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February 4, 2020

Texas Commission on Environmental Quality
Air Permits Initial Review Team (APIRT), MC 161
12100 Park 35 Circle, Building C, Third Floor
Austin, TX 78753

RE: North Texas Municipal Water District
RN102097151, CN601365448
NSR Permit Application

To Whom It May Concern:

On behalf of North Texas Municipal Water District (NTMWD), W&M Environmental, a Division of Braun Intertec Corporation (W&M) is submitting the attached New Source Review (NSR) permit application for the storage of anhydrous ammonia. There are four water treatment plants (WTPs) located at the NTMWD site located at 505 Brown Street in Wylie, Texas. Each WTP has two ammonia storage tanks. Due to the proximity of neighboring residences, the storage tanks do not meet the distance requirements specified by the applicable permit by rule for anhydrous ammonia storage. Therefore, this NSR permit application is being submitted, requesting authorization for the ammonia storage facilities.

If you have questions, please contact me at (817) 985-4921 or by e-mail at lsiegelman@braunintertec.com. Thank you for your attention to this matter.

Sincerely,

Lori Siegelman
Technical Director

cc: Ms. Elizabeth Smith, Air Section Manager, TCEQ Region 4
Mr. Michael Walker, Jr., Senior EHS Coordinator, NTMWD



North Texas Municipal Water District

WYLIE WATER PLANT / NSR PERMIT APPLICATION
505 E. Brown Street, Wylie, Texas

W&M Environmental, a Division of Braun Intertec Corporation
1124 Galveston Avenue, Suite 102
Fort Worth, Texas

February 4, 2020

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**NORTH TEXAS MUNICIPAL WATER DISTRICT
WYLIE, TEXAS
TCEQ NSR PERMIT APPLICATION-ANHYDROUS AMMONIA STORAGE**

Professional Engineer Certification

To the best of my knowledge, the representations made in this document are true and accurate. By affixing my seal below, I submit that the engineering work and calculations submitted with this permit application were performed by experienced W&M Environmental staff under my direction as defined in Section 131.81 of the Texas Engineering Practice Act.

Engineer: Frank W. Clark, P.E., P.G.

Signature: Frank W Clark

Registration Number: No. 82371

Firm: W&M Environmental, a Division of Braun Intertec Corporation
Texas Registered Engineering Firm No. F-12228

State: Texas

Date: February 4, 2020



1.0 INTRODUCTION

W&M Environmental, A Division of Braun Intertec Corporation (W&M) is submitting this New Source Review (NSR) air permit application package on behalf of the North Texas Municipal Water District (NTMWD) water treatment plant located at 505 East Brown Street in Wylie, Texas (Wylie Water Treatment Plant or Wylie WTP). An area map is provided on **Figure 1**.

The Wylie WTP consist of the following four individual plants:

Plant	Capacity (MGD*)	Year Built
WTP 1	70	1956-1965
WTP 2	328	1972-1988
WTP 3	328	1995-2003
WTP 4	140	2008**

*MGD: Million Gallons per Day

**Expansion to 800 GPD underway, with completion expected in 2020

Air emissions from water treatment activities conducted at the Wylie WTP are authorized by Title 30 Texas Administrative Code (TAC) §106.532, Water and Wastewater Treatment. Air emissions from storage of anhydrous ammonia (NH₃), used for disinfection, may be authorized under 30 TAC §106.477 if the following requirements are met.

Anhydrous ammonia storage tanks and distribution facilities that meet the following conditions are permitted by rule.

- (1) All valves, connectors, and hoses, associated with permanent storage tanks and any nurse tanks stored on-site, shall be properly maintained in leak-proof condition at all times.*
- (2) The capacity of each permanent storage tank is 30,000 gallons or less.*
- (3) When transferring ammonia, all vapors shall be vented back to the host tank and never to the atmosphere.*
- (4) When relieving pressure from hoses associated with permanent storage tanks and any nurse tanks, all vapors shall be bled into an adequate volume of water and never to the atmosphere.*
- (5) Each permanent storage tank and any nurse tanks stored on-site are equipped to prevent unauthorized operation.*
- (6) Before construction begins, written site approval must be received from the regional director and the owner or operator shall file with the commission's Office of Permitting, Remediation, and Registration in Austin a completed Form PI-7 and supporting documentation demonstrating that all of the requirements of this section will be met.*
- (7) Each permanent storage tank is located at least 1/4 mile from any recreational area or residence or other structure not occupied or used solely by the owner of the property upon which the facility is located.*

The ammonia storage tanks and distribution facilities located at the Wylie WTP meet the above-listed requirements 1 through 6, but the tanks are not located at least ¼ mile from neighboring residences. Therefore, this NSR permit application is being submitted, requesting authorization for the ammonia storage and distribution facilities.

2.0 PROCESS DESCRIPTION

2.1 Ammonia Storage and Distribution

The ammonia systems at the Wylie WTP deliver ammonia gas to raw water for bromate control and to finished water for control of disinfection by-products. Ammonia reacts with free chlorine residual to form chloramines, which maintain a residual disinfectant concentration in the distribution system. Advantages of using chloramines include a lower odor threshold, stability in the distribution system, and production of fewer regulated disinfection by-products (DBPs).

The ammonia storage and delivery systems at each of the four water treatment plants consist of the following major components:

Water Treatment Plant	Tank Capacity in Gallons (2 tanks at each WTP)	Evaporators	Gas Feeders	Flow Controllers	Application Points	Height of Valves from Ground Level (feet)
WTP 1	3,400	None	4	None	4	7.5
WTP 2	9,200	None	8	None	5	11.5
WTP 3	12,000	1	6	6	5	14.1
WTP 4	12,000	1	4	4	2	11.7

Tank locations are depicted on **Figure 2**. Layouts of each WTP storage tank area are provided in **Figures 3** through **6**. Process flow diagrams and process and instrumentation diagrams (P&IDs) are provided in **Attachment A**. The tank location designations, emission point numbers (EPN) and tank facility identification numbers (FIN) are as follows:

Water Treatment Plant	Ammonia Tank Storage Area (EPN)	Tank Designation FIN
WTP-1	FUG-1	TNK WTP-1-1
		TNK WTP-1-2
WTP-2	FUG-2	TNK WTP-2-1
		TNK WTP-2-2
WTP-3	FUG-3	TNK WTP-3-2
		TNK WTP-3-2
WTP-4	FUG-4	TNK WTP-4-2
		TNK WTP-4-2

2.2 Truck Unloading

All NH₃ is received at the Site by tank truck. Truck unloading is primarily done by the truck driver and supervised by a WTP Operator. Each delivery vehicle must check in with security upon arrival where the contents of shipment are verified by security using the Bill of Lading. Security will contact the main control room, confirm what chemical is being delivered, confirm the UN placard on the truck is for the designated chemical, confirm what plant and location the chemical will be delivered to, and direct the driver to proceed to the designated chemical unloading location. The main control room will reaffirm with security that the UN placard matches the chemical name on the Bill of Lading and dispatch an operator to

the chemical unloading location. Unloading of ammonia from the truck to the storage tanks must be supervised by the plant operator. Prior to unloading the operator will:

- Verify chemical contents by reviewing the Bill of Lading
- Check tanker seal and record the seal number
- Verify UN number on the truck placard matches the corresponding chemical
- Prevent chemical transfer if there is any discrepancy in paperwork and notify control room of concerns
- Check that there is a machine-printed unloaded and loaded weight ticket.
- Instruct the driver to remain at the unloading station during unloading
- Make the driver aware of safety shower and eyewash locations
- Ensure the driver has proper personal protective equipment (PPE), turns on the vehicles emergency flashers, and places orange safety cones in front and behind the vehicle
- Initial the Bill of Lading and driver's paperwork if applicable (include date and time) to signify it is OK to start unloading
- Enter information on Chemical Delivery Log
- Notify the control room when transfer begins

After the above steps are taken, the Plant Operator determines which of the two bulk tanks will receive the shipment and unlocks the appropriate fill line. Connections used for tank filling include a 2-inch fill line and a 1 ¼ inch vapor return. Each tank has a dedicated liquid fill and vapor return line. The driver connects the fill line and the vapor return line then opens the angle valve at the hose connection station and checks for leaks. If no leaks are detected, the driver will begin unloading while monitoring the tank level gauge at the end of the tank. A void space (head space) must be maintained, therefore tanks are never filled more than 85% capacity. After unloading is complete, the driver closes the loading station angle valves for the liquid fill and vapor return lines, then disconnects and stores the transfer hoses.

2.3 Process Feed

Each tank is equipped with a vapor-to-process pipe which is tied together downstream into a common header that supplies ammonia to the ammoniators. Isolation valves at each tank allow for isolating one or both tanks. Typically only one tank is in service at each plant while the other is valved out of service. When the active tank level reaches 10 to 20%, pressure cannot be maintained for the required flow. At this point, the valves are closed to place the tank out of service, and valves on the adjacent tank are opened to place it in service. Rate of flow from the tanks are controlled by ammoniators.

3.0 AMMONIA EMISSION CALCULATIONS

Principal ammonia emissions are fugitives from equipment leaks and components such as valves flanges, and pumps. Emissions are estimated based on components counts and emission rates presented in the *Air Permit Technical Guidance for Chemical Sources, Fugitive Guidance (APDG 6422)* dated June 2018.

The eight ammonia storage tanks (TNK WTP-1-1, TNK WTP-1-2, TNK WTP-2-1, TNK WTP-2-2, TNK WTP-3-2, TNK WTP-3-2, TNK WTP-4-2 TNK WTP-4-2) are horizontal pressurized tanks and will not have routine emissions.

A summary of Site emissions is provided in **Table 1**. Detailed calculated emissions for each WTP are provided in **Tables 2A through 2D**. A detailed list of equipment for each WTP is provided in **Table 3**.

4.0 RELEASE MITIGATION AND PRECAUTIONARY MEASURES

All NH₃ is received by bulk truck delivery with a throughput of 10 pounds per million gallons water treated. Based on the maximum treatment capacity for each plant, operating 24 hours per day, the maximum hourly throughput of NH₃ ranges from 29 pounds (lbs) for WTP 1 to 137 lbs for WTP 2 and 3, and 333 lbs/hr for WTP4, for a total maximum hourly throughput of 636 lbs for the four plants combined. The maximum annual throughput is 5,569,900 lbs per year for the four plants combined.

Plant	Maximum Capacity (MGD)	NH ₃ Throughput (lb/MGD)	Maximum Hourly Throughput ¹ (lbs/hour)	Maximum Annual Throughput ² (lbs)
WTP 1	70	10	29	255,500
WTP 2	328	10	137	1,197,200
WTP 3	328	10	137	1,197,200
WTP 4	800 ³	10	333	2,920,000
TOTAL	-	-	636	5,569,900

¹ Maximum Hourly Throughput = [Maximum Capacity (MGD) * NH₃ Throughput (lb/MGD)]/24 hours/day

² Maximum Annual Throughput = Maximum Hourly Throughput * 24 hours/day * 365 days/year

³ Maximum capacity of WTP 4 is assumed to be the higher capacity expected after upgrades are complete.

Tanks, piping, and ammonia containing equipment associated with the ammonia storage tanks are inspected in accordance with the audio, visual, and olfactory (AVO) program.

In the event of a chemical release, all personnel are instructed to avoid contact, notify supervision, and secure the area. In the event of an ammonia release, procedures to be followed are provided in the Wylie WTP emergency response plan.

A perimeter fence, Site security, locks on liquid fill and vapor return lines and operator presence and verification of deliveries will prevent unauthorized access to the storage tanks and delivery systems.

The Wylie WTP has developed a Risk Management Plan (RMP) in accordance with Title 40 Code of Federal Regulations Part 68 (40 CFR 68) which was submitted to EPA as required. W&M believes the development and implementation of the RMP meets the TCEQ requirement for conducting a disaster review. A copy of the current version of the Wylie WTP RMP is provided in **Attachment B**.

5.0 BEST AVAILABLE CONTROL TECHNOLOGY (BACT) ANALYSIS

30 TAC §116.111(a)(2)(C) requires that, as applicable, facilities utilize BACT, with consideration given to the technical practicability and economic reasonableness of reducing or eliminating emissions from the facility.

Tier I BACT involves comparison of proposed emission reductions to those approved in recent permit applications for similar processes or industries. As long as no new technical developments have been made that would allow for more stringent controls, based on economic and technical reasonableness, then the previously approved emission reductions may be considered to meet BACT, and no further review is necessary. If Tier I BACT is not met, then a Tier II analysis must be performed.

Tier II BACT involves comparison of emission reductions to those approved in recent permit applications for similar air emission streams in different processes or industries. The Tier II BACT may involve a more detailed analysis of technical practicability across different industries/processes, but should not require a detailed economic analysis. If Tier II BACT is not met, then a Tier III analysis must be performed.

Tier III BACT involves a detailed review of all emission reduction options on both a technical and economic basis. Technical feasibility is demonstrated through previous success of an emission reduction strategy, or engineering evaluation of a new technology. Economic feasibility is demonstrated based on the cost effectiveness of controlling emissions (i.e., the dollars per ton of pollutant emissions reduced).

The table below provides a summary of equipment affected by this permit action along with a demonstration of how TCEQ's Tier I BACT requirements are met for affected sources.

The Wylie WTP ammonia storage and distribution facilities meets or exceeds the baseline Best Available Control Technology (BACT) as prescribed in the EPA document "Prevention Reference Manual: Chemical Specific Volume 11, Control of Accidental Releases of Ammonia". The following table is derived from Table 5-7 on Page 110 of the reference manual. The controls that are shaded indicate those that are in place at the Wylie WTP.

Controls	Baseline	Level No. 1	Level No. 2
Flow	Single check valves on tank process feed lines.	Second check valves.	Reduced pressured device with internal air gap and relief vent to containment tank or scrubber.
Temperature	None	None	Temperature indicator
Pressure	Single pressure relief valve, vent to atmosphere. Provide local pressure indicator.	Second relief valve, secure non-isolatable. Vent to limited scrubber.	Rupture disks under relief valves. Local pressure indication on space between disk and valve.
Quantity	Local level indicator.	Remote level indicator.	Level alarm. High-low level interlock shut-off for both inlet and outlet lines.
Location	Away from traffic.	Away from traffic and flammables.	Away from traffic, flammables, and other hazardous processes.

Materials of construction	Carbon Steel	Carbon steel with increased corrosion allowances (1/8-inch).	Type 316 SS
Vessel	Tank pressure specification: 250 psig	Tank pressure specification: 300 psig.	Tank pressure specification: 375 psig.
Piping	Schedule 40 carbon steel.	Schedule 80 carbon steel.	Schedule 80 Type 316 stainless steel.
Process Machinery <i>Not Applicable</i>	Centrifugal pump, carbon steel, stuffing box seal.	Centrifugal pump, 316 SS construction, double capacity mechanical seal.	Magnetically-coupled centrifugal pump, 316 SS construction.
Enclosures	None	Steel building.	Concrete building.
Diking	None	3 ft high	Top of tank height, 10 ft.
Scrubbers	None	Water scrubber.	Same
Mitigation	None	Water spray	Same

In addition, the following additional equipment or operational controls are used to reduce the probability or magnitude of a catastrophic release:

- Ammonia detectors with audible and supervisory control and data acquisition (SCADA) alarms
- Audio, Visual, Olfactory checks to monitor potential leaks
- Excess flow valves
- Fire extinguishers
- Plants 2, 3, and 4 have breakaway bulkheads with automatic shut-off valves at the fill station in case a delivery truck drives away with hose connected
- Locks are installed on fill and vapor return lines

5.1 Abatement Equipment

Liquid fill, vapor return, and vapor to process lines, as well as drain outlets at each tank, have excess flow check valves that control the release of ammonia. A hydrostatic relief valve is located between any two isolation valves on a liquid line to mitigate the potential for pipe rupture in the event that liquid ammonia becomes trapped between the two isolation valves. Plants 2, 3, and 4 truck unloading stations are equipped with pull away protection that includes breakaway bulkheads and automatic shutoff valves on the liquid fill and vapor return lines. Bleeding emissions from disconnected hose operations is provided by the supplier.

5.2 Good Engineering Practices / Best Management Practices

Maintenance and housekeeping procedures are implemented for the ammonia storage and distribution system including the inspection and maintenance of control equipment such as valves, flanges, dikes, alarms, etc

6.0 PREVENTION OF SIGNIFICANT DETERIORATION (PSD) REVIEW

Is the existing site one of the 28 names source categories listed in 40 CFR 52.21(b)(1)?

No, anhydrous ammonia storage and handling is not listed as a source category. Therefore, the existing site has a major threshold of 250 tpy per pollutant.

Is the existing site a major source?

No, the existing site has a potential to emit (PTE) of 2.4 tpy ammonia, which is less than 250 tpy. Table 1 provides a summary of emissions. **Tables 2A** through **2D** contain detailed emissions calculations.

Is the proposed project by itself one of the 28 named source categories listed in 40 CFR 52.21(b)(1)?

No, anhydrous ammonia storage and handling is not listed as a source category. Therefore, the proposed project has a major threshold of 250 tpy per pollutant

Is the proposed project a major source by itself?

No, the proposed project PTE is 1.26 tpy of ammonia. Therefore, PSD review is not required.

7.0 STATE AND FEDERAL REGULATORY REQUIREMENTS

Sources authorized by an NSR permit must meet general and specific requirements as outlined in 30 TAC §116 and the applicable sections therein.

7.1 30 TAC 116.111 General Application

116.111(a)(2)(A)

The emissions from the anhydrous ammonia storage and delivery systems will comply with all rules and regulations of TCEQ. Additionally, based on review of applicable maps and an area reconnaissance, there are no schools within 3,000 feet of the anhydrous ammonia tanks at the Wylie WTP.

116.111(a)(2)(B)

The emission of significant air contaminants from the anhydrous ammonia storage and delivery system may be measured upon request of the Executive Director of the TCEQ.

116.111(a)(2)(C)

A review of the BACT for anhydrous ammonia is provided in Section 5.0.

116.111(a)(2)(D)

There are currently no New Source Performance Standards (NSPS) in 40 CFR 60 that apply to the anhydrous ammonia storage and delivery systems.

116.111(a)(2)(E)

There are currently no National Emission Standards for Hazardous Air Pollutants (NESHAPs) in 40 CFR 61 that apply to the anhydrous ammonia storage and delivery systems.

116.111(a)(2)(F)

There is currently no Maximum Achievable Control Technology (MACT) found in 40 CFR 63 that applies to the anhydrous ammonia storage and delivery system.

116.111(a)(2)(G)

The anhydrous ammonia storage and delivery systems will achieve the performance specified in this permit application. Additional data may be submitted as required or upon request.

116.111(a)(2)(H)

Collin County is currently classified as a moderate non-attainment area for ozone and as such must comply with the requirements of 30 TAC 116.150 for nonattainment review. However, the site is not a major source; therefore, nonattainment review requirements are not applicable.

116.111(a)(2)(I)

This project does not exceed the major threshold for Prevention of Significant Deterioration. Therefore, PSD review is not required. Because PSD review is not required for any other pollutant, a PSD evaluation for greenhouse gases is not required.

116.111(a)(2)(J)

Computerized air dispersion modeling results may be provided upon request from the Executive Director of TCEQ.

116.111(a)(2)(K)

There is currently no Maximum Achievable Control Technology (MACT) found in 40 CFR 63 that applies to the anhydrous ammonia storage and delivery systems.

116.111(a)(2)(L)

The anhydrous ammonia storage and delivery system is not subject to the mass cap and trade allowance requirements found in 30 TAC 101.

116.111(b)

All public notification and comment procedures set forth in 30 TAC 39, 55, and 116 will be followed.

7.2 30 TAC 101 General Air Quality Rules

The anhydrous ammonia storage and delivery systems will operate in accordance with the General Air Quality Rules set forth in 30 TAC 101 relating to circumvention, nuisance, traffic hazard, sampling, sampling ports, emissions inventory requirements, sampling procedures and terminology, compliance with EPA standards, the National Primary and Secondary Air Quality Standards, inspection fees, emissions fees, notification requirements for major upset, notification requirements for maintenance, and all other applicable general rules.

7.3 30 TAC 111 Control of Air Pollution from Visible Emissions and Particulate Matter

The anhydrous ammonia storage and delivery systems will not result in emissions in excess of opacity or particulate matter emission limitations specified in 30 TAC 111.

7.4 30 TAC 112 Control of Air Pollution from Sulfur Compounds

The anhydrous ammonia storage and delivery system will not result in the emission of sulfur compounds. Therefore, the requirements set forth in 30 TAC 112 are not applicable.

7.5 30 TAC 113 Standards of Performance for Hazardous Air Pollutants and for Designated Facilities and Pollutants

There is currently no Maximum Achievable Control Technology (MACT) found in 40 CFR 63 that applies to the anhydrous ammonia storage and delivery system.

7.6 30 TAC 115 Control of Air Pollution from Volatile Organic Compounds

Anhydrous ammonia storage in Collin County is not subject to the requirements set forth in 30 TAC 115.

7.7 30 TAC 117 Control of Air Pollution from Nitrogen Compounds

The anhydrous ammonia storage and delivery system will not result in the emission of nitrogen compounds. Therefore, the requirements set forth in 30 TAC 117 are not applicable.

7.8 30 TAC 122 Federal Operating Permits

The anhydrous ammonia storage and delivery systems are not a major source and are therefore not subject to the requirements set forth in 30 TAC 122.

TABLE 1
PROPOSED MAXIMUM ALLOWABLE EMISSION RATES

NTMWD
505 East Brown Street, Wylie, Texas

Anhydrous Ammonia Fugitive Emissions		
	Pounds per Hour	Tons per Year
WTP 1	0.04825	0.21132
WTP 2	0.09680	0.42396
WTP 3	0.07267	0.31830
WTP 4	0.07093	0.31066
TOTAL	0.2886	1.2642

**TABLE 2A
FUGITIVE EMISSIONS CALCULATIONS (ANHYDROUS AMMONIA)**

*NTMWD Wylie WTP1
505 East Brown Street, Wylie, Texas*

Equipment	Service	Total Equipment Count	Annual Hours of Operation	Emission Factor ** (lbs/hr)	Control Efficiency *	NH3 Emissions (lbs/hr)	NH3 Emissions (tpy)
Globe Valves	Vapor	6	8760	0.0089	97.00%	0.002	0.007
	Light Liquid	2	8760	0.0035	97.00%	0.000	0.001
Quarter-Turn Valves	Vapor	2	8760	0.0089	97.00%	0.001	0.002
	Light Liquid	2	8760	0.0035	97.00%	0.000	0.001
Emergency Shut-off Valves	Vapor	0	8760	0.0089	97.00%	0.000	0.000
	Light Liquid	0	8760	0.0035	97.00%	0.000	0.000
Needle Valves	Vapor	0	8760	0.0089	97.00%	0.000	0.000
	Light Liquid	0	8760	0.0035	97.00%	0.000	0.000
Small (1/2-inch) ports for bleed valves, hydrostatic relief valves, plugs, etc. Valves	Vapor	8	8760	0.0089	97.00%	0.002	0.009
	Light Liquid	2	8760	0.0035	97.00%	0.000	0.001
Excess Flow Check Valves	Vapor	4	8760	0.0089	97.00%	0.001	0.005
	Light Liquid	4	8760	0.0035	97.00%	0.000	0.002
Flanges	Vapor	6	8760	0.0029	97.00%	0.001	0.002
	Light Liquid	4	8760	0.0005	97.00%	0.000	0.000
Pumps	--	0	8760	0.0386	93.00%	0.000	0.000
Compressors	--	0	8760	0.5027	95.00%	0.000	0.000
Pressure Relief Valves manifold assemblies	--	2	8760	0.2293	97.00%	0.014	0.060
Pressure Relief Valve ports	--	4	8760	0.2293	97.00%	0.028	0.121
Open-ended Lines	--	0	8760	0.004	0.00%	0.000	0.000
Sampling Connections	--	0	8760	0.033	0.00%	0.000	0.000
Total						0.048	0.211

Notes:

NH3: anhydrous ammonia

lbs/hr: pounds per hour

tpy: tons per year

*: Each Water Treatment Plant has two storage tanks.

** Emission factors obtained from TCEQ Technical Guidance for Chemicals, Fugitive Emissions, June 2018, Appendix A, Table I: Uncontrolled SOCMI Fugitive Emission Factors, SOCMI without ethylene. Control efficiencies obtained from Table V (28AVO).

Example Calculations:

(total number) x (emission factor lbs/hr) x (1-control efficiency) = Emissions (lb/hr)	(Emissions lbs/hr) x (Hours of operation hr/yr) x (1 ton/2,000 lbs) = Emissions (tpy)
(10 compressors) x (0.5027 lbs/hr) x (1-0.85) = 0.754 lb/hr fugitive NH3 from compressors	(0.754 lbs/hr compressors) x (8,760 hr/yr) x (1 ton/2,000 lbs) = 3.303 tpy fugitive NH3 from compressors

**TABLE 3
WATER TREATMENT PLANT EQUIPMENT LIST**

**NTMWD
505 East Brown Street, Wylie, Texas**

		WTP1		WTP2 North		WTP2 South		WTP3		WTP4	
		per tank	Comment		Comment		Comment	per tank	Comment	per tank	Comment
Globe valves	Vapor	3	VR, VP, PRV	5	truck, VR, VP, PRVx2	5	truck, VR, VP, PRVx2	5	truck, VR, VP, PRV, PI	5	truck, VR, VP, PI, PRV
	Liquid	1	LF	4	truck, LF, DV, PI	3	truck, DV, PI	3	truck, LF, DV	4	truck, LF, DV, PI
Quarter-turn valves	Vapor	1	VP	2	VF, VP	2	VF, VP	1	VP	1	VP
	Liquid	1	DV	1	LF	1	LF	0		0	
Emergency shutoff valves	Vapor	0		1		1		1		1	
	Liquid	0		1		1		1		1	
Needle valves	Vapor	0		0		0		1	PI (at ground level)	0	
	Liquid	0		0		0		0		0	
Small (1/2-inch +/-) ports for bleed valves, hydrostatic relief valves, plugs, etc.	Vapor	4	PRVx2, VR, VP	10	truck, ESO, VF, VP, PRGx2, PRVx4	10	truck, ESO, VF, VP, PRGx2, PRVx4	13	truck, ESO, VR, PIx2, VP, PRVx7	11	truck, PI, VR, VP, PRVx7
	Liquid	1	LF	5	truck, ESO, LF, PI, DV	4	truck, ESO, PI, DV	4	truck, ESO, LF, DV	3	truck, PI, drain
Excess flow check valves	Vapor	2	VR, VP	2	VR, VP	2	VR, VP	2	VR, VP	2	VR, VP
	Liquid	2	LF, DV	2	LF, DV	2	LF, DV	2	LF, DV	2	LF, DV
Flanges	Vapor	3	QTVx2, FU	5	QTVx2x2, ESOx1x1	6	QTVx2x2, ESOx1x1, access hatch	17	QTVx1x2, ESOx1x1, BFx5, PRVx2, VPx3, VR	16	ESOx1, BFx4, PI, VPx3, VRx3, PRVx2, QTVx1x2
	Liquid	2	DVx2	3	QTVx1x2, ESOx1x1	3	QTVx1x2, ESOx1x1	10	ESO, LFX4, DVx3, BF, LI	11	ESO, DVx3, LI, PI, LFX4, BF
Pumps	-	0		0		0		0		0	
Compressors	-	0		0		0		0		0	
manifold assembly	-	1		2		2		1		1	
ports	-	2		4		4		3		3	
Open-ended lines	-	0		0		0		0		0	
Sampling Connections	-	0		0		0		0		0	

General comments

Valves and flanges stemming from an outlet on top of the tank are considered "vapor" except the liquid fill line. All others are considered "liquid".

There are 2 subtle differences in the WTP2 north and south tanks, which explain the minor discrepancies in the WTP2 numbers.

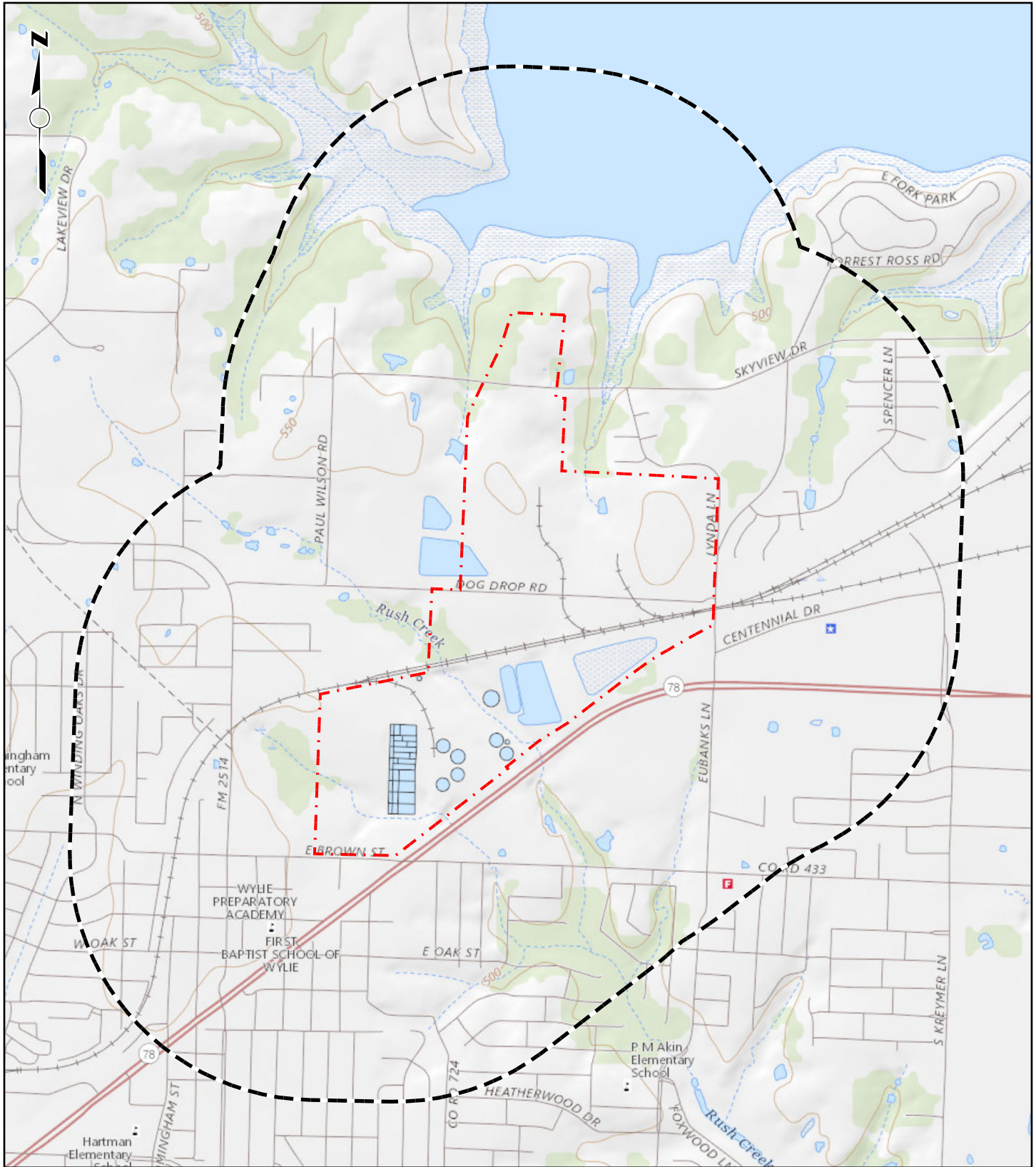
1. The WTP2 south tank has a flanged access hatch while the WTP2 north tank does not have an access hatch.
2. The WTP2 south tank liquid fill line enters in the bottom of the tank, whereas the north tank liquid fill line enters in the top of the tank.

The pressure relief valves are multi-port (i.e. 2 or 3 ports), with one port being a spare.

While some locations could be used for sampling, there is no dedicated sampling location at the tanks.

Flanges include those used to connect process piping. Manufacturer-installed flanges not used for pipe connections (e.g. flanges connecting valve stems to the valve body, or part of the level indicator assembly) are not included.

LF = liquid fill
 VR = vapor return
 VP = vapor to process
 PRV = pressure relief valve
 DV = drain valve
 truck = delivery truck connection
 PI = pressure indicator
 QTV = quarter-turn valve
 LI = level indicator
 PRG = pressure regulator
 ESO = emergency shut-off valve
 FU = flanged union
 BF = blind flange

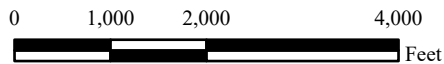


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Legend

- Approximate Site Boundary
- 3000-Foot Radius from Site

Source: Collin Central Appraisal District, USGS National Map



SCALE: 1" = 2,000'

**Figure 1
Site Location**

505 Brown Street
Wylie, Texas



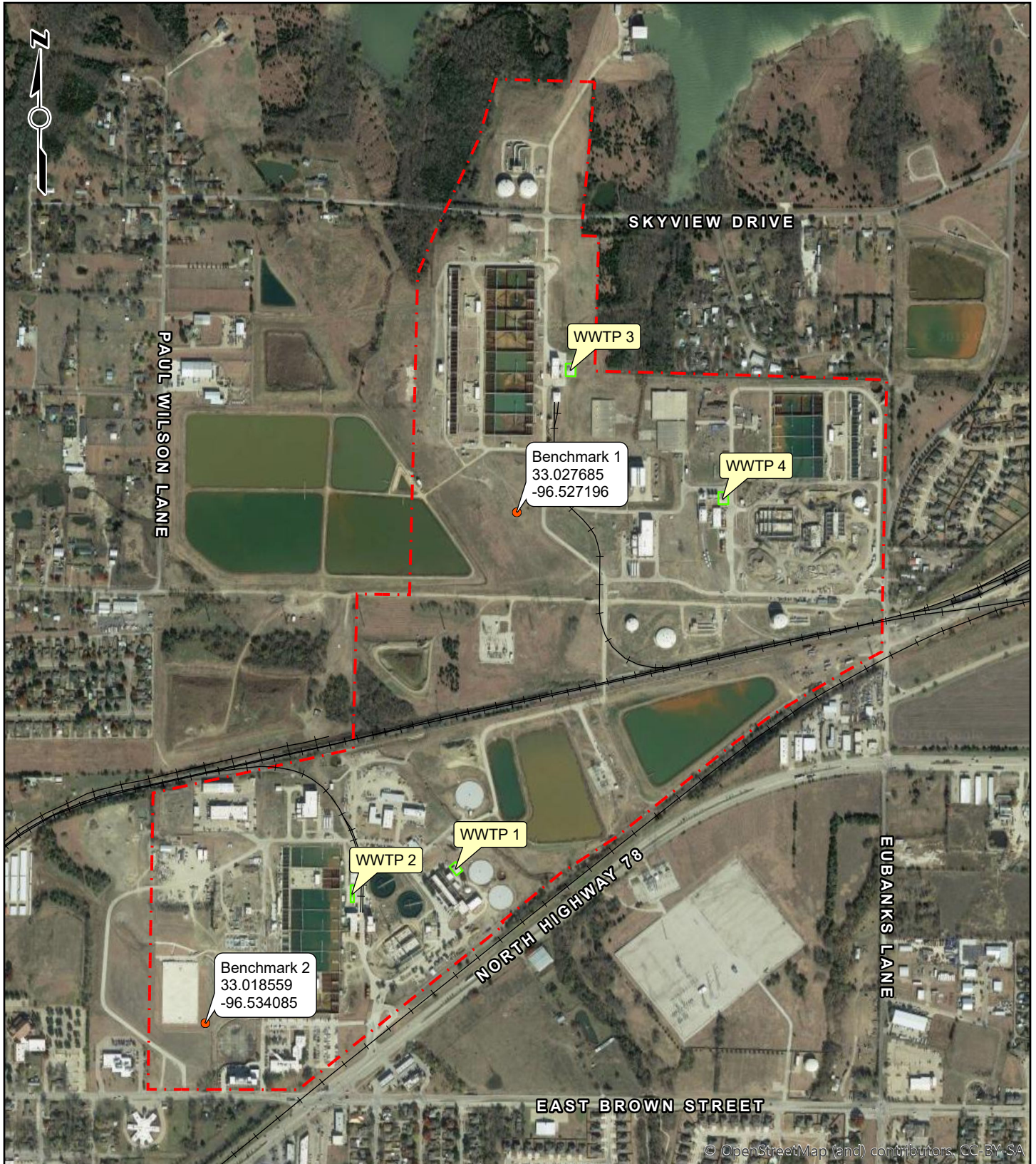
9/17/2019

W&M Project No.: 01649.007

Drawn by: JPM

Checked by: LS

Revised by:

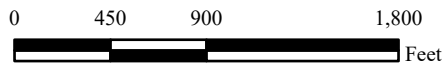


Document Path: C:\Users\jmaxwell\EXCHANGE\Braun Intertec Corp\GIS - Data\1600-1700\01649\007 - Wylie Air Permit.aprx

Legend

- Site Boundary
- Concrete Ammonia Pad
- Railroad Tracks
- Benchmark

Source: Collin Central Appraisal District, Google Earth (11/2018)



SCALE: 1" = 900'

**Figure 2
Plot Plan**

505 Brown Street
Wylie, Texas



9/17/2019

W&M Project No.: 01649.007

Drawn by: JPM

Checked by: LS

Revised by:



FIN: WTP1-1 & WTP1-2
EPN: FUG1

NORTH HIGHWAY 78

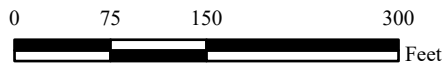
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Document Path: C:\Users\jmaxwell\EXCHANGE\Braun Intertec Corp\GIS - GIS_Data\1600-1700\01649\007 - Wylie Air Permit.aprx

Legend

- Site Boundary
- Ammonia Tank
- Concrete Pad
- Railroad Tracks

Source: Collin Central Appraisal District, Google Earth (11/2018)



SCALE: 1" = 150'

Figure 3
Water Treatment Plant 1

505 Brown Street
Wylie, Texas



8/28/2019

W&M Project No.: 01649.007

Drawn by: JPM

Checked by: LS

Revised by:

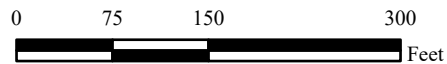


Document Path: C:\Users\jmaxwell\EXCHANGE\Braun Intertec Corp\GIS - GIS_Data\1600-1700\01649\007 - Wylie Air Permit\007 - Wylie Air Permit.aprx

Legend

- Site Boundary
- Railroad Tracks
- Ammonia Tank
- Concrete Pad

Source: Collin Central Appraisal District, Google Earth (11/2018)



SCALE: 1" = 150'

Figure 4
Water Treatment Plant 2

505 Brown Street
Wylie, Texas



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- Legend**
- Site Boundary
 - Concrete Pad
 - Ammonia Tank
 - Railroad Tracks

Source: Collin Central Appraisal District, Google Earth (11/2018)

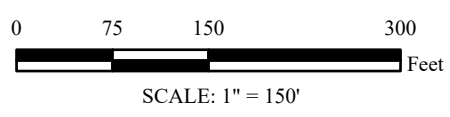


Figure 5
Water Treatment Plant 3
 505 Brown Street
 Wylie, Texas






2/3/2020	W&M Project No.: 01649.007	Drawn by: JPM	Checked by: LS	Revised by:
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FIN: WTP4-1 & WTP4-2
EPN: FUG4

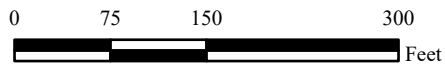
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Legend

-  Site Boundary
-  Concrete Pad
-  Ammonia Tank

Source: Collin Central Appraisal District, Google Earth (11/2018)



SCALE: 1" = 150'

Figure 6
Water Treatment Plant 4

505 Brown Street
Wylie, Texas



9/10/2019

W&M Project No.: 01649.007

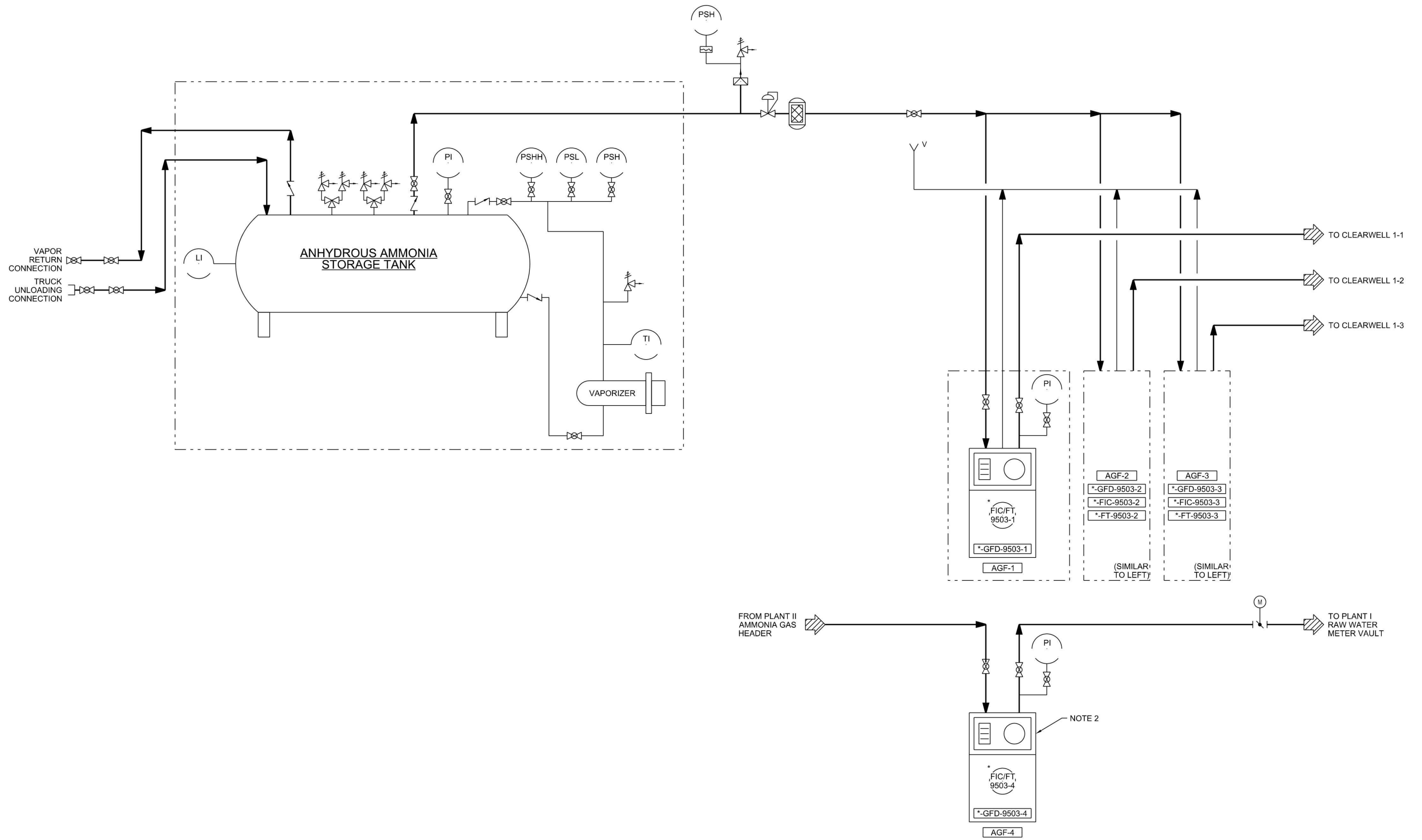
Drawn by: JPM

Checked by: LS

Revised by:

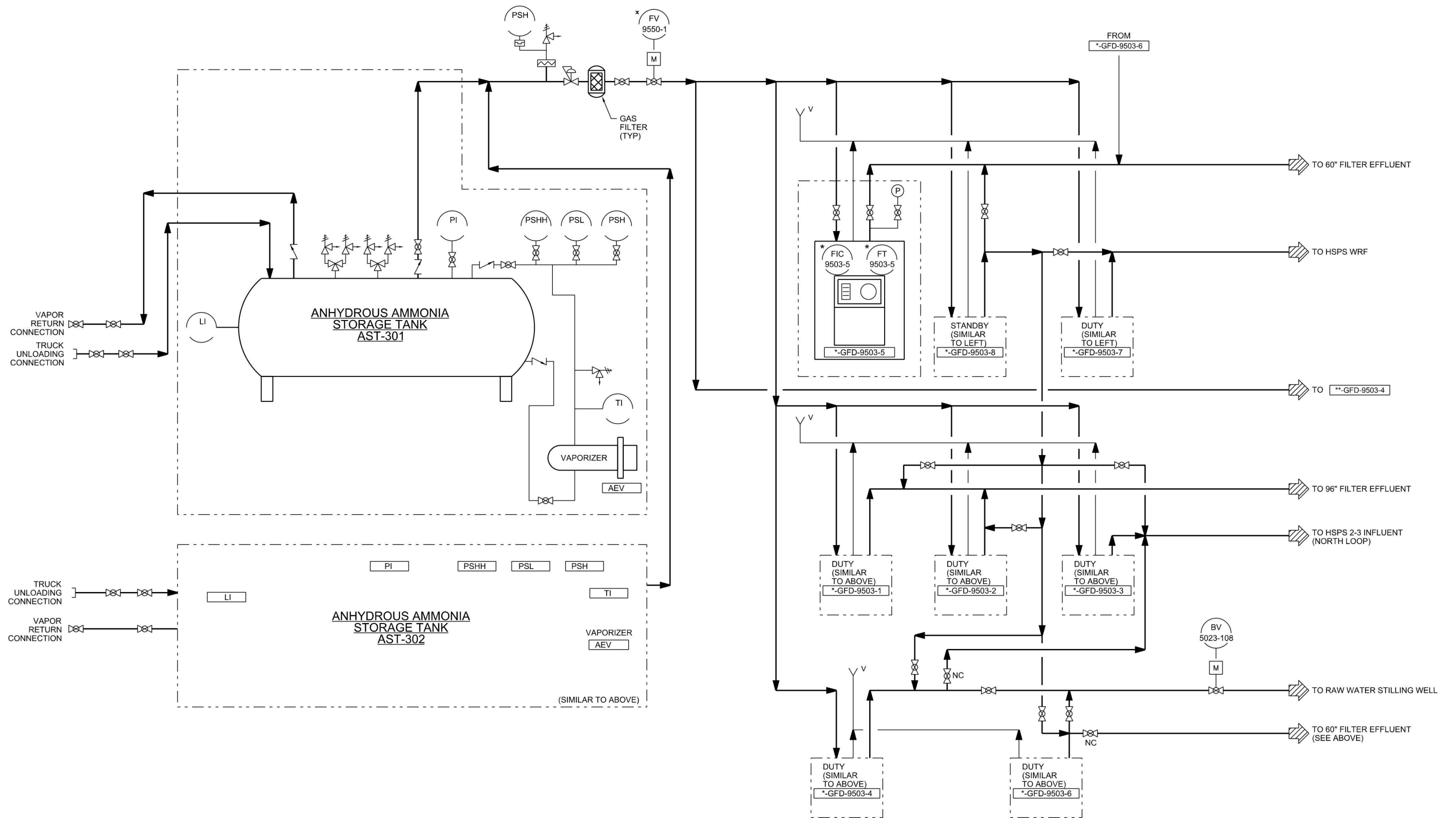
**WTP PROCESS FLOW
DIAGRAMS AND P&IDS**

ATTACHMENT A



- NOTES:**
- * - COMPLETE INSTRUMENT TAG NUMBER INCLUDES "WA3301" PREFIX.
 - NEW AMMONIATOR AGF-4 IS LOCATED WITH PLANT II AMONIATORS

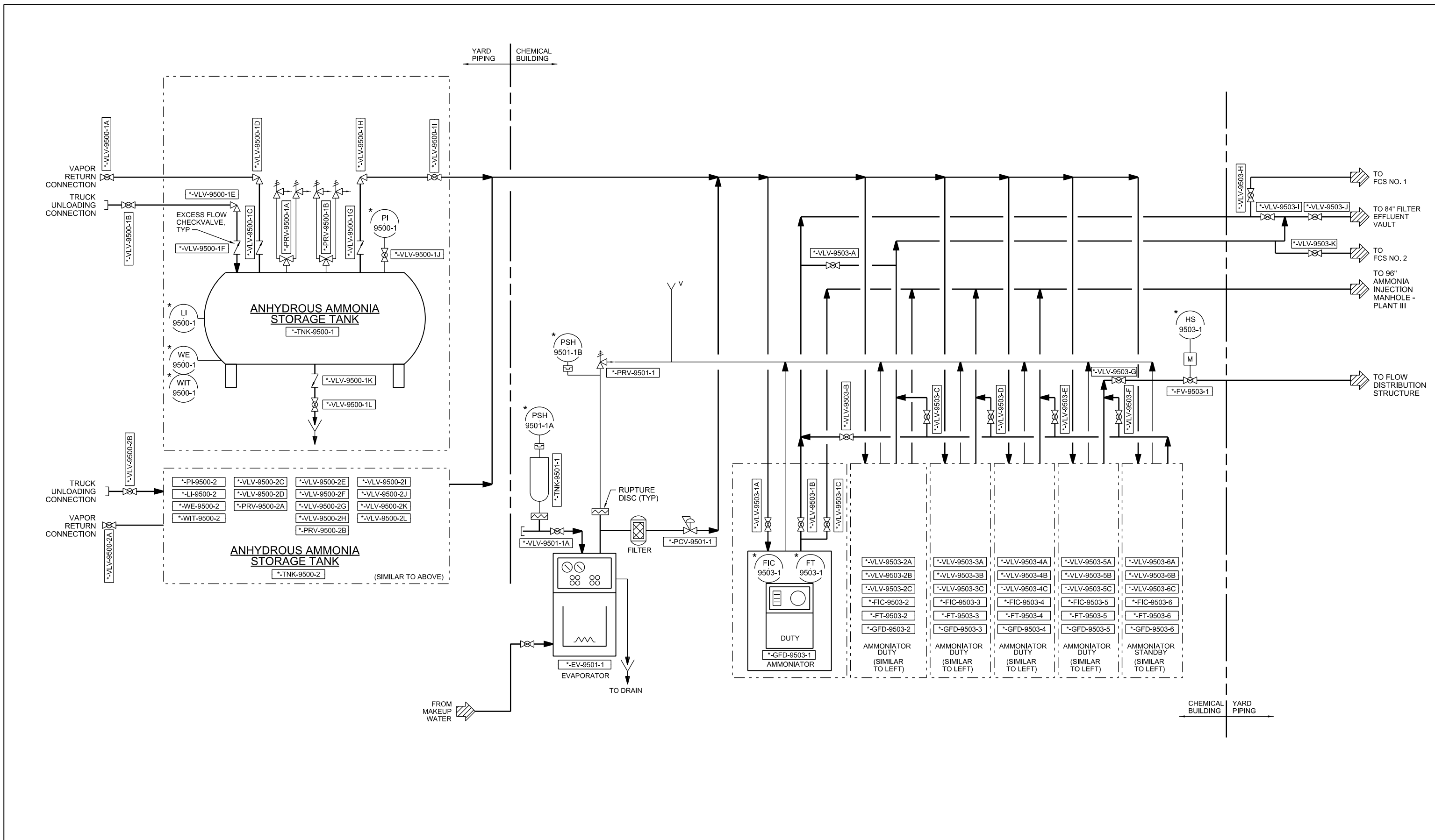
**EXHIBIT 16-5
AMMONIA FEED SYSTEM
NORTH TEXAS MUNICIPAL WATER DISTRICT
WYLIE WTP PLANT I**



NOTES:

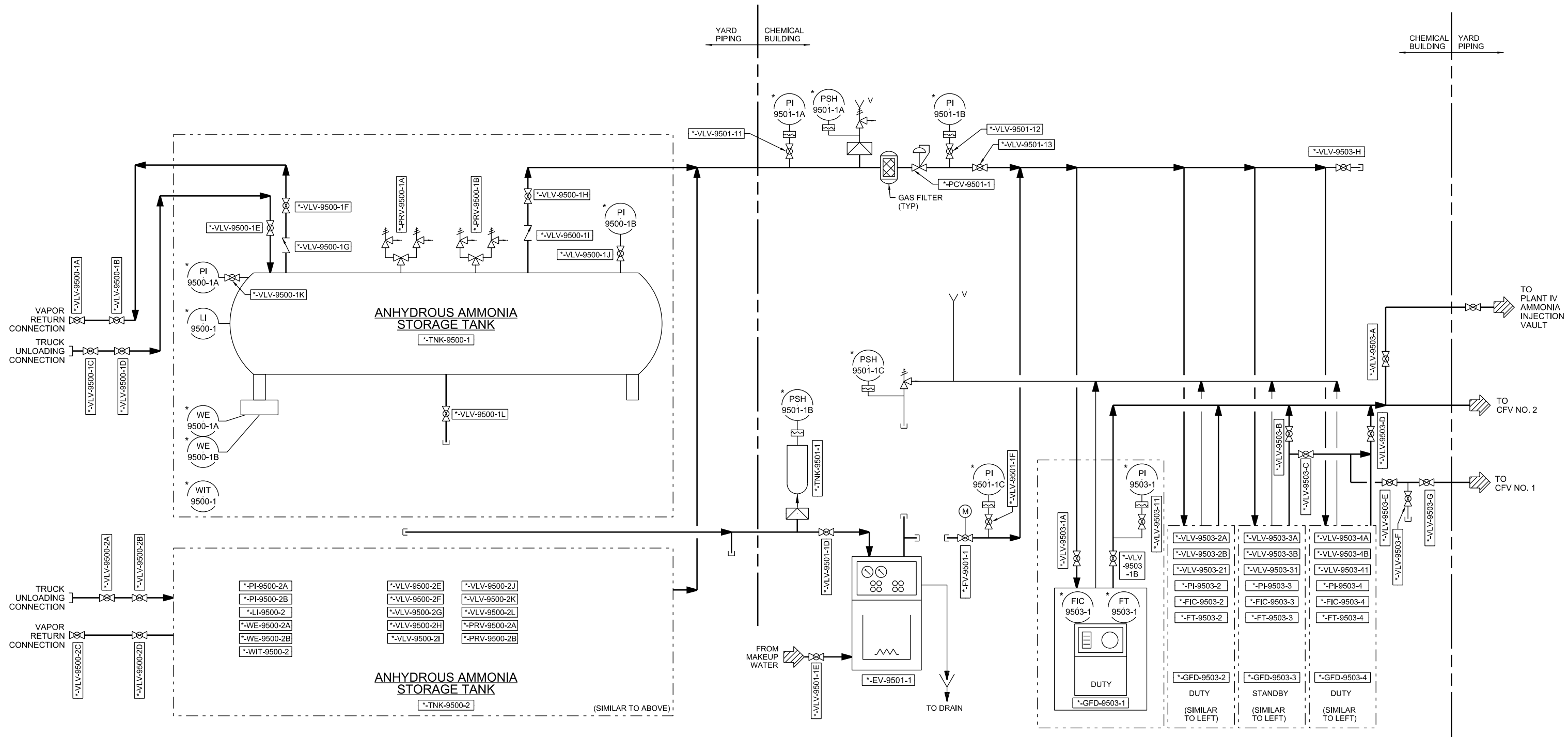
1. * - COMPLETE INSTRUMENT TAG NUMBER INCLUDES "WA3302" PREFIX
2. ** - COMPLETE INSTRUMENT TAG NUMBER INCLUDES "WA3301" PREFIX
3. (#) INDICATES THE QUANTITY OF I/O POINTS AND/OR INSTRUMENTS.

**EXHIBIT 16-5
AMMONIA FEED SYSTEM
NORTH TEXAS MUNICIPAL WATER DISTRICT
WYLIE WTP PLANT II**



- NOTES:
1. *-COMPLETE INSTRUMENT TAG NUMBER INCLUDES "WA3303" PREFIX.
 2. (#) INDICATES THE QUANTITY OF I/O POINTS AND/OR INSTRUMENTS.

EXHIBIT 17-7
AMMONIA FEED SYSTEM
 NORTH TEXAS MUNICIPAL WATER DISTRICT
 WYLIE WTP PLANT III



NOTES:
 1. *- COMPLETE INSTRUMENT TAG NUMBER INCLUDES "WA3304" PREFIX

EXHIBIT 20-6
AMMONIA FEED SYSTEM
 NORTH TEXAS MUNICIPAL WATER DISTRICT
 WYLIE WTP PLANT IV

RISK MANAGEMENT PLAN

ATTACHMENT B



**Wylie Water Treatment Plant
810 State Highway 78, Wylie, TX 75098**

**Emergency Response
Coordination Program**



North Texas Municipal Water District

Emergency Response Coordination Program

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Date: 01.22.19 CC
01.30.19 WED
02.20.19 PFD



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1.0 Introduction

On January 13, 2017, amendments to the RMP Rule were published in the code of federal regulations. In order to comply with section §68.93 of these amended rules, the management and staff of North Texas Municipal Water District has implemented an Emergency Response Coordination Program.

The management of North Texas Municipal Water District have decided to not conduct first response operations in the event of a hazardous chemical release, and therefore are not subject to the provisions of the rule amendments under §68.96.

2.0 Purpose and Policies

The management of North Texas Municipal Water District has adopted policies and procedures to comply with the following rules under section §68.93:

(a) Coordination shall occur at least annually, and more frequently if necessary, to address changes: At the stationary source; in the stationary source's emergency response and/or emergency action plan; and/or in the community emergency response plan.

(b) Coordination shall include providing to the local emergency planning and response organizations: The stationary source's emergency response plan if one exists; emergency action plan; updated emergency contact information; and any other information that local emergency planning and response organizations identify as relevant to local emergency response planning. For responding stationary sources, coordination shall also include consulting with local emergency response officials to establish appropriate schedules and plans for field and tabletop exercises required under §68.96(b). NTMWD shall request an opportunity to meet with the local emergency planning committee (or equivalent) and/or local fire department as appropriate to review and discuss these materials.

(c) NTMWD shall document coordination with local authorities, including: The names of individuals involved and their contact information (phone number, email address, and organizational affiliations); dates of coordination activities; and nature of coordination activities.

Appendix A: Emergency Response Coordination Acknowledgements

Emergency Response Coordination Acknowledgement

(To be Completed Annually)

Our organization or agency acknowledges the following:

Our organization has received, and retained in our records, the specified facility's emergency action plan and emergency contact information.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Our organization is aware of the specified facility's hazardous chemical inventory and the risks presented by those processes and chemicals.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Our organization has adequate capabilities to respond to an accidental release of the specified facility's hazardous chemical inventory.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
The specified facility's hazardous chemical inventory and process is addressed and included in the community emergency response plan.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Proposed Changes Discussed

See written repats x3

01. 22. 2019

01. 30. 2019

02. 20. 2019

Collin County EM/LEPC







Wylie FD

Plano FD





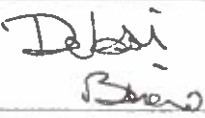

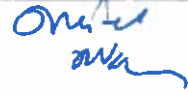
Appendix B: Emergency Response Annual Coordination Meeting Minutes

Emergency Response Annual Coordination Meeting Minutes



Date/Time	3x
Meeting Duration	1 hour
Conducted by Phone or In-Person?	Phone <input type="checkbox"/> In-Person <input checked="" type="checkbox"/>
Name of Facility	Wylie WTP
Name of Designated First Responder or Coordinating Agency	City of Wylie Fire Department City of Plano Fire Department Collin County Office of Emergency Management
Emergency Action Plan Discussed?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Updated Emergency Contact Information Discussed?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Attendee Name/Title	Affiliated Organization	Contact Information	Signature
C David Leonard Safety Emergency Management Coordinator	North Texas Municipal Water District	Office 469-626-4643 Email dleonard@ntmwd.com	
	Wylie Fire Department		
	Plano Fire Department		
JASON BROWARD	Collin County Office of Emergency Management	214 842 1496 CELL JABROWARD@ CO. COLLIN. TX. US	
Patrick Chadwick Wylie WTP Manager	NTMWD	972-442-5405 pchadwick@ntmwd.com	
David Milligan Safety of Health	NTMWD	(469) 626-4590 dmillign@ntmwd.com	
Will Allen Emergency Spec	Collin County	972-548-5581 wallen@co.collin.tx.us	
Dawn Redwine Admin FMO	Collin Co. FM/EM	972-548-5578 dr.edwine@co.collin.tx.us	

Collin
County

Attendee Name/Title	Affiliated Organization	Contact Information	Signature
C David Leonard Safety Emergency Management Coordinator	North Texas Municipal Water District	Office 469-626-4643 Email dleonard@ntmwd.com	
Brandon Blythe	Wylie Fire Department	Brandon Blythe @wylitetexas.gov	
	Plano Fire Department		
	Collin County Office of Emergency Management		
Joshua Hatheway ATM	NTMWD Environmental	214-223-6781	
D.C. Melligen	NTMWD	903 880 7864	
Debbie Bucens EMC	City of Wylie - Fire	972-429-0120 debbie_bucens@wylitetexas.gov	
Patrick Chadwick	NTMWD	972-442-5905 pchadwick@ntmwd.com	
Michael Walker	NTMWD	469-626-4645 mwalker@ntmwd.com	

Wylie WTP

Attendee Name/Title	Affiliated Organization	Contact Information	Signature
C David Leonard Safety Emergency Management Coordinator	North Texas Municipal Water District	Office 469-626-4643 Email dleonard@ntmwd.com	
	Wylie Fire Department		
	Plano Fire Department		
	Collin County Office of Emergency Management		

Alamo FD



North Texas Municipal Water District

**Wylie WTP
Emergency Action Plan**

NTMWD REGIONAL WATER TREATMENT PLANT
EMERGENCY RESPONSE PLAN

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NTMWD REGIONAL WATER TREATMENT PLANT EMERGENCY RESPONSE PLAN

PURPOSE

The purpose of the Emergency Response Plan (ERP) is to minimize the duration of an accidental release, thereby protecting the public health and the environment, and to provide guidance to local emergency personnel.

1.0 TYPES OF EMERGENCY

a. Chlorine Release

In the event of an equipment or human failure, potential sources for chlorine releases are:

1. 90-ton chlorine rail cars (12)
2. Chlorine tree and piping
3. Chlorine Evaporators (12)
4. Chlorine regulators
5. Chlorine whips
6. Chlorinators

b. Ammonia Release

In the event of an equipment or human failure, potential sources for Ammonia releases are:

1. 20-ton Ammonia containers (2)
2. 2-ton Ammonia containers (2)
3. 30-ton Ammonia containers (4)
4. Ammonia tree and piping
5. Ammonia Heater
6. Ammonia regulators
7. ½ ton Ammonia Feeders
8. Ammonia Evaporators (2)
9. Ammonia Heaters (6)

2.0 SCOPE

This plan includes criteria for addressing the following types of releases:

- a. A chlorine and ammonia release contained within the plant facilities and controllable by technician level personnel and equipment.
- b. A chlorine and ammonia release affecting or with the potential to affect the area surrounding the facility; such a release would require outside assistance.

3.0 PLANNING FOR HANDLING THE EMERGENCY

Responsibility:

The Senior Plant Supervisor is ultimately responsible for the implementation of the Emergency Response Plan (ERP). He is responsible for insuring that all employees are properly trained, and that proper personnel are notified when revisions are needed to the ERP.

Activity	Responsibility		
	Day shift	Evening Shift	Night Shift
Initiating the emergency response plan	SPS	ODO	ODO
Overall coordination	WFD	WFD	WFD
Agency notification	WFD	WFD	WFD
Emergency repair	WFD	WFD	WFD
Employee accounting	ODO	ODO	ODO
Visitor accounting	ODO	ODO	ODO

ODO – On Duty Operator
SC – Safety Coordinator
SPS – Senior Plant Supervisor
CRO – Control Room Operator
WFD – Wylie Fire Department

Note 1: In the event that one of the above positions is not available, the SPS shall assign an operator to assume the responsibilities for that position.

3.1 OVERALL EMERGENCY RESPONSE COORDINATION

In the event of a release during regular hours, operators are trained and able to evaluate the severity of a release. Operators have received a level of training that will allow them to control incidental releases that do not pose a threat for off-site consequences, such as closing a valve. Responding to an incidental release is not considered an emergency response within the scope of this plan.

3.2 EMERGENCY RESPONSE SITUATIONS

All plant personnel should respond to an alarm by noting the wind direction and proceeding to the predetermined assembly area. All non-essential personnel and visitors will be escorted to and accounted for at the assembly area. Until the arrival of the WFD, the SPS will assume overall coordination responsibilities. The SPS will assign two operators to evaluate the alarm.

If a release occurs during regular hours, the SPS will respond by contacting the Fire Department and then the CRO. The CRO will respond by dispatching the SC to the corresponding checkpoint. If an incident occurs during the evening or night shifts, or weekends, the ODO will respond by contacting the Fire Department and then the CRO to request that the WFD be dispatched to the corresponding checkpoint.

If the evaluating operators determine that a release can be controlled by simply turning off a valve at the chlorine tank or header then they should do so if it can be performed without risk to their safety. The operator should immediately notify the PS so the situation can be evaluated and an incident investigation can begin.

In the event of a major leak where off-site evacuations are necessary, the local fire department will oversee all evacuation operations.

3.3 DECONTAMINATION

In the event of a chlorine release, the compound will primarily exist in a gaseous state, although it may also be present in a liquid state. Decontamination procedures, if necessary, may consist of spraying water, containing an antibacterial agent, on the repair personnel in order to remove chlorine residue from their protective clothing, once they enter the decontamination zone. Litmus paper will be available to test the pH of the rinse water.

3.4 CHECKPOINTS

The initial wind direction should be determined at the checkpoint.

1. Checkpoint A is located in the front parking lot of the City of Wylie Municipal Complex.
2. Checkpoint B is located at the corner of F.M. 544 and HWY 78 (Brookshire's parking lot).
3. Checkpoint C is located at the corner of Ballard and Brown Streets.

4.0 EMERGENCY RESPONSE – SEQUENCE OF EXECUTION

Various circumstances may lead to an emergency situation. The following sequence is intended to be used as a guideline. The emergency situation will dictate the response procedure.

Day Shift

1. All plant personnel should respond to an alarm by noting the wind direction and the chemical being released. The plant personnel should then proceed to a predetermined assembly area.
2. ODO will account for all personnel.
3. The ODO will account for and escort all visitors to the assembly area.
4. If anyone is unaccounted, the SPS is to be immediately notified. In the absence of the SPS, the CRO will be notified.
5. The SPS will assign two operators, who have received at a minimum awareness level training, to evaluate the alarm.
6. **If the evaluating operators determine that the leak can not be controlled by simply shutting off a valve (See Step 7), they are to evacuate the immediate area and inform the SPS.**
 - i. **The SPS should dial 911 and ask for the fire department.**
 - ii. **The SPS should then contact the CRO and request that the SC be dispatched to the checkpoint. The CRO should be informed that the fire department was notified.**
 - iii. **The SPS, remaining plant personnel, and visitors should then proceed to the checkpoint.**
 - iv. **The SPS should brief the WFD, SC and other NTMWD members that arrive.**
 - v. **Upon arrival, the fire department will assume command duties.**
 - vi. **The SC shall coordinate between the NTMWD personnel and the fire department.**
 - vii. **The appropriate NTMWD officials should be notified of the incident by the SC.**
7. If determined the release is small and can be contained by plant personnel (not installing a repair kit), the SPS should be notified. The SPS or his designated representative will don the appropriate protective clothing and SCBA to contain the release. The evaluating operators should evacuate the immediate area but stay in contact with the SPS.
8. All other plant personnel should meet at the assembly area.
9. If the release can not be contained, the WFD should be contacted and the SC.

Evening and Night Shift

1. All plant personnel should respond to an alarm by noting the wind direction and the chemical being released. The plant personnel should then proceed to a predetermined assembly area.
2. The ODO will inform the CRO that an alarm was activated and an evaluation will immediately be performed. The ODO should then evaluate the alarm. If alone, the ODO should call the SPS first then proceed with extreme caution. If a leak has been verified by the ODO, the guidelines

as listed under step 3 should be followed. If it is determined that it is a minor release, the guidelines as of step 4 should be followed.

3. **The ODO should dial 911 and ask for the fire department.**
 - i. **The ODO should contact the SPS and request that the SPS and SC be dispatched to the checkpoint. The CRO should be informed that the fire department was notified.**
 - ii. **The ODO and remaining plant personnel should then proceed to the checkpoint and brief the FD, SC and SPS.**
 - iii. **Upon arrival, the fire department will assume command duties.**
 - iv. **The appropriate NTMWD officials will be notified by the SC.**
4. If it is a minor release and can be controlled by closing a valve at the chlorine container (not installing a repair kit) the ODO should do so if there is no risk to his/her safety. If assistance is needed the ODO should wait upon arrival of the SPS.
5. Once the SPS is on site and the necessary personnel have been assembled the SPS may don appropriate PPE and SCBA to close valve(s) at chlorine container or on header. The evaluating operators should evacuate the immediate area but stay in contact with the SPS.

4.1 **ALARMS**

Detection devices are strategically placed around the chlorine and Ammonia storage area, any of which can initiate an alarm. The alarm will alert plant personnel of a possible release.

4.2 **ASSEMBLY AREA**

- | | | |
|-----------|---|--|
| Primary | - | Administration Building Back Parking Lot |
| Secondary | - | Rear Entrance Gate at Plant III |
| Tertiary | - | Plant 4 Gate |

If an alarm is triggered, each employee is to report to the primary assembly area. If inaccessible, the employee should report to the secondary assembly area. Each employee should be aware of any chlorine or ammonia release, and should note the wind direction by observing the wind vane or sock. Employees should walk crosswind or stay upwind of any chlorine or ammonia release.

5.0 **EMERGENCY MEDICAL TREATMENT AND FIRST AID**

In the event someone is overcome by NH_3 or Cl_2 , call 911 for emergency medical treatment. Remove the individual from the contaminated area and wash the affected parts of the body with large amounts of water. If the clothing is affected, the clothes should be removed and washed thoroughly. Medical attention from a doctor should be sought immediately.

Keep the individual warm and in a reclining position with the head and shoulders slightly elevated. Keep the individual quiet and calm.

Asphyxiation – Usually cases of asphyxiation are rare due to the repelling odors associated with Cl₂ and NH₃. If the individual has stopped breathing, remove the person from the contaminated area and start artificial respiration immediately. Contact the fire department, as they are trained and have the necessary equipment to handle this type of emergency.

Eyes – If Cl₂ or NH₃ gets into the eyes, wash the eyes immediately with large amounts of water from an eye-wash or running hose. Keep the eyelids open and wash for at least 15 minutes. Do not give medication. Inform medically trained personnel immediately.

6.0 PLANT EVACUATION

Initial evacuation from the plant site shall be determined by the wind direction. Evacuation shall be made from a location not downstream of the release. If injuries have occurred, those individuals should be moved to a safe area, (up-wind) and transported by emergency vehicles only. In the event that evacuation is necessary, all non-essential personnel and visitors will be evacuated offsite.

7.0 EVENING AND NIGHT SHIFT

Between the hours of 5:00 pm and 8:00 am, all entrances to the plant are closed and locked. In the event of an emergency, the ODO should follow the sequence of execution as stated under Section 4.0, Evening and Night Shift.

If alone, the operator is to proceed with extreme caution. At no time is an operator to attempt a repair alone.

8.0 OUTSIDE ASSISTANCE

The SPS or the ODO requesting outside assistance will brief the outside responders at the checkpoint.

9.0 OFF-SITE EVACUATION

Evacuations will be the sole responsibility of the local fire department and or local emergency response officials. The fire department will make all necessary notifications and recommendations to affected individuals.

10.0 FIRE

In the event of a fire, the local fire department will be immediately dispatched to the affected site. Fire officials will be made aware of the various chemicals, exact quantities and their locations prior to entering the site.

11.0 ALL CLEAR

The Incident Commander is to give the all clear signal when the emergency condition is eliminated. This notification is to be given verbally to all plant employees and emergency responders that are present at the site. The fire department will be in charge of notifying all individuals evacuated under its' direction.

12.0 TORNADO WARNING

If a tornado warning is received from the National Weather Service or other agencies, and the plant will be impacted by the severe weather then the plant superintendent or his representative is to determine if the Chlorine and Ammonia feed is to be shut down. This will be done only in extreme emergency conditions as shutting off the Chlorine and Ammonia feed may result in a Chlorine residual below regulatory limits. This would be a violation of the plant permit. **The only time this action should be performed is when the weather conditions could cause damage to the Chlorine or Ammonia facilities, resulting in a leak.**

1.5.m. Source Map Scale Number:

Owner or Operator

1.6.a. Operator Name: N. Texas Municipal Water District
1.6.b. Operator Phone: (972) 442-5405

Mailing Address

1.6.c. Operator Street 1: P.O. Box 2408
1.6.d. Operator Street 2:
1.6.e. Operator City: Wylie
1.6.f. Operator State: TEXAS
1.6.g. Operator ZIP: 75098
Operator ZIP4:
1.6.f. Operator Foreign State or Province:
1.6.h. Operator Foreign ZIP:
1.6.g. Operator Foreign Country:

Name and title of person or position responsible for Part 68 (RMP) Implementation

1.7.a. RMP Name of Person: Zeke Campbell
1.7.b. RMP Title of Person or Position: Water Systems Manager
1.7.c. RMP E-mail Address: zcampbell@ntmwd.com

Emergency Contact

1.8.a. Emergency Contact Name: Joshua Hathaway
1.8.b. Emergency Contact Title: Environmental Compliance Manager
1.8.c. Emergency Contact Phone: (214) 223-6481
1.8.d. Emergency Contact 24-Hour Phone: (214) 223-6481
1.8.e. Emergency Contact Ext. or PIN:
1.8.f. Emergency Contact E-mail Address: jhathaway@NTMWD.com

Other Points of Contact

1.9.a. Facility or Parent Company E-mail Address
1.9.b. Facility Public Contact Phone
1.9.c. Facility or Parent Company WWW Homepage Address: www.ntmwd.com

Local Emergency Planning Committee

1.10. LEPC: Collin County LEPC

Full Time Equivalent Employees

1.11. Number of Full Time Employees (FTE) on Site: 198
FTE Claimed as CBI:

Covered By

1.12.a. OSHA PSM:
1.12.b. EPCRA 302: Yes
1.12.c. CAA Title V:



North Texas Municipal Water District

Wylie WTP Safety Data Sheets

SAFETY DATA SHEET

Airgas
an Air Liquide company

Ammonia

Section 1. Identification

GHS product identifier	: Ammonia
Chemical name	: ammonia
Other means of identification	: ammonia; anhydrous ammonia
Product type	: Gas.
Product use	: Synthetic/Analytical chemistry.
Synonym	: ammonia; anhydrous ammonia
SDS #	: 001003
Supplier's details	: Airgas USA, LLC and its affiliates 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
24-hour telephone	: 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	: FLAMMABLE GASES - Category 2 GASES UNDER PRESSURE - Liquefied gas ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION - Category 1 SERIOUS EYE DAMAGE - Category 1 AQUATIC HAZARD (ACUTE) - Category 1

GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: Flammable gas.
May form explosive mixtures with air.
Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.
Harmful if inhaled.
Causes severe skin burns and eye damage.
Very toxic to aquatic life.

Precautionary statements

General

: Read and follow all Safety Data Sheets (SDS'S) before use. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Approach suspected leak area with caution.

Prevention

: Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Avoid breathing gas. Wash hands thoroughly after handling.

Section 2. Hazards identification

- Response** : Collect spillage. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.
- Storage** : Store locked up. Protect from sunlight. Store in a well-ventilated place.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazards not otherwise classified** : In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

Section 3. Composition/information on ingredients

- Substance/mixture** : Substance
- Chemical name** : ammonia
- Other means of identification** : ammonia; anhydrous ammonia
- Product code** : 001003

CAS number/other identifiers

- CAS number** : 7664-41-7

Ingredient name	%	CAS number
ammonia	100	7664-41-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention immediately. Call medical doctor or poison control center immediately. Chemical burns must be treated promptly by a physician.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately. Call medical doctor or poison control center immediately. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Continue to rinse for at least 10 minutes. Get medical attention immediately. Call medical doctor or poison control center immediately. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Section 4. First aid measures

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : Harmful if inhaled.
- Skin contact** : Causes severe burns.
- Frostbite** : Try to warm up the frozen tissues and seek medical attention.
- Ingestion** : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following: pain, watering, redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following: pain or irritation, redness, blistering may occur
- Ingestion** : Adverse symptoms may include the following: stomach pains

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

Specific hazards arising from the chemical

- : Contains gas under pressure. Flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is very toxic to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products

- : Decomposition products may include the following materials: nitrogen oxides

Special protective actions for fire-fighters

- : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters

- : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- Environmental precautions** : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up

- Small spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.
- Large spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Do not breathe gas. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Refer to ANSI/CGA G-2.1, Section 5.13 for electrical classification of anhydrous ammonia storage and handling areas. Where anhydrous ammonia is stored indoors, use electrical (ventilating, lighting and material handling) equipment with the appropriate electrical classification rating and use only non-sparking tools.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
ammonia	<p>California PEL for Chemical Contaminants (Table AC-1) (United States). PEL: 25 ppm 8 hours. STEL: 35 ppm 15 minutes.</p> <p>ACGIH TLV (United States, 3/2017). TWA: 25 ppm 8 hours. TWA: 17 mg/m³ 8 hours. STEL: 35 ppm 15 minutes. STEL: 24 mg/m³ 15 minutes.</p> <p>OSHA PEL 1989 (United States, 3/1989). STEL: 35 ppm 15 minutes. STEL: 27 mg/m³ 15 minutes.</p> <p>NIOSH REL (United States, 10/2016). TWA: 25 ppm 10 hours. TWA: 18 mg/m³ 10 hours. STEL: 35 ppm 15 minutes. STEL: 27 mg/m³ 15 minutes.</p> <p>OSHA PEL (United States, 6/2016). TWA: 50 ppm 8 hours. TWA: 35 mg/m³ 8 hours.</p>

Appropriate engineering controls

- : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

- : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

- : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection

- : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection

- : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-

Section 8. Exposure controls/personal protection

- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Gas. [Compressed gas.]
- Color** : Colorless.
- Odor** : Pungent.
- Odor threshold** : Not available.
- pH** : Approx. 11.6
- Melting point** : -77.7°C (-107.9°F)
- Boiling point** : -33°C (-27.4°F)
- Critical temperature** : 132.85°C (271.1°F)
- Flash point** : Not available.
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Extremely flammable in the presence of the following materials or conditions: oxidizing materials.
- Lower and upper explosive (flammable) limits** : Lower: 16%
Upper: 25%
- Vapor pressure** : 114.1 (psig)
- Vapor density** : 0.59 (Air = 1)
- Specific Volume (ft³/lb)** : 20.79
- Gas Density (lb/ft³)** : 0.0481 (32°C / 89.6 to °F)
- Relative density** : SPECIFIC GRAVITY (AIR=1): @ 70°F (21.1°C) = 0.59
- Solubility** : Soluble in water. Soluble in alcohol and ether.
- Solubility in water** : 540 g/l
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : 651°C (1203.8°F)
- Decomposition temperature** : Not available.
- Viscosity** : Not applicable.
- Flow time (ISO 2431)** : Not available.
- Molecular weight** : 17.03 g/mole
- Aerosol product**
- Heat of combustion** : -18589392 J/kg

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

Section 10. Stability and reactivity

Compatible materials : Oxidizers and Yellow Metals (brass & copper)

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
ammonia	LC50 Inhalation Gas.	Rat	7338 ppm	1 hours

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye damage.

Inhalation : Harmful if inhaled.

Skin contact : Causes severe burns.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following: pain, watering, redness

Inhalation : No specific data.

Section 11. Toxicological information

Ingestion : Adverse symptoms may include the following:, stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Other information : IDLH : 300 ppm

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
ammonia	Acute EC50 29.2 mg/l Marine water	Algae - Ulva fasciata - Zoea	96 hours
	Acute LC50 2080 µg/l Fresh water	Crustaceans - Gammarus pulex	48 hours
	Acute LC50 0.53 ppm Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 300 µg/l Fresh water	Fish - Hypophthalmichthys nobilis	96 hours
	Chronic NOEC 0.204 mg/l Marine water	Fish - Dicentrarchus labrax	62 days

Persistence and degradability

Not available.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.












Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1005	UN1005	UN1005	UN1005	UN1005
UN proper shipping name	AMMONIA, ANHYDROUS	AMMONIA, ANHYDROUS; OR ANHYDROUS AMMONIA	AMMONIA, ANHYDROUS	AMMONIA, ANHYDROUS	AMMONIA, ANHYDROUS
Transport hazard class(es)	2.2 	2.3 (8)   	2.3 (8)  	2.3 (8)   	2.3 (8)  
Packing group	-	-	-	-	-
Environmental hazards	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.	Yes.	Yes. The environmentally hazardous substance mark is not required.

“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”

Additional information

DOT Classification

: Inhalation hazard
This product is not regulated as a marine pollutant when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes, provided the packagings meet the general provisions of §§ 173.24 and 173.24a. **Reportable quantity** 100 lbs / 45.4 kg. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements. **Limited quantity** Yes. **Quantity limitation** Passenger aircraft/rail: Forbidden. Cargo aircraft: Forbidden. **Special provisions** 13,T50

TDG Classification

: Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2), 2.40-2.42 (Class 8), 2.7 (Marine pollutant mark). The marine pollutant mark is not required when transported by road or rail. **Explosive Limit and Limited Quantity Index** 0
ERAP Index 3000
Passenger Carrying Ship Index Forbidden

Section 14. Transport information

Special provisions

- Mexico Classification** : Toxic Inhalation Hazard Zone D
- IMDG** : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
- IATA** : The environmentally hazardous substance mark may appear if required by other transportation regulations.
- Quantity limitation** Passenger and Cargo Aircraft: Forbidden. Cargo Aircraft Only: Forbidden. Limited Quantities - Passenger Aircraft: Forbidden.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : TSCA 8(a) CDR Exempt/Partial exemption: Not determined
Clean Water Act (CWA) 311: ammonia

Clean Air Act (CAA) 112 regulated toxic substances: ammonia

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
ammonia	100	Yes.	500	-	100	-

SARA 304 RQ : 100 lbs / 45.4 kg

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	ammonia	7664-41-7	100
Supplier notification	ammonia	7664-41-7	100

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Section 15. Regulatory information

- New York** : This material is listed.
New Jersey : This material is listed.
Pennsylvania : This material is listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

- Australia** : This material is listed or exempted.
Canada : This material is listed or exempted.
China : This material is listed or exempted.
Europe : This material is listed or exempted.
Japan : **Japan inventory (ENCS)**: This material is listed or exempted.
Japan inventory (ISHL): This material is listed or exempted.
Malaysia : This material is listed or exempted.
New Zealand : This material is listed or exempted.
Philippines : This material is listed or exempted.
Republic of Korea : This material is listed or exempted.
Taiwan : This material is listed or exempted.
Thailand : Not determined.
Turkey : This material is listed or exempted.
United States : This material is listed or exempted.
Viet Nam : Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	3
Flammability	1
Physical hazards	2

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)

Section 16. Other information



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
FLAMMABLE GASES - Category 2	Expert judgment
GASES UNDER PRESSURE - Liquefied gas	Expert judgment
ACUTE TOXICITY (inhalation) - Category 4	Expert judgment
SKIN CORROSION - Category 1	Expert judgment
SERIOUS EYE DAMAGE - Category 1	Expert judgment
AQUATIC HAZARD (ACUTE) - Category 1	Expert judgment

History

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Key to abbreviations : ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 UN = United Nations

References : Not available.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.



Section 1: Identification

Product identifier

Product Name • Chlorine
CAS Number • 7782-50-5

Relevant identified uses of the substance or mixture and uses advised against

Recommended use • Disinfectant and/or algicide; manufacturing process

Details of the supplier of the safety data sheet

Manufacturer • Axiall, LLC
1000 Abernathy Rd. NE, Suite 1200
Atlanta, GA 30328
United States
www.axiall.com
msdsinfo@axiall.com

Telephone (General) • +1 225-685-1240

Supplier • Axiall Canada, Inc.
31, rue de L'Industrie
Beauharnois J6N 1W5
Canada

Telephone (General) • 450-429-4641

Telephone (General) • 450-429-3326 - FAX

Emergency telephone number

Manufacturer • +1 304-455-6882

Section 2: Hazard Identification

United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

Classification of the substance or mixture

OSHA HCS 2012 • Oxidizing Gases 1
Liquefied Gas
Skin Corrosion 1A
Serious Eye Damage 1
Acute Toxicity Inhalation 2
Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation

Label elements

OSHA HCS 2012

DANGER



- Hazard statements**
- May cause or intensify fire; oxidizer
 - Contains gas under pressure; may explode if heated
 - Causes severe skin burns and eye damage.
 - Causes serious eye damage
 - Fatal if inhaled
 - May cause respiratory irritation

Precautionary statements

- Prevention**
- Keep/Store away from clothing and other combustible materials.
 - Keep reduction valves free from grease and oil.
 - Do not breathe gas/mist/vapours/spray.
 - Wash thoroughly after handling.
 - Use only outdoors or in a well-ventilated area.
 - Wear protective gloves/protective clothing/eye protection/face protection.
 - Wear respiratory protection.
 - In case of inadequate ventilation wear respiratory protection.

- Response**
- In case of fire: Stop leak if safe to do so.
 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 - Specific treatment is urgent (see supplemental first aid instructions on this label).
 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 - Wash contaminated clothing before reuse.
 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - Immediately call a POISON CENTER or doctor/physician.
 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

- Storage/Disposal**
- Store in a well-ventilated place. Keep container tightly closed.
 - Store locked up.
 - Protect from sunlight.
 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Other hazards

OSHA HCS 2012

- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to: WHMIS 2015

Classification of the substance or mixture

WHMIS 2015

- Oxidizing Gases 1
- Liquefied Gas
- Skin Corrosion 1A
- Serious Eye Damage 1
- Acute Toxicity Inhalation 2
- Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation

Label elements

WHMIS 2015

DANGER



- Hazard statements** • May cause or intensify fire; oxidizer
 Contains gas under pressure; may explode if heated
 Causes severe skin burns and eye damage.
 Causes serious eye damage
 Fatal if inhaled
 May cause respiratory irritation

Precautionary statements

- Prevention** • Keep away from clothing and other combustible materials.
 Keep valves and fittings free from oil and grease.
 Do not breathe gas.
 Wash thoroughly after handling.
 Use only outdoors or in a well-ventilated area.
 Wear protective gloves/protective clothing/eye protection/face protection.
 In case of inadequate ventilation wear respiratory protection.
- Response** • In case of fire: Stop leak if safe to do so.
 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 Specific treatment is urgent (see supplemental first aid instructions on this label).
 Call a POISON CENTER/doctor/ if you feel unwell.
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
 Specific treatment, see supplemental first aid information.
 Wash contaminated clothing before reuse.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 Immediately call a POISON CENTER/doctor/ .
 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

- Storage/Disposal** • Store in a well-ventilated place. Keep container tightly closed.
 Protect from sunlight.
 Store locked up.
 Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Other hazards

WHMIS 2015

- In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Section 3 - Composition/Information on Ingredients

Substances

Composition				
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive
Chlorine	CAS:7782-50-5	>= 99.5%	NDA	OSHA HCS 2012: Press Gas - Liq; Ox. Gas 1; Eye Dam. 1; Skin Corr. 1A; Acute Tox. 2 (Inhl)

Mixtures

- Material does not meet the criteria of a mixture.

Section 4: First-Aid Measures

Description of first aid measures

Inhalation

- If inhaled: After properly protecting yourself, move person to fresh air. Contact a poison control center, emergency room or physician as soon as possible as further treatment will be necessary. If person is not breathing, call 911 or an ambulance, then give artificial respiration immediately. Trained personnel should administer humidified oxygen.

Skin

- If on Skin or Clothing (contact with liquid chlorine): Use emergency shower immediately for at least 15 minutes. Remove contaminated clothing under the shower. Call a Poison Control Center or doctor for treatment advice. If on skin (contact with gaseous chlorine): Immediately change contaminated clothing and wash contaminated area with soap and water. Refer to a physician if irritation persists or if the skin is blistered or broken.

Eye

- If in Eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. If contact lenses are present, remove the lenses after the first 5 minutes, then continue rinsing eye. Call a Poison Control Center or doctor for treatment advice.

Ingestion

- If swallowed, rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Do not use mouth-to-mouth method if victim ingested the substance. Obtain medical attention immediately if ingested. Contact 304-455-6882 or your Poison Control Center for 24-hour emergency medical treatment information. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

Indication of any immediate medical attention and special treatment needed

Notes to Physician

- Symptoms may become more severe up to 36 hours after exposure including pulmonary edema. Excellent warning properties force rapid escape from chlorine gas. Exposure to high concentrations for a short time can result in acute respiratory failure with later complications being tracheobronchopneumonitis and pulmonary edema. A person with a severe inhalation exposure should be hospitalized and treated as a respiratory emergency. Any chlorine exposure in an individual with compromised pulmonary function (COPD) should be regarded as a severe inhalation and as a respiratory emergency.

Section 5: Fire-Fighting Measures

Extinguishing media

Suitable Extinguishing Media • In case of fire use media as appropriate for surrounding fire.

Unsuitable Extinguishing Media

- None known.

Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards

- Containers may explode when heated. Ruptured cylinders may rocket. Cylinders exposed to fire may vent and release toxic and/or corrosive gas through pressure relief devices. Vapors from liquefied gas are initially heavier than air and spread along ground. May ignite combustibles (wood, paper, oil, clothing, etc.) Chlorine will support combustion. It reacts readily with hydrocarbons, alcohols, ethers, and some metals, possibly with explosive violence. It will react with (burn) steel containers at temperatures above 450°F (232°C). These are strong oxidizers and will react vigorously or explosively with many materials including fuels.

Hazardous Combustion Products

- Depending on conditions, decomposition products may include the following materials: halogenated compounds.

Advice for firefighters

- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.

Wear positive pressure self-contained breathing apparatus (SCBA).

Move containers from fire area if you can do it without risk.

LARGE FIRES: Cool containers with flooding quantities of water until well after fire is out.

LARGE FIRES: Dike fire-control water for later disposal.

Section 6 - Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Personal Precautions

- Ventilate the area before entry. Do not walk through spilled material. Wear a self-contained breathing apparatus and appropriate Personal Protective Equipment (PPE). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. If you have not donned special protective clothing approved for this material, do not expose yourself to any risk of this material touching you.

Emergency Procedures

- **ELIMINATE** all ignition sources (no smoking, flares, sparks or flames in immediate area). As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Do not get water inside container. Ventilate closed spaces before entering.

Environmental precautions

- Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Containment/Clean-up Measures

- Stop leak if you can do it without risk.
Do not direct water at spill or source of leak.
If possible, turn leaking containers so that gas escapes rather than liquid.
Use water spray to reduce vapors or divert vapor cloud drift.
Avoid allowing water runoff to contact spilled material.
Dike to collect large liquid spills.
Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

Section 7 - Handling and Storage

Precautions for safe handling

Handling

- Use only in well ventilated areas. Wear appropriate personal protective equipment, avoid direct contact. Do not breathe gas, mist, vapors, spray. Do not get in eyes, on skin, or on clothing. Personnel near or handling chlorine should at all times, carry a NIOSH approved chemical cartridge type escape respirator and be trained in its use. High pressure gas. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Never, place a leaking container in water or spray leaking container with water. Never tamper with fusible plugs or safety devices on containers; never manifold containers from liquid valves. Make sure piping is dry and free of contamination of any type before admitting chlorine. Use only dry, oil-free air (-40°F dew point minimum) or oil-free nitrogen for purging, testing for leaks, or padding. Toxic to aquatic life. Keep out of waterways. Axial ships chlorine in bulk tank cars, tank trucks, barges and by pipeline. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

Conditions for safe storage, including any incompatibilities

Storage

- Keep container tightly closed. Store in a cool, dry, well-ventilated place. Keep away from heat and moisture. Heating could melt plugs on cylinders and tank tanks and cause safety valves on tank cars to vent, causing leaks. Moisture (more than 150 ppm or water) and chlorine can form hydrochloric and hypochlorous acids, which are corrosive. Do not store near combustible materials.

Section 8 - Exposure Controls/Personal Protection

Control parameters

Exposure Limits/Guidelines						
	Result	ACGIH	Canada British Columbia	Canada Ontario	Canada Quebec	NIOSH
Chlorine (7782-50-5)	STELs	1 ppm STEL	1 ppm STEL	1 ppm STEL	1 ppm STEV; 2.9 mg/m ³ STEV	Not established
	TWAs	0.5 ppm TWA	0.5 ppm TWA	0.5 ppm TWA	0.5 ppm TWAEV; 1.5 mg/m ³ TWAEV	Not established
	Ceilings	Not established	Not established	Not established	Not established	0.5 ppm Ceiling (15 min) 1.45 mg/m ³ Ceiling (15 min)
Exposure Limits/Guidelines (Con't.)						
	Result	OSHA				
Chlorine (7782-50-5)	Ceilings	1 ppm Ceiling; 3 mg/m ³ Ceiling				

Exposure controls

Engineering Measures/Controls

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal Protective Equipment

Respiratory

- If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Eye/Face

- Wear chemical splash goggles and face shield.

Skin/Body

- Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. HANDS: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Environmental Exposure Controls

- Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways. Follow best practice for site management and disposal of waste.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

NIOSH = National Institute of Occupational Safety and Health

OSHA = Occupational Safety and Health Administration

STEL = Short Term Exposure Limits are based on 15-minute exposures

STEV = Short Term Exposure Value

TWAEV = Time-Weighted Average Exposure Value

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

Section 9 - Physical and Chemical Properties

Information on Physical and Chemical Properties

Material Description

Physical Form	Gas under ambient conditions or liquid under pressure	Appearance/Description	Gas under ambient conditions or liquid under pressure. Gas is yellowish to green in color. Liquid is amber in color. Pungent odor.
Color	Gas is yellowish to green in color. Liquid is amber in color.	Odor	Pungent odor.
Odor Threshold	0.2 to 0.4 ppm (in air)		

General Properties

Boiling Point	-34 °C(-29.2 °F)	Melting Point/Freezing Point	-101 °C(-149.8 °F)
Decomposition Temperature	No data available	pH	acidic
Specific Gravity/Relative Density	= 1.47 Water=1	Water Solubility	Slightly Soluble
Viscosity	No data available		

Volatility

Vapor Pressure	4996 mmHg (torr) @ 20 °C(68 °F)	Vapor Density	2.67 Air=1
Evaporation Rate	No data available	VOC (Wt.)	100 %
Volatiles (Wt.)	100 %		

Flammability

Flash Point	Not relevant	UEL	No data available
LEL	No data available	Autoignition	No data available
Flammability (solid, gas)	Not relevant.		

Environmental

Octanol/Water Partition coefficient	No data available		
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Section 10: Stability and Reactivity

Reactivity

- No dangerous reaction known under conditions of normal use.

Chemical stability

- Stable under recommended storage and handling conditions.

Possibility of hazardous reactions

- Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions to avoid

- Excess heat. Incompatible materials.

Incompatible materials

- Reactive or incompatible with the following materials: organic materials, hydrocarbons, alcohols, ethers, amines, water, ammonia, Hydrogen source.

Hazardous decomposition products

- Depending on conditions, moisture (more than 150 ppm or water) and chlorine can form hydrochloric and hypochlorous acids, which are corrosive.

Section 11 - Toxicological Information

Information on toxicological effects

Components

Chlorine (>= 99.5%)	7782-50-5	<p>Acute Toxicity: Inhalation-Rat LC50 • 293 ppm 1 Hour(s); Inhalation-Rat TDLo • 1330 ppm 15 Minute(s); Lungs, Thorax, or Respiration:Fibrosis (interstitial); Lungs, Thorax, or Respiration:Acute pulmonary edema; Lungs, Thorax, or Respiration:Pleural thickening;</p> <p>Multi-dose Toxicity: Inhalation-Rat TCLo • 26 mg/m³ 6 Hour(s) 6 Week(s)-Intermittent; Lungs, Thorax, or Respiration:Structural or functional change in trachea or bronchi;</p> <p>Mutagen: Sperm Morphology • Ingestion/Oral-Mouse • 20 mg/kg 5 Day(s)-Continuous; Cytogenetic analysis • Unreported Route-Human • Lymphocyte (Somatic cell) • 20 ppm;</p> <p>Reproductive: Ingestion/Oral-Rat TDLo • 565 mg/kg (8W male/2W pre-3W post); Reproductive Effects:Effects on Newborn:Biochemical and metabolic;</p> <p>Tumorigen / Carcinogen: Ingestion/Oral-Rat TDLo • 5047 mg/kg 103 Week(s)-Continuous; Tumorigenic:Equivocal tumorigenic agent by RTECS criteria; Blood:Leukemia</p>
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GHS Properties	Classification
Acute toxicity	OSHA HCS 2012 • Acute Toxicity - Inhalation 2 WHMIS 2015 • Acute Toxicity - Inhalation 2
Skin corrosion/Irritation	OSHA HCS 2012 • Skin Corrosion 1A WHMIS 2015 • Skin Corrosion 1A
Serious eye damage/Irritation	OSHA HCS 2012 • Serious Eye Damage 1 WHMIS 2015 • Serious Eye Damage 1
Skin sensitization	OSHA HCS 2012 • Data lacking WHMIS 2015 • Data lacking
Respiratory sensitization	OSHA HCS 2012 • Data lacking WHMIS 2015 • Data lacking
Aspiration Hazard	OSHA HCS 2012 • Data lacking WHMIS 2015 • Data lacking
Carcinogenicity	OSHA HCS 2012 • Data lacking WHMIS 2015 • Data lacking
Germ Cell Mutagenicity	OSHA HCS 2012 • Data lacking WHMIS 2015 • Data lacking
Toxicity for Reproduction	OSHA HCS 2012 • Data lacking WHMIS 2015 • Data lacking
STOT-SE	OSHA HCS 2012 • Specific Target Organ Toxicity Single Exposure 3 Respiratory Tract Irritation WHMIS 2015 • Specific Target Organ Toxicity Single Exposure 3 Respiratory Tract Irritation
STOT-RE	OSHA HCS 2012 • Data lacking WHMIS 2015 • Data lacking

Potential Health Effects

Inhalation

Acute (Immediate)

- Fatal if inhaled. May cause respiratory irritation.

Chronic (Delayed)

- Repeated or prolonged exposure to corrosive fumes may cause bronchial irritation with chronic cough.

Skin

Acute (Immediate)

- Causes severe skin burns.

Chronic (Delayed)

- Repeated or prolonged exposure to corrosive materials will cause dermatitis.

Eye

Acute (Immediate)

- Causes serious eye damage. Direct contact with the eyes can cause irreversible damage, including blindness.

Chronic (Delayed)

- Repeated or prolonged exposure to corrosive materials or fumes may cause conjunctivitis.

Ingestion

Acute (Immediate)

- May cause irreversible damage to mucous membranes.

Chronic (Delayed)

- Repeated or prolonged exposure to corrosive materials or fumes may cause gastrointestinal disturbances.

Other

Chronic (Delayed)

- Repeated exposures can result in a loss of ability to detect the odor of chlorine. Long-term exposures may cause damage to teeth and inflammation or ulceration of the nasal passages. A study was conducted on diaphragm cell workers at 25 plants manufacturing chlorine in North America where exposures ranged from 0.006 ppm to 1.42 ppm with a mean of 0.146 ppm. The study found that these chlorine workers were not affected in any measurable way by years of exposure to low levels of chlorine. There was no higher incidence of abnormal chest x-rays, abnormal EKG's or pulmonary function among these workers.

Key to abbreviations

LC = Lethal Concentration

TC = Toxic Concentration

TD = Toxic Dose

Section 12 - Ecological Information

Toxicity

- Material data lacking.

Persistence and degradability

- Material data lacking.

Bioaccumulative potential

- Material data lacking.

Mobility in Soil

- Material data lacking.

Other adverse effects

- Water polluting material. May be harmful to the environment if released in large quantities.

Section 13 - Disposal Considerations

Waste treatment methods

Product waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	UN	UN proper shipping	Transport hazard class	Packing	Environmental
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	number	name	(es)	group	hazards
DOT	UN1017	Chlorine	2 3,5,1,8	NDA	NDA
TDG	UN1017	CHLORINE	2,3,8	NDA	NDA
IMO/IMDG	UN1017	CHLORINE	2 3,5,1,8	NDA	Marine Pollutant

Special precautions for user

- Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be ventilated during transportation.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- No data available.

Other information

DOT • Chlorine is an inhalation hazard zone B

Section 15 - Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications

- Acute, Pressure(Sudden Release of)

Inventory						
Component	CAS	Canada DSL	Canada NDSL	EU EINECS	EU ELNICS	TSCA
Chlorine	7782-50-5	Yes	No	Yes	No	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Chlorine 7782-50-5 A, D1A, E

Canada - WHMIS - Ingredient Disclosure List

• Chlorine 7782-50-5 1 %

Environment

Canada - 2004 NPRI (National Pollutant Release Inventory)

• Chlorine 7782-50-5 Part 1, Group 1 Substance

Canada - 2005 NPRI (National Pollutant Release Inventory)

• Chlorine 7782-50-5 Part 1, Group 1 Substance

Canada - CEPA - Greenhouse Gases Subject to Mandatory Reporting

• Chlorine 7782-50-5 Not Listed

Canada - CEPA - Priority Substances List

• Chlorine 7782-50-5 Not Listed

Canada - DWQ (Drinking Water Quality) - IMACs

• Chlorine 7782-50-5 Not Listed

Other

Canada - Accelerated Reduction/Elimination of Toxics (ARET)

• Chlorine 7782-50-5 Not Listed

Canada New Brunswick

Environment

Canada - New Brunswick - Ozone Depleting Substances - Schedule A

• Chlorine 7782-50-5 Not Listed

Canada - New Brunswick - Ozone Depleting Substances - Schedule B

• Chlorine 7782-50-5 Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

• Chlorine 7782-50-5 1500 lb TQ

U.S. - OSHA - Specifically Regulated Chemicals

• Chlorine 7782-50-5 Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

• Chlorine 7782-50-5

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Chlorine 7782-50-5 10 lb final RQ; 4.54 kg final RQ

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Chlorine 7782-50-5 Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Chlorine 7782-50-5 10 lb EPCRA RQ

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Chlorine 7782-50-5 100 lb TPQ

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Chlorine 7782-50-5 1.0 % de minimis concentration

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Chlorine 7782-50-5 Not Listed

U.S. - TSCA (Toxic Substances Control Act) - Section 12(b) - Export Notification

• Chlorine 7782-50-5 Not Listed

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

• Chlorine 7782-50-5 Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Chlorine 7782-50-5 Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Chlorine 7782-50-5 Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Chlorine 7782-50-5 Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Chlorine

7782-50-5

Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

• Chlorine

7782-50-5

Not Listed

Section 16 - Other Information

Revision Date

- 12/July/2016

Preparation Date

- 09/March/2015

Other Information

- NSF® Standard 60 Drinking Water Treatment Chemicals – Chlorine has Health Effect Listing and is certified for maximum use of 30 mg/l.

Disclaimer/Statement of Liability

- The technical data given herein is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release, and is not to be considered a warranty or quality specification. No guarantee is being given as to the end use performance. The product is sold on the basis that buyers test the product for their specific purposes. This information related to the material designated and may not be valid for such material used in combination with any other materials or in any process.

Key to abbreviations

NDA = No Data Available

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: **SULFUR DIOXIDE**
Synonyms: Sulfurous acid anhydride, sulfur oxide, sulphur dioxide
Intended use: Chemical feedstock, food preservative, fumigating pesticide.
Uses Advised Against: None identified.
Company Identification
 DPC Industries, Inc.
 DPC Enterprises, LP
 DXI Industries, Inc.
 DX Terminals
 PO Box 24600
 Houston, TX 77229-4600

Emergency
CHEMTREC (USA) (800) 424-9300
24 hour Emergency Telephone No. (281) 457-4888
 www.dxgroup.com

2. Hazard identification of the product

Physical hazards	Gases under pressure	Liquefied gas
Health hazards	Toxicity if inhaled Skin corrosion/irritation Serious eye damage/eye irritation Causes serious eye damage	Category 3 Category 1 Category 1 Category 1
Label elements		
Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.		
Signal Word	Danger	
Hazard Statements	Contains gas under pressure, may explode if heated. Causes severe skin burns and eye damage. Causes serious eye damage. Toxic if inhaled.	
Precautionary Statements		
Prevention	Do not breathe mist / vapors / spray. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves / eye protection / face protection.	
Response	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor / physician. Wash contaminated clothing before reuse. IF ON SKIN (or hair): Remove / Take off immediately all contaminated clothing. Rinse skin with water / shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor / physician. IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing. Immediately call a POISON CENTER or doctor / physician Specific treatment (see information on this label).	
Storage	Store in a well ventilated place. Keep container tightly closed. Store locked up. Protect from sunlight.	
Disposal	Dispose of contents / container in accordance with local / national regulations	

3. Composition/information on ingredients

Substance classified with a health or environmental hazard. Substance with a workplace exposure limit.
Synonyms: Sulfurous acid anhydride, sulfur oxide, sulphur dioxide

Ingredient	CAS Number	Percent (%)
Sulfur Dioxide	7446-09-5	75 - 100

Safety Data Sheet

4. First Aid Measures

General	Move victim to fresh air. Call 911 or emergency medical service. Give artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Remove and isolate contaminated clothing and shoes. In case of contact with liquefied gas, thaw frosted parts with lukewarm water. In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. Keep victim warm and quiet. Keep victim under observation. Effects of contact or inhalation may be delayed. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
Inhalation	Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult.
Eyes	Irrigate copiously with clean fresh water for at least 10 minutes, holding the eyelids apart and seek medical attention.
Skin	Remove and isolate contaminated clothing and shoes. In case of contact with liquefied gas, thaw frosted parts with lukewarm water. In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. Keep victim warm and quiet. Keep victim under observation.
Ingestion	If accidentally swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.
Most important symptoms and effects, both acute and delayed	
Overview	Effects of contact or inhalation may be delayed. Direct contact can cause frostbite and burns. Contact with eyes can cause frostbite, burns and damage to the cornea. See section 2 for further details.
Indication of immediate medical attention and special treatment needed	Toxic if inhaled. Causes serious eye damage. Causes severe skin burns and eye damage.

5. Fire-fighting measures

Recommended Extinguishing media	Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media	Direct water spray. Direct water spray jet.
Special hazards arising from the substance or mixture	Does not decompose but will react with water or steam to produce corrosive sulfuric acid. Do not breathe mist / vapors / spray.
Advice for fire-fighters	Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible. Stop flow of gas if safe to do so. Some may burn but none ignite readily. Vapors from liquefied gas are initially heavier than air and spread along ground. Some of these materials may react violently with water. Cylinders exposed to fire may vent and release toxic and/or corrosive gas through pressure relief devices. Containers may explode when heated. Ruptured cylinders may rocket. TOXIC; may be fatal if inhaled, ingested or absorbed through skin. Vapors are extremely irritating and corrosive. Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite. Fire will produce irritating, corrosive and/or toxic gases. Runoff from fire control may cause pollution. ERG Guide No. 125

Safety Data Sheet

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Do not touch or walk through spilled material. Stop leak if you can do it without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Prevent entry into waterways, sewers, basements or confined areas. Do not direct water at spill or source of leak. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material. Isolate area until gas has dispersed.
Environmental precautions	Do not allow spills to enter drains or watercourses. Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.
Methods and material for containment and cleaning up	CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed in Section 1. As an immediate precautionary measure, isolate spill or leak area. Keep unauthorized personnel away. Stay upwind. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Keep out of low areas. Ventilate closed spaces before entering.

7. Handling and storage

Precautions for safe handling	Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage, do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents.
Conditions for safe storage, including any incompatibilities	Personnel should be thoroughly trained. Materials should be stored in approved containers. Firmly secure containers upright to keep them from falling or being knocked over. Store away from combustibles. Avoid exposure to moisture, high temperatures, and incompatible materials. Use only with adequate ventilation or respiratory protection. Have safety showers and eyewash fountains immediately available.

8. Exposure controls and personal protection

Exposure Control parameters

CAS No.	Ingestion	Source	Value
7446-09-5	Sulfur dioxide	OSHA	TWA 2 ppm (5 mg/m ³) STEL 5 ppm (13 mg/m ³)
		ACGIH	TWA 0.25 ppm STEL 2 ppm
		NIOSH	TWA 2 ppm (5 mg/m ³) STEL 5 ppm (13 mg/m ³)

Individual protection measures, such as personal protective equipment

Respiratory	Use NIOSH/MSHA approved respirator, following manufacturer's recommendations when concentrations exceed permissible exposure limits. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).
Eyes	Wear safety glasses with side shields and/or safety goggles to protect the eyes. An eye wash station is suggested as a good workplace practice.
Skin	Chemical resistant clothing such as coveralls/apron boots should be worn. Chemical impervious gloves. Emergency eyewash station should be in close proximity.
Engineering Controls	Provide adequate ventilation. Where practicable this should be achieved by the use of local exhaust ventilation and good general extraction. Eye wash and safety showers should be available when handling this product.
Other Work Practices	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

Safety Data Sheet

9. Physical and chemical properties

Appearance:	Colorless Gas or Liquid
Odor:	Strong Pungent Odor
Odor threshold:	Not Measured
pH:	Not Applicable
Melting point / freezing point:	-103 °F (-75 °C)
Initial boiling point and boiling range:	14 °F (-10 °C)
Flash Point:	Not Applicable
Evaporation rate (Ether = 1):	40.18 g/m ² /s
Flammability (solid, gas):	Not Applicable
Upper/lower flammability or explosive limits:	Lower Explosive Limit: Not Applicable Upper Explosive Limit: Not Applicable
Vapor pressure (mmHg):	2475 mmHg
Vapor Density:	2.2
Specific Gravity:	1.2 - 1.5
Solubility in Water:	Partial
Partition coefficient n-octanol/water (Log Kow):	Not Measured
Auto-ignition temperature (°C):	Not Measured
Decomposition temperature:	Not Measured
Viscosity (cSt):	Not Measured
VOC %:	Not Measured

10. Stability and reactivity

Reactivity	Hazardous Polymerization will not occur.
Chemical stability	Stable under normal circumstances.
Possibility of hazardous reactions	None.
Conditions to avoid	No data available
Incompatible materials	Strong bases, halogens, metals, ammonia, oxidizing agents, chlorates, metal oxides, hydrides, azides, sodium carbide, and acrolein.
Hazardous decomposition products	Does not decompose but will react with water or steam to produce corrosive sulfurous acid.

11. Toxicological information

Acute toxicity

Ingredient	Results	Species	Dose	Exposure
Sulfur dioxide (7446-09-5)	LC50 Inhalation Gas	Rat	2520 ppm	1 hour
	LC50 Inhalation	Mouse	3000 ppm	30 minutes

Safety Data Sheet

11. Toxicological information Acute toxicity (Cont.)

POTENTIAL HEALTH EFFECTS:

Information on likely routes of exposure	
Eye contact:	Causes serious eye damage. Liquid exposure may cause frostbite.
Skin contact:	Causes skin burns. Liquid exposure may cause frostbite.
Inhalation:	May cause irritation (possibly severe), chemical burns, and pulmonary edema. Significant exposures may be fatal.
Ingestion:	Causes digestive tract burns.
Signs and symptoms of exposure:	Contact with this material will cause burns to the skin, eyes and mucous membranes. Cough, shortness of breath, headache, nausea, vomiting. May cause lung damage. Unconsciousness.
Information on toxicological effects	
Acute toxicity:	Fatal if inhaled. Irritation Threshold: approximately 0.5 ppm Immediately Dangerous to Life or Health: 100.0 ppm.
Carcinogenicity:	Not considered to be a carcinogen by IARC, ACGIH, NTP or OSHA.
Reproductive Toxicity:	No data available.
Specific target organ systemic toxicity (single exposure):	Not available.
Specific target organ systemic Toxicity (repeated exposure):	Causes damage to organs (lungs) through prolonged or repeated exposure.
Aspiration hazard:	Due to the physical form of the product it is not an aspiration hazard.

12. Ecological information

Toxicity- Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Sulfur dioxide - (7446-09-5)	Not Available	Not Available	500.00 (72 hr), Algae

Persistence and degradability:	There is no data available on the preparation itself.
Bioaccumulative potential:	Not Measured
Mobility in soil:	No data available.
Results of PBT and vPvB assessment:	This product contains no PBT/vPvB chemicals
Other adverse effects:	No data available.

13. Disposal considerations

Waste treatment methods:	Do not allow into drains or water courses. Wastes and emptied containers should be disposed of in accordance with regulations made under the Control of Pollution Act and the Environmental Protection Act. Using information provided in this data sheet, advice should be obtained from the Waste Regulation Authority, whether the special waste regulations apply.
Waste from material:	The waste determination should be made in discussion between the user and the waste disposal company.
Container Management:	Return empty chlorine cylinders, tankcars and cargo tanks containing residual gas and/or liquid to supplier in compliance with applicable DOT regulations.

Safety Data Sheet

14. Transport Information

UN number:	UN1079
UN proper shipping name:	Sulfur dioxide
Transport hazard class(es)	
DOT (Domestic Surface Transportation)	
DOT Proper Shipping Name:	Sulfur dioxide
DOT Hazard Class	2.3, (8)
DOT Label:	2.3, 8
UN / NA Number:	UN1079
DOT Packing Group:	Not Applicable
CERCLA/DOT RQ:	500-lbs.
Environmental hazards:	IMDG Marine Pollutant: No
Special precautions for user:	Not Applicable

15. Regulatory Information

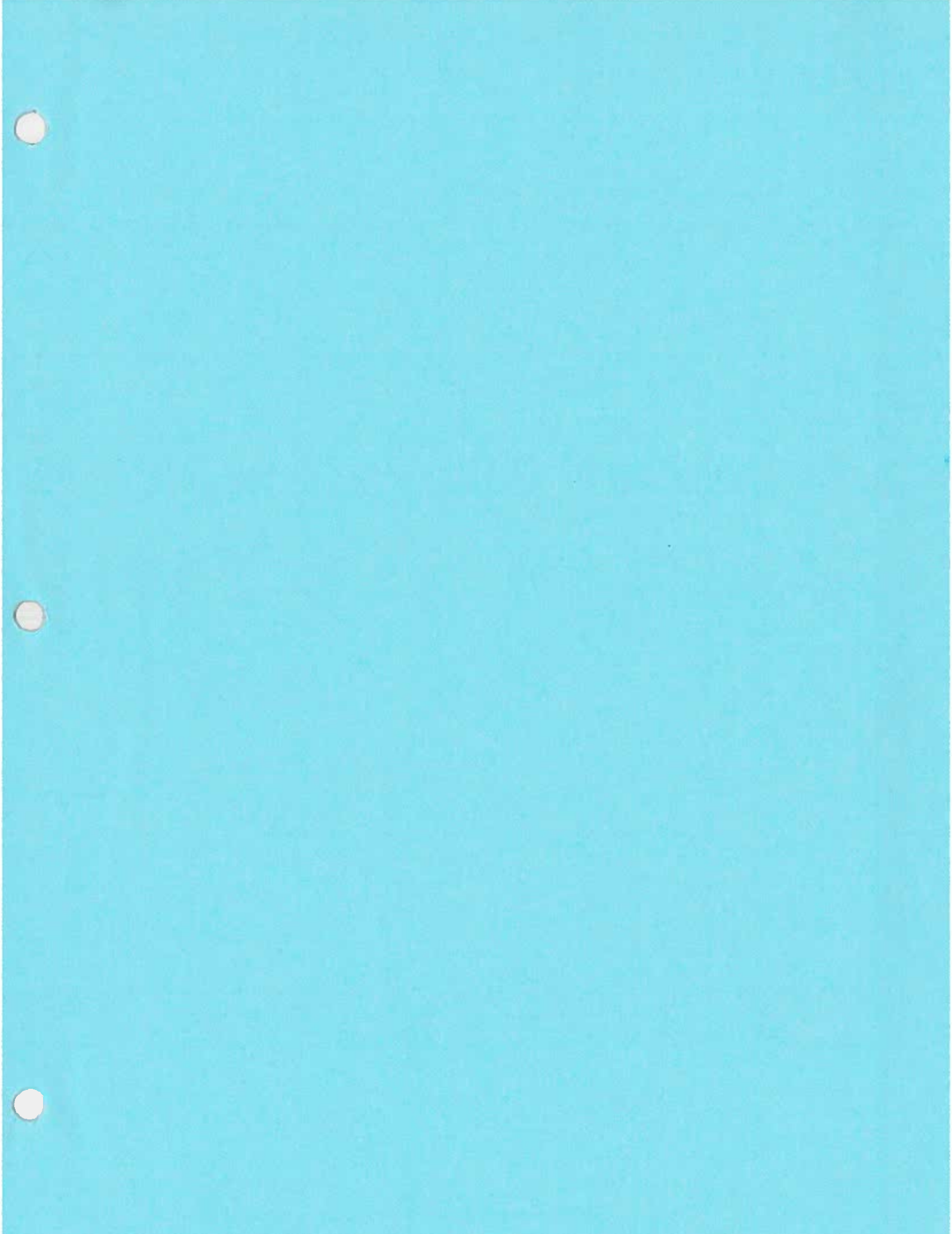
Regulatory Overview:	The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented. All ingredients of this product are listed on the TSCA (Toxic Substance Control Act) Inventory.					
WHMIS Classification:	D2B E					
OSHA REGULATORY STATUS:	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)					
US EPA Tier II Hazards:	Fire:	No	Immediate (Acute):	Yes		
	Sudden Release of Pressure:	Yes	Delayed (Chronic):	No		
	Reactive:	No				
SARA 302 Extremely Hazardous Substance / RQs (lbs) :	Yes / 500-lbs					
SARA 311/312 Chemicals and RQs (lbs) (>0.1%) :	No					
SARA 313 (TRI)	No					
OSHA PSM (29 cfr 1910.119):	Yes (1000-lbs)					
TSCA:	Sulfur Dioxide					
State Regulations:	N.J. RTK Substances (>1%)	Listed	Penn RTK Substances (>1%)	Listed	California Prop 65	Listed

16. Other information

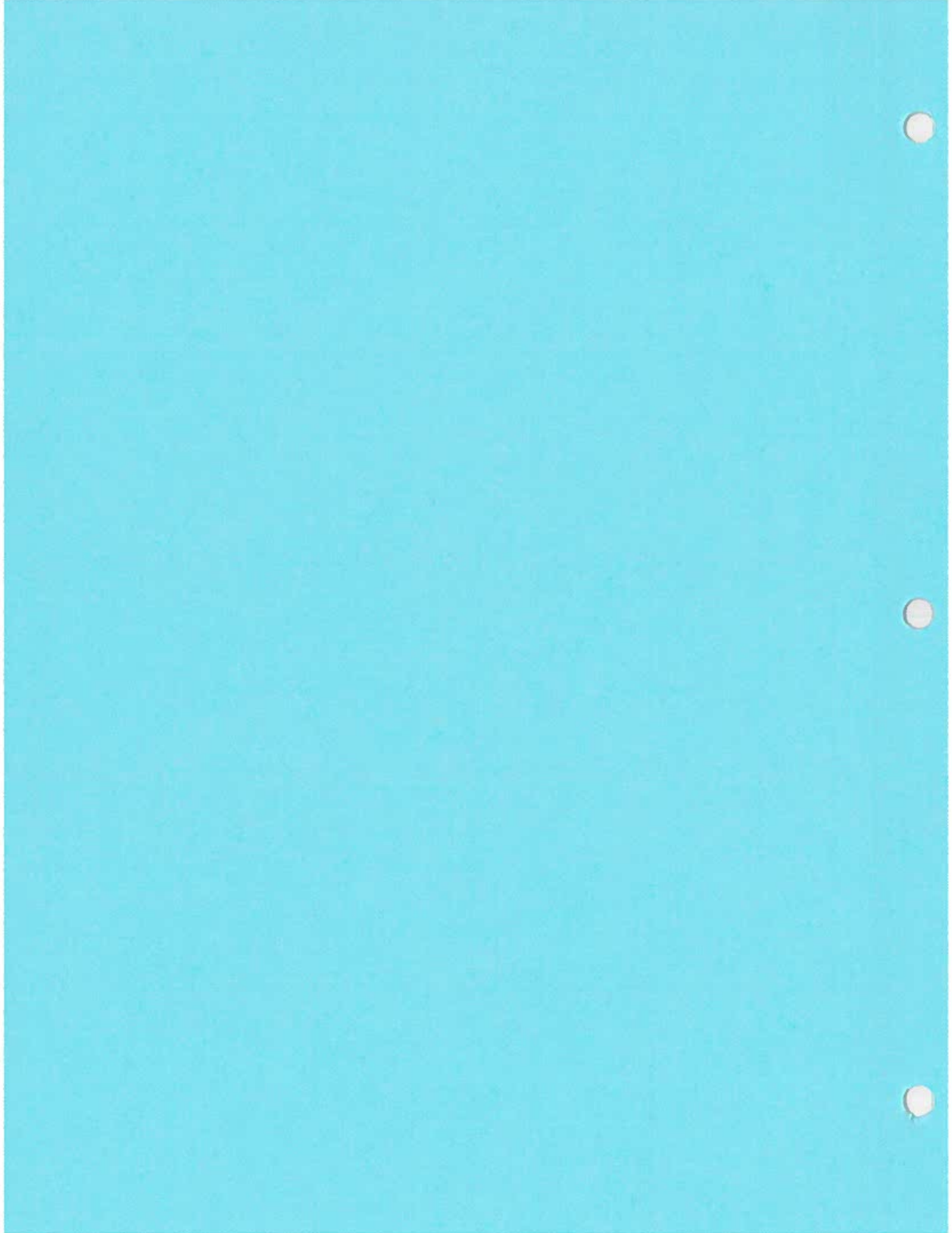
Revision Information: This is the first revision of this SDS format, changes from previous revision not applicable.

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

THE USER IS CAUTIONED TO PERFORM HIS OWN HAZARD EVALUATION AND TO RELY ON HIS OWN DETERMINATIONS



LOCATION		LEPC COUNTY		1st RESPONDER		MUTUAL AID	
Wylie WTP		Collin		Wylie FD		Plano FD	
Zeke Campbell Water System Manager	Jason Browning Emergency Manager / FM	Brandon Blythe Assistant Fire Chief	Chris Biggerstaff Operations Chief	(Delivered 01/30/19)	(Delivered 02/20/19)	(Delivered 02/20/19)	(email 01/17/19)
810 Hwy 78 Wylie, TX 75098 972-562-0680	4690 Community Ave #200 McKinney, TX 75071 214-842-1496 fmadmin@collincountytx.gov	2000 N. Hwy 78 Wylie, TX 75098 972-442-8110 brandon.blythe@wylietetexas.gov	1901 K Avenue Plano, TX 75074 (972) 941-7159 chrisbi@plano.gov	✓	✓	✓	
Wilson Creek WWTP		Collin		Fairview FD		Wylie FD	
Dan Spradlin Wastewater Plant Supervisor	Jason Browning Emergency Manager / FM	Jeff Bell Fire Chief	Brandon Blythe Assistant Fire Chief	(Tentative deliv 03/05/19)	(Delivered 01/30/19)	(Delivered 01/30/19)	
3020 Orr Rd, Allen, TX 75002 469-626-4912	4690 Community Ave #200 McKinney, TX 75071 214-842-1496 fmadmin@collincountytx.gov	500 State Hwy 5 Fairview, TX 75069 972-886-4238 jbell@fairviewtexas.gov	2000 N. Hwy 78 Wylie, TX 75098 972-442-8110 brandon.blythe@wylietetexas.gov	✓	✗	✓	
Rowlett Creek WWTP		Collin		Plano FD		Wylie FD	
Brent Loran Wastewater Plant Supervisor	Jason Browning Emergency Manager / FM	Chris Biggerstaff Operations Chief	Brandon Blythe Assistant Fire Chief	(Delivered 02/20/19)	(Delivered 02/20/19)	(Delivered 01/30/19)	
1600 Los Rios Blvd Plano, TX 75074 972-424-2722	4690 Community Ave #200 McKinney, TX 75071 214-842-1496 fmadmin@collincountytx.gov	1901 K Avenue Plano, TX 75074 (972) 941-7159 chrisbi@plano.gov	2000 N. Hwy 78 Wylie, TX 75098 972-442-8110 brandon.blythe@wylietetexas.gov	✓	✓	✓	
S Mesquite WWTP		Dallas		Mesquite FD		Dallas FD	
Jeremy Thompson Wastewater Plant Supervisor	Doug Bass Emergency Manager	Bruce Kunz Deputy Chief	Matt Geller Captain	(Delivered 01/28/19)	(Delivered 01/28/19)	(Delivered 02/17/19)	(email 01/17/19)
3500 Lawson Rd Mesquite, TX 75161 469-626-4952	2121 Panoramic Cir, Dallas, TX 75212 (214) 653-7980 doug.bass@dallascounty.org	1515 N Galloway Ave Mesquite, TX 75149 (972) 216-6267 bkunz@mesquitefire	5000 Dolphin Rd. Dallas, TX 75223 (469) 323-5810 Matthew.geller@dallascityhall.com	✓	✓	✓	
Stewart Creek WWTP		Denton		Frisco FD		Plano FD	
Terry Gosnell Wastewater Plant Supervisor	Eric Gildersleeve Emergency Manager	Ryan Hutt Special Operations Chief	Chris Biggerstaff Operations Chief	(Tentative deliv 03/29/19)	(Delivered 02/20/19)	(Delivered 02/20/19)	(email 01/17/19)
5100 4th Army Memorial Rd Frisco TX, 75034 469-502-9810	9060 Teasley Lane Denton, TX 76210 (940) 349-2856 eric.gildersleeve@dentoncounty.com	8601 Gary Burns Dr Frisco, TX 75034 (972) 292-6300 RHutt@friscofire.com.	1901 K Avenue Plano, TX 75074 (972) 941-7159 chrisbi@plano.gov	✗	✓	✓	





North Texas Municipal Water District

To: File
From: C David Leonard *DL*
Date: January 23, 2019
Re: NTMWD Emergency Response Coordinator Activity to Collin County LEPC

Date: January 22, 2019
Time: 9:00 AM
Location: Collin County Fire Marshall/Emergency Management Office

NTMWD Attendees:

David Leonard – Safety Coordinator
David Milligan – Health & Safety Manager
Pat Chadwick – Wylie Water Operations Manager

Collin County Attendees:

Jason Browning – Fire Marshall/ Emergency Management Manager for Collin County LEPC
Will Allen – Assistant Emergency Management Coordinator
Dawn Redwine – Administration Assistant

Per 40 CFR 68.93, the NTMWD RMP Emergency Response Coordination Program was delivered which included the Emergency Response Plan, Point of Contacts and Safety Data Sheets for the following locations in Collin County:

- Wylie Water Treatment Plant, Wylie, TX
- Wilson Creek Wastewater Treatment Plant, Fairview, TX
- Rowlett Creek Wastewater Treatment Plant, Plano, TX

Discussion:

- We explained the new EPA requirements to present the program and the annual review
- The planned delivery of the three programs to the first responders was noted in the plans
- Safety Data Sheets for all of the chemicals at the three locations were reviewed
- The NTMWD response to chemical release at the three locations was noted
- There was a discussion regarding the NIMS and hazardous materials training at NTMWD
- Tours of the three locations to the Collin County EM personnel were offered by DL
- What will the hazardous materials delivery route be for the Leonard WTP in Fannin County was mentioned. Jason Browning will furnish a TxDOT contact to DL for information.
- All attendees signed the (3) Attendance Forms and copies were made
- Collin County attendees acknowledged the program but did not have any further questions or discussion.



North Texas Municipal Water District

To: File
From: C David Leonard *DL*
Date: January 30, 2019
Re: NTMWD Emergency Response Coordinator Activity to Wylie EM & FD

Date: January 30, 2019
Time: 9:00 AM
Location: NTMWD Tech Services Building

NTMWD Attendees:

David Leonard – Safety Coordinator
David Milligan – Health & Safety Manager
Pat Chadwick – Wylie Water Operations Manager
Josh Hathaway – Environmental Compliance Manager
Michael Walker – Environmental Compliance Coordinator
Jaye Cook - Environmental Compliance Coordinator

City of Wylie Attendees:

Brandon Blythe – Assistant Fire Chief
Debbie Buccino – Emergency Management Coordinator

Per 40 CFR 68.93, the NTMWD RMP Emergency Response Coordination Program was delivered which included the Emergency Response Plan, Point of Contacts and Safety Data Sheets for the following locations in Collin County:

- Wylie Water Treatment Plant, Wylie, TX
- Wilson Creek Wastewater Treatment Plant, Fairview, TX
- Rowlett Creek Wastewater Treatment Plant, Plano, TX

Discussion:

- We explained the new EPA requirements to present the program and the annual review
- The planned delivery of the three programs to the Wylie responders and Collin County LEPC were noted in the plans
- Safety Data Sheets for all of the chemicals at the three locations were reviewed
- The NTMWD plans for chemical release at the three locations was noted
- There was a discussion regarding the NIMS and hazardous materials training at NTMWD
- WFD will be invited to the Dallas FD meeting in February
- Had discussion of the required annual notification exercise requirement
- Noted the annual emergency response coordination activity
- WFD will forward DL a point of contact at Wylie PD for plant evacuation routes and assembly points
- Discussed the possibility of pre-notification of hazmat activity with WFD
- All attendees signed the (3) Attendance Forms and copies were made
- Wylie FD & EM attendees acknowledged the program but did not have any further questions or discussion.



North Texas Municipal Water District

To: File
From: C David Leonard *DL*
Date: February 20, 2019
Re: NTMWD Emergency Response Coordinator Activity to Plano FD

Date: February 20, 2019
Time: 3:00 PM
Location: Plano FD Central Administration

NTMWD Attendees:
David Leonard – Safety Coordinator

Plano FD Attendees:
Chris Biggerstiff – Operations Fire Chief
Steve Poe – Division Fire Chief

Per 40 CFR 68.93, the NTMWD RMP Emergency Response Coordination Program was delivered which included the Emergency Response Plan, Point of Contacts and Safety Data Sheets for the following locations in Collin County:

- Wylie Water Treatment Plant, Wylie, TX
- Wilson Creek Wastewater Treatment Plant, Fairview, TX
- Rowlett Creek Wastewater Treatment Plant, Plano, TX
- Stewart Creek Wastewater Treatment Plant, Frisco, TX

Discussion:

- We explained the new EPA requirements to present the program and the annual review
- The planned delivery of the four programs to the Plano responders and Collin County LEPC were noted in the plans
- Safety Data Sheets for all of the chemicals at the three locations were reviewed
- The NTMWD plans for chemical release at the four locations was noted
- Had discussion of the required annual notification exercise requirement
- Noted the annual emergency response coordination activity
- Chief Biggerstiff signed the (4) Attendance Forms and copies were made
- Plano FD & attendees acknowledged the program but did not have any further questions or discussion.
- The NTMWD PRCS program was discussed.
- Plano FD requested joint training exercises when NTMWD response team is prepared
- Plano FD requested plume modeling files
- A site visit to the Wylie WTP will be scheduled
- DL will provide PFD electronic copies of the four RMP locations.
- DL will provide PFD hazardous materials information for the training program

CORE DATA FORM

APPENDIX A



TCEQ Use Only

TCEQ Core Data Form

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (If other is checked please describe in space provided.)		
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)	<input type="checkbox"/> Other	
2. Customer Reference Number (if issued)	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number (if issued)
CN 60365448		RN 102097151

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)	
<input type="checkbox"/> New Customer		<input type="checkbox"/> Update to Customer Information	
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)		<input type="checkbox"/> Change in Regulated Entity Ownership	
The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).			
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)		If new Customer, enter previous Customer below:	
North Texas Municipal Water District			
7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
		1756004258	
11. Type of Customer:	<input type="checkbox"/> Corporation	<input type="checkbox"/> Individual	Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Other	<input type="checkbox"/> Sole Proprietorship	<input checked="" type="checkbox"/> Other: Municipality	
12. Number of Employees	13. Independently Owned and Operated?		
<input type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input checked="" type="checkbox"/> 501 and higher	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following:			
<input type="checkbox"/> Owner		<input type="checkbox"/> Operator	
<input type="checkbox"/> Occupational Licensee		<input type="checkbox"/> Responsible Party	
<input checked="" type="checkbox"/> Owner & Operator		<input type="checkbox"/> Voluntary Cleanup Applicant	
<input type="checkbox"/> Other:			
15. Mailing Address:	505 E. Brown Street		
	City	Wylie	State TX
	ZIP	75098	ZIP + 4
16. Country Mailing Information (if outside USA)		17. E-Mail Address (if applicable)	
18. Telephone Number	19. Extension or Code	20. Fax Number (if applicable)	
() -		() -	

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (If 'New Regulated Entity' is selected below this form should be accompanied by a permit application)	
<input type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input type="checkbox"/> Update to Regulated Entity Information	
The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC.)	
22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)	
Wylie Water Plant	

23. Street Address of the Regulated Entity: (No PO Boxes)	505 East Brown Street							
	City	Wylie	State	TX	ZIP	75098	ZIP + 4	
24. County	Collin							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:								
26. Nearest City						State	Nearest ZIP Code	
27. Latitude (N) In Decimal:	33.018088			28. Longitude (W) In Decimal:	-96.532279			
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds			
33	01	05.92	-96	31	56.58			
29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)		31. Primary NAICS Code (5 or 6 digits)		32. Secondary NAICS Code (5 or 6 digits)			
4941			221310					
33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)								
Public Water Supply								
34. Mailing Address:	505 E. Brown Street							
	City	Wylie	State	TX	ZIP	75098	ZIP + 4	
35. E-Mail Address:		jhathaway@ntmwd.com						
36. Telephone Number			37. Extension or Code		38. Fax Number (if applicable)			
(469) 626-4638					() -			

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.


<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Waste Water	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:

SECTION IV: Preparer Information

40. Name:	Lori Siegelman	41. Title:	Consultant
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(817) 985-4921		() -	lsiegelman@braunintertec.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Wylie Water Plan	Job Title:	Environmental Manager
Name (In Print) :	Joshua Hathaway	Phone:	(469) 626-4638
Signature:		Date:	9/11/19

**TABLE 2
MATERIAL BALANCE**

APPENDIX B

Texas Commission on Environmental Quality
Table 2
Material Balance

This material balance table is used to quantify possible emissions of air contaminants and special emphasis should be placed on potential air contaminants, for example: If feed contains sulfur, show distribution to all products. Please relate each material (or group of materials) listed to its respective location in the process flow diagram by assigning emission point numbers (taken from the flow diagram) to each material.

List every material involved in each of the following groups	Emission Point No. from Flow Diagram	Process Rate ¹ Check appropriate column at right to indicate process rate method.	Measurement	Estimation	Calculation
Raw Materials - Input <i>Ammonia</i>	WTP1 WTP2 WTP3 WTP4	255,500 lb/yr 1,197,200 lb/yr 1,197,200 lb/yr 2,920,000 lb/yr			
Fuels - Input					
Products and By-Products - Output <i>Drinking Water</i>	WTP1 WTP2 WTP3 WTP4	70 MGD 328 MGD 328 MGD 800 MGD			
Solid Wastes - Output					
Liquid Wastes - Output					
Airborne Waste (Solid) - Output					
Airborne Wastes (Gaseous) - Output					

¹ Specify the process rate of the facility using conventional engineering units (e.g., bbl/d, lb/yr, SCFM), and indicate the units next to each number. Standard Conditions: are 68°F 14.7 psia (30 Texas Administrative Code, Section 101.1(99)).

**TABLE 7B
HORIZONTAL FIXED ROOF
STORAGE TANK SUMMARY**

APPENDIX C

Texas Commission on Environmental Quality
Table 7(b)
Horizontal Fixed Roof Storage Tank Summary

II. Tank Physical Characteristics (continued)				
Breather Vent Settings (continued)				
Open Vent Valve Number: 0				
SPECIFY "Atmosphere" or "Discharging" to (name of abatement device): N/A				
III. Liquid Properties of Stored Material				
Chemical Category: <input checked="" type="checkbox"/> Organic Liquid <input type="checkbox"/> Petroleum Distillates <input type="checkbox"/> Crude Oils				
<input checked="" type="checkbox"/> Single (Complete Section III.1.) <input type="checkbox"/> Multi-Component Liquid (Complete Section III.2.)				
1. Single Component Information				
Chemical Name: Anhydrous Ammonia				
CAS Number: 7664-41-7				
Average Liquid Surface Temperature (°F): -28				
True Vapor Pressure at Average Liquid Surface Temperature (psia): 14.7				
Liquid Molecular Weight: 17.03				
2. Multiple Component Information				
Mixture Name:				
Average Liquid Surface Temperature (°F):				
Minimum Liquid Surface Temperature (°F):				
Maximum Liquid Surface Temperature (°F):				
True Vapor Pressure at Average Liquid Surface Temperature (psia):				
True Vapor Pressure at Minimum Liquid Surface Temperature (psia):				
True Vapor Pressure at Maximum Liquid Surface Temperature (psia):				
Liquid Molecular Weight:				
Vapor Molecular Weight:				
Chemical Components Information				
Chemical Name	CAS No.	Percent of Total Liquid Weight (typical)	Percent of Total Vapor Weight (typical)	Molecular Weight

Texas Commission on Environmental Quality
Table 7(b)
Horizontal Fixed Roof Storage Tank Summary

II. Tank Physical Characteristics (continued)				
Breather Vent Settings (continued)				
Open Vent Valve Number: 0				
SPECIFY "Atmosphere" or "Discharging" to (name of abatement device): N/A				
III. Liquid Properties of Stored Material				
Chemical Category: <input checked="" type="checkbox"/> Organic Liquid <input type="checkbox"/> Petroleum Distillates <input type="checkbox"/> Crude Oils				
<input checked="" type="checkbox"/> Single (Complete Section III.1.) <input type="checkbox"/> Multi-Component Liquid (Complete Section III.2.)				
1. Single Component Information				
Chemical Name: Anhydrous Ammonia				
CAS Number: 7664-41-7				
Average Liquid Surface Temperature (°F): -28				
True Vapor Pressure at Average Liquid Surface Temperature (psia): 14.7				
Liquid Molecular Weight: 17.03				
2. Multiple Component Information				
Mixture Name:				
Average Liquid Surface Temperature (°F):				
Minimum Liquid Surface Temperature (°F):				
Maximum Liquid Surface Temperature (°F):				
True Vapor Pressure at Average Liquid Surface Temperature (psia):				
True Vapor Pressure at Minimum Liquid Surface Temperature (psia):				
True Vapor Pressure at Maximum Liquid Surface Temperature (psia):				
Liquid Molecular Weight:				
Vapor Molecular Weight:				
Chemical Components Information				
Chemical Name	CAS No.	Percent of Total Liquid Weight (typical)	Percent of Total Vapor Weight (typical)	Molecular Weight

Texas Commission on Environmental Quality
Table 7(b)
Horizontal Fixed Roof Storage Tank Summary

II. Tank Physical Characteristics (continued)				
Breather Vent Settings (continued)				
Open Vent Valve Number: 0				
SPECIFY "Atmosphere" or "Discharging" to (name of abatement device): N/A				
III. Liquid Properties of Stored Material				
Chemical Category: <input checked="" type="checkbox"/> Organic Liquid <input type="checkbox"/> Petroleum Distillates <input type="checkbox"/> Crude Oils				
<input checked="" type="checkbox"/> Single (Complete Section III.1.) <input type="checkbox"/> Multi-Component Liquid (Complete Section III.2.)				
1. Single Component Information				
Chemical Name: Anhydrous Ammonia				
CAS Number: 7664-41-7				
Average Liquid Surface Temperature (°F): -28				
True Vapor Pressure at Average Liquid Surface Temperature (psia): 14.7				
Liquid Molecular Weight: 17.03				
2. Multiple Component Information				
Mixture Name:				
Average Liquid Surface Temperature (°F):				
Minimum Liquid Surface Temperature (°F):				
Maximum Liquid Surface Temperature (°F):				
True Vapor Pressure at Average Liquid Surface Temperature (psia):				
True Vapor Pressure at Minimum Liquid Surface Temperature (psia):				
True Vapor Pressure at Maximum Liquid Surface Temperature (psia):				
Liquid Molecular Weight:				
Vapor Molecular Weight:				
Chemical Components Information				
Chemical Name	CAS No.	Percent of Total Liquid Weight (typical)	Percent of Total Vapor Weight (typical)	Molecular Weight

**Texas Commission on Environmental Quality
Table 7(b)
Horizontal Fixed Roof Storage Tank Summary**

I. Tank Identification (Use a separate form for each tank)	
Applicant's Full Name: North Texas Municipal Water District	
Location (indicate on plot plan and provide coordinates): WTP4 - 33° 1'40.37"N / 96° 31'21.96"W	
Tank No.: WTP4-1 & WTP4-2	Emission Point No. (EPN) (from flow diagram): FUG4
FIN: TNK-WTP4-1 & TNK-WTP4-2	CIN:
Status: <input checked="" type="checkbox"/> New Tank <input type="checkbox"/> Altered Tank <input type="checkbox"/> Relocation <input type="checkbox"/> Change of Service	
Previous Permit No., Permit by Rule No., or Exemption No.: None	
II. Tank Physical Characteristics	
Dimensions	
Shell Length (ft.): 33	Diameter (ft.): 8
Nominal Capacity or Working Volume (gallons): 12,000	Turnovers per year: 45
Net Throughput (gallons/year): 2,784,950 lb/yr	Maximum Filling Rate (gallons/hour): 4,000 gallons/hour
Is the tank underground?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Paint Characteristics	
Shell Color/Shade:	<input checked="" type="checkbox"/> White/White <input type="checkbox"/> Aluminum/Specular <input type="checkbox"/> Aluminum/Diffuse <input type="checkbox"/> Gray/Light <input type="checkbox"/> Gray/Medium <input type="checkbox"/> Red/Primer <input type="checkbox"/> Other: _____
Shell Condition:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Poor
Breather Vent Settings	
Combination Vent Valve Number: 0	
Combination Vent Valve Pressure Setting (psig): N/A	
Combination Vent Valve Vacuum Setting (psig): N/A	
SPECIFY "Atmosphere" or "Discharging" to (name of abatement device): N/A	
Pressure Vent Valve Number: 2	
Pressure Vent Valve Pressure Setting (psig): 250	
SPECIFY "Atmosphere" or "Discharging" to (name of abatement device): Atmosphere	
Vacuum Vent Valve Number: 0	
Vacuum Vent Valve Pressure Setting (psig): N/A	

Texas Commission on Environmental Quality
Table 7(b)
Horizontal Fixed Roof Storage Tank Summary

II. Tank Physical Characteristics (continued)				
Breather Vent Settings (continued)				
Open Vent Valve Number: 0				
SPECIFY "Atmosphere" or "Discharging" to (name of abatement device): N/A				
III. Liquid Properties of Stored Material				
Chemical Category: <input checked="" type="checkbox"/> Organic Liquid <input type="checkbox"/> Petroleum Distillates <input type="checkbox"/> Crude Oils				
<input checked="" type="checkbox"/> Single (Complete Section III.1.) <input type="checkbox"/> Multi-Component Liquid (Complete Section III.2.)				
1. Single Component Information				
Chemical Name: Anhydrous Ammonia				
CAS Number: 7664-41-7				
Average Liquid Surface Temperature (°F): -28				
True Vapor Pressure at Average Liquid Surface Temperature (psia): 14.7				
Liquid Molecular Weight: 17.03				
2. Multiple Component Information				
Mixture Name:				
Average Liquid Surface Temperature (°F):				
Minimum Liquid Surface Temperature (°F):				
Maximum Liquid Surface Temperature (°F):				
True Vapor Pressure at Average Liquid Surface Temperature (psia):				
True Vapor Pressure at Minimum Liquid Surface Temperature (psia):				
True Vapor Pressure at Maximum Liquid Surface Temperature (psia):				
Liquid Molecular Weight:				
Vapor Molecular Weight:				
Chemical Components Information				
Chemical Name	CAS No.	Percent of Total Liquid Weight (typical)	Percent of Total Vapor Weight (typical)	Molecular Weight