS TO:	Manager /Supervisor/Operator
JOB CODE:	100332	PAY GRADE:	S
FLSA:	Non exempt hourly	JOB LOCATION:	Varies nationwide
DATE PREPARED:	July 11, 2007	DEPARTMENT:	Transportation
DATE REVISED:		DIVISION:	ESD/ISD

JOB SUMMARY:

Delivers hazardous and non-hazardous industrial waste materials and products to and from destination driving company vehicles in accordance with DOT regulations and PSC policies, practices, and procedures.

PRINCIPAL DUTIES AND RESPONSIBILITIES:

- Drives company vehicles to transport hazardous & no-hazardous industrial waste materials and products.
- Inspects hoses, pumps, truck and trailer equipment & supplies such as tires, lights, brakes, gas, oil & water.
- Completes service receipts & related paperwork for work performed and submits to management
- Obeys all traffic laws and regulations when operating and driving company vehicle
- Installs, operates & repairs mechanical devices such as Pumps, valves, burners, conveyors, etc.
- Troubleshoots equipment and makes minor repairs.
- Wears prescribed personal protective equipment as indicted by posted signage, established operating procedures, and/or written instructions.
- Reports all accidents, near misses and/or injuries involving self and/or company vehicles/equipment.
- Recommends changes & improvements to services provided based on job experience & observations.
- Runs truck in plant
- Secures loaded material for transportation.
- Shovels, rakes, lifts, and climbs (could go on the Working Conditions/Environmental Conditions check list)
- Shuts down and restarts job equipment
- Takes calls nights and weekends
- Loads and unloads hazardous & non-hazardous waste materials and products. Labels, marks and manifests shipments in accordance with applicable regulations and PSC policies, practices and procedures.
- Interacts with customer regarding job status and client requirements
- Operates all equipment for specific task, job, process
- Maintains log of operations and records meter and gauge readings such as circulation and air monitoring, etc.
- Maintains vehicle logs according to government regulations including inspecting truck equipment and supplies such as tires, lights, brakes, gas, oil and water.
- Performs other duties as assigned.

TRAINING:

- All required local training

EDUCATION/CREDENTIALS:

- CDL
- Compliance with MVR policy
- Compliance with Drug policy
- Compliance with Background checking policy
- Compliance with DOT physical requirements

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PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

- Possess BASIC Safety Council Reciprocal Card
- Possess all required I-9 documentation

JOB RELATED EXPERIENCE:

- 1 year or more Safe Operation of all equipment and tasks that make up service line job processes

DEMONSTRATED KNOWLEDGE, SKILLS AND ABILITIES:

- Ability to conform to work hours
- Operational knowledge of tools, equipment and tasks in job processes

WORKING ENVIRONMENT:

- On Call 24/7
- Ability to report to work within one hour of receiving call to work.
- Ability to lift a minimum of 50 lbs.

ESSENTIAL ABILITIES AND WORKING CONDITIONS

Environmental Demands

Please place a check mark in the appropriate box to indicate the physical and mental demands of this position: (Modifications may be made to reasonably accommodate individuals with disabilities.)

ACTIVITY	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY				FUNCTION	
	NONE	UP TO 1/3	1/3 TO 2/3	MORE THAN 2/3	Essential	Non Essential
Standing on hard surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Distinguishing all shades/hues/variations of colors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sitting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Twisting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Stooping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Crouching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Crawling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Talking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hearing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Seeing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Balancing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pushing up to __100__ lbs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pulling up to __100__ lbs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

Grasping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	<input type="checkbox"/>
Lifting or carrying up to _100 lbs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	<input type="checkbox"/>
Feeling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	<input type="checkbox"/>
Motion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	<input type="checkbox"/>
Precise hand movements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reasoning or problem solving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	<input type="checkbox"/>
Reading	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	<input type="checkbox"/>
Writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	<input type="checkbox"/>
Performing math calculations	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adhering to deadlines under pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	<input type="checkbox"/>
Learning or retaining technical information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	<input type="checkbox"/>
Interacting with customers or visitors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	<input type="checkbox"/>

APPLICABLE WORKING CONDITIONS

Please check the appropriate box to indicate the applicable working conditions.

WORKING CONDITIONS	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY					
	DAILY	WEEKLY	MONTHLY	1 – 4 TIMES A YEAR	RARELY	NEVER
Inside work: protected from weather conditions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outside work: no effective protection from weather	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Both inside and outside work: activities occur both inside and outside an enclosed office/building	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extreme cold: below 32 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extreme heat: above 100 degrees for periods of more than 1 hour	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Noise: employees must shout to be heard over ambient noise level (hearing protection required)	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vibration: exposure to oscillating movements of extremities or whole body	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Potential hazards: moving parts, electricity, gas, scaffolding, chemicals, etc.	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Terminal viewing: extended viewing of screens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Atmospheric conditions (in non-confined spaces): fumes, odors, mists, gases, poor ventilation, etc.	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oils: air and/or skin exposure to oils and other cutting fluids	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Respirator: the employee is required to wear a respirator	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enclosed Spaces: the employee is required to work within confined enclosed spaces	X				<input type="checkbox"/>	<input type="checkbox"/>



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

Physical stamina: due to emergency or work load demands, subject to extended work hours requiring stamina beyond normal demands or levels	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
None: employee is NOT substantially exposed to adverse environmental conditions (work occurs in typical office or administrative environment)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE: This job description is not intended to be all-inclusive. Employee may perform other duties as required to meet the ongoing needs of the organization

Employee Signature

Date

Manager Signature

Date



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

JOB TITLE:	Driver-Over the Road III (OTR)	INCENTIVE ELIGIBLE:	No
JOB FAMILY:	Transportation	CAR ALLOWANCE:	No
JOB FUNCTION:	Transport Industrial Waste	REPORTS TO:	Manager /Supervisor/Operator
JOB CODE:	100333	PAY GRADE:	TBD
FLSA:	Non exempt	JOB LOCATION:	Varies
DATE PREPARED:	July 11, 2007	DEPARTMENT:	Transportation
DATE REVISED:		DIVISION:	ESD, ISD

JOB SUMMARY:

Delivers hazardous and non-hazardous industrial waste materials and products to and from destination driving company vehicles in accordance with DOT regulations and PSC policies, practices, and procedures.

PRINCIPAL DUTIES AND RESPONSIBILITIES:

- Drives company vehicles to transport hazardous & no-hazardous industrial waste materials and products.
- Inspects hoses, pumps, truck and trailer equipment & supplies such as tires, lights, brakes, gas, oil & water.
- Completes service receipts & related paperwork for work performed and submits to management
- Obeys all traffic laws and regulations when operating and driving company vehicle
- Installs, operates & repairs mechanical devices such as Pumps, valves, burners, conveyors, etc.
- Troubleshoots equipment and makes minor repairs.
- Wears prescribed personal protective equipment as indicted by posted signage, established operating procedures, and/or written instructions.
- Reports all accidents, near misses and/or injuries involving self and/or company vehicles/equipment.
- Recommends changes & improvements to services provided based on job experience & observations.
- Runs truck in plant
- Secures loaded material for transportation.
- Shovels, rakes, lifts, and climbs (could go on the Working Conditions/Environmental Conditions check list)
- Shuts down and restarts job equipment
- Takes calls nights and weekends
- Loads and unloads hazardous & non-hazardous waste materials and products. Labels, marks and manifests shipments in accordance with applicable regulations and PSC policies, practices and procedures.
- Interacts with customer regarding job status and client requirements
- Operates all equipment for specific task, job, process
- Maintains log of operations and records meter and gauge readings such as circulation and air monitoring, etc.
- Maintains vehicle logs according to government regulations including inspecting truck equipment and supplies such as tires, lights, brakes, gas, oil and water.
- Performs other duties as assigned.

REQUIREMENTS:

- **TRAINING:**
 - All required local training

EDUCATION/CREDENTIALS:

- CDL
- Compliance with MVR policy
- Compliance with Drug policy
- Compliance with Background checking policy
- Compliance with DOT physical requirements

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PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

- Possess BASIC Safety Council Reciprocal Card
- Possess all required I-9 documentation

JOB RELATED EXPERIENCE:

- 4 or more years of Safe Operation of all equipment and tasks that make up service line job processes

DEMONSTRATED KNOWLEDGE, SKILLS AND ABILITIES:

- Ability to conform to work hours
- Operational knowledge of tools, equipment and tasks in job processes

WORKING ENVIRONMENT:

- On Call 24/7
- Ability to report to work within one hour of receiving call to work.
- Ability to lift a minimum of 50 lbs.

ESSENTIAL ABILITIES AND WORKING CONDITIONS

Environmental Demands

Please place a check mark in the appropriate box to indicate the physical and mental demands of this position: (Modifications may be made to reasonably accommodate individuals with disabilities.)

ACTIVITY	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY				FUNCTION	
	NONE	UP TO 1/3	1/3 TO 2/3	MORE THAN 2/3	Essential	Non Essential
Standing on hard surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Distinguishing all shades/hues/variations of colors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Sitting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Twisting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Stooping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Crouching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Crawling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Talking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Hearing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Reaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Seeing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Balancing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Pushing up to <u>100</u> lbs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Pulling up to <u>100</u> lbs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>

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with federal law and complies with applicable state and local laws prohibiting discrimination in employment in every jurisdiction in which it maintains facilities.

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PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

Grasping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Lifting or carrying up to _100 lbs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Feeling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Motion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Precise hand movements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reasoning or problem solving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Reading	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Performing math calculations	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adhering to deadlines under pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Learning or retaining technical information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Interacting with customers or visitors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>

APPLICABLE WORKING CONDITIONS

Please check the appropriate box to indicate the applicable working conditions.

WORKING CONDITIONS	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY					
	DAILY	WEEKLY	MONTHLY	1 – 4 TIMES A YEAR	RARELY	NEVER
Inside work: protected from weather conditions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outside work: no effective protection from weather	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Both inside and outside work: activities occur both inside and outside an enclosed office/building	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extreme cold: below 32 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extreme heat: above 100 degrees for periods of more than 1 hour	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Noise: employees must shout to be heard over ambient noise level (hearing protection required)	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vibration: exposure to oscillating movements of extremities or whole body	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Potential hazards: moving parts, electricity, gas, scaffolding, chemicals, etc.	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Terminal viewing: extended viewing of screens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Atmospheric conditions (in non-confined spaces): fumes, odors, mists, gases, poor ventilation, etc.	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oils: air and/or skin exposure to oils and other cutting fluids	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Respirator: the employee is required to wear a respirator	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enclosed Spaces: the employee is required to work within confined enclosed spaces	X				<input type="checkbox"/>	<input type="checkbox"/>

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PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

Physical stamina: due to emergency or work load demands, subject to extended work hours requiring stamina beyond normal demands or levels	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
None: employee is NOT substantially exposed to adverse environmental conditions (work occurs in typical office or administrative environment)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE: This job description is not intended to be all-inclusive. Employee may perform other duties as required to meet the ongoing needs of the organization

Employee Signature

Date

Manager Signature

Date



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

JOB TITLE:	<u>Environmental Technician I</u>	INCENTIVE ELIGIBLE:	<u>No</u>
JOB FAMILY:	<u>Hazardous Materials Handling</u>	CAR ALLOWANCE:	<u>No</u>
JOB FUNCTION:	<u>Plant material storage & shipping</u>	REPORTS TO:	<u>Varies</u>
JOB CODE:	<u>100363</u>	PAY GRADE:	<u></u>
FLSA:	<u>Non Exempt</u>	JOB LOCATION:	<u>various</u>
DATE PREPARED:	<u>March 13, 2009</u>	DEPARTMENT:	<u>various</u>
DATE REVISED:	<u></u>	DIVISION:	<u>Environmental</u>

JOB SUMMARY:

Under general supervision, performs routine and frequent manual and heavy labor tasks to properly treat, store, pack, transport and/or dispose of hazardous waste in accordance with environmentally responsible and cost effective practices and PSC policies, practices and procedures.

PRINCIPAL DUTIES AND RESPONSIBILITIES:

- Consolidates material for shipped for off-site treatment.
- Completes paperwork properly and timely.
- May assist in maintaining inventory and storage of hazardous materials in accordance with appropriate regulations and PSC policies, practices, and procedures.
- Follows and understands all Health & Safety /Job Safety Analysis (JSA's) procedures as outlined in the PSC procedures and policies.
- Operates fork trucks to move materials for storage and loading and unloading.
- Collects samples of inbound waste for analysis.
- Performs other duties as assigned.

SCOPE:

MEASURES OF PERFORMANCE:

EDUCATION/CREDENTIALS:

- High school diploma or equivalent

JOB RELATED EXPERIENCE:

- 0-2 years

DEMONSTRATED KNOWLEDGE, SKILLS AND ABILITIES:

- Attention to detail
- Ability to follow procedures
- Safe driving

WORKING ENVIRONMENT:

- Plant environment

ENVIRONMENTAL REQUIREMENTS

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PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

ESSENTIAL ABILITIES AND WORKING CONDITIONS

Please place a check mark in the appropriate box to indicate the physical and mental demands of this position: (Modifications may be made to reasonably accommodate individuals with disabilities.)

ACTIVITY	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY				FUNCTION	
	NONE	UP TO 1/3	1/3 TO 2/3	MORE THAN 2/3	Essential	Non Essential
Standing on hard surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	x	<input type="checkbox"/>
Distinguishing all shades/hues/variations of colors	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	x	<input type="checkbox"/>
Walking	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	x	<input type="checkbox"/>
Sitting	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Twisting	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Stooping	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Crouching	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Crawling	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Talking	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Hearing	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	x	<input type="checkbox"/>
Reaching	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Seeing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	x	<input type="checkbox"/>
Balancing	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Pushing up to <u> 20 </u> lbs.	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Pulling up to <u> 20 </u> lbs.	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Grasping	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Lifting or carrying up to <u> 20 </u> lbs.	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Feeling	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Motion	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Precise hand movements	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	x	<input type="checkbox"/>
Reasoning or problem solving	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Reading	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Writing	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Performing math calculations	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Adhering to deadlines under pressure	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Learning or retaining technical information	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	x	<input type="checkbox"/>
Interacting with customers or visitors	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>

APPLICABLE WORKING CONDITIONS

Please check the appropriate box to indicate the applicable working conditions.

WORKING CONDITIONS	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY
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PSC considers applicants for all positions without regard to race, color, religion, creed, gender, national origin, age, special disability or medical or veteran status in accordance

with federal law and complies with applicable state and local laws prohibiting discrimination in employment in every jurisdiction in which it maintains facilities.

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PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

	DAILY	WEEKL Y	MONTHL Y	1 - 4 TIMES A YEAR	RARELY	NEVER
Inside work: protected from weather conditions	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outside work: no effective protection from weather	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Both inside and outside work: activities occur both inside and outside an enclosed office/building	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extreme cold: below 32 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Extreme heat: above 100 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Noise: employees must shout to be heard over ambient noise level (hearing protection required)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Vibration: exposure to oscillating movements of extremities or whole body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Potential hazards: moving parts, electricity, gas, scaffolding, chemicals, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Terminal viewing: extended viewing of screens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Atmospheric conditions (in non-confined spaces): fumes, odors, mists, gases, poor ventilation, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Oils: air and/or skin exposure to oils and other cutting fluids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Respirator: the employee is required to wear a respirator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>
Physical stamina: due to emergency or work load demands, subject to extended work hours requiring stamina beyond normal demands or levels	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Confined Areas: employee is required to work in confined areas				x		
None: employee is NOT substantially exposed to adverse environmental conditions (work occurs in typical office or administrative environment)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>

NOTE: This job description is not intended to be all-inclusive. Employee may perform other duties as required to meet the ongoing needs of the organization

Employee Signature

Date

Manager Signature

Date



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

JOB TITLE:	<u>Environmental Technician II</u>	INCENTIVE ELIGIBLE:	<u>No</u>
JOB FAMILY:	<u>Hazardous Materials Handling</u>	CAR ALLOWANCE:	<u>No</u>
JOB FUNCTION:	<u>Plant material storage & shipping</u>	REPORTS TO:	<u>Manager/Supervisor</u>
JOB CODE:	<u>100364</u>	MARKET PAY RANGE:	<u></u>
FLSA:	<u>Non Exempt</u>	JOB LOCATION:	<u>various</u>
DATE PREPARED:	<u>March 13, 2009</u>	DEPARTMENT:	<u>Plant/Facility</u>
DATE REVISED:	<u></u>	DIVISION:	<u>ESD</u>

JOB SUMMARY:

Under general supervision, performs routine and frequent manual and heavy labor tasks to properly treat, store, pack, transport and/or dispose of hazardous waste in accordance with environmentally responsible and cost effective practices and PSC policies, practices and procedures.

PRINCIPAL DUTIES AND RESPONSIBILITIES:

- Consolidates material for shipped for off-site treatment.
- Completes paperwork properly and timely.
- May assist in maintaining inventory and storage of hazardous materials in accordance with appropriate regulations and PSC policies, practices, and procedures.
- Follows and understands all Health & Safety /Job Safety Analysis (JSA's) procedures as outlined in the PSC procedures and policies.
- Operates fork trucks to move materials for storage and loading and unloading.
- Collects samples of inbound waste for analysis.
- May maintain records for DOT and State officials.
- Operates fork trucks and heavy duty equipment.
- Performs other duties as assigned.

EDUCATION/CREDENTIALS:

- High school diploma or equivalent
- Fork lift operation certification

JOB RELATED EXPERIENCE:

- 2-4 years

DEMONSTRATED KNOWLEDGE, SKILLS AND ABILITIES:

- Attention to detail
- Ability to follow procedures
- Safe driving record
- Operating Fork lift/trucks and heavy equipment

WORKING ENVIRONMENT:

- Plant environment
100364



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

100364

**ENVIRONMENTAL REQUIREMENTS
ESSENTIAL ABILITIES AND WORKING CONDITIONS**

Please place a check mark in the appropriate box to indicate the physical and mental demands of this position: (Modifications may be made to reasonably accommodate individuals with disabilities.)

ACTIVITY	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY				FUNCTION	
	NONE	UP TO 1/3	1/3 TO 2/3	MORE THAN 2/3	Essential	Non Essential
Standing on hard surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	x	<input type="checkbox"/>
Distinguishing all shades/hues/variations of colors	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	x	<input type="checkbox"/>
Walking	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	x	<input type="checkbox"/>
Sitting	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Twisting	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Stooping	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Crouching	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Crawling	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Talking	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Hearing	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	x	<input type="checkbox"/>
Reaching	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Seeing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	x	<input type="checkbox"/>
Balancing	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Pushing up to <u>20</u> lbs.	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Pulling up to <u>20</u> lbs.	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Grasping	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Lifting or carrying up to <u>20</u> lbs.	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Feeling	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Motion	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Precise hand movements	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	x	<input type="checkbox"/>
Reasoning or problem solving	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Reading	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Writing	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Performing math calculations	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Adhering to deadlines under pressure	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Learning or retaining technical information	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	x	<input type="checkbox"/>
Interacting with customers or visitors	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>

PSC considers applicants for all positions without regard to race, color, religion, creed, gender, national origin, age, special disability or medical or veteran status in accordance with federal law and complies with applicable state and local laws prohibiting discrimination in employment in every jurisdiction in which it maintains facilities.
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PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

APPLICABLE WORKING CONDITIONS

Please check the appropriate box to indicate the applicable working conditions.

WORKING CONDITIONS	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY					
	DAILY	WEEKL Y	MONTHL Y	1 - 4 TIMES A YEAR	RARELY	NEVER
Inside work: protected from weather conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outside work: no effective protection from weather	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Both inside and outside work: activities occur both inside and outside an enclosed office/building	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extreme cold: below 32 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Extreme heat: above 100 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Noise: employees must shout to be heard over ambient noise level (hearing protection required)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vibration: exposure to oscillating movements of extremities or whole body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Potential hazards: moving parts, electricity, gas, scaffolding, chemicals, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Terminal viewing: extended viewing of screens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Atmospheric conditions (in non-confined spaces): fumes, odors, mists, gases, poor ventilation, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Oils: air and/or skin exposure to oils and other cutting fluids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Respirator: the employee is required to wear a respirator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physical stamina: due to emergency or work load demands, subject to extended work hours requiring stamina beyond normal demands or levels	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Confined Areas: employee is required to work in confined areas				<input checked="" type="checkbox"/>		
None: employee is NOT substantially exposed to adverse environmental conditions (work occurs in typical office or administrative environment)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

NOTE: This job description is not intended to be all-inclusive. Employee may perform other duties as required to meet the ongoing needs of the organization

Employee Signature

Date

Manager Signature

Date



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

JOB TITLE:	<u>Environmental Technician III</u>	INCENTIVE ELIGIBLE:	<u>No</u>
JOB FAMILY:	<u>Hazardous Materials Handling</u>	CAR ALLOWANCE:	<u>No</u>
JOB FUNCTION:	<u>Plant material storage & shipping</u>	REPORTS TO:	<u>Manager/Supervisor</u>
JOB CODE:	<u>100365</u>	MARKET PAY RANGE:	<u></u>
FLSA:	<u>Non Exempt</u>	JOB LOCATION:	<u>various</u>
DATE PREPARED:	<u>March 13, 2009</u>	DEPARTMENT:	<u>Plant/Facility</u>
DATE REVISED:	<u></u>	DIVISION:	<u>ESD</u>

JOB SUMMARY:

Under general supervision, performs routine and frequent manual and heavy labor tasks to properly treat, store, pack, transport and/or dispose of hazardous waste in accordance with environmentally responsible and cost effective practices and PSC policies, practices and procedures.

PRINCIPAL DUTIES AND RESPONSIBILITIES:

- Consolidates material for shipped for off-site treatment.
- Completes paperwork properly and timely.
- May assist in maintaining inventory and storage of hazardous materials in accordance with appropriate regulations and PSC policies, practices, and procedures.
- Follows and understands all Health & Safety /Job Safety Analysis (JSA's) procedures as outlined in the PSC procedures and policies.
- Operates fork trucks to move materials for storage and loading and unloading.
- Collects samples of inbound waste for analysis.
- May maintain records for DOT and State officials.
- Operates fork trucks and heavy duty equipment.
- Performs other duties as assigned.

EDUCATION/CREDENTIALS:

- High school diploma or equivalent
- Fork lift operation certification

JOB RELATED EXPERIENCE:

- 4 or more years directly applicable experience

DEMONSTRATED KNOWLEDGE, SKILLS AND ABILITIES:

- Attention to detail
- Ability to follow procedures
- Safe driving record
- Operating Fork lift/trucks and heavy equipment

WORKING ENVIRONMENT:

- Plant environment
100365



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

100364

**ENVIRONMENTAL REQUIREMENTS
ESSENTIAL ABILITIES AND WORKING CONDITIONS**

Please place a check mark in the appropriate box to indicate the physical and mental demands of this position: (Modifications may be made to reasonably accommodate individuals with disabilities.)

ACTIVITY	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY				FUNCTION	
	NONE	UP TO 1/3	1/3 TO 2/3	MORE THAN 2/3	Essential	Non Essential
Standing on hard surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	x	<input type="checkbox"/>
Distinguishing all shades/hues/variations of colors	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	x	<input type="checkbox"/>
Walking	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	x	<input type="checkbox"/>
Sitting	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Twisting	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Stooping	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Crouching	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Crawling	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Talking	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Hearing	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	x	<input type="checkbox"/>
Reaching	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Seeing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	x	<input type="checkbox"/>
Balancing	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Pushing up to <u> 20 </u> lbs.	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Pulling up to <u> 20 </u> lbs.	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Grasping	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Lifting or carrying up to <u> 20 </u> lbs.	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Feeling	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Motion	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Precise hand movements	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	x	<input type="checkbox"/>
Reasoning or problem solving	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Reading	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Writing	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Performing math calculations	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Adhering to deadlines under pressure	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Learning or retaining technical information	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	x	<input type="checkbox"/>
Interacting with customers or visitors	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

APPLICABLE WORKING CONDITIONS

Please check the appropriate box to indicate the applicable working conditions.

WORKING CONDITIONS	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY					
	DAILY	WEEKLY	MONTHLY	1 - 4 TIMES A YEAR	RARELY	NEVER
Inside work: protected from weather conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outside work: no effective protection from weather	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Both inside and outside work: activities occur both inside and outside an enclosed office/building	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extreme cold: below 32 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Extreme heat: above 100 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Noise: employees must shout to be heard over ambient noise level (hearing protection required)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vibration: exposure to oscillating movements of extremities or whole body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Potential hazards: moving parts, electricity, gas, scaffolding, chemicals, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Terminal viewing: extended viewing of screens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Atmospheric conditions (in non-confined spaces): fumes, odors, mists, gases, poor ventilation, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Oils: air and/or skin exposure to oils and other cutting fluids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Respirator: the employee is required to wear a respirator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physical stamina: due to emergency or work load demands, subject to extended work hours requiring stamina beyond normal demands or levels	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Confined Areas: employee is required to work in confined areas				<input checked="" type="checkbox"/>		
None: employee is NOT substantially exposed to adverse environmental conditions (work occurs in typical office or administrative environment)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

NOTE: This job description is not intended to be all-inclusive. Employee may perform other duties as required to meet the ongoing needs of the organization

Employee Signature

Date

Manager Signature

Date



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

JOB TITLE:	Environmental Project Manager I	INCENTIVE ELIGIBLE:	No
JOB FAMILY:	Hazardous Materials	CAR ALLOWANCE:	No
JOB FUNCTION:	Customer projects	REPORTS TO:	Plant Manager/Facility Manager
JOB CODE:	101250	MARKET PAY RANGE:	
FLSA:		JOB LOCATION:	various
DATE PREPARED:	January 26, 2009	DEPARTMENT:	Operations
DATE REVISED:		DIVISION:	Environmental Services

JOB SUMMARY:

Manages, coordinates, and may perform various on-site activities to ensure proper treatment and disposal of customers' hazardous waste materials in accordance with environmentally responsible and cost effective practices and PSC policies, practices and procedures..

PRINCIPAL DUTIES AND RESPONSIBILITIES:

- Processes hazardous materials including receiving, logging, labeling, segregating, classifying known and unknown materials, waste sampling and profiling, and packaging in accordance with PSC, procedures and practices and all applicable regulations.
- On-site supervisor of supporting personnel.
- Follows, understands, and promotes by example, all Health & Safety /Job Safety Analysis (JSA's) procedures as outlined in the PSC procedures and policies, including development of on-site Health & Safety plans/JSA's.
- On-site customer contact
- Performs waste profiling
- Properly manifests including Land Disposal Restrictions (LDR's) and labels waste materials in accordance with appropriate regulations and procedures.
- Assists Supervisor with "on-site" management of hazardous waste.
- Performs consolidation of Hazardous materials/waste (i.e. bulking, repackaging)
- Performs other duties as assigned.

SCOPE:

MEASURES OF PERFORMANCE:

EDUCATION/CREDENTIALS:

- Bachelor of Arts or Science degree in a physical science such as biology, Chemistry, or engineering filed based in physical science such as chemical engineering, environmental engineering, etc.

JOB RELATED EXPERIENCE:

- 2 + years Lab Pack experience or similar environmental waste management
- Depack experience

DEMONSTRATED KNOWLEDGE, SKILLS AND ABILITIES:

- 40 hour OSHA training completed and current
- Strong working knowledge of Resource Conservation Recovery Act and Department of Transportation regulations
- Department of Transportation (DOT) training current
- CPR, First Aid, and Blood Borne Pathogen training current



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

- Developed communication skills to interact with customer to provide information, explanations, and/or instructions.
- Team player
- Attention to detail
- Ability to follow procedures

WORKING ENVIRONMENT:

- On-site indoor/outdoor working with hazardous waste materials

ESSENTIAL ABILITIES AND WORKING CONDITIONS
Environmental Demands

Please place a check mark in the appropriate box to indicate the physical and mental demands of this position: (Modifications may be made to reasonably accommodate individuals with disabilities.)

ACTIVITY	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY				FUNCTION	
	NON E	UP TO 1/3	1/3 TO 2/3	MORE THAN 2/3	Essential	Non Essential
Standing on hard surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Distinguishing all shades/hues/variations of colors	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Walking	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sitting	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Twisting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Stooping	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Crouching	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Crawling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Talking	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hearing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reaching	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Seeing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Balancing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pushing up to __100__ lbs.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pulling up to __100__ lbs.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Grasping	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lifting or carrying up to _50_ lbs.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Feeling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Motion	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Precise hand movements	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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JOB DESCRIPTION

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Reasoning or problem solving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reading	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Writing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Performing math calculations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Adhering to deadlines under pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Learning or retaining technical information	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Interacting with customers or visitors	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

APPLICABLE WORKING CONDITIONS

Please check the appropriate box to indicate the applicable working conditions.

WORKING CONDITIONS	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY					
	DAILY	WEEKLY	MONTHLY	1-4 TIMES A YEAR	RARELY	NEVER
Inside work: protected from weather conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outside work: no effective protection from weather	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Both inside and outside work: activities occur both inside and outside an enclosed office/building	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extreme cold: below 32 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extreme heat: above 100 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Noise: employees must shout to be heard over ambient noise level (hearing protection required)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vibration: exposure to oscillating movements of extremities or whole body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Potential hazards: moving parts, electricity, gas, scaffolding, chemicals, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Terminal viewing: extended viewing of screens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Atmospheric conditions (in non-confined spaces): fumes, odors, mists, gases, poor ventilation, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Oils: air and/or skin exposure to oils and other cutting fluids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Respirator: the employee is required to wear a respirator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physical stamina: due to emergency or work load demands, subject to extended work hours requiring stamina beyond normal demands or levels	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None: employee is NOT substantially exposed to adverse environmental conditions (work occurs in typical office or administrative environment)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

NOTE: This job description is not intended to be all-inclusive. Employee may perform other duties as required to meet the ongoing needs of the organization

Employee Signature

Date



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

Manager Signature

Date

**PROPRIETARY****JOB DESCRIPTION****CONFIDENTIAL**

JOB TITLE:	<u>Environmental Specialist</u>	INCENTIVE ELIGIBLE:	<u>No</u>
JOB FAMILY:	<u>Hazardous Materials</u>	CAR ALLOWANCE:	<u>Manager</u>
JOB FUNCTION:	<u>Lab Pack</u>	REPORTS TO:	<u>various</u>
JOB CODE:	<u>100025</u>	PAY GRADE:	<u>various</u>
FLSA:	<u>Non exempt - Salaried</u>	JOB LOCATION:	<u>various</u>
DATE PREPARED:	<u>May 23, 2007</u>	DEPARTMENT:	<u>Environmental</u>
DATE REVISED:		DIVISION:	

JOB SUMMARY:

Under immediate supervision, performs various assigned tasks and physical labor to ensure proper off-site treatment and disposal of customers' hazardous waste materials in accordance with environmentally responsible and cost effective practices and PSC policies, practices and procedures.

PRINCIPAL DUTIES AND RESPONSIBILITIES:

- Processes hazardous materials including receiving, logging, labeling, segregating, classifying known and unknown materials, waste sampling and profiling, and packaging in accordance with Lab Pack policies, procedures and practices and all applicable regulations.
- Properly manifests including Land Disposal Restrictions (LDR's) and labels waste materials in accordance with appropriate regulations and procedures.
- Transports personnel and waste to and from customers job locations.
- Follows, understands, and promotes by example, all Health & Safety /Job Safety Analysis (JSA's) procedures as outlined in the PSC Lab Pack procedures and policies, including development of on-site Health & Safety plans/JSA's.
- Maintains Commercial Driver's License (CDL) with Hazmat Endorsement to legally operate the local PSC vehicles necessary for transporting personnel and waste to and from customers' job locations.
- Provides support to the Depack, Retail and HHW groups both internally or On-site as needed.
- Performs consolidation of Hazardous materials/waste (i.e. bulking, repackaging)
- Performs other duties as assigned.

SCOPE:**MEASURES OF PERFORMANCE:**

- Completion of the following curriculum:
 - 40 hour OSHA Refresher (29 CFR 1910.120)
 - Acquisition of Commercial Driver's License (B or C) with Hazmat Endorsement
 - PSC Lab Pack I Lab Pack Training – (24 hours)
 - RCRA/DOT refresher course
 - Department of Transportation
 - PSC Lab Pack definitions and procedures
 - Lab pack Tabletop
 - Introduction to High Hazardous Cylinder Assessment course
 - Customer Interactions course
 - Waste Management Methods course
 - On-Site Expectations
 - Manifest/ LDR course
 - Health & Safety course(s)
 - Customer Approach
 - 40 hours Depack Experience
 - Local Facility Capabilities
 - 8 hours DOT Training

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PROPRIETARY

JOB DESCRIPTION

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- CPR/First Aid/Blood-borne Pathogen training
- State regulations (if applicable)
- All required local training

EDUCATION/CREDENTIALS:

- 4 year college degree in area of General Science or equivalent experience
- Drivers License with clear record

JOB RELATED EXPERIENCE:

- 0-2 years

DEMONSTRATED KNOWLEDGE, SKILLS AND ABILITIES:

- Strong communication skills to interact with customer to provide information, explanations, and/or instructions.
- Team player
- Attention to detail
- Ability to follow procedures

WORKING ENVIRONMENT:

- Customer sites, plant, labs
- Indoor/Outdoor

100025

Environmental Demands

ESSENTIAL ABILITIES AND WORKING CONDITIONS

Please place a check mark in the appropriate box to indicate the physical and mental demands of this position: (Modifications may be made to reasonably accommodate individuals with disabilities.)

ACTIVITY	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY				FUNCTION	
	NONE	UP TO 1/3	1/3 TO 2/3	MORE THAN 2/3	Essential	Non Essential
Standing on hard surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Distinguishing all shades/hues/variations of colors	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Walking	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sitting	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Twisting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Stooping	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Crouching	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Crawling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Talking	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hearing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reaching	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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JOB DESCRIPTION

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Seeing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Balancing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pushing up to ___100___ lbs.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pulling up to ___100___ lbs.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Grasping	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lifting or carrying up to ___50_ lbs.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Feeling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Motion	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Precise hand movements	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reasoning or problem solving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reading	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Writing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Performing math calculations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Adhering to deadlines under pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Learning or retaining technical information	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Interacting with customers or visitors	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

APPLICABLE WORKING CONDITIONS

Please check the appropriate box to indicate the applicable working conditions.

WORKING CONDITIONS	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY					
	DAILY	WEEKL Y	MONTHL Y	1-4 TIMES A YEAR	RARELY	NEVER
Inside work: protected from weather conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outside work: no effective protection from weather	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Both inside and outside work: activities occur both inside and outside an enclosed office/building	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extreme cold: below 32 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extreme heat: above 100 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Noise: employees must shout to be heard over ambient noise level (hearing protection required)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vibration: exposure to oscillating movements of extremities or whole body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Potential hazards: moving parts, electricity, gas, scaffolding, chemicals, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Terminal viewing: extended viewing of screens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Atmospheric conditions (in non-confined spaces): fumes, odors, mists, gases, poor ventilation, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Oils: air and/or skin exposure to oils and other cutting fluids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Respirator: the employee is required to wear a respirator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physical stamina: due to emergency or work load demands, subject to extended work hours requiring stamina beyond normal demands or levels	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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JOB DESCRIPTION

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None: employee is NOT substantially exposed to adverse environmental conditions (work occurs in typical office or administrative environment)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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NOTE: This job description is not intended to be all-inclusive. Employee may perform other duties as required to meet the ongoing needs of the organization

Employee Signature

Date

Manager Signature

Date



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

JOB TITLE:	<u>Operations Manager</u>	INCENTIVE ELIGIBLE:	<u>No</u>
JOB FAMILY:	<u>Management</u>	CAR ALLOWANCE:	<u>No</u>
JOB FUNCTION:	<u>HHW Facility</u>	REPORTS TO:	<u>Operations Management</u>
JOB CODE:	<u>100324</u>	PAY GRADE:	<u></u>
FLSA:	<u>Exempt</u>	JOB LOCATION:	<u>Varies</u>
DATE PREPARED:	<u>April 1, 2008</u>	DEPARTMENT:	<u>Operations</u>
DATE REVISED:	<u></u>	ESD	<u>ESD</u>

JOB SUMMARY:

Oversees and manages all operations' activities and issues at assigned hazardous waste facility to ensure optimum efficiency and fiscal responsibility in accordance with all applicable regulations and PSC policies, practices, and procedures.

PRINCIPAL DUTIES AND RESPONSIBILITIES:

- Directly supervises employees including interviewing, hiring, training, planning, assigning, directing work, appraising performance, rewarding and disciplining employees, addressing complaints and resolving problems in accordance with PSC's HR policies, practices, and procedures.
- Coordinates and manages group activities and interactions with other divisions
- Coordinates scheduling of personnel and project assignments
- Conduct and supervise staff meetings.
- Approve all accounts payable / accounts receivable for payment.
- Review monthly Profit and Loss statements and address all applicable discrepancies.
- Forecast revenue.
- QA/QC all specialist work.
- Handles customer service responsibilities for office.
- Enforces or modifies work procedures as needed to ensure a safe and efficient work environment.
- Performs other duties as assigned.

SCOPE:

- Overall P&L responsibility for facility
- Supervises:
 - Direct – Environmental Specialists

MEASURES OF PERFORMANCE:

- Profitability as reflected in EBITDA
- Labor utilization

EDUCATION/CREDENTIALS:

- Bachelor's degree (B. A.) from four-year college or university.

CERTIFICATES, LICENSES, CERTIFICATIONS

- 80 hour OSHA Training with 8 hour refresher course
- Current CPR/First Aid Certification
- Current Driver's License
- Forklift Training



PROPRIETARY

JOB DESCRIPTION

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- Bloodborne Pathogen Training
- DOT HM 181/126F Training

JOB RELATED EXPERIENCE:

- 2 – 3 years experience in industrial services, program or business management or combination of education and experience.

DEMONSTRATED KNOWLEDGE, SKILLS AND ABILITIES:

- Working knowledge of safety, engineering and other regulatory issues as they relate to facilities, i.e., OSHA regulations, fire codes, etc.
- Strong financial planning, budgeting and forecasting skills. Knowledge of recognized accounting practice and ability to read financial statements.
- Exceptional Communication skills both verbal and written
- Performs arithmetic calculations including multiplication, division, addition, subtraction, ratios and percentages
- Strong user of PC and software applications
- Report preparation
- Effective leadership qualities
- Multi-tasking to process competing demands with multiple deadlines
- Adaptability to dynamic environment with calmness and good judgment
- Compile data from multiple sources
- Proficiency with computers and with Microsoft applications of Word and Excel
- Research and analyze issues and recommend solutions
- Sound decision making impacting operations and customers
- Effective oral and written communication skills
- Effective Project management skills

WORKING ENVIRONMENT:

- Inside and outside

ESSENTIAL ABILITIES AND WORKING CONDITIONS

Environmental Demands

Please place a check mark in the appropriate box to indicate the physical and mental demands of this position: (Modifications may be made to reasonably accommodate individuals with disabilities.)

ACTIVITY	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY				FUNCTION	
	NONE	UP TO 1/3	1/3 TO 2/3	MORE THAN 2/3	Essential	Non Essential
Standing on hard surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Distinguishing all shades/hues/variations of colors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sitting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Twisting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stooping	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Climbing Ladders, Stairs, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Crouching	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Crawling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Talking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hearing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Seeing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Balancing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pushing up to _____ lbs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pulling up to _____ lbs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grasping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lifting or carrying up to 25lbs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feeling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Motion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Precise hand movements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reasoning or problem solving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reading	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Performing math calculations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Adhering to deadlines under pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Learning or retaining technical information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Interacting with customers or visitors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

APPLICABLE WORKING CONDITIONS

Please check the appropriate box to indicate the applicable working conditions.

WORKING CONDITIONS	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY						
	DAILY	WEEKLY	MONTHLY	1 - 4 TIMES A YEAR	RARELY	NEVER	
Inside work: protected from weather conditions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Outside work: no effective protection from weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Both inside and outside work: activities occur both inside and outside an enclosed office/building	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Extreme cold: below 32 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Extreme heat: above 100 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

PSC considers applicants for all positions without regard to race, color, religion, creed, gender, national origin, age, special disability or medical or veteran status in accordance

with federal law and complies with applicable state and local laws prohibiting discrimination in employment in every jurisdiction in which it maintains facilities.

C:\Documents and Settings\amorta\My Documents\PSC MOST CURRENT MAY2010\PSC Information\job descriptions\Facilityoperations_Manager.doc



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

Noise: employees must shout to be heard over ambient noise level (hearing protection required)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Vibration: exposure to oscillating movements of extremities or whole body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
Potential hazards: moving parts, electricity, gas, scaffolding, chemicals, etc.	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Terminal viewing: extended viewing of screens	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Atmospheric conditions (in non-confined spaces): fumes, odors, mists, gases, poor ventilation, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oils: air and/or skin exposure to oils and other cutting fluids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>
Respirator: the employee is required to wear a respirator	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physical stamina: due to emergency or work load demands, subject to extended work hours requiring stamina beyond normal demands or levels	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None: employee is NOT substantially exposed to adverse environmental conditions (work occurs in typical office or administrative environment)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE: This job description is not intended to be all-inclusive. Employee may perform other duties as required to meet the ongoing needs of the organization

Employee Signature **Date**



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

JOB TITLE:	Customer Service Representative II	INCENTIVE ELIGIBLE:	None
JOB FAMILY:	Customer Service	CAR ALLOWANCE:	None
JOB FUNCTION:	Post sales execution and service	REPORTS TO:	Manager
JOB CODE:	101226	PAY RANGE:	
FLSA:	Non Exempt Salaried	JOB LOCATION:	Varies
DATE PREPARED:	9/13/08	DEPARTMENT:	Customer Service
DATE REVISED:	May 2009	DIVISION:	ESD

JOB SUMMARY:

Telephonically works with customers and various departments and sources to ensure customer's satisfaction with service and waste transportation and acceptance in accordance with applicable regulations and PSC policies, practices and procedures.

PRINCIPAL DUTIES AND RESPONSIBILITIES:

- Responds to incoming calls from various sources including generators, brokers, sales representatives, etc., providing quotations, profiling for waste acceptance, scheduling of inbound loads and outbound bulk liquid loads, treatment capabilities, regulation explanation, and coordination with sales group and other company depts to
- Display strong and positive communications with all external clients and internal co-workers.
- Interface with accounting, production and transportation to ensure successful, on-time pick ups.
- Create quotations for all new approvals, reapprovals and recertifications. Also responsible for mailing and filing.
- Provide plant with job numbers to receive outside transporter's deliveries into plant.
- Performs other projects and duties as assigned.
- Responsible for scheduling inbound loads, putting together LTL runs for transportation and outbound bulk liquids from production.
- They are responsible for reviewing invoicing before it is finalized.
- Performs other duties as required

MEASURES OF PERFORMANCE:

- Returns all telephone calls and emails within 24 hour period.
- Calls customer back on all requests and give them a timeline for request.
- Schedules all LTL clients within 21 days of initial call.

EDUCATION/CREDENTIALS:

- High school diploma or GED
- Minimum 2+ years of professional experience in Customer Service.

JOB RELATED EXPERIENCE:

- One year hands-on experience in the hazardous waste field.
- 2+ years experience in customer service.



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

DEMONSTRATED KNOWLEDGE, SKILLS AND ABILITIES:

- Compliance with company policies and procedures.
- Responsive to client needs in a timely and value-added manner
- Excellent verbal and written communication skills
- Works well under pressure and stressful conditions.
- Self-motivated, confident and highly dependable
- Solid follow-up and follow through skills
- Strong computer skills with all Microsoft Office applications.

WORKING CONDITIONS:

- Office environment

101226

ESSENTIAL ABILITIES AND WORKING CONDITIONSEnvironmental Demands

Please place a check mark in the appropriate box to indicate the physical and mental demands of this position: (Modifications may be made to reasonably accommodate individuals with disabilities.)

ACTIVITY	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY				FUNCTION	
	NONE	UP TO 1/3	1/3 TO 2/3	MORE THAN 2/3	Essential	Non Essential
Standing on hard surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Distinguishing all shades/hues/variations of colors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Walking	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sitting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Twisting	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Stooping	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Crouching	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Crawling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Talking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hearing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reaching	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Seeing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Balancing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pushing up to _____ lbs.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pulling up to _____ lbs.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Grasping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting or carrying up to __5__ lbs.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Feeling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**PROPRIETARY****JOB DESCRIPTION****CONFIDENTIAL**

Motion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Precise hand movements	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reasoning or problem solving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reading	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Performing math calculations	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Adhering to deadlines under pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Learning or retaining technical information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Interacting with customers or visitors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

APPLICABLE WORKING CONDITIONS

Please check the appropriate box to indicate the applicable working conditions.

WORKING CONDITIONS	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY					
	DAILY	WEEKLY	MONTHLY	1-4 TIMES A YEAR	RARELY	NEVER
Inside work: protected from weather conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outside work: no effective protection from weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Both inside and outside work: activities occur both inside and outside an enclosed office/building	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Extreme cold: below 32 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Extreme heat: above 100 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Noise: employees must shout to be heard over ambient noise level (hearing protection required)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vibration: exposure to oscillating movements of extremities or whole body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Potential hazards: moving parts, electricity, gas, scaffolding, chemicals, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Terminal viewing: extended viewing of screens	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Atmospheric conditions (in non-confined spaces): fumes, odors, mists, gases, poor ventilation, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Oils: air and/or skin exposure to oils and other cutting fluids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Respirator: the employee is required to wear a respirator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Physical stamina: due to emergency or work load demands, subject to extended work hours requiring stamina beyond normal demands or levels	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None: employee is NOT substantially exposed to adverse environmental conditions (work occurs in typical office or	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

administrative environment)						
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NOTE: This job description is not intended to be all-inclusive. Employee may perform other duties as required to meet the ongoing needs of the organization



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

JOB TITLE:	Dispatcher II	INCENTIVE ELIGIBLE:	None
JOB FAMILY:	Transportation	CAR ALLOWANCE:	No
JOB FUNCTION:	Customer waste pickups	REPORTS TO:	Operations Manager
JOB CODE:	100338	PAY RANGE:	
FLSA	Non Exempt Hourly	JOB LOCATION:	various
DATE PREPARED:	09/23/2008	DEPARTMENT:	Operations
DATE REVISED:	June 2009	DIVISION:	ESD

JOB SUMMARY:

Schedules customer materials pickups and deliveries, assigns drivers and processes driver paperwork in accordance applicable DOT regulations and with PSC policies, practices and procedures.

PRINCIPAL DUTIES AND RESPONSIBILITIES:

- Routes pickups and deliveries and assigns drivers.
- Maintains logs and trip reports and ensures compliance with DOT regulations
- Communicates with drivers.
- Ensures equipment inspections are up to date and in compliance with DOT regulations.
- Performs other duties assigned

MEASURES OF PERFORMANCE:

- Trucks routed correctly,
- Timely pick-ups
- Paperwork is correct.

EDUCATION/CREDENTIALS:

- High school diploma
- CDL license with haz-mat and tanker endorsement

JOB RELATED EXPERIENCE:

- 2-4 years experience in transportation prefer dispatching experience

DEMONSTRATED KNOWLEDGE, SKILLS AND ABILITIES:

- Knowledge of DOT rules and regulations
- Ability to schedule trucks to save time and money
- Ability to communicate well with our drivers

WORKING CONDITIONS:

- Office environment

ESSENTIAL ABILITIES AND WORKING CONDITIONS

**PROPRIETARY****JOB DESCRIPTION****CONFIDENTIAL**Environmental Demands

Please place a check mark in the appropriate box to indicate the physical and mental demands of this position: (Modifications may be made to reasonably accommodate individuals with disabilities.)

ACTIVITY	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY				FUNCTION	
	NONE	UP TO 1/3	1/3 TO 2/3	MORE THAN 2/3	Essential	Non Essential
Standing on hard surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Distinguishing all shades/hues/variations of colors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	0	<input checked="" type="checkbox"/>
Walking	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sitting	0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
Twisting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Stooping	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Crouching	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Crawling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Talking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hearing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Seeing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Balancing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pushing up to __50__ lbs.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pulling up to __50__ lbs.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Grasping	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lifting or carrying up to __50__ lbs.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Feeling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Motion	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Precise hand movements	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reasoning or problem solving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reading	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Writing	<input type="checkbox"/>	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Performing math calculations	<input type="checkbox"/>	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Adhering to deadlines under pressure	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Learning or retaining technical information	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Interacting with customers or visitors	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**PROPRIETARY**

JOB DESCRIPTION
APPLICABLE WORKING CONDITIONS

CONFIDENTIAL

Please check the appropriate box to indicate the applicable working conditions.

WORKING CONDITIONS	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY					
	DAILY	WEEKL Y	MONTHL Y	1 - 4 TIMES A YEAR	RARELY	NEVER
Inside work: protected from weather conditions	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0
Outside work: no effective protection from weather	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Both inside and outside work: activities occur both inside and outside an enclosed office/building	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>
Extreme cold: below 32 degrees for periods of more than 1 hour	<input type="checkbox"/>	0	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Extreme heat: above 100 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Noise: employees must shout to be heard over ambient noise level (hearing protection required)	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vibration: exposure to oscillating movements of extremities or whole body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>
Potential hazards: moving parts, electricity, gas, scaffolding, chemicals, etc.	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Terminal viewing: extended viewing of screens	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>
Atmospheric conditions (in non-confined spaces): fumes, odors, mists, gases, poor ventilation, etc.	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oils: air and/or skin exposure to oils and other cutting fluids	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Respirator: the employee is required to wear a respirator	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
Physical stamina: due to emergency or work load demands, subject to extended work hours requiring stamina beyond normal demands or levels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
None: employee is NOT substantially exposed to adverse environmental conditions (work occurs in typical office or administrative environment)	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0

NOTE: This job description is not intended to be all-inclusive. Employee may perform other duties as required to meet the ongoing needs of the organization

Employee

Date

Manager

Date



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

JOB TITLE:	<u>Administrative assistant</u>	INCENTIVE ELIGIBLE:	<u>List Incentive Plan</u>
JOB FAMILY:	_____	CAR ALLOWANCE:	_____
JOB CODE:	<u>Assigned by Compensation</u>	REPORTS TO:	_____
FLSA DATE PREPARED:	<u>Assigned by Compensation</u>	PAY RANGE:	<u>Assigned by Compensation</u>
DATE REVISIED:	_____	JOB LOCATION:	_____
		DEPARTMENT:	_____
		DIVISION:	_____

JOB SUMMARY:

Answer incoming phone calls from clients and other PSC representatives. Data enter bill of ladings and manifests from incoming loads. Produce out-bound paperwork for waste leaving facility. Waste tracking, Human resource work, employee insurance, tax forms, training records, Pan forms.

PRINCIPAL DUTIES AND RESPONSIBILITIES:

State the principal duties, tasks, and/or accountabilities and the reason performed

- Answer incoming phone calls, and greet visitors at front door.
- Monitor front gate for security, activate electronic gate opener.
- Data enter paperwork for incoming waste.
- Produce outbound paperwork, gather certificated of disposal, disperse and file.
- Waste tracking, data enter lab pack and retail paperwork and track.
- Manage office supplies, vendors to include copier service, Nextel, guard and cleaning service.

SCOPE: *This information helps determine the size of the job which drives the market evaluation and internal equity analysis. Whatever you list should be quantifiable in terms of dollars or numbers*

- Responsible for expenses approximating \$ _____ dollars annually.
- Number of Reports:
 - Direct _____
 - Indirect _____
- Number of facilities: _____
- Geography: International, Continental, National, regional, location, site,
- P&L responsibility
- Revenue \$ _____

MEASURES OF PERFORMANCE:

- Customer satisfaction of phone calls, and quick response to question they may have.
- Timely paperwork data entry for billing.
- Timely paperwork for outbound disposal
- HR work for employee satisfaction.

EDUCATION/CREDENTIALS:

- High school diploma



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

- 2 year college degree

JOB RELATED EXPERIENCE:

- Range of directly related job experience in years i.e. 1 – 3 years hands-on experience handling hazardous waste
- N/A

DEMONSTRATED KNOWLEDGE, SKILLS AND ABILITIES:

- Describe the working knowledge of concepts, systems, laws, regulations, etc. minimally required to perform the job competently.
- Administrative assistants produce manifests, track waste and are required US DOT training annually.
- Describe the behaviors required such as ability to work under pressure, meet multiple deadlines, customer focused, etc.
- Administrative assistants must be able to multi task and work well with peers.
- Describe the technical/mechanical skills required such as 10 key by touch, PC skills, etc.
- Must have good PC skills, will be required to perform many reports for facility including DMR, OSHA 300 log, employee training logs.

WORKING CONDITIONS:

- Complete this worksheet by marking the boxes in the appropriate columns and rows to describe the physical and mental and environmental conditions that the person will work under.

ESSENTIAL ABILITIES AND WORKING CONDITIONS

Environmental Demands

Please place a check mark in the appropriate box to indicate the physical and mental demands of this position: (Modifications may be made to reasonably accommodate individuals with disabilities.)

ACTIVITY	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY				FUNCTION	
	NONE	UP TO 1/3	1/3 TO 2/3	MORE THAN 2/3	Essential	Non Essential
Standing on hard surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Distinguishing all shades/hues/variations of colors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Walking	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sitting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Twisting	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Stooping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Crouching	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Crawling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Talking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

Hearing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reaching	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Seeing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Balancing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pushing up to _____ lbs.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pulling up to _____ lbs.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Grasping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lifting or carrying up to _____ lbs.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Feeling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Motion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Precise hand movements	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reasoning or problem solving	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reading	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Writing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Performing math calculations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Adhering to deadlines under pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Learning or retaining technical information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Interacting with customers or visitors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

APPLICABLE WORKING CONDITIONS

Please check the appropriate box to indicate the applicable working conditions.

WORKING CONDITIONS	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY					
	DAILY	WEEKLY	MONTHLY	1 - 4 TIMES A YEAR	RARELY	NEVER
Inside work: protected from weather conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outside work: no effective protection from weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Both inside and outside work: activities occur both inside and outside an enclosed office/building	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Extreme cold: below 32 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Extreme heat: above 100 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Noise: employees must shout to be heard over ambient noise level (hearing protection required)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vibration: exposure to oscillating movements of extremities or whole body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



PROPRIETARY	JOB DESCRIPTION					CONFIDENTIAL
Potential hazards: moving parts, electricity, gas, scaffolding, chemicals, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x <input type="checkbox"/>
Terminal viewing: extended viewing of screens	x <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Atmospheric conditions (in non-confined spaces): fumes, odors, mists, gases, poor ventilation, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oils: air and/or skin exposure to oils and other cutting fluids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Respirator: the employee is required to wear a respirator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x <input type="checkbox"/>
Physical stamina: due to emergency or work load demands, subject to extended work hours requiring stamina beyond normal demands or levels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x <input type="checkbox"/>
None: employee is NOT substantially exposed to adverse environmental conditions (work occurs in typical office or administrative environment)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE: This job description is not intended to be all-inclusive. Employee may perform other duties as required to meet the ongoing needs of the organization

Employee

Date

Manager

Date



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

JOB TITLE:	<u>Sales Coordinator</u>	INCENTIVE	
JOB FAMILY:	<u>Customer Service</u>	ELIGIBLE:	
JOB CODE:	<u>SACS70</u>	CAR ALLOWANCE:	
FLSA	<u>Assigned by Compensation</u>	REPORTS TO:	<u>Manager</u>
DATE PREPARED:	<u>9/13/08</u>	PAY RANGE:	<u>Assigned by Compensation</u>
DATE REVISED:		JOB LOCATION:	
		DEPARTMENT:	<u>Customer Service</u>
		DIVISION:	

JOB SUMMARY:

Primary responsibilities are to assist Approvals Department with a quick turnaround for approvals, receives and enter profiles in receipt log, enters templates for approvals to complete. Assist Sales Manager and Sales Representatives with any special requests. Secondary is a back up to Customer Service in peak incoming telephone periods or help with coverage during routine transitions caused by employee resignations. Filing of sales and approvals files.

PRINCIPAL DUTIES AND RESPONSIBILITIES:

- Assist approvals with profiles for quick turnaround.
 - Assist Sales Manager and Sales Representatives with any special requests.
 - Field all incoming calls. Responsible for satisfying all requests by clients or sales representatives.
 - Display strong and positive communications with all external clients and internal co-workers.
 - Interface with accounting, production and transportation to ensure successful, on-time pick ups.
 - Create quotations for all new approvals, reapprovals and recertifications. Also responsible for mailing and filing.
 - Provide plant with job numbers to receive outside transporter's deliveries into plant.
 - Performs other projects and duties as assigned.
 - Responsible for scheduling inbound loads, putting together LTL runs for transportation and outbound bulk liquids from production.
- **SCOPE:**Number of Reports:
 - Direct 0
 - Indirect 0
 - Number of facilities: 2
 - Geography: Regional

MEASURES OF PERFORMANCE:

- Return all telephone calls and emails within 24 hour period.
- Call customer back on all requests and give them a timeline for request.
- Schedule all LTL clients within 21 days of initial call.
- Log new incoming profiles within one hour of receipt.
- WORK WITH SALES REPS TO ENSURE TIMELY DELIVERY OF SPECIAL REQUEST.

**PROPRIETARY****JOB DESCRIPTION****CONFIDENTIAL****EDUCATION/CREDENTIALS:**

- High school diploma
- GED
- College
- Minimum 2+ years of professional experience in Customer Service.

JOB RELATED EXPERIENCE:

- One year hands-on experience in the hazardous waste field.
- 2+ years experience in customer service.

DEMONSTRATED KNOWLEDGE, SKILLS AND ABILITIES:

- **ABILITY TO FOLLOW COMPANY POLICIES AND PROCEDURES.**
- **ABLE TO RESPOND TO CLIENT NEEDS IN A TIMELY AND VALUE-ADDED MANNER.**
- **EXCEPTIONAL ORAL AND WRITTEN SKILLS.**
- **MUST WORK WELL UNDER PRESSURE AND MAINTAIN PROFESSIONALISM DURING STRESSFUL SITUATIONS. MUST BE SELF-MOTIVATED, CONFIDENT AND HIGHLY DEPENDABLE.**
- **MUST POSSESS SOLID FOLLOW UP SKILLS.**
- **STRONG COMPUTER SKILLS, INCLUDING EXPERIENCE WITH MICROSOFT APPLICATIONS.**
-

WORKING CONDITIONS:

- Complete this worksheet by marking the boxes in the appropriate columns and rows to describe the physical and mental and environmental conditions that the person will work under.

ESSENTIAL ABILITIES AND WORKING CONDITIONS**Environmental Demands**

Please place a check mark in the appropriate box to indicate the physical and mental demands of this position: (Modifications may be made to reasonably accommodate individuals with disabilities.)

ACTIVITY	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY				FUNCTION	
	NONE	UP TO 1/3	1/3 TO 2/3	MORE THAN 2/3	Essential	Non Essential
Standing on hard surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Distinguishing all shades/hues/variations of colors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Walking	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sitting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Twisting	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Stooping	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Crouching	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Crawling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

Talking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hearing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reaching	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Seeing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Balancing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pushing up to _____ lbs.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pulling up to _____ lbs.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Grasping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting or carrying up to __5__ lbs.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Feeling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Motion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Precise hand movements	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reasoning or problem solving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reading	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Performing math calculations	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Adhering to deadlines under pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Learning or retaining technical information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Interacting with customers or visitors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

APPLICABLE WORKING CONDITIONS

Please check the appropriate box to indicate the applicable working conditions.

WORKING CONDITIONS	AMOUNT OF TIME TYPICALLY SPENT ON ACTIVITY					
	DAILY	WEEKL Y	MONTHL Y	1 - 4 TIMES A YEAR	RARELY	NEVER
Inside work: protected from weather conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outside work: no effective protection from weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Both inside and outside work: activities occur both inside and outside an enclosed office/building	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Extreme cold: below 32 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Extreme heat: above 100 degrees for periods of more than 1 hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Noise: employees must shout to be heard over ambient noise level (hearing protection required)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vibration: exposure to oscillating movements of extremities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



PROPRIETARY

JOB DESCRIPTION

CONFIDENTIAL

or whole body						
Potential hazards: moving parts, electricity, gas, scaffolding, chemicals, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Terminal viewing: extended viewing of screens	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Atmospheric conditions (in non-confined spaces): fumes, odors, mists, gases, poor ventilation, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Oils: air and/or skin exposure to oils and other cutting fluids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Respirator: the employee is required to wear a respirator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
Physical stamina: due to emergency or work load demands, subject to extended work hours requiring stamina beyond normal demands or levels	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None: employee is NOT substantially exposed to adverse environmental conditions (work occurs in typical office or administrative environment)	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE: This job description is not intended to be all-inclusive. Employee may perform other duties as required to meet the ongoing needs of the organization

Petro-Chem Processing Group
Training Matrix

Revision: 2
Date: 05/2009

Job Title	24 Hr HAZWOPER	Annual Updates- HAZWOPER	Hazard Comm	Emergency Response Plan	Hazardous Waste Regulation	Confined Space Entry	Electrical Safety	Industrial Truck Operations	Hazardous Materials Handling	First Aid/ CPR
Administrative Assistant I			X	X						
Administrative Assistant II			X	X						
Associate Logistics Planning			X	X						
Chemist II	X	X	X	X	X		X		X	
Clerk - Accounting I			X	X						
Clerk - Accounting II			X	X						
Clerk - Accounting III			X	X						
Clerk - Office			X	X						
Coordinator - Operations	X	X	X	X	X			X	X	
Coordinator - Sales			X	X						
Environmental Project Manager	X	X	X	X	X		X		X	
Customer Service Representative			X	X	X					
Customer Service Manager			X	X	X				X	
Driver	X	X	X	X	X		X		X	
EH&S Specialist	X	X	X	X	X		X		X	X
Technician - Environmental I	X	X	X	X	X		X		X	
Technician - Environmental II	X	X	X	X	X		X		X	
Technician - Haz Waste I	X	X	X	X	X		X	X	X	
Laborer	X	X	X	X	X	X	X	X	X	
Maintenance Manager	X	X	X	X	X	X	X	X	X	
Maintenance Supervisor	X	X	X	X	X	X	X	X	X	
Materials Coordinator	X	X	X	X	X		X		X	

Petro-Chem Processing Group
Training Matrix

Revision: 2
Date: 05/2009

Job Title	Hot Work Permits (Issuance)	Fire Safety/ Fire Extinguisher	Office Safety	HazMat Transport	Respiratory Fit Test	Lock-out/Tag-out	Safe on Purpose	Aerial Platform	Lab SOPs/QA Manual	Drug Awareness
Administrative Assistant I			X				X			X
Administrative Assistant II			X				X			X
Associate Logistics Planning			X				X			X
Chemist II		X		X	X		X		X	X
Clerk - Accounting I			X				X			X
Clerk - Accounting II			X				X			X
Clerk - Accounting III			X				X			X
Clerk - Office			X				X			X
Coordinator - Operations		X	X	X	X	X	X			X
Coordinator - Sales			X				X			X
Environmental Project Manager				X	X		X			X
Customer Service Representative			X	X			X			X
Customer Service Manager			X	X			X			X
Driver		X		X	X		X			X
EH&S Specialist	X	X	X	X	X		X			X
Technician - Environmental I		X		X	X		X		X	X
Technician - Environmental II		X		X	X		X		X	X
Technician - Haz Waste I		X		X	X		X		X	X
Laborer		X		X	X	X	X	X		X
Maintenance Manager	X	X			X	X	X	X		X
Maintenance Supervisor	X	X		X	X	X	X	X		X
Materials Coordinator		X	X	X	X		X			X

COMPETENCY LEVEL MATRIX

EMPLOYEE NAME: _____

PROCEDURE		BASIC AWARENESS			JOB KNOWLEDGE			WITHOUT ASSISTANCE			ABLE TO TRAIN			RETRAIN		
TITLE	DESCRIPTION	DATE	EMP	TRN	DATE	EMP	TRN	DATE	EMP	TRN	DATE	EMP	TRN	DATE	EMP	TRN

Appendix V
Training Certificate

8-HOUR TRAINING CONTENT / SUBJECT MATTER

HAZWOPER Compliance Series Titles

Safety Orientation

Introduction to Hazwoper Retraining

Understanding Chemical Hazards

PPE and Decontamination Procedures

Hazmat Labeling

Accidental Release Measures and Spill Clean up Procedures

Summit Training Source, Inc. Titles

Bloodborne Pathogens HC

TRAINING SIGN-IN/RECEIPT

Date: _____

Location: _____

Subject: _____

Name

Signature

8-HOUR TRAINING CONTENT / SUBJECT MATTER

HAZWOPER Compliance Series Titles

Introduction to Hazwoper Retraining

Handling Hazardous Materials

Respiratory Protection

Confined Space Entry

Electrical Safety In Hazmat Environments

Hazmat Labeling

Accidental Release Measures and Spill Clean up Procedures

Summit Training Source, Inc. Titles

Bloodborne Pathogens HC

8-HOUR TRAINING CONTENT / SUBJECT MATTER

HAZWOPER Compliance Series Titles

Introduction to Hazwoper Retraining

Work Practices and Engineering Controls

Monitoring Procedures and Equipment

Fire Prevention

Site Safety and Health Plan

ANSI Material Safety Data Sheet

Accidental Release Measures and Spill Clean up Procedures

Summit Training Source, Inc. Titles

Bloodborne Pathogens HC

HAZCOM TRAINING CONTENT / SUBJECT MATTER

HAZWOPER Compliance Series Titles

Safety Orientation

Hazmat Labeling

ANSI Material Data Safety Sheet



DOCUMENTATION OF EMPLOYEE TRAINING



EMPLOYEE INFORMATION

Employee Name:			
Position/Function:		Employment Date:	

TRAINER INFORMATION

Trainer Name:		Training Comp. Date:	
Co. Name & Address:			

DESCRIPTION OF TRAINING

Video/Slides	0.5 - 2.0	HRS
Classroom Handout Review	1.0 - 2.5	HRS
Lecture/Presentation	1.0 - 3.0	HRS
Supervised Hands-On Instruction/Demonstration	0.5 - 1.5	HRS
Written Exam/Performance Evaluation & Review	0.5 - 1.5	HRS
Other: Specified Below	varies	HRS

Narrative Description of Training Provided

8-HR Refresher - 29 CFR 1910.120 (q) & (e)		USDOT HazMat (HM-126F)	
Hazard Communication / Right-to-Know		USDOT Trans Security Plan	
RCRA Training Modules A-M		USDOT Trans Security Awareness	
Bloodborne Pathogens Awareness		USDOT Special Permits	
PSC/Home Depot BBP			
Federal Uniform Hazardous Waste Manifest			

TOTAL HOURS:	0.00
---------------------	-------------

CERTIFICATIONS

TRAINER: I certify that the employee identified above has been given the training described above. The training provided included examinations and reviews in accordance with applicable regulatory provisions.

TRAINER SIGNATURE

DATE

EMPLOYEE: I certify that I have received the training and testing that is referenced in this document.

EMPLOYEE SIGNATURE

DATE

Petro-Chem

**DOCUMENTATION OF
EMPLOYEE TRAINING**

EMPLOYEE INFORMATION

Employee Name:

Position/Function:

Employment Date:

TRAINER INFORMATION

Trainer Name:

Training Comp. Date:

Co. Name & Address:

Petro-Chem Processing Group of Nortru, LLC - 421 Lycaste, Detroit, MI 48184

DESCRIPTION OF TRAINING

Video/Slides	0.5 - 2.0	HRS
Classroom Handout Review	1.0 - 2.5	HRS
Lecture/Presentation	1.0 - 3.0	HRS
Supervised Hands-On Instruction/Demonstration	0.5 - 1.5	HRS
Written Exam/Performance Evaluation & Review	0.5 - 1.5	HRS
Other: Specified Below	varies	HRS

Narrative Description of Training Provided

8-HR Refresher - 29 CFR 1910.120 (q) & (e)	<input type="checkbox"/>	USDOT HazMat (HM-126F)	<input type="checkbox"/>
Hazard Communication / RI Right-to-Know	<input type="checkbox"/>	USDOT Trans Security Plan	<input type="checkbox"/>
RCRA Training Modules A-M	<input type="checkbox"/>	USDOT Trans Security Awareness	<input type="checkbox"/>
Bloodborne Pathogens Awareness	<input type="checkbox"/>	USDOT Special Permits	<input type="checkbox"/>
PSC/Home Depot BBP	<input type="checkbox"/>	Lab Chemical Hygiene Plan	<input type="checkbox"/>
Federal Uniform Hazardous Waste Manifest	<input type="checkbox"/>	Waste Analysis Plan	<input type="checkbox"/>

TOTAL HOURS: 0.00

CERTIFICATIONS

TRAINER: I certify that the employee identified above has been given the training described above. The training provided included examinations and reviews in accordance with applicable regulatory provisions.

TRAINER SIGNATURE

DATE

EMPLOYEE: I certify that I have received the training and testing that is referenced in this document.

EMPLOYEE SIGNATURE

DATE

Appendix VI

Site Specific Training

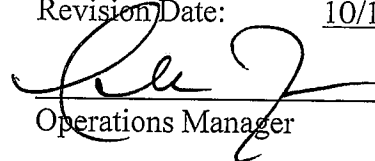
**PSC Environmental Services
STANDARD OPERATING PROCEDURES**

TITLE: Empty Container Disposal

Level: PSC Detroit
Function: Environmental Compliance
Department: Operations

Document Control: PSC-DET-01
Revision Number: 2
Issue Date: September 30, 2009
Revision Date: 10/1/09; 3/24/11

Technical Review, Date
Facility Manager


Operations Manager Date 3/30/11


EH&S Specialist Date 3/29/11

1.0 Purpose:

To define a procedure for training Petro-Chem Processing Group (PCPG) facility personnel regarding the disposal of "empty containers"

2.0 Description:

Any container that previously contained hazardous waste must first be rendered "RCRA empty" prior to shipment for final disposal or recycling. This SOP will apply to all containers ranging in size from 5-gallon pails to 330-gallon totes.

3.0 General:

- 3.1 This SOP applies to all employees who store, process, route, sample, inspect, mark or label waste containers.
- 3.2 All applicable employees will be trained in the requirements of this SOP.
- 3.3 The provisions of this SOP will be strictly adhered to.
- 3.4 The Facility Manger will be responsible for training of key personnel who will be responsible for training their employees.
- 3.5 Prior to beginning any and all safety sensitive tasks, a Job Safety Analysis (JSA) is to be completed per PSC-ESD-JSA Policy_0110.

4.0 Definition:

RCRA Empty Containers – Any container or inner liner removed from a container that has held any hazardous waste is “RCRA empty” if: (1) All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g. pouring, pumping, vacuuming, *and* (2) No more than one inch of residue remains on the bottom of the container *or* no more than 3 percent by weight of the total capacity of the container remains in the container (for containers up to 110 gallons in size) *or* no more than 0.3 percent by weight of the total capacity of the container remains in the container (for containers greater than 110 gallons in size).

5.0 Management of Empty Containers:

Any container that previously contained hazardous waste must first be rendered “RCRA empty” (hereto forth *empty*) prior to shipment for final disposal or recycling. This SOP will apply to all containers ranging in size from 5 gallons (pails) to 330 gallons (totes).

- 5.1 Upon removal of the waste from the waste container (hereto forth *drum*) the drum(s) will be staged in a designated inspection area prior to loading them for shipment. Labels and markings on the drum will be left intact so that any potential residues requiring removal may be properly managed.
- 5.2 Prior to the end of each shift, drums staged in the inspection area will be inspected by the Operations Manager or his/her designee.
- 5.3 The inspector will first verify the drum is empty. If it is not empty, the waste residue will be further removed using conventional means, if possible, until the drum is empty. The residue will be managed the same as the waste from which it was derived. If the residue cannot be further removed to render the drum empty, the entire drum and its contents will be managed as hazardous waste whereby PSC Detroit will be the designated Generator.
- 5.4 Once a drum has been verified empty, all markings shall be obliterated, marked out, painted over, or completely removed, leaving no legible markings. Particular attention must be made to ensure that any markings on the drum having potential to identify PSC or its customers shall be thoroughly removed or rendered illegible. Containers that have not sufficiently cleaned and purged of vapors per the DOT regulations will have DOT hazard warning label left intact for non bulk ($\leq 119\text{g}/882\text{lb}$ capacity) or placards left in tact for bulk ($>119\text{g}/882\text{lb}$ capacity) containers.
- 5.5 Once all identifying markings have been properly managed, the empty drum will be placed on/in the appropriate trailer or roll off box for shipment.
- 5.6 Steel drums will be shipped to a PSC-approved scrap steel recycler or drum re-conditioner. Poly (plastic) drums will be shipped to a PSC-approved plastic recycler or drum re-conditioner.
- 5.7 Drums which contained non-hazardous waste are managed in the same fashion; only those in which the contents can not be adequately removed will be managed as non-hazardous waste whereby PSC Detroit will be the designated Generator.

6.0 Training:

All employees will be trained on this SOP.

7.0 Duties and Responsibilities: The laboratory manager, lab pack supervisor, and shift supervisors will be responsible for supervising the activities of this SOP.

8.0 Acknowledgement:

SOP ACKNOWLEDGEMENT

I have read the attached SOP entitled Empty Container Disposal and understand all portions.

Employee Name (Printed)

Employee Name (Signature)

Date

**PSC Environmental Services
STANDARD OPERATING PROCEDURES**

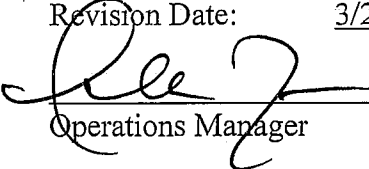
TITLE: Tanker Load/Unload

Level: PSC Detroit
Function: Environmental Compliance
Department: Operations

Document Control: PSC-DET-02
Revision Number: 1
Issue Date: October 3, 2009
Revision Date: 3/24/11

Technical Review,
Facility Manager

Date


Operations Manager

3/30/11
Date


EH&S Specialist

3/29/11
Date

1.0 Purpose:

Bulk waste liquids are shipped from the facility and received by the facility in tanker trucks. The material is loaded or unloaded by means of pumps, hoses, and associated piping and valves. This procedure identifies the steps to unload and load waste tank trailers.

2.0 Description:

This SOP will set out the list of steps necessary to load and unload all bulk tanker shipments at the facility. It will also describe the necessary equipment for performing these functions.

3.0 General:

- 3.1 This SOP applies to all employees who load, unload, process, and sample tanker trucks.
- 3.2 All applicable employees will be trained in the requirements of this SOP.
- 3.3 The provisions of this SOP will be strictly adhered to.
- 3.4 All loading and unloading operations will be performed by a qualified individual in attendance at all times. This person is considered qualified only after the have been fully trained and proven capable of performing this task.
- 3.5 The individual will be considered to be in attendance if throughout the process they are awake and have an unobstructed view of the tanker and are within 25 feet.
- 3.6 The Operations Manger will be responsible for training of key personnel who will be responsible for training their employees:
- 3.7 Prior to beginning any and all safety sensitive tasks, a Job Safety Analysis (JSA) is to be completed per PSC-ESD-JSA Policy_0110.

4.0 Definition:

Bulk/tanker truck – a motor vehicle designed to carry liquefied loads, dry bulk cargo or gases on roads. The largest such vehicles are similar to railroad tank cars which are also designed to carry liquefied loads. Many variants exist due to the wide variety of liquids that can be transported. Tank trucks tend to be large; they may be insulated or non-insulated; pressurized or non-pressurized; and designed for single or multiple loads (often by means of internal

5.0 Required Safety Equipment:

Required safety equipment includes rubber gloves, hard hat, safety glasses, steel toe boots, face shield, work uniform and apron as a minimum. Respirators fitted with organic vapor/acid gas cartridges will also be worn when on top of the tanker when dome lid is open.

6.0 Unloading waste Tankers:

Before beginning any unloading operations, verify there is room in the storage tank(s) to accept the quantity of material to be unloaded. Do not begin unloading until the lab has released the material for processing. Connect the ground cable to the frame of the tanker before any unloading begins. This connection must be made to prevent static discharge between hoses and tanker.

- 6.1 Confirm with the driver that the hand brake on the tractor is securely set.
- 6.2 Secure tanker with chocks and jack (if needed).
- 6.3 Connect the ground cable to the frame of the tanker. This connection must be made to prevent static discharge between hoses and tanker. Ensure vapor balance hose is connected to top of tanker. Open the vapor collection line.
- 6.4 The vehicle's engine must be shut off unless it is to be used for the operation of the pump.
- 6.5 Slowly open the vent valve near the dome to release any tank pressure.
- 6.6 Slowly unscrew dome locks and open dome.
- 6.7 Inspect the tanker bottom valve and connections. Verify the valve is fully closed and undamaged. Make sure the hydraulic pressure is released on the safety valve.
- 6.8 Place a catch tray or bucket under the valve to contain any leakage.
- 6.9 Slowly remove cap from tanker valve. If leakage shows upon the actual removal, allow a careful controlled release of accumulated liquid into catch container. If the leak continues secure cap back on valve, recheck valve to ensure it is fully closed and try to remove cap again. If seal is not gained do not unload tanker from the bottom and notify supervisor.
- 6.10 Slowly open bleed valve located at the end of the hose to relieve any pressure. Close valve before disconnecting hose from the storage rack.
- 6.11 Disconnect hose from its storage rack and connect to tanker. Make sure cams are fully closed and secure with cam strap.
- 6.12 Slowly open hydraulic valve on the side of tanker.
- 6.13 Slowly open tanker valve to flood unloading line.

- 6.14 Open all necessary lines leading to pump and to desired tank(s). Start pump and watch tank gauge to see if material is transferring. If material is not transferring stop the pump and recheck valve setup.
- 6.15 When tankers is empty, close hand valve, and relieve the pressure from the hydraulic valve.
- 6.16 With unloading pump continuing to run, slowly disconnect the hose from the hand valve. Air should be sucked into the hose to remove contents of hose so it can be disconnected from tanker.
- 6.17 If air is pulling into the hose, remove hose and connect back to storage rack.
- 6.18 Shut off pump, remove all hoses and close all valves that were opened during the unloading process. Close dome lid and secure locks, close vent valve, disconnect grounding cable. Remove catch tray and clean up any material left behind.
- 6.19 Pour catch tray into SAA drum located by pump station.

7.0 Loading Waste Tankers:

Before beginning any loading operations, visually verify that the tanker compartment(s) to be loaded is empty. If a heel remains in the compartment, it will need to be verified with Facility Management that it is OK to load on top of the heel. Connect the ground cable to the frame of the tanker before any draining, flushing, or loading begins. This connection must be made to prevent static discharge between hoses and tanker.

- 7.1 Shut off pump and close all valves that were opened during the unloading process. Close dome lid and secure locks, close vent valve, disconnect grounding cable.
- 7.2 Confirm with driver that the hand brake on the tractor is securely set.
- 7.3 Secure tanker with chock and jack (if needed). The vehicles engine must be shut off unless it is to be used for the operation of the pump.
- 7.4 Place a catch tray or bucket under the valve to contain any leakage.
- 7.5 Connect hose to tanker. Make sure cams are fully closed and secure with cam strap. Ensure vapor balance hose is connected to top of tanker. Open the vapor collection line.
- 7.6 Open all required valves, including tanker hand valve and pump up hydraulic pressure to safety valve, and start loading pump.
- 7.7 Verify that material is flowing into compartment.
- 7.8 When material in compartment reaches the half way point, stop pump, close required valves, collect a sample and submit for verification.
- 7.9 Once sample has been verified, continue loading procedure.
- 7.10 When tanker is full, stop pump, close required valves, including tanker hand valve, open return valves, and start pump to reverse flow and remove excess product from loading hose.
- 7.11 Disconnect all hoses from tanker and let pump suck air into loading hose. Close appropriate valves and turn off pump.
- 7.12 Release hydraulic pressure on safety valve, and place dust cap on hand valve.
- 7.13 Collect final sample.
- 7.14 Close dome lid and secure lock down bolts. Close vent valve.
- 7.15 Close all valves from storage tank.
- 7.16 Submit sample for analysis.

8.0 Duties and Responsibilities: The Operations Manager, Laboratory Manager, and any additional designee will be responsible for supervising the activities of this SOP.

9.0 Acknowledgement:

SOP ACKNOWLEDGEMENT

I have read the attached SOP entitled Tanker Load/Unload and understand all portions.

Employee Name (Printed)

Employee Name (Signature)

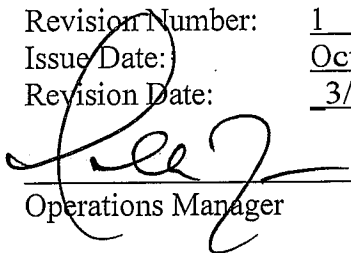
Date

**PSC Environmental Services
STANDARD OPERATING PROCEDURES**

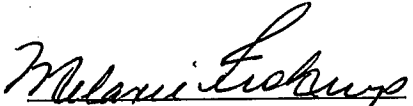
TITLE: Labpack Depack Repack
Level: PSC Detroit
Function: Environmental Compliance
Department: Operations

Document Control: PSC-DET-03
Revision Number: 1
Issue Date: October 3, 2009
Revision Date: 3/24/11

Technical Review, Date
Facility Manager



Operations Manager Date 3/30/11



EH&S Specialist Date 3/29/11

1.0 Purpose:

PSC Detroit receives containerized waste (including lab packs) from various customers and brokers as well as material packed by our own Lab Pack group with the purpose of processing and consolidating for volume reduction.

The purpose of this procedure is to minimize the volume of lab packs shipped out of our facility to final disposal or to other PSC TSDF and to maximize efficiency by executing safe and compatible consolidation processes.

2.0 Description:

This SOP applies to containerized waste and lab packs designated for repacking or consolidation.

3.0 General:

- 3.1 This SOP applies to all employees who pack, depack, repack, consolidate or pour up containers.
- 3.2 All applicable employees will be trained in the requirements of this SOP.
- 3.3 The provisions of this SOP will be strictly adhered to.
- 3.4 Prior to beginning any and all safety sensitive tasks, a Job Safety Analysis (JSA) is to be completed per PSC-ESD-JSA Policy_0110.
- 3.5 The Operations Manger will be responsible for training of key personnel who will be responsible for training their employees.

4.0 Definition:

Lab Pack – Various containers segregated by DOT Hazard Classes, packed and shipped in UN approved containers in accordance with all DOT and EPA regulations and accompanied by packing slips that list each container.

5.0 Required Safety Equipment:

Hard hat, safety glasses, respirator with acid/organic vapor cartridges, steel-toed shoes or neoprene boots, solvex (green) gloves, tyvek or apron (as needed) pH paper, Oxidizer paper, Disposable plastic cups and pipettes.

6.0 Depack/Repack Procedure:

- 6.1 Bring the drums from the storage area to the drum yard unpacking area.
- 6.2 Carefully read the hazardous waste label on the side of the container. For lab packs, remove the packing slip from the side of the container and review to determine if the items listed are suitable for consolidation or repackaging.
- 6.3 List container numbers for containers to be depacked on process form.
- 6.4 Submit process form for review and "A" number generation.
- 6.5 Prior to placing material in container, label with appropriate storage label and initial.
- 6.6 Remove all containers from the drum and perform a compatibility (bucket) test on all liquids before consolidating. Any items that are not compatible with each other should undergo further analysis to determine the proper treatment method.
- 6.7 Further analysis includes pH, oxidizer test, water compatibility, chlorine test, etc.
- 6.8 A bucket test should be done in 5-gallon pails before being consolidated in a larger container (I.e. 30 or 55-gallon drum, tank, or rolloff bin.)
- 6.9 In the consolidation pail, be sure to include some material from the larger drum that the pail will be transferred to. This is to make sure that all containers are compatible with each other as well as with the material already in the consolidation drum/tank/bin.
- 6.10 Look for the following reactions when testing compatibility:
 - material generates heat (exothermic reaction)
 - material solidifies, polymerizes or creates a greater percentage of sludge
 - materials generate visible fumes or heavy smoke
 - any other visual abnormality
- 6.11 When pouring your pail into a consolidation drum, ensure that the bungs are open so that if the mixture generates vapors or gases they can be released in a safe manner without jeopardizing the integrity of the container.
- 6.12 Once a consolidation drum has been filled, obtain a sample using a coliwasa and an 8 oz sample jar and submit it to the lab for waste analysis along with a copy of the process form. The lab will release the container for the proper disposal category.
- 6.13 The following are the labpack hazard classes that will be utilized in the consolidation process:

- **Non-RCRA Lab Packs**
Solids: Bulk for landfill

Oils: Bulk for recycling
Liquids: Bulk for transshipment

- **RCRA Metals (Class 9, D004-D011)**
Solids: Bulk for stabilization
Liquids: Bulk for transshipment
Note: Do not place any organics in these drums

- **Flammable (4.1) and Toxic (6.1) solids**
Solids: Consolidate for incineration

- **Flammable (3) Liquids and Paints**
Liquids: Bulk for fuel blending
Solids (remaining after bulking): Consolidate for incineration

- **Oxidizers (5.1)**
Repackage for outside disposal under incineration or treatment profile per generator's request. Bleach compounds and weak oxidizers may be consolidated into a 55 gallon poly drum following the proper compatibility procedures.

- **Amines**
Consolidate or repackage for incineration into a 55 gallon metal drums.
Place lid and ring on drum, but do not over tighten.

- **Corrosives (8)**
Repackage like material for outside disposal under incineration or treatment profile per generator's request. Weak compounds may be consolidated into a 55 gallon poly drum following the proper compatibility procedures.

7.0 Duties and Responsibilities: The Operations Manager and any additional designee will be responsible for supervising the activities of this SOP.

8.0 Acknowledgement:

SOP ACKNOWLEDGEMENT

I have read the attached SOP entitled Lab Pack Depack/Repack and understand all portions.

Employee Name (Printed)

Employee Name (Signature)

Date

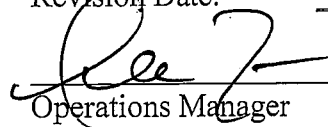
**PSC Environmental Services
STANDARD OPERATING PROCEDURES**

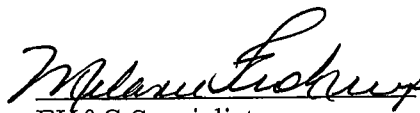
TITLE: Forklift Operation

Level: PSC Detroit
Function: Environmental Compliance
Department: Operations

Document Control: PSC-DET-04
Revision Number: 1
Issue Date: October 3, 2009
Revision Date: 3/24/11

Technical Review, Date
Facility Manager


Operations Manager Date 3/30/11


EH&S Specialist Date 3/29/11

1.0 Purpose:

Provide instruction to ensure employees have the skills to operate a forklift in a safe and compliant manner.

2.0 Description:

This SOP will set out the list of steps necessary to operate a forklift. All employees will receive fork lift training and certification prior to operating a forklift.

3.0 General:

- 3.1 This SOP applies to all employees who operate a forklift.
- 3.2 All applicable employees will be trained in the requirements of this SOP.
- 3.3 The provisions of this SOP will be strictly adhered to.
- 3.4 All training will be performed by a qualified individual.
- 3.5 This person is considered qualified only after the have been fully trained and proven capable of performing this task.
- 3.6 Prior to beginning any and all safety sensitive tasks, a Job Safety Analysis (JSA) is to be completed per PSC-ESD-JSA Policy_0110.
- 3.7 The Operations Manger will be responsible for the training of key personnel who will be responsible for training their employees.

4.0 Definition:

Forklift – a powered industrial truck used to lift and transport materials.

5.0 Required Safety Equipment:

Proper PPE must be worn at all times. PPE includes: hard hat, safety glasses, steel toed boots and uniform at a minimum. Respirators fitted with organic vapor/acid gas cartridges should also be readily available. If the forklift is equipped with a seat belt, it must be worn.

6.0 Operating a Forklift:

Before operating a forklift, a mandatory pre-check must be performed and documented.

- 6.1 Observe safe speed limit (10 mph in plant) at all times and sound horn at a safe distance from blind corners and doorways.
- 6.2 Be aware of fork position at all times, particularly in relation to engagement or disengagement of the load. Verify the weight of the load to be lifted is within the weight rating of the forklift.
- 6.3 Ensure that the lowest portion of the fork-load combination is maintained 6" from the ground during forklift movement.
- 6.4 Ensure unobstructed view in direction of forklift travel. If load is double stacked or view is obstructed, forklift must be driven in reverse.
- 6.5 Verify that placement of load is in accordance with stacking and storage guidelines.
- 6.6 Notify management and maintenance of any unsatisfactory forklift condition.
- 6.7 When forklift is not in use, forks should be flush with the ground, equipment turned off and parking brake engaged.
- 6.8 Employees will be re-certified every three (3) years.

7.0 Duties and Responsibilities: The Operations Manager and any additional designee will be responsible for supervising the activities of this SOP.

8.0 Acknowledgement:

SOP ACKNOWLEDGEMENT

I have read the attached SOP entitled Forklift Operations and understand all portions.

Employee Name (Printed)

Employee Name (Signature)

Date

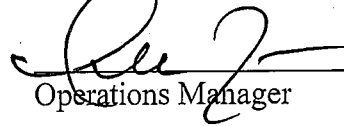
**PSC Environmental Services
STANDARD OPERATING PROCEDURES**

TITLE: Switcher Operations

Level: PSC Detroit
Function: Environmental Compliance
Department: Operations

Document Control: PSC-DET-05
Revision Number: 1
Issue Date: October 3, 2009
Revision Date: 3/24/11

Technical Review, Date
Facility Manager


Operations Manager Date 3/30/11


EH&S Specialist Date 3/29/11

1.0 Purpose:

Provide instruction to ensure employees have the skills necessary to safely operate a switcher truck.

2.0 Description:

This SOP will set out the list of steps necessary to operate a switcher truck. Employees are not to operate the switcher truck until trained on this SOP and they have met all DOT requirements for operating said vehicle.

3.0 General:

- 3.1 This SOP applies to all employees who operate a switcher.
- 3.2 All applicable employees will be trained in the requirements of this SOP.
- 3.3 The provisions of this SOP will be strictly adhered to.
- 3.4 All training will be performed by a qualified individual.
- 3.5 This person is considered qualified only after they have been fully trained and proven capable of performing this task.
- 3.6 Prior to beginning any and all safety sensitive tasks, a Job Safety Analysis (JSA) is to be completed per PSC-ESD-JSA Policy_0110.
- 3.7 Employees are not to operate the switcher while wearing contaminated PPE.
- 3.8 Vehicle is to be operated on company property only.

4.0 Definition:

Switcher –

5.0 Required Safety Equipment:

If the switcher is equipped with a seat belt, it must be worn.

6.0 Operating a Switcher:

Before operating a switcher, a mandatory pre-check must be performed.

6.1 Operator must familiarize themselves with instrumentation and controls of vehicle prior to operation. Instrumentation consists of the following:

- Fuel gauge
- Rear flood light switch; lights while backing and hook ups
- Water temperature gauge
- Oil pressure gauge
- Voltmeter; indicates status of charging system
- Total hour meter; verify if regular servicing has been performed
- Tractor air supply; to release brakes
- Headlight switch
- Ignition switch
- Fifth wheel lock disengage; to open jaws on fifth wheel to unlock king pin
- Wiper switch
- Trailer air supply; to release brakes on trailer
- Air pressure gauge
- Shift lever; forward/reverse
- Hydraulic lift lever; to lift trailer up and down

6.2 Operator must familiarize themselves with the fluids required for this equipment. Fluids include:

- Engine oil
- Transmission fluid
- Differential gear grease
- Hydraulic oil
- Unleaded gasoline
- Diesel

6.3 After pre-check, start engine by turning ignition key to right until engine starts.

6.4 After short warm up period, release parking brake-push yellow knob on right hand corner of dash board.

6.5 With foot on brake, push shift lever forward or backward, depending on desired direction.

6.6 Let off brake and slowly push on gas pedal.

6.7 Position switcher directly in front of the trailer to be hooked.

6.8 Back -up slowly, using rear flood light if necessary. When fifth wheel is touching the trailer, lower the fifth wheel.

6.9 Lift trailer slightly as you driver under it so not to damage landing gear.

6.10 Back up until you hear the "click" of the king pin locking in.

6.11 Pull forward gently to make sure the trailer is properly locked.

6.12 Lift the trailer off the ground using the hydraulic ram.

- 6.13 Set parking brake.
- 6.14 Hook air supply to trailer:
 - Red line to red glad hand
 - Blue line to blue glad hand
 - Pig tail (electric line) to middle hook up.
- 6.15 Get in cab and release parking brake.
- 6.16 Put truck in forward to proceed.
- 6.17 Unhooking the trailer is the reverse of the hook up procedure, except that when finished unhooking the airlines, the fifth wheel lock should be pushed as the switcher slowly pulls forward to release the king pin.

7.0 Duties and Responsibilities: The Operations Manager and any additional designee will be responsible for supervising the activities of this SOP.

8.0 Acknowledgement:

SOP ACKNOWLEDGEMENT

I have read the attached SOP entitled Switcher Operations and understand all portions.

Employee Name (Printed)

Employee Name (Signature)

Date

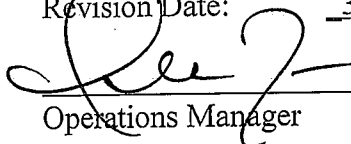
**PSC Environmental Services
STANDARD OPERATING PROCEDURES**

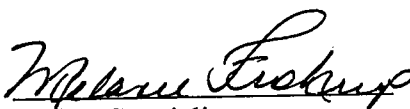
TITLE: Container Pump Up

Level: PSC Detroit
Function: Environmental Compliance
Department: Operations

Document Control: PSC-DET-06
Revision Number: 1
Issue Date: October 3, 2009
Revision Date: 3/24/11

Technical Review, Date
Facility Manager

 3/30/11
Operations Manager Date

 3/29/11
EH&S Specialist Date

1.0 Purpose:

Provide instruction to ensure employees have the knowledge to pump containers in a safe and compliant manner.

2.0 Description:

This SOP will set out the list of necessary steps to pump-up containers. Employees are not to perform this task until trained on this SOP.

3.0 General:

- 3.1 This SOP applies to all employees who pump containers.
- 3.2 All applicable employees will be trained in the requirements of this SOP.
- 3.3 The provisions of this SOP will be strictly adhered to.
- 3.4 All training will be performed by a qualified individual.
- 3.5 This person is considered qualified only after they have been fully trained and proven capable of performing this task.
- 3.6 Employees are expected to maintain proper housekeeping at all times.
- 3.7 Prior to beginning any and all safety sensitive tasks, a Job Safety Analysis (JSA) is to be completed per PSC-ESD-JSA Policy_0110.
- 3.8 The Operations Manger will be responsible for training employees.

4.0 Required Safety Equipment:

Hard hat, safety glasses, respirator with acid/organic vapor cartridges, steel-toed shoes or neoprene boots, solvex (green) gloves, tyvek or apron as needed.

5.0 Pumping Containers:

Before pumping, verify that all containers have the appropriate fuel blending process codes listed on the label and that there is sufficient space in the tank to accommodate material being pumped.

- 5.1 Stage containers to be pumped in proper processing location.
- 5.2 Ensure that proper ground has been established. Attach ground strap to a conductive metal part of the container to be pumped. Check grounding at all connections by physically stressing the connections.
- 5.3 Connect hoses to stinger, pump and designated tank. Ensure that all fittings are secured.
- 5.4 Prior to pumping, open and/or close all necessary valves, ensuring proper valves are open for designated tank.
- 5.5 Write the container numbers on the process form associated with the container being generated during the consolidation.
- 5.6 Submit process form to Shipping and Receiving for review. Receiving will verify that the containers can be consolidated, date and sign the process form.
- 5.7 Once drums have been cleared by Shipping and Receiving, the consolidation procedure can begin.
- 5.8 Place hazardous waste label on the new consolidation container.
- 5.9 Conduct a bucket test for compatibility prior to pumping containers.
- 5.10 Turn on pump, remove the bung/lid of each container, insert the stinger into the liquid portion of the container and allow liquid to flow into tank.
- 5.11 Do not leave containers with material in them open for more than 15 minutes, unless material is physically being transferred to another container.
- 5.12 All containers must be RCRA empty (any and all liquid/sludge must be removed).
- 5.13 Containers must be RCRA empty prior to being placed on the empty drum trailer. If this is not feasible, the containers will be managed and disposed of based on the material they previously contained.
- 5.14 When finished, clear all hoses and pipelines of waste. Secure all valves and release the pressure in the discharge hose by opening the bleeder valve of the pump. Discharge any material into a bucket to be disposed of.
- 5.15 Disconnect all hoses from the pump and tank, utilize drain pans if necessary.
- 5.16 Drain, cap and plug all hoses and pump.
- 5.17 Properly store all equipment.
- 5.18 Record new tank measurement.
- 5.19 Make sure all remaining waste containers are properly closed and labeled.
- 5.20 All empty containers are to managed in accordance with the SOP-PSC-DET-01 (Empty Container SOP)

6.0 Duties and Responsibilities: The Operations Manager and any additional designee will be responsible for supervising the activities of this SOP.

7.0 Acknowledgement:

SOP ACKNOWLEDGEMENT

I have read the attached SOP entitled Container Pump-up and understand all portions.

Employee Name (Printed)

Employee Name (Signature)

Date

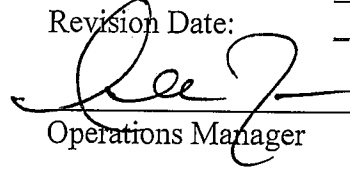
**PSC Environmental Services
STANDARD OPERATING PROCEDURES**

TITLE: Check In Procedure


Level: PSC Detroit
Function: Environmental Compliance
Department: Operations

Document Control: PSC-DET-07
Revision Number: 1
Issue Date: October 3, 2009
Revision Date: 3/24/11

Technical Review, Date
Facility Manager



Operations Manager Date 3/30/11



EH&S Specialist Date 3/29/11

1.0 Purpose:

Provide instruction to ensure employees have the knowledge to check-in containers in a safe and compliant manner.

2.0 Description:

This SOP will set out the list of necessary steps to properly check-in containers. Employees are not to perform this task until trained on this SOP.

3.0 General:

- 3.1 This SOP applies to all employees who check-in containers.
- 3.2 All applicable employees will be trained in the requirements of this SOP.
- 3.3 The provisions of this SOP will be strictly adhered to.
- 3.4 All training will be performed by a qualified individual.
- 3.5 This person is considered qualified only after they have been fully trained and proven capable of performing this task.
- 3.6 Employees are expected to maintain proper housekeeping at all times.
- 3.7 Prior to beginning any and all safety sensitive tasks, a Job Safety Analysis (JSA) is to be completed per PSC-ESD-JSA Policy_0110.
- 3.8 The Operations Manager will be responsible for training of key personnel who will be responsible for training their employees.

4.0 Required Safety Equipment:

Hard hat, safety glasses, respirator with acid/organic vapor cartridges, steel-toed shoes or neoprene boots, solvex (green) gloves, tyvek or apron as needed.

5.0 Container Check-in:

Before checking in containers, make sure receiving has provided the appropriate check-in documents in the package.

- 5.1 Verify the total piece count against what is listed on the manifests.
- 5.2 Match each container up with its corresponding manifest line item and write the waste receipt and container number on the container.
- 5.3 If piece count or labeling does not match up, contact Shipping and Receiving, who will notify Customer Service. All outside haulers are to be held until these issues are resolved.
- 5.4 Sample containers in accordance with SOP-PSC-DET-12.
- 5.5 Make notations on the receiving paperwork to help verify the waste. This includes: weight, physical description, % solids, % sludge, odor, etc.
- 5.6 Initial each container you have worked on.
- 5.7 Close all containers to manufacturer's closure specs.
- 5.8 Submit samples to laboratory for analysis.
- 5.9 Once containers have been cleared by the laboratory, Shipping and Receiving will assign the final process code and print barcodes.
- 5.10 Label each drum with the appropriate barcode label and stage for shipment or storage.

- 6.0 **Duties and Responsibilities:** The Operations Manager and any additional designee will be responsible for supervising the activities of this SOP.

7.0 Acknowledgement:

SOP ACKNOWLEDGEMENT

I have read the attached SOP entitled Check-In and understand all portions.

Employee Name (Printed)

Employee Name (Signature)

Date

**PSC Environmental Services
STANDARD OPERATING PROCEDURES**

TITLE: Tanker Sampling

Level: PSC Detroit
Function: Environmental Compliance
Department: Operations

Document Control: PSC-DET-09
Revision Number: 1
Issue Date: October 3, 2009
Revision Date: 3/24/11

Technical Review, Date
Facility Manager

Lee J
Operations Manager Date 3/30/11

Melanie Fustup 3/29/11
EH&S Specialist Date

1.0 Purpose:

Bulk waste liquids are shipped from the facility and received by the facility in tanker trucks. This procedure identifies the steps to properly collect a sample of these tanker trucks.

2.0 Description:

This SOP will set out the list of steps necessary to sample all bulk tanker shipments at the facility. It will also describe the necessary equipment for performing these functions.

3.0 General:

- 3.1 This SOP applies to all employees who sample tanker trucks.
- 3.2 All applicable employees will be trained in the requirements of this SOP.
- 3.3 The provisions of this SOP will be strictly adhered to.
- 3.4 All sampling operations will be performed by a qualified individual in attendance at all times.
- 3.5 This person is considered qualified only after they have been fully trained and proven capable of performing this task.
- 3.6 Prior to beginning any and all safety sensitive tasks, a Job Safety Analysis (JSA) is to be completed per PSC-ESD-JSA Policy_0110.
- 3.7 The Operations Manger will be responsible for training of key personnel who will be responsible for training their employees.

4.0 Definition:

Bulk/tanker truck – a motor vehicle designed to carry liquefied loads, dry bulk cargo or gases on roads. The largest such vehicles are similar to railroad tank cars which are also designed to carry liquefied loads. Many variants exist due to the wide variety of liquids that can be transported. Tank trucks tend to be large; they may be insulated or non-insulated; pressurized or non-pressurized; and designed for single or multiple loads.

Sample Bomb – a device attached to a chain that is used to collect a sample of a bulk material.

Coliwasa – (Composite Liquid Waste Sampler) usually a tube with a stainless steel rod down the center and plunger at the end

5.0 Required Safety Equipment:

Required safety equipment includes rubber gloves, hard hat, safety glasses, steel toe boots, face shield, work uniform and apron as a minimum. Respirators fitted with organic vapor/acid gas cartridges will also be worn when on top of the tanker when dome lid is open. Additionally, a 5 gallon pail should be used to carry necessary sampling equipment: cleaning rag, sample jar and lid, marking instrument.

6.0 Sampling Waste Tankers Method 1 (Sample Bomb)

- 6.1 Ensure that tanker is chocked prior to performing this task.
- 6.2 With rubber gloves off (tucked under arm or through tool belt) climb the ladder to the dome of trailer. Bring required sampling materials.
- 6.3 Secure fall protection.
- 6.4 Relieve pressure or vacuum of vessel via pressure relief valve. If unable to locate decompression valve, do not attempt to open tanker dome. Immediately contact supervisor for further instruction.
- 6.5 Loosen the dome by turning alternate dome toggle bolts counter clock wise and rotating them away from the dome bolt bracket. Complete loosening of the remaining toggle bolts and rotating them away from the dome toggle bolt brackets. Slowly lift up on the dome. Swing open dome and gently lay it on the trailer body.
- 6.6 Put on rubber sampling gloves.
- 6.7 Lower the sample bomb with sash chain to the bottom of the trailer (watch for slack in the chain).
- 6.8 Raise the sample bomb swiftly, twelve to eighteen inches, and allow gravity to slowly lower the sample bomb to near its original position. Repeat this step several times. As the sample bomb is swiftly raised, liquid is forced through the top of the bomb, filling the reservoir. An additional lift forces liquid through the cavity of the bomb and out the bottom.
- 6.9 Slowly pull bomb from the tanker and pour liquid from the bomb into a sample jar, filling the jar. Close sample jar.
- 6.10 Use cleaning rag to wipe sample jar, bomb, and gloves.
- 6.11 Remove sampling gloves.

- 6.12 Close and secure domes, wipe off any residue.
- 6.13 Release fall protection.
- 6.14 Climb down ladder with supplies.
- 6.15 Label sample with identifying information and deliver to laboratory.

7.0 Sampling Waste Tankers Method 2 (COLIWASA)

- 7.1 Ensure that tanker is chocked prior to performing this task.
- 7.2 With rubber gloves off (tucked under arm or through tool belt) climb the ladder to the dome of trailer. Bring required sampling materials.
- 7.3 Secure fall protection.
- 7.4 Relieve pressure or vacuum of vessel via pressure relief valve. If unable to locate decompression valve, do not attempt to open tanker dome. Immediately contact supervisor for further instruction.
- 7.5 Loosen the dome by turning alternate dome toggle bolts counter clock wise and rotating them away from the dome bolt bracket. Complete loosening of the remaining toggle bolts and rotating them away from the dome toggle bolt brackets. Slowly lift up on the dome. Swing open dome and gently lay it on the trailer body.
- 7.6 Put on rubber sampling gloves.
- 7.7 Open valve on Coliwasa.
- 7.8 Insert coliwasa through open dome until bottom of the tanker is reached. If the coliwasa does not reach the bottom of the tanker due to a heel, notify supervisor of approximate depth of heel.
- 7.9 After several second, close the ball valve of the coliwasa.
- 7.10 Draw up the coliwasa and place lower end in sample jar opening.
- 7.11 Partially open ball valve to fill sample jar. Close ball valve when sample jar is full. Close sample jar.
- 7.12 Use cleaning rag to wipe sample jar, coliwasa and gloves.
- 7.13 Remove sampling gloves.
- 7.14 Close and secure domes, wipe off any residue.
- 7.15 Release fall protection.
- 7.16 Climb down ladder with supplies.
- 7.17 Label sample with identifying information and deliver to laboratory.

8.0 **Duties and Responsibilities:** The Operations Manager and any additional designee will be responsible for supervising the activities of this SOP.

9.0 Acknowledgement:

SOP ACKNOWLEDGEMENT

I have read the attached SOP entitled Tanker Sampling and understand all portions.

Employee Name (Printed)

Employee Name (Signature)

Date

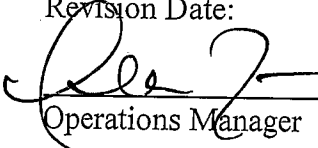
PSC Environmental Services
STANDARD OPERATING PROCEDURES

TITLE: Hazardous Debris Consolidation
Level: PSC Detroit
Function: Environmental Compliance
Department: Operations

Document Control: PSC-DET-10
Revision Number: 1
Issue Date: October 13, 2009
Revision Date: 3/24/11

Technical Review,
Facility Manager

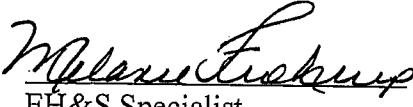
Date



Operations Manager

3/30/11

Date


3/29/11

EH&S Specialist

Date

1.0 Purpose:

The purpose of this procedure is to minimize the volume of containers shipped out of our facility and to maximize efficiency by executing safe and compatible consolidation processes.

2.0 Description:

This SOP applies to containerized waste and any other type of waste that that has been designated for consolidation.

3.0 General:

- 3.1** This SOP applies to all employees who depack or consolidate containers.
- 3.2** All applicable employees will be trained in the requirements of this SOP.
- 3.3** The provisions of this SOP will be strictly adhered to.
- 3.4** Prior to beginning any and all safety sensitive tasks, a Job Safety Analysis (JSA) is to be completed per PSC-ESD-JSA Policy_0110.
- 3.5**
- 3.6** The Operations Manger will be responsible for training of key personnel who will be responsible for training their employees.

4.0 Definition:

Roll off – Roll-Off containers have a rectangular footprint typically determined by the size of typical trucks. Roll off container sizes are determined by the amount of cubic yards of debris they contain.

Hazardous Debris – Dumpable material such as PPE, filters, wipes, rags, wood, etc. that

has been contaminated with hazardous waste.

5.0 Required Safety Equipment:

Hard hat, safety glasses, dust mask (upgraded to respirator with acid/organic vapor cartridges if needed), steel-toed boots, apron and chemical resistant gloves. Other equipment should include: Roll off box, forklift.

6.0 Consolidation Procedure:

Equipment required for this procedure should include: Roll-off box, forklift, liners, shovels, floor dry, caulk and appropriate closure materials.

- 6.1 Prepare roll-off by ensuring that it is sealed and lined.
- 6.2 Bring the drums from the storage area to the consolidation staging area.
- 6.3 Carefully read the barcode label on the side of the container, noting the process code. If the process code is anything other than INC13, INC16, or INC17, verify with supervisor that the material is compatible.
- 6.4 Write the container numbers on the process form associated with the roll off box that is being used for consolidation.
- 6.5 Submit process form to Shipping and Receiving for review. Receiving will verify that the containers can be consolidated, date and sign the process form.
- 6.6 Once drums have been cleared by Shipping and Receiving, the consolidation procedure can begin.
- 6.7 Place hazardous waste label on the roll off.
- 6.8 Open containers in the staging area, verifying contents.
- 6.9 Forklift operator will verify contents and pick up the drums to be dumped.
- 6.10 Forklift operator will dump containers into roll off.
- 6.11 Empty containers should be placed in the appropriate location for verification.
- 6.12 Repeat steps 6 through 11 until box is full, periodically packing material in the box to maximize space.
- 6.13 When consolidation is complete, close roll off to DOT closure specs in preparation for shipment.

- 7.0 Duties and Responsibilities:** The Operations Manager and any additional designee will be responsible for supervising the activities of this SOP.

8.0 Acknowledgement:

SOP ACKNOWLEDGEMENT

I have read the attached SOP entitled Hazardous Debris Consolidation and understand all portions.

Employee Name (Printed)

Employee Name (Signature)

Date

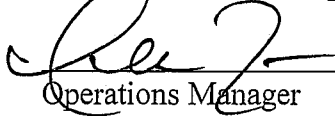
**PSC Environmental Services
STANDARD OPERATING PROCEDURES**


TITLE: Container Sampling

Level: PSC Detroit
Function: Environmental Compliance
Department: Operations

Document Control: PSC-DET-12
Revision Number: 1
Issue Date: July 29, 2010
Revision Date: 3/24/11

Technical Review, Date
Facility Manager


Operations Manager Date 3/30/11


EH&S Specialist Date 3/29/11

1.0 Purpose:

Waste liquids and solids are shipped from the facility and received by the facility in various sized containers. This procedure identifies the steps to properly collect a sample of these containers.

2.0 Description:

This SOP will set out the list of steps necessary to sample container shipments at the facility. It will also describe the necessary equipment for performing these functions.

3.0 General:

- 3.1 This SOP applies to all employees who sample containers.
- 3.2 All applicable employees will be trained in the requirements of this SOP.
- 3.3 The provisions of this SOP will be strictly adhered to.
- 3.4 All sampling operations will be performed by a qualified individual in attendance at all times.
- 3.5 This person is considered qualified only after they have been fully trained and proven capable of performing this task.
- 3.6 Prior to beginning any and all safety sensitive tasks, a Job Safety Analysis (JSA) is to be completed per PSC-ESD-JSA Policy_0110.
- 3.7 The Operations Manager will be responsible for training of key personnel who will be responsible for training their employees.

4.0 Definition:

Sample Stick/Drum Thief- PVC tube

5.0 Required Safety Equipment:

Required safety equipment includes rubber gloves, hard hat, safety glasses, steel toe boots, face shield, work uniform and apron as a minimum. Respirators fitted with organic vapor/acid gas cartridges will also be worn when the containers are open. Additionally, operators should have the necessary sampling equipment: sample stick, scoop, cleaning rag, sample jar and lid, marking instrument.

6.0 Sampling Waste Containers

- 6.1** Adorn the appropriate safety equipment prior to opening or inspecting a container.
- 6.2** Inspect the container for any integrity issues, including outside damage or leakage. Note any signs that a container is pressurized. If pressurization is suspected, Do Not attempt to open or release, contact your supervisor for instructions on how to proceed.
- 6.3** Open the desired containers and visually inspect for irregularities such as: syringes, medical waste, metallic powder, bubbling, smoking or pungent odors. Irregularities should be reported to your Supervisor before proceeding with the sampling process.
- 6.4** Verify that the material in the container corresponds to the receiving paperwork, note any inconsistencies and provide the initial process code (based on visual inspection only)
- 6.5** Extract a sample for lab analysis and verification.
 - 6.5.1** For liquids/sludges- use a clean sample stick to draw an equal portion from each container to be represented in the 10% composite and place it in an 8 oz sample jar.
 - 6.5.2** For solid material- use the grab method to obtain a representative sample or chip off a sample sized piece with available tools.
 - 6.5.3** Loosepacks/Labpacks-verify inner containers correspond to receiving paperwork.
- 6.6** If it is determined that non-conforming material is present at any point in this process, contact your Supervisor immediately for guidance on how to proceed.
- 6.7** Upon completion of sampling, deliver samples and corresponding paperwork to laboratory for analysis.

7.0 Duties and Responsibilities: The Operations Manager and any additional designee will be responsible for supervising the activities of this SOP.

8.0 Acknowledgement:

SOP ACKNOWLEDGEMENT

I have read the attached SOP entitled Container Sampling and understand all portions.

Employee Name (Printed)

Employee Name (Signature)

Date

Section 7

Closure & Postclosure Plan (A11 & A12)

**FORM EQP 5111 ATTACHMENT TEMPLATE A11
CLOSURE AND POSTCLOSURE CARE PLANS**

The administrative rules promulgated pursuant to Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, (Act 451), R 299.9613 and Title 40 of the Code of Federal Regulations (CFR), Part 264, Subpart G, establishes requirements for the closure and, if necessary, postclosure care of hazardous waste management facilities. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003. This license application template addresses requirements for the proper closure and, if necessary, postclosure care of the hazardous waste management units and the hazardous waste management facility for the Petro-Chem facility located in Detroit, Michigan. The information provided in this template was used to prepare the closure and postclosure care cost estimate provided in Template A12, "Closure and Postclosure Care Cost Estimates."

Samples collected by the facility for waste characterization and environmental monitoring during closure and postclosure care activities will be collected, transported, analyzed, stored, and disposed by trained and qualified individuals in accordance with the QA/QC Plan. The QA/QC Plan includes written procedures outlined in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, Third Edition, Chapter 1 (November 1986), and its Updates.

- A11.A CLOSURE PLAN
 - A11.A.1 Closure Performance Standard
 - A11.A.2 Unit-Specific Information
 - Table A11.A.1 Hazardous Waste Management Unit Information
 - A11.A.3 Schedule of Final Facility Closure
 - A11.A.4 Notification and Time Allowed for Closure
 - A11.A.4(a) Extensions for Closure Time
 - A11.A.5 Unit-Specific Closure Procedures
 - A11.A.5(a) Closure of Container Storage Areas
 - A11.A.5(b) Closure of Tank Systems
 - A11.A.5(c) Closure of Surface Impoundments
 - A11.A.5(d) Closure of Waste Piles
 - A11.5.A(e) Closure of Landfills
 - A11.5.A(f) Closure of Incinerators
 - A11.5.A(g) Closure of Miscellaneous Units
 - A11.5.A(h) Closure of Boilers and Industrial Furnaces
 - A11.A.5(i) Other Closure Activities
 - A11.A.6 Certification of Closure
 - A11.A.7 Postclosure Notices Filed
- A11.B POSTCLOSURE CARE PLAN
 - A11.B.1 Applicability
 - A11.B.2 Postclosure Care Objectives
 - A11.B.3 Postclosure Care Period Point of Contact
 - A11.B.4 Postclosure Care Activities
 - Table A11.B.1 Postclosure Monitoring and Maintenance
 - A11.B.5 Postclosure Care Plan Amendment
 - A11.B.6 Certification of Postclosure

A11.A CLOSURE PLAN

A11.A.1 Closure Performance Standard
[R 299.9613 and 40 CFR §264.111]

This Closure Plan is designed to ensure that the facility will be closed in a manner that achieves the following:

- a. Minimizes the need for further maintenance; and
- b. Controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, postclosure escape of hazardous wastes, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition byproducts to the groundwater, surface water, or atmosphere; and, as applicable
- c. Complies with the unit-specific closure requirements for each of the following units:

(Check as appropriate)

- | | |
|---|---------------------------------------|
| <input checked="" type="checkbox"/> Use and management of containers | R 299.9614 and 40 CFR §264.178 |
| <input checked="" type="checkbox"/> Tank systems | R 299.9615 and 40 CFR §264.197 |
| <input type="checkbox"/> Surface impoundments | R 299.9616 and 40 CFR §264.228 |
| <input type="checkbox"/> Waste piles | R 299.9617 and 40 CFR §264.258 |
| <input type="checkbox"/> Land treatment ^a | R 299.9618 and 40 CFR §264.280 |
| <input type="checkbox"/> Landfill | R 299.9619 and 40 CFR §264.310 |
| <input type="checkbox"/> Incinerators | R 299.9620 and 40 CFR §264.351 |
| <input type="checkbox"/> Drip pads ^b | R 299.9621 and 40 CFR §264.575 |
| <input type="checkbox"/> Miscellaneous units | R 299.9623 and 40 CFR §§264.601-603 |
| <input type="checkbox"/> Hazardous waste munitions and explosive storage ^b | R 299.9637 and 40 CFR §264.1202 |
| <input type="checkbox"/> Boilers and industrial furnaces | R 299.9808 and 40 CFR §266.102(e)(11) |

^a Not included in the template

^b *Not yet included in 40 CFR §264.111; therefore not considered*

Unit-specific closure procedures are discussed in Section A11.A.5 of this template for each unit type indicated above.

A11.A.2 Unit-Specific Information
 [R 299.9613 and 40 CFR §§264.112(b)(3) and (6)]

Table A11.A.1 Hazardous Waste Management Units Information

The following table identifies each hazardous waste management unit at the Petro-Chem facility subject to the closure requirements of this hazardous waste management facility operating license. The table also includes: each unit's maximum licensed hazardous waste inventory, a list of the waste codes managed in the unit, the anticipated date of closure (if known), and the estimated duration of closure activities once closure begins. Unit-specific methods for closure and detailed schedules are discussed in Section 11A.5 of this template.

Unit Designation	Maximum Inventory (Include Units)	Waste Codes of Hazardous Wastes Managed	Scheduled Closure Date	Estimated Duration of Closure
CMB Storage Areas, pump room, lab pack, staging/QC	3,888 drums	See Appendix 1	Unknown	To be determined
CMB Rolloff	8,080 gallons	See Appendix 1	Unknown	To be determined
QAQC Area	675 drums	See Appendix 1	Unknown	To be determined
CMB-2 Storage/ pump transfer room	854 Drums	See Appendix 1 and Appendix 2	Unknown	To be determined
CMB TK 001	6,000 gallons	See Appendix 2	Unknown	To be determined
CMB TK 002	6,000 gallons	See Appendix 2	Unknown	To be determined
Tank System 1	420,000 gal.	See Appendix 2	Unknown	To be determined
Tank System 2	168,000 gal.	See Appendix 2	Unknown	To be determined
1 st Floor Operations (North Storage)	700 drums	See Appendix 1	Unknown	To be determined
TS-1 Transfer Pad	54,000 gal.	See Appendix 1 and Appendix 2	Unknown	To be determined
TS-2 Transfer Pad	24,000 gal	See Appendix 1 and Appendix 2	Unknown	To be determined

Unit Designation	Maximum Inventory (Include Units)	Waste Codes of Hazardous Wastes Managed	Scheduled Closure Date	Estimated Duration of Closure
TS-3 Transfer Pad	145 drums	See Appendix 1	Unknown	To be determined
Drum Dock 2	73 drums	See Appendix 1	Unknown	To be determined
Drum Dock 3 (Truck Well)	300 drums	See Appendix 1	Unknown	To be determined
Drum Dock 4 (Truck Well)	147 drums	See Appendix 1	Unknown	To be determined
SBS Tote Storage Building	127 drums	See Appendix 1	Unknown	To be determined
SBS Dock Storage Area	368 drums	See Appendix 1	Unknown	To be determined
SBS Solids Area	73 drums	See Appendix 1	Unknown	To be determined

* drum = 55-gallon capacity equivalent

A11.A.3 Schedule of Final Facility Closure
 [R 299.9613 and 40 CFR §264.112(b)(6)]

The Petro-Chem facility:

- Anticipates completing final closure of the entire facility by [insert estimated date]
- Has not determined when the facility will close and does not anticipate completing final closure of the entire facility prior to expiration of the facility's hazardous waste operating license.

Detailed Closure Schedule for Facility Closure: Provide a detailed breakdown showing the closure schedule with the anticipated time of completion for each activity below.

Closure Activity	Time Completed
Initiate Closure; Cease Acceptance of Waste	Immediate
Process Containers in Storage Areas	1 Week
Transfer other containers off-site for disposal/recycling	6 Weeks
Decontaminate and Remove Equipment in Pump Room(s)	1 Week
Decontaminate and Remove Equipment in	1 Week

Closure Activity	Time Completed
Lab Pack Room	
Decontaminate Pumping Room	1 Week
Decontaminate Surfaces in Container Storage	2 Weeks
Transfer bulk wastes off-site to cement kiln/incinerator	6 Weeks
Decontaminate and Remove Pumps, Piping and Other Equipment	8 Weeks
Decontaminate and Remove Tanks	6 Weeks
Decontaminate Containment Area Surfaces	7 Weeks
Sample Containment Area Surfaces	2 Weeks
Obtain P. E. Certification of Closure Performance	7 Weeks
Prepare and Submit Closure Report to MDNRE	9 Weeks

A11.A.4 Notification and Time Allowed for Closure

[R 299.9613 and 40 CFR §§264.112(d)(2) and 264.113(a) and (b)]

Final closure activities will be initiated within 90 days of receipt of the final volume of hazardous wastes and completed within 180 days of receipt of the final volume of waste. The tasks and estimated time required for closure shall follow the schedule specified in Section 11A.3. The Director will be notified by Petro-Chem facility 60 days before final closure begins. Final closure will be certified by both Petro-Chem facility and an independent, qualified, registered professional engineer of the state of Michigan.

A11.A.4(a) Extensions for Closure Time

[R 299.9613 and 40 CFR §264.113(a) and (b)]

In the event that an extension for closure for the facility or any unit is necessary, the Petro-Chem facility will request an extension in accordance with the requirements of 40 CFR §264.113(a).

A11.A.5 Unit-Specific Closure Procedures

Unit-specific closure procedures are provided for each unit identified in Section A11.A.2 of this template.

 **GUIDANCE/REFERENCES**

- Part 201, Environmental Remediation, of Act 451. September 1996.
- Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW 846, Update III plus Variations. December 1996. EPA

A11.A.5(a) Closure of Container Storage Areas

[R 299.9614 and 40 CFR §264.178]

This section describes the procedures for closure of all container storage areas listed above. The general closure requirement and specific closure procedures are discussed below.

A. General Closure Requirement

At closure, all hazardous waste and hazardous waste residues will be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues will be decontaminated or removed.

B. Specific Closure Procedures

Specific procedures for inventory management, unit inspection, decontamination, sampling and analysis, and additional waste management are discussed below.

1. Inventory and Remedial Waste Management Procedures

A physical inventory check of all containers in storage will be completed and verified with the Preview system. All lab pack and loose pack wastes will be depacked and consolidated as appropriate. All fuel type wastes will be blended into the appropriate Tank Systems for transportation off-site for energy recovery. All remaining containerized wastes will be shipped off-site for disposal and/or recycling.

Any remediation wastes will be characterized for disposal and managed in accordance with Parts 111, 115 and 121 of Act 451, as appropriate. The facility will follow existing representative sampling procedures described in the waste analysis plan.

2. Unit Inspection Procedures

A detailed inspection of each containment pad and wall will be completed. The inspection will document the location of spills, contamination, and migration pathways. A similar inspection of the exterior walls of each containment pad will also be performed and documented.

3. Decontamination Procedures

After inventory removal, the container management unit floors will be decontaminated. A surface cleaning technique (hydroblasting) will be used to decontaminate the surfaces of the concrete floors. The wash water and debris from the treatment is collected and separated. The solid material is drummed for incineration or landfilling (in accordance with hazardous waste regulations), and the water is recycled or collected for eventual bulk transportation to a permitted RCRA facility for proper management. All waste shall be properly manifested, labeled, and shipped as required by hazardous waste regulations. These cleaning methods require a 3-man crew, high pressure pumps, and wash water holding tanks. Personnel operating the treatment equipment require additional personal protection equipment due to the inherent hazards in this cleaning method. Where appropriate, temporary run-off controls will be implemented to contain wash water.

Following the surface treatment, a sample of the final water rinsate will be collected for analysis and comparison to the performance standards and disposed of appropriately, i.e. disposal off site at an industrial waste water facility, hazardous waste facility or discharge to the local POTW with approval. In addition, concrete cores will be collected from the floors of the container management units. The samples will be collected at the density specified in the MDEQ guidance document, "Guidance Document for Verification of Soil Remediation", treating each unit as a "small site".

Based on the square footage of each containment unit, the following numbers of sample locations are planned:

Container Management Unit	Approximate Area (sq. ft.)	Number of Samples
CMB Pump Room	2,430	5
CMB, Staging/QC	19,900	15
Lab pack Processing	2,500	6
QAQC Container Storage	3,108	7
CMB2 Container Storage and CMB2 QAQC area	7,040	10
CMB2 Pump Transfer	2,000	5
SBS Container Storage Area	1,311	4
SBS Dock Storage	420	2
SBS Solids Area	512	2
Loading/Unloading Docks:		
Container Management Unit	Approximate Area (sq. ft.)	Number of Samples
Dock #2	3,300	7
Dock #3	770	3
Dock #4	1,400	4
TS1 Transfer Pad	1,720	5
TS2 Transfer Pad	2,440	6
TS3 Transfer Pad	1,300	4
TS4 Transfer Pad	2,720	6

4. Sampling and Analysis Procedures

Sampling will be biased toward visibly stained locations, since these locations should represent the greatest possibility for discovering residual contamination. These cores will be analyzed for volatile organic compounds and semi-volatile organic compounds to demonstrate that the concrete has been decontaminated. The coring and sampling requires specialized equipment and a 2-man crew.

Soil samples will also be collected from beneath each of the concrete core locations using a stainless-steel hand auger that will be decontaminated between sample

locations. One sample will be collected from each location at the 0-1 foot depth below the concrete surface and transferred directly into appropriate containers and stored in ice packed coolers for transportation to the laboratory. Soil samples for VOC analysis will be preserved in the field with methanol per EPA Methods as stipulated in the *MDEQ Remediation and Redevelopment Division (RRD) Operational Memorandum No. 2*. The soil samples will be analyzed for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). The results will be compared to the Generic Part 201 Cleanup Criteria. Sampling and analysis will follow SW-846 sampling and analytical methods when appropriate. Analytical sampling parameters will be based on the hazardous wastes and constituents managed in the units.

5. Additional Waste Management Procedures

Decontamination waste sand materials that cannot be decontaminated will be characterized, containerized and shipped off-site for disposal and/or recycling.

Prior to initiating decontamination procedures, the site will be 'prepped' to maintain run-on and run-off control. The facility connection to the Detroit sewer collection system will be closed to prevent unintended contaminated liquids to enter the system. All portable equipment to be decontaminated will be moved to an existing container management unit(s) prior to initiating the decontamination process to prevent run-off of rinsates. Plastic sheeting or other suitable barrier will be erected along the containment wall where necessary to contain any overspray within the secondary containment structure.

All portable/dismantled decontaminated equipment/structures will be moved to a decontaminated bermed containment area away from the decontamination areas to prevent run-on of contaminated liquid. All sheeting will be containerized and transported off-site as a hazardous waste. All barriers utilized will be decontaminated and transported off-site to a metal recycler or solid waste disposal facility.

The groundwater monitoring wells will be sampled prior to initiating the closure activities and following completion of all closure activities. The samples will be tested as per the Facility's approved groundwater monitoring program.

A11.A.5(b) Closure of Tank Systems [R 299.9615 and 40 CFR §264.197]

This section describes the procedures for closure of all of the tank units listed above. The general closure requirement and specific closure procedures are discussed below.

A. General Closure Requirement

At closure of the tank system, the Petro-Chem facility will remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste, and manage them as hazardous waste, unless 40 CFR §264.3(d) applies. If the Petro-Chem facility demonstrates that not all contaminated soils can be practicably removed or decontaminated, then the tank system will be managed in accordance with the closure and postclosure care requirements that apply to landfills.

B. Specific Closure Procedures

Specific procedures for inventory management, unit inspection, decontamination, sampling and analysis, and additional waste management are discussed below.

1. Inventory and Remedial Waste Management Procedures

All flowable wastes from each tank and piping system will be transported off-site for energy recovery or incineration. Stormwater collected from the containment will be tested for possible pretreatment and discharge, if appropriate, to the Detroit sewer collection system .

2. Unit Inspection Procedures

A detailed inspection of each containment pad and wall will be completed. The inspection will document the location of spills, contamination and migration pathways. A similar inspection of the exterior walls of each containment pad will also be performed and documented.

3. Decontamination Procedures

Tanks and associated piping will then be flushed with appropriate compatible cleaning solutions to reduce any liquid, solid or clinging waste residues. The resulting residues will either be collected into tanks with other compatible wastes and sent to a suitably permitted recycling facility, or transported off site to authorized facilities for reclamation, treatment and/or disposal at other authorized facilities consistent with the treatment standards for the hazardous or toxic constituents of the waste.

The piping systems will then be detached from the tank. Specific components of the piping system may be reused in place or in similar service upon decontamination. The remaining components of the piping system will then either be decontaminated on site utilizing methods described in Table 1 of 40 CFR 268.45, using other appropriate decontamination methods, or transported off site for treatment and/or disposal. Residues of the decontamination will be collected either into on-site tankage or into containers for off-site transfer for reclamation, treatment and/or disposal at authorized facilities based upon the treatment standards for the waste and its hazardous or toxic constituents. Piping system equipment not reused onsite or decontaminated to the requirements of this plan will be placed into containers and transported offsite to an authorized facility for reclamation, treatment and/or disposal.

After removal of the tanks, piping, and auxiliary equipment, and before decontamination, the concrete containment structures will be visually inspected to identify any cracks, gaps, spills, stains, or damaged areas which may be present. This visual inspection will be documented in the Closure Certification with notations of any identified problems. Any cracks, gaps, or damaged areas with the potential to provide leakage pathways will be temporarily repaired by grouting or sealing before decontamination is performed in order to prevent potential release of contamination into the underlying soils. These temporarily repaired areas will be examined and sampled following decontamination.

The secondary containment pads will be decontaminated using the same method for the container storage areas after all equipment and tanks have been removed.

Contaminated equipment attached directly to the tanks may be reused on site on other tanks containing compatible wastes after decontamination. Tank interiors may be decontaminated by methods described in Table 1 of 40 CFR 268.45, or by appropriate washing using detergents compatible with the hazardous or toxic constituents. These operations will be performed within containment to prevent migration of hazardous constituents to other tanks or structures or the environment. Tanks and attached equipment not decontaminated to the requirements of this plan will be rendered unusable by cutting into pieces and/or collapsing. The material will then be containerized, and transported off site for reclamation, treatment, storage or disposal at an authorized facility based upon the treatment standards for the hazardous waste or hazardous or toxic constituents. Decontaminated tanks may be returned to nonregulated service, be transferred off site for reuse, or be rendered unusable and transported off site for reclamation or disposal.

Waste residues will be removed from tanks and appurtenances by flushing and steam cleaning. Steam cleaning is a proven technique for decontaminating surfaces and mobilizing heavier liquids. Because the high operating temperatures may vaporize some volatile constituents, appropriate safety precautions (ventilation, vapor masks) and vapor recovery may be employed. The steam condensate will be collected for eventual transportation to a permitted RCRA facility. A sample of the final rinsate for each tank management unit will be retained for comparison to the performance standards.

At the time of closure, a determination will be made if the equipment will be sold for reuse or for scrap. If the equipment is destined for scrap, the tanks and appurtenances will be dismantled and cut up using appropriate cutting equipment. The dismantled equipment will be sold for scrap, although this potential benefit was not considered in the closure cost. At the time of closure, a scrap company will be selected and certifications will be obtained from the scrap dealer to verify that the equipment and materials have been appropriately recycled.

4. Sampling and Analysis Procedures

Any soils determined to be contaminated will be removed and transported offsite to a treatment or disposal facility licensed to accept wastes described by the waste codes of the source of the contamination. Any concrete to be removed will be broken up using dust suppression techniques such as water spray. Soils will be removed using normal construction equipment, including front end loaders and back hoes, and loaded into transportation vehicles until sampling and analysis, as described in demonstrates conformance with the closure performance standard. Spilled material will be manually cleaned up and returned to the loaded vehicles.

Equipment used to perform the decontamination, that has had contact with contaminated surfaces or soils, will be decontaminated in a manner to prevent the spread of hazardous waste and constituents. Tools, hoses and small equipment will be washed with water and detergents, and rinsed with water, inside containers to remove visible residues and soil. A temporary steel or plastic lined containment area will be installed to decontaminate large equipment, using water/detergent spray and water rinse until visible soils and residues are removed. The used wash and rinse waters will be collected into containers, tanks, or directly into transportation vehicles, and transported offsite treatment facilities licensed to accept the codes applicable to the waste contaminating the soil or debris.

The same procedures used to remove waste residues from the Container Management Units will be used in the Tank Management Units. Following the concrete surface treatment, concrete cores will be collected from the floor of each tank management unit according to the following table.

Tank Management Unit	Approximate Area (sq. ft.)	Number of Samples
Tank System 1 (<i>West Tank Farm</i>)	6,510	8
Tank System 2 (<i>formerly SBS Tank Farm</i>)	3,900	6
CMB Tanks 1 & 2	900	3

5. Additional Waste Management Procedures

Waste management procedures are described in the above section. There are no additional waste management procedures.

A11.A.5(c) Closure of Surface Impoundments
 [R 299.9616 and 40 CFR §264.228(a)(1) and (2)]

The facility does not operate any hazardous waste surface impoundments. Therefore, this section which describes the procedures for closure of surface impoundments is not applicable.

A11.A.5(d) Closure of Waste Piles
 [R 299.9617 and 40 CFR §264.258]

The facility does not operate any hazardous waste piles. Therefore, this section which describes the procedures for closure of waste piles is not applicable.

A11.A.5(e) Closure of Landfills
 [R 299.9619 and 40 CFR §264.310(a)]

The facility does not operate any hazardous waste landfills. Therefore, this section which describes the procedures for closure of landfills is not applicable.

A11.A.5(f) Closure of Incinerators
 [R 299.9620 and 40 CFR §264.351]

The facility does not operate any hazardous waste incinerators. Therefore, this section which describes the procedures for closure of hazardous waste incinerators is not applicable.

A. General Closure Requirement

This section is not applicable, the facility does not operate an incinerator.

B. Specific Closure Procedures

This section is not applicable, the facility does not operate an incinerator.

A11.A.5(g) Closure of Miscellaneous Units

[R 299.9623 and 40 CFR §§264.601 through 264. 603]

The facility does not operate any hazardous waste miscellaneous units. Therefore, this section which describes the procedures for closure of miscellaneous units is not applicable.

A11.A.5(h) Closure of Boilers and Industrial Furnaces (BIF)

[R 299.9808 and 40 CFR §266.102(e)(11)]

The facility does not operate any hazardous waste boilers or industrial furnaces. Therefore, this section which describes the procedures for closure of hazardous waste boilers or industrial furnaces is not applicable.

A11.A.5(i) Other Closure Activities

[R 299.9504(1)(c), R 299.9508(1)(b), and R 299.9613(1) and 40 CFR §§270.14(b)(13) and 264.112(b)(5)}

The facility has not identified any other activities necessary to ensure that closure satisfies the performance standard, as appropriate. If the facility's environmental monitoring program is still in place at the time of closure, a final round of sampling will be done to verify that the site meets relevant standards.

A11.A.6 Certification of Closure

[R 299.9613]

Within 60 days of completion of closure the Petro-Chem facility will submit to the Director, by registered mail, a certification that the hazardous waste management unit or facility, as applicable, has been closed in accordance with the specifications in the approved closure plan. The certification will be signed by a Petro-Chem representative and by an independent registered professional engineer. Documentation supporting the independent registered engineer's certification will be furnished to the Director in accordance with R 299.9613(3), including:

1. The results of all sampling and analysis;
2. Sampling and analysis procedures;
3. A map showing the location where samples were obtained;
4. Any statistical evaluations of sampling data;
5. A summary of waste types and quantities removed from the site and the destination of these wastes; and
6. If soil has been excavated, the final depth and elevation of the excavation and a description of the fill material used.

The Petro-Chem facility will maintain financial assurance for closure until the Director releases the Petro-Chem facility from the financial assurance requirements for closure under R 299.9703.

The facility will certify closure documents as follows:

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

A11.A.7 Postclosure Notices Filed

[R 299.9504(1)(c) and R 299.9508(1)(b) and 40 CFR §270.14(b)(14)]

The applicant will provide documentation that the postclosure notices required under 40 CFR §264.119 have been filed for hazardous waste disposal units that have been closed at the facility.

A11.B POSTCLOSURE PLAN

[R 299.9613 and 40 CFR §264.118]

The facility has not identified any post closure care, planned monitoring or maintenance activities. Therefore, section A11.B is not applicable.

A11.B.1 Applicability

Not applicable: Hazardous waste will not be left behind at closure. A survey plat, postclosure care, postclosure certifications, and other notices are not required.

Applicable:

- Contingent plan
- Landfill unit

**FORM EQP 5111 ATTACHMENT TEMPLATE A12
CLOSURE AND POSTCLOSURE CARE COST ESTIMATES**

The administrative rules promulgated pursuant to Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), R 299.9702 and Title 40 of the Code of Federal Regulations (CFR), Part 264, Subpart H, establishes requirements for providing financial assurance for closure and, if necessary, postclosure care. Specifically, R 299.9702(1) requires the preparation of associated cost estimates. This license application template addresses the requirement for preparing a closure cost estimate and, if necessary, a postclosure care cost estimate. The cost estimates provided in this attachment are based on the closure and postclosure care activities detailed in Template A11. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This template is organized as follows:

- A12.A CLOSURE COST ESTIMATE
 - A12.A.1 Closure Cost Estimate Breakdown
 - Table A12.A.1 Facility Closure Cost Estimate Breakdown by Unit
 - Table A12.A.2 Container Storage Areas Closure Cost Estimate
 - Table A12.A.3 Tank Systems Closure Cost Estimate
- A12.B POSTCLOSURE COST ESTIMATE
 - A12.B.1 Postclosure Care Cost Estimate Breakdown
 - Table A12.B.1 Annual Postclosure Care Cost Estimate

A12.A CLOSURE COST ESTIMATE
[R 299.9702(1) and 40 CFR §264.142]

The closure cost estimate covers the corresponding closure activities in the approved closure plan. These activities may include, but are not limited to, removal of waste inventory, decontamination, sampling and analysis, and closure certification. Unless otherwise specified in Section A11.A.3 of Template A11, the date of closure of the hazardous waste management units has not been determined. As such, it is not possible to predict, with any high degree of certainty, actual facility conditions or regulatory requirements at time of closure. Therefore, this closure cost estimate is based on closure of the unit within the next six months and includes a contingency estimate to account for media sampling and analysis, and removal based on current conditions.

The estimate assumes closure procedures are completed by a third party at the time facility closure would be most expensive (e.g., with a maximum inventory). The cost estimate for disposal assumes wastes will be treated and contaminated equipment disposed rather than recovered or salvaged. The total closure cost for the closure of the Petro-Chem is estimated at **\$2,649,786.00**. The closure cost estimate breakdown by unit is provided in Section A12.A.1. Unit-specific work sheets are provided, as applicable, in Tables A12.A.2 and A12.A.3.

Additional cost estimate assumptions are listed below.

1. All hazardous waste will be transported off site to a licensed facility in accordance with all applicable state and federal regulations.

2. Costs are based on current year costs. All labor rates reflect commercial rates and include fringe benefits, payroll burden, and taxes.
3. Total costs include a contingency for administrative and for miscellaneous operating costs.

This closure cost estimate will be maintained at the facility. It will be revised whenever a change in the closure plan affects the cost of closure. It will be adjusted annually as required by pertinent regulations or when the types and quantity of wastes received at the facility change.

A12.A.1 Closure Cost Estimate Breakdown


 Provide a breakdown of the closure cost estimate for the facility by completing the following tables, as appropriate.

Table A12.A.1 Facility Closure Cost Estimate Breakdown by Unit*

1.	Container Storage Areas	\$ 1,501,037.32
2.	Tank Systems	\$ 1,148,748.68
Total Facility Closure and Postclosure Care Estimate (add lines 1 through 2)		\$ 2,649,786.00

* Tables not included at this time for Land Treatment Units, Drip Pads, and Hazardous Waste Munitions and Explosives Storage Units

Table A12.A.2 Container Storage Areas Closure Cost Estimate

Petro-Chem

Activity If certain activities are not expected to be performed, enter "NA" as the Estimated Cost.		Estimated Cost
1.	Demolition and Removal of Containment	\$ 5,057.33
2.	Removal of Soil	\$ 380,141.78
3.	Backfill	\$ 35,209.69
4.	Decontamination	\$ 42,846.80
5.	Sampling and Analysis	\$ 56,447.02
6.	Monitoring Well Installation	\$ N/A
7.	Transportation	\$ Incl. in #8
8.	Treatment and Disposal of Waste Inventory and Other Cleanup Wastes	\$ 579,265.04
9.	Subtotal of Closure Costs (Add lines 1 through 8)	\$ 1,098,967.66
10.	Engineering Expenses (typically 10% of closure costs, excluding certification of closure.)	\$ 109,896.77
11.	Certification of Closure	\$ 42,000.00
12.	Subtotal (Add Lines 9, 10, and 11])	\$ 1,250,864.43
13.	Contingency Allowance (typically 20% of closure costs, engineering expenses, and cost of certification of closure.)	\$ 250,172.89
14.	Landfill Closure	\$ N/A
Total Closure Cost (Add Lines 12, 13, and 14)		\$ 1,501,037.32

Table A12.A.3 Tank Systems Closure Cost Estimate

Petro-Chem

Activity		Estimated Cost
If certain activities are not expected to be performed, enter "NA" as the Estimated Cost.		
1.	Removal of Waste	\$ Incl. in 4
2.	Tank System Purging (ignitable wastes <i>only</i>)	\$ Incl. in 4
3.	Flushing of Tank and Piping	\$ Incl. in 4
4.	Excavation, Disassembly, and Loading	\$ 492,646.25
5.	Demolition and Removal of Containment System	\$ 8,552.70
6.	Removal of Soil	\$ 23,660.91
7.	Backfill	\$ 28,167.75
8.	Decontamination	\$ 100,158.54
9.	Sampling and Analysis	\$ 45,157.61
10.	Monitoring Well Installation	\$ N/A
11.	Transportation	\$ Incl.
12.	Treatment and Disposal of Waste Inventory and Cleanup Wastes	\$ 133,738.58
13.	Subtotal of Closure Costs (Add Lines 1 through 12)	\$ 832,082.34
14.	Engineering Expenses (typically 10% of closure costs, excluding certification of closure.)	\$ 83,208.23
15.	Certification of Closure	\$ 42,000.00
16.	Subtotal (Add Lines 13, 14, and 15)	\$ 957,290.57
17.	Contingency Allowance (typically 20% of closure costs, engineering expenses, and cost of certification of closure.)	\$ 191,458.11
18.	Landfill Closure	\$ N/A
Total Cost of Closure (Add lines 16, 17, and 18)		\$ 1,148,748.68

A12.B POSTCLOSURE COST ESTIMATE
[R 299.9702(1) and 40 CFR §264.144]

Postclosure care is not applicable to the Petro-Chem facility since no units with waste will be left in place.

Appendix I

Container Waste Codes

Appendix I - US EPA Michigan Waste Codes

D001	F012	K046	K151	P050	P119	U033	U091	U148	U206	001K
D002	F019	K048	K156	P051	P120	U034	U092	U149	U207	002K
D003	F024	K049	K157	P054	P121	U035	U093	U150	U208	
D004	F025	K050	K158	P056	P122	U036	U094	U151	U209	001U
D005	F032	K051	K159	P057	P123	U037	U095	U152	U210	033U
D006	F034	K052	K161	P058	P127	U038	U096	U153	U211	070U
D007	F035	K060	K169	P059	P128	U039	U097	U154	U213	074U
D008	F037	K061	K170	P060	P185	U041	U098	U155	U214	124U
D009	F038	K062	K171	P062	P188	U042	U099	U156	U215	131U
D010	F039	K069	K172	P063	P189	U043	U101	U157	U216	139U
D011		K071	K176	P064	P190	U044	U102	U158	U217	150U
D012	K001	K073	P001	P065	P191	U045	U103	U159	U218	
D013	K002	K083	P002	P066	P192	U046	U105	U160	U219	
D014	K003	K084	P003	P067	P194	U047	U106	U161	U220	
D015	K004	K085	P004	P068	P196	U048	U107	U162	U221	
D016	K005	K086	P005	P069	P197	U049	U108	U163	U222	
D017	K006	K087	P006	P070	P198	U050	U109	U164	U223	
D018	K007	K088	P007	P071	P199	U051	U110	U165	U225	
D019	K008	K093	P008	P072	P201	U052	U111	U166	U226	
D020	K009	K094	P009	P073	P202	U053	U112	U167	U227	
D021	K010	K095	P010	P074	P203	U055	U113	U168	U228	
D022	K011	K096	P011	P075	P204	U056	U114	U169	U234	
D023	K013	K097	P012	P076	P205	U057	U115	U170	U235	
D024	K014	K098	P013	P077		U058	U116	U171	U236	
D025	K015	K099	P014	P078	U001	U059	U117	U172	U237	
D026	K016	K100	P015	P081	U002	U060	U118	U173	U238	
D027	K017	K101	P016	P082	U003	U061	U119	U174	U239	
D028	K018	K102	P017	P084	U004	U062	U120	U176	U240	
D029	K019	K103	P018	P085	U005	U063	U121	U177	U243	
D030	K020	K104	P020	P087	U006	U064	U122	U178	U244	
D031	K021	K105	P021	P088	U007	U066	U123	U179	U246	
D032	K022	K106	P022	P089	U008	U067	U124	U180	U247	
D033	K023	K111	P023	P092	U009	U068	U125	U181	U248	
D034	K024	K112	P024	P093	U010	U069	U126	U182	U249	
D035	K025	K113	P026	P094	U011	U070	U127	U183	U271	
D036	K026	K114	P027	P095	U012	U071	U128	U184	U277	
D037	K027	K115	P028	P097	U014	U072	U129	U185	U278	
D038	K028	K116	P029	P098	U015	U073	U130	U186	U279	
D039	K029	K117	P030	P099	U016	U074	U131	U187	U280	
D040	K030	K118	P033	P101	U017	U075	U132	U188	U328	
D041	K031	K123	P034	P102	U018	U076	U133	U189	U353	
D042	K032	K124	P036	P103	U019	U077	U134	U190	U359	
D043	K033	K125	P037	P104	U020	U078	U135	U191	U364	
	K034	K126	P038	P105	U021	U079	U136	U192	U367	
F001	K035	K132	P039	P106	U022	U080	U137	U193	U372	
F002	K036	K136	P040	P108	U023	U081	U138	U194	U373	
F003	K037	K141	P041	P109	U024	U082	U140	U196	U387	
F004	K038	K142	P042	P110	U025	U083	U141	U197	U389	
F005	K039	K143	P043	P111	U026	U084	U142	U200	U394	
F006	K040	K144	P044	P112	U027	U085	U143	U201	U395	
F007	K041	K145	P045	P113	U028	U086	U144	U202	U404	
F008	K042	K147	P046	P114	U029	U087	U145	U203	U409	
F009	K043	K148	P047	P115	U030	U088	U146	U204	U410	
F010	K044	K149	P048	P116	U031	U089	U147	U205	U411	
F011	K045	K150	P049	P118	U032	U090				

Appendix II

Tank System Waste Codes

Appendix 2 - US EPA Waste Codes - Tank System Waste Codes

D001	U001
D002	U002
D004	U031
D005	U031
D006	U056
D007	U125
D008	U154
D009	U140
D010	U009
D011	U220
D018	U239
D019	
D021	
D022	
D023	
D024	
D025	
D026	
D027	
D028	
D029	
D035	
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D037	
D038	
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D043	
F001	
F002	
F003	
F004	
F005	

Appendix III

Financial Assistance



HAZARDOUS WASTE MANAGEMENT FACILITY AMENDATORY ENDORSEMENT POLLUTION LEGAL LIABILITY - SUDDEN AND ACCIDENTAL

This endorsement ("Endorsement") changes the Pollution Legal Liability Policy ("Policy") effective on the inception date of the Policy. This Endorsement is attached to the Policy to fulfill the insurance requirements of Section 11123 of the State of Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and R 299.9710 of the Michigan Administrative Code (MAC).

INSURER: Allied World Assurance Company (U.S.) Inc.			INSURED: PSC Environmental Services, LLC/Nortru, LLC		
INSURER'S ADDRESS: 199 Water Street, 24 th Floor			INSURED'S ADDRESS: 350 Poplar Church Road		
CITY: New York	STATE: NY	ZIP CODE: 11038	CITY: Camp Hill	STATE: PA	ZIP CODE: 17011
POLICY NUMBER: 0311-0601		POLICY PERIOD: FROM: December 1, 2021 TO: December 1, 2022			
COVERED FACILITY: (Attach additional page if necessary to list multiple Facilities covered)					
FACILITY NAME: Petro-Chem Processing Group of Nortru, LLC			FACILITY ADDRESS: 421 Lycaste		
CITY: Detroit	STATE: MI	ZIP CODE: 48214-3434	EPA ID NUMBER: MID 980 615 298		

DEFINITIONS

As used in this Endorsement:

The term "Contaminant" means any hazardous waste defined in MAC R 299.9203, and any hazardous waste or hazardous constituent listed in Appendix VIII of Part 261 or Appendix IX of Part 264 of Title 40 of the Code of Federal Regulations; and

The term "Sudden and Accidental Occurrence" means the unintentional and unexpected discharge, dispersal, release, or escape of a contaminant in a noncontinuous and nonrepetitive manner, into or upon the land, the atmosphere, or any watercourse or body of water, which results in bodily injury or property damage.

DECLARATIONS

The insurance afforded with respect to Sudden and Accidental Occurrences is subject to all of the terms and conditions of the Policy provided however that any provisions of the Policy inconsistent with Sections A through F of this Endorsement are hereby amended to conform to Sections A through F.

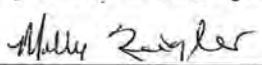
- A. The limits of liability as respects bodily injury and property damage are provided in an amount not less than \$1,000,000 per occurrence with an annual aggregate of not less than \$2,000,000 exclusive of legal defense costs.
- B. The Insurer is liable for the payment of amounts within any deductible applicable to the Policy, with a right of reimbursement by the Insured for any such payment made by the Insurer.
- C. A Notice of Violation or Order issued by the Michigan Department of Environment, Great Lakes, and Energy or other environmental agency shall not be deemed in and of itself sufficient evidence of an insured's intentional, knowing, willful, or deliberate noncompliance with a legal requirement so as to preclude coverage under this Policy.
- D. The Insurer will provide the Materials Management Division at the address below with at least 30 days advance written notice of cancellation, termination, or material change to the Policy which affects the coverage required by MAC R 299.9710. Such notices shall be provided no matter which party initiates the cancellation, termination, or material change, and whether or not nonpayment of premium is involved.
- E. The following are the only specific pre-existing soil and groundwater conditions (defined in the referenced assessments or reports) that are excluded from coverage under the Policy (Attach additional pages if necessary): All pre-existing pollution conditions are excluded. Only new pollution conditions (Coverage 2) is provided under this policy.
- F. No condition, provision, stipulation, limitation, or exclusion contained in the Policy, or any other endorsement thereon, or any violation thereof, shall relieve the insurer from liability or from the payment of any claim, within the stated limits of liability in this Endorsement, for bodily injury and property damage to a third party caused by a sudden and accidental occurrence.

The Insurer hereby certifies that it has issued the Insured the Policy to provide financial assurance and responsibility for bodily injury and property damage caused by Sudden and Accidental Occurrences arising from operation of the covered facility(ies), and that the Insurer is licensed to transact the business of insurance, or is eligible to provide insurance as an excess or surplus lines insurer, in the State of Michigan.

Filing of this Endorsement is required by Law (MAC R299.9710)

Submit one original signed Endorsement to:

HAZARDOUS WASTE SECTION
MATERIALS MANAGEMENT DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES,
AND ENERGY
PO BOX 30241
LANSING MI 48909-7741

Name of Authorized Agent Molly Zeigler	
Street Address or PO Box 311 South Wacker Street	
City, State and Zip Code Chicago, IL 60606	
Signature of Authorized Agent 	Date 12/01/2021



Michigan Department of Environment, Great Lakes, and Energy
Materials Management Division

MICHIGAN WAIVER OF INSURED'S RIGHT TO IMMEDIATE CANCELLATION OF THIS POLICY

In order to comply with Administrative Rule R 299.9710 of the Michigan Administrative Code, it is hereby agreed that the Insured waives the right to immediate cancellation as provided under Section 500.3020 of the Michigan Insurance Code, P.A. 1956, No. 218.

Policy Number: 0311-0601

Insured: Harsco Corporation

By: Allied World Assurance Company (U.S.) Inc

Name and Title: Melanie Frohriep
Melanie Frohriep , Facility Manager

Filing of this Waiver is required by Law (MAC R299.9710)

Submit one original signed Waiver to:

HAZARDOUS WASTE SECTION
MATERIALS MANAGEMENT DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES,
AND ENERGY
PO BOX 30241
LANSING MI 48909-7741



HAZARDOUS WASTE MANAGEMENT FACILITY AMENDATORY ENDORSEMENT POLLUTION LEGAL LIABILITY - SUDDEN AND ACCIDENTAL

This endorsement ("Endorsement") changes the Pollution Legal Liability Policy ("Policy") effective on the inception date of the Policy. This Endorsement is attached to the Policy to fulfill the insurance requirements of Section 11123 of the State of Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and R 299.9710 of the Michigan Administrative Code (MAC).

INSURER: Allied World Assurance Company (U.S.) Inc.			INSURED: Harsco Corporation		
INSURER'S ADDRESS: 199 Water Street, 24 th Floor			INSURED'S ADDRESS: 350 Poplar Church Road		
CITY: New York	STATE: NY	ZIP CODE: 11038	CITY: Camp Hill	STATE: PA	ZIP CODE: 17011
POLICY NUMBER: 0311-0601		POLICY PERIOD: FROM: December 1, 2021 TO: December 1, 2022			
COVERED FACILITY: (Attach additional page if necessary to list multiple Facilities covered)					
FACILITY NAME: Nortru, LLC – Transfer Facility			FACILITY ADDRESS: 550 Lycaste		
CITY: Detroit	STATE: MI	ZIP CODE: 48214-3434	EPA ID NUMBER: MIR 000 005 892		

DEFINITIONS

As used in this Endorsement:

The term "Contaminant" means any hazardous waste defined in MAC R 299.9203, and any hazardous waste or hazardous constituent listed in Appendix VIII of Part 261 or Appendix IX of Part 264 of Title 40 of the Code of Federal Regulations; and

The term "Sudden and Accidental Occurrence" means the unintentional and unexpected discharge, dispersal, release, or escape of a contaminant in a noncontinuous and nonrepetitive manner, into or upon the land, the atmosphere, or any watercourse or body of water, which results in bodily injury or property damage.

DECLARATIONS

The insurance afforded with respect to Sudden and Accidental Occurrences is subject to all of the terms and conditions of the Policy provided however that any provisions of the Policy inconsistent with Sections A through F of this Endorsement are hereby amended to conform to Sections A through F.

- A. The limits of liability as respects bodily injury and property damage are provided in an amount not less than \$1,000,000 per occurrence with an annual aggregate of not less than \$2,000,000 exclusive of legal defense costs.
- B. The Insurer is liable for the payment of amounts within any deductible applicable to the Policy, with a right of reimbursement by the Insured for any such payment made by the Insurer.
- C. A Notice of Violation or Order issued by the Michigan Department of Environment, Great Lakes, and Energy or other environmental agency shall not be deemed in and of itself sufficient evidence of an insured's intentional, knowing, willful, or deliberate noncompliance with a legal requirement so as to preclude coverage under this Policy.
- D. The Insurer will provide the Materials Management Division at the address below with at least 30 days advance written notice of cancellation, termination, or material change to the Policy which affects the coverage required by MAC R 299.9710. Such notices shall be provided no matter which party initiates the cancellation, termination, or material change, and whether or not nonpayment of premium is involved.
- E. The following are the only specific pre-existing soil and groundwater conditions (defined in the referenced assessments or reports) that are excluded from coverage under the Policy (Attach additional pages if necessary): All pre-existing pollution conditions are excluded. Only new pollution conditions (Coverage 2) is provided under this policy.
- F. No condition, provision, stipulation, limitation, or exclusion contained in the Policy, or any other endorsement thereon, or any violation thereof, shall relieve the insurer from liability or from the payment of any claim, within the stated limits of liability in this Endorsement, for bodily injury and property damage to a third party caused by a sudden and accidental occurrence.

The Insurer hereby certifies that it has issued the Insured the Policy to provide financial assurance and responsibility for bodily injury and property damage caused by Sudden and Accidental Occurrences arising from operation of the covered facility(ies), and that the Insurer is licensed to transact the business of insurance, or is eligible to provide insurance as an excess or surplus lines insurer, in the State of Michigan.

Filing of this Endorsement is required by Law (MAC R299.9710)

Submit one original signed Endorsement to:

HAZARDOUS WASTE SECTION
MATERIALS MANAGEMENT DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES,
AND ENERGY
PO BOX 30241
LANSING MI 48909-7741

Name of Authorized Agent Molly Zeigler	
Street Address or PO Box 311 South Wacker Street	
City, State and Zip Code Chicago, IL 60606	
Signature of Authorized Agent 	Date 12/01/2021



Michigan Department of Environment, Great Lakes, and Energy
Materials Management Division

MICHIGAN WAIVER OF INSURED'S RIGHT TO IMMEDIATE CANCELLATION OF THIS POLICY

In order to comply with Administrative Rule R 299.9710 of the Michigan Administrative Code, it is hereby agreed that the Insured waives the right to immediate cancellation as provided under Section 500.3020 of the Michigan Insurance Code, P.A. 1956, No. 218.

Policy Number: 0311-0601

Insured: Nortru, LLC

By: Allied World Assurance Company (U.S.) Inc

Name and Title:

Melanie Frohriep , Facility Manager

Filing of this Waiver is required by Law (MAC R299.9710)

Submit one original signed Waiver to:

HAZARDOUS WASTE SECTION
MATERIALS MANAGEMENT DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES,
AND ENERGY
PO BOX 30241
LANSING MI 48909-7741



MICHIGAN WAIVER OF INSURED'S RIGHT TO IMMEDIATE CANCELLATION OF THIS POLICY

In order to comply with Administrative Rule R 299.9710 of the Michigan Administrative Code, it is hereby agreed that the Insured waives the right to immediate cancellation as provided under Section 500.3020 of the Michigan Insurance Code, P.A. 1956, No. 218.

Policy Number: 0311-0601

Insured: Nortru, LLC

By: Allied World Assurance Company (U.S.) Inc

Name and Title: _____

Melanie Frohriep , Facility Manager

Filing of this Waiver is required by Law (MAC R299.9710)

Submit one original signed Waiver to:

HAZARDOUS WASTE SECTION
MATERIALS MANAGEMENT DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES,
AND ENERGY
PO BOX 30241
LANSING MI 48909-7741

Section 8

Corrective Action (B2)

**FORM EQP 5111 ATTACHMENT TEMPLATE B2
CORRECTIVE ACTION INFORMATION**

The administrative rules promulgated pursuant to Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451) R 299.9504(1)(c), R 299.9508(1)(b), R 299.9525, R 299.9629, R 299.9635, and R 299.9636; §§324.11115a and 324.11115b of Act 451; and Title 40 of the Code of Federal Regulations (CFR) §270.14(d) and Part 264, Subpart F, establish requirements for submitting corrective action information and implementing a corrective action program for hazardous waste management facilities. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This license application template addresses requirements for corrective action information for the waste management units (WMU) at the Petro-Chem facility located in Detroit, Michigan. This template includes facility background information, current conditions, and release assessment requirements for operating license applications. This template supplies information to support the corrective action program specified in R 299.9629. The facility is not proposing to eliminate any WMU from the corrective action program under Part 111 of Act 451.

Samples collected for waste characterization and environmental monitoring during corrective action will be collected, transported, analyzed, stored, and disposed by trained and qualified individuals in accordance with a QA/QC Plan. The QA/QC Plan includes or references the written procedures outlined in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, Third Edition, Chapter 1 (November 1986), and its Updates.

Applicant for Operating License for Existing Facility:

- R 299.9629 Corrective Action
- Elimination from corrective action requirements proposed for one or more units

Applicant for Operating License for New, Altered, Enlarged, or Expanded Operating License:

- R 299.9629 Corrective Action
- Elimination from corrective action requirements proposed for one or more units

This template is organized as follows:

- B2.A FACILITY BACKGROUND
 - B2.A.1 History and Description of Ownership and Operation
 - B2.A.2 Environmental Setting
 - B2.A.2(a) Climate
 - B2.A.2(b) Topography
 - B2.A.2(c) Hydrogeology
 - B2.A.2(d) Soil
 - B2.A.2(e) Surface Water
 - B2.A.2(f) Surrounding Land Uses

- B2.A.2(g) Critical Habitats and Endangered Species
- B2.A.3 Characterization of Potential or Actual Sources of Contamination
 - B2.A.3(a) [Name of Unit or Unit Group]
 - B2.A.2(a)(1) Unit Characteristics
 - B2.A.2(a)(2) Waste Characteristics and Management
 - B2.A.2(a)(3) History of Releases or Potential to Release
- B2.B FACILITY'S ASSESSMENT OF KNOWN NATURE AND EXTENT OF CONTAMINATION
 - B2.B.1 Groundwater
 - B2.B.1(a) Characterization History
 - B2.B.1(b) Description of Horizontal and Vertical Extent of Plume(s)
 - B2.B.1(c) Horizontal and Vertical Direction of Contaminant Movement
 - B2.B.1(d) Velocity of Groundwater Contaminant Movement
 - B2.B.1(e) Factors Influencing Plume Movement
 - B2.B.1(f) Extrapolation of Future contaminant Movement
 - B2.B.1(g) Recommendations or Established Requirements for Additional Investigations
 - B2.B.2 Soil
 - B2.B.2(a) Characterization History
 - B2.B.2(b) Description of Horizontal and Vertical Extent of Contamination
 - B2.B.2(c) Description of Soil and Contaminant Properties
 - B2.B.2(d) Velocity and Direction of Contaminant Movement
 - B2.B.2(e) Extrapolation of Future Contaminant Movement
 - B2.B.2(f) Recommendations or Established Requirements for Additional Investigations
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 - B2.B.3(b) Description of Horizontal and Vertical Extent of Any Contamination
 - B2.B.3(c) Velocity of Contaminant Movement
 - B2.B.3(d) Description of Sediment Characteristics
 - B2.B.3(e) Description of Physical, Biological, and Chemical Factors That May Influence Contaminant Movement and Their Effects
 - B2.B.3(f) Proposed or Final Mixing Zone Determinations for Any On-Site Contamination Venting to a Surface Water Body
 - B2.B.3(g) Recommendations or Established Requirements for Additional Investigations
 - B2.B.4 Air
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 - B2.B.4(c) Rate and Amount of Release
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- B2.B.5(d) Recommendations or Established Requirements for Additional Investigations
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 - B2.C.1(a) Exposure Pathway
 - B2.C.1(b) Actual or Potential Receptors
 - B2.C.1(c) Evidence of Exposure
 - B2.C.2 Environmental Exposure and Threats
 - B2.C.2(a) Exposure Pathway
 - B2.C.2(b) Actual or Potential Receptors
 - B2.C.2(c) Evidence of Exposure
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 - B2.D.1(d) Evaluation of Measure Effectiveness
 - B2.D.1(e) Proposed or Required Schedules for Continued Operation or Future Changes in the Measure
- B2.E ENVIRONMENTAL INDICATORS
 - Attachment B2.E.1 Environmental Indicator Checklists
- B2.F FACILITY'S ASSESSMENT OF KNOWN OR PROPOSED CONSTITUENTS OF CONCERN
- B2.G ESTABLISHED OR PROPOSED CLEANUP CRITERIA
- B2.H ESTABLISHED OR PROPOSED COMPLIANCE POINTS AND PERIODS
- B2.I OFF-SITE ACCESS
- B2.J PUBLIC INVOLVEMENT PLAN
- B2.K HEALTH AND SAFETY PLAN
- B2.L NOTICE REQUIREMENTS
- B2.M JUSTIFICATION FOR PROPOSED ELIMINATION OF ANY WASTE MANAGEMENT UNIT FROM THE CORRECTIVE ACTION PROGRAM OR INTENT TO PROCEED WITH CORRECTIVE ACTIONS

B2.A FACILITY BACKGROUND

B2.A.1 History and Description of Ownership and Operation

Petro-Chem Processing Group of Nortru, LLC, is a full-service Hazardous Waste Treatment, Storage and Disposal facility is capable of handling a wide variety of waste streams (450 permitted waste codes) for fuel blending, transship and bulking. It is one of the largest facilities in the US processing waste-derived fuels from hazardous waste. Petro-Chem also offers lab packing and de-packing services as a cost-efficient solution for managing a variety of laboratory wastes including reactives, cylinders, flammables, corrosives and poisons. Petro-Chem is a permitted Treatment, Storage, and Disposal Facility specializing in the production of supplemental fuel for energy recovery in industrial furnaces. The benefits are numerous: certain regulated boilers and industrial furnaces enjoy a large source of fuel, the use and depletion of nonrenewable fossil fuels are reduced, and the environment is protected from land disposal of potentially dangerous industrial wastes.

Amoco Oil Company developed the original property in 1923 as a small bulk fuel oil terminal. Amoco operated this site until the mid-70's, when KOI Petroleum took it over and operated it until 1976. Petro-Chem purchased the initial property out of bankruptcy court in 1981 and has continuously acquired additional parcels since that time. Petro-Chem began operations in 1982. Nortru, Inc. was established in 1979. Petro-Chem Processing Group was established in 1981. Nortru, LLC was established in 2008.

Information required by this template has been provided in the revised 1996 Hydrogeological Report submitted in support of Petro-Chem original RCRA Part B Permit Application dated September 24, 1996. The most current ground water monitoring information was provided to EGLE in the 2021 Petro-Chem Processing Group of Nortru, LLC annual groundwater report. This report was provided to EGLE on February 28, 2022. A copy of this 463-page annual groundwater report and previous annual ground water monitoring reports will be provided upon request. Additional information has also been provided in the Environmental Assessment located in Volume IV, Section 1 of this permit renewal application.

Petro-Chem currently does not have any waste management units requiring corrective action at the time of this permit renewal application. There is one ongoing corrective action to address pre-existing MTBE groundwater impacts at the facility.

Enforcement History:

The facility has had one open Finding of Violation (FOV) issued by U.S. EPA on June 18, 2018 which Petro-Chem has refuted and is awaiting a response from EPA. The FOV was regarding compliance with NESHAP standards for offsite waste and recovery operations and benzene waste operations that were part of the facility's previous Renewable Operating Permit no. MI-ROP-N0731-2009. The most recent DEQ inspection report which includes a compliance history summary has been provided in Volume IV, Section 1, Appendix B4.3 "2020 DEQ Activity Report".

Other Permits:

A list of other environmental permits and licenses associated with the Petro-Chem facility is provided in the Part A permit application and copies of the permits have been provided in Volume IV, Section 1, Appendix B4.3 of this application.

Previous Investigations and Corrective Actions:

The following is a summary of RCRA Facility Investigations

1. Original Container Building

Tetra Tech performed a subsurface investigation in 2008 in response to the removal of the original container management building. A copy of the 2008 486-page 2008 Tetra Tech report will be provided electronically upon request. The impacted soils identified in this report were removed/remediated before the current or existing container management building was constructed.

2. 2007 Part 201 Pathway Analysis:

A Part 201 Pathway Analysis was requested by Michigan Department of Environmental Quality (MDEQ) following the August 2006 Fire Event to determine any off-site impacts if any occurred. Petro-Chem retained Bureau Veritas to evaluate relevant exposure pathways

(under Part 201 of Act 451) following the potential release of hazardous substances that occurred as a result of a fire at the subject property in 2006. The results of this evaluation were submitted to MDEQ in a report dated August 27, 2007. On May 21, 2008, MDEQ requested additional information to support the conclusions of the initial evaluation. In July 2008, Petro-Chem submitted a proposal that drinking water was not a relevant pathway which was denied by MDEQ in a letter dated November 28, 2008. On August 11, 2008 the facility provided a final 201 exposure pathways report to DEQ that concluded the corrective actions associated with the 2006 fire were not warranted. In a letter dated November 25, 2008, the DEQ determined the drinking water pathway and groundwater monitoring was still relevant. A copy of the report has been submitted to EGLE on November 17, 2016. A copy of this plan is available electronically and will also be provided upon request.

3. 2016 Corrective Measures MTBE Release, Interim Measures, Multi Phase Extraction (MPE):

This workplan was prepared in response to the letter received from Mr. David Slayton, Geologist with the Michigan Department of Environmental Quality, dated October 16, 2009. The letter indicated that a RFI Workplan would need to be prepared in order to address the discovery of MTBE in groundwater samples collected during the first semi-annual sampling event conducted in July 2009. A copy of the 2009 annual groundwater monitoring report was provided to EGLE on March 26, 2010. A copy of this report will be provided upon request. The MTBE discovery was considered a new release under License Condition VI.D.1. As a result, Petro-Chem prepared RCRA Facility Investigation Work Plan which was submitted to EGLE January of 2010. A copy of this 357-page will be provided upon request. The RFI plan was initiated in November 2010 where soil borings were collected and analyzed. Based on the RFI results, the facility prepared and implemented an interim and corrective measures plans which included the removal of soils from the southwest corner of the property. As part of the RFI and corrective measures, the facility has also submitted the following reports to EGLE which contain information on soil borings, sampling and testing. Copies of these reports and studies are available electronically and will be provided upon request:

- RFI Report, Philip Environmental Services Division, Petro-Chem Processing Group Facility, 421 Lycaste Street, Detroit, Michigan, dated February 16, 2011
- Amended Corrective Action Investigation Report, Petro-Chem Processing Group of Nortru, LLC, 421 Lycaste Street, Detroit, Michigan, dated November 20, 2015
- Corrective Measures Study Investigation Report, Stericycle Environmental Solutions, Inc., Petro-Chem Processing Group Facility, 421 Lycaste Street, Detroit, Michigan, dated May 13, 2016
- Corrective Measures Study, Stericycle Environmental Solutions, Inc., Petro-Chem Processing Group Facility, 421 Lycaste Street, Detroit 48214, Michigan, dated November 17, 2016

The facility has completed the removal of the west berm soil stockpile (the interim and corrective measure) from the southwest corner of the property and has completed the multi-phase extraction (MPE) pilot test. The final west berm soil removal report and final MPE test report is attached to this form as Appendix 1 and Appendix 2 to Form B2 in Volume I, Section 8. Acceptance of the final interim measures and reinstatement of the SBS building is pending a letter of acceptance from EGLE.

4. 2020 PFOS/A Groundwater Sampling:

In a letter dated February 6, 2020, EGLE requested that Petro-Chem prepare and submit a corrective action investigation work plan to address PFAS identified in the January 22, 2020 PFAS Groundwater Sampling Report. Petro-Chem provided the Corrective Action Investigation Work Plan to EGLE on May 29, 2020. A subsequent PFAS Groundwater Sampling Report was provided to EGLE on December 8, 2020. The report summary indicated, *“As presented in the Corrective Action Investigation Work Plan for PFAS, dated May 29, 2020, it is Apex’s opinion that drinking water and groundwater surface water interface are not applicable pathways due to the following: (1) offsite sewers are not intercepting groundwater, (2) onsite sewers are set above the water bearing zone, (3) the presence of a peat layer which retards the potential for offsite migration, and (4) the absence of private drinking water wells within at least 3 miles of the Site. Therefore, further action in regard to PFAS is not warranted at this time.”*

B2.A.2 Environmental Setting

Section B2.A.2 has been addressed in Volume IV, Section 1, Form B4 Environmental Assessment, Section B4.A.2.

B2.A.2(a) Climate

Section B2.A.2(a) has been addressed in Volume IV, Section 1, Form B4 Environmental Assessment, Section B4.A.2(a).

B2.A.2(b) Topography

Section B2.A.2(b) has been addressed in Volume IV, Section 1, Form B4 Environmental Assessment, Section B4.A.2(b)

B2.A.2(c) Hydrogeology

Section B2.A.2(c) has been addressed in Volume IV, Section 1, Form B4 Environmental Assessment, Section B4.A.2(c).

B2.A.2(d) Soil

Section B2.A.2(g) has been addressed in Volume IV, Section 1, Form B4 Environmental Assessment, B4.A.2(d).

B2.A.2(e) Surface Water

Section B2.A.2(g) has been addressed in Volume IV, Section 1, Form B4 Environmental Assessment, Section B4.A.2.(e).

B2.A.2(f) Surrounding Land Uses

Section B2.A.2(f) has been addressed in Volume IV, Section 1, Form B4 Environmental Assessment, Sections B4.A.2(f) and B4.A.2(h)

B2.A.2(g) Critical Habitats and Endangered Species

Section B2.A.2(g) has been addressed in Volume IV, Section 1, Form B4 Environmental Assessment, Section B4.A.2(g).

B2.A.3 Characterization of Potential or Actual Sources of Contamination
[R 299.9504(c) and 40 CFR §270.14(d)]

The Petro-Chem facility has not identified any waste management units (WMU) sources which could be considered an area of concern or other sources which may present an unacceptable risk to public health, safety, welfare, or the environment at the time this permit renewal application was prepared. Therefore, the remainder of this section is not applicable.

A summary of the previous investigations of potential and actual sources of contamination has been provided in Section B2.A.1 of this form.

B2.A.3(a) Identified Units

The Petro-Chem facility has not identified any WMU sources which could be considered an area of concern or other sources which may present an unacceptable risk to public health, safety, welfare, or the environment at the time this permit renewal application was prepared. Therefore, this section is not applicable.

B2.A.3(a)(1) Unit Characteristics

The Petro-Chem facility has not identified any WMU sources which could be considered an area of concern or other sources which may present an unacceptable risk to public health, safety, welfare, or the environment at the time this permit renewal application was prepared. Therefore, this section is not applicable.

B2.A.3(a)(2) Waste Characteristics and Management

The Petro-Chem facility has not identified any WMU sources which could be considered an area of concern or other sources which may present an unacceptable risk to public health, safety, welfare, or the environment at the time this permit renewal application was prepared. Therefore, this section is not applicable.

B2.A.3(a)(3) History of Releases or Potential to Release

The Petro-Chem facility has not identified any WMU sources which could be considered an area of concern or other sources which may present an unacceptable risk to public health, safety, welfare, or the environment at the time this permit renewal application was prepared. Therefore, this section is not applicable.

B2.B FACILITY'S ASSESSMENT OF KNOWN NATURE AND EXTENT OF CONTAMINATION

B2.B.1 Groundwater

B2.B.1(a) Characterization History

A description the facility's known nature and extent of contamination, remedial investigation reports and assessments, is discussed above in section B2.A.1 of this document. Additional information is provided in:

- The Revised 1996 Hydrogeologic Report and Monitoring Plan.
- Permit Application Volume III, Form B3 Hydrogeologic Report.
- Corrective Measures Study, Stericycle Environmental Solutions, Inc., Petro-Chem Processing Group Facility, 421 Lycaste Street, Detroit 48214, Michigan, dated November 17, 2016
- The 2021 Annual Groundwater Report Petro-Chem Processing Group of Nortru, LLC. This report was submitted to EGLE on February 28, 2022 and is not included in this application. Petro-Chem will provide another copy of the 463-page 2021 annual groundwater monitoring report upon request.

Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.B.1(b) Description of Horizontal and Vertical Extent of Plume(s)

Section B2.B1(b) has been addressed in Petro-Chem's ongoing hydrogeological study/monitoring program. This information is also discussed in EGLE Form B3, "Hydrogeological Report" provided in Volume III of this plan. Additional information is provided in:

- The Revised 1996 Hydrogeologic Report and Monitoring Plan.
- Permit Application Volume IV, Section 1, Form B4 Environmental Assessment Report.
- Permit Application Volume IV, Section 2, Form B5 Environmental Monitoring Report.
- The 2007 Part 201 Exposure Pathway Analysis, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2021 Annual Groundwater Report Petro-Chem Processing Group of Nortru, LLC. This report was submitted to EGLE on February 28, 2022 and is not included in this application. Petro-Chem will provide another copy of the 463-page 2021 annual groundwater monitoring report upon request.

Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.B.1(c) Horizontal and Vertical Direction of Contaminant Movement

Section B2.B1(c) has been addressed in Petro-Chem's ongoing hydrogeological study/monitoring program. This information is also discussed in EGLE Form B3, "Hydrogeological Report" provided in Volume III of this plan. Additional information is provided in:

- The Revised 1996 Hydrogeologic Report and Monitoring Plan.
- Permit Application Volume IV, Section 1, Form B4 Environmental Assessment Report.
- Permit Application Volume IV, Section 2, Form B5 Environmental Monitoring Report.
- The 2007 Part 201 Exposure Pathway Analysis, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2021 Annual Groundwater Report Petro-Chem Processing Group of Nortru, LLC. This report was submitted to EGLE on February 28, 2022 and is not included in this application. Petro-Chem will provide another copy of the 463-page 2021 annual groundwater monitoring report upon request.
- The final west berm soil removal report and the final MPE pilot test report has been attached to this form as Volume I, Section 8, Appendix 1 and 2.

Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.B.1(d) Velocity of Groundwater Contaminant Movement

Section B2.B1(d) has been addressed in Petro-Chem's ongoing hydrogeological study/monitoring program. This information is also discussed in EGLE Form B3, "Hydrogeological Report" provided in Volume III of this plan. Additional information is provided in:

- The Revised 1996 Hydrogeologic Report and Monitoring Plan.
- Permit Application Volume IV, Section 1, Form B4 Environmental Assessment Report.
- Permit Application Volume IV, Section 2, Form B5 Environmental Monitoring Report.
- The 2007 Part 201 Exposure Pathway Analysis, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2021 Annual Groundwater Report Petro-Chem Processing Group of Nortru, LLC. This report was submitted to EGLE on February 28, 2022 and is not included in this application. Petro-Chem will provide another copy of the 463-page 2021 annual groundwater monitoring report upon request.

Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.B.1(e) Factors Influencing Plume Movement

Section B2.B1(e) has been addressed in Petro-Chem's ongoing hydrogeological study/monitoring program. This information is also discussed in EGLE Form B3, "Hydrogeological Report" provided in Volume III of this plan. Additional information is provided in:

- The Revised 1996 Hydrogeologic Report and Monitoring Plan.
- Permit Application Volume IV, Section 1, Form B4 Environmental Assessment Report.
- Permit Application Volume IV, Section 2, Form B5 Environmental Monitoring Report.
- The 2007 Part 201 Exposure Pathway Analysis, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2021 Annual Groundwater Report Petro-Chem Processing Group of Nortru, LLC. This report was submitted to EGLE on February 28, 2022 and is not included in this application. Petro-Chem will provide another copy of the 463-page 2021 annual groundwater monitoring report upon request.

Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.B.1(f) Extrapolation of Future Contaminant Movement

Section B2.B1(f) has been addressed in Petro-Chem's ongoing hydrogeological study/monitoring program. This information is also discussed in EGLE Form B3, "Hydrogeological Report" provided in Volume III of this plan. Additional information is provided in:

- The Revised 1996 Hydrogeologic Report and Monitoring Plan.
- Permit Application Volume IV, Section 1, Form B4 Environmental Assessment Report.
- Permit Application Volume IV, Section 2, Form B5 Environmental Monitoring Report.
- The 2007 Part 201 Exposure Pathway Analysis, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2021 Annual Groundwater Report Petro-Chem Processing Group of Nortru, LLC. This report was submitted to EGLE on February 28, 2022 and is not included in this application. Petro-Chem will provide another copy of the 463-page 2021 annual groundwater monitoring report upon request.

Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.B.1(g) Recommendations or Established Requirements for Additional Investigations

The facility has not identified any recommendations or established requirements for additional groundwater contamination investigation beyond the current ongoing groundwater studies or monitoring.

B2.B.2 Soil

Petro-Chem was not and is not currently required to conduct a soil study. The facility does not have any reason to suspect soil has been impacted. Therefore, this section is not applicable.

B2.B.2(a) Characterization History

Petro-Chem was not and is not currently required to conduct a soil study. The facility does not have any reason to suspect soil has been impacted. Therefore, this section is not applicable.

B2.B.2(b) Description of Horizontal and Vertical Extent of Contamination

Petro-Chem was not and is not currently required to conduct a soil study. The facility does not have any reason to suspect soil has been impacted. Therefore, this section is not applicable.

B2.B.2(c) Description of Soil and Contaminant Properties

Petro-Chem was not and is not currently required to conduct a soil study. The facility does not have any reason to suspect soil has been impacted. Therefore, this section is not applicable.

B2.B.2(d) Velocity and Direction of Contaminant Movement

Petro-Chem was not and is not currently required to conduct a soil study. The facility does not have any reason to suspect soil has been impacted. Therefore, this section is not applicable.

B2.B.2(e) Extrapolation of Future Contaminant Movement

Petro-Chem was not and is not currently required to conduct a soil study. The facility does not have any reason to suspect soil has been impacted. Therefore, this section is not applicable.

B2.B.2(f) Recommendations or Established Requirements for Additional Investigations

The facility has not identified any recommendations or established requirements for additional soil contamination investigation beyond the current ongoing groundwater studies or monitoring.

B2.B.3 Surface Water and Sediment

B2.B.3(a) Characterization History

The facility has not had a reason to perform surface water or sediment sampling. There have been no significant surface water or sediment sampling events. Therefore, this section is not applicable.

B2.B.3(b) Description of Horizontal and Vertical Extent of Any Contamination

The facility has not had a reason to perform surface water or sediment sampling. There have been no significant surface water or sediment sampling events. Therefore, this section is not applicable.

B2.B.3(c) Velocity of Contaminant Movement

The facility has not had a reason to perform surface water or sediment sampling. There have been no significant surface water or sediment sampling events. Therefore, this section is not applicable.

B2.B.3(d) Description of Sediment Characteristics

The facility has not had a reason to perform surface water or sediment sampling. There have been no significant surface water or sediment sampling events. Therefore, this section is not applicable.

B2.B.3(e) Description of Physical, Biological, and Chemical Factors That May Influence Contaminant Movement and Their Effects

The facility has not had a reason to perform surface water or sediment sampling. There have been no significant surface water or sediment sampling events. Therefore, this section is not applicable.

B2.B.3(f) Proposed or Final Mixing Zone Determinations for Any On-Site Contamination Venting to a Surface Water Body

The facility has not had a reason to perform surface water or sediment sampling. There have been no significant surface water or sediment sampling events. Therefore, this section is not applicable.

B2.B.3(g) Recommendations or Established Requirements for Additional Investigations

The facility has not had a reason to perform surface water or sediment sampling. There have been no significant surface water or sediment sampling events. Therefore, this section is not applicable.

B2.B.4 Air

Petro-Chem monitors ambient air in accordance with the Hazardous Waste Facility Operating License issued by the Michigan Department of Environmental Quality. Around the perimeter of the facility, there are four locations, with one station having duplicate samplers for QA/QC. Organic samplers are located at each of the four monitoring locations and collect an 8-hour composite sample over a 24-hour period (1 minute on, two minutes off) every six days. Samples are analyzed for: Benzene, Carbon Tetrachloride, Chloroform, Methylene Chloride, Tetrachloroethane, Trichloroethylene, Vinyl Chloride, 1,1,1-Trichloroethane, Toluene, and Xylene. The data collected is reported to the Michigan Department of Environmental Quality. The original monitoring plan indicated that once a record of compliance had been established, the facility would request a reduction in the sampling frequency or adjustment in the scope of the monitoring program. Based on analysis of the air monitoring results, the facility is requesting an adjustment of the monitoring

program. A description of the air monitoring plan, information and proposed changes has been provided in Volume IV, Section 2, EGLE Form B5 and Appendix B5.0 of this permit application.

B2.B.4(a) Characterization History

A characterization history has been provided in the October 2011 Bureau Veritas ambient monitoring network plan provided in Volume IV, Section 2, Appendix 5.0.

B2.B.4(b) Description of Horizontal and Vertical Direction and Velocity of Contaminant Movement

Information addressing the horizontal and vertical movement of contaminants has been provided in the October 2011 Bureau Veritas ambient monitoring network plan provided in Volume IV, Section 2, Appendix 5.0.

B2.B.4(c) Rate and Amount of Release

Information addressing the horizontal and vertical movement of contaminants has been provided in the October 2011 Bureau Veritas ambient monitoring network plan provided in Volume IV, Section 2, Appendix 5.0.

B2.B.4(d) Recommendations or Established Requirements for Additional Investigations

Information addressing the horizontal and vertical movement of contaminants has been provided in the October 2011 Bureau Veritas ambient monitoring network plan provided in Volume IV, Section 2, Appendix 5.0.

B2.B.5 Subsurface Gas Contamination

B2.B.5(a) Characterization History

The 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem included a discussion of subsurface gas contamination investigations and (multi-phase extraction or MPE) pilot test investigation. A copy of this report has been provided to EGLE on November 17, 2016. The final west berm soil removal report and the final MPE pilot test report has been attached to this form as Volume I, Section 8, Appendix 1 and 2. Additional information is provided:

- The Revised 1996 Hydrogeologic Report and Monitoring Plan.
- Permit Application Volume IV, Section 1, Form B4 Environmental Assessment Report.
- Permit Application Volume IV, Section 2, Form B5 Environmental Monitoring Report.
- The 2007 Part 201 Exposure Pathway Analysis, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2021 Annual Groundwater Report Petro-Chem Processing Group of Nortru, LLC. This report was submitted to EGLE on February 28, 2022.

Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.B.5(b) Description of Horizontal and Vertical Extent of Subsurface Gas Contamination Migration

The 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem included a discussion of subsurface gas contamination investigations and (multi-phase extraction or MPE) pilot test investigation. A copy of this report has been provided to EGLE on November 17, 2016. The final west berm soil removal report and the final MPE pilot test report has been attached to this form as Volume I, Section 8, Appendix 1 and 2. Additional information is provided:

- Permit Application Volume IV, Section 1, Form B4 Environmental Assessment Report.
- Permit Application Volume IV, Section 2, Form B5 Environmental Monitoring Report.
- The 2007 Part 201 Exposure Pathway Analysis, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2021 Annual Groundwater Report Petro-Chem Processing Group of Nortru, LLC. This report was submitted to EGLE on February 28, 2022.

Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.B.5(c) Rate, Amount, and Density of Gases Being Emitted

The 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem included a discussion of subsurface gas contamination investigations and (multi-phase extraction or MPE) pilot test investigation. A copy of this report has been provided to EGLE on November 17, 2016. The final west berm soil removal report and the final MPE pilot test report has been attached to this form as Volume I, Section 8, Appendix 1 and 2. Additional information is provided:

- Permit Application Volume IV, Section 1, Form B4 Environmental Assessment Report.
- Permit Application Volume IV, Section 2, Form B5 Environmental Monitoring Report.
- The 2007 Part 201 Exposure Pathway Analysis, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2021 Annual Groundwater Report Petro-Chem Processing Group of Nortru, LLC. This report was submitted to EGLE on February 28, 2022.

Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.B.5(d) Recommendations or Established Requirements for Additional Investigations

The 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem included a discussion of subsurface gas contamination investigations and (multi-phase extraction or MPE) pilot test investigation. A copy of this report has been provided to EGLE on November 17, 2016. The final west berm soil removal report and the final MPE pilot test report has been attached to this form as Volume I, Section 8, Appendix 1 and 2. Additional information is provided:

- Permit Application Volume IV, Section 1, Form B4 Environmental Assessment Report.
- Permit Application Volume IV, Section 2, Form B5 Environmental Monitoring Report.
- The 2007 Part 201 Exposure Pathway Analysis, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem.
- The 2021 Annual Groundwater Report Petro-Chem Processing Group of Nortru, LLC. This report was submitted to EGLE on February 28, 2022.

Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.C FACILITY'S EXPOSURE ASSESSMENT

Subsurface investigations including the multi-phase extraction pilot test investigation report have been discussed in Section B2.B.1 and B2.B.2 above.

The facility performed a Part 201 Pathway Analysis related to a potential release of hazardous substances that occurred as a result of a fire at the property in 2006. The results of the evaluation were submitted to Michigan DEQ in a report dated August 27, 2007. On August 11, 2008 the facility provide a final 201 exposure pathways report to DEQ. Additional exposure assessment and corrective measures has been provided in the 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem. Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.C.1 Human Exposure and Threats

The facility performed a Part 201 Pathway Analysis related to a potential release of hazardous substances that occurred as a result of a fire at the property in 2006. The results of the evaluation were submitted to Michigan DEQ in a report dated August 27, 2007. On August 11, 2008 the facility provide a final 201 exposure pathways report to DEQ. Additional exposure assessment and corrective measures has been provided in the 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem. Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.C.1(a) Exposure Pathway

The facility performed a Part 201 Pathway Analysis related to a potential release of hazardous substances that occurred as a result of a fire at the property in 2006. The results of the evaluation were submitted to Michigan DEQ in a report dated August 27, 2007. On August 11, 2008 the facility provide a final 201 exposure pathways report to DEQ. Additional exposure assessment and corrective measures has been provided in the 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem. Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.C.1(b) Actual or Potential Receptors

The facility performed a Part 201 Pathway Analysis related to a potential release of hazardous substances that occurred as a result of a fire at the property in 2006. The results of the evaluation were submitted to Michigan DEQ in a report dated August 27, 2007. On August 11, 2008 the facility provide a final 201 exposure pathways report to DEQ. Additional exposure assessment and corrective measures has been provided in the 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem. Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.C.1(c) Evidence of Exposure

The facility performed a Part 201 Pathway Analysis related to a potential release of hazardous substances that occurred as a result of a fire at the property in 2006. The results of the evaluation were submitted to Michigan DEQ in a report dated August 27, 2007. On August 11, 2008 the facility provide a final 201 exposure pathways report to DEQ. Additional exposure assessment and corrective measures has been provided in the 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem. Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.C.2 Environmental Exposure and Threats

The facility performed a Part 201 Pathway Analysis related to a potential release of hazardous substances that occurred as a result of a fire at the property in 2006. The results of the evaluation were submitted to Michigan DEQ in a report dated August 27, 2007. On August 11, 2008 the facility provide a final 201 exposure pathways report to DEQ. Additional exposure assessment and corrective measures has been provided in the 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem. Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.C.2(a) Exposure Pathway

The facility performed a Part 201 Pathway Analysis related to a potential release of hazardous substances that occurred as a result of a fire at the property in 2006. The results of the evaluation were submitted to Michigan DEQ in a report dated August 27, 2007. On August 11, 2008 the facility provide a final 201 exposure pathways report to DEQ. Additional exposure assessment and corrective measures has been provided in the 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem. Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.C.2(b) Actual or Potential Receptors

The facility performed a Part 201 Pathway Analysis related to a potential release of hazardous substances that occurred as a result of a fire at the property in 2006. The results of the evaluation were submitted to Michigan DEQ in a report dated August 27, 2007. On August 11, 2008 the facility provide a final 201 exposure pathways report to DEQ. Additional exposure assessment and corrective measures has been provided in the 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem. Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.C.2(c) Evidence of Exposure

The facility performed a Part 201 Pathway Analysis related to a potential release of hazardous substances that occurred as a result of a fire at the property in 2006. The results of the evaluation were submitted to Michigan DEQ in a report dated August 27, 2007. On August 11, 2008 the facility provide a final 201 exposure pathways report to DEQ. Additional exposure assessment and corrective measures has been provided in the 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem. Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request. Additional information has been provided in the Environmental Assessment form B4 provided in Volume IV, Section 1 of the application.

B2.D INTERIM MEASURES

The facility prepared a workplan in response to the letter received from Mr. David Slayton, Geologist with the Michigan Department of Environmental Quality, dated October 16, 2009. The letter indicated that a RFI Workplan would need to be prepared in order to address the discovery of MTBE in groundwater samples collected during the first semi-annual sampling event conducted in July 2009 (See Volume IV, for 2009 groundwater results). The MTBE discovery was considered a new release under License Condition VI.D.1. The Plan was initiated in November 2010 where soil borings were taken and analyzed. As a result, Petro-Chem prepared a RCRA Facility Investigation Work plan which was submitted to EGLE January of 2010. A copy of this 357-page plan will be provided upon request. The RFI plan was initiated in November 2010 where soil borings were collected and analyzed. Based on the RFI results, the facility prepared and implemented an interim and corrective measures plans which included the removal of soils from the southwest corner of the property. As part of the RFI and corrective measures, the facility has also submitted the following reports to EGLE which contain information on soil borings, sampling, and testing. Copies of these reports and studies will be provided upon request:

- RFI Report, Philip Environmental Services Division, Petro-Chem Processing Group Facility, 421 Lycaste Street, Detroit, Michigan, dated February 16, 2011.
- Amended Corrective Action Investigation Report, Petro-Chem Processing Group of Nortru, LLC, 421 Lycaste Street, Detroit, Michigan, dated November 20, 2015.
- Corrective Measures Study Investigation Report, Stericycle Environmental Solutions, Inc., Petro-Chem Processing Group Facility, 421 Lycaste Street, Detroit, Michigan, dated May 13, 2016.
- Corrective Measures Study, Stericycle Environmental Solutions, Inc., Petro-Chem Processing Group Facility, 421 Lycaste Street, Detroit 48214, Michigan, dated November 17, 2016.

The facility has completed the removal of the west berm soil stockpile (the interim and corrective measure) from the southwest corner of the property and has completed the multi-phase extraction (MPE) pilot test. The final west berm soil removal report and final MPE test report is attached to this form as Appendix 1 and Appendix 2 to Form B2 in Volume I, Section 8. Acceptance of the final interim measures and reinstatement of the SBS building is pending a letter of acceptance from EGLE.

B2.D.1 MTBE Corrective Measures / RFI Work Plan, Soil Stockpile Removal and Multi-Phase Extraction (MPE)

B2.D.1(a) Objective of the Measure

The RFI plan was initiated in November 2010 where soil borings were collected and analyzed. Corrective measures were provided in the 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem. The facility has completed the removal of the west berm soil stockpile (the interim and corrective measure) from the southwest corner of the property and has completed the multi-phase extraction (MPE) pilot test. The final west berm soil removal report and final MPE test report is attached to this form as Volume I, Section 8, Appendix 1 and Appendix 2. Acceptance of the final interim measures and reinstatement of the SBS building is pending a letter of acceptance from EGLE. Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.D.1(b) Design and Construction

The RFI plan was initiated in November 2010 where soil borings were collected and analyzed. Corrective measures were provided in the 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem. The facility has completed the removal of the west berm soil stockpile (the interim and corrective measure) from the southwest corner of the property and has completed the multi-phase extraction (MPE) pilot test. The final west berm soil removal report and final MPE test report is attached to this form as Volume I, Section 8, Appendix 1 and Appendix 2. Acceptance of the final interim measures and reinstatement of the SBS building is pending a letter of acceptance from EGLE. Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.D.1(c) Operation, Monitoring, and Maintenance

The RFI plan was initiated in November 2010 where soil borings were collected and analyzed. Corrective measures were provided in the 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem. The facility has completed the removal of the west berm soil stockpile (the interim and corrective measure) from the southwest corner of the property and has completed the multi-phase extraction (MPE) pilot test. The final west berm soil removal report and final MPE test report is attached to this form as Volume I, Section 8, Appendix 1 and Appendix 2. Acceptance of the final interim measures and reinstatement of the SBS building is pending a letter of acceptance from EGLE. Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.D.1(d) Evaluation of Measure Effectiveness

The RFI plan was initiated in November 2010 where soil borings were collected and analyzed. Corrective measures were provided in the 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem. The facility has completed the removal of the west berm soil stockpile (the interim and corrective measure) from the southwest corner of the property and has completed the multi-phase extraction (MPE) pilot test. The final west berm soil removal report and final MPE test report is attached to this form as Volume I, Section 8, Appendix 1 and Appendix 2. Acceptance of the final interim measures and reinstatement of the SBS building is pending a letter of acceptance from EGLE. Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.D.1(e) Proposed or Required Schedules for Continued Operation or Future Changes in the Measure

The RFI plan was initiated in November 2010 where soil borings were collected and analyzed. Corrective measures were provided in the 2016 Corrective Measures Study, Prepared by Bureau Veritas North America, Inc. for Petro-Chem. The facility has completed the removal of the west berm soil stockpile (the interim and corrective measure) from the southwest corner of the property and has completed the multi-phase extraction (MPE) pilot test. The final west berm soil removal report and final MPE test report is attached to this form as Volume I, Section 8, Appendix 1 and Appendix 2. Acceptance of the final interim measures and reinstatement of the SBS building is

pending a letter of acceptance from EGLE. Copies of these reports have been submitted to EGLE. Petro-Chem will provide electronic copies of these reports upon request.

B2.E ENVIRONMENTAL INDICATORS

The completed environmental indicator forms for Human Exposure to Contamination and Migration of Contaminated Groundwater have been attached to this EGLE as attachment B2.E1. Neither form identified any environmental indicators that suggest human exposure to contamination or the migration of contaminated groundwater off-site.

B2.F FACILITY'S ASSESSMENT OF KNOWN OR PROPOSED CONSTITUENTS OF CONCERN

[R 299.9629(3)(a)(i) and (3)(b)(i)]

The facility performed a Part 201 Pathway Analysis related to a potential release of hazardous substances that occurred as a result of a fire at the property in 2006. The results of the evaluation were submitted to Michigan DEQ in a report dated August 27, 2007. On August 11, 2008 the facility provide a final 201 exposure pathways report to DEQ.

The 2016 Corrective Measures report addressed the historic MTBE release, corrective measures including soil removal and Multi Phase Extraction (MPE) pilot study.

The PFAS Groundwater Sampling Report provided to EGLE on December 8, 2020 indicated drinking water and groundwater surface water interface are not applicable pathways due to the following: (1) offsite sewers are not intercepting groundwater, (2) onsite sewers are set above the water bearing zone, (3) the presence of a peat layer which retards the potential for offsite migration, and (4) the absence of private drinking water wells within at least 3 miles of the Site. Therefore, further action regarding PFAS is not warranted at this time.

B2.G ESTABLISHED OR PROPOSED CLEANUP CRITERIA

[R 299.9629(3)(a)(ii) and (iii) and R 299.9629(3)(b)(ii) and (iii)]

The facility performed a Part 201 Pathway Analysis related to a potential release of hazardous substances that occurred as a result of a fire at the property in 2006. The results of the evaluation were submitted to Michigan DEQ in a report dated August 27, 2007. On August 11, 2008 the facility provided a final 201 exposure pathways report to DEQ.

The 2016 Corrective Measures report addressed the historic MTBE release, corrective measures including soil removal and Multi Phase Extraction (MPE) pilot study.

The PFAS Groundwater Sampling Report provided to EGLE on December 8, 2020 indicated drinking water and groundwater surface water interface are not applicable pathways due to the following: (1) offsite sewers are not intercepting groundwater, (2) onsite sewers are set above the water bearing zone, (3) the presence of a peat layer which retards the potential for offsite migration, and (4) the absence of private drinking water wells within at least 3 miles of the Site. Therefore, further action regarding PFAS is not warranted at this time.

B2.H ESTABLISHED OR PROPOSED COMPLIANCE POINTS AND PERIODS

[R 299.9629(3)(a)(iv) and (v) and R 299.9629(3)(b)(iv) and (v)]

The facility performed a Part 201 Pathway Analysis related to a potential release of hazardous substances that occurred as a result of a fire at the property in 2006. The results of the evaluation were submitted to Michigan DEQ in a report dated August 27, 2007. On August 11, 2008 the facility provide a final 201 exposure pathways report to DEQ.

The 2016 Corrective Measures report addressed the historic MTBE release, corrective measures including soil removal and Multi Phase Extraction (MPE) pilot study.

The PFAS Groundwater Sampling Report provided to EGLE on December 8, 2020 indicated drinking water and groundwater surface water interface are not applicable pathways due to the following: (1) offsite sewers are not intercepting groundwater, (2) onsite sewers are set above the water bearing zone, (3) the presence of a peat layer which retards the potential for offsite migration, and (4) the absence of private drinking water wells within at least 3 miles of the Site. Therefore, further action regarding PFAS is not warranted at this time.

B2.I OFF-SITE ACCESS

The facility performed a Part 201 Pathway Analysis related to a potential release of hazardous substances that occurred as a result of a fire at the property in 2006. The results of the evaluation were submitted to Michigan DEQ in a report dated August 27, 2007. On August 11, 2008 the facility provide a final 201 exposure pathways report to DEQ.

The 2016 Corrective Measures report addressed the historic MTBE release, corrective measures including soil removal and Multi Phase Extraction (MPE) pilot study.

The PFAS Groundwater Sampling Report provided to EGLE on December 8, 2020 indicated drinking water and groundwater surface water interface are not applicable pathways due to the following: (1) offsite sewers are not intercepting groundwater, (2) onsite sewers are set above the water bearing zone, (3) the presence of a peat layer which retards the potential for offsite migration, and (4) the absence of private drinking water wells within at least 3 miles of the Site. Therefore, further action regarding PFAS is not warranted at this time.

B2.J PUBLIC INVOLVEMENT PLAN

Michigan EGLE Staff held public webinar meeting on February 13, 2020 and an in-person meeting on March 5, 2020 at Wayne State University. A copy of the webinar presentation is available at https://www.youtube.com/watch?v=u8_frlUllcQ. The meeting covered the following reports:

The Part 201 Pathway Analysis related to a potential release of hazardous substances that occurred as a result of a fire at the property in 2006. The results of the evaluation were submitted to Michigan DEQ in a report dated August 27, 2007. On August 11, 2008 the facility provide a final 201 exposure pathways report to DEQ.

The 2016 Corrective Measures report addressed the historic MTBE release, corrective measures including soil removal and Multi Phase Extraction (MPE) pilot study.

B2.K HEALTH AND SAFETY PLAN

The facility performed a Part 201 Pathway Analysis related to a potential release of hazardous substances that occurred as a result of a fire at the property in 2006. The results of the evaluation were submitted to Michigan DEQ in a report dated August 27, 2007. On August 11, 2008 the facility provide a final 201 exposure pathways report to DEQ.

The 2016 Corrective Measures report addressed the historic MTBE release, corrective measures including soil removal and Multi Phase Extraction (MPE) pilot study. The studies and corrective actions included health and safety plan. Electronic copies of the reports and plans can be provided upon request.

B2.L NOTICE REQUIREMENTS

[R 299.9525]

The facility has submitted the legal description of the property indicating the property has been used and is subject to corrective action requirements of Part 111. Any required notice complied with 1 of 1937 PA 103, as amended, being MCL 565.201 et seq. The facility does not have any restrictive covenants with the Wayne County Register of Deeds. A copy of the deed will be provided upon request.

B2.M JUSTIFICATION FOR PROPOSED ELIMINATION OF ANY WASTE MANAGEMENT UNIT FROM THE CORRECTIVE ACTION PROGRAM OR INTENT TO PROCEED WITH CORRECTIVE ACTIONS

The facility is not proposing to eliminate any waste management units from the corrective action program.

ATTACHMENT B2.E.1
ENVIRONMENTAL INDICATOR FORMS

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

EGL E adapted to Word 8/07

RCRA Corrective Action Environmental Indicator (EI) RCRA Info Code (CA725) Current Human Exposures Under Control

Facility Name: Petro-Chem Processing Group of Nortru, LLC
Facility Address: 421 Lycaste, Detroit Michigan
Facility EPA ID #: MID 980 615 298

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to Resource Conservation Recovery Act of 1976 (RCRA) Corrective Action (e.g., waste management unit [WMU], regulated unit [RU], and area of concern [AOC]), been **considered** in this EI determination?
 - If yes – check here and continue with #2 below.
 - If no – reevaluate existing data, or
 - If data are not available, skip to #6 and enter “IN” (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

EIs are measures being used by the RCRA Corrective Action Program to go beyond programmatic activity measures (reports received and approved, etc.) to track changes in the quality of the environment. The two EIs developed to date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for nonhuman (ecological) receptors is intended to be developed in the future.

Definition of “Current Human Exposures Under Control” EI

A positive “Current Human Exposures Under Control” EI determination (“YE” status code) indicates that there are no “unacceptable” human exposures to “contamination” (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all “contamination” subject to RCRA Corrective Action at or from the identified facility [i.e., site-wide]).

Relationship of EI to Final Remedies

While final remedies remain the long-term objective of the RCRA Corrective Action Program the EIs are near-term objectives that are currently being used as program measures for the Government Performance and Results Act of 1993 (GPRA). The “Current Human Exposures Under Control” EIs are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action Program’s overall mission to protect human health and the environment requires that final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration/Applicability of EI Determinations

EI determinations status codes should remain in the RCRA Info national database ONLY as long as they remain true (i.e., RCRA Info status codes must be changed when the regulatory authorities become aware of contrary information).

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be “**contaminated**”¹ above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from WMUs, RUs or AOCs)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale/Key Contaminants</u>
Groundwater	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>2016 Corrective Measure Study Section 2.2</u>
Air (indoors) ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>2016 Corrective Measure Study Section 2.2</u>
Surface Soil (e.g., <2ft)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>2016 Corrective Measure Study Section 2.2</u>
Surface Water	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>2016 Corrective Measure Study Section 2.2</u>
Sediment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>2016 Corrective Measure Study Section 2.2</u>
Subsurf. Soil (e.g., >2ft)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>2016 Corrective Measure Study Section 2.2</u>
Air (outdoors)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>2016 Corrective Measure Study Section 2.2</u>

- If no (for all media) – **skip to #6**, and enter “YE”, status code after providing or citing appropriate “levels” and referencing sufficient supporting documentation demonstrating that these “levels” are not exceeded.
- If yes (for any media) – continue after identifying key contaminants in each “contaminated” medium, citing appropriate “levels” (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.
- If unknown (for any media) – skip to #6 and enter “IN” status code.

Rationale and Reference(s):

2016 Corrective Measure Study Section 2.2

1 “Contamination” and “contaminated” describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based “levels” (for the media, that identify risks within the acceptable risk range).

2 Recent evidence (from the Colorado Department of Public Health and Environment, and others) suggests that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above [and adjacent to] groundwater with volatile contaminants) does not present unacceptable risks.

3. Are there **complete pathways** between “contamination” and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

<u>Contaminated Media</u>	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food³
Groundwater							
Air (indoors)							
Soil (surface, e.g., <2 ft)							
Surface Water							
Sediment							
Soil (subsurface e.g., >2 ft)							
Air (outdoors)							

Instructions for Summary Exposure Pathway Evaluation Table:

- A. Strike-out specific Media including Human Receptors’ spaces for Media which are not “contaminated” as identified in #2 above.
- B. Enter “yes” or “no” for potential “completeness” under each “Contaminated” Media – Human Receptor Combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations, some potential “Contaminated” Media – Human Receptor combinations (Pathways) do not have check spaces (“”). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

- If no (Pathways are not complete for any contaminated media-receptor combination) – skip to #6, and enter “YE” status code, after explaining and/or referencing conditions(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

³ Indirect Pathway/Receptor (vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.).

- If yes (Pathways are complete for any “Contaminated” Media – Human Receptor combination) – continue after providing supporting explanation.
- If unknown (for any “Contaminated” Media – Human Receptor combination) – skip to #6 and enter “IN” status code.

Rationale and Reference(s)

4. Can the **exposures** from any of the complete Pathways identified in #3 be reasonably expected to be “**significant**”⁴ (i.e., potentially “unacceptable” because exposures can be reasonably expected to be: (1) greater in magnitude [intensity, frequency and/or duration] than assumed in the derivation of the acceptable “levels” [used to identify the “contamination”]; or (2) the combination of exposure magnitude [perhaps even though low] and contaminant concentrations [that may be substantially above the acceptable “levels”] could result in greater than acceptable risks)?
- If no (exposures cannot be reasonably expected to be significant [i.e., potentially “unacceptable”] for any complete exposure pathway) – skip to #6 and enter “YE” status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to “contamination” (identified in #3) are not expected to be “significant”.
 - If yes (exposures could be reasonably expected to be “significant” [i.e., potentially “unacceptable”] for any complete exposure pathway) – continue after providing a description (of each potentially “unacceptable” exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”
 - If unknown (for any complete pathway) - skip to #6 and enter “IN” status code.

Rationale and Reference(s):

5. Can the “significant” **exposures** (identified in #4) be shown to be within **acceptable** limits?
- If yes (all “significant” exposures have been shown to be within acceptable limits) – continue and enter “YE” after summarizing and referencing documentation justifying why all “significant” exposures to “contamination” are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).
 - If no (there are current exposures that can be reasonably expected to be “unacceptable”) –

⁴If there is any question on whether the identified exposures are “significant” (i.e., potentially “unacceptable”) consult a human health Risk Assessment specialist with appropriate education, training and experience.

continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

- If unknown (for any potentially "unacceptable" exposure) – continue and enter "IN" status code.

Rationale and Reference(s):

6. Check the appropriate RCRA Info status codes for the Current Human Exposures Under Control EI Code (CA725), obtain supervisory signature and date on the EI determination below, and attach appropriate supporting documentation as well as a map of the facility.

- YE – Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the Petro-Chem facility, EPA ID # MID 980 615 298, located at 421 Lycaste, Detroit Michigan under current and reasonably expected conditions. This determination will be reevaluated when the agency/state becomes aware of significant changes at the facility.
- NO – "Current Human Exposures" are NOT "Under Control."
- IN – More information is needed to make a determination.

Completed by: _____ Date: (type date)
(type name)
(type title)
Materials Management Division
Michigan Department of Environment, Great Lakes, and Energy
517- -

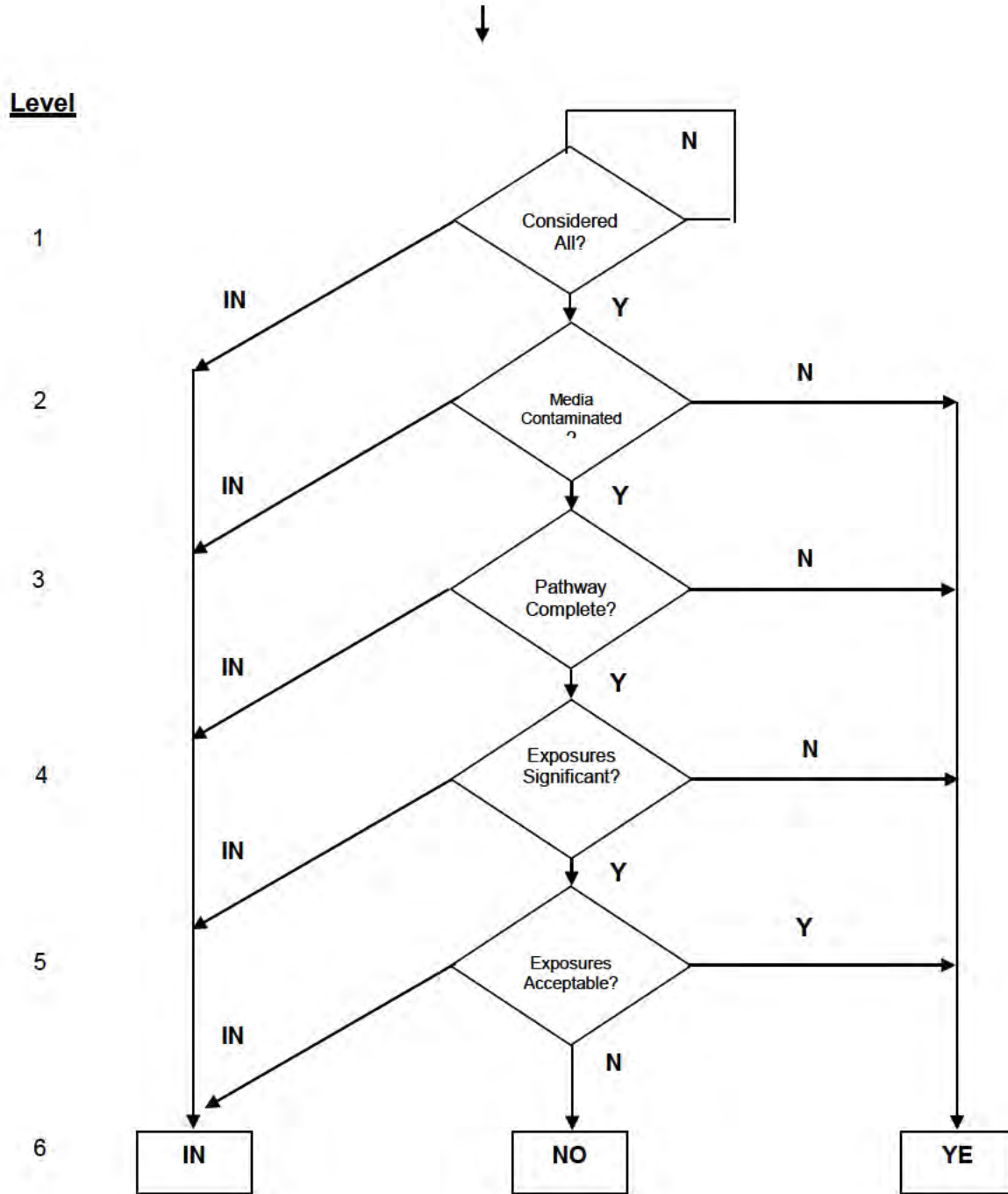
Supervisor: _____ Date: (type date)
(type name)
(type title)
Materials Management Division
Michigan Department of Environment, Great Lakes, and Energy
517- -

Locations where references may be found:
Hazardous Waste Section facility files at:
Materials Management Division
Michigan Department of Environment, Great Lakes, and Energy
525 West Allegan Street
Lansing, Michigan 48933

Contact e-mail addresses:
(type name) - (type e-mail)
(type name) - (type e-mail)

Final Note: The human exposures EI is a qualitative screening of exposures and the determinations within this document should not be used as the sole basis for restricting the scope of more detailed (e.g., site-specific) assessments of risk.

Facility Name: Petro-Chem Processing Group of Nortru, LLC
EPA ID#: MID 980 615 298
City/State: Detroit, Michigan



DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

EGL E adapted to Word 8/07

RCRA Corrective Action Environmental Indicator (EI) RCRA Info Code (CA750) Migration of Contaminated Groundwater Under Control

Facility Name: Petro-Chem Processing Group of Nortru, LLC
Facility Address: 421 Lycaste, Detroit Michigan
Facility EPA ID #: MID 980 615 298

1. Has **all** available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from waste management units (WMU), regulated units (RU), and areas of concern (AOC)), been **considered** in this EI determination?

If yes - check here and continue with #2 below.

If no - reevaluate existing data, or

If data are not available, skip to #8 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

EIs are measures being used by the RCRA Corrective Action Program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EIs developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for nonhuman (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA Corrective Action at or from the identified facility [i.e., site-wide]).

Relationship of EI to Final Remedies

While final remedies remain the long-term objective of the RCRA Corrective Action Program the EIs are near-term objectives that are currently being used as program measures for the Government Performance and Results Act of 1993, (GPRA). The "Migration of Contaminated

Groundwater Under Control” EI pertains ONLY to the physical migration (i.e., further spread) of contaminated groundwater and contaminants within groundwater (e.g., nonaqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration/Applicability of EI Determinations

EI determinations status codes should remain in the RCRA Info national database ONLY as long as they remain true (i.e., RCRA Info status codes must be changed when the regulatory authorities become aware of contrary information).

2. Is **groundwater** known or reasonably suspected to be “**contaminated**”¹ above appropriately protective “levels” (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

If yes - continue after identifying key contaminants, citing appropriate “levels,” and referencing supporting documentation.

If no - skip to #8 and enter “YE” status code, after citing appropriate “levels,” and referencing supporting documentation to demonstrate that groundwater is not “contaminated.”

If unknown - skip to #8 and enter “IN” status code.

Rationale and Reference(s):

A workplan was prepared in response to the letter received from Mr. David Slayton, Geologist with the Michigan Department of Environmental Quality, dated October 16, 2009. The letter indicated that a RFI Workplan would need to be prepared in order to address the discovery of MTBE in groundwater samples collected during the first semi-annual sampling event conducted in July 2009 (See Volume IV, for 2009 groundwater results). The MTBE discovery is considered a new release under License Condition VI.D.1. The RFI Plan was initiated in November 2010 where soil borings were taken and analyzed.

Since the last permit reissuance, the facility has completed the removal of the soil stockpile (an interim measure) from the southwest corner of the property and has completed the multi-phase extraction (MPE) pilot test. The final west soil removal report and the MPE test report are attached to this form as Appendix 1 and Appendix 2.

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within “existing area of contaminated groundwater”² as defined by the monitoring locations designated at the time of this determination)?

If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the

“existing area of groundwater contamination”².

- If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the “existing area of groundwater contamination”²) – skip to #8 and enter “NO” status code, after providing an explanation.
- If unknown - skip to #8 and enter “IN” status code.

Rationale and Reference(s):

2016 Corrective Measure Study Section 2.2.

A workplan was prepared in response to the letter received from Mr. David Slayton, Geologist with the Michigan Department of Environmental Quality, dated October 16, 2009. The letter indicated that a RFI Workplan would need to be prepared in order to address the discovery of MTBE in groundwater samples collected during the first semi-annual sampling event conducted in July 2009 (See Volume IV, for 2009 groundwater results). The MTBE discovery is considered a new release under License Condition VI.D.1. The RFI plan was initiated in November 2010 where soil borings were taken and analyzed. Since the last permit reissuance, the facility has completed the removal of the soil stockpile (an interim measure) from the southwest corner of the property and has completed the multi-phase extraction (MPE) pilot test. The final west soil removal report and the MPE test report are attached to this form as Appendix 1 and Appendix 2.

4. Does “contaminated” groundwater **discharge** into **surface water** bodies?

- If yes - continue after identifying potentially affected surface water bodies.
- If no - **skip to #7** (and enter a “YE” status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater “contamination” does not enter surface water bodies.
- If unknown - skip to #8 and enter “IN” status code.

Rationale and Reference(s):

5. Is the **discharge** of “contaminated” groundwater into surface water likely to be “**insignificant**” (i.e., the maximum concentration³ of each contaminant discharging into surface water is less than 10 times their appropriate groundwater “level,” and there are no other conditions [e.g., the nature, and number, of discharging contaminants, or environmental setting], that significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

- If yes - skip to #7 (and enter “YE” status code in #8 if #7 = yes), after documenting: (1) the maximum known or reasonably suspected concentration³ of key contaminants discharged above their groundwater “level,” the value of the appropriate “level(s),” and if there is evidence that the concentrations are increasing; and (2) provide a statement of

professional judgment/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

- If no - (the discharge of “contaminated” groundwater into surface water is potentially significant) - continue after documenting: (1) the maximum known or reasonably suspected concentration³ of each contaminant discharged above its groundwater “level,” the value of the appropriate “level(s),” and if there is evidence that the concentrations are increasing; and (2) for any contaminants discharging into surface water in concentrations³ greater than 100 times their appropriate groundwater “levels,” the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.
- If unknown - enter “IN” status code in #8.

Rationale and Reference(s):

6. Can the **discharge** of “contaminated” groundwater into surface water be shown to be “**currently acceptable**” (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented⁴)?

- If yes - continue after either: (1) identifying the final remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site’s surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR (2) providing or referencing an interim-assessment,⁵ appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors that should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment “levels,” as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.
- If no - (the discharge of “contaminated” groundwater can not be shown to be “**currently acceptable**”) - skip to #8 and enter “NO” status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.
- If unknown - skip to 8 and enter “IN” status code.

Rationale and Reference(s):

7. Will groundwater **monitoring**/measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the “existing area of contaminated groundwater?”

If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the “existing area of groundwater contamination.”

If no - enter “NO” status code in #8.

If unknown - enter “IN” status code in #8.

Rationale and Reference(s):

A workplan was prepared in response to the letter received from Mr. David Slayton, Geologist with the Michigan Department of Environmental Quality, dated October 16, 2009. The letter indicated that a RFI Workplan would need to be prepared in order to address the discovery of MTBE in groundwater samples collected during the first semi-annual sampling event conducted in July 2009 (See Volume IV, for 2009 groundwater results). The MTBE discovery is considered a new release under License Condition VI.D.1. The RFI plan was initiated in November 2010 where soil borings were taken and analyzed. Since the last permit reissuance, the facility has completed the removal of the soil stockpile (an interim measure) from the southwest corner of the property and has completed the multi-phase extraction (MPE) pilot test. The final west soil removal report and the MPE test report is are attached to this form as Volume I, Section 8, Appendix 1 and Appendix 2.

The 2021 annual groundwater monitoring plan was provided to EGLE on February 28, 2022. Copies of this 463-page report and previous reports will be provided upon request.

2016 Corrective Measure Study Section 2.2

8. Check the appropriate RCRA Info status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), obtain supervisor signature and date on the EI determination below, and (attach appropriate supporting documentation as well as a map of the facility.

YE - Yes, “Migration of Contaminated Groundwater Under Control” has been verified. Based on a review of the information contained in this EI determination, it has been determined that the “Migration of Contaminated Groundwater” is “Under Control” at the Petro-Chem facility, EPA ID # MID 980 615 29, located at 421 Lycaste, Detroit Michigan. Specifically, this determination indicates that the migration of “contaminated” groundwater

is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater." This determination will be reevaluated when the agency/state becomes aware of significant changes at the facility.

- NO - Unacceptable migration of contaminated groundwater is observed or expected.
- IN - More information is needed to make a determination.

Completed by: _____ Date (type date)
(type name)
(type title)
Materials Management Division
Michigan Department of Environment, Great Lakes, and Energy
517- -

Supervisor: _____ Date (type date)
(type name)
(type title)
Materials Management Division
Michigan Department of Environment, Great Lakes, and Energy

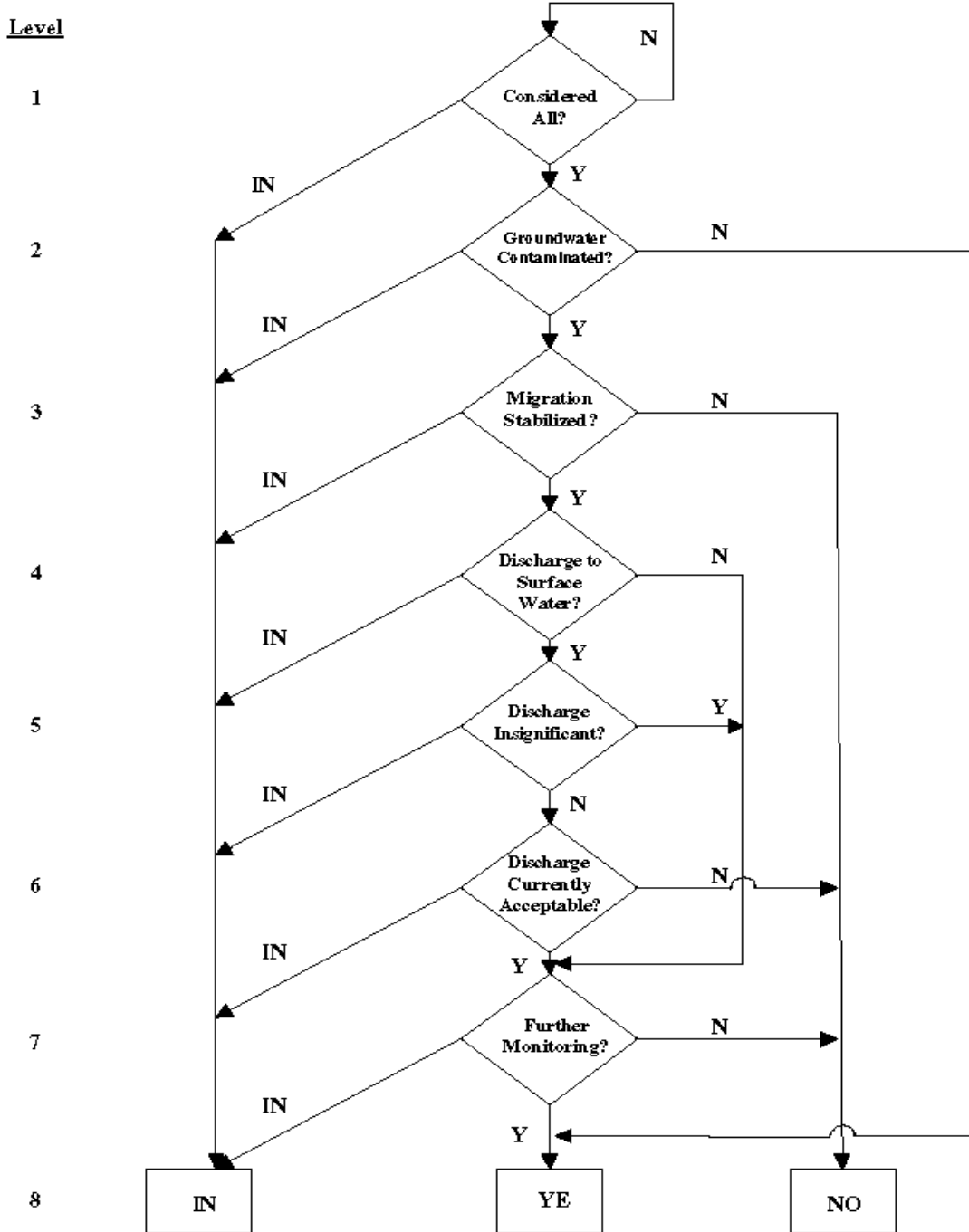
Locations where references may be found:
Hazardous Waste Section facility files at:
Materials Management Division
Michigan Department of Environment, Great Lakes, and Energy
525 West Allegan Street
Lansing, Michigan 48933

Contact e-mail addresses:

(type name) - (type e-mail)
(type name) - (type e-mail)

Facility Name: Petro-Chem Processing Group of Nortru, LLC
EPA ID#: MID 980 615 298
City/State: Detroit, Michigan

**MIGRATION OF CONTAMINATED GROUNDWATER
UNDER CONTROL (CA 750)**



Appendix I

Final West Berm Soil Removal



May 6, 2020

Mr. Dan Dailey
Michigan Department of Environmental Quality
Management and Tracking Unit
Hazardous Waste Section
PO Box 30241
Lansing, MI 48909

**Subject: Western Berm Soil Removal Report for Petro-Chem
Processing Group of Nortru, LLC
Detroit, MI. MID 980 615 298**

Dear Mr. Dailey:

Enclosed please find the *Western Berm Soil Removal Report* for the removal of the western berm as outlined in the Corrective Measures Implementation Work Plan for Petro-Chem Processing Group of Nortru, LLC site.

If you have any questions, please contact me at 215-822-2337.

Sincerely,

A handwritten signature in blue ink, appearing to read "Greg Fink", is written over a large, light blue oval scribble.

Greg Fink
EHS Director

cc: Ed Burke, Stericycle
Kellie Wing, Bureau Veritas

**Western Berm Soil Removal Report
Nortru, LLC
Petro-Chem Processing Group Facility
421 Lycaste Street, Detroit, MI**

May 6, 2020

CERTIFICATION STATEMENT

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



Greg Fink
EHS Director

Western Berm Soil Removal Report

Petro-Chem Processing Group of Nortru, LLC
421 Lycaste Street
Detroit, Michigan

MID 980 615 298

May 6, 2020
Project Number 11019-000128.00

Prepared for:
Stericycle Environmental Solutions, Inc.
Detroit, Michigan

Apex Companies, LLC
46555 Humboldt Drive
Suite 103
Novi, MI 48377





Apex Companies, LLC (Apex) is pleased to submit this report of the removal of the soil stockpiled in the Western Soil Berm area at the Petro-Chem Processing Group of Nortru, LLC (Petro-Chem) facility located at 421 Lycaste Street in Detroit, Michigan (Figure 1). Apex conducted the removal as outlined in the *Revised Corrective Measures Implementation Work Plan (CMIP)*, prepared by Bureau Veritas North America, Inc., now known as Apex, dated February 18, 2019. The Michigan Department of Environment, Great Lakes, and Energy (EGLE) provided partial approval of the work plan as an interim measure for the site.

The CMIP identified the removal of the soil stockpile as one of the steps necessary prior to conducting a multi-phase extraction (MPE) pilot test. Prior to removal, the soil stockpiled in the Western Soil Berm area measured approximately 180 feet long by 15 feet wide and 6 feet in height and was estimated to have a volume of 500 cubic yards. The field activities conducted involved the removal of the soil stockpile which was excavated and direct loaded into trucks for transportation to the Woodland Meadow Landfill in Wayne, Michigan, a licensed non-hazardous disposal facility.

The following sections describe activities that were conducted for this task.

SITE-SPECIFIC HEALTH AND SAFETY PLAN

Prior to implementing the field evaluation, a site-specific Health and Safety Plan (HASP) was prepared in accordance with the requirements of Title 29 of the Code of Federal Regulations, Section 1910.120 (29 CFR 1910.120). The HASP provided a site-specific scope of work, safety precautions, emergency response procedures, nearest hospital information and reported the suspected constituents of concern that may be present at the site. Prior to the initiation of field activities, a site safety briefing was conducted to evaluate potential physical and chemical hazards and outlined measures to be taken in the event of an emergency, and onsite personnel responsible for managing emergency situations.

UNDERGROUND UTILITY CLEARANCE

Prior to commencement of the excavation soil activities, Apex notified Miss Dig Utility® locating service of the intent to conduct excavation activities. The utility service was notified on November 19, 2019, and Confirmation Request #20191119 was received immediately after the notification.

Apex also contracted the services of Ground Penetrating Radar Systems, LLC (GPRS), a private utility locator, to scan the project area for the presence of private and public underground utilities or subsurface anomalies that may indicate an object underground. GPRS under the direction of Apex personnel conducted the field scan on November 27, 2019.

FIELD ACTIVITIES

Prior to conducting the fieldwork, the soil was profiled utilizing laboratory analysis from samples previously collected in the stockpile area. A copy of the soil analytical results used to represent the soil stockpile is included as Attachment A. Monitoring wells MW-10 and MW-11 within the work area were marked and protected to prevent damage with the heavy equipment during the excavation.

Apex completed the stockpile removal from December 4 through December 6, 2019. A total of 15, 40 cubic yard trucks (708.55 tons as weighed at the landfill), were loaded and transported for disposal under non-hazardous waste manifest to the Woodlands Meadow Landfill located at 5900



Hannan Road in Wayne, Michigan by Farmer and Underwood Trucking. Copies of the non-hazardous waste manifests are included in Attachment B.

Excavation and loading activities were performed with a track excavator and a front loader within the immediate work area. After loading, each truck was logged in a field sheet, and its load transported under manifest to the disposal facility. Once the stockpile was removed the terrain matched the elevation of the surrounding area. Photos of the field activities are included behind the *Photographs* sheet.

On December 11, 2019, the casing for Monitoring Well MW-11 was cut to account for the change in the surrounding ground surface elevation and the steel protective casing was re-installed and cemented in place.

CLOSING

At the conclusion of the work, the former West Berm Area surface was graded in a manner that matched the immediate surrounding areas and allowed for upcoming remedial activities as presented in the CMIP.



Western Berm Soil Removal Report
for
Petro-Chem Processing Group of Nortru, LLC
421 Lycaste Street
Detroit, Michigan

Prepared for:
Stericycle Environmental Solutions, Inc.
Detroit, Michigan

Project No. 11019-000128.00

A handwritten signature in black ink, appearing to read 'Kellie L. Wing'.

Kellie L. Wing
Program Manager

A handwritten signature in black ink, appearing to read 'Gustavo Valdivia'.

Gustavo Valdivia, P.E.
Program Manager

Apex Companies, LLC
Health, Safety and Environmental Services

May 6, 2020



FIGURES



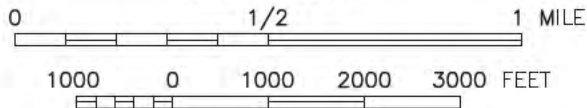
DETROIT

SITE LOCATION



QUADRANGLE LOCATION

Scale 1:24000



SOURCE OF MAP IS US TOPO 7.5 MINUTE QUADRANGLE MAP, BELLE ISLE (2017), MICHIGAN: U.S. GEOLOGICAL SURVEY

SITE LOCATION/BOUNDARIES APPROXIMATED



CHECK BY	KW
DRAWN BY	JL
DATE	7/25/2019
SCALE	AS SHOWN
CAD NO.	11.19.076.00A
PRJ NO.	11019-000076.00

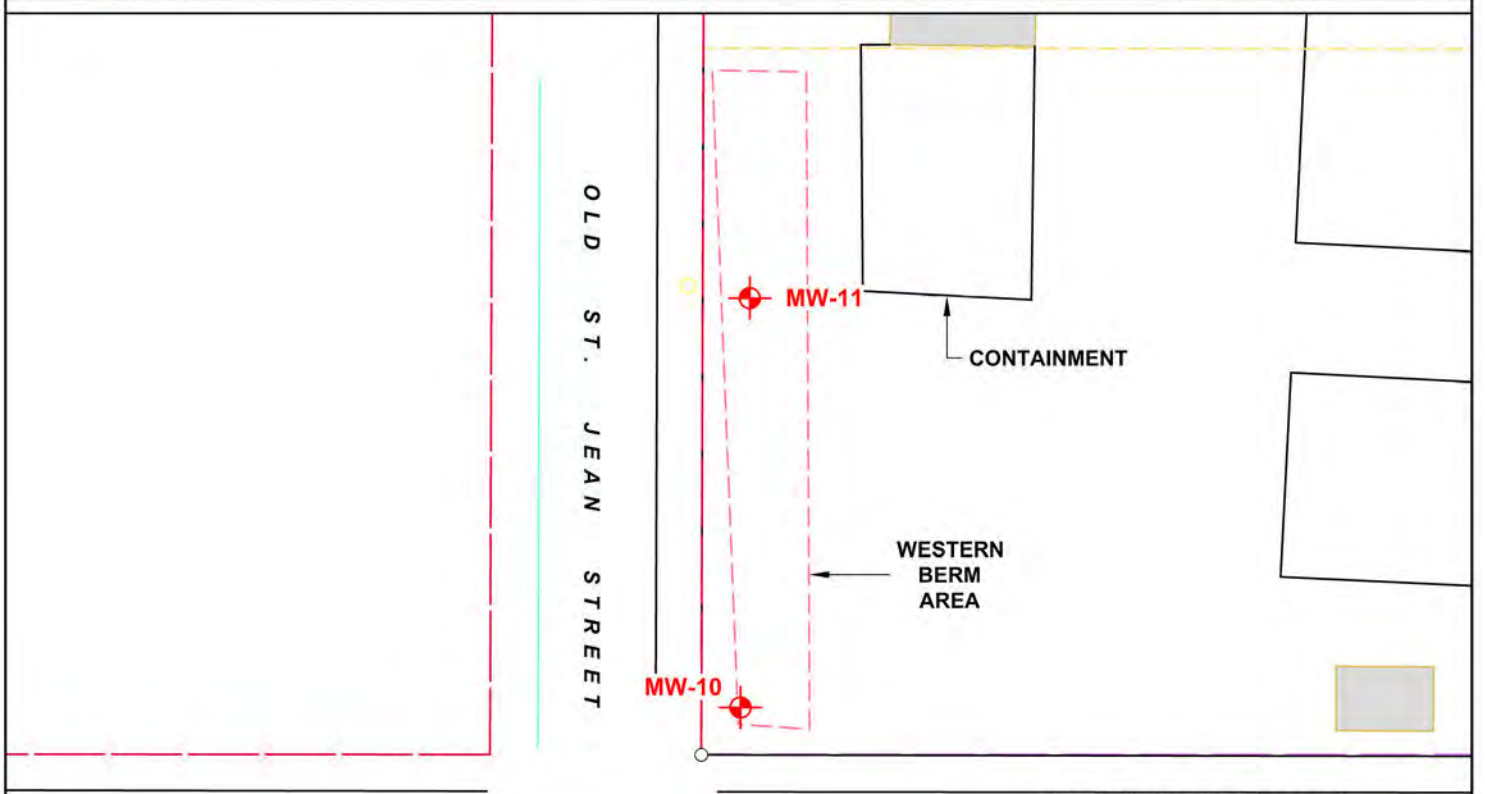
SITE LOCATION MAP

PETRO-CHEM PROCESSING GROUP
421 LYCASTE STREET
DETROIT, MICHIGAN



FIGURE

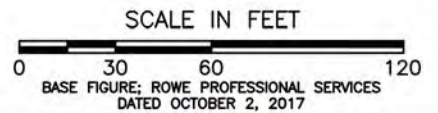
1



NOTE: AERIAL NOT SHOWN FOR CLARITY
 TOP INSET MAP SCALE: 1" = 150'

LEGEND

 MW-# MONITORING WELL LOCATION



CHECK BY	GV
DRAWN BY	JL
DATE	3/23/2020
SCALE	AS SHOWN
CAD NO.	11.19.076.03s1
PRJ NO.	11019-000076.00

SITE LAYOUT WITH WESTERN BERM AREA
 PETRO-CHEM PROCESSING GROUP
 421 LYCASTE STREET
 DETROIT, MICHIGAN



FIGURE

2



PHOTOGRAPHS



Project No. 11019-000128.00	Description	Photo No. 1 – Partial View of West Berm Area Prior to Removal - Facing North	December 4-6, 2019
	Site Name	Petro-Chem, 421 Lycaste, Detroit, MI	
	Client	Clean Earth	



Project No. 11019-000128.00	Description	Photo No. 2 – Removal Activities Starting on Southern End of Berm	December 4-6, 2019
	Site Name	Petro-Chem, 421 Lycaste, Detroit, MI	
	Client	Clean Earth	



Project No. 11019-000128.00	Description	Photo No. 3 – Stockpiled Material Prior to Loading	December 4-6, 2019
	Site Name	Petro-Chem, 421 Lyncaste, Detroit, MI	
	Client	Clean Earth	



Project No. 11019-000128.00	Description	Photo No. 4 – Loading Operations	December 4-6, 2019
	Site Name	Petro-Chem, 421 Lyncaste, Detroit, MI	
	Client	Clean Earth	



Bureau Veritas Project No. 11019-000128.00	Description	Photo No. 5 – View of West Berm Area Looking North After Removal of Berm	December 4-6, 2019
	Site Name	Petro-Chem, 421 Lycaste, Detroit, MI	
	Client	Clean Earth	



Bureau Veritas Project No. 11019-000128.00	Description	Photo No. 6 – View of West Berm Area Looking South after Removal of Berm	December 4-6, 2019
	Site Name	Petro-Chem, 421 Lycaste, Detroit, MI	
	Client	Clean Earth	



APPENDIX A

SOIL ANALYTICAL RESULTS OF WEST BERM SAMPLES



Analytical Laboratory Report
Laboratory Project Number: 72301
Laboratory Sample Number: 72301-011

Order: 72301
Page: 32 of 91
Date: 03/23/16

Client Identification: Bureau Veritas North America, Inc.	Sample Description: BSB-44 (2-4)	Chain of Custody: 147158
Client Project Name: PSC - Detroit	Sample No: 11	Collect Date: 03/15/16
Client Project No: NA	Sample Matrix: Soil/Solid	Collect Time: 12:59

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Water (Moisture) Content Dried at 105 ± 5°C Aliquot ID: **72301-011** Matrix: **Soil/Solid**
Method: ASTM D2216-10 Description: **BSB-44 (2-4)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
‡ 1. Percent Moisture (Water Content)	13		%	1	1.0	03/18/16	MC160318	03/21/16	MC160318	BMG

Volatile Organic Compounds (VOCs) by GC/MS, 5035 Aliquot ID: **72301-011A** Matrix: **Soil/Solid**
Method: EPA 5035A/EPA 8260B Description: **BSB-44 (2-4)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. Acetone	U		µg/kg	1000	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 2. Acrylonitrile	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
3. Benzene	170		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
4. Bromobenzene	U		µg/kg	57	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
5. Bromochloromethane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
6. Bromodichloromethane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
7. Bromoform	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
8. Bromomethane	U		µg/kg	230	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
9. t-Butanol	U		µg/kg	2500	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
10. 2-Butanone	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
11. n-Butylbenzene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
12. sec-Butylbenzene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
13. tert-Butylbenzene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
14. Carbon Disulfide	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
15. Carbon Tetrachloride	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
16. Chlorobenzene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
17. Chloroethane	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
18. Chloroform	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
19. Chloromethane	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 20. Cyclohexane	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
21. Dibromochloromethane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 22. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
23. Dibromomethane	U		µg/kg	57	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
24. 1,2-Dichlorobenzene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
25. 1,3-Dichlorobenzene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
26. 1,4-Dichlorobenzene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
27. trans-1,4-Dichloro-2-butene (SIM)	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
28. Dichlorodifluoromethane	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
29. 1,1-Dichloroethane	180		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
30. 1,2-Dichloroethane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR

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Analytical Laboratory Report
Laboratory Project Number: 72301
Laboratory Sample Number: 72301-011

Order: 72301
Page: 33 of 91
Date: 03/23/16

Client Identification: Bureau Veritas North America, Inc.	Sample Description: BSB-44 (2-4)	Chain of Custody: 147158
Client Project Name: PSC - Detroit	Sample No: 11	Collect Date: 03/15/16
Client Project No: NA	Sample Matrix: Soil/Solid	Collect Time: 12:59

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS, 5035
Method: EPA 5035A/EPA 8260B

Aliquot ID: **72301-011A** Matrix: **Soil/Solid**
Description: **BSB-44 (2-4)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
31. 1,1-Dichloroethene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
32. cis-1,2-Dichloroethene	90		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
33. trans-1,2-Dichloroethene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
34. 1,2-Dichloropropane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
35. cis-1,3-Dichloropropene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
36. trans-1,3-Dichloropropene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
37. Diethyl Ether	U		µg/kg	200	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 38. Diisopropyl Ether	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 39. ETBE	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
40. Ethylbenzene	4700		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
41. Ethylene Dibromide	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 42. Hexachloroethane	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
43. 2-Hexanone	U		µg/kg	570	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
44. Isopropylbenzene	130		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
45. 4-Isopropyltoluene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
46. Methylene Chloride	200		µg/kg	100	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 47. 2-Methylnaphthalene	U		µg/kg	290	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
48. 4-Methyl-2-pentanone	U		µg/kg	290	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
49. MTBE	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
50. Naphthalene	U		µg/kg	290	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
51. n-Propylbenzene	140		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
52. Styrene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 53. TAME	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
54. 1,1,1,2-Tetrachloroethane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
55. 1,1,2,2-Tetrachloroethane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
56. Tetrachloroethene	U		µg/kg	54	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 57. Tetrahydrofuran	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
58. Toluene	2000		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
59. 1,2,3-Trichlorobenzene	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
60. 1,2,4-Trichlorobenzene	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
61. 1,1,1-Trichloroethane	110		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
62. 1,1,2-Trichloroethane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
63. Trichloroethene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
64. Trichlorofluoromethane	U		µg/kg	57	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
65. 1,2,3-Trichloropropane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 66. 1,2,3-Trimethylbenzene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
67. 1,2,4-Trimethylbenzene	150		µg/kg	110	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR

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Analytical Laboratory Report
Laboratory Project Number: 72301
Laboratory Sample Number: 72301-011

Order: 72301
Page: 34 of 91
Date: 03/23/16

Client Identification: Bureau Veritas North America, Inc.	Sample Description: BSB-44 (2-4)	Chain of Custody: 147158
Client Project Name: PSC - Detroit	Sample No: 11	Collect Date: 03/15/16
Client Project No: NA	Sample Matrix: Soil/Solid	Collect Time: 12:59

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS, 5035
Method: EPA 5035A/EPA 8260B

Aliquot ID: 72301-011A **Matrix: Soil/Solid**
Description: BSB-44 (2-4)

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
68. 1,3,5-Trimethylbenzene	130		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
69. Vinyl Chloride	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
70. m&p-Xylene	3900		µg/kg	100	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
71. o-Xylene	590		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 72. Xylenes	4500		µg/kg	150	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR

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Analytical Laboratory Report
Laboratory Project Number: 72301
Laboratory Sample Number: 72301-012

Order: 72301
Page: 35 of 91
Date: 03/23/16

Client Identification: Bureau Veritas North America, Inc.	Sample Description: BSB-44 (4-6)	Chain of Custody: 147158
Client Project Name: PSC - Detroit	Sample No: 12	Collect Date: 03/15/16
Client Project No: NA	Sample Matrix: Soil/Solid	Collect Time: 12:58

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Water (Moisture) Content Dried at 105 ± 5°C Aliquot ID: **72301-012** Matrix: **Soil/Solid**
Method: ASTM D2216-10 Description: **BSB-44 (4-6)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
‡ 1. Percent Moisture (Water Content)	30		%	1	1.0	03/18/16	MC160318	03/21/16	MC160318	BMG

Volatile Organic Compounds (VOCs) by GC/MS, 5035 Aliquot ID: **72301-012A** Matrix: **Soil/Solid**
Method: EPA 5035A/EPA 8260B Description: **BSB-44 (4-6)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. Acetone	U		µg/kg	1000	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 2. Acrylonitrile	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
3. Benzene	230		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
4. Bromobenzene	U		µg/kg	72	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
5. Bromochloromethane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
6. Bromodichloromethane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
7. Bromoform	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
8. Bromomethane	U		µg/kg	290	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
9. t-Butanol	U		µg/kg	2500	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
10. 2-Butanone	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
11. n-Butylbenzene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
12. sec-Butylbenzene	U		µg/kg	58	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
13. tert-Butylbenzene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
14. Carbon Disulfide	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
15. Carbon Tetrachloride	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
16. Chlorobenzene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
17. Chloroethane	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
18. Chloroform	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
19. Chloromethane	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 20. Cyclohexane	330		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
21. Dibromochloromethane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 22. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
23. Dibromomethane	U		µg/kg	72	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
24. 1,2-Dichlorobenzene	U		µg/kg	93	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
25. 1,3-Dichlorobenzene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
26. 1,4-Dichlorobenzene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
27. trans-1,4-Dichloro-2-butene (SIM)	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
28. Dichlorodifluoromethane	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
29. 1,1-Dichloroethane	93		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
30. 1,2-Dichloroethane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR

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F: (810) 220-3311
F: (231) 775-8584



Analytical Laboratory Report
Laboratory Project Number: 72301
Laboratory Sample Number: 72301-012

Order: 72301
Page: 36 of 91
Date: 03/23/16

Client Identification: Bureau Veritas North America, Inc.	Sample Description: BSB-44 (4-6)	Chain of Custody: 147158
Client Project Name: PSC - Detroit	Sample No: 12	Collect Date: 03/15/16
Client Project No: NA	Sample Matrix: Soil/Solid	Collect Time: 12:58

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS, 5035
Method: EPA 5035A/EPA 8260B

Aliquot ID: **72301-012A** Matrix: **Soil/Solid**
Description: **BSB-44 (4-6)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
31. 1,1-Dichloroethene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
32. cis-1,2-Dichloroethene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
33. trans-1,2-Dichloroethene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
34. 1,2-Dichloropropane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
35. cis-1,3-Dichloropropene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
36. trans-1,3-Dichloropropene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
37. Diethyl Ether	U		µg/kg	200	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 38. Diisopropyl Ether	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 39. ETBE	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
40. Ethylbenzene	35000		µg/kg	360	10	03/22/16	VJ16C22A	03/22/16	VJ16C22A	CRK
41. Ethylene Dibromide	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 42. Hexachloroethane	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
43. 2-Hexanone	U		µg/kg	720	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
44. Isopropylbenzene	530		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
45. 4-Isopropyltoluene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
46. Methylene Chloride	U		µg/kg	100	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 47. 2-Methylnaphthalene	1300		µg/kg	360	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
48. 4-Methyl-2-pentanone	U		µg/kg	360	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
49. MTBE	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
50. Naphthalene	4800		µg/kg	360	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
51. n-Propylbenzene	870		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
52. Styrene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 53. TAME	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
54. 1,1,1,2-Tetrachloroethane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
55. 1,1,2,2-Tetrachloroethane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
56. Tetrachloroethene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 57. Tetrahydrofuran	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
58. Toluene	2600		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
59. 1,2,3-Trichlorobenzene	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
60. 1,2,4-Trichlorobenzene	U		µg/kg	250	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
61. 1,1,1-Trichloroethane	140		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
62. 1,1,2-Trichloroethane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
63. Trichloroethene	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
64. Trichlorofluoromethane	U		µg/kg	72	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
65. 1,2,3-Trichloropropane	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
‡ 66. 1,2,3-Trimethylbenzene	U		µg/kg	120	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
67. 1,2,4-Trimethylbenzene	1600		µg/kg	140	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR

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Analytical Laboratory Report
Laboratory Project Number: 72301
Laboratory Sample Number: 72301-012

Order: 72301
Page: 37 of 91
Date: 03/23/16

Client Identification: Bureau Veritas North America, Inc.	Sample Description: BSB-44 (4-6)	Chain of Custody: 147158
Client Project Name: PSC - Detroit	Sample No: 12	Collect Date: 03/15/16
Client Project No: NA	Sample Matrix: Soil/Solid	Collect Time: 12:58

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS, 5035
Method: EPA 5035A/EPA 8260B

Aliquot ID: 72301-012A **Matrix: Soil/Solid**
Description: BSB-44 (4-6)

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
68. 1,3,5-Trimethylbenzene	1100		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
69. Vinyl Chloride	U		µg/kg	50	1.0	03/17/16	VJ16C17B	03/18/16	VJ16C17B	DAR
70. m&p-Xylene	75000		µg/kg	720	10	03/22/16	VJ16C22A	03/22/16	VJ16C22A	CRK
71. o-Xylene	3400		µg/kg	360	10	03/22/16	VJ16C22A	03/22/16	VJ16C22A	CRK
‡ 72. Xylenes	78000		µg/kg	1100	10	03/22/16	VJ16C22A	03/22/16	VJ16C22A	CRK

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APPENDIX B
NON-HAZARDOUS WASTE MANIFESTS



NON-HAZARDOUS MANIFEST

2605
12:20

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.	Manifest Doc No.	2. Page 1 of	
3. Generator's Mailing Address: PETRO-CHEM PROCESSING 421 LYCASTE DETROIT, MICHIGAN 48214 4. Generator's Phone- 313-824-5882		Generator's Site Address (If different than mailing): SAME		A. Manifest Number WMNA	8749894
5. Transporter 1 Company Name <i>Farmer Underwood 145</i>		6. US EPA ID Number		B. State Generator's ID	
7. Transporter 2 Company Name		8. US EPA ID Number		C. State Transporter's ID	
9. Designated Facility Name and Site Address Woodland Meadows 5900 Hannan Road Wayne Michigan 48184		10. US EPA ID Number		D. Transporter's Phone	
				E. State Transporter's ID	
				F. Transporter's Phone	
				G. State Facility ID	
				H. State Facility Phone 734-326-3003	
G E N E R A T O R	11. Description of Waste Materials		12. Containers		13. Total Quantity
	a. Non-Hazardous Soil		No.	Type	14. Unit Wt./Vol.
	WM Profile # 121192MI		1	T	40
	b.				Y
	WM Profile #				
c.					
WM Profile #					
d.					
WM Profile #					
J. Additional Descriptions for Materials Listed Above Color - Blk/Brwn Physical State - Solid Odor - No		K. Disposal Location			
BILL TO: Petro-Chem		Cell		Level	
		Grid			
15. Special Handling Instructions and Additional Information <i>D2595</i>					
Purchase Order #		EMERGENCY CONTACT / PHONE NO.: David Patton 313-824-5882			
16. GENERATOR'S CERTIFICATE: - Must Be Printed and Signed and Dated by the Generator I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.					
Printed Name <i>M Frohriep</i>		Signature "On behalf of" <i>M. Frohriep</i>		Month	Day
				12	4
				19	
T R A N S P O R T E R	17. Transporter 1 Acknowledgement of Receipt of Materials				
	Printed Name <i>Mike Anderson</i>		Signature <i>Mike Anderson</i>		Month
					Day
				12	4
				19	
18. Transporter 2 Acknowledgement of Receipt of Materials					
Printed Name		Signature		Month	Day
F A C I L I T Y	19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.				
	20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.				
	Printed Name		Signature <i>[Signature]</i>		Month
				12	4
				19	

White- TREATMENT, STORAGE, DISPOSAL FACILITY COPY
Pink- FACILITY USE ONLY

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Gold- TRANSPORTER #1 COPY

Yellow- GENERATOR #1 COPY



NON-HAZARDOUS MANIFEST

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.		Manifest Doc No.		2. Page 1 of								
3. Generator's Mailing Address: PETRO-CHEM PROCESSING 421 LYCASTE DETROIT, MICHIGAN 48214			Generator's Site Address (If different than mailing): SAME			A. Manifest Number WMNA 8749895								
4. Generator's Phone- 313-824-5882						B. State Generator's ID								
5. Transporter 1 Company Name <i>Ernie Kende Wood</i>			6. US EPA ID Number			C. State Transporter's ID								
7. Transporter 2 Company Name			8. US EPA ID Number			D. Transporter's Phone								
9. Designated Facility Name and Site Address Woodland Meadows 5900 Hannan Road Wayne Michigan 48184			10. US EPA ID Number			E. State Transporter's ID								
						F. Transporter's Phone								
						G. State Facility ID								
						H. State Facility Phone 734-326-3003								
GENERATOR	11. Description of Waste Materials				12. Containers		13. Total Quantity		14. Unit Wt./Vol.		I. Misc. Comments			
	a. Non-Hazardous Soil				No. Type									
	WM Profile # 121192MI				1 T		40		Y					
	b.													
	WM Profile #													
TRANSPORTER	c.													
	WM Profile #													
	d.													
	WM Profile #													
	J. Additional Descriptions for Materials Listed Above Color - Blk/Brwn Physical State - Solid Odor - No				K. Disposal Location									
BILL TO: Petro-Chem				Cell				Level						
				Grid										
15. Special Handling Instructions and Additional Information <i>D259C</i>														
Purchase Order #				EMERGENCY CONTACT / PHONE NO.: David Patton 313-824-5882										
16. GENERATOR'S CERTIFICATE: - Must Be Printed and Signed and Dated by the Generator I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.														
Printed Name <i>M. Frohnig</i>				Signature "On behalf of" <i>M. Luskup</i>				Month <i>12</i>		Day <i>4</i>		Year <i>19</i>		
TRANSPORTER	17. Transporter 1 Acknowledgement of Receipt of Materials				Signature <i>Donald Gabel</i>				Month <i>12</i>		Day <i>9</i>		Year <i>18</i>	
	18. Transporter 2 Acknowledgement of Receipt of Materials				Signature				Month		Day		Year	
	Printed Name				Signature									
FACILITY	19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.													
	20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.													
Printed Name				Signature <i>[Signature]</i>				Month <i>12</i>		Day <i>9</i>		Year <i>18</i>		

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Gold- TRANSPORTER #1 COPY



NON-HAZARDOUS MANIFEST

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.	Manifest Doc No.	2. Page 1 of				
3. Generator's Mailing Address: PETRO-CHEM PROCESSING 421 LYCASTE DETROIT, MICHIGAN 48214 4. Generator's Phone- 313-824-5882		Generator's Site Address (if different than mailing): SAME		A. Manifest Number WMNA	8749896			
5. Transporter 1 Company Name <i>Farmer Underwood 1415</i>		6. US EPA ID Number		B. State Generator's ID				
7. Transporter 2 Company Name		8. US EPA ID Number		C. State Transporter's ID				
9. Designated Facility Name and Site Address Woodland Meadows 5900 Hannan Road Wayne Michigan 48184		10. US EPA ID Number		D. Transporter's Phone				
				E. State Transporter's ID				
				F. Transporter's Phone				
				G. State Facility ID				
				H. State Facility Phone 734-326-3003				
GENERATOR	11. Description of Waste Materials		12. Containers		13. Total Quantity	14. Unit Wt./Vol.	I. Misc. Comments	
	a. Non-Hazardous Soil		No.	Type				
	WM Profile # 121192MI		1	T	40	Y		
	b.							
	WM Profile #							
TRANSPORTER	c.							
	WM Profile #							
	d.							
	WM Profile #							
J. Additional Descriptions for Materials Listed Above Color - Blk/Brwn Physical State - Solid Odor - No		K. Disposal Location						
BILL TO: Petro-Chem		Cell		Level				
		Grid						
15. Special Handling Instructions and Additional Information <i>D0597</i>								
Purchase Order #		EMERGENCY CONTACT / PHONE NO.: David Patton 313-824-5882						
16. GENERATOR'S CERTIFICATE: - Must Be Printed and Signed and Dated by the Generator I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.								
Printed Name <i>M. Frohnup</i>		Signature "On behalf of" <i>M. Frohnup</i>			Month	Day	Year	
					12	4	19	
TRANSPORTER	17. Transporter 1 Acknowledgement of Receipt of Materials							
	Printed Name <i>Mike Anderson</i>		Signature <i>Mike Anderson</i>			Month	Day	Year
						12	4	19
18. Transporter 2 Acknowledgement of Receipt of Materials								
Printed Name		Signature			Month	Day	Year	
FACILITY	19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.							
	20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.							
	Printed Name		Signature <i>[Signature]</i>			Month	Day	Year
					12	4	19	

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Blue- GENERATOR #2 COPY

Yellow- GENERATOR #1 COPY

Pink- FACILITY USE ONLY

Gold- TRANSPORTER #1 COPY



NON-HAZARDOUS MANIFEST

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.	Manifest Doc No.	2. Page 1 of	
3. Generator's Mailing Address: PETRO-CHEM PROCESSING 421 LYCASTE DETROIT, MICHIGAN 48214 4. Generator's Phone- 313-824-5882		Generator's Site Address (If different than mailing): SAME		A. Manifest Number <div style="text-align: center;">WMNA</div> <div style="text-align: right; font-size: 1.2em;">8749897</div>	
5. Transporter 1 Company Name		6. US EPA ID Number		B. State Generator's ID	
7. Transporter 2 Company Name		8. US EPA ID Number		C. State Transporter's ID	
9. Designated Facility Name and Site Address Woodland Meadows 5900 Hannan Road Wayne Michigan 48184		10. US EPA ID Number		D. Transporter's Phone	
				E. State Transporter's ID	
				F. Transporter's Phone	
				G. State Facility ID	
				H. State Facility Phone 734-326-3003	
GENERATOR	11. Description of Waste Materials		12. Containers		13. Total Quantity
	a. Non-Hazardous Soil		No.	Type	14. Unit Wt./Vol.
	WM Profile # 121192MI		1	T	20
	b.				
	WM Profile #				
c.					
WM Profile #					
d.					
WM Profile #					
J. Additional Descriptions for Materials Listed Above Color - Blk/Brwn Physical State - Solid Odor - No BILL TO: Petro-Chem			K. Disposal Location Cell _____ Level _____ Grid _____		
15. Special Handling Instructions and Additional Information					
Purchase Order #		EMERGENCY CONTACT / PHONE NO.:			
		David Patton 313-824-5882			
16. GENERATOR'S CERTIFICATE: - Must Be Printed and Signed and Dated by the Generator I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.					
Printed Name		Signature "On behalf of"		Month	Day
TRANSPORTER	17. Transporter 1 Acknowledgement of Receipt of Materials				
	Printed Name	Signature		Month	Day
18. Transporter 2 Acknowledgement of Receipt of Materials					
Printed Name	Signature		Month	Day	
FACILITY	19. Certificate of Final Treatment/Disposal				
	I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.				
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.					
Printed Name		Signature		Month	Day

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Yellow- GENERATOR #1 COPY

Pink- FACILITY USE ONLY

Gold- TRANSPORTER #1 COPY



NON-HAZARDOUS MANIFEST

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.	Manifest Doc No.	2. Page 1 of	
3. Generator's Mailing Address: PETRO-CHEM PROCESSING 421 LYCASTE DETROIT, MICHIGAN 48214		Generator's Site Address (if different than mailing): SAME		A. Manifest Number WMNA	8749898
4. Generator's Phone- 313-824-5882				B. State Generator's ID	
5. Transporter 1 Company Name <i>Farmer Underwood 145</i>		6. US EPA ID Number		C. State Transporter's ID	
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone	
9. Designated Facility Name and Site Address Woodland Meadows 5900 Hannan Road Wayne Michigan 48184		10. US EPA ID Number		E. State Transporter's ID	
				F. Transporter's Phone	
				G. State Facility ID	
				H. State Facility Phone 734-326-3003	
11. Description of Waste Materials		12. Containers		13. Total Quantity	14. Unit Wt./Vol.
		No.	Type		
a. Non-Hazardous Soil		1	T	40	Y
WM Profile # 121192MI					
b.					
WM Profile #					
c.					
WM Profile #					
d.					
WM Profile #					
J. Additional Descriptions for Materials Listed Above Color - Blk/Brwn Physical State - Solid Odor - No		K. Disposal Location			
BILL TO: Petro-Chem		Cell		Level	
		Grid			
15. Special Handling Instructions and Additional Information <i>02599</i>					
Purchase Order #		EMERGENCY CONTACT / PHONE NO.: David Patton 313-824-5882			
16. GENERATOR'S CERTIFICATE: - Must Be Printed and Signed and Dated by the Generator I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.					
Printed Name <i>M. Frohman</i>		Signature "On behalf of" <i>M. Frohman</i>		Month	Day
				12	5
				19	
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature		Month	Day
Printed Name <i>M. K. Anderson</i>		<i>M. K. Anderson</i>		12	5
				19	
18. Transporter 2 Acknowledgement of Receipt of Materials		Signature		Month	Day
Printed Name					
19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.					
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.					
Printed Name		Signature <i>2-10-5 19</i>		Month	Day

GENERATOR INFORMATION

TRANSPORTER INFORMATION

FACILITY INFORMATION

White- TREATMENT, STORAGE, DISPOSAL FACILITY COPY

Pink- FACILITY USE ONLY

Blue- GENERATOR #2 COPY

Gold- TRANSPORTER #1 COPY

Yellow- GENERATOR #1 COPY



NON-HAZARDOUS MANIFEST

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.	Manifest Doc No.	2. Page 1 of	
3. Generator's Mailing Address: PETRO-CHEM PROCESSING 421 LYCASTE DETROIT, MICHIGAN 48214		Generator's Site Address (if different than mailing): SAME		A. Manifest Number WMNA	8749899
4. Generator's Phone- 313-824-5882		B. State Generator's ID			
5. Transporter 1 Company Name <i>F&L</i>		6. US EPA ID Number <i>1</i>		C. State Transporter's ID	
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone	
9. Designated Facility Name and Site Address Woodland Meadows 5900 Hannan Road Wayne Michigan 48184		10. US EPA ID Number		E. State Transporter's ID	
				F. Transporter's Phone	
				G. State Facility ID	
				H. State Facility Phone 734-326-3003	
11. Description of Waste Materials		12. Containers		13. Total Quantity	14. Unit Wt./Vol.
		No.	Type		
a. Non-Hazardous Soil		<i>1</i>	<i>T</i>	<i>40</i>	<i>Y</i>
WM Profile # 121192MI					
b.					
WM Profile #					
c.					
WM Profile #					
d.					
WM Profile #					
J. Additional Descriptions for Materials Listed Above		K. Disposal Location			
Color - Blk/Brwn Physical State - Solid Odor - No		Cell		Level	
BILL TO: Petro-Chem		Grid			
15. Special Handling Instructions and Additional Information <i>D2600</i>					
Purchase Order #		EMERGENCY CONTACT / PHONE NO.: David Patton 313-824-5882			
16. GENERATOR'S CERTIFICATE: - Must Be Printed and Signed and Dated by the Generator					
I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.					
Printed Name <i>M. Frakes</i>		Signature "On behalf of" <i>M. Frakes</i>		Month <i>12</i>	Day <i>5</i>
				Year <i>19</i>	
17. Transporter 1 Acknowledgement of Receipt of Materials					
Printed Name <i>Trom Kulan #150</i>		Signature <i>[Signature]</i>		Month <i>12</i>	Day <i>5</i>
				Year <i>19</i>	
18. Transporter 2 Acknowledgement of Receipt of Materials					
Printed Name		Signature		Month	Day
				Year	
19. Certificate of Final Treatment/Disposal					
I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.					
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.					
Printed Name		Signature <i>[Signature]</i>		Month <i>12</i>	Day <i>5</i>
				Year <i>19</i>	

GENERATOR

TRANSPORTER

FACILITY

White- TREATMENT, STORAGE, DISPOSAL FACILITY COPY
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Yellow- GENERATOR #1 COPY



NON-HAZARDOUS MANIFEST

#158

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.		Manifest Doc No.		2. Page 1 of		
3. Generator's Mailing Address: PETRO-CHEM PROCESSING 421 LYCASTE DETROIT, MICHIGAN 48214 4. Generator's Phone- 313-824-5882			Generator's Site Address (if different than mailing): SAME			A. Manifest Number WMNA 8749900		
5. Transporter 1 Company Name <i>Exxon Petroleum</i>			6. US EPA ID Number			B. State Generator's ID		
7. Transporter 2 Company Name			8. US EPA ID Number			C. State Transporter's ID		
9. Designated Facility Name and Site Address Woodland Meadows 5900 Hannan Road Wayne Michigan 48184			10. US EPA ID Number			D. Transporter's Phone		
						E. State Transporter's ID		
						F. Transporter's Phone		
						G. State Facility ID		
						H. State Facility Phone 734-326-3003		
GENERATOR	11. Description of Waste Materials			12. Containers		13. Total Quantity	14. Unit Wt./Vol.	I. Misc. Comments
	a. Non-Hazardous Soil			No.	Type			
	WM Profile # 121192MI			1	T	40	Y	
	b.							
	WM Profile #							
c.								
WM Profile #								
d.								
WM Profile #								
J. Additional Descriptions for Materials Listed Above Color - Blk/Brwn Physical State - Solid Odor - No				K. Disposal Location				
BILL TO: Petro-Chem				Cell		Level		
				Grid				
15. Special Handling Instructions and Additional Information <i>00601</i>								
Purchase Order #				EMERGENCY CONTACT / PHONE NO.: David Patton 313-824-5882				
16. GENERATOR'S CERTIFICATE: - Must Be Printed and Signed and Dated by the Generator I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.								
Printed Name <i>M. Frohnig</i>			Signature "On behalf of" <i>M. Frohnig</i>			Month	Day	Year
						12	5	19
TRANSPORTER	17. Transporter 1 Acknowledgement of Receipt of Materials							
	Printed Name <i>Donald Cebal</i>		Signature <i>Donald Cebal</i>		Month	Day	Year	
				12	15	10		
FACILITY	18. Transporter 2 Acknowledgement of Receipt of Materials							
	Printed Name		Signature		Month	Day	Year	
19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.								
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.								
Printed Name			Signature <i>J. U. 12-5-11</i>			Month	Day	Year

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NON-HAZARDOUS MANIFEST

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.	Manifest Doc No.	2. Page 1 of	
3. Generator's Mailing Address: PETRO-CHEM PROCESSING 421 LYCASTE DETROIT, MICHIGAN 48214		Generator's Site Address (if different than mailing): SAME		A. Manifest Number WMNA	8749901
4. Generator's Phone- 313-824-5882		B. State Generator's ID			
5. Transporter 1 Company Name <i>Farmer Underwood 145</i>		6. US EPA ID Number		C. State Transporter's ID	
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone	
9. Designated Facility Name and Site Address Woodland Meadows 5900 Hannan Road Wayne Michigan 48184		10. US EPA ID Number		E. State Transporter's ID	
				F. Transporter's Phone	
				G. State Facility ID	
				H. State Facility Phone 734-326-3003	
11. Description of Waste Materials		12. Containers		13. Total Quantity	14. Unit Wt./Vol.
		No.	Type		
a. Non-Hazardous Soil		1	TR	40	Y
WM Profile # 121192MI					
b.					
WM Profile #					
c.					
WM Profile #					
d.					
WM Profile #					
J. Additional Descriptions for Materials Listed Above Color - Blk/Brwn Physical State - Solid Odor - No		K. Disposal Location			
BILL TO: Petro-Chem		Cell		Level	
		Grid			
15. Special Handling Instructions and Additional Information <i>02602</i>					
Purchase Order #		EMERGENCY CONTACT / PHONE NO.: David Patton 313-824-5882			
16. GENERATOR'S CERTIFICATE: - Must Be Printed and Signed and Dated by the Generator I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.					
Printed Name <i>M. Frohnig</i>		Signature "On behalf of" <i>M. Frohnig</i>		Month	Day
				12	5
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature		Month	Day
Printed Name <i>Mike Anderson</i>		<i>Mike Anderson</i>		12	5
18. Transporter 2 Acknowledgement of Receipt of Materials		Signature		Month	Day
Printed Name					
19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.					
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.					
Printed Name		Signature <i>S-H 12-5-19</i>		Month	Day

GENERATOR

TRANSPORTER

FACILITY

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NON-HAZARDOUS MANIFEST

#155

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.	Manifest Doc No.	2. Page 1 of		
3. Generator's Mailing Address: PETRO-CHEM PROCESSING 421 LYCASTE DETROIT, MICHIGAN 48214 4. Generator's Phone- 313-824-5882		Generator's Site Address (if different than mailing): SAME		A. Manifest Number WMNA	8749902	
5. Transporter 1 Company Name <i>Home Underwood</i>		6. US EPA ID Number		B. State Generator's ID		
7. Transporter 2 Company Name		8. US EPA ID Number		C. State Transporter's ID		
9. Designated Facility Name and Site Address Woodland Meadows 5900 Hannan Road Wayne Michigan 48184		10. US EPA ID Number		D. Transporter's Phone		
				E. State Transporter's ID		
				F. Transporter's Phone		
				G. State Facility ID		
				H. State Facility Phone 734-326-3003		
GENERATOR	11. Description of Waste Materials		12. Containers		13. Total Quantity	
	a. Non-Hazardous Soil		No.	Type	14. Unit Wt./Vol.	
	WM Profile # 121192MI		1	T	40	Y
	b.					
	WM Profile #					
TRANSPORTER	c.					
	WM Profile #					
	d.					
	WM Profile #					
	J. Additional Descriptions for Materials Listed Above Color - Blk/Brwn Physical State - Solid Odor - No		K. Disposal Location			
BILL TO: Petro-Chem		Cell		Level		
		Grid				
15. Special Handling Instructions and Additional Information <i>D2603</i>						
Purchase Order #		EMERGENCY CONTACT / PHONE NO.: David Patton 313-824-5882				
16. GENERATOR'S CERTIFICATE: - Must Be Printed and Signed and Dated by the Generator I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.						
Printed Name <i>M. Frohnig</i>		Signature "On behalf of" <i>M. Frohnig</i>		Month	Day	
				12	5	
FACILITY	17. Transporter 1 Acknowledgement of Receipt of Materials					
	Printed Name <i>Donald Gebert</i>		Signature <i>D. Gebert</i>		Month	
					Day	
				12	5	
18. Transporter 2 Acknowledgement of Receipt of Materials						
Printed Name		Signature		Month	Day	
19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.						
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.						
Printed Name		Signature		Month	Day	
				12	5	

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NON-HAZARDOUS MANIFEST

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.		Manifest Doc No.		2. Page 1 of			
3. Generator's Mailing Address: PETRO-CHEM PROCESSING 421 LYCASTE DETROIT, MICHIGAN 48214 4. Generator's Phone- 313-824-5882			Generator's Site Address (if different than mailing): SAME			A. Manifest Number WMNA 8749903			
						B. State Generator's ID			
5. Transporter 1 Company Name <i>Fg Wb</i>		6. US EPA ID Number				C. State Transporter's ID			
						D. Transporter's Phone			
7. Transporter 2 Company Name		8. US EPA ID Number				E. State Transporter's ID			
						F. Transporter's Phone			
9. Designated Facility Name and Site Address Woodland Meadows 5900 Hannan Road Wayne Michigan 48184		10. US EPA ID Number				G. State Facility ID			
						H. State Facility Phone 734-326-3003			
GENERATOR	11. Description of Waste Materials			12. Containers		13. Total Quantity	14. Unit Wt./Vol.	I. Misc. Comments	
	a. Non-Hazardous Soil			No.	Type				
	WM Profile # 121192MI					40	1/13		
	b.								
	WM Profile #								
	c.								
d.									
WM Profile #									
J. Additional Descriptions for Materials Listed Above Color - Blk/Brwn Physical State - Solid Odor - No				K. Disposal Location					
BILL TO: Petro-Chem				Cell		Level			
				Grid					
15. Special Handling Instructions and Additional Information <i>02604</i>									
Purchase Order #				EMERGENCY CONTACT / PHONE NO.: David Patton 313-824-5882					
16. GENERATOR'S CERTIFICATE: - Must Be Printed and Signed and Dated by the Generator									
I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.									
Printed Name <i>M. Fisher</i>			Signature "On behalf of" <i>M. Fisher</i>			Month	Day	Year	
						12	5	19	
TRANSPORTER	17. Transporter 1 Acknowledgement of Receipt of Materials								
	Printed Name <i>Travis K. Lem #150</i>			Signature <i>[Signature]</i>			Month	Day	Year
							12	5	19
18. Transporter 2 Acknowledgement of Receipt of Materials									
Printed Name			Signature			Month	Day	Year	
FACILITY	19. Certificate of Final Treatment/Disposal								
	I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.								
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.									
Printed Name			Signature <i>[Signature]</i>			Month	Day	Year	
						12	5	19	

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NON-HAZARDOUS MANIFEST

NON-HAZARDOUS MANIFEST	1. Generator's US EPA ID No.	Manifest Doc No.	2. Page 1 of
3. Generator's Mailing Address: PETRO-CHEM PROCESSING 421 LYCASTE DETROIT, MICHIGAN 48214 4. Generator's Phone- 313-824-5882	Generator's Site Address (if different than mailing): SAME		A. Manifest Number WMNA 8749904
			B. State Generator's ID
5. Transporter 1 Company Name	6. US EPA ID Number	C. State Transporter's ID	
		D. Transporter's Phone	
7. Transporter 2 Company Name	8. US EPA ID Number	E. State Transporter's ID	
		F. Transporter's Phone	
9. Designated Facility Name and Site Address Woodland Meadows 5900 Hannan Road Wayne Michigan 48184	10. US EPA ID Number	G. State Facility ID	
		H. State Facility Phone 734-326-3003	
11. Description of Waste Materials	12. Containers		13. Total Quantity
	No.	Type	
a. Non-Hazardous Soil			I. Misc. Comments
WM Profile # 121192MI			
b.			
WM Profile #			
c.			
WM Profile #			
d.			
WM Profile #			
J. Additional Descriptions for Materials Listed Above Color – Blk/Brwn Physical State – Solid Odor - No		K. Disposal Location	
BILL TO: Petro-Chem		Cell	Level
		Grid	
15. Special Handling Instructions and Additional Information			
Purchase Order #		EMERGENCY CONTACT / PHONE NO.:	
		David Patton 313-824-5882	
16. GENERATOR'S CERTIFICATE: - Must Be Printed and Signed and Dated by the Generator			
I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.			
Printed Name <i>David Patton</i>		Signature "On behalf of" <i>[Signature]</i>	Month Day Year
17. Transporter 1 Acknowledgement of Receipt of Materials			
Printed Name		Signature	Month Day Year
18. Transporter 2 Acknowledgement of Receipt of Materials			
Printed Name		Signature	Month Day Year
19. Certificate of Final Treatment/Disposal			
I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.			
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.			
Printed Name		Signature	Month Day Year

GENERATOR

TRANSPORTER

FACILITY



NON-HAZARDOUS MANIFEST

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.	Manifest Doc No.	2. Page 1 of	
3. Generator's Mailing Address: PETRO-CHEM PROCESSING 421 LYCASTE DETROIT, MICHIGAN 48214 4. Generator's Phone- 313-824-5882		Generator's Site Address (If different than mailing): SAME		A. Manifest Number WMNA	8749905
5. Transporter 1 Company Name		6. US EPA ID Number		B. State Generator's ID	
7. Transporter 2 Company Name		8. US EPA ID Number		C. State Transporter's ID	
9. Designated Facility Name and Site Address Woodland Meadows 5900 Hannan Road Wayne Michigan 48184		10. US EPA ID Number		D. Transporter's Phone	
				E. State Transporter's ID	
				F. Transporter's Phone	
				G. State Facility ID	
				H. State Facility Phone 734-326-3003	
GENERATOR	11. Description of Waste Materials		12. Containers		13. Total Quantity
	a. Non-Hazardous Soil		No.	Type	14. Unit Wt./Vol.
	WM Profile # 121192MI				
	b.				
	WM Profile #				
c.					
WM Profile #					
d.					
WM Profile #					
J. Additional Descriptions for Materials Listed Above Color - Blk/Brwn Physical State - Solid Odor - No		K. Disposal Location			
BILL TO: Petro-Chem		Cell		Level	
		Grid			
15. Special Handling Instructions and Additional Information					
Purchase Order #		EMERGENCY CONTACT / PHONE NO.: David Patton 313-824-5882			
16. GENERATOR'S CERTIFICATE: - Must Be Printed and Signed and Dated by the Generator I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.					
Printed Name		Signature "On behalf of"			Month
					Day
					Year
TRANSPORTER	17. Transporter 1 Acknowledgement of Receipt of Materials				
	Printed Name		Signature		Month
				Day	
				Year	
18. Transporter 2 Acknowledgement of Receipt of Materials					
Printed Name		Signature		Month	
				Day	
				Year	
FACILITY	19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.				
	20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.				
Printed Name		Signature			Month
					Day
					Year

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NON-HAZARDOUS MANIFEST

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.	Manifest Doc No.	2. Page 1 of		
3. Generator's Mailing Address: PETRO-CHEM PROCESSING 421 LYCASTE DETROIT, MICHIGAN 48214 4. Generator's Phone- 313-824-5882		Generator's Site Address (if different than mailing): SAME		A. Manifest Number WMNA	8749906	
5. Transporter 1 Company Name		6. US EPA ID Number		B. State Generator's ID		
7. Transporter 2 Company Name		8. US EPA ID Number		C. State Transporter's ID		
9. Designated Facility Name and Site Address Woodland Meadows 5900 Hannan Road Wayne Michigan 48184		10. US EPA ID Number		D. Transporter's Phone		
				E. State Transporter's ID		
				F. Transporter's Phone		
				G. State Facility ID		
				H. State Facility Phone 734-326-3003		
GENERATOR	11. Description of Waste Materials		12. Containers		13. Total Quantity	
	a. Non-Hazardous Soil		No.	Type	14. Unit Wt./Vol.	
	WM Profile # 121192MI		1	T	40	Y
	b.					
	WM Profile #					
c.						
WM Profile #						
d.						
WM Profile #						
J. Additional Descriptions for Materials Listed Above Color - Blk/Brwn Physical State - Solid Odor - No		K. Disposal Location				
BILL TO: Petro-Chem		Cell	Level			
		Grid				
15. Special Handling Instructions and Additional Information						
Purchase Order #		EMERGENCY CONTACT / PHONE NO.: David Patton 313-824-5882				
16. GENERATOR'S CERTIFICATE: - Must Be Printed and Signed and Dated by the Generator I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.						
Printed Name		Signature "On behalf of"		Month	Day	
TRANSPORTER	17. Transporter 1 Acknowledgement of Receipt of Materials					
	Printed Name	Signature		Month	Day	
18. Transporter 2 Acknowledgement of Receipt of Materials						
Printed Name	Signature		Month	Day	Year	
FACILITY	19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.					
	20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.					
Printed Name		Signature		Month	Day	

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NON-HAZARDOUS MANIFEST

#155

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.	Manifest Doc No.	2. Page 1 of		
3. Generator's Mailing Address: PETRO-CHEM PROCESSING 421 LYCASTE DETROIT, MICHIGAN 48214 4. Generator's Phone- 313-824-5882			Generator's Site Address (if different than mailing): SAME		A. Manifest Number WMNA 8749907 B. State Generator's ID	
5. Transporter 1 Company Name <i>Farmelunderwood</i>		6. US EPA ID Number		C. State Transporter's ID		
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone		
9. Designated Facility Name and Site Address Woodland Meadows 5900 Hannan Road Wayne Michigan 48184		10. US EPA ID Number		E. State Transporter's ID		
				F. Transporter's Phone		
				G. State Facility ID		
				H. State Facility Phone 734-326-3003		
GENERATOR	11. Description of Waste Materials		12. Containers		13. Total Quantity	
	a. Non-Hazardous Soil		No.	Type	14. Unit Wt./Vol.	
	WM Profile # 121192MI		1	T	40	Y
	b.					
	WM Profile #					
	c.					
WM Profile #						
d.						
WM Profile #						
J. Additional Descriptions for Materials Listed Above Color - Blk/Brwn Physical State - Solid Odor - No			K. Disposal Location			
BILL TO: Petro-Chem			Cell	Level		
			Grid			
15. Special Handling Instructions and Additional Information <i>D0603</i>						
Purchase Order #			EMERGENCY CONTACT / PHONE NO.: David Patton 313-824-5882			
16. GENERATOR'S CERTIFICATE: - Must Be Printed and Signed and Dated by the Generator I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.						
Printed Name <i>D. Wolkstein</i>		Signature "On behalf of" <i>[Signature]</i>		Month	Day	
				12	6	
					19	
TRANSPORTER	17. Transporter 1 Acknowledgement of Receipt of Materials					
	Printed Name <i>Donald Gebert</i>		Signature <i>[Signature]</i>		Month	
					12	
18. Transporter 2 Acknowledgement of Receipt of Materials						
Printed Name		Signature		Month	Day	
FACILITY	19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.					
	20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.					
Printed Name		Signature <i>[Signature]</i>		Month	Day	
				12	6	
					19	

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Gold- TRANSPORTER #1 COPY

Yellow- GENERATOR #1 COPY



NON-HAZARDOUS MANIFEST

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.	Manifest Doc No.	2. Page 1 of	
3. Generator's Mailing Address: PETRO-CHEM PROCESSING 421 LYCASTE DETROIT, MICHIGAN 48214 4. Generator's Phone- 313-824-5882		Generator's Site Address (if different than mailing): SAME		A. Manifest Number WMNA	8749908
5. Transporter 1 Company Name		6. US EPA ID Number		B. State Generator's ID	
7. Transporter 2 Company Name		8. US EPA ID Number		C. State Transporter's ID	
9. Designated Facility Name and Site Address Woodland Meadows 5900 Hannan Road Wayne Michigan 48184		10. US EPA ID Number		D. Transporter's Phone	
				E. State Transporter's ID	
				F. Transporter's Phone	
				G. State Facility ID	
				H. State Facility Phone 734-326-3003	
GENERATOR	11. Description of Waste Materials		12. Containers		13. Total Quantity
	a. Non-Hazardous Soil		No.	Type	14. Unit Wt./Vol.
	WM Profile # 121192MI				
	b.				
	WM Profile #				
	c.				
WM Profile #					
d.					
WM Profile #					
J. Additional Descriptions for Materials Listed Above Color - Blk/Brwn Physical State - Solid Odor - No		K. Disposal Location			
BILL TO: Petro-Chem		Cell		Level	
		Grid			
15. Special Handling Instructions and Additional Information					
Purchase Order #		EMERGENCY CONTACT / PHONE NO.: David Patton 313-824-5882			
16. GENERATOR'S CERTIFICATE: - Must Be Printed and Signed and Dated by the Generator I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.					
Printed Name		Signature "On behalf of"		Month	Day
TRANSPORTER	17. Transporter 1 Acknowledgement of Receipt of Materials				
	Printed Name		Signature		Month
					Day
					Year
18. Transporter 2 Acknowledgement of Receipt of Materials					
Printed Name		Signature		Month	Day
FACILITY	19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.				
	20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.				
	Printed Name		Signature		Month

White- TREATMENT, STORAGE, DISPOSAL FACILITY COPY

Blue- GENERATOR #2 COPY

Yellow- GENERATOR #1 COPY

Pink- FACILITY USE ONLY

Gold- TRANSPORTER #1 COPY

Appendix II

Final MPE Pilot Test Report



July 10, 2020

Mr. Dan Dailey
Michigan Department of Environmental Quality
Management and Tracking Unit
Hazardous Waste Section
PO Box 30241
Lansing, MI 48909

**Subject: Multi-Phase Extraction Pilot Test Report for Petro-
Chem Processing Group of Nortru, LLC
Detroit, MI. MID 980 615 298**

Dear Mr. Dailey:

As requested of Petro-Chem Processing Group of Nortru, LLC, enclosed please find the Multi-Phase Extraction Pilot Test Report. The report was developed by Apex Companies on behalf of Nortru, LLC as requested by EGLE.

If you have any questions, please contact me at 215-822-2337.

Sincerely,

A handwritten signature in blue ink, appearing to read "Greg Fink", enclosed in a rectangular box.

Greg Fink
EHS Director

cc: Ed Burke, Stericycle
Kellie Wing, Apex Companies

**Multi-Phase Extraction Pilot Test Report
Nortru, LLC
Petro-Chem Processing Group Facility
421 Lycaste Street, Detroit, MI**


July 10, 2020

CERTIFICATION STATEMENT

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

A handwritten signature in blue ink, appearing to be 'G. Fink', enclosed in a rectangular box.

Greg Fink
EHS Director



Multi-Phase Extraction Pilot Test Report West Berm Area

Petro-Chem Processing Group of Nortru, LLC Facility
421 Lycaste Street
Detroit, Michigan

MID 980 615 298

July 10, 2020
Project No. 11019-000128.01

Prepared for:
Clean Earth
Detroit, Michigan

Apex Companies, LLC
46555 Humboldt Drive
Suite 103
Novi, Michigan 48377





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1.0 INTRODUCTION

Clean Earth, formerly Stericycle Environmental Solutions, Inc., retained Apex Companies, LLC (Apex) to conduct a Pilot Test using Multi-Phase Extraction (MPE) technology to evaluate full-scale implementation for treatment of soil and groundwater at the Petro-Chem Processing Group of Nortru, LLC facility (Site) located at 421 Lycaste Street in Detroit, Michigan.

The purpose of the test was to evaluate if MPE is a viable alternative to lower the groundwater level and reduce contaminant concentrations in soil below the soil volatilization to indoor air (SVIA) criteria while reducing the potential for lateral migration of contaminated soil vapors beyond the site boundaries.

This report was prepared in accordance with the Revised Corrective Measures Implementation Work Plan (CMIWP) submitted to the Michigan Department of Environment Quality [MDEQ, currently Michigan Department of Environment, Great Lakes, and Energy (EGLE)], on May 15, 2018. Since delineation of contamination associated with the vapor intrusion pathway and perfluoroalkyl and polyfluoroalkyl substances (PFAS) constituents in groundwater was not complete, EGLE provided partial approval of the work plan as interim measures. The Site is a Hazardous Waste Treatment and Storage Facility operating in accordance with the Hazardous Waste Management Facility Operating License (Operating License, MID 980 615 298) and Groundwater Monitoring Program dated December 18, 2012. The CMIWP proposed a Pilot Test of the MPE Technology. The results of the Pilot Test and proposed MPE implementation are presented in this report.

1.1 SITE DESCRIPTION AND HISTORY

1.1.1 Site Description

The Site is located at 421 Lycaste Street in Detroit, Wayne County, Michigan. Parts of the Site historically operated as an Amoco refinery and currently operates as a fuel blending and solvent recycling plant. Spent solvents, rags, fuel sludges, and tank bottoms are brought to the facility where these materials are either cleaned and recycled or sold as fuel to cement kilns. The Site is situated on an estimated 8-acre parcel in an industrial and residential area approximately 0.5 mile north of the Detroit River. The Site is surrounded by industrial properties to the north; Lycaste Street to the east, Freud Street to the south, and Old St. Jean Street to the west. See Figure 1 for site location.

1.1.2 Historic Environmental Investigations

Multiple phases of environmental assessment, including soil, soil gas, and groundwater investigation, have been conducted at the Site since 1982 by Tetra Tech, Philip Environmental Services Company, and the HSE Division of Bureau Veritas (now Apex). A summary of the investigation is included in the *Corrective Measures Implementation Work Plan* dated October 20, 2017.

1.1.3 Contaminants of Concern

Concentrations of volatile organic compounds (VOCs), including gasoline compounds benzene, ethylbenzene, toluene, methyl *tert*-butyl ether (MTBE), and chlorinated solvents including tetrachloroethene (PCE) and the degradation constituents [i.e., trichloroethene (TCE), *cis*-1,2-



dichloroethene (*cis*-1,2-DCE), and 1,1-dichloroethene (1,1-DCE)], are the primary contaminants of concern and have historically been detected in soil, soil gas, and/or groundwater.

Soil or groundwater concentrations exceed the volatilization to indoor air criteria in the western soil berm area, where samples were collected from BSB-12, BSB-13, BSB-42, BSB-43, BSB-44, BSB-45, and MW-11; this area will be targeted for corrective action under a full-scale MPE system. See Figure 2 for the site layout.

Contamination in the western soil berm area represents the largest and most significant source of onsite soil and groundwater contamination.

2.0 FIELD ACTIVITIES

Field activities preceding the MPE Pilot Test included the installation of an extraction well, two multi-nested probes, and two piezometers.

2.1 EXTRACTION WELL, VACUUM MONITORING POINTS, AND PIEZOMETER INSTALLATIONS

On December 11, 2019, Job Site Services, Inc. (JSSI) under the direction of Apex, installed Extraction Well EXW-1, nested Vacuum Monitoring Wells VMW-1 and VMW-2, and Piezometers PZ-1 and PZ-2. The shallow vacuum monitoring wells were identified as VMW-1S and VMW-2S, while the deep wells were identified as VMW-1D and VMW-2D.

The MPE extraction well was constructed using a 4-inch-diameter 20-slot (0.020-inch) well screen, installed from 5 to 15 feet below grade (i.e., a 10-foot-long section).

Nested Vacuum Monitoring Wells VMW-1 and VMW-2, containing temporary subsurface vacuum monitoring probes, were installed approximately 14 feet and 36 feet from Extraction Well EXW-1, respectively. Each nested well contained a deep and a shallow vacuum monitoring probe, the deep probe was installed just above the measured groundwater elevation at a depth of 8.5 feet and the shallow probe was installed at a depth of 4.5 feet.

Two temporary piezometers were installed to measure the water table elevation response to the vacuum applied at the extraction well during the Pilot Test. Piezometers PZ-1 and PZ-2 were located approximately 8 feet and 36 feet from Extraction Well EXW-1, respectively. Each piezometer consisted of (1) 1.5-inch-diameter, 10-foot-long Schedule 40 PVC screen (with 0.02 machine-slots) installed 5 feet to 15 feet below ground surface and (2) a solid PVC riser pipe from 5 feet to the surface. The top of each piezometer was fitted with a PVC well cap to prevent preferential pathways of air flow during the Pilot Test.

Construction details for Extraction Well EXW-1, nested Vacuum Monitoring Wells VMW-1 and VMW-2, and Piezometers PZ-1 and PZ-2 are included in Appendix A. The location of the extraction well, nested vacuum monitoring wells, and piezometers are depicted in Figure 3.

2.2 MPE TEST SETUP AND FIELD PROCEDURES

On December 16 and 17, 2019, JSSI personnel conducted MPE activities using a 2,500-gallon vacuum truck and collected field monitoring data under the direction of Apex.

MPE was conducted using EXW-1 as the extraction well. A 4-inch-by-2-inch reducer/adaptor was installed on the wellhead. The vacuum line for the extraction well was attached to a 2-inch-diameter header pipe equipped with a 1-inch-diameter suction pipe (i.e., drop tube) inside the



well. The 1-inch-diameter pipe intake was placed at a depth of approximately 14 feet below the top-of-casing in the well. The field data collection procedures were followed during both days of operation as described below.

Field measurements collected during the test included inlet groundwater drawdown, vacuum response in nested vacuum extraction wells, air extraction flowrates, VOC concentrations (measured with a MiniRAE 3000 photoionization detector [PID]), and estimated mass removal rates. Copies of the field data sheets are included in Appendix B.

Details of the MPE test and results are presented below.

2.3 STEP TEST

On December 16, 2019, the MPE step test was conducted to evaluate (1) the radial influence of applying a vacuum to well EXW-1 and (2) the optimum vacuum extraction rate that could be used for an 8-hour constant-vacuum test planned for the second day of the Pilot Test. The step test was conducted using three vacuum rates for 2 hours at each rate. The vacuum was adjusted by the variable engine speeds (700, 1,000 and 1,300 revolutions per minute) corresponding to 6, 9, and 13 inches of mercury (in Hg) at the inlet, respectively. After approximately 30 minutes from start up, the water level in EXW-1 was maintained.

2.3.1 Groundwater Drawdown Measurements

Prior to MPE startup, depth-to-water and well depth were measured at EXW-1, PZ-1, PZ-2, and MW-11. Pressure transducers connected to data loggers were installed in EXW-1, PZ-1, and PZ-2 to measure water level drawdown. An additional sensor to monitor barometric pressure was installed near well EXW-1. The data loggers were set to record every 60 seconds. The barometric pressure sensor was used to adjust the datalogger measurements in EXW-1, PZ-1 and PZ-2 using the Aqua4Plus® software for the PT2X® sensors.

Drawdown readings during the step test are included in Table 1. The maximum drawdowns in wells EXW-1, PZ-1 and PZ-2 were 2.58, 0.56, and 0.11 feet, respectively, with an inlet vacuum of 13 in Hg at EXW-1 as depicted in Figure 4. The maximum drawdown measured in MW-11 was 0.31 feet at an inlet vacuum of 13 in Hg.

2.3.2 Vacuum Measurements

Following start-up, vacuum was measured in VMW-1S, VMW-1D, VMW-2S, and VMW-2D every 15 minutes for the first hour, and every half an hour thereafter until conclusion of each test in order to monitor the area of influence. In addition, vacuum was measured in the vacuum line, extraction well casing, and vacuum truck. Vacuum responses were observed in both vacuum monitoring wells with higher vacuums readings observed in the deeper probes (i.e., VMW-1D and VMW-2D). Vacuum responses generally increased as the applied vacuum was increased. The highest vacuum in the EXW-1 casing was 26 inches of water (in H₂O). Vacuum readings up to 0.79, 2.52, 0.22, and 0.32 in H₂O in VMW-1S, VMW-1D, VMW-2S, VMW-2D, respectively, were observed in the vapor monitoring wells (Appendix A).

2.3.3 Flowrate and Mass Removal Rates

A photoionization detector (PID) was used to measure offgas VOC concentrations every 15 minutes for the first hour, and every half hour thereafter until conclusion of each test. The maximum PID reading observed was 5,245 parts per million (ppm). Based on PID concentrations, the total mass of vapor phase hydrocarbons removed during the Pilot Test was calculated to be approximately 12 pounds. Field data sheets are provided in Appendix B.



As shown below, the maximum effluent gas flowrate from EXW-1 was 87 cubic feet per minute (cfm) at an inlet vacuum of 13 in Hg.

	INLET VACUUM (in hg)	TIME	TIME INTERVAL (min)	FLOWRATE (cfm)	WEIGHTED AVERAGE FLOWRATE (cfm)
Step Test	7	10:30	0:00	70	63.4
		10:45	0:15	70	
		11:00	0:15	44	
		11:15	0:15	70	
		11:30	0:15	70	
		12:00	0:30	61	
		12:30	0:30	61	
	9	13:00	0:30	79	76.1
		13:15	0:15	74	
		13:30	0:15	70	
		13:45	0:15	70	
		14:00	0:15	79	
		14:30	0:30	83	
		15:00	0:30	83	
	13	15:15	0:15	87	86.8
		15:30	0:15	87	
		15:45	0:15	87	
		16:00	0:15	87	
17:00		1:00	87		

in Hg = inch of mercury

A total of 260 gallons of liquid was recovered from the wells during the step test. Using a total operation time of 6.5 hours, the average groundwater flowrate at EXW-1 was approximately 0.7 gallons per minute (gpm). The extracted groundwater was treated and disposed of at the Site.

2.4 CONSTANT VACUUM TEST

Prior to MPE startup, the depth-to-water was measured at well location MW-11 and data loggers were installed in wells EXW-1, PZ-1, and PZ-2. Based on evaluation of the step test field data, the constant rate test was conducted at a vacuum of 11 in Hg at the inlet MPE for 8 hours.

2.4.1 Groundwater Drawdown Measurements

Groundwater drawdown was measured in the same manner as the step test. The maximum drawdown recorded with the pressure transducers in wells EXW-1, PZ-1 and PZ-2 were 2.58, 0.49, and 0.11 feet, respectively, as depicted in Figure 5. The maximum drawdown measured in MW-11 was 0.33 feet. The maximum drawdown vs. distance during the constant vacuum test is shown in Figure 6. Datalogger readings during the constant rate test are included in Table 2.



2.4.2 Vacuum Measurements

Vacuum readings were measured in wells VMW-1S, VMW-1D, VMW-2S, VMW-2D, and MW-11 in the same manner as the step test. Vacuum responses were observed in both vacuum monitoring wells, with higher vacuum readings observed in the deeper probes (VMW-1D and VMW-2D). The highest vacuum in the EXW-1 casing was 26 in H₂O. The highest readings in the vapor monitoring probes were 0.73, 3.1, 0.22, and 0.15 in H₂O in VMW-1S, VMW-1D, VMW-2S, and VMW-2D, respectively. Figure 7 shows a graph of the vacuum response from EXW-1 versus distance during the constant rate test. The measurements indicate that there was a vacuum response and airflow from the area of the monitoring points toward the extraction point.

2.4.3 Flowrate and Mass Removal Rates

Offgas concentrations were measured every 15 minutes for the first hour, and every half hour thereafter until conclusion of the test. The maximum PID measurement was 1,994 ppm. Based on PID concentrations, the total mass of vapor phase hydrocarbons removed during the constant rate test was calculated to be approximately 10 pounds. The maximum air extraction flowrate at EXW-1 was 87 cfm. Field data sheets are provided in Appendix B.

It should be noted that the calculations presented in the attached data sheets assume that the contaminants removed were primarily petroleum-based. Similarly, the PID was equipped with a 10.6-eV lamp to monitor hydrocarbon vapors and a 6.25 pounds/gallon (the specific weight of gasoline) conversion factor was used to convert pounds of vapor removed to gallons.

A total of 260 gallons of liquid was recovered from the wells. Using a total operation time of 8 hours, the average groundwater flowrate was approximately 0.5 gpm. The recovered fluids were treated and disposed of by the Site.

3.0 GROUNDWATER AND AIR EFFLUENT MEASUREMENTS

Approximately 520 gallons of groundwater were extracted during the Pilot Test. A sample of the extracted groundwater was analyzed for volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method 8260 and transferred to an aboveground storage tank for profiling and disposal by Stericycle.

Two air effluent samples from EXW-1 were analyzed for VOCs per USEPA Method TO-15. All samples were analyzed by Fibertec Environmental Services located in Holt, Michigan. Copies of the analytical laboratory results are included as Appendix C.

4.0 PILOT TEST SUMMARY AND CONCLUSIONS

The MPE Pilot Test was conducted for 2 days while applying four different vacuum settings at the extraction well. Under each vacuum setting, the water level in the extraction well was lowered to the bottom of the drop tube and maintained while various parameters were measured at the observation points.

4.1 CONTAMINANT MASS REMOVED

Approximately 520 gallons of groundwater were extracted during the MPE test. A sample of the extracted groundwater was analyzed for VOCs by EPA Method 8260. Based on the laboratory analysis and total groundwater volume removed, an estimated 0.45 pounds of VOCs were removed during the pilot test. The total mass of VOCs removed via the air stream, based on PID measurements, was 22 pounds.



The purpose of MPE is to enhance vapor extraction; as such, the contaminant mass in the gas phase should exceed the mass in the liquid phase. The ratio of contaminant mass removed via air extraction versus groundwater (i.e., 2%) indicates that the MPE technology functioned as intended.

4.2 GROUNDWATER DRAWDOWN AND DEWATERING RADIUS OF INFLUENCE

The objective of extracting groundwater during MPE is to lower the water table and expose the “smear” zone to vapor extraction.

The historical high and low water levels in a well with a screen that straddles the water table provides a minimum thickness of the smear zone. Gauging data collected since June 2016 in Monitoring Well MW-11 indicates a water level fluctuation of 0.65 feet. See Appendix D for groundwater elevations in Monitoring Well MW-11. The drop tube depth was fixed during the entire MPE Pilot Test and was effective in extracting both groundwater and air, even at the lower vacuum (see table below).

AIR AND GROUNDWATER MEASUREMENTS

INLET VACUUM (in Hg)	EXW-1 CASING		AVERAGE AIR FLOWRATE (cfm)	MAXIMUM DRAWDOWN (feet)			MAXIMUM REMOVAL RATE (lb VOCs/hr)
	(in Hg)	(in H ₂ O)		PZ-1	PZ-2	MW-11	
6†	1.1	15	63	0.37	0.07	0.17	1.67
9†	1.54	21	76	0.48	0.09	0.25	3.60
13†	1.9	26	87	0.56	0.11	0.31	2.39
11‡	1.7	23	87	0.49	0.11	0.33	1.52

† Step test vacuum

‡ Constant rate test

The maximum groundwater drawdown during MPE testing in observation well PZ-1, located 10 feet from EXW-1, was of 0.5 feet; the drawdown in MW-11 located 13 feet from EXW-1 was 0.33 feet; the drawdown in PZ-2 located 36 feet from EXW-1 was less than 0.1 feet. See Tables 1 and 2 for the data and Figure 6 for a drawdown versus distance graph.

Both groundwater drawdown and radius of hydraulic influence were not large; however, the drop tube was only submerged 2.6 feet during the test and could be lowered further. The influence at 10 feet represented 0.5 foot of drawdown in a 0.65 foot smear zone, or a 77% coverage of the smear zone; therefore, this drawdown indicates the MPE is applicable in the targeted zone. Once steady state conditions are achieved, the dewatering radius of influence is expected to increase.

4.3 VACUUM RADIUS OF INFLUENCE

Figure 7 demonstrates the vacuum response at probes located in vacuum monitoring wells near EXW-1, with decreasing vacuum with distance from EXW-1. The lower vacuum in VMW-1S compared to VMW-1D is indicative of air flow from the surface. The radius of influence (ROI) of vapor extraction may be expressed as the distance from the extraction well at which the vacuum in soil decreases to 1 in H₂O. At 25 feet from EXW-1, the vacuum measured by the deep probe was 1.5 in H₂O and, in the shallow well, approximately 0.6 in H₂O. This vacuum ROI is within typical ranges for silty soil under vacuum extraction.



Superimposing the groundwater drawdown and vacuum radius of influence, and considering the air flowrate of 87 cfm and an extraction rate of 1.52 lb/hr, a 25- to 30-foot well spacing (i.e., 15 feet ROI) between extraction wells would achieve the objective of lowering the water table and treating the vadose zone in the western berm area.

Based on these Pilot Test results, MPE using a medium vacuum (12 to 14 in Hg), with extraction wells spaced at 25 to 30 feet would provide a well configuration with vacuum overlap and the dewatering required to remediate VOCs in the targeted area.

4.4 REMEDIAL STRATEGY

The remedial strategy is to remove VOCs in soil and groundwater in the source area: the western berm area of VOC contamination (soil, soil gas, and groundwater). The strategy for MPE remediation is to extract groundwater and soil gas from an array of multiphase extraction wells in the targeted area, thereby lowering water levels and exposing currently submerged and/or capillary fringe soil.

See Figure 8 for proposed MPE well locations. The MPE extraction well construction would be similar to that used for EXW-1. Contaminants in both the groundwater and vapor streams will be treated using activated carbon that will be replaced periodically.

Apex anticipates approximately 3 to 4 years of MPE system operation. Optimization/cycling will be needed to achieve remedial action objectives. However, residual concentrations of contaminants of concern may remain in groundwater when operation of the MPE system is no longer feasible. Therefore, other active remedial measures to achieve remediation goals for groundwater may be necessary. Nevertheless, Apex anticipates that most of the VOC mass in the subsurface soil will be removed by the MPE system. Apex will monitor the downgradient portion of the dissolved VOC plume throughout MPE system operations to evaluate system effectiveness.

5.0 MULTI-PHASE EXTRACTION IMPLEMENTATION

Based on the MPE test, the implementation of this technology will be effective in remediating contaminated groundwater and soil gas. The final MPE system may be modified from the conceptual approach.

The MPE will be designed and permitted, the treatment equipment will be selected/procured, and the final design drawings will be provided to EGLE. Apex will coordinate/oversee remedial installation, which will include installation of the wellhead connections, subsurface groundwater and gas conveyance piping, treatment compound, piping manifolds, sewer connection, and utility connections. After installation, the MPE system will be operated in accordance with the applicable permit conditions.

5.1 PRELIMINARY EQUIPMENT SPECIFICATIONS

The MPE equipment will consist of a network of vertical MPE vacuum extraction wells, as well as lateral surface and subsurface conveyance piping manifolded to a medium-vacuum (e.g., 12 to 14 in Hg) liquid ring or rotary vane pump equipped with a variable frequency drive. The vacuum will draw groundwater and soil vapor through a single conduit. The groundwater will be separated from the gas aboveground in a knockout tank that is connected to the appropriate treatment processes. Both air and groundwater streams will be treated with granular activated carbon within two 2,000-pound vessels connected in series for each stream. Discharge permits,



including a National Pollutant Discharge Elimination System (NPDES) permit for water discharge and a Permit to Install for air emissions, will be obtained. The location at which groundwater will be discharged will be determined during the permitting process.

Equipment will be installed within a fenced treatment compound with a secondary containment berm. Treatment compound fencing will be affixed with appropriate notification signage and emergency placarding.

General specifications for the proposed MPE system are as follows:

- Fenced treatment compound
- MPE extraction well network consisting of new and the previously installed extraction well, EXW-1 (Figure 3)
- Surface and subsurface vapor and groundwater conveyance piping with sweep elbows (2-inch to 4-inch-diameter PVC)
- Medium-vacuum blower package capable of sustaining vacuums of over 14 in Hg and maximum gas flow capacity of approximately 200 to 300 standard cubic feet per minute (scfm)
- Knock-out tank with transfer pump
- Bag filters
- Calibrated flowrate meters
- Optional separation/settling tank
- Two 2,000-pound liquid-phase carbon vessels
- Two 2,000-pound gas-phase carbon vessels

The extent of groundwater plume capture/containment is anticipated to extend beyond the footprint of the western berm area with this design.

As indicated on Figure 8, the proposed MPE well layout, consisting of 16 wells in the western berm area, will allow for overlapping vapor and groundwater capture throughout the source area. Not all wells will be operated simultaneously; the operation of the wells will be cycled in appropriate patterns.

Where applicable, traffic-rated well boxes will generally be installed at each MPE well. The well boxes will be installed flush-mounted with or slightly above the surface grade. The boxes will be bolted to prevent unauthorized access to the wells and will be of sufficient diameter and depth to accommodate the wellhead manifold, valves, and fittings.

A dedicated treated groundwater discharge line will be connected to the onsite stormwater or sewer. The specific discharge point will be determined during further correspondence and permitting with the appropriate government agency and following EGLE approval.



Equipment will be installed so that there will be complete system shut down if a component malfunctions. Construction-related work will be completed according to acceptable practices and local building codes.

A typical MPE system process flow diagram is provided in Appendix E.

5.2 DESIGN

Following EGLE approval, Apex will design the remediation system to provide detailed specifications for final system installation and construction, including the proposed piping network. The design specifications will be used to prepare the necessary design drawings for permitting, system/equipment bidding, and long-term operations.



**Multi-Phase Extraction Pilot Test Report
West Berm Area
for**

Petro-Chem Processing Group of Nortru, LLC
421 Lycaste Street
Detroit, Michigan

Prepared for:
Clean Earth
Detroit, Michigan

Project No. 11019-000128.01

A handwritten signature in black ink, appearing to read 'Kellie L. Wing', written in a cursive style.

Kellie L. Wing
Program Manager

A handwritten signature in black ink, appearing to read 'Gustavo Valdivia', written in a cursive style.

Gustavo Valdivia, P.E.
Program Manager

Apex Companies, LLC
Health, Safety and Environmental Services

July 10, 2020

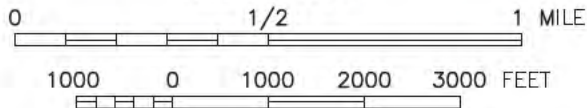


FIGURES



QUADRANGLE LOCATION

Scale 1:24000



SOURCE OF MAP IS US TOPO 7.5 MINUTE QUADRANGLE MAP, BELLE ISLE (2017), MICHIGAN: U.S. GEOLOGICAL SURVEY

SITE LOCATION/BOUNDARIES APPROXIMATED



CHECK BY	KW
DRAWN BY	JL
DATE	7/25/2019
SCALE	AS SHOWN
CAD NO.	11.19.076.00A
PRJ NO.	11019-000076.00

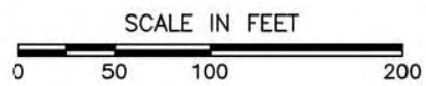
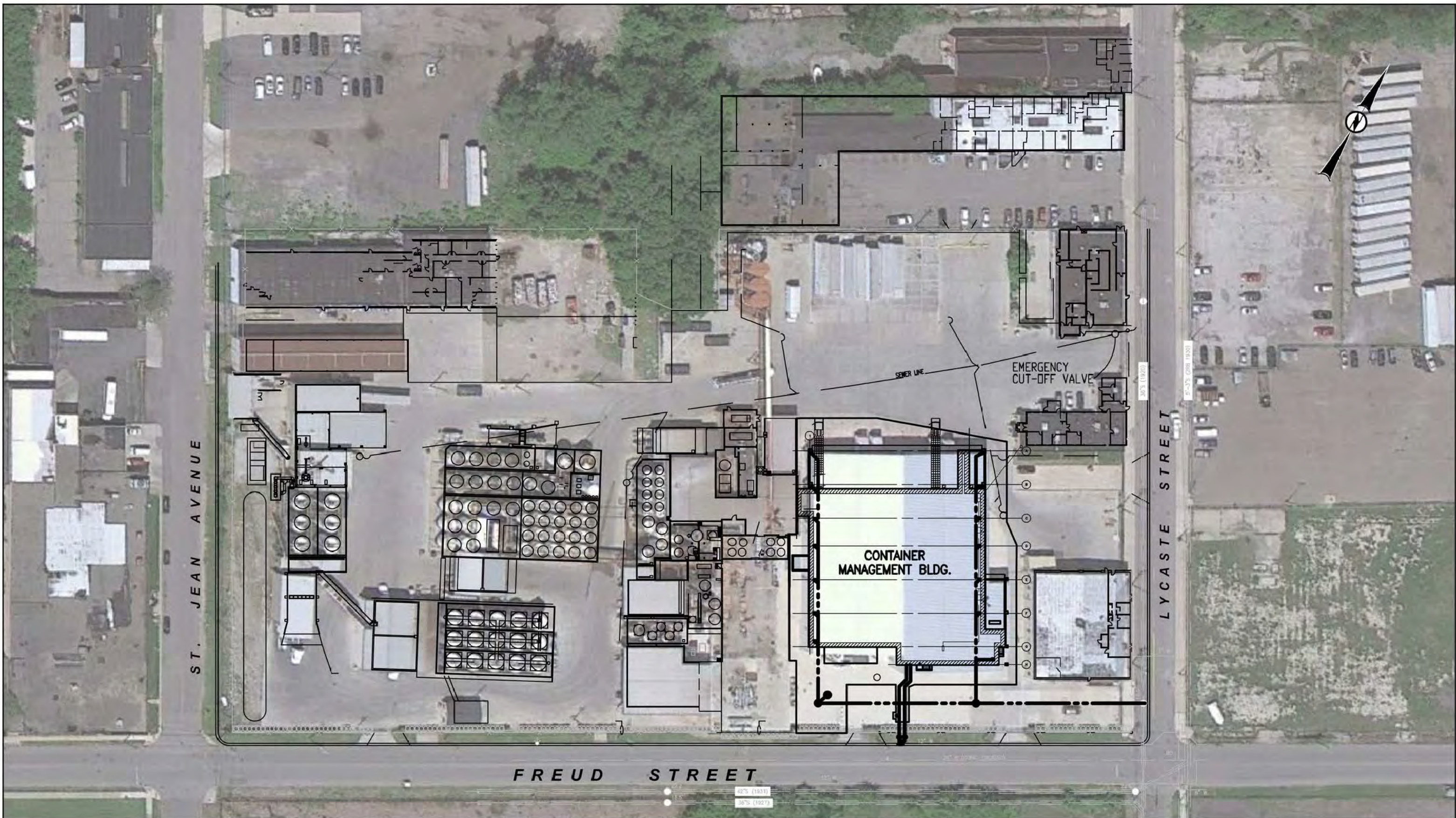
SITE LOCATION MAP

PETRO-CHEM PROCESSING GROUP
421 LYCASTE STREET
DETROIT, MICHIGAN



FIGURE

1



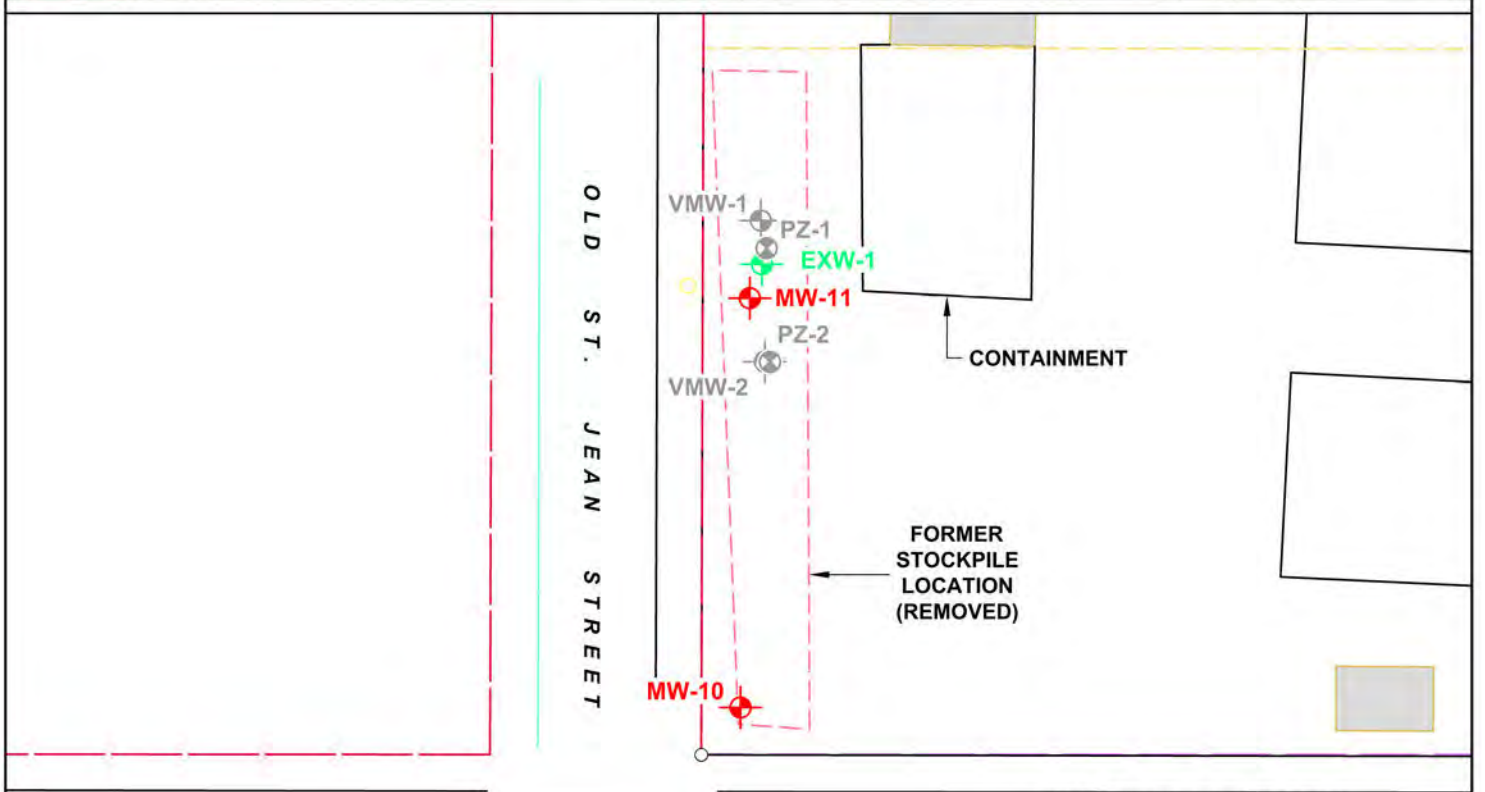
CHECK BY	KW
DRAWN BY	JL
DATE	11/24/2015
SCALE	AS SHOWN
CAD NO.	11.15.255.00b
PRJ NO.	11015-000255.00

SITE LAYOUT
 PETRO-CHEM PROCESSING GROUP
 421 LYCASTE STREET
 DETROIT, MICHIGAN



FIGURE

2



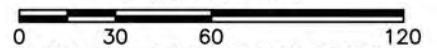
NOTE: AERIAL NOT SHOWN FOR CLARITY

TOP INSET MAP SCALE: 1" = 150'

LEGEND

- ◆ MW-# MONITORING WELL LOCATION
- ◆ EXW-# EXTRACTION WELL—EXISTING
- ◆ VMW-# VAPOR MONITORING WELL
- PZ-# PIEZOMETER

SCALE IN FEET



BASE FIGURE; ROWE PROFESSIONAL SERVICES
DATED OCTOBER 2, 2017

CHECK BY	GV
DRAWN BY	JL
DATE	6/23/2020
SCALE	AS SHOWN
CAD NO.	11.19.128.01s
PRJ NO.	11019-000128.01

PILOT TREATMENT SYSTEM & WELL LOCATIONS

PETRO-CHEM PROCESSING GROUP
421 LYCASTE STREET
DETROIT, MICHIGAN



FIGURE

3

Figure 4
Submerged Depth (ft) vs. Time
(Step Test)

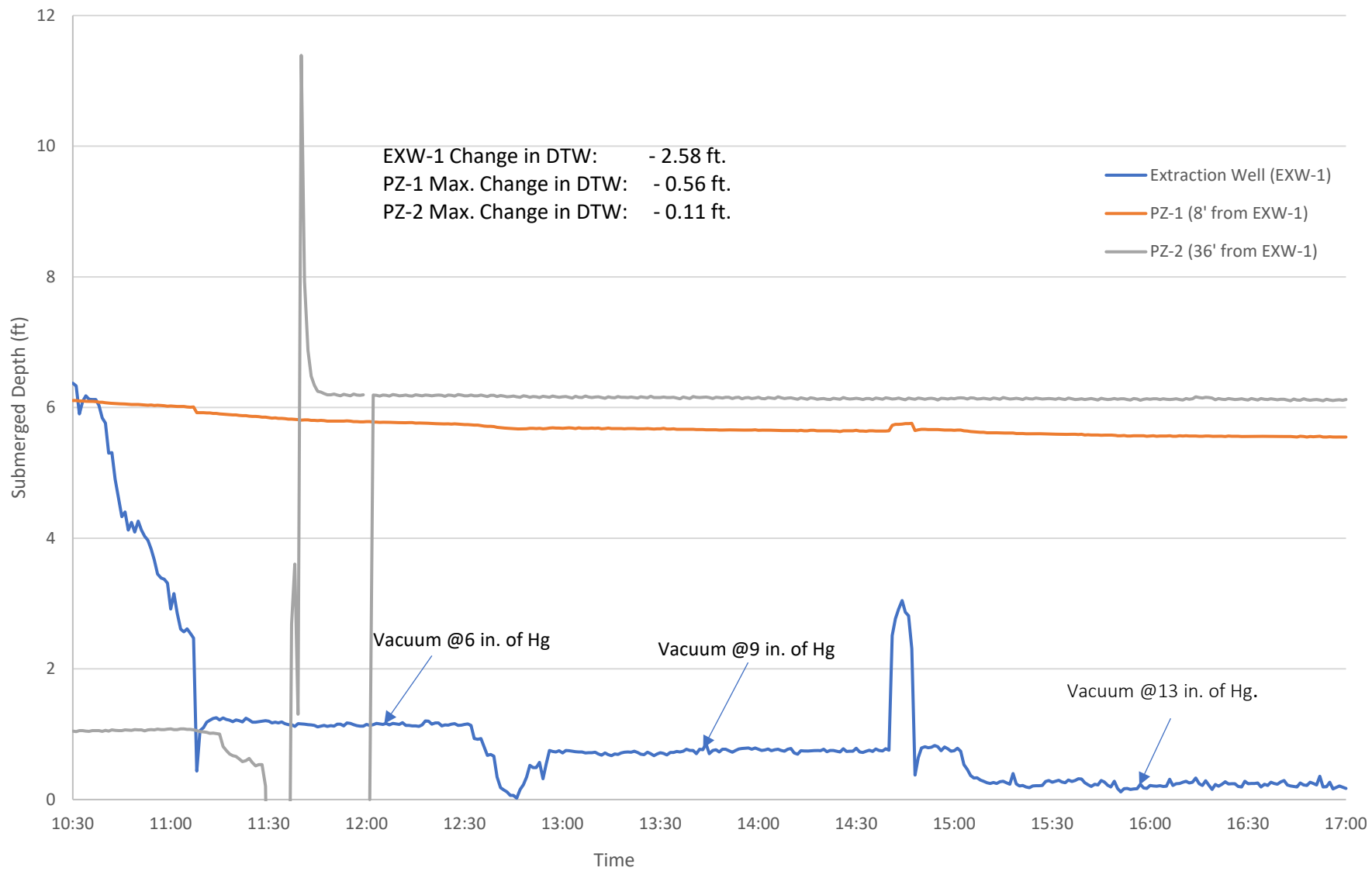


Figure 5
Submerged Depth Vs. Time
(Constant Vacuum ~ 11 in of Hg)

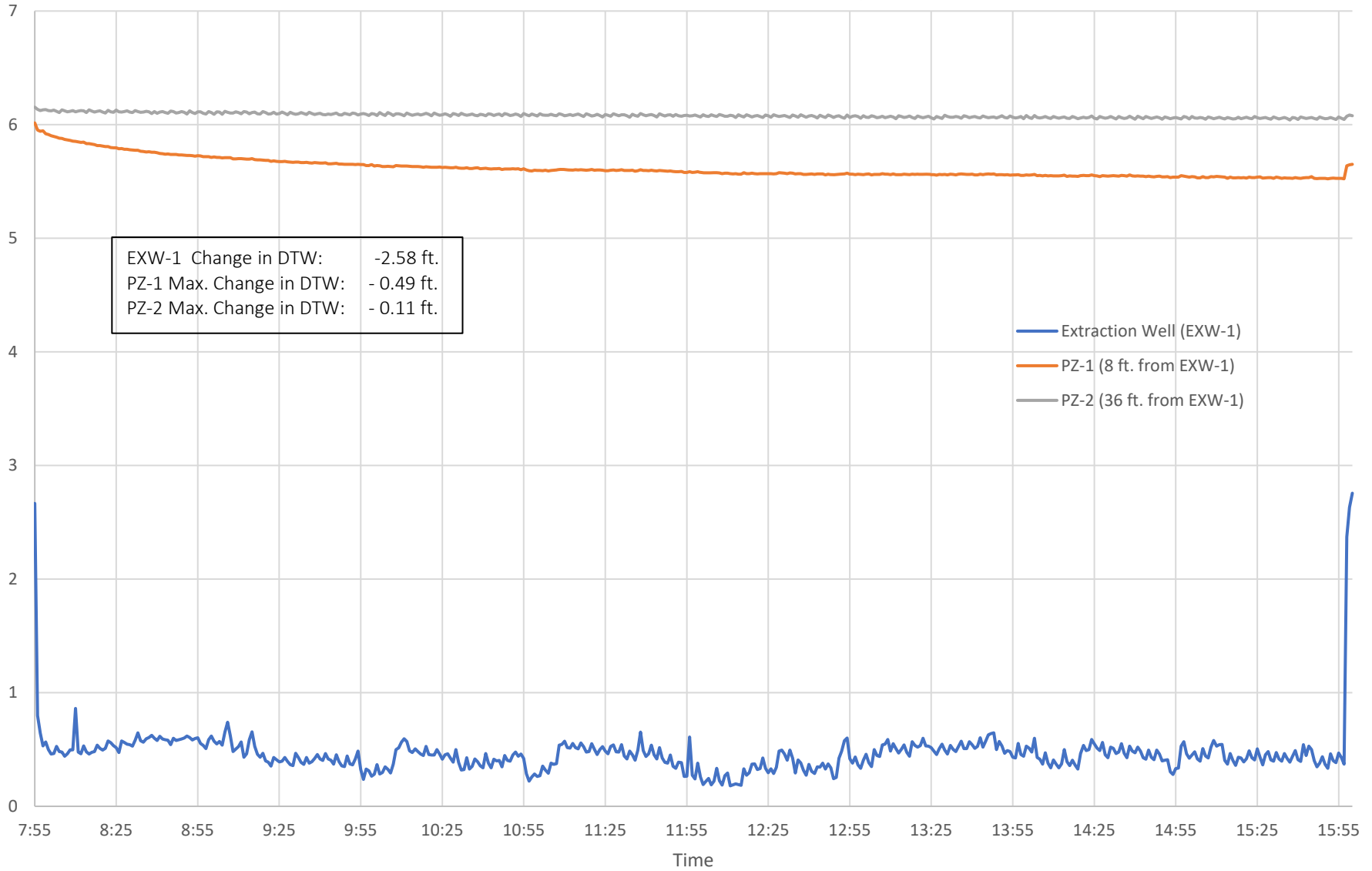


Figure 6 - Maximum Drawdown vs. Distance
Constant Rate Test

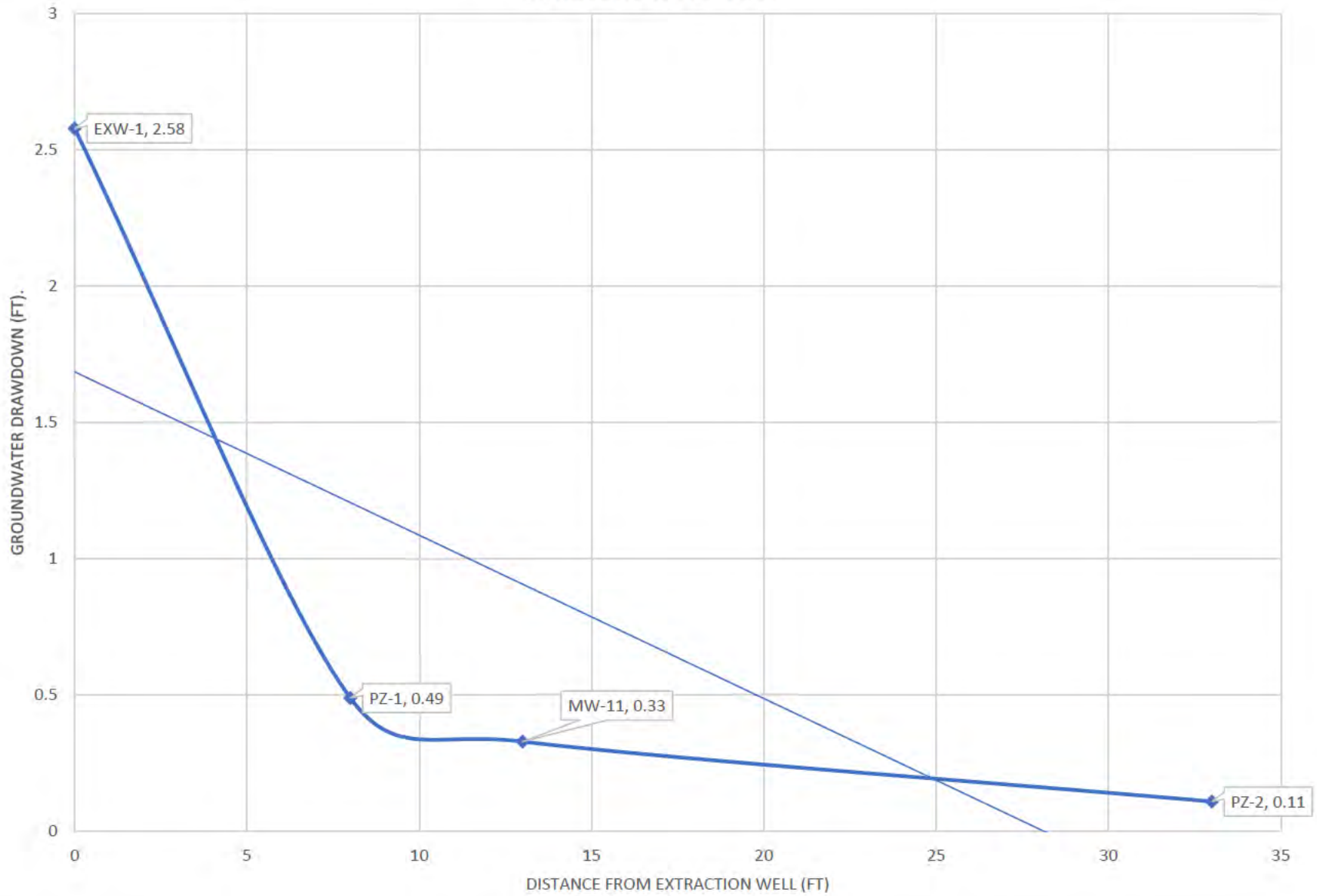
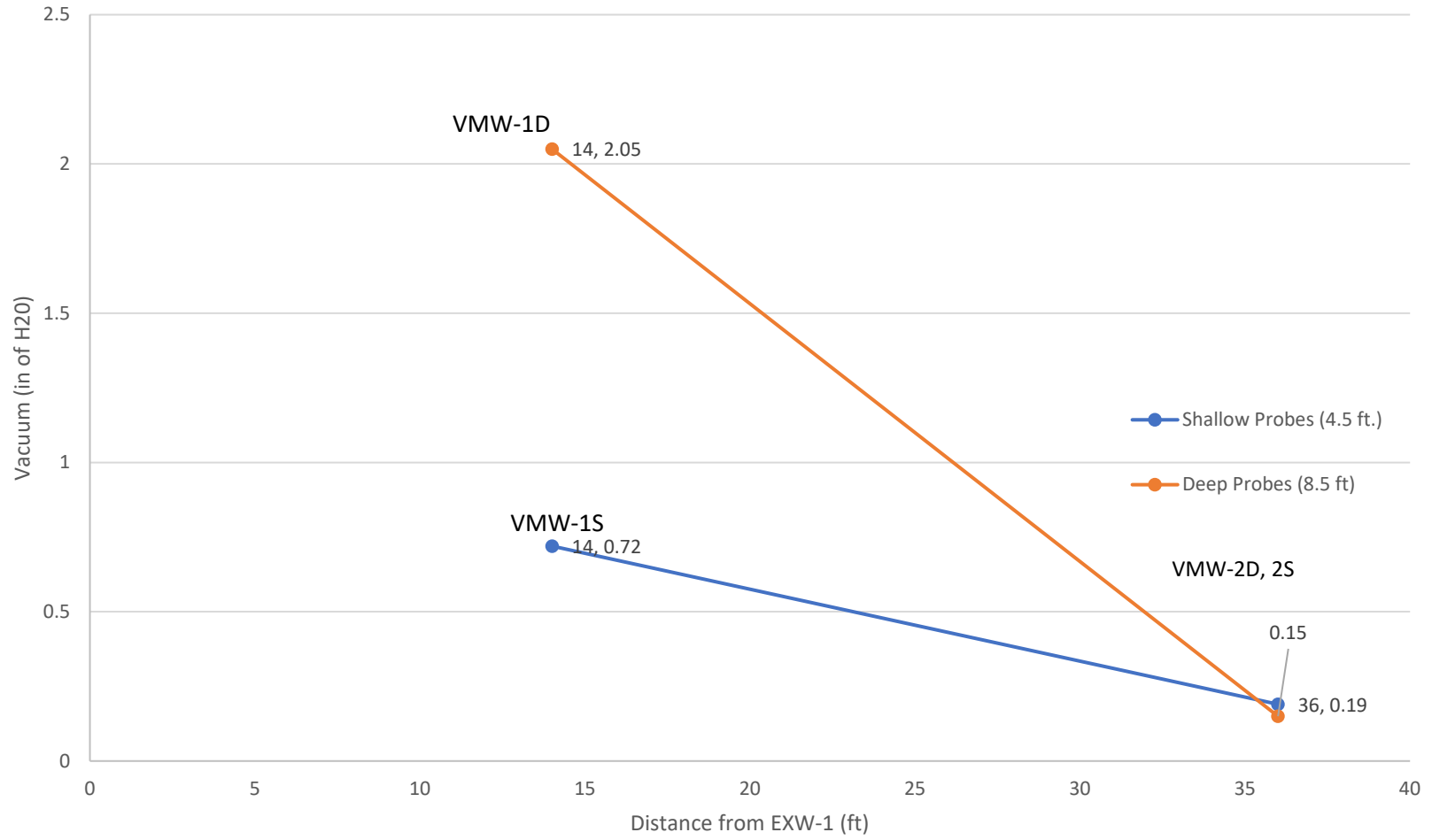
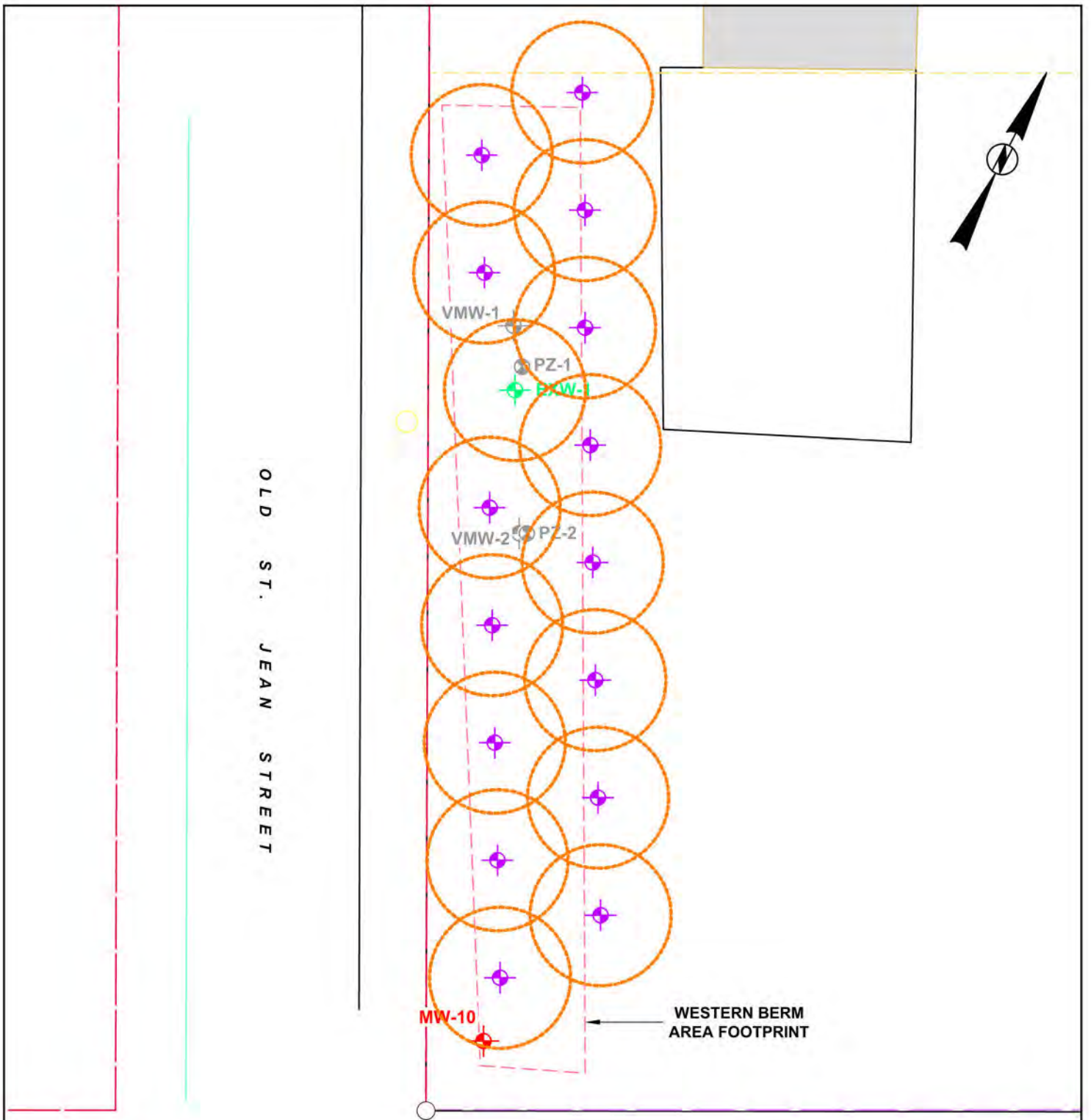


Figure 7 -Vacuum vs. Distance
Constant Rate Test



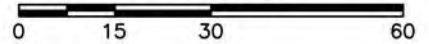


LEGEND

- MW-# MONITORING WELL LOCATION
- EXTRACTION WELL—PROPOSED
- EXW-# EXTRACTION WELL—EXISTING
- VMW-# VAPOR MONITORING WELL
- PZ-# PIEZOMETER
- 15' RADIUS OF INFLUENCE

NOTE: AERIAL NOT SHOWN FOR CLARITY

SCALE IN FEET



CHECK BY	GV/KW
DRAWN BY	JL
DATE	6/23/2020
SCALE	AS SHOWN
CAD NO.	11.19.128.01s
PRJ NO.	11019-000128.01

PROPOSED WELL LOCATIONS – FULL SCALE
MPE SYSTEM

PETRO-CHEM PROCESSING GROUP
421 LYCASTE STREET
DETROIT, MICHIGAN



FIGURE

8



TABLES

Table 1
Step Test - December 16, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
10:30	2.76	6.37	2.64	6.11	2.68	6.19
10:31	2.74	6.33	2.64	6.11	2.68	6.19
10:32	2.56	5.90	2.64	6.10	2.67	6.17
10:33	2.64	6.09	2.64	6.10	2.68	6.19
10:34	2.68	6.18	2.64	6.10	2.68	6.19
10:35	2.65	6.13	2.64	6.10	2.67	6.18
10:36	2.65	6.12	2.64	6.09	2.68	6.20
10:37	2.65	6.12	2.64	6.09	2.68	6.19
10:38	2.61	6.03	2.63	6.08	2.68	6.18
10:39	2.53	5.84	2.63	6.08	2.68	6.18
10:40	2.50	5.76	2.63	6.08	2.68	6.19
10:41	2.30	5.30	2.63	6.07	2.68	6.18
10:42	2.30	5.31	2.63	6.07	2.67	6.17
10:43	2.12	4.90	2.62	6.06	2.68	6.20
10:44	2.00	4.61	2.62	6.06	2.68	6.19
10:45	1.88	4.33	2.62	6.06	2.68	6.18
10:46	1.91	4.40	2.62	6.05	2.68	6.19
10:47	1.79	4.13	2.62	6.05	2.68	6.19
10:48	1.84	4.24	2.62	6.05	2.68	6.18
10:49	1.77	4.10	2.62	6.05	2.68	6.19
10:50	1.84	4.26	2.62	6.05	2.68	6.19
10:51	1.79	4.12	2.62	6.04	2.68	6.19
10:52	1.74	4.03	2.62	6.04	2.67	6.17
10:53	1.72	3.97	2.61	6.03	2.68	6.19
10:54	1.66	3.84	2.61	6.04	2.68	6.19
10:55	1.59	3.67	2.61	6.03	2.67	6.17
10:56	1.49	3.45	2.61	6.03	2.68	6.20
10:57	1.47	3.39	2.61	6.03	2.68	6.19
10:58	1.46	3.37	2.61	6.03	2.68	6.18
10:59	1.43	3.31	2.61	6.02	2.68	6.18
11:00	1.26	2.92	2.61	6.02	2.68	6.19
11:01	1.37	3.15	2.61	6.02	2.68	6.18
11:02	1.24	2.86	2.60	6.02	2.68	6.18
11:03	1.13	2.61	2.61	6.02	2.68	6.19
11:04	1.11	2.57	2.60	6.02	2.68	6.18
11:05	1.13	2.61	2.60	6.01	2.67	6.17
11:06	1.10	2.54	2.60	6.01	2.68	6.19
11:07	1.07	2.47	2.60	6.01	2.68	6.19
11:08	0.19	0.43	2.56	5.92	2.67	6.17
11:09	0.46	1.05	2.56	5.92	2.68	6.18

Table 1
Step Test - December 16, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
11:10	0.48	1.10	2.56	5.92	2.67	6.18
11:11	0.51	1.19	2.56	5.92	2.67	6.16
11:12	0.53	1.22	2.56	5.92	2.67	6.17
11:13	0.54	1.24	2.56	5.91	2.67	6.17
11:14	0.54	1.25	2.56	5.91	2.67	6.17
11:15	0.53	1.22	2.56	5.90	2.67	6.16
11:16	0.54	1.25	2.55	5.90	2.68	6.18
11:17	0.53	1.22	2.55	5.90	2.67	6.17
11:18	0.53	1.22	2.55	5.89	2.67	6.16
11:19	0.52	1.19	2.55	5.89	2.67	6.17
11:20	0.53	1.22	2.55	5.89	2.67	6.17
11:21	0.52	1.21	2.55	5.88	2.66	6.15
11:22	0.51	1.19	2.54	5.88	2.67	6.17
11:23	0.54	1.25	2.54	5.87	2.67	6.17
11:24	0.53	1.22	2.54	5.87	2.67	6.16
11:25	0.51	1.18	2.54	5.87	2.67	6.18
11:26	0.51	1.19	2.54	5.86	2.67	6.17
11:27	0.52	1.19	2.54	5.86	2.67	6.16
11:28	0.52	1.20	2.53	5.85	2.67	6.16
11:29	0.52	1.21	2.53	5.85	2.67	6.17
11:30	0.52	1.20	2.53	5.85	2.67	6.16
11:31	0.51	1.17	2.53	5.84	2.66	6.14
11:32	0.51	1.18	2.53	5.84	2.67	6.17
11:33	0.51	1.17	2.53	5.84	2.67	6.16
11:34	0.51	1.19	2.53	5.83	2.66	6.15
11:35	0.50	1.16	2.52	5.83	2.67	6.18
11:36	0.50	1.15	2.52	5.82	2.67	6.16
11:37	0.50	1.15	2.52	5.82	2.66	6.15
11:38	0.49	1.12	2.52	5.82	2.67	6.16
11:39	0.50	1.16	2.52	5.82	2.67	6.17
11:40	0.50	1.16	2.51	5.81	2.66	6.15
11:41	0.50	1.16	2.52	5.81	2.66	6.14
11:42	0.50	1.15	2.52	5.81	2.67	6.17
11:43	0.49	1.14	2.51	5.81	2.66	6.15
11:44	0.49	1.14	2.51	5.80	2.66	6.15
11:45	0.48	1.11	2.51	5.80	2.67	6.17
11:46	0.49	1.12	2.51	5.80	2.67	6.16
11:47	0.49	1.13	2.51	5.80	2.67	6.16
11:48	0.49	1.12	2.51	5.79	2.66	6.15
11:49	0.49	1.13	2.51	5.79	2.67	6.16

Table 1
Step Test - December 16, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
11:50	0.49	1.12	2.51	5.79	2.66	6.15
11:51	0.50	1.16	2.51	5.79	2.66	6.14
11:52	0.50	1.15	2.51	5.79	2.67	6.16
11:53	0.49	1.13	2.51	5.79	2.67	6.16
11:54	0.51	1.17	2.51	5.80	2.66	6.15
11:55	0.51	1.17	2.51	5.79	2.67	6.17
11:56	0.50	1.15	2.51	5.79	2.66	6.15
11:57	0.49	1.13	2.50	5.78	2.66	6.15
11:58	0.49	1.12	2.50	5.78	2.66	6.15
11:59	0.49	1.12	2.50	5.78	2.67	6.16
12:00	0.50	1.15	2.50	5.78	2.66	6.15
12:01	0.49	1.14	2.50	5.78	2.66	6.15
12:02	0.50	1.15	2.50	5.78	2.67	6.16
12:03	0.51	1.17	2.50	5.78	2.66	6.15
12:04	0.50	1.16	2.50	5.78	2.66	6.13
12:05	0.50	1.15	2.50	5.78	2.67	6.16
12:06	0.50	1.16	2.50	5.77	2.66	6.15
12:07	0.49	1.14	2.50	5.77	2.66	6.14
12:08	0.50	1.16	2.50	5.78	2.67	6.17
12:09	0.50	1.16	2.50	5.77	2.67	6.16
12:10	0.50	1.15	2.50	5.77	2.66	6.15
12:11	0.51	1.18	2.50	5.77	2.67	6.16
12:12	0.49	1.14	2.50	5.77	2.67	6.16
12:13	0.49	1.13	2.50	5.77	2.66	6.15
12:14	0.49	1.13	2.50	5.77	2.66	6.14
12:15	0.49	1.13	2.49	5.76	2.67	6.16
12:16	0.48	1.12	2.50	5.76	2.66	6.15
12:17	0.50	1.14	2.50	5.76	2.66	6.14
12:18	0.52	1.20	2.49	5.76	2.67	6.16
12:19	0.52	1.20	2.50	5.76	2.67	6.16
12:20	0.50	1.15	2.49	5.76	2.66	6.14
12:21	0.51	1.17	2.49	5.75	2.66	6.15
12:22	0.51	1.17	2.49	5.75	2.67	6.16
12:23	0.49	1.13	2.49	5.75	2.66	6.14
12:24	0.49	1.14	2.49	5.74	2.66	6.15
12:25	0.49	1.14	2.49	5.75	2.66	6.15
12:26	0.50	1.16	2.49	5.75	2.66	6.14
12:27	0.50	1.16	2.49	5.75	2.66	6.15
12:28	0.49	1.14	2.49	5.75	2.67	6.16
12:29	0.49	1.14	2.49	5.74	2.66	6.14

Table 1
Step Test - December 16, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
12:30	0.50	1.15	2.48	5.74	2.66	6.13
12:31	0.50	1.16	2.49	5.74	2.66	6.15
12:32	0.49	1.13	2.48	5.74	2.66	6.14
12:33	0.40	0.93	2.48	5.73	2.66	6.14
12:34	0.40	0.92	2.48	5.73	2.67	6.16
12:35	0.40	0.93	2.48	5.72	2.66	6.15
12:36	0.35	0.81	2.48	5.72	2.66	6.14
12:37	0.29	0.67	2.47	5.71	2.66	6.14
12:38	0.30	0.69	2.47	5.71	2.66	6.15
12:39	0.29	0.67	2.47	5.71	2.66	6.14
12:40	0.15	0.34	2.47	5.70	2.65	6.13
12:41	0.08	0.18	2.47	5.69	2.66	6.15
12:42	0.06	0.15	2.46	5.69	2.66	6.14
12:43	0.05	0.12	2.46	5.68	2.65	6.13
12:44	0.03	0.06	2.46	5.68	2.66	6.15
12:45	0.03	0.06	2.46	5.68	2.66	6.14
12:46	0.01	0.02	2.46	5.67	2.65	6.13
12:47	0.07	0.15	2.46	5.68	2.66	6.13
12:48	0.10	0.23	2.46	5.67	2.66	6.14
12:49	0.15	0.34	2.46	5.67	2.65	6.13
12:50	0.23	0.52	2.46	5.68	2.65	6.12
12:51	0.21	0.49	2.46	5.68	2.66	6.14
12:52	0.21	0.49	2.46	5.68	2.66	6.14
12:53	0.25	0.57	2.46	5.68	2.65	6.13
12:54	0.14	0.32	2.46	5.68	2.66	6.15
12:55	0.24	0.55	2.46	5.68	2.66	6.14
12:56	0.33	0.75	2.46	5.69	2.65	6.13
12:57	0.32	0.73	2.46	5.69	2.66	6.14
12:58	0.32	0.73	2.46	5.68	2.66	6.14
12:59	0.32	0.75	2.46	5.68	2.66	6.13
13:00	0.31	0.71	2.46	5.68	2.65	6.12
13:01	0.33	0.75	2.46	5.68	2.66	6.14
13:02	0.32	0.75	2.46	5.69	2.66	6.14
13:03	0.32	0.74	2.46	5.68	2.65	6.12
13:04	0.32	0.73	2.46	5.68	2.66	6.14
13:05	0.32	0.73	2.46	5.69	2.66	6.14
13:06	0.32	0.73	2.46	5.68	2.65	6.13
13:07	0.31	0.71	2.46	5.68	2.66	6.15
13:08	0.31	0.72	2.46	5.68	2.66	6.14
13:09	0.31	0.72	2.46	5.68	2.65	6.13

Table 1
Step Test - December 16, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
13:10	0.31	0.73	2.46	5.68	2.66	6.13
13:11	0.30	0.70	2.46	5.68	2.66	6.14
13:12	0.29	0.68	2.46	5.68	2.65	6.13
13:13	0.31	0.71	2.46	5.68	2.65	6.12
13:14	0.30	0.69	2.46	5.68	2.66	6.15
13:15	0.29	0.67	2.46	5.68	2.66	6.14
13:16	0.30	0.70	2.46	5.68	2.65	6.13
13:17	0.30	0.69	2.46	5.68	2.66	6.14
13:18	0.31	0.71	2.46	5.68	2.66	6.14
13:19	0.31	0.73	2.46	5.68	2.65	6.13
13:20	0.32	0.73	2.46	5.68	2.66	6.14
13:21	0.31	0.73	2.46	5.68	2.66	6.14
13:22	0.32	0.74	2.46	5.68	2.66	6.14
13:23	0.31	0.72	2.46	5.67	2.65	6.12
13:24	0.30	0.69	2.46	5.68	2.66	6.14
13:25	0.30	0.69	2.46	5.67	2.66	6.14
13:26	0.31	0.73	2.46	5.68	2.65	6.13
13:27	0.30	0.70	2.46	5.68	2.66	6.14
13:28	0.29	0.67	2.46	5.67	2.66	6.13
13:29	0.30	0.70	2.46	5.67	2.66	6.14
13:30	0.31	0.72	2.46	5.68	2.66	6.15
13:31	0.31	0.70	2.46	5.68	2.66	6.14
13:32	0.30	0.68	2.46	5.67	2.65	6.13
13:33	0.31	0.72	2.46	5.67	2.66	6.15
13:34	0.31	0.72	2.46	5.67	2.66	6.14
13:35	0.32	0.73	2.45	5.67	2.65	6.13
13:36	0.32	0.73	2.45	5.67	2.66	6.14
13:37	0.32	0.74	2.45	5.67	2.66	6.14
13:38	0.33	0.77	2.45	5.67	2.66	6.13
13:39	0.33	0.75	2.45	5.67	2.65	6.13
13:40	0.33	0.75	2.45	5.67	2.66	6.15
13:41	0.30	0.70	2.45	5.66	2.66	6.14
13:42	0.33	0.77	2.45	5.66	2.65	6.13
13:43	0.33	0.76	2.45	5.66	2.66	6.15
13:44	0.37	0.85	2.45	5.66	2.66	6.14
13:45	0.30	0.70	2.45	5.66	2.65	6.13
13:46	0.33	0.75	2.45	5.66	2.66	6.14
13:47	0.33	0.76	2.45	5.66	2.66	6.14
13:48	0.32	0.73	2.45	5.66	2.66	6.14
13:49	0.33	0.77	2.45	5.66	2.65	6.12

Table 1
Step Test - December 16, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
13:50	0.33	0.77	2.45	5.66	2.66	6.14
13:51	0.32	0.75	2.45	5.66	2.66	6.14
13:52	0.31	0.73	2.45	5.66	2.65	6.13
13:53	0.33	0.75	2.45	5.66	2.66	6.15
13:54	0.34	0.77	2.45	5.66	2.66	6.14
13:55	0.34	0.78	2.45	5.66	2.65	6.13
13:56	0.34	0.79	2.45	5.66	2.66	6.14
13:57	0.34	0.79	2.45	5.66	2.66	6.14
13:58	0.33	0.77	2.45	5.65	2.66	6.14
13:59	0.34	0.79	2.45	5.66	2.65	6.13
14:00	0.33	0.77	2.45	5.65	2.66	6.14
14:01	0.33	0.75	2.45	5.65	2.65	6.13
14:02	0.33	0.76	2.45	5.65	2.65	6.12
14:03	0.34	0.77	2.45	5.65	2.66	6.14
14:04	0.32	0.75	2.45	5.65	2.66	6.14
14:05	0.33	0.76	2.45	5.65	2.65	6.12
14:06	0.33	0.77	2.45	5.65	2.65	6.13
14:07	0.33	0.75	2.45	5.65	2.66	6.14
14:08	0.32	0.74	2.45	5.65	2.65	6.12
14:09	0.33	0.77	2.45	5.65	2.65	6.13
14:10	0.34	0.78	2.45	5.65	2.66	6.14
14:11	0.31	0.71	2.45	5.65	2.65	6.13
14:12	0.30	0.70	2.44	5.65	2.65	6.11
14:13	0.32	0.75	2.45	5.65	2.66	6.14
14:14	0.32	0.74	2.44	5.65	2.65	6.13
14:15	0.32	0.74	2.44	5.65	2.65	6.12
14:16	0.32	0.75	2.45	5.65	2.65	6.13
14:17	0.33	0.75	2.45	5.65	2.66	6.14
14:18	0.32	0.75	2.44	5.64	2.65	6.13
14:19	0.32	0.75	2.44	5.65	2.66	6.13
14:20	0.33	0.77	2.44	5.65	2.66	6.14
14:21	0.32	0.73	2.44	5.65	2.65	6.12
14:22	0.33	0.75	2.44	5.64	2.65	6.12
14:23	0.33	0.75	2.44	5.64	2.66	6.14
14:24	0.32	0.74	2.44	5.64	2.65	6.13
14:25	0.32	0.73	2.44	5.63	2.65	6.11
14:26	0.34	0.78	2.44	5.64	2.65	6.13
14:27	0.32	0.74	2.44	5.64	2.66	6.13
14:28	0.32	0.74	2.44	5.65	2.65	6.13
14:29	0.32	0.74	2.44	5.64	2.66	6.13

Table 1
Step Test - December 16, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
14:30	0.34	0.79	2.45	5.65	2.66	6.14
14:31	0.32	0.73	2.44	5.64	2.65	6.12
14:32	0.31	0.72	2.44	5.64	2.66	6.14
14:33	0.32	0.74	2.44	5.64	2.65	6.13
14:34	0.33	0.76	2.44	5.64	2.65	6.12
14:35	0.32	0.74	2.44	5.64	2.65	6.13
14:36	0.34	0.77	2.44	5.64	2.66	6.14
14:37	0.33	0.75	2.44	5.64	2.65	6.12
14:38	0.32	0.74	2.44	5.64	2.65	6.12
14:39	0.34	0.78	2.44	5.64	2.66	6.14
14:40	0.33	0.76	2.44	5.64	2.65	6.13
14:41	1.09	2.51	2.48	5.73	2.66	6.13
14:42	1.20	2.77	2.49	5.74	2.67	6.16
14:43	1.26	2.92	2.49	5.74	2.66	6.15
14:44	1.32	3.05	2.49	5.75	2.66	6.14
14:45	1.24	2.87	2.49	5.75	2.67	6.16
14:46	1.22	2.81	2.49	5.75	2.66	6.15
14:47	1.00	2.31	2.49	5.76	2.66	6.15
14:48	0.16	0.38	2.45	5.65	2.65	6.12
14:49	0.28	0.64	2.45	5.66	2.66	6.14
14:50	0.34	0.79	2.45	5.67	2.65	6.13
14:51	0.35	0.81	2.45	5.67	2.65	6.12
14:52	0.34	0.79	2.45	5.66	2.66	6.14
14:53	0.35	0.80	2.45	5.66	2.65	6.13
14:54	0.36	0.83	2.45	5.66	2.65	6.12
14:55	0.35	0.81	2.45	5.66	2.65	6.13
14:56	0.32	0.75	2.45	5.66	2.66	6.13
14:57	0.35	0.81	2.45	5.66	2.65	6.12
14:58	0.34	0.78	2.45	5.66	2.65	6.12
14:59	0.32	0.74	2.45	5.65	2.66	6.14
15:00	0.32	0.75	2.45	5.65	2.65	6.13
15:01	0.34	0.79	2.45	5.65	2.65	6.11
15:02	0.32	0.74	2.45	5.65	2.66	6.14
15:03	0.23	0.54	2.44	5.64	2.65	6.13
15:04	0.20	0.46	2.44	5.64	2.65	6.12
15:05	0.16	0.37	2.44	5.63	2.66	6.14
15:06	0.14	0.33	2.44	5.63	2.65	6.13
15:07	0.15	0.33	2.44	5.62	2.65	6.12
15:08	0.13	0.30	2.43	5.62	2.65	6.13
15:09	0.12	0.28	2.43	5.62	2.65	6.13

Table 1
Step Test - December 16, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
15:10	0.11	0.26	2.43	5.62	2.65	6.12
15:11	0.11	0.24	2.43	5.61	2.64	6.11
15:12	0.11	0.26	2.43	5.61	2.65	6.13
15:13	0.11	0.24	2.43	5.61	2.65	6.12
15:14	0.12	0.27	2.43	5.61	2.65	6.11
15:15	0.12	0.28	2.43	5.61	2.66	6.13
15:16	0.11	0.26	2.43	5.61	2.65	6.12
15:17	0.10	0.23	2.43	5.61	2.65	6.11
15:18	0.17	0.40	2.43	5.61	2.65	6.12
15:19	0.10	0.24	2.43	5.60	2.65	6.12
15:20	0.09	0.21	2.43	5.60	2.65	6.12
15:21	0.09	0.21	2.43	5.60	2.64	6.11
15:22	0.08	0.19	2.42	5.60	2.65	6.13
15:23	0.08	0.18	2.42	5.60	2.65	6.12
15:24	0.09	0.21	2.42	5.60	2.64	6.11
15:25	0.09	0.21	2.43	5.60	2.65	6.11
15:26	0.09	0.21	2.42	5.60	2.65	6.12
15:27	0.09	0.21	2.42	5.59	2.65	6.11
15:28	0.12	0.27	2.42	5.60	2.65	6.12
15:29	0.13	0.29	2.42	5.60	2.65	6.13
15:30	0.11	0.26	2.42	5.59	2.65	6.11
15:31	0.12	0.28	2.42	5.59	2.64	6.10
15:32	0.13	0.30	2.42	5.59	2.65	6.12
15:33	0.12	0.27	2.42	5.59	2.65	6.11
15:34	0.11	0.26	2.42	5.59	2.64	6.11
15:35	0.13	0.30	2.42	5.59	2.65	6.12
15:36	0.12	0.27	2.42	5.59	2.65	6.11
15:37	0.13	0.29	2.42	5.59	2.64	6.11
15:38	0.14	0.32	2.42	5.59	2.65	6.12
15:39	0.14	0.31	2.42	5.59	2.65	6.11
15:40	0.11	0.26	2.42	5.58	2.64	6.11
15:41	0.10	0.23	2.42	5.58	2.66	6.13
15:42	0.09	0.20	2.42	5.58	2.65	6.12
15:43	0.10	0.23	2.42	5.58	2.65	6.11
15:44	0.10	0.22	2.42	5.58	2.65	6.12
15:45	0.13	0.29	2.41	5.58	2.65	6.12
15:46	0.12	0.27	2.42	5.58	2.65	6.11
15:47	0.10	0.22	2.41	5.58	2.64	6.10
15:48	0.08	0.19	2.42	5.58	2.65	6.13
15:49	0.12	0.28	2.41	5.58	2.65	6.12

Table 1
Step Test - December 16, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
15:50	0.07	0.17	2.41	5.57	2.64	6.10
15:51	0.05	0.12	2.41	5.57	2.65	6.11
15:52	0.07	0.17	2.41	5.57	2.65	6.12
15:53	0.07	0.17	2.41	5.56	2.64	6.11
15:54	0.07	0.15	2.41	5.56	2.65	6.11
15:55	0.07	0.16	2.41	5.57	2.65	6.12
15:56	0.07	0.17	2.41	5.57	2.65	6.11
15:57	0.10	0.23	2.41	5.57	2.64	6.10
15:58	0.08	0.18	2.41	5.57	2.65	6.12
15:59	0.07	0.17	2.41	5.56	2.65	6.11
16:00	0.09	0.22	2.41	5.56	2.64	6.10
16:01	0.09	0.21	2.41	5.57	2.65	6.12
16:02	0.09	0.21	2.41	5.56	2.65	6.11
16:03	0.09	0.21	2.41	5.56	2.64	6.10
16:04	0.09	0.20	2.41	5.56	2.65	6.11
16:05	0.09	0.21	2.41	5.56	2.65	6.11
16:06	0.13	0.31	2.41	5.57	2.64	6.11
16:07	0.09	0.21	2.41	5.56	2.64	6.10
16:08	0.11	0.24	2.41	5.56	2.65	6.12
16:09	0.11	0.24	2.41	5.57	2.65	6.11
16:10	0.11	0.26	2.41	5.56	2.64	6.10
16:11	0.12	0.28	2.41	5.57	2.65	6.12
16:12	0.11	0.25	2.41	5.56	2.65	6.11
16:13	0.11	0.26	2.41	5.56	2.64	6.10
16:14	0.14	0.33	2.41	5.56	2.64	6.11
16:15	0.11	0.24	2.41	5.56	2.65	6.12
16:16	0.09	0.21	2.41	5.56	2.64	6.11
16:17	0.13	0.29	2.41	5.56	2.64	6.10
16:18	0.10	0.22	2.41	5.56	2.65	6.12
16:19	0.07	0.15	2.41	5.56	2.65	6.11
16:20	0.10	0.23	2.41	5.56	2.64	6.10
16:21	0.09	0.21	2.41	5.56	2.65	6.12
16:22	0.10	0.23	2.41	5.56	2.65	6.11
16:23	0.12	0.27	2.41	5.56	2.64	6.10
16:24	0.10	0.24	2.41	5.56	2.65	6.11
16:25	0.11	0.24	2.41	5.56	2.65	6.11
16:26	0.11	0.24	2.41	5.56	2.64	6.11
16:27	0.09	0.20	2.41	5.56	2.64	6.10
16:28	0.08	0.19	2.41	5.56	2.65	6.12
16:29	0.12	0.28	2.41	5.56	2.64	6.11

Table 1
Step Test - December 16, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
16:30	0.11	0.24	2.41	5.56	2.64	6.10
16:31	0.11	0.24	2.41	5.56	2.65	6.12
16:32	0.11	0.24	2.41	5.56	2.65	6.11
16:33	0.11	0.25	2.41	5.56	2.64	6.10
16:34	0.08	0.19	2.41	5.56	2.64	6.11
16:35	0.10	0.24	2.41	5.56	2.65	6.11
16:36	0.09	0.21	2.41	5.56	2.64	6.10
16:37	0.11	0.26	2.41	5.56	2.64	6.10
16:38	0.11	0.25	2.41	5.56	2.65	6.12
16:39	0.10	0.24	2.41	5.56	2.64	6.10
16:40	0.12	0.27	2.41	5.56	2.64	6.11
16:41	0.13	0.29	2.41	5.56	2.65	6.11
16:42	0.10	0.22	2.41	5.56	2.64	6.10
16:43	0.09	0.21	2.41	5.56	2.64	6.09
16:44	0.09	0.20	2.40	5.55	2.65	6.11
16:45	0.08	0.19	2.40	5.55	2.64	6.10
16:46	0.11	0.25	2.41	5.56	2.64	6.10
16:47	0.10	0.22	2.41	5.56	2.65	6.12
16:48	0.09	0.22	2.40	5.55	2.64	6.11
16:49	0.12	0.27	2.41	5.56	2.64	6.10
16:50	0.11	0.24	2.40	5.55	2.64	6.11
16:51	0.10	0.22	2.41	5.56	2.65	6.11
16:52	0.16	0.36	2.41	5.56	2.64	6.11
16:53	0.08	0.19	2.40	5.55	2.64	6.09
16:54	0.09	0.20	2.40	5.55	2.64	6.11
16:55	0.12	0.27	2.40	5.55	2.64	6.11
16:56	0.07	0.16	2.40	5.55	2.64	6.09
16:57	0.08	0.19	2.40	5.55	2.65	6.11
16:58	0.09	0.21	2.40	5.55	2.64	6.10
16:59	0.08	0.19	2.40	5.55	2.64	6.10
17:00	0.07	0.17	2.40	5.55	2.64	6.11

Inlet vacuum (inches of Hg) : 10:30 -12:30 ~ 7" , 12:30 to 15:00 ~ 9" , 15:00 to 17:00 ~ 13"

Table 2
Constant Vacuum Test - December 17, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
7:55	1.15	2.67	2.60	6.02	2.66	6.15
7:56	0.35	0.80	2.58	5.95	2.66	6.14
7:57	0.28	0.64	2.57	5.94	2.65	6.12
7:58	0.23	0.53	2.57	5.95	2.65	6.13
7:59	0.25	0.57	2.56	5.92	2.66	6.13
8:00	0.22	0.50	2.56	5.91	2.65	6.12
8:01	0.20	0.46	2.56	5.90	2.65	6.12
8:02	0.20	0.46	2.55	5.90	2.65	6.13
8:03	0.23	0.53	2.55	5.89	2.65	6.12
8:04	0.21	0.48	2.55	5.88	2.64	6.11
8:05	0.21	0.48	2.55	5.88	2.65	6.13
8:06	0.19	0.44	2.54	5.87	2.65	6.12
8:07	0.20	0.46	2.54	5.87	2.65	6.11
8:08	0.22	0.50	2.54	5.86	2.65	6.12
8:09	0.22	0.50	2.54	5.86	2.65	6.12
8:10	0.37	0.86	2.53	5.85	2.65	6.11
8:11	0.21	0.48	2.53	5.85	2.65	6.12
8:12	0.20	0.46	2.53	5.84	2.65	6.12
8:13	0.23	0.53	2.53	5.85	2.65	6.12
8:14	0.21	0.48	2.53	5.83	2.64	6.11
8:15	0.20	0.46	2.53	5.83	2.65	6.13
8:16	0.21	0.48	2.52	5.83	2.65	6.12
8:17	0.21	0.48	2.52	5.82	2.65	6.11
8:18	0.23	0.54	2.52	5.82	2.65	6.12
8:19	0.22	0.51	2.52	5.82	2.65	6.12
8:20	0.21	0.49	2.52	5.81	2.65	6.11
8:21	0.22	0.51	2.51	5.81	2.64	6.10
8:22	0.25	0.58	2.51	5.81	2.65	6.13
8:23	0.24	0.56	2.51	5.80	2.65	6.11
8:24	0.23	0.53	2.51	5.80	2.64	6.11
8:25	0.22	0.52	2.51	5.80	2.65	6.13
8:26	0.21	0.47	2.51	5.79	2.65	6.11
8:27	0.25	0.58	2.51	5.79	2.65	6.11
8:28	0.24	0.56	2.50	5.78	2.65	6.11
8:29	0.24	0.55	2.50	5.78	2.65	6.12
8:30	0.24	0.54	2.50	5.78	2.65	6.11
8:31	0.23	0.53	2.50	5.78	2.64	6.11
8:32	0.25	0.58	2.50	5.78	2.65	6.12
8:33	0.28	0.65	2.50	5.78	2.65	6.11
8:34	0.25	0.58	2.50	5.77	2.64	6.11

Table 2
Constant Vacuum Test - December 17, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
8:35	0.24	0.56	2.50	5.76	2.65	6.11
8:36	0.26	0.59	2.49	5.76	2.65	6.12
8:37	0.26	0.61	2.49	5.76	2.65	6.11
8:38	0.27	0.63	2.49	5.76	2.64	6.10
8:39	0.26	0.60	2.49	5.76	2.65	6.11
8:40	0.25	0.58	2.49	5.75	2.64	6.10
8:41	0.27	0.62	2.49	5.75	2.65	6.11
8:42	0.26	0.59	2.49	5.74	2.65	6.11
8:43	0.25	0.59	2.49	5.74	2.64	6.11
8:44	0.25	0.58	2.49	5.74	2.64	6.10
8:45	0.24	0.54	2.48	5.74	2.65	6.12
8:46	0.26	0.60	2.48	5.74	2.65	6.11
8:47	0.25	0.58	2.48	5.74	2.64	6.10
8:48	0.25	0.59	2.48	5.73	2.64	6.11
8:49	0.26	0.59	2.48	5.73	2.65	6.11
8:50	0.26	0.60	2.48	5.73	2.64	6.11
8:51	0.27	0.62	2.48	5.73	2.64	6.09
8:52	0.26	0.61	2.48	5.73	2.65	6.12
8:53	0.25	0.58	2.48	5.73	2.64	6.11
8:54	0.26	0.60	2.48	5.72	2.64	6.10
8:55	0.26	0.60	2.48	5.73	2.65	6.11
8:56	0.24	0.55	2.48	5.72	2.65	6.11
8:57	0.23	0.54	2.48	5.72	2.64	6.10
8:58	0.22	0.51	2.48	5.72	2.64	6.09
8:59	0.25	0.59	2.48	5.72	2.65	6.11
9:00	0.27	0.62	2.47	5.71	2.64	6.11
9:01	0.25	0.57	2.47	5.71	2.64	6.09
9:02	0.24	0.55	2.47	5.71	2.65	6.11
9:03	0.25	0.57	2.47	5.71	2.65	6.11
9:04	0.23	0.54	2.47	5.71	2.64	6.09
9:05	0.28	0.65	2.47	5.71	2.65	6.12
9:06	0.32	0.74	2.47	5.71	2.64	6.11
9:07	0.27	0.62	2.47	5.71	2.64	6.10
9:08	0.21	0.48	2.47	5.70	2.64	6.10
9:09	0.22	0.50	2.47	5.70	2.65	6.11
9:10	0.23	0.52	2.47	5.70	2.64	6.11
9:11	0.25	0.57	2.47	5.70	2.64	6.10
9:12	0.19	0.43	2.47	5.70	2.65	6.11
9:13	0.20	0.46	2.47	5.70	2.65	6.11
9:14	0.25	0.59	2.47	5.70	2.64	6.10

Table 2
Constant Vacuum Test - December 17, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
9:15	0.28	0.66	2.47	5.70	2.64	6.11
9:16	0.23	0.53	2.46	5.69	2.65	6.11
9:17	0.20	0.46	2.46	5.69	2.64	6.10
9:18	0.19	0.43	2.46	5.69	2.64	6.09
9:19	0.20	0.47	2.46	5.69	2.65	6.11
9:20	0.17	0.40	2.46	5.68	2.64	6.11
9:21	0.17	0.39	2.46	5.68	2.64	6.09
9:22	0.15	0.35	2.46	5.68	2.64	6.10
9:23	0.19	0.43	2.46	5.68	2.64	6.11
9:24	0.18	0.41	2.46	5.68	2.64	6.09
9:25	0.17	0.39	2.46	5.68	2.64	6.10
9:26	0.17	0.40	2.46	5.68	2.65	6.11
9:27	0.19	0.43	2.46	5.68	2.64	6.10
9:28	0.17	0.40	2.46	5.67	2.64	6.09
9:29	0.16	0.37	2.46	5.67	2.64	6.11
9:30	0.16	0.36	2.45	5.67	2.64	6.10
9:31	0.20	0.47	2.46	5.67	2.64	6.09
9:32	0.19	0.43	2.46	5.67	2.64	6.10
9:33	0.17	0.39	2.45	5.67	2.64	6.11
9:34	0.16	0.37	2.45	5.67	2.64	6.10
9:35	0.19	0.43	2.45	5.67	2.64	6.09
9:36	0.16	0.38	2.45	5.66	2.64	6.11
9:37	0.17	0.39	2.45	5.66	2.64	6.10
9:38	0.18	0.42	2.45	5.67	2.64	6.09
9:39	0.20	0.46	2.45	5.66	2.64	6.10
9:40	0.18	0.42	2.45	5.66	2.64	6.10
9:41	0.18	0.40	2.45	5.66	2.64	6.09
9:42	0.20	0.46	2.45	5.66	2.64	6.09
9:43	0.18	0.42	2.45	5.65	2.64	6.09
9:44	0.18	0.41	2.45	5.65	2.64	6.09
9:45	0.16	0.37	2.45	5.66	2.64	6.10
9:46	0.20	0.45	2.45	5.66	2.64	6.10
9:47	0.17	0.39	2.45	5.65	2.64	6.09
9:48	0.15	0.36	2.45	5.65	2.63	6.08
9:49	0.15	0.35	2.45	5.65	2.64	6.10
9:50	0.19	0.44	2.45	5.65	2.64	6.09
9:51	0.16	0.37	2.45	5.65	2.64	6.09
9:52	0.16	0.36	2.45	5.65	2.64	6.10
9:53	0.18	0.42	2.45	5.65	2.64	6.10
9:54	0.21	0.49	2.45	5.65	2.63	6.08

Table 2
Constant Vacuum Test - December 17, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
9:55	0.14	0.32	2.45	5.65	2.64	6.09
9:56	0.10	0.24	2.45	5.65	2.64	6.10
9:57	0.14	0.33	2.44	5.64	2.64	6.09
9:58	0.14	0.31	2.44	5.64	2.63	6.08
9:59	0.12	0.27	2.45	5.65	2.64	6.10
10:00	0.12	0.28	2.44	5.64	2.64	6.09
10:01	0.16	0.37	2.44	5.64	2.63	6.08
10:02	0.12	0.28	2.44	5.64	2.64	6.11
10:03	0.13	0.30	2.44	5.63	2.64	6.09
10:04	0.15	0.35	2.44	5.63	2.63	6.08
10:05	0.14	0.33	2.44	5.63	2.64	6.11
10:06	0.13	0.29	2.44	5.63	2.64	6.10
10:07	0.16	0.37	2.44	5.63	2.63	6.08
10:08	0.22	0.50	2.44	5.64	2.64	6.10
10:09	0.22	0.52	2.44	5.64	2.64	6.10
10:10	0.24	0.56	2.44	5.64	2.64	6.09
10:11	0.26	0.59	2.44	5.64	2.63	6.08
10:12	0.25	0.57	2.44	5.64	2.64	6.10
10:13	0.21	0.49	2.44	5.63	2.64	6.09
10:14	0.21	0.47	2.44	5.63	2.63	6.08
10:15	0.22	0.51	2.44	5.63	2.64	6.09
10:16	0.21	0.48	2.44	5.63	2.64	6.09
10:17	0.20	0.46	2.44	5.63	2.63	6.08
10:18	0.19	0.45	2.44	5.62	2.64	6.09
10:19	0.23	0.53	2.44	5.63	2.64	6.10
10:20	0.20	0.46	2.44	5.63	2.64	6.09
10:21	0.20	0.45	2.44	5.62	2.63	6.08
10:22	0.20	0.45	2.44	5.62	2.64	6.10
10:23	0.22	0.50	2.44	5.62	2.64	6.09
10:24	0.20	0.46	2.44	5.63	2.63	6.08
10:25	0.18	0.41	2.43	5.62	2.64	6.09
10:26	0.20	0.45	2.44	5.62	2.64	6.10
10:27	0.20	0.46	2.43	5.62	2.64	6.09
10:28	0.18	0.42	2.43	5.62	2.63	6.07
10:29	0.17	0.39	2.43	5.62	2.64	6.10
10:30	0.22	0.50	2.44	5.62	2.64	6.09
10:31	0.17	0.39	2.43	5.62	2.63	6.08
10:32	0.14	0.32	2.43	5.62	2.64	6.10
10:33	0.14	0.32	2.43	5.62	2.64	6.09
10:34	0.19	0.43	2.43	5.62	2.63	6.08

Table 2
Constant Vacuum Test - December 17, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
10:35	0.14	0.33	2.43	5.61	2.64	6.09
10:36	0.15	0.35	2.43	5.61	2.64	6.09
10:37	0.18	0.42	2.43	5.62	2.63	6.08
10:38	0.17	0.39	2.43	5.62	2.63	6.08
10:39	0.15	0.36	2.43	5.61	2.64	6.09
10:40	0.15	0.34	2.43	5.61	2.64	6.09
10:41	0.20	0.46	2.43	5.62	2.63	6.08
10:42	0.16	0.38	2.43	5.61	2.64	6.10
10:43	0.15	0.34	2.43	5.61	2.64	6.09
10:44	0.18	0.41	2.43	5.61	2.63	6.08
10:45	0.17	0.40	2.43	5.61	2.64	6.09
10:46	0.18	0.40	2.43	5.61	2.64	6.09
10:47	0.15	0.35	2.43	5.61	2.63	6.08
10:48	0.19	0.45	2.43	5.61	2.64	6.10
10:49	0.18	0.40	2.43	5.61	2.64	6.09
10:50	0.17	0.40	2.43	5.61	2.63	6.08
10:51	0.20	0.45	2.43	5.61	2.63	6.08
10:52	0.21	0.48	2.43	5.61	2.64	6.09
10:53	0.19	0.44	2.43	5.61	2.64	6.09
10:54	0.20	0.46	2.43	5.60	2.63	6.07
10:55	0.18	0.42	2.43	5.61	2.64	6.10
10:56	0.12	0.29	2.43	5.60	2.64	6.09
10:57	0.10	0.22	2.42	5.59	2.63	6.08
10:58	0.11	0.26	2.42	5.59	2.64	6.09
10:59	0.12	0.28	2.42	5.60	2.63	6.08
11:00	0.11	0.26	2.42	5.60	2.63	6.08
11:01	0.12	0.27	2.42	5.60	2.64	6.10
11:02	0.15	0.35	2.42	5.59	2.63	6.08
11:03	0.14	0.32	2.42	5.60	2.63	6.08
11:04	0.13	0.29	2.42	5.59	2.63	6.08
11:05	0.16	0.38	2.42	5.60	2.64	6.09
11:06	0.16	0.37	2.42	5.60	2.63	6.08
11:07	0.16	0.38	2.43	5.60	2.63	6.08
11:08	0.23	0.54	2.43	5.61	2.64	6.10
11:09	0.24	0.55	2.43	5.61	2.64	6.09
11:10	0.25	0.57	2.43	5.61	2.63	6.08
11:11	0.22	0.52	2.43	5.60	2.63	6.08
11:12	0.22	0.51	2.42	5.60	2.64	6.09
11:13	0.24	0.55	2.43	5.60	2.63	6.08
11:14	0.22	0.52	2.43	5.60	2.64	6.09

Table 2
Constant Vacuum Test - December 17, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
11:15	0.22	0.51	2.43	5.60	2.64	6.09
11:16	0.24	0.56	2.43	5.60	2.63	6.08
11:17	0.23	0.52	2.43	5.60	2.63	6.07
11:18	0.21	0.48	2.42	5.60	2.64	6.10
11:19	0.21	0.48	2.43	5.60	2.64	6.09
11:20	0.24	0.55	2.43	5.61	2.63	6.08
11:21	0.22	0.50	2.42	5.60	2.63	6.08
11:22	0.20	0.46	2.43	5.60	2.64	6.09
11:23	0.22	0.50	2.43	5.60	2.63	6.08
11:24	0.23	0.52	2.42	5.60	2.63	6.07
11:25	0.21	0.49	2.42	5.59	2.64	6.09
11:26	0.20	0.46	2.42	5.59	2.63	6.08
11:27	0.23	0.53	2.42	5.60	2.63	6.07
11:28	0.23	0.54	2.43	5.60	2.64	6.10
11:29	0.21	0.48	2.42	5.60	2.64	6.09
11:30	0.21	0.48	2.42	5.60	2.63	6.08
11:31	0.24	0.54	2.43	5.60	2.64	6.09
11:32	0.19	0.44	2.42	5.60	2.64	6.09
11:33	0.18	0.42	2.42	5.60	2.63	6.08
11:34	0.21	0.49	2.42	5.60	2.63	6.07
11:35	0.20	0.45	2.42	5.60	2.64	6.09
11:36	0.18	0.41	2.42	5.59	2.63	6.08
11:37	0.21	0.49	2.42	5.59	2.63	6.07
11:38	0.28	0.65	2.43	5.60	2.64	6.10
11:39	0.21	0.49	2.42	5.60	2.64	6.09
11:40	0.19	0.44	2.42	5.60	2.63	6.08
11:41	0.20	0.46	2.42	5.59	2.63	6.08
11:42	0.23	0.54	2.42	5.60	2.64	6.09
11:43	0.20	0.45	2.42	5.59	2.63	6.08
11:44	0.18	0.42	2.42	5.59	2.63	6.07
11:45	0.22	0.52	2.42	5.60	2.64	6.10
11:46	0.18	0.43	2.42	5.59	2.63	6.08
11:47	0.17	0.39	2.42	5.59	2.63	6.08
11:48	0.16	0.38	2.42	5.59	2.63	6.08
11:49	0.20	0.45	2.42	5.59	2.64	6.09
11:50	0.15	0.35	2.42	5.59	2.63	6.07
11:51	0.15	0.33	2.42	5.59	2.64	6.09
11:52	0.17	0.39	2.42	5.59	2.63	6.08
11:53	0.17	0.38	2.42	5.59	2.63	6.07
11:54	0.11	0.26	2.42	5.58	2.63	6.08

Table 2
Constant Vacuum Test - December 17, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
11:55	0.12	0.27	2.42	5.58	2.63	6.08
11:56	0.26	0.61	2.42	5.59	2.63	6.08
11:57	0.12	0.27	2.42	5.58	2.63	6.08
11:58	0.10	0.24	2.42	5.58	2.63	6.08
11:59	0.16	0.38	2.42	5.59	2.63	6.08
12:00	0.11	0.26	2.42	5.58	2.63	6.07
12:01	0.08	0.19	2.41	5.58	2.64	6.09
12:02	0.10	0.22	2.41	5.57	2.63	6.08
12:03	0.11	0.24	2.41	5.58	2.63	6.07
12:04	0.08	0.19	2.41	5.57	2.64	6.09
12:05	0.10	0.22	2.41	5.58	2.63	6.08
12:06	0.15	0.33	2.41	5.58	2.63	6.07
12:07	0.10	0.23	2.41	5.57	2.64	6.09
12:08	0.08	0.19	2.41	5.57	2.63	6.08
12:09	0.12	0.27	2.41	5.57	2.63	6.07
12:10	0.13	0.29	2.41	5.57	2.63	6.07
12:11	0.08	0.18	2.41	5.57	2.63	6.08
12:12	0.08	0.19	2.41	5.57	2.63	6.08
12:13	0.09	0.20	2.41	5.57	2.63	6.06
12:14	0.08	0.19	2.41	5.56	2.64	6.09
12:15	0.08	0.18	2.41	5.56	2.63	6.08
12:16	0.14	0.33	2.41	5.58	2.63	6.07
12:17	0.12	0.27	2.41	5.57	2.64	6.09
12:18	0.13	0.30	2.41	5.57	2.63	6.08
12:19	0.16	0.37	2.41	5.57	2.63	6.07
12:20	0.16	0.37	2.41	5.57	2.63	6.08
12:21	0.14	0.32	2.41	5.57	2.63	6.08
12:22	0.14	0.33	2.41	5.57	2.63	6.07
12:23	0.18	0.43	2.41	5.57	2.63	6.06
12:24	0.15	0.33	2.41	5.57	2.63	6.08
12:25	0.13	0.30	2.41	5.57	2.63	6.08
12:26	0.14	0.33	2.41	5.57	2.63	6.07
12:27	0.13	0.29	2.41	5.57	2.64	6.09
12:28	0.15	0.34	2.41	5.57	2.63	6.08
12:29	0.21	0.49	2.41	5.58	2.63	6.07
12:30	0.21	0.49	2.41	5.57	2.63	6.08
12:31	0.20	0.46	2.41	5.57	2.63	6.08
12:32	0.18	0.41	2.41	5.57	2.63	6.07
12:33	0.21	0.49	2.41	5.57	2.63	6.06
12:34	0.18	0.42	2.41	5.57	2.63	6.08

Table 2
Constant Vacuum Test - December 17, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
12:35	0.13	0.29	2.41	5.57	2.63	6.08
12:36	0.18	0.41	2.41	5.57	2.63	6.07
12:37	0.17	0.38	2.41	5.57	2.64	6.09
12:38	0.14	0.32	2.41	5.56	2.63	6.08
12:39	0.12	0.27	2.41	5.56	2.63	6.07
12:40	0.16	0.37	2.41	5.56	2.63	6.08
12:41	0.13	0.31	2.41	5.57	2.63	6.08
12:42	0.13	0.29	2.41	5.56	2.63	6.07
12:43	0.15	0.35	2.41	5.57	2.62	6.06
12:44	0.15	0.34	2.41	5.57	2.63	6.08
12:45	0.16	0.38	2.41	5.57	2.63	6.07
12:46	0.14	0.33	2.41	5.56	2.63	6.06
12:47	0.16	0.37	2.41	5.56	2.63	6.08
12:48	0.15	0.34	2.41	5.56	2.63	6.08
12:49	0.11	0.24	2.41	5.56	2.63	6.06
12:50	0.11	0.25	2.41	5.56	2.63	6.07
12:51	0.18	0.42	2.41	5.56	2.63	6.08
12:52	0.21	0.49	2.41	5.56	2.63	6.07
12:53	0.25	0.58	2.41	5.57	2.62	6.06
12:54	0.26	0.60	2.41	5.57	2.63	6.08
12:55	0.18	0.42	2.41	5.56	2.63	6.06
12:56	0.16	0.38	2.41	5.56	2.63	6.07
12:57	0.19	0.43	2.41	5.56	2.63	6.08
12:58	0.16	0.36	2.41	5.56	2.63	6.07
12:59	0.15	0.33	2.41	5.56	2.62	6.06
13:00	0.18	0.41	2.41	5.56	2.63	6.08
13:01	0.20	0.46	2.41	5.56	2.63	6.07
13:02	0.17	0.38	2.41	5.57	2.63	6.06
13:03	0.15	0.35	2.41	5.56	2.63	6.08
13:04	0.22	0.50	2.41	5.56	2.63	6.07
13:05	0.19	0.45	2.41	5.56	2.62	6.06
13:06	0.19	0.44	2.41	5.56	2.63	6.07
13:07	0.23	0.54	2.41	5.57	2.63	6.07
13:08	0.24	0.55	2.41	5.56	2.62	6.06
13:09	0.26	0.59	2.41	5.56	2.63	6.07
13:10	0.21	0.49	2.41	5.56	2.63	6.07
13:11	0.24	0.55	2.41	5.57	2.63	6.07
13:12	0.22	0.51	2.41	5.56	2.62	6.05
13:13	0.20	0.47	2.41	5.56	2.63	6.08
13:14	0.22	0.50	2.41	5.56	2.63	6.07

Table 2
Constant Vacuum Test - December 17, 2019

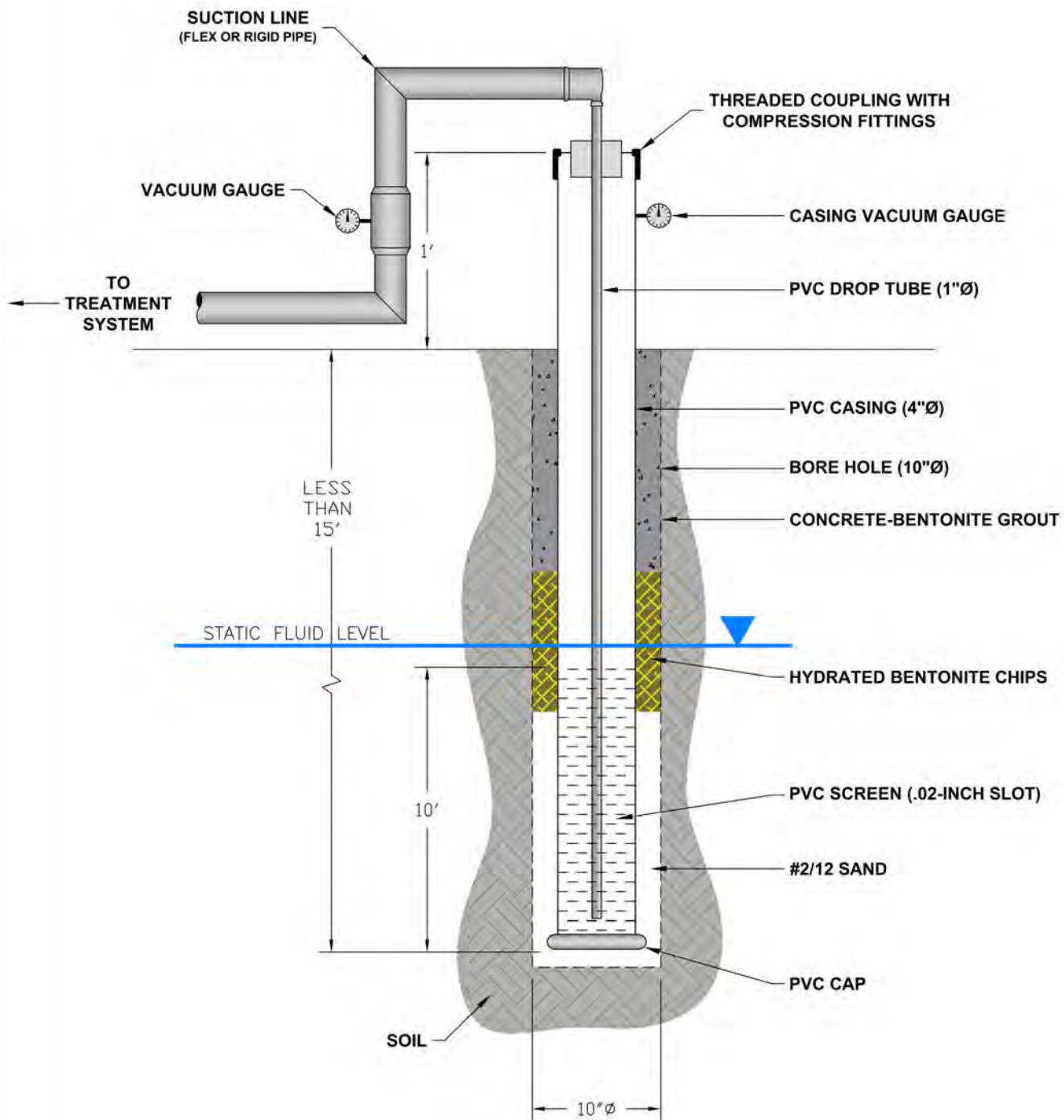
Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
13:15	0.23	0.54	2.41	5.56	2.63	6.06
13:16	0.21	0.48	2.41	5.56	2.63	6.07
13:17	0.19	0.44	2.41	5.56	2.63	6.08
13:18	0.25	0.57	2.41	5.56	2.63	6.06
13:19	0.23	0.54	2.41	5.56	2.62	6.05
13:20	0.23	0.52	2.41	5.56	2.63	6.08
13:21	0.23	0.53	2.41	5.56	2.63	6.07
13:22	0.26	0.60	2.41	5.56	2.62	6.06
13:23	0.23	0.53	2.41	5.56	2.63	6.07
13:24	0.23	0.53	2.41	5.56	2.63	6.07
13:25	0.22	0.52	2.41	5.56	2.62	6.06
13:26	0.21	0.49	2.41	5.56	2.62	6.05
13:27	0.20	0.46	2.41	5.56	2.63	6.07
13:28	0.22	0.51	2.41	5.56	2.63	6.06
13:29	0.24	0.55	2.41	5.56	2.62	6.05
13:30	0.21	0.49	2.41	5.56	2.63	6.08
13:31	0.20	0.46	2.41	5.56	2.63	6.07
13:32	0.23	0.54	2.41	5.56	2.63	6.07
13:33	0.22	0.50	2.41	5.56	2.63	6.07
13:34	0.21	0.48	2.41	5.56	2.63	6.07
13:35	0.23	0.53	2.41	5.56	2.63	6.07
13:36	0.25	0.57	2.41	5.57	2.62	6.06
13:37	0.22	0.51	2.41	5.56	2.63	6.08
13:38	0.22	0.51	2.41	5.56	2.63	6.07
13:39	0.25	0.57	2.41	5.56	2.62	6.06
13:40	0.24	0.54	2.41	5.56	2.63	6.07
13:41	0.22	0.51	2.41	5.56	2.63	6.07
13:42	0.23	0.53	2.41	5.56	2.63	6.06
13:43	0.26	0.60	2.41	5.56	2.62	6.06
13:44	0.23	0.52	2.41	5.56	2.63	6.08
13:45	0.25	0.57	2.41	5.56	2.63	6.07
13:46	0.27	0.63	2.41	5.57	2.62	6.06
13:47	0.28	0.64	2.41	5.56	2.63	6.07
13:48	0.28	0.65	2.41	5.57	2.63	6.07
13:49	0.22	0.50	2.41	5.56	2.62	6.06
13:50	0.25	0.57	2.41	5.56	2.63	6.07
13:51	0.23	0.53	2.41	5.56	2.63	6.08
13:52	0.20	0.47	2.41	5.56	2.63	6.06
13:53	0.21	0.49	2.41	5.56	2.62	6.06
13:54	0.21	0.48	2.41	5.56	2.63	6.08

Table 2
Constant Vacuum Test - December 17, 2019

Time	EXW-1		PZ-1		PZ-2	
	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)	Depth submerged (psi)	Depth submerged (ft)
13:55	0.19	0.43	2.41	5.56	2.63	6.07
13:56	0.18	0.43	2.41	5.56	2.62	6.06
13:57	0.24	0.55	2.41	5.56	2.63	6.06
13:58	0.20	0.46	2.40	5.55	2.63	6.07
13:59	0.19	0.44	2.40	5.55	2.62	6.05
14:00	0.23	0.53	2.41	5.56	2.63	6.08
14:01	0.22	0.51	2.41	5.56	2.63	6.06
14:02	0.21	0.48	2.41	5.56	2.62	6.05
14:03	0.26	0.60	2.41	5.56	2.63	6.08
14:04	0.19	0.43	2.40	5.55	2.63	6.06
14:05	0.18	0.41	2.40	5.55	2.62	6.06
14:06	0.16	0.37	2.40	5.55	2.63	6.06
14:07	0.20	0.47	2.40	5.55	2.63	6.07
14:08	0.16	0.38	2.40	5.55	2.62	6.06
14:09	0.15	0.34	2.40	5.55	2.62	6.05
14:10	0.18	0.41	2.40	5.55	2.63	6.07
14:11	0.16	0.37	2.40	5.55	2.63	6.06
14:12	0.15	0.34	2.40	5.55	2.62	6.06
14:13	0.16	0.37	2.40	5.55	2.63	6.06
14:14	0.22	0.50	2.41	5.56	2.63	6.07
14:15	0.17	0.39	2.40	5.54	2.62	6.06
14:16	0.16	0.36	2.40	5.55	2.62	6.05
14:17	0.18	0.41	2.40	5.55	2.63	6.07
14:18	0.16	0.36	2.40	5.55	2.63	6.06
14:19	0.14	0.33	2.40	5.54	2.62	6.05
14:20	0.20	0.46	2.40	5.55	2.62	6.06
14:21	0.23	0.54	2.40	5.55	2.63	6.07
14:22	0.21	0.49	2.40	5.55	2.62	6.06
14:23	0.22	0.50	2.40	5.55	2.63	6.06
14:24	0.26	0.59	2.41	5.56	2.63	6.08
14:25	0.24	0.55	2.40	5.55	2.62	6.06



APPENDIX A
WELL CONSTRUCTION DETAILS



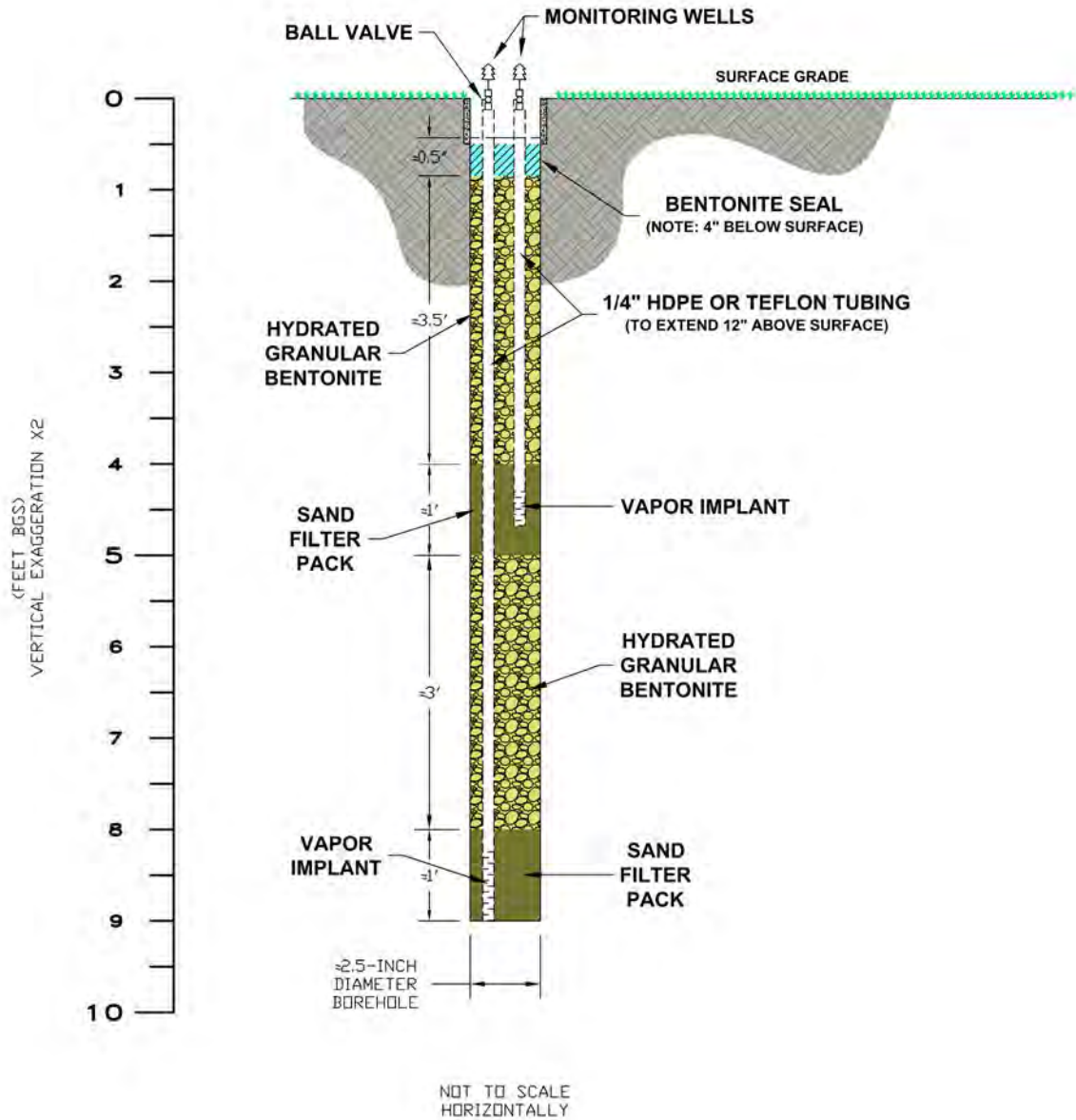
CHECK BY	KW
DRAWN BY	JL
DATE	3/17/2020
SCALE	Not to Scale
CAD NO.	1.19.128.01x
PRJ NO.	11019-000128.01

EXTRACTION WELL CONSTRUCTION
 PETRO-CHEM PROCESSING GROUP
 421 LYCASTE STREET
 DETROIT, MICHIGAN



FIGURE

A



CHECK BY	KW
DRAWN BY	JL
DATE	3/17/2020
SCALE	AS SHOWN
CAD NO.	11.19.128.01x
PRJ NO.	11019-000128.01

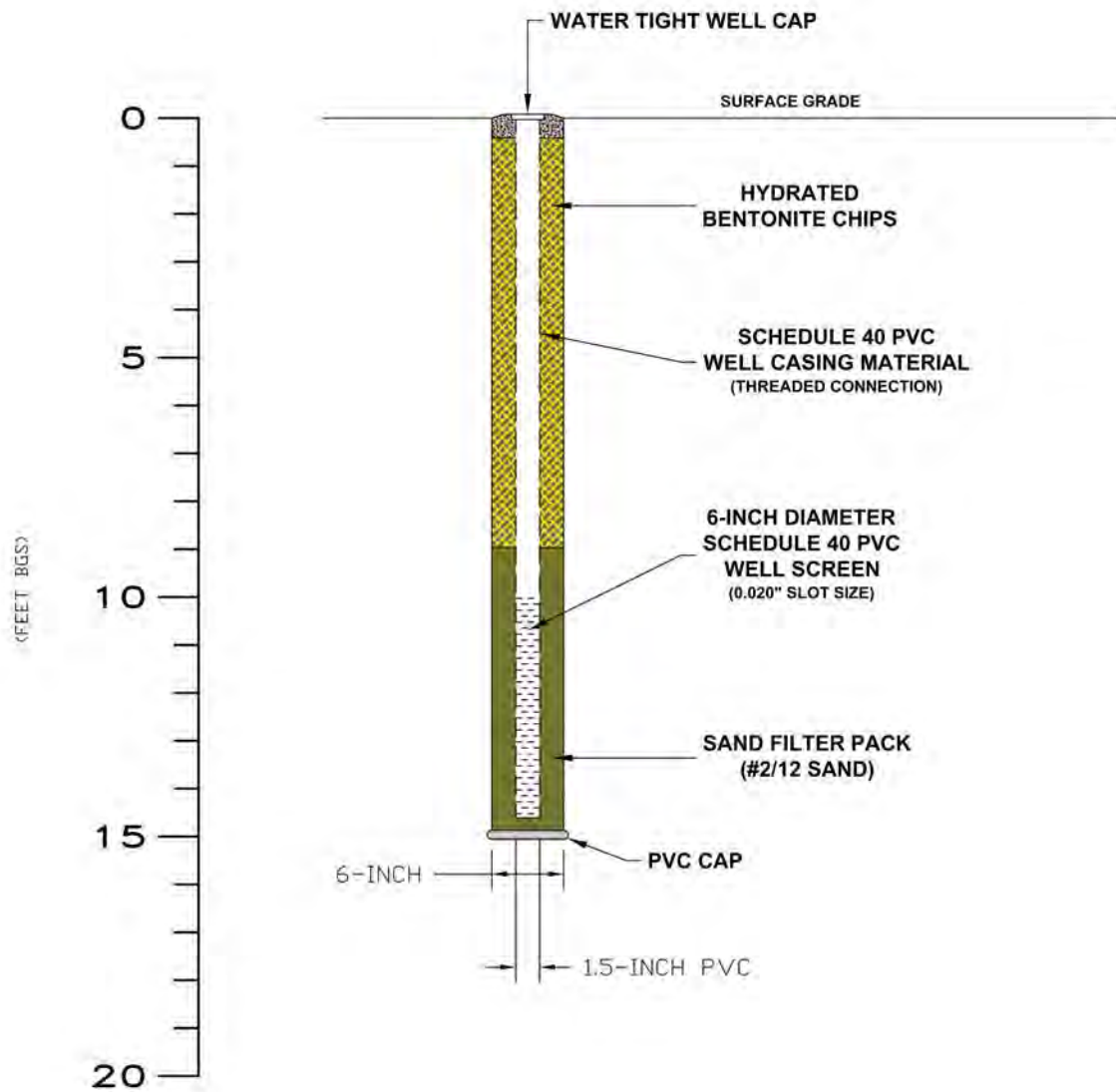
MULTI-LEVEL VAPOR MONITORING WELL CONSTRUCTION

PETRO-CHEM PROCESSING GROUP
421 LYCASTE STREET
DETROIT, MICHIGAN



FIGURE

B



CHECK BY	KW
DRAWN BY	JL
DATE	3/17/2020
SCALE	AS SHOWN
CAD NO.	11.19.128.01x
PRJ NO.	11019-000128.01

TEMPORARY PIEZOMETER CONSTRUCTION DIAGRAM

PETRO-CHEM PROCESSING GROUP
 421 LYCASTE STREET
 DETROIT, MICHIGAN



FIGURE

C



APPENDIX B
FIELD DATA SHEETS



DATE:	12-16-19	PILOT TEST - DAY 1
APEX PROJECT NO.	11019-000128	
PROJECT NAME	Stericycle - Petro-Chem	
PROJECT LOCATION	Detroit, Michigan	

DESCRIPTION OF WORK COMPLETED	
8:30 AM - 10:30 PM - SET UP PILOT TEST - STEP TEST	
TAKE INITIAL READINGS -	<ul style="list-style-type: none"> * LINE VACUUM * TRUCK VACUUM * CASING VACUUM * EXW-1 - TRANSDUCER * PID READING
	<ul style="list-style-type: none"> * MW-1 - VACUUM - SHALLOW / DEEP * VMW-2 - VACUUM - SHALLOW / DEEP * PZ-1 + PZ-2 TRANSDUCER * MW-11 - DRAWDOWN * FLOW RATE
10:30 <u>START STEP TEST</u>	
1) 10:30 - 12:30 - 700 RPM	} - Measurements collected every 15 min for 1 st HOUR and every hour thereafter
2) 1:00 - 3:00 - 1,000 RPM	
3) 3:00 - 5:00 - 1,300 RPM	
2:30 ^{STERICYCLE} COLLECTED WASTE SAMPLE FROM TANK FOR DISPOSAL APPROVAL	
4:00 CONFERENCE CALL WITH GUSTAVO - APEX TO DISCUSS PRELIMINARY RESULTS AND SELECT FLOW RATE FOR TOMORROW'S CONSTANT RATE TEST	
5:00 - 5:30 DISCHARGE WASTE GROUNDWATER - COLLECTED GW SAMPLE "EXTRACTED GW" FROM TRUCK AS IT DISCHARGES	

OF EACH STEP

PERSONNEL ON SITE (TIMES)	
Apex -	STEVE KULPANOWSKI 8:15 - 5:30 PM
Contractors -	CHUCK 8:15-4:00 } JOB SITE SERVICES
SUPERVISOR -	PAUL MEYER - ECT - 8:15-5:00 PM
TRUCK DRIVER -	JEFF BLACK 8:48-5:30

SOIL REMOVAL	
Number of Loads -	NO SOIL REMOVAL / GROUNDWATER EXTRACTED - 260 gallons (10.5" IN TRUCK)

PROBLEMS ENCOUNTERED / ISSUES NOTED AND REPORTED TO STERICYCLE	
NO ISSUES REPORTED TO STERICYCLE	
ISSUES THAT COULD AFFECT TEST = VARIABILITY IN TRUCK PUMPING RATE - DIFFICULT TO MAINTAIN @ 1000 RPM	

SUMMARY OF EXTRACTION WELLS										SUMMARY OF EMISSIONS						
Time	Inlet Vacuum (in. Hg)	EXW-1 Line	EXW-1 Casing (in. H ₂ O)	Extraction Well Vacuum (in. Hg)						Truck RPM	Off gas Temp (°F)	Concentration (ppm)	Off gas Velocity (ft./min)	Flow Rate (cfm)	Removal Rate (lbs./hr)	Interval Removal (lbs.)
10:30	8	8	-							700	50	7	800	70	0.00	0.00
10:45	12	9	-							700	48	255	800	70	0.16	0.04
11:00	13	10	-							700	48	406	500	44	0.16	0.04
11:15	13	4	-							700	50	1,330	800	70	0.84	0.21
11:30	7	4	15							700	60	1,925	800	70	1.20	0.30
12:00	7	4	15							700	64	3,091	700	61	1.67	0.84
12:30	7	4	15							700	65	2,965	700	61	1.60	0.80
13:00	9	5	21							1,000	68	3,013	900	79	2.08	1.04
13:15	9	5	21							1,000	68	2,944	850	74	1.92	0.48
13:30	9	5	21							1,000	68	2,780	800	70	1.70	0.43
13:45	9	5	21							1,000	70	2,828	800	70	1.73	0.43
14:00	9	5	21							1,000	70	5,245	900	79	3.60	0.90
14:30	9	5	21							1,000	68	3,890	950	83	2.83	1.42
15:00	9	5	21							1,000	64	3,038	950	83	2.23	1.11
15:15	13	8	26							1,300	74	2,995	1,000	87	2.27	0.57
15:30	13	8	26							1,300	80	2,800	1,000	87	2.10	0.52
15:45	13	8	26							1,300	80	2,560	1,000	87	1.92	0.48
16:00	13	8	26							1,300	80	2,600	1 000	87	1.95	0.49
16:30	13	8	26							1,300	85	3,215	1,000	87	2.39	1.19
17:00	13	8	26							1,300	85	2,590	1,000	87	1.92	0.96
Total Duration: 7.5 hrs.														TOTAL	12.24	

SUMMARY OF NAPL AND EXTRACTION WELL(S) GAUGING DATA															
Well Number (Screened Interval)	Prior to MPE (ft.)			Final or After MPE (ft.)			Change in DTW (ft.)	Well Number (Screened Interval)	Prior to MPE (ft.)			Final or After MPE (ft.)			Change in DTW
	D-NAPL	DTW	NAPL-T	D-NAPL	DTW	NAPL-T			D-NAPL	DTW	NAPL-T	D-NAPL	DTW	NAPL-T	
EXW-1 (4.8-14.8)	-	9.63	0.00	-	-	-	-								
MW-11 (9.1-14.1)	-	12.32	0.00	-	12.63	0.00	-0.31								
PZ-1 (9.8-14.8)	-	8.09	0.00	-	-	-	-								
PZ-2 (9.3-14.3)	-	8.03	0.00	-	-	-	-								

SUMMARY OF OBSERVATION POINT(S) VACUUM READINGS AND GAUGING DATA																		
Time	Well Number (Screen Interval [ft. bgl])																	
	MW-11 (9.1-14.1)		VMW-1S (4.5)		VMW-1D (8.5)		VMW-2S (4.5)		VMW-2D (8.5)		PZ-1 (9.8-14.8)		PZ-2 (9.3-14.3)					
	Vac. (in. H ₂ O)	DTW (ft.)	Vac. (in. H ₂ O)	DTW (ft.)	Vac. (in. H ₂ O)	DTW (ft.)	Vac. (in. H ₂ O)	DTW (ft.)	Vac. (in. H ₂ O)	DTW (ft.)	Vac. (in. H ₂ O)	DTW (ft.)	Vac. (in. H ₂ O)	DTW (ft.)	Vac. (in. H ₂ O)	DTW (ft.)	Vac. (in. H ₂ O)	DTW (ft.)
Prior	-	12.32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:45	-	-	0.00	-	0.50	-	0.01	-	0.00	-	-	-	-	-	-	-	-	-
11:00	-	-	0.41	-	1.15	-	0.10	-	0.16	-	-	-	-	-	-	-	-	-
11:15	-	-	0.37	-	0.95	-	0.07	-	0.12	-	-	-	-	-	-	-	-	-
11:30	-	-	0.43	-	1.51	-	0.14	-	0.18	-	-	-	-	-	-	-	-	-
12:00	-	12.50	0.43	-	2.08	-	0.10	-	0.10	-	-	-	-	-	-	-	-	-
12:30	-	12.49	0.43	-	2.11	-	0.11	-	0.13	-	-	-	-	-	-	-	-	-
13:00	-	-	0.57	-	2.33	-	0.16	-	0.13	-	-	-	-	-	-	-	-	-
13:15	-	-	0.57	-	2.21	-	0.16	-	0.18	-	-	-	-	-	-	-	-	-
13:30	-	-	0.57	-	2.14	-	0.15	-	0.11	-	-	-	-	-	-	-	-	-
13:45	-	-	0.58	-	2.28	-	0.15	-	0.23	-	-	-	-	-	-	-	-	-
14:00	-	-	0.58	-	1.81	-	0.17	-	0.15	-	-	-	-	-	-	-	-	-
14:30	-	-	0.59	-	2.52	-	0.15	-	0.23	-	-	-	-	-	-	-	-	-
15:00	-	12.57	0.57	-	1.99	-	0.16	-	0.25	-	-	-	-	-	-	-	-	-
15:15	-	-	0.73	-	1.95	-	0.20	-	0.18	-	-	-	-	-	-	-	-	-
15:30	-	-	0.76	-	2.12	-	0.20	-	0.24	-	-	-	-	-	-	-	-	-
15:45	-	-	0.72	-	2.24	-	0.20	-	0.29	-	-	-	-	-	-	-	-	-
16:00	-	-	0.78	-	2.20	-	0.22	-	0.27	-	-	-	-	-	-	-	-	-
16:30	-	-	0.78	-	2.32	-	0.22	-	0.32	-	-	-	-	-	-	-	-	-
17:00	-	12.63	0.79	-	1.88	-	0.22	-	0.15	-	-	-	-	-	-	-	-	-
Post																		
Max. Change in DTW	-0.31																	
Nearest Extrac ion Well/Distance	EXW-1	~ 13 ft.	EXW-1	~ 14 ft.	EXW-1	~ 14 ft.	EXW-1	~ 36 ft.	EXW-1	~ 36 ft.	EXW-1	~ 8 ft.	EXW-1	~ 36 ft.				

Note: Data loggers installed in wells EXW-1, PZ-1 and PZ-2.

ECT MPE FIELD DATA SHEET		ECT Field Personnel: Paul Meyer		Date of Event: 12/16/2019	
		Facility Name: Petro-Chem		Page 2 of 2	
Truck Information		Operation Schedule		Recovery and Disposal Information	
Truck Operator	Jeff Black (JSS)	Start Time	10:30	NAPL Removed	0 gallons
Truck Number	VP-34	Number of Pumps	1	Disposal Facility	Stericycle Env. Solutions, Detroit, Michigan
Vacuum Pump		Average RPM	1000	Manifest Number	Not Applicable
		End Time	17:00	Total Liquids Removed	260 gallons
Tank Capacity	2,500 gallons	Total Duration (h:m)	6:30		
Stack Inside Diameter	4 inches			Calculated Hydrocarbon Vapor Removed	12.24 pounds
				Calculated Hydrocarbon Vapor Removed	2.0 gallons

Notes:

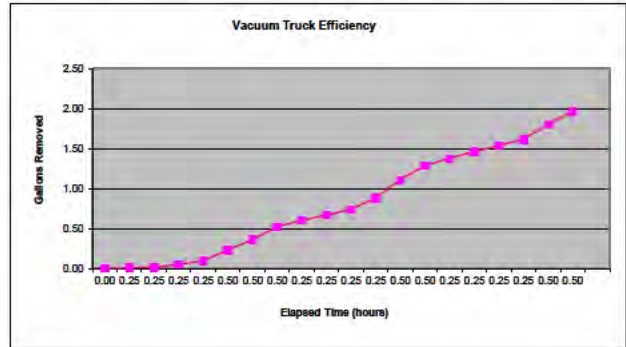
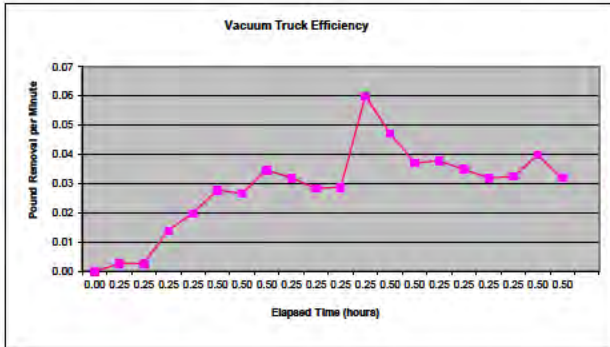
- 1) For the conversion calculation for hydrocarbon vapor to equivalent pounds removed a molecular weight of 56.106 grams/mole was utilized.
- 2) For the conversion calculation for hydrocarbon vapor to equivalent gallons removed an average density of 6.25 pounds/gallon for gasoline was utilized.
- 3) Off gas temperatures of 70°F used for off gas hydrocarbon emission calculation unless otherwise noted.
- 4) D-NAPL = Depth To Non-Aqueous Phase Liquid
- 5) DTW = Depth To Water
- 6) NAPL-T = Non-Aqueous Phase Liquid Thickness
- 7) Vac. = Vacuum in inches of water or Hg
- 8) MPE = Multi Phase Extraction
- 9) At EXW-1, a one-inch diameter drop pipe was installed within the well (final depth below the top-of-casing ~ 14').
- 10) bgl = below grade level

ECT - Vacuum Truck Extraction Work Sheet
Extraction Well #(s): EXW-1

Facility Name: Petro-Chem
Facility Address: 421 Lyncaste Street, Detroit, MI
EGLE Facility ID Number:
Job Number: 16-0737
Date of Event: 12/16/2019
Total Liquids Removed: 260 gallons
Total Hours/Vac Event: 8:30 hr:min

Equation Used by MDEQ to Calculate Emission Rates in Pounds per Hour	
R = Emission Rate (t) lbs./hr.	ppmV = exhaust gas concentration (ppm by volume)
MW = Molecular Weight of calibration gas (acetylene = 58.106)	ACFM = actual cubic feet per minute
SCFM = standard cubic feet per minute = SCFM x 0.0283	Z = ideal Gas Constant
Constant = 1.323 E- (80 min/hr.) (2.205 lbs./kg) (kg 1000 g) (1000 mg)	80 = converts to absolute temperature
ER = ppm _v x MW/2.24 x SCFM x Constant	
SCFM = standard cubic feet/min = ACFM x (60 - 70°F) / (60 - 7°F) formula used here assumes vapors extracted are 70 °F unless otherwise noted	

Time Start	Time Stop	Interval (Min)	Total Hours	Conc. (ppm)	CFM EXHAUST	EMISSION lbs./min	lbs. Removed	Gallons Removed *	lbs. Cumulative	Gallons Cumulative
10:30	10:30	0	0.00	7	69.8	0.00	0.00	0.00	0.00	0.00
10:30	10:45	15	0.25	255	69.8	0.00	0.04	0.01	0.04	0.01
10:45	11:00	15	0.25	408	43.6	0.00	0.04	0.01	0.08	0.01
11:00	11:15	15	0.25	1,330	69.8	0.01	0.21	0.03	0.29	0.05
11:15	11:30	15	0.25	1,925	69.8	0.02	0.30	0.05	0.56	0.06
11:30	12:00	30	0.50	3,091	61.1	0.03	0.84	0.13	1.43	0.23
12:00	12:30	30	0.50	2,965	61.1	0.03	0.80	0.13	2.23	0.36
12:30	13:00	30	0.50	3,013	78.5	0.03	1.04	0.17	3.28	0.52
13:00	13:15	15	0.25	2,944	74.2	0.03	0.48	0.08	3.74	0.60
13:15	13:30	15	0.25	2,780	69.8	0.03	0.43	0.07	4.17	0.67
13:30	13:45	15	0.25	2,828	69.8	0.03	0.43	0.07	4.60	0.74
13:45	14:00	15	0.25	5,245	78.5	0.06	0.90	0.14	5.50	0.89
14:00	14:30	30	0.50	3,890	82.9	0.05	1.42	0.23	6.92	1.11
14:30	15:00	30	0.50	3,038	82.9	0.04	1.11	0.18	8.03	1.29
15:00	15:15	15	0.25	2,965	87.3	0.04	0.57	0.09	8.60	1.38
15:15	15:30	15	0.25	2,800	87.3	0.03	0.52	0.08	9.12	1.46
15:30	15:45	15	0.25	2,560	87.3	0.03	0.48	0.08	9.60	1.54
15:45	16:00	15	0.25	2,800	87.3	0.03	0.49	0.08	10.09	1.61
16:00	16:30	30	0.50	3,215	87.3	0.04	1.19	0.19	11.28	1.81
16:30	17:00	30	0.50	2,590	87.3	0.03	0.96	0.15	12.24	1.96



Summary of MPE Events						
Event Date (Event #)	Total Pounds Removed (Hydrocarbon Vapor)	Total Gallons Removed (Hydrocarbon Vapor)	LNAPL Removed (gals.)	Calculated Transmissivity (ft ² /day)	Total Liquids Removed/Duration	Extraction Well(s)
12/16/2019 (#1)	12.2	2.0	0	0.04	260 gals/6.5 hrs.	EXW-1

Totals **0.0** **2.0** **0** **260**

Conversion weight used for gasoline is 8.25 lbs./gal.

Facility Name: Petro-Chem
 Job Number: 16-0737
 Extraction Well #(s): EXW-1
 Date of Event: 12/16/2019

Multi-Phase Extraction LNAPL Transmissivity Calculation*

Equation to estimate T_n , using an applied vacuum to formation and LNAPL and water production rates.

Inputs			Calculation	
Symbol	Units	Value		Units
π		3.14	$T_n =$	0.04 ft^2/day
t	day	0.27		
Q_n	gal/day	7.23	T_n equation =	$\frac{Q_n \cdot \rho}{\frac{(2\pi \cdot S_n)}{\ln(R_{oi}/r_w)} + Q_w/T_w} \quad ft^2/day$
ρ_r		0.78		
S_n	ft.	0.00		
Q_w	gal/day	960		
T_w	ft^2/day	6.97		
R_{oi}	ft.	40.00		
r_w	ft.	0.17		
K	ft./day	1.12		
Well _{sat}	ft.	6.22		

Data Input Values

t	=	6.50	Duration of MPE (hours)
Q_n	=	1.96	Calculated volume of LNAPL removed (gallons)
ρ_r	=	0.78	Water density ratio, assume 0.78
S_n	=	0.00	Final LNAPL drawdown (use largest initial product thickness in pumping wells, in feet)
Q_w	=	260	Total volume of liquids removed (gallons)
T_w	=	6.97	Groundwater Transmissivity (feet/day)
R_{oi}	=	40	Estimate radius of influence based off measurements (feet)
r_w	=	0.17	Well radius (PVC casing radius, in feet)
K	=	1.12	Hydraulic conductivity of site (feet/day)
Well _{sat}	=	6.22	Saturated thickness in well screen in pumping wells -- average if multiple wells are used (feet)

*ASTM Standards, E2856-11, equation 24

Calculated/Given

User Input in-field

Extracted from previous worksheets

Definitions

t	=	Multi-Phase Extraction duration (days)
Q_n	=	LNAPL only discharge, stabilized LNAPL recovery rate (Length ³ /t)
ρ_r	=	LNAPL - Water density ratio (ρ_{oil}/ρ_{water}) (assume 0.78, unless specific ratio is known)
S_n	=	LNAPL drawdown at time t (Length)
Q_w	=	Groundwater discharge, groundwater system recovery rate (Length ³ /t)
T_w	=	Groundwater Transmissivity (Length ² /t), = formation hydraulic conductivity * saturated thickness in well screen (ASTM D4043)
R_{oi}	=	radius of influence (Length)
r_w	=	well radius (Length)
K	=	formation hydraulic conductivity (Length/time)
Well _{sat}	=	saturated thickness in well screen (Length)

Well # (Screened Int.)	Wellsat	DTW	Bottom of screen	Screen length
EXW-1 (4.8-14.8)	6.22	9.63	15.85	10
MW-11 (9.1-14.1)	-12.32	12.32		
PZ-1 (9.8-14.8)	-8.09	8.09		
PZ-2 (9.3-14.3)	-8.03	8.03		
	0.00	0.00		
	0.00	0.00		

Bottom of screen below toc

DTW adjusted due to presence of LNAPL



DATE:	12-17-19 PILOT TEST - DAY 2
APEX PROJECT NO.	11019-000128
PROJECT NAME	Stericycle - Petro-Chem
PROJECT LOCATION	Detroit, Michigan

DESCRIPTION OF WORK COMPLETED

7:45-7:55	SET-UP AND TAKE INITIAL READINGS	CONSTANT RATE TEST - 8 HRS
7:55	START TEST	@ 1000 RPM VAC TRUCK = 600-900 ft³/min
	Quarter hour measurements first hour	
	Hourly measurements thereafter	
	SAME READINGS AS YESTERDAY	
8:10		
8:25	(Result) - VACUUM EVIDENT AT BOTH VMW-1 + VMW-2 (shallow + deep)	
8:40	VACUUM REACTS ALMOST INSTANTANEOUSLY TO CHANGES IN TRUCK VACUUM	
8:55	"EFFLUENT SAMPLE 1" COLLECTED AT EXHAUST PIPE OF VAC TRUCK	
9:55		
10:55		
11:55	MW-11 DRAWDOWN \approx 0.25 ft	12:33 \rightarrow 12.58' BTG
12:55		
1:55		
2:55		
3:55	STOP TEST / "EFFLUENT SAMPLE 2" COLLECTED PRIOR TO SHUTDOWN	
	FINAL MEASUREMENTS COLLECTED	4:15-4:45 DISCHARGE + CLEANOUT

PERSONNEL ON SITE (TIMES)

APEX -	STEVE KULPANOWSKI	7:45 - 4:47 PM
Contractors -	PAUL MEYER	7:40 - 4:15 ECT
	JEFF BLACK	7:40 - 4:47 PM JSS

SOIL REMOVAL

Number of Loads -	NO SOIL REMOVAL - GROUNDWATER EXTRACTED & DISCHARGED = 260 gallons	10.5" IN PERCH
	SAME AS YESTERDAY!	

PROBLEMS ENCOUNTERED / ISSUES NOTED AND REPORTED TO STERICYCLE

VARIANCE IN RPM'S OF VAC TRUCK - OCCASIONALLY INCREASE OR DECREASE

ECT MPE FIELD DATA SHEET		ECT Field Personnel: Paul Meyer		Date of Event: 12/17/2019	
		Facility Name: Petro-Chem		Page 2 of 2	
Truck Information		Operation Schedule		Recovery and Disposal Information	
Truck Operator	Jeff Black (JSS)	Start Time	7:55	NAPL Removed	0 gallons
Truck Number	VP-34	Number of Pumps	1	Disposal Facility	Stericycle Env. Solutions, Detroit, Michigan
Vacuum Pump		Average RPM	1000	Manifest Number	Not Applicable
		End Time	15:55	Total Liquids Removed	260 gallons
Tank Capacity	2,500 gallons	Total Duration (h:m)	8:00		
Stack Inside Diameter	4 inches			Calculated Hydrocarbon Vapor Removed	10.21 pounds
				Calculated Hydrocarbon Vapor Removed	1.6 gallons

Notes:

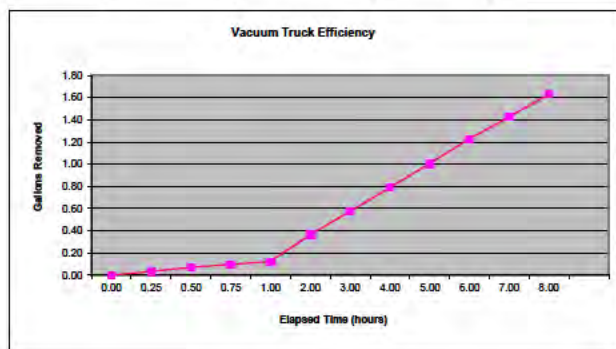
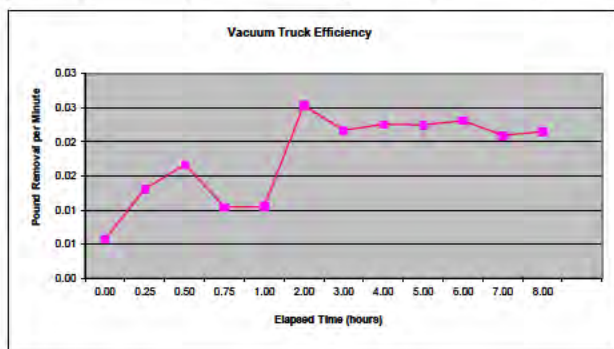
- 1) For the conversion calculation for hydrocarbon vapor to equivalent pounds removed a molecular weight of 56.106 grams/mole was utilized.
- 2) For the conversion calculation for hydrocarbon vapor to equivalent gallons removed an average density of 6.25 pounds/gallon for gasoline was utilized.
- 3) Off gas temperatures of 70°F used for off gas hydrocarbon emission calculation unless otherwise noted.
- 4) D-NAPL = Depth To Non-Aqueous Phase Liquid
- 5) DTW = Depth To Water
- 6) NAPL-T = Non-Aqueous Phase Liquid Thickness
- 7) Vac. = Vacuum in inches of water or Hg
- 8) MPE = Multi Phase Extraction
- 9) At EXW-1, a one-inch diameter drop pipe was installed within the well (final depth below the top-of-casing ~ 14').
- 10) bgl = below grade level

ECT - Vacuum Truck Extraction Work Sheet
Extraction Well #(s): EXW-1

Facility Name: Petro-Chem
Facility Address: 421 Lyncaste Street, Detroit, MI
EGLE Facility ID Number:
Job Number: 19-0827
Date of Event: 12/17/2019
Total Liquids Removed: 260 gallons
Total Hours/Vac Event: 8:00 hr:min

Equation Used by MDEQ to Calculate Emission Rates in Pounds per Hour	
R = Emission Rate (t lbs/hr)	ppmV = exhaust gas concentration (ppm by volume)
MW = Molecular Weight of calibration gas (methylene = 58.106)	ACFM = actual cubic feet per minute
SCFM = standard cubic feet per minute = SCFM x 0.6283	Z = ideal Gas Constant
Constant = 1.323 E- (80 min/hr) (2.205 lbs./kg) (kg 1000 g) (1000 mg)	80 = corrects to absolute temperature
ER = ppm x MW/2.02 x SCFM x Constant	
SCFM = standard cubic feet/min = ACFM x (60 - 70°F) / (60 - 7°F) formula used here assumes vapors extracted are 70 °F unless otherwise noted	

Time Start	Time Stop	Interval (Min)	Total Hours	Conc. (ppm)	CFM EXHAUST	EMISSION lbs./min	lbs. Removed	Gallons Removed *	lbs. Cumulative	Gallons Cumulative
7:55	7:55	0	0.00	712	52.4	0.01	0.00	0.00	0.00	0.00
7:55	8:10	15	0.25	1,114	78.5	0.01	0.20	0.03	0.20	0.03
8:10	8:25	15	0.50	1,512	74.2	0.02	0.25	0.04	0.45	0.07
8:25	8:40	15	0.75	1,009	69.8	0.01	0.18	0.03	0.60	0.10
8:40	8:55	15	1.00	1,160	61.1	0.01	0.18	0.03	0.76	0.12
8:55	9:55	60	2.00	1,904	87.3	0.03	1.52	0.24	2.28	0.37
9:55	10:55	60	3.00	1,704	87.3	0.02	1.30	0.21	3.58	0.57
10:55	11:55	60	4.00	1,755	87.3	0.02	1.35	0.22	4.93	0.79
11:55	12:55	60	5.00	1,786	87.3	0.02	1.35	0.22	6.28	1.01
12:55	13:55	60	6.00	1,828	87.3	0.02	1.38	0.22	7.67	1.23
13:55	14:55	60	7.00	1,747	82.9	0.02	1.25	0.20	8.92	1.43
14:55	15:55	60	8.00	1,783	82.9	0.02	1.29	0.21	10.21	1.63



Summary of MPE Events						
Event Date (Event #)	Total Pounds Removed (Hydrocarbon Vapor)	Total Gallons Removed (Hydrocarbon Vapor)	LNAPL Removed (gals.)	Calculated Transmissivity (ft ² /day)	Total Liquids Removed/Duration	Extraction Well(s)
12/16/2019 (#1)	12.2	2.0	0	0.04	260 gals/6.5 hrs.	EXW-1
12/17/2019 (#2)	10.2	1.6	0	0.03	260 gals/8 hrs.	EXW-1
Totals	10.2	3.6	0		520	

Conversion weight used for gasoline is 6.25 lbs./gal.

Facility Name: Petro-Chem
 Job Number: 19-0827
 Extraction Well #(s): EXW-1
 Date of Event: 12/17/2019

Multi-Phase Extraction LNAPL Transmissivity Calculation*		
Equation to estimate T_n , using an applied vacuum to formation and LNAPL and water production rates.		
Inputs		Calculation
Symbol	Units	Value
π		3.14
t	day	0.33
Q_n	gal/day	4.90
ρ_r		0.78
s_n	ft.	0.00
Q_w	gal/day	780
T_w	ft ² /day	6.97
R_{oi}	ft.	40.00
r_w	ft.	0.17
K	ft./day	1.12
Well _{sat}	ft.	6.22

Symbol	Units	Value
T_n	ft ² /day	0.03

Symbol	Units	Value
T_n equation	ft ² /day	$\frac{Q_n \cdot \rho}{\frac{(2\pi \cdot s_n)}{\ln(R_{oi}/r_w)} + Q_w/T_w}$

Data Input Values

t	=	8.00	Duration of MPE (hours)
Q_n	=	1.63	Calculated volume of LNAPL removed (gallons)
ρ_r	=	0.78	Water density ratio, assume 0.78
s_n	=	0.00	Final LNAPL drawdown (use largest initial product thickness in pumping wells, in feet)
Q_w	=	260	Total volume of liquids removed (gallons)
T_w	=	6.97	Groundwater Transmissivity (feet/day)
R_{oi}	=	40	Estimate radius of influence based off measurements (feet)
r_w	=	0.17	Well radius (PVC casing radius, in feet)
K	=	1.12	Hydraulic conductivity of site (feet/day)
Well _{sat}	=	6.22	Saturated thickness in well screen in pumping wells -- average if multiple wells are used (feet)

*ASTM Standards, E2856-11, equation 24

Calculated/Given

User Input in-field

Extracted from previous worksheets

Definitions

- t = Multi-Phase Extraction duration (days)
- Q_n = LNAPL only discharge, stabilized LNAPL recovery rate (Length³/t)
- ρ_r = LNAPL - Water density ratio (ρ_{oil}/ρ_{water}) (assume 0.78, unless specific ratio is known)
- s_n = LNAPL drawdown at time t (Length)
- Q_w = Groundwater discharge, groundwater system recovery rate (Length³/t)
- T_w = Groundwater Transmissivity (Length²/t), = formation hydraulic conductivity * saturated thickness in well screen (ASTM D4043)
- R_{oi} = radius of influence (Length)
- r_w = well radius (Length)
- K = formation hydraulic conductivity (Length/time)
- Well_{sat} = saturated thickness in well screen (Length)

Well # (Screened Int.)	Wellsat	DTW	Bottom of screen	Screen length
EXW-1 (4.8-14.8)	6.22	9.63	15.85	10
MW-11 (9.1-14.1)	-12.33	12.33		
PZ-1 (9.8-14.8)	-8.09	8.09		
PZ-2 (9.3-14.3)	-8.03	8.03		
	0.00	0.00		
	0.00	0.00		

Bottom of screen below toc

DTW adjusted due to presence of LNAPL



APPENDIX C
ANALYTICAL LABORATORY REPORTS



Monday, December 30, 2019

Fibertec Project Number: 94246
Project Identification: Stericycle (11019-000128.02) /11019-000128.02
Submittal Date: 12/18/2019

Ms. Kellie Wing
APEX
46555 Humboldt Dr. Ste. 103
Novi, MI 48377

Dear Ms. Wing,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

By Stephanie Wallace at 3:42 PM, Dec 30, 2019

For Daryl P. Strandbergh
Laboratory Director

Enclosures

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Analytical Laboratory Report
Laboratory Project Number: 94246
Laboratory Sample Number: 94246-001

Order: 94246
Page: 2 of 9
Date: 12/30/19

Client Identification: APEX	Sample Description: Extracted Groundwater	Chain of Custody: 180664
Client Project Name: Stericycle (11019-000128.02)	Sample No:	Collect Date: 12/16/19
Client Project No: 11019-000128.02	Sample Matrix: Ground Water	Collect Time: 17:15

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS
Method: EPA 5030C/EPA 8260D

Aliquot ID: 94246-001 **Matrix: Ground Water**
Description: Extracted Groundwater

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. Acetone	13000		µg/L	500	100	12/23/19	VM19L23A	12/23/19	VM19L23A	ZJJ
‡ 2. Acrylonitrile	U		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
3. Benzene	76		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
4. Bromobenzene	1.4		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
5. Bromochloromethane	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
6. Bromodichloromethane	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
7. Bromoform	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
8. Bromomethane	U		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
9. t-Butanol	U		µg/L	500	100	12/23/19	VM19L23A	12/23/19	VM19L23A	ZJJ
10. 2-Butanone	6100		µg/L	100	100	12/23/19	VM19L23A	12/23/19	VM19L23A	ZJJ
11. n-Butylbenzene	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
12. sec-Butylbenzene	1.8		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
13. tert-Butylbenzene	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
14. Carbon Disulfide	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
15. Carbon Tetrachloride	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
16. Chlorobenzene	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
17. Chloroethane	U		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
18. Chloroform	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
19. Chloromethane	U		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
‡ 20. Cyclohexane	U		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
‡ 21. 1,2-Dibromo-3-chloropropane (SIM)	U		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
22. Dibromochloromethane	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
23. Dibromomethane	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
24. trans-1,4-Dichloro-2-butene (SIM)	U		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
25. 1,2-Dichlorobenzene	36		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
26. 1,3-Dichlorobenzene	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
27. 1,4-Dichlorobenzene	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
28. Dichlorodifluoromethane	U		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
29. 1,1-Dichloroethane	110		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
30. 1,2-Dichloroethane	7.2		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
31. 1,1-Dichloroethene	1.5		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
32. cis-1,2-Dichloroethene	1200		µg/L	50	100	12/23/19	VM19L23A	12/23/19	VM19L23A	ZJJ
33. trans-1,2-Dichloroethene	9.2		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
34. 1,2-Dichloropropane	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
35. cis-1,3-Dichloropropene	U		µg/L	0.50	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
36. trans-1,3-Dichloropropene	U		µg/L	0.50	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
37. Diethyl Ether	18		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ

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Analytical Laboratory Report
Laboratory Project Number: 94246
Laboratory Sample Number: 94246-001

Order: 94246
Page: 3 of 9
Date: 12/30/19

Client Identification: APEX	Sample Description: Extracted Groundwater	Chain of Custody: 180664
Client Project Name: Stericycle (11019-000128.02)	Sample No:	Collect Date: 12/16/19
Client Project No: 11019-000128.02	Sample Matrix: Ground Water	Collect Time: 17:15

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS
Method: EPA 5030C/EPA 8260D

Aliquot ID: 94246-001 **Matrix: Ground Water**
Description: Extracted Groundwater

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 38. Diisopropyl Ether	21		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
‡ 39. ETBE	U		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
40. Ethylbenzene	3100		µg/L	50	100	12/23/19	VM19L23A	12/23/19	VM19L23A	ZJJ
41. Ethylene Dibromide	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
‡ 42. Hexachloroethane	U		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
43. 2-Hexanone	U		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
44. Isopropylbenzene	26		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
45. 4-Isopropyltoluene	1.2		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
46. 4-Methyl-2-pentanone	38000		µg/L	200	200	12/23/19	VM19L23A	12/23/19	VM19L23A	ZJJ
47. Methylene Chloride	U		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
‡ 48. 2-Methylnaphthalene	15		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
49. MTBE	3200		µg/L	50	100	12/23/19	VM19L23A	12/23/19	VM19L23A	ZJJ
50. Naphthalene	15		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
51. n-Propylbenzene	42		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
52. Styrene	3.8		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
‡ 53. TAME	57		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
54. 1,1,1,2-Tetrachloroethane	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
55. 1,1,2,2-Tetrachloroethane	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
56. Tetrachloroethene	15		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
‡ 57. Tetrahydrofuran	20000		µg/L	200	100	12/23/19	VM19L23A	12/23/19	VM19L23A	ZJJ
58. Toluene	14000		µg/L	50	100	12/23/19	VM19L23A	12/23/19	VM19L23A	ZJJ
59. 1,2,3-Trichlorobenzene	U		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
60. 1,2,4-Trichlorobenzene	U		µg/L	5.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
61. 1,1,1-Trichloroethane	8.6		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
62. 1,1,2-Trichloroethane	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
63. Trichloroethene	10		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
64. Trichlorofluoromethane	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
65. 1,2,3-Trichloropropane	U		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
‡ 66. 1,2,3-Trimethylbenzene	41		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
67. 1,2,4-Trimethylbenzene	190		µg/L	50	100	12/23/19	VM19L23A	12/23/19	VM19L23A	ZJJ
68. 1,3,5-Trimethylbenzene	78		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
69. Vinyl Chloride	12		µg/L	1.0	1.0	12/20/19	VP19L20A	12/20/19	VP19L20A	ZJJ
70. m&p-Xylene	11000		µg/L	100	100	12/23/19	VM19L23A	12/23/19	VM19L23A	ZJJ
71. o-Xylene	3200		µg/L	50	100	12/23/19	VM19L23A	12/23/19	VM19L23A	ZJJ
‡ 72. Xylenes	14000		µg/L	150	100	12/23/19	VM19L23A	12/23/19	VM19L23A	ZJJ

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Analytical Laboratory Report
Laboratory Project Number: 94246
Laboratory Sample Number: 94246-001

Order: 94246
 Page: 4 of 9
 Date: 12/30/19

Client Identification: APEX	Sample Description: Extracted Groundwater	Chain of Custody: 180664
Client Project Name: Stericycle (11019-000128.02)	Sample No:	Collect Date: 12/16/19
Client Project No: 11019-000128.02	Sample Matrix: Ground Water	Collect Time: 17:15

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Volatile Organic Compounds (VOCs) by GC/MS
Method: EPA 5030C/EPA 8260D

Aliquot ID: 94246-001 **Matrix: Ground Water**
Description: Extracted Groundwater

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
Surrogate Summary				<u>Control Limits</u>						
4-Bromofluorobenzene(S)	102		%	80-120						<u>Batch</u> VM19L23A
4-Bromofluorobenzene(S)	102		%	80-120						VM19L23A
4-Bromofluorobenzene(S)	89		%	80-120						VP19L20A
Dibromofluoromethane(S)	99		%	80-120						VM19L23A
Dibromofluoromethane(S)	102		%	80-120						VM19L23A
Dibromofluoromethane(S)	91		%	80-120						VP19L20A
1,2-Dichloroethane-d4(S)	98		%	80-120						VM19L23A
1,2-Dichloroethane-d4(S)	99		%	80-120						VM19L23A
1,2-Dichloroethane-d4(S)	104		%	80-120						VP19L20A
Toluene-d8(S)	100		%	80-120						VM19L23A
Toluene-d8(S)	100		%	80-120						VM19L23A
Toluene-d8(S)	96		%	80-120						VP19L20A

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Analytical Laboratory Report
Laboratory Project Number: 94246
Laboratory Sample Number: 94246-002

Order: 94246
Page: 5 of 9
Date: 12/30/19

Client Identification: APEX	Sample Description: Effluent Sample 1	Chain of Custody: 180664
Client Project Name: Stericycle (11019-000128.02)	Sample No:	Collect Date: 12/17/19
Client Project No: 11019-000128.02	Sample Matrix: Air	Collect Time: 09:11

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Tedlar Bag)
Method: EPA TO-15

Aliquot ID: 94246-002 **Matrix: Air**
Description: Effluent Sample 1

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Acetone	U		µg/m3	28000	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
2. Benzene	8100		µg/m3	3500	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
3. Benzyl Chloride	U		µg/m3	1200	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
4. Bromodichloromethane	U		µg/m3	710	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
5. Bromoform	U		µg/m3	2500	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
6. Bromomethane	U		µg/m3	1600	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
7. 1,3-Butadiene	U		µg/m3	590	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
8. 2-Butanone	U		µg/m3	8600	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
‡ 9. Carbon Disulfide	U		µg/m3	9700	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
10. Carbon Tetrachloride	U		µg/m3	670	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
11. Chlorobenzene	U		µg/m3	1200	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
12. Chloroethane	U		µg/m3	1100	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
13. Chloroform	U		µg/m3	500	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
14. Chloromethane	U		µg/m3	4100	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
15. Cyclohexane	4700		µg/m3	940	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
16. Dibromochloromethane	U		µg/m3	870	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
17. 1,2-Dichlorobenzene	U		µg/m3	31000	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
18. 1,3-Dichlorobenzene	U		µg/m3	6200	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
19. 1,4-Dichlorobenzene	U		µg/m3	6200	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
20. Dichlorodifluoromethane	U		µg/m3	2000	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
21. 1,1-Dichloroethane	8900		µg/m3	1100	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
22. 1,2-Dichloroethane	570		µg/m3	430	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
23. 1,1-Dichloroethene	U		µg/m3	1100	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
24. cis-1,2-Dichloroethene	67000		µg/m3	1100	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
25. trans-1,2-Dichloroethene	U		µg/m3	1100	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
26. 1,2-Dichloropropane	U		µg/m3	1200	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
27. cis-1,3-Dichloropropene	U		µg/m3	500	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
28. trans-1,3-Dichloropropene	U		µg/m3	1700	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
29. 1,4-Dioxane	U		µg/m3	3600	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
‡ 30. Ethyl Acetate	U		µg/m3	3300	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
31. Ethylbenzene	500000		µg/m3	4700	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
32. Ethylene Dibromide	U		µg/m3	850	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
33. n-Heptane	130000		µg/m3	1800	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
34. Hexachlorobutadiene	U		µg/m3	2600	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
35. n-Hexane	400000		µg/m3	4000	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
‡ 36. 2-Hexanone	U		µg/m3	10000	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
‡ 37. Isopropanol	U		µg/m3	7200	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP

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Analytical Laboratory Report
Laboratory Project Number: 94246
Laboratory Sample Number: 94246-002

Order: 94246
Page: 6 of 9
Date: 12/30/19

Client Identification: APEX	Sample Description: Effluent Sample 1	Chain of Custody: 180664
Client Project Name: Stericycle (11019-000128.02)	Sample No:	Collect Date: 12/17/19
Client Project No: 11019-000128.02	Sample Matrix: Air	Collect Time: 09:11

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Tedlar Bag)
Method: EPA TO-15

Aliquot ID: 94246-002 **Matrix: Air**
Description: Effluent Sample 1

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
38. 4-Methyl-2-pentanone	39000		µg/m3	3700	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
39. Methylene Chloride	U		µg/m3	7000	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
‡ 40. 2-Methylnaphthalene	U		µg/m3	40000	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
41. MTBE	U		µg/m3	4000	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
‡ 42. Naphthalene	U		µg/m3	5300	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
43. Styrene	U		µg/m3	11000	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
44. 1,1,2,2-Tetrachloroethane	930		µg/m3	760	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
45. Tetrachloroethene	8100		µg/m3	1800	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
‡ 46. Tetrahydrofuran	11000		µg/m3	1300	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
47. Toluene	2100000		µg/m3	25000	34000	12/27/19 10:32	VN19L27A	12/27/19 21:36	VN19L27A	KCM
48. 1,2,4-Trichlorobenzene	U		µg/m3	71000	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
49. 1,1,1-Trichloroethane	3000		µg/m3	580	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
50. 1,1,2-Trichloroethane	U		µg/m3	1500	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
51. Trichloroethene	720		µg/m3	570	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
52. Trichlorofluoromethane	U		µg/m3	1500	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
53. 1,1,2-Trichlorotrifluoroethane	U		µg/m3	3400	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
54. 1,2,4-Trimethylbenzene	15000		µg/m3	5100	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
55. 1,3,5-Trimethylbenzene	8300		µg/m3	5100	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
56. Vinyl Acetate	U		µg/m3	9200	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
57. Vinyl Chloride	8900		µg/m3	1100	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
58. m&p-Xylene	1500000		µg/m3	9200	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
59. o-Xylene	300000		µg/m3	47000	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP
‡ 60. Xylenes	1800000		µg/m3	56000	3900	12/26/19 11:35	VN19L26A	12/27/19 06:14	VN19L26A	MJP

Surrogate Summary

			<u>Control Limits</u>		<u>Batch</u>
4-Bromofluorobenzene(S)	110	%	80-120		VN19L26A
4-Bromofluorobenzene(S)	99	%	80-120		VN19L27A

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Analytical Laboratory Report
Laboratory Project Number: 94246
Laboratory Sample Number: 94246-003

Order: 94246
 Page: 7 of 9
 Date: 12/30/19

Client Identification: APEX	Sample Description: Effluent Sample 2	Chain of Custody: 180664
Client Project Name: Stericycle (11019-000128.02)	Sample No:	Collect Date: 12/17/19
Client Project No: 11019-000128.02	Sample Matrix: Air	Collect Time: 15:55

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Tedlar Bag)
Method: EPA TO-15

Aliquot ID: 94246-003 **Matrix: Air**
Description: Effluent Sample 2

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Acetone	U		µg/m3	9900	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
2. Benzene	U		µg/m3	3700	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
3. Benzyl Chloride	U		µg/m3	510	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
4. Bromodichloromethane	U		µg/m3	1800	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
5. Bromoform	U		µg/m3	2700	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
6. Bromomethane	U		µg/m3	1000	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
7. 1,3-Butadiene	U		µg/m3	630	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
8. 2-Butanone	U		µg/m3	2500	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
‡ 9. Carbon Disulfide	U		µg/m3	13000	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
10. Carbon Tetrachloride	U		µg/m3	1600	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
11. Chlorobenzene	U		µg/m3	1300	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
12. Chloroethane	U		µg/m3	710	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
13. Chloroform	U		µg/m3	530	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
14. Chloromethane	U		µg/m3	920	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
15. Cyclohexane	U		µg/m3	990	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
16. Dibromochloromethane	U		µg/m3	2100	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
17. 1,2-Dichlorobenzene	U		µg/m3	2500	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
18. 1,3-Dichlorobenzene	U		µg/m3	2500	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
19. 1,4-Dichlorobenzene	U		µg/m3	2500	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
20. Dichlorodifluoromethane	U		µg/m3	2200	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
21. 1,1-Dichloroethane	1400		µg/m3	460	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
22. 1,2-Dichloroethane	U		µg/m3	850	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
23. 1,1-Dichloroethene	U		µg/m3	460	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
24. cis-1,2-Dichloroethene	10000		µg/m3	1700	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
25. trans-1,2-Dichloroethene	U		µg/m3	1100	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
26. 1,2-Dichloropropane	U		µg/m3	1300	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
27. cis-1,3-Dichloropropene	U		µg/m3	1200	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
28. trans-1,3-Dichloropropene	U		µg/m3	4700	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
29. 1,4-Dioxane	U		µg/m3	4300	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
‡ 30. Ethyl Acetate	U		µg/m3	7500	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
31. Ethylbenzene	80000		µg/m3	1300	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
32. Ethylene Dibromide	U		µg/m3	900	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
33. n-Heptane	28000		µg/m3	1200	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
34. Hexachlorobutadiene	U		µg/m3	1300	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
35. n-Hexane	81000		µg/m3	1600	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
‡ 36. 2-Hexanone	U		µg/m3	1400	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
‡ 37. Isopropanol	U		µg/m3	1000	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP

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Analytical Laboratory Report
Laboratory Project Number: 94246
Laboratory Sample Number: 94246-003

Order: 94246
Page: 8 of 9
Date: 12/30/19

Client Identification: APEX	Sample Description: Effluent Sample 2	Chain of Custody: 180664
Client Project Name: Stericycle (11019-000128.02)	Sample No:	Collect Date: 12/17/19
Client Project No: 11019-000128.02	Sample Matrix: Air	Collect Time: 15:55

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Tedlar Bag) Aliquot ID: **94246-003** Matrix: **Air**
Method: EPA TO-15 Description: **Effluent Sample 2**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
38. 4-Methyl-2-pentanone	5700		µg/m3	5000	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
39. Methylene Chloride	U		µg/m3	15000	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
‡ 40. 2-Methylnaphthalene	U		µg/m3	29000	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
41. MTBE	3000		µg/m3	380	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
‡ 42. Naphthalene	U		µg/m3	4400	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
43. Styrene	U		µg/m3	450	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
44. 1,1,2,2-Tetrachloroethane	U		µg/m3	800	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
45. Tetrachloroethene	1500		µg/m3	790	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
‡ 46. Tetrahydrofuran	2100		µg/m3	840	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
47. Toluene	260000		µg/m3	1100	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
48. 1,2,4-Trichlorobenzene	U		µg/m3	16000	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
49. 1,1,1-Trichloroethane	U		µg/m3	620	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
50. 1,1,2-Trichloroethane	U		µg/m3	1400	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
51. Trichloroethene	U		µg/m3	610	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
52. Trichlorofluoromethane	U		µg/m3	660	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
53. 1,1,2-Trichlorotrifluoroethane	U		µg/m3	900	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
54. 1,2,4-Trimethylbenzene	2800		µg/m3	1400	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
55. 1,3,5-Trimethylbenzene	1500		µg/m3	1400	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
56. Vinyl Acetate	U		µg/m3	4100	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
57. Vinyl Chloride	680		µg/m3	640	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
58. m&p-Xylene	240000		µg/m3	980	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
59. o-Xylene	47000		µg/m3	510	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP
‡ 60. Xylenes	290000		µg/m3	1500	4200	12/27/19 10:33	VK19L27A	12/27/19 17:56	VK19L27A	MJP

Surrogate Summary		<u>Control Limits</u>	<u>Batch</u>
4-Bromofluorobenzene(S)	101	% 80-120	VK19L27A

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Definitions/ Qualifiers:

- A:** Spike recovery or precision unusable due to dilution.
- B:** The analyte was detected in the associated method blank.
- E:** The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
- J:** The concentration is an estimated value.
- M:** Modified Method
- U:** The analyte was not detected at or above the reporting limit.
- X:** Matrix Interference has resulted in a raised reporting limit or distorted result.
- W:** Results reported on a wet-weight basis.
- ***: Value reported is outside QC limits
- D:** The sample or extract was analyzed at a DF greater than 1.

Exception Summary:

Analysis Locations:

All analyses performed in Holt.



Accreditation Number(s):

T104704518-19-8 (TX)

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VK19L27A: Method Blank (MB)

EPA TO-15

Run Time: VK19L27A.MB 12/27/2019 13:24 [VK19L27A]

Analyte	MB Result	MB Qualifier	MB RDL
	µg/m3		µg/m3
Acetone	U		57
Benzene	U		19
Benzyl Chloride	U		6.2
Bromodichloromethane	U		8.0
Bromoform	U		62
Bromomethane	U		23
1,3-Butadiene	U		0.66
2-Butanone	U		35
Carbon Disulfide	U		37
Carbon Tetrachloride	U		7.5
Chlorobenzene	U		28
Chloroethane	U		16
Chloroform	U		5.9
Chloromethane	U		12
Cyclohexane	U		41
Dibromochloromethane	U		4.1
1,2-Dichlorobenzene	U		36
1,3-Dichlorobenzene	U		36
1,4-Dichlorobenzene	U		36
Dichlorodifluoromethane	U		30
1,1-Dichloroethane	U		24
1,2-Dichloroethane	U		4.9
1,1-Dichloroethene	U		24
cis-1,2-Dichloroethene	U		24
trans-1,2-Dichloroethene	U		24
1,2-Dichloropropane	U		28
cis-1,3-Dichloropropene	U		27
trans-1,3-Dichloropropene	U		27
1,4-Dioxane	U		22
Ethyl Acetate	U		43
Ethylbenzene	U		52
Ethylene Dibromide	U		0.92
n-Heptane	U		49

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VK19L27A: Method Blank (MB)

EPA TO-15

Run Time: VK19L27A.MB 12/27/2019 13:24 [VK19L27A]

Analyte	MB Result	MB Qualifier	MB RDL
	µg/m3		µg/m3
Hexachlorobutadiene	U		5.1
n-Hexane	U		42
2-Hexanone	U		49
Isopropanol	U		29
4-Methyl-2-pentanone	U		49
Methylene Chloride	U		42
2-Methylnaphthalene	U		140
MTBE	U		22
Naphthalene	U		28
Styrene	U		51
1,1,2,2-Tetrachloroethane	U		3.3
Tetrachloroethene	U		41
Tetrahydrofuran	U		3.5
Toluene	U		23
1,2,4-Trichlorobenzene	U		89
1,1,1-Trichloroethane	U		33
1,1,2-Trichloroethane	U		6.5
Trichloroethene	U		1.6
Trichlorofluoromethane	U		34
1,1,2-Trichlorotrifluoroethane	U		46
1,2,4-Trimethylbenzene	U		29
1,3,5-Trimethylbenzene	U		29
Vinyl Acetate	U		42
Vinyl Chloride	U		15
m&p-Xylene	U		52
o-Xylene	U		52
4-Bromofluorobenzene(S)	99		80-120

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VK19L27A: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

EPA TO-15

Run Time: VK19L27A.LCS: 12/27/2019 10:39 [VK19L27A] VK19L27A.LCSD: 12/27/2019 11:33 [VK19L27A]

Analyte	LCS	LCS Result	LCS Rec.	Rec. Limits	LCS	LCSD	LCSD	LCSD	LCSD	RPD	RPD Limits	RPD
	Spike Amount				Qualifier	Spike Amount	Result	Rec.	Qualifier	%	%	Qualifier
	µg/m3	µg/m3	%	%		µg/m3	µg/m3	%		%		
Acetone	25.8	28.7	111	70-130		25.8	29.3	114		3	20	
Benzene	37.6	36.3	96	70-130		37.6	35.5	94		2	20	
Benzyl Chloride	37.5	39.7	106	70-150		37.5	39.3	105		1	20	
Bromodichloromethane	77.3	79.1	102	70-130		77.3	77.4	100		2	20	
Bromoform	117	110	94	70-138		117	109	93		1	20	
Bromomethane	43.4	42.7	98	70-133		43.4	43.3	100		2	20	
1,3-Butadiene	26.1	23.7	91	70-134		26.1	26.1	100		9	20	
2-Butanone	32.6	32.7	100	70-130		32.6	32.7	101		1	20	
Carbon Disulfide	35.7	34.7	97	70-130		35.7	34.9	98		1	20	
Carbon Tetrachloride	71.8	72.5	101	70-131		71.8	71.0	99		2	20	
Chlorobenzene	54.0	51.7	96	70-130		54.0	51.3	95		1	20	
Chloroethane	29.6	29.7	100	70-130		29.6	29.7	100		0	20	
Chloroform	55.0	53.6	97	70-130		55.0	53.9	98		1	20	
Chloromethane	23.5	24.0	102	70-130		23.5	24.3	104		2	20	
Cyclohexane	40.6	42.7	105	70-130		40.6	41.8	103		2	20	
Dibromochloromethane	95.8	93.0	97	70-135		95.8	92.7	97		0	20	
1,2-Dichlorobenzene	66.8	66.4	99	70-130		66.8	65.3	98		1	20	
1,3-Dichlorobenzene	66.3	67.5	102	70-131		66.3	67.2	101		1	20	
1,4-Dichlorobenzene	66.5	68.5	103	70-134		66.5	68.1	102		1	20	
Dichlorodifluoromethane	56.8	59.5	105	70-132		56.8	59.7	105		0	20	
1,1-Dichloroethane	47.8	46.3	97	70-130		47.8	46.5	97		0	20	
1,2-Dichloroethane	47.8	46.9	98	70-130		47.8	47.2	99		1	20	
1,1-Dichloroethene	48.1	48.5	101	70-133		48.1	48.4	101		0	20	
cis-1,2-Dichloroethene	47.4	46.9	99	70-130		47.4	47.1	99		0	20	
trans-1,2-Dichloroethene	47.4	46.3	98	70-130		47.4	46.3	98		0	20	
1,2-Dichloropropane	54.4	55.6	102	70-130		54.4	54.8	101		1	20	
cis-1,3-Dichloropropene	53.2	56.6	106	70-131		53.2	55.8	105		1	20	
trans-1,3-Dichloropropene	46.3	50.0	108	70-134		46.3	48.8	105		3	20	
1,4-Dioxane	39.4	44.0	112	70-130		39.4	43.1	110		2	20	
Ethyl Acetate	31.8	33.4	105	70-130		31.8	33.2	104		1	20	
Ethylbenzene	50.8	52.4	103	70-130		50.8	51.6	102		1	20	
Ethylene Dibromide	90.1	88.1	98	70-130		90.1	87.1	97		1	20	
n-Heptane	48.3	52.2	108	70-132		48.3	51.1	106		2	20	

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VK19L27A: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

EPA TO-15

Run Time: VK19L27A.LCS: 12/27/2019 10:39 [VK19L27A] VK19L27A.LCSD: 12/27/2019 11:33 [VK19L27A]

Analyte	LCS	LCS Result	LCS Rec.	Rec. Limits	LCS	LCSD	LCSD	LCSD	LCSD	RPD	RPD Limits	RPD
	Spike Amount				Qualifier	Spike Amount	Result	Rec.	Qualifier	%	%	Qualifier
	µg/m3	µg/m3	%	%		µg/m3	µg/m3	%		%		
Hexachlorobutadiene	109	105	96	70-134		109	107	98		2	20	
n-Hexane	41.9	43.6	104	70-130		41.9	43.2	103		1	20	
2-Hexanone	39.6	40.6	103	70-139		39.6	40.4	102		1	20	
Isopropanol	27.8	28.6	103	54-144		27.8	28.8	104		1	20	
4-Methyl-2-pentanone	41.3	44.3	107	70-130		41.3	44.2	107		0	20	
Methylene Chloride	41.0	40.3	98	70-132		41.0	40.1	98		0	20	
2-Methylnaphthalene	37.7	40.0	106	70-146		37.7	41.4	110		4	20	
MTBE	44.3	46.6	105	70-130		44.3	46.7	105		0	20	
Naphthalene	52.8	57.7	109	70-148		52.8	58.5	111		2	20	
Styrene	49.6	52.4	106	70-130		49.6	51.7	104		2	20	
1,1,2,2-Tetrachloroethane	80.2	77.8	97	70-130		80.2	77.1	96		1	20	
Tetrachloroethene	79.7	77.4	97	70-130		79.7	77.4	97		0	20	
Tetrahydrofuran	34.5	36.1	105	70-138		34.5	36.0	104		1	20	
Toluene	44.6	44.6	100	70-130		44.6	44.1	99		1	20	
1,2,4-Trichlorobenzene	75.0	80.2	107	70-140		75.0	81.3	108		1	20	
1,1,1-Trichloroethane	63.6	63.4	100	70-130		63.6	61.8	97		3	20	
1,1,2-Trichloroethane	63.9	62.5	98	70-130		63.9	61.6	96		2	20	
Trichloroethene	62.4	63.2	101	70-130		62.4	62.1	99		2	20	
Trichlorofluoromethane	66.9	65.1	97	70-132		66.9	65.4	98		1	20	
1,1,2-Trichlorotrifluoroethane	92.1	89.1	97	70-130		92.1	89.5	97		0	20	
1,2,4-Trimethylbenzene	55.0	54.2	99	70-132		55.0	54.2	99		0	20	
1,3,5-Trimethylbenzene	55.2	58.4	106	70-131		55.2	57.5	104		2	20	
Vinyl Acetate	33.1	37.1	112	70-131		33.1	36.4	110		2	20	
Vinyl Chloride	29.6	30.8	104	70-131		29.6	33.3	112		7	20	
m&p-Xylene	104	98.6	95	70-130		104	97.6	94		1	20	
o-Xylene	50.6	51.1	101	70-130		50.6	50.2	99		2	20	
4-Bromofluorobenzene(S)			104	80-120				104				

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VM19L23A: Method Blank (MB)

EPA 8260D

Run Time: VM19L23A.MB 12/23/2019 13:25 [VM19L23A]

Analyte	MB Result	MB Qualifier	MB RDL
µg/L			µg/L
Acetone	U		20
t-Butanol	U		50
2-Butanone	U		5.0
cis-1,2-Dichloroethene	U		1.0
Ethylbenzene	U		1.0
4-Methyl-2-pentanone	U		5.0
MTBE	U		1.0
Tetrahydrofuran	U		5.0
Toluene	U		1.0
1,2,4-Trimethylbenzene	U		1.0
m&p-Xylene	U		2.0
o-Xylene	U		1.0
4-Bromofluorobenzene(S)	101		80-120
Dibromofluoromethane(S)	104		80-120
1,2-Dichloroethane-d4(S)	99		80-120
Toluene-d8(S)	101		80-120

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VM19L23A: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

EPA 8260D

Run Time: VM19L23A.LCS: 12/23/2019 11:12 [VM19L23A] VM19L23A.LCSD: 12/23/2019 11:38 [VM19L23A]

Analyte	LCS	LCS Result	LCS Rec.	Rec. Limits	LCS	LCSD	LCSD	LCSD	LCSD	RPD	RPD Limits	RPD
	Spike Amount	µg/L	%	%	Qualifier	Spike Amount	Result	Rec.	Qualifier	%	%	Qualifier
Acetone	50.0	45.5	91	54-140		50.0	46.9	94		3	20	
t-Butanol	250	268	107	70-147		250	260	104		3	20	
2-Butanone	50.0	48.0	96	70-148		50.0	47.3	95		1	20	
cis-1,2-Dichloroethene	50.0	46.4	93	70-125		50.0	44.2	88		6	20	
Ethylbenzene	50.0	46.9	94	80-120		50.0	43.7	87		8	20	
4-Methyl-2-pentanone	50.0	50.5	101	70-130		50.0	50.1	100		1	20	
MTBE	50.0	48.4	97	70-125		50.0	47.3	95		2	20	
Tetrahydrofuran	50.0	48.6	97	70-131		50.0	47.7	95		2	20	
Toluene	50.0	47.0	94	80-120		50.0	44.6	89		5	20	
1,2,4-Trimethylbenzene	50.0	45.9	92	75-130		50.0	43.9	88		4	20	
m&p-Xylene	100	94.8	95	75-130		100	89.0	89		7	20	
o-Xylene	50.0	46.1	92	80-120		50.0	44.1	88		4	20	
4-Bromofluorobenzene(S)			102	80-120				101				
Dibromofluoromethane(S)			102	80-120				103				
1,2-Dichloroethane-d4(S)			99	80-120				98				
Toluene-d8(S)			99	80-120				100				

VN19L26A: Method Blank (MB)

EPA TO-15

Run Time: VN19L26A.MB 12/26/2019 13:28 [VN19L26A]

Analyte	MB Result	MB Qualifier	MB RDL
	µg/m3		µg/m3
Acetone	U		57
Benzene	U		19
Benzyl Chloride	U		6.2
Bromodichloromethane	U		8.0
Bromoform	U		62
Bromomethane	U		23
1,3-Butadiene	U		0.66
2-Butanone	U		35
Carbon Disulfide	U		37
Carbon Tetrachloride	U		7.5
Chlorobenzene	U		28
Chloroethane	U		16
Chloroform	U		5.9
Chloromethane	U		12
Cyclohexane	U		41
Dibromochloromethane	U		4.1
1,2-Dichlorobenzene	U		36
1,3-Dichlorobenzene	U		36
1,4-Dichlorobenzene	U		36
Dichlorodifluoromethane	U		30
1,1-Dichloroethane	U		24
1,2-Dichloroethane	U		4.9
1,1-Dichloroethene	U		24
cis-1,2-Dichloroethene	U		24
trans-1,2-Dichloroethene	U		24
1,2-Dichloropropane	U		28
cis-1,3-Dichloropropene	U		27
trans-1,3-Dichloropropene	U		27
1,4-Dioxane	U		22
Ethyl Acetate	U		43
Ethylbenzene	U		52
Ethylene Dibromide	U		0.92
n-Heptane	U		49

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VN19L26A: Method Blank (MB)

EPA TO-15

Run Time: VN19L26A.MB 12/26/2019 13:28 [VN19L26A]

Analyte	MB Result	MB Qualifier	MB RDL
	µg/m3		µg/m3
Hexachlorobutadiene	U		5.1
n-Hexane	U		42
2-Hexanone	U		49
Isopropanol	U		29
4-Methyl-2-pentanone	U		49
Methylene Chloride	U		42
2-Methylnaphthalene	U		140
MTBE	U		22
Naphthalene	U		28
Styrene	U		51
1,1,2,2-Tetrachloroethane	U		3.3
Tetrachloroethene	U		41
Tetrahydrofuran	U		3.5
1,2,4-Trichlorobenzene	U		89
1,1,1-Trichloroethane	U		33
1,1,2-Trichloroethane	U		6.5
Trichloroethene	U		1.6
Trichlorofluoromethane	U		34
1,1,2-Trichlorotrifluoroethane	U		46
1,2,4-Trimethylbenzene	U		29
1,3,5-Trimethylbenzene	U		29
Vinyl Acetate	U		42
Vinyl Chloride	U		15
m&p-Xylene	U		52
o-Xylene	U		52
4-Bromofluorobenzene(S)	101		80-120

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VN19L26A: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

EPA TO-15

Run Time: VN19L26A.LCS: 12/26/2019 10:41 [VN19L26A] VN19L26A.LCSD: 12/26/2019 11:35 [VN19L26A]

Analyte	LCS	LCS Result	LCS Rec.	Rec. Limits	LCS	LCSD	LCSD	LCSD	LCSD	RPD	RPD Limits	RPD
	Spike Amount				Qualifier	Spike Amount	Result	Rec.	Qualifier	%	%	Qualifier
	µg/m3	µg/m3	%	%		µg/m3	µg/m3	%		%		
Acetone	25.8	28.6	111	70-130		25.8	28.4	110		1	20	
Benzene	37.6	32.5	86	70-130		37.6	32.4	86		0	20	
Benzyl Chloride	37.5	38.8	104	70-150		37.5	38.5	103		1	20	
Bromodichloromethane	77.3	70.4	91	70-130		77.3	69.8	90		1	20	
Bromoform	117	140	120	70-138		117	142	122		2	20	
Bromomethane	43.4	40.7	94	70-133		43.4	40.9	94		0	20	
1,3-Butadiene	26.1	33.7	129	70-134		26.1	33.7	129		0	20	
2-Butanone	32.6	27.1	83	70-130		32.6	26.3	81		2	20	
Carbon Disulfide	35.7	29.9	84	70-130		35.7	29.7	83		1	20	
Carbon Tetrachloride	71.8	71.2	99	70-131		71.8	71.6	100		1	20	
Chlorobenzene	54.0	54.3	101	70-130		54.0	54.7	101		0	20	
Chloroethane	29.6	24.8	84	70-130		29.6	24.8	84		0	20	
Chloroform	55.0	50.5	92	70-130		55.0	50.3	91		1	20	
Chloromethane	23.5	17.4	74	70-130		23.5	17.1	73		1	20	
Cyclohexane	40.6	35.2	87	70-130		40.6	34.9	86		1	20	
Dibromochloromethane	95.8	100	104	70-135		95.8	102	106		2	20	
1,2-Dichlorobenzene	66.8	71.7	107	70-130		66.8	71.8	107		0	20	
1,3-Dichlorobenzene	66.3	75.7	114	70-131		66.3	76.0	115		1	20	
1,4-Dichlorobenzene	66.5	77.0	116	70-134		66.5	76.9	116		0	20	
Dichlorodifluoromethane	56.8	53.8	95	70-132		56.8	53.6	94		1	20	
1,1-Dichloroethane	47.8	39.4	82	70-130		47.8	39.0	82		0	20	
1,2-Dichloroethane	47.8	42.5	89	70-130		47.8	41.9	88		1	20	
1,1-Dichloroethene	48.1	41.8	87	70-133		48.1	41.4	86		1	20	
cis-1,2-Dichloroethene	47.4	41.0	87	70-130		47.4	40.6	86		1	20	
trans-1,2-Dichloroethene	47.4	40.3	85	70-130		47.4	39.9	84		1	20	
1,2-Dichloropropane	54.4	46.3	85	70-130		54.4	45.9	84		1	20	
cis-1,3-Dichloropropene	53.2	50.1	94	70-131		53.2	50.2	94		0	20	
trans-1,3-Dichloropropene	46.3	44.0	95	70-134		46.3	43.9	95		0	20	
1,4-Dioxane	39.4	37.8	96	70-130		39.4	37.1	94		2	20	
Ethyl Acetate	31.8	26.5	83	70-130		31.8	25.8	81		2	20	
Ethylbenzene	50.8	51.9	102	70-130		50.8	52.1	103		1	20	
Ethylene Dibromide	90.1	90.8	101	70-130		90.1	91.6	102		1	20	
n-Heptane	48.3	40.3	83	70-132		48.3	39.4	82		1	20	

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VN19L26A: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

EPA TO-15

Run Time: VN19L26A.LCS: 12/26/2019 10:41 [VN19L26A] VN19L26A.LCSD: 12/26/2019 11:35 [VN19L26A]

Analyte	LCS	LCS Result	LCS Rec.	Rec. Limits	LCS	LCSD	LCSD	LCSD	LCSD	RPD	RPD Limits	RPD
	Spike Amount				Qualifier	Spike Amount	Result	Rec.	Qualifier	%	%	Qualifier
	µg/m3	µg/m3	%	%		µg/m3	µg/m3	%		%		
Hexachlorobutadiene	109	128	117	70-134		109	129	118		1	20	
n-Hexane	41.9	36.0	86	70-130		41.9	35.5	85		1	20	
2-Hexanone	39.6	33.6	85	70-139		39.6	32.7	83		2	20	
Isopropanol	27.8	25.5	92	54-144		27.8	24.7	89		3	20	
4-Methyl-2-pentanone	41.3	36.7	89	70-130		41.3	35.9	87		2	20	
Methylene Chloride	41.0	31.0	76	70-132		41.0	30.6	75		1	20	
2-Methylnaphthalene	37.7	38.3	102	70-146		37.7	40.4	107		5	20	
MTBE	44.3	42.8	97	70-130		44.3	42.5	96		1	20	
Naphthalene	52.8	62.3	118	70-148		52.8	63.0	119		1	20	
Styrene	49.6	53.6	108	70-130		49.6	53.8	109		1	20	
1,1,2,2-Tetrachloroethane	80.2	79.3	99	70-130		80.2	78.8	98		1	20	
Tetrachloroethene	79.7	83.4	105	70-130		79.7	84.6	106		1	20	
Tetrahydrofuran	34.5	27.0	78	70-138		34.5	26.2	76		3	20	
1,2,4-Trichlorobenzene	75.0	75.6	101	70-140		75.0	76.5	102		1	20	
1,1,1-Trichloroethane	63.6	60.6	95	70-130		63.6	60.5	95		0	20	
1,1,2-Trichloroethane	63.9	59.5	93	70-130		63.9	60.3	94		1	20	
Trichloroethene	62.4	60.0	96	70-130		62.4	60.0	96		0	20	
Trichlorofluoromethane	66.9	68.7	103	70-132		66.9	68.4	102		1	20	
1,1,2-Trichlorotrifluoroethane	92.1	85.5	93	70-130		92.1	85.1	92		1	20	
1,2,4-Trimethylbenzene	55.0	58.2	106	70-132		55.0	58.3	106		0	20	
1,3,5-Trimethylbenzene	55.2	59.6	108	70-131		55.2	59.8	108		0	20	
Vinyl Acetate	33.1	32.4	98	70-131		33.1	32.2	97		1	20	
Vinyl Chloride	29.6	37.1	125	70-131		29.6	37.4	126		1	20	
m&p-Xylene	104	104	100	70-130		104	105	101		1	20	
o-Xylene	50.6	52.1	103	70-130		50.6	52.2	103		0	20	
4-Bromofluorobenzene(S)			112	80-120				115				

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VN19L27A: Method Blank (MB)

EPA TO-15

Run Time: VN19L27A.MB 12/27/2019 13:18 [VN19L27A]

Analyte	MB Result	MB Qualifier	MB RDL
	µg/m3		µg/m3
Toluene	U		23
4-Bromofluorobenzene(S)	100		80-120

VN19L27A: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

EPA TO-15

Run Time: VN19L27A.LCS: 12/27/2019 10:31 [VN19L27A] VN19L27A.LCSD: 12/27/2019 11:25 [VN19L27A]

Analyte	LCS Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	LCSD Spike Amount	LCSD Result	LCSD Rec.	RPD	RPD Limits	RPD Qualifier
	µg/m3	µg/m3	%	%		µg/m3	µg/m3	%	%	%	
Toluene	44.6	46.1	103	70-130		44.6	46.0	103	0	20	
4-Bromofluorobenzene(S)			114	80-120				115			

VP19L20A: Method Blank (MB)

EPA 8260D

Run Time: VP19L20A.MB 12/20/2019 12:02 [VP19L20A]

Analyte	MB Result	MB Qualifier	MB RDL
	µg/L		µg/L
Acrylonitrile	U		5.0
Benzene	U		1.0
Bromobenzene	U		1.0
Bromochloromethane	U		1.0
Bromodichloromethane	U		1.0
Bromoform	U		1.0
Bromomethane	U		5.0
n-Butylbenzene	U		1.0
sec-Butylbenzene	U		1.0
tert-Butylbenzene	U		1.0
Carbon Disulfide	U		1.0
Carbon Tetrachloride	U		1.0
Chlorobenzene	U		1.0
Chloroethane	U		5.0
Chloroform	U		1.0
Chloromethane	U		5.0
Cyclohexane	U		5.0
1,2-Dibromo-3-chloropropane (S M)	U		5.0
Dibromochloromethane	U		1.0
Dibromomethane	U		1.0
trans-1,4-Dichloro-2-butene (SIM)	U		5.0
1,2-Dichlorobenzene	U		1.0
1,3-Dichlorobenzene	U		1.0
1,4-Dichlorobenzene	U		1.0
Dichlorodifluoromethane	U		5.0
1,1-Dichloroethane	U		1.0
1,2-Dichloroethane	U		1.0
1,1-Dichloroethene	U		1.0
trans-1,2-Dichloroethene	U		1.0
1,2-Dichloropropane	U		1.0
cis-1,3-Dichloropropene	U		0.50
trans-1,3-Dichloropropene	U		0.50
Diethyl Ether	U		5.0

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VP19L20A: Method Blank (MB)

EPA 8260D

Run Time: VP19L20A.MB 12/20/2019 12:02 [VP19L20A]

Analyte	MB Result	MB Qualifier	MB RDL
	µg/L		µg/L
Diisopropyl Ether	U		5.0
ETBE	U		5.0
Ethylene Dibromide	U		1.0
Hexachloroethane	U		5.0
2-Hexanone	U		5.0
Isopropylbenzene	U		1.0
4-Isopropyltoluene	U		1.0
Methylene Chloride	U		5.0
2-Methylnaphthalene	U		5.0
Naphthalene	U		5.0
n-Propylbenzene	U		1.0
Styrene	U		1.0
TAME	U		5.0
1,1,1,2-Tetrachloroethane	U		1.0
1,1,2,2-Tetrachloroethane	U		1.0
Tetrachloroethene	U		1.0
1,2,3-Trichlorobenzene	U		5.0
1,2,4-Trichlorobenzene	U		5.0
1,1,1-Trichloroethane	U		1.0
1,1,2-Trichloroethane	U		1.0
Trichloroethene	U		1.0
Trichlorofluoromethane	U		1.0
1,2,3-Trichloropropane	U		1.0
1,2,3-Trimethylbenzene	U		1.0
1,3,5-Trimethylbenzene	U		1.0
Vinyl Chloride	U		1.0
4-Bromofluorobenzene(S)	102		80-120
Dibromofluoromethane(S)	105		80-120
1,2-Dichloroethane-d4(S)	108		80-120
Toluene-d8(S)	101		80-120

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VP19L20A: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

EPA 8260D

Run Time: VP19L20A.LCS: 12/20/2019 10:44 [VP19L20A] VP19L20A.LCSD: 12/20/2019 11:10 [VP19L20A]

Analyte	LCS	LCS Result	LCS Rec.	Rec. Limits	LCS	LCSD	LCSD	LCSD	LCSD	RPD	RPD Limits	RPD
	Spike Amount				Qualifier	Spike Amount	Result	Rec.	Qualifier	%	%	Qualifier
	µg/L	µg/L	%	%		µg/L	µg/L	%		%		
Acrylonitrile	50.0	52.9	106	70-130		50.0	51.9	104		2	20	
Benzene	50.0	49.9	100	80-120		50.0	48.2	96		4	20	
Bromobenzene	50.0	48.3	97	75-125		50.0	54.0	108		11	20	
Bromochloromethane	50.0	54.9	110	70-130		50.0	55.2	110		0	20	
Bromodichloromethane	50.0	51.4	103	75-120		50.0	50.4	101		2	20	
Bromoform	50.0	49.1	98	70-130		50.0	49.0	98		0	20	
Bromomethane	50.0	60.6	121	68-135		50.0	59.4	119		2	20	
n-Butylbenzene	50.0	55.0	110	70-133		50.0	52.1	104		6	20	
sec-Butylbenzene	50.0	53.2	106	70-125		50.0	50.9	102		4	20	
tert-Butylbenzene	50.0	51.2	102	70-130		50.0	49.2	98		4	20	
Carbon Disulfide	50.0	51.8	104	70-130		50.0	49.2	98		6	20	
Carbon Tetrachloride	50.0	50.9	102	70-130		50.0	48.6	97		5	20	
Chlorobenzene	50.0	48.6	97	80-120		50.0	47.7	95		2	20	
Chloroethane	50.0	50.6	101	61-130		50.0	48.6	97		4	20	
Chloroform	50.0	53.0	106	80-120		50.0	51.4	103		3	20	
Chloromethane	50.0	46.7	93	67-125		50.0	44.4	89		4	20	
Cyclohexane	50.0	49.3	99	70-130		50.0	47.1	94		5	20	
1,2-Dibromo-3-chloropropane (S M)	50.0	46.5	93	70-130		50.0	45.2	90		3	20	
Dibromochloromethane	50.0	48.2	96	70-130		50.0	47.3	95		1	20	
Dibromomethane	50.0	46.3	93	75-125		50.0	45.3	91		2	20	
trans-1,4-Dichloro-2-butene (SIM)	50.0	62.8	126	70-135		50.0	60.4	121		4	20	
1,2-Dichlorobenzene	50.0	47.0	94	70-120		50.0	46.7	93		1	20	
1,3-Dichlorobenzene	50.0	49.3	99	75-125		50.0	47.9	96		3	20	
1,4-Dichlorobenzene	50.0	48.7	97	75-125		50.0	47.8	96		1	20	
Dichlorodifluoromethane	50.0	44.9	90	70-136		50.0	42.5	85		6	20	
1,1-Dichloroethane	50.0	54.0	108	70-130		50.0	52.1	104		4	20	
1,2-Dichloroethane	50.0	50.3	101	70-130		50.0	49.9	100		1	20	
1,1-Dichloroethene	50.0	55.4	111	78-120		50.0	52.6	105		6	20	
trans-1,2-Dichloroethene	50.0	59.4	119	70-130		50.0	57.0	114		4	20	
1,2-Dichloropropane	50.0	55.8	112	80-121		50.0	54.6	109		3	20	
cis-1,3-Dichloropropene	50.0	53.5	107	70-130		50.0	52.6	105		2	20	
trans-1,3-Dichloropropene	50.0	53.7	107	70-132		50.0	53.0	106		1	20	
Diethyl Ether	50.0	49.8	100	70-130		50.0	49.5	99		1	20	

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VP19L20A: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

EPA 8260D

Run Time: VP19L20A.LCS: 12/20/2019 10:44 [VP19L20A] VP19L20A.LCSD: 12/20/2019 11:10 [VP19L20A]

Analyte	LCS	LCS Result	LCS Rec.	Rec. Limits	LCS	LCSD	LCSD	LCSD	LCSD	RPD	RPD Limits	RPD
	Spike Amount				Qualifier	Spike Amount	Result	Rec.	Qualifier	%	%	Qualifier
	µg/L	µg/L	%	%		µg/L	µg/L	%		%		
Diisopropyl Ether	50.0	50.4	101	70-134		50.0	49.9	100		1	20	
ETBE	50.0	55.8	112	70-130		50.0	55.7	111		1	20	
Ethylene Dibromide	50.0	49.7	99	80-120		50.0	49.7	99		0	20	
Hexachloroethane	50.0	49.6	99	70-130		50.0	48.2	96		3	20	
2-Hexanone	50.0	50.7	101	70-130		50.0	49.9	100		1	20	
Isopropylbenzene	50.0	52.1	104	75-125		50.0	50.1	100		4	20	
4-Isopropyltoluene	50.0	53.4	107	70-135		50.0	51.0	102		5	20	
Methylene Chloride	50.0	57.0	114	70-130		50.0	55.8	112		2	20	
2-Methylnaphthalene	50.0	49.6	99	70-130		50.0	49.1	98		1	20	
Naphthalene	50.0	51.3	103	70-130		50.0	50.3	101		2	20	
n-Propylbenzene	50.0	53.8	108	70-130		50.0	54.1	108		0	20	
Styrene	50.0	53.5	107	70-130		50.0	52.5	105		2	20	
TAME	50.0	50.0	100	70-130		50.0	49.9	100		0	20	
1,1,1,2-Tetrachloroethane	50.0	49.4	99	80-130		50.0	49.2	98		1	20	
1,1,2,2-Tetrachloroethane	50.0	54.7	109	70-130		50.0	53.5	107		2	20	
Tetrachloroethene	50.0	47.6	95	70-130		50.0	45.9	92		3	20	
1,2,3-Trichlorobenzene	50.0	48.4	97	70-130		50.0	48.2	96		1	20	
1,2,4-Trichlorobenzene	50.0	48.9	98	70-130		50.0	47.4	95		3	20	
1,1,1-Trichloroethane	50.0	52.8	106	70-130		50.0	51.3	103		3	20	
1,1,2-Trichloroethane	50.0	49.9	100	75-125		50.0	49.7	99		1	20	
Trichloroethene	50.0	48.7	97	71-125		50.0	46.6	93		4	20	
Trichlorofluoromethane	50.0	48.2	96	70-133		50.0	45.7	91		5	20	
1,2,3-Trichloropropane	50.0	49.9	100	75-125		50.0	49.3	99		1	20	
1,2,3-Trimethylbenzene	50.0	52.1	104	70-130		50.0	50.5	101		3	20	
1,3,5-Trimethylbenzene	50.0	52.2	104	75-130		50.0	50.1	100		4	20	
Vinyl Chloride	50.0	46.0	92	74-125		50.0	44.1	88		4	20	
4-Bromofluorobenzene(S)			103	80-120				103				
Dibromofluoromethane(S)			105	80-120				105				
1,2-Dichloroethane-d4(S)			104	80-120				104				
Toluene-d8(S)			103	80-120				103				

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Definitions/ Qualifiers:

- U: The analyte was not detected at or above the Reporting Limit (RL).
- *: Value reported is outside QC limits

Exception Summary:

Exceptions have been properly noted on reported results or affected samples have been scheduled for reanalysis when appropriate.

Report Generated By:



By Stephanie Wallace at 3:47 PM, Dec 30, 2019



Analytical Laboratory

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8660 S. Mackinaw Trail
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Industrial Hygiene Services, Inc.
 1914 Holloway Drive
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 Phone: 517 699 0345
 Fax: 517 699 0382
 email: asbestos@fibertecrhs.com

Geoprobe
 11766 E. Grand River Rd.
 Brighton, MI 48116
 Phone: 810 220 3300
 Fax: 810 220 3311

Chain of Custody #
180664
 PAGE 1 of 1

Client Name: APEX			PARAMETERS												Matrix Code			Deliverables		
Contact Person: KELLIE WING															S	Soil	GW	Ground Water	<input checked="" type="checkbox"/>	Level 2
Project Name/ Number: STERICYCLE PERM CHEM 11019-00128																A		Air	SW	Surface Water
Email distribution list: KELLIE.WING@APEX.COS.COM			O	Oil	ww	Waste Water	<input type="checkbox"/>	Level 4												
Quote #				P		Wipe	x	Other: Specify	<input type="checkbox"/>	EDD										
Purchase Order#			MATRIX (SEE RIGHT CORNER FOR CODE)												HOLD SAMPLE	Remarks:				
Date			Time	Sample #	Client Sample Descriptor	# OF CONTAINERS	VOCs (E260)	VOCs (T0-15)												
12-16-19			5:15 PM		EXTRACTED GROUNDWATER	3	X													
12-17-19			9:11 AM		EFFLUENT SAMPLE 1	1		X												
12-17-19			3:55 PM		EFFLUENT SAMPLE 2	1		X												
Comments:			PLEASE USE PARAMETER LIST SPECIFIED FOR STERICYCLE PROJECT																	
Sampled/Relinquished By: Sam Kyranski			Date/Time: 12/18/19 9:15A			Received By: Kris Scott														
Relinquished By:			Date/Time:			Received By: Dale St. Shadr 12/18/19 2:30														
Relinquished By: Dale St. Shadr			Date/Time: 12/18/19 3:43			Received By Laboratory: g e														
Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY																	LAB USE ONLY			
<input type="checkbox"/> 1 bus. day <input type="checkbox"/> 2 bus. days <input type="checkbox"/> 3 bus. days <input type="checkbox"/> 4 bus. days <input checked="" type="checkbox"/> 5-7 bus. days (standard) Other (specify time/date requirement): _____																	Fibertec project number: 94296 Temperature upon receipt at Lab: 1.7°C			
Please see back for terms and conditions																				

COPY

Client Name: APEX		PARAMETERS										Matrix Code			Deliverables																	
Contact Person: KELLIE WING												<table border="1"> <tr> <td>S</td> <td>Soil</td> <td>GW</td> <td>Ground Water</td> </tr> <tr> <td>A</td> <td>Air</td> <td>SW</td> <td>Surface Water</td> </tr> <tr> <td>O</td> <td>Oil</td> <td>WW</td> <td>Waste Water</td> </tr> <tr> <td>P</td> <td>Wipe</td> <td>X</td> <td>Other: Specify</td> </tr> </table>			S	Soil	GW	Ground Water	A	Air	SW	Surface Water	O	Oil	WW	Waste Water	P	Wipe	X	Other: Specify	<input checked="" type="checkbox"/> Level 2 <input type="checkbox"/> Level 3 <input type="checkbox"/> Level 4 <input type="checkbox"/> EDD	
S	Soil	GW	Ground Water																													
A	Air	SW	Surface Water																													
O	Oil	WW	Waste Water																													
P	Wipe	X	Other: Specify																													
Project Name/ Number: STERILCYCLE - PART 1 ITEM 11019 - 00128												HOLD SAMPLE REMARKS:																				
Email distribution list: KELLIE.WING@APEX.COS.COM																																
Quote#																																
Purchase Order#																																
Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	VOCs (E260)	VOCs (10-15)																									
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12-17-19	9:11 AM		EFFLUENT SAMPLE 1	A	1	X																										
12-17-19	3:55 PM		EFFLUENT SAMPLE 2	A	1	X																										
Received By <u>LE...</u> DEC 18 2019 Initials: <u>ME</u>																																
Comments: PLEASE USE PARAMETER LIST SPECIFIED FOR STERILCYCLE PROJECT ? Past Project had Full list VOC's PER CLIENT EMAIL "USE VOC-BVL" test. 12-19-19pk																																
Sampled/Relinquished By: <u>Steve Keyman</u>				Date/Time: <u>12/18/19 9:15A</u>				Received By: <u>Kristi Scott</u>																								
Relinquished By:				Date/Time:				Received By: <u>Dale St. Shade 12/18/19 2:30</u>																								
Relinquished By: <u>Dale St. Shade</u>				Date/Time: <u>12/18/19 3:43</u>				Received By Laboratory: <u>[Signature]</u>																								
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Please see back for terms and conditions																																

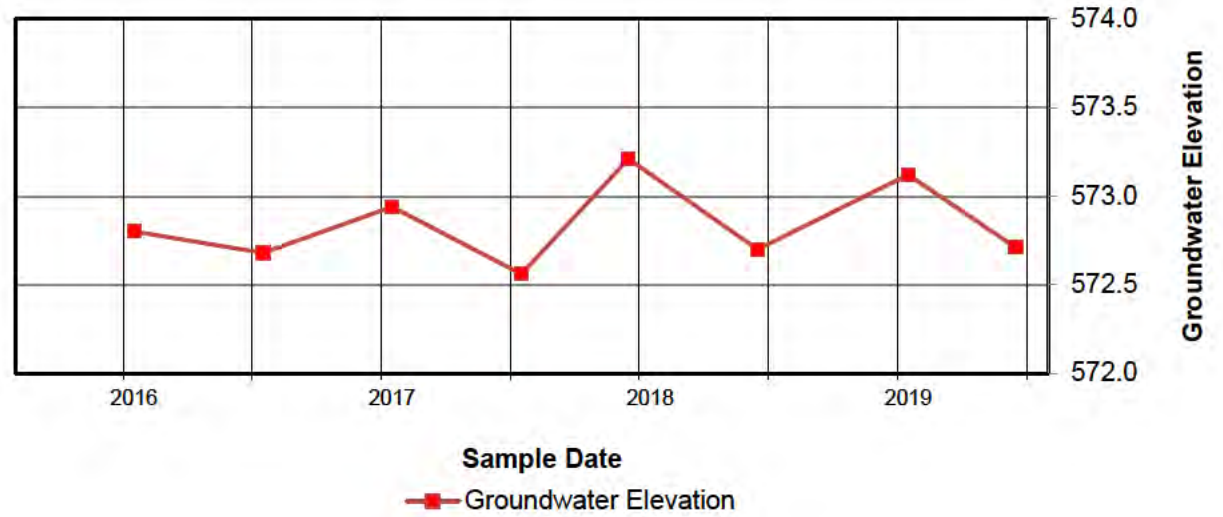


APPENDIX D

HISTORICAL GROUNDWATER ELEVATIONS IN WELL MW-11

MW-11

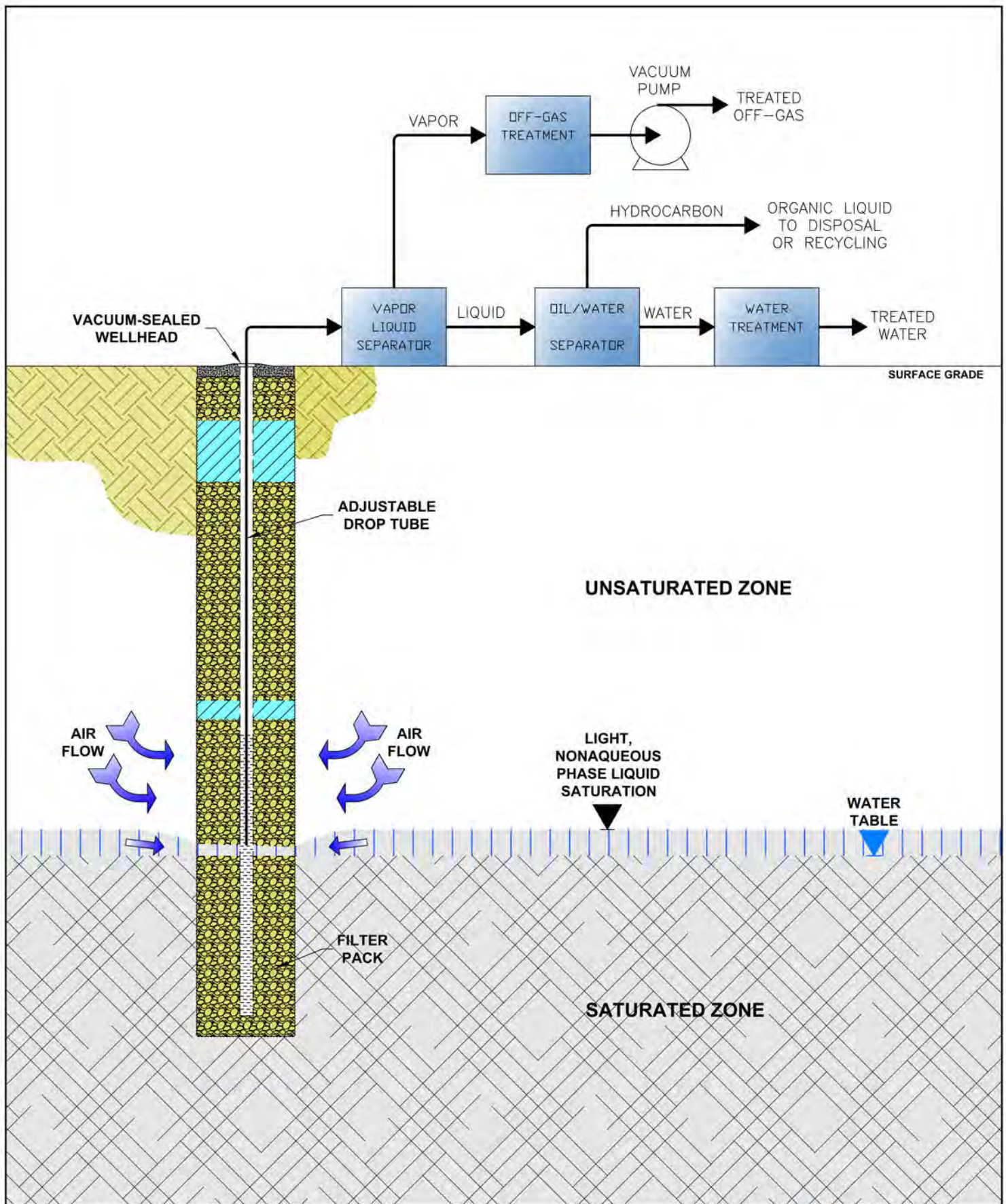
MW-11	
Date	Groundwater Elevation
Jun-16	572.80
Dec-16	572.68
Jun-17	572.94
Dec-17	572.56
May-18	573.21
Nov-18	572.70
Jun-19	573.12
Nov-19	572.71





APPENDIX E

TYPICAL MPE PROCESS FLOW DIAGRAM



CHECK BY	KW
DRAWN BY	JL
DATE	6/2/2020
SCALE	Not to Scale
CAD NO.	F1-WCD
PRJ NO.	11019-000128.01

MPE SYSTEM FLOW DIAGRAM
(TYPICAL)



FIGURE