

Summary of Compliance Requirements

\*\*\* THIS SUMMARY IS NOT ENFORCEABLE BUT IS MERELY INTENDED TO PROVIDE A CONCISE VIEW OF THE MONITORING REQUIREMENTS.

READERS ARE DIRECTED TO THE MAIN PERMIT FOR DETAILS REGARDING ENFORCEABLE CONDITIONS. \*\*\*

DEC ID 9146800224 Facility BUFFALO BIOENERGY ANAEROBIC DIGESTION FACILITY

Location 2900 N AMERICA DR WEST SENECA, NY 14224

Permit ID 9-1468-00224/00002 Application Recv'd 06/15/2012 Renewal No: 0 Mod No: 1 Report Only Includes Active Permit conditions

Permit Type ASF Status Issued

Compliance Assurance Monitoring

Monitored Parameter		Activity Type	
Cond	Regulated Contaminant	Reporting Frequency	Monitoring Frequency
Num	Process Material	Lower Limit	Upper Limit
		Units	
		Averaging Method	
Emission Unit: 1-ANDIG Process: 001			
4	**** **** ****		RECORD KEEPING/MAINTENANCE PROCEDURES  AS REQUIRED - SEE MONITORING DESCRIPTION  AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION  ****
5	**** **** ****		RECORD KEEPING/MAINTENANCE PROCEDURES  UPON REQUEST BY REGULATORY AGENCY  PER DELIVERY  ****

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				Monitoring Frequency
				Averaging Method

Emission Unit: 1-ANDIG Process: 001 Emission Source: DGTNK

6	HYDROGEN SULFIDE SULFUR DIOXIDE ****		400	MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE AS REQUIRED - SEE MONITORING DESCRIPTION
	THE NATIONAL PRIMARY 1-HOUR AMBIENT AIR QUALITY STANDARD FOR SULFUR OXIDES IS 75 PARTS PER BILLION OR 196 UG/M3, MEASURED IN THE AMBIENT AIR AS SULFUR DIOXIDE (SO2). THE DIGESTER GAS (BIOGAS) CONTAINS HYDROGEN SULFIDE (H2S), WHICH WHEN COMBUSTED PRODUCES SULFUR DIOXIDE. TO ENSURE THAT SO2 IN THE EXHAUST FROM THE ENGINE ALONE DOES NOT CAUSE PROPERTY LINE CONCENTRATIONS TO EXCEED THE PRIMARY 1-HOUR NATIONAL AMBIENT AIR QUALITY STANDARD FOR SO2, H2S CONCENTRATION IN THE BIOGAS SHALL BE LIMITED TO 400 PPMV.	parts per million (by volume)		DAILY
	BUFFALO BIOENERGY CONTROLS THE H2S CONCENTRATION IN BIOGAS VIA BIOLOGICAL FIXATION OF H2S BY SULFUR-OXIDIZING BACTERIA. THE DIGESTER TANK ROOF STRAPS PROVIDE THE SURFACE AREA TO SUPPORT THE MICROBES THAT OXIDIZE H2S TO ELEMENTAL SULFUR, WHICH IS PRECIPITATED INTO THE DIGESTATE IN ES DGTNK. TO PREVENT EXCEEDANCE OF THE 1-HR SO2 NAAQS, BUFFALO BIOENERGY SHALL CONDUCT DAILY MONITORING OF THE CONCENTRATION OF H2S IN THE BIOGAS PRIOR TO COMBUSTION IN THE ENGINE USING A PORTABLE ANALYZER ABLE TO MEASURE AND RECORD H2S ACCURATELY TO THE SATISFACTION OF THE DEPARTMENT. READINGS TAKEN FOR H2S SHALL BE RECORDED AND STORED ELECTRONICALLY AS PART OF THE SCADA SYSTEM ON A SECURE SERVER. THE H2S ANALYZER SHALL BE CALIBRATED, MAINTAINED AND OPERATED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS/RECOMMENDATIONS. THE NAME OF THE PERSON WHO CONDUCTED THE SAMPLING, EQUIPMENT IDENTIFICATION, CALIBRATION DETAILS AND ANY OTHER PERTINENT INFORMATION THAT CAN BE USED TO VERIFY COMPLIANCE WITH THIS LIMIT SHALL BE RECORDED ELECTRONICALLY OR IN A PERMANENTLY BOUND LOGBOOK.			1-HOUR AVERAGE
	IF THE BIOLOGICAL OXIDATION OF H2S IN DGTNK FAILS TO REDUCE THE H2S IN THE BIOGAS TO A CONCENTRATION THAT IS IN COMPLIANCE WITH THE SPECIFIED H2S LIMIT, THE BIOGAS SHALL UNDERGO ADDITIONAL DESULFURIZATION VIA EMISSION SOURCE CONTROL (ESC) DSULF PRIOR TO COMBUSTION IN THE ENGINE. WHENEVER ADDITIONAL DESULFURIZATION IS REQUIRED, DAILY H2S MONITORING OF THE BIOGAS SHALL BE CONDUCTED AT A LOCATION AFTER ESC DSULF. THE SUPPLEMENTAL DESULFURIZATION PROCESS SHALL NOT RESULT IN ADDITIONAL ONSITE SO2 FORMATION OR THE RELEASE OF H2S. EQUIPMENT ASSOCIATED WITH ESC DSULF SHALL BE OPERATED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ALL MAINTENANCE, CALIBRATION AND OTHER ACTIVITIES ASSOCIATED WITH ESC DSULF SHALL BE RECORDED ELECTRONICALLY OR IN A PERMANENTLY BOUND LOGBOOK.			
	ALL RECORDS SHALL BE MAINTAINED ONSITE FOR A MINIMUM OF 5 YEARS AND SHALL BE READILY AVAILABLE FOR NYSDEC REVIEW UPON REQUEST.			
	NOTE: AN AIR QUALITY IMPACT ANALYSIS OF SO2 EMISSIONS FROM THE ENGINE WAS CONDUCTED USING THE AERSCREEN MODEL. BASED ON THE MAXIMUM CAPACITY OF THE ENGINE, IT WAS DETERMINED THAT THE HYDROGEN SULFIDE CONCENTRATION IN THE BIOGAS COMBUSTED IN THE ENGINE CANNOT EXCEED 524 PPMV TO MEET THE 1-HR SO2 NAAQS AT THE PROPERTY LINE. HOWEVER, THE ENGINE WARRANTY LIMITS H2S CONCENTRATION TO 400 PPMV.			

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				Averaging Method
Emission Unit: 1-ANDIG Process: 001 Emission Source: DGTNK				
7	HYDROGEN SULFIDE SULFUR DIOXIDE ****		688	MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE AS REQUIRED - SEE MONITORING DESCRIPTION
		parts per million (by volume)		DAILY
	THE NATIONAL PRIMARY 1-HOUR AMBIENT AIR QUALITY STANDARD FOR SULFUR OXIDES IS 75 PARTS PER BILLION OR 196 UG/M3, MEASURED IN THE AMBIENT AIR AS SULFUR DIOXIDE (SO2). THE DIGESTER GAS (BIOGAS) CONTAINS HYDROGEN SULFIDE (H2S), WHICH WHEN COMBUSTED PRODUCES SULFUR DIOXIDE. TO ENSURE THAT SO2 IN THE EXHAUST FROM THE FLARE ALONE DOES NOT CAUSE PROPERTY LINE CONCENTRATIONS TO EXCEED THE PRIMARY 1-HOUR NATIONAL AMBIENT AIR QUALITY STANDARD FOR SO2, HYDROGEN SULFIDE CONCENTRATION IN THE BIOGAS SHALL BE LIMITED TO 688 PPMV.			1-HOUR AVERAGE
	BUFFALO BIOENERGY CONTROLS THE H2S CONCENTRATION IN BIOGAS VIA BIOLOGICAL FIXATION OF H2S BY SULFUR-OXIDIZING BACTERIA. THE DIGESTER TANK ROOF STRAPS PROVIDE THE SURFACE AREA TO SUPPORT THE MICROBES THAT OXIDIZE H2S TO ELEMENTAL SULFUR, WHICH IS PRECIPITATED INTO THE DIGESTATE IN ES DGTNK. TO PREVENT EXCEEDANCE OF THE 1-HR SO2 NAAQS, BUFFALO BIOENERGY SHALL CONDUCT DAILY MONITORING OF THE CONCENTRATION OF H2S IN THE BIOGAS PRIOR TO COMBUSTION IN THE FLARE USING A PORTABLE ANALYZER ABLE TO MEASURE AND RECORD H2S ACCURATELY TO THE SATISFACTION OF THE DEPARTMENT. READINGS TAKEN FOR H2S SHALL BE RECORDED AND STORED ELECTRONICALLY AS PART OF THE SCADA SYSTEM ON A SECURE SERVER. THE H2S ANALYZER SHALL BE CALIBRATED, MAINTAINED AND OPERATED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS/RECOMMENDATIONS. THE NAME OF THE PERSON WHO CONDUCTED THE SAMPLING, EQUIPMENT IDENTIFICATION, CALIBRATION DETAILS AND ANY OTHER PERTINENT INFORMATION THAT CAN BE USED TO VERIFY COMPLIANCE WITH THIS LIMIT SHALL BE RECORDED ELECTRONICALLY OR IN A PERMANENTLY BOUND LOGBOOK.			
	IF THE BIOLOGICAL OXIDATION OF H2S IN DGTNK FAILS TO REDUCE THE H2S IN THE BIOGAS TO A CONCENTRATION THAT IS IN COMPLIANCE WITH THE SPECIFIED H2S LIMIT, THE BIOGAS SHALL UNDERGO ADDITIONAL DESULFURIZATION VIA EMISSION SOURCE CONTROL (ESC) DSULF PRIOR TO COMBUSTION IN THE FLARE. WHENEVER ADDITIONAL DESULFURIZATION IS REQUIRED, DAILY H2S MONITORING OF THE BIOGAS SHALL BE CONDUCTED AT A LOCATION AFTER ESC DSULF. THE SUPPLEMENTAL DESULFURIZATION PROCESS SHALL NOT RESULT IN ADDITIONAL ONSITE SO2 FORMATION OR THE RELEASE OF H2S. EQUIPMENT ASSOCIATED WITH ESC DSULF SHALL BE OPERATED AND MAINTAINED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. ALL MAINTENANCE, CALIBRATION AND OTHER ACTIVITIES ASSOCIATED WITH ESC DSULF SHALL BE RECORDED ELECTRONICALLY OR IN A PERMANENTLY BOUND LOGBOOK.			
	ALL RECORDS SHALL BE MAINTAINED ONSITE FOR A MINIMUM OF 5 YEARS AND SHALL BE READILY AVAILABLE FOR NYSDEC REVIEW UPON REQUEST.			

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Emission Unit: 1-ANDIG Process: 002

8	VELOCITY		200	MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SIROGATE
	HYDROGEN SULFIDE	feet per minute		AS REQUIRED - SEE MONITORING DESCRIPTION
	****			WEEKLY
	THE LOADING/UNLOADING OF BIOMASS WASTE (EMISSION SOURCES (ES) RECLQ, ES RECSD AND ES WASTE) AND ASSOCIATED ACTIVITIES (GRINDER/MACERATOR, ETC.) AT THE BUFFALO BIOENERGY ANAEROBIC DIGESTION FACILITY (BUFFALO BIOENERGY) GENERATES FUGITIVE ODOROUS EMISSIONS, WHICH WHEN RELEASED TO THE AMBIENT AIR MAY BE A NUISANCE AND HEALTH CONCERN TO THE SURROUNDING NEIGHBORHOOD. TO MINIMIZE THE RELEASE OF ODOROUS EMISSIONS AND ENSURE COMPLIANCE WITH 6NYCRR 211.1, "AIR POLLUTION PROHIBITED", BUILDING 1-MAIN SHALL BE OPERATED UNDER NEGATIVE PRESSURE AS A TOTAL ENCLOSURE TO CAPTURE FUGITIVE EMISSIONS IN ACCORDANCE WITH USEPA METHOD 204 - CRITERIA FOR AND VERIFICATION OF A PERMANENT OR TEMPORARY TOTAL ENCLOSURE. AT ALL TIMES, ANY LOADING/UNLOADING OF BIOMASS OR OTHER ODOR GENERATING ACTIVITIES CONDUCTED OUTSIDE OF BUILDING 1-MAIN, SHALL BE CONDUCTED UNDER VACUUM OR USING A VAPOR CONTROL SYSTEM. AN ENCLOSURE SHALL BE REQUIRED, IF NECESSARY TO CONTROL ODORS. EMISSIONS CAPTURED FROM THE BUILDING AND BY THE VAPOR CONTROL SYSTEM SHALL BE EXHAUSTED TO A PROPERLY FUNCTIONING BIOFILTER OR AN ACTIVATED CARBON CANISTER(S) AS A BACKUP POLLUTION CONTROL DEVICE. TO MINIMIZE FUGITIVE EMISSIONS MANHOLE COVERS SHALL BE SEALED WHEN NOT IN USE; TRUCKS AND OTHER EQUIPMENT CONTAINING ANY AMOUNT OF BIOMASS WASTE SHALL BE COVERED AT ALL TIMES WHEN EXPOSED TO THE ATMOSPHERE; FACILITY GROUNDS SHALL BE KEPT CLEAN AND FREE OF EXPOSED BIOMASS WASTE; AND VEHICLE TIRES SHALL BE CLEANED, IF NECESSARY, TO PREVENT TRACKING OF BIOMASS WASTE OFFSITE.	ARITHMETIC MEAN		
	BUFFALO BIOENERGY SHALL SUBMIT A METHOD 204 OPERATION AND MONITORING PLAN (O&M PLAN) WITHIN 60 DAYS OF THE ISSUANCE OF THE AIR STATE FACILITY PERMIT SPECIFYING HOW THE FACILITY WILL BE OPERATED TO MINIMIZE THE RELEASE OF FUGITIVE EMISSIONS DURING BIOMASS TRANSFER, GRINDING/MACERATING AND OTHER ODOR GENERATING ACTIVITIES (INSIDE AND OUTSIDE). NATURAL DRAFT OPENINGS (NDO) DIRECTING AIR FLOW INTO THE BUILDING/ENCLOSURE WITH A MINIMUM AVERAGE FACIAL VELOCITY OF 200 FPM SHALL BE ESTABLISHED AND VERIFIED FOR WINTER AND SUMMER MODES OF OPERATION USING A GRID SYSTEM TO DEMONSTRATE COMPLIANCE. BUFFALO BIOENERGY SHALL OPERATE THE FACILITY IN ACCORDANCE WITH THE O&M PLAN AT ALL TIMES. ALL ACCESS DOORS AND WINDOWS THAT ARE NOT NDOS SHALL BE CLOSED. FACILITY OPERATORS MUST BE MADE AWARE OF THE REQUIREMENTS OF THE O&M PLAN. EACH NDO MUST BE IDENTIFIED AND THE POSITION(S) OF THE OPENINGS THAT WERE VERIFIED COMPLIANT MUST BE CLEARLY MARKED IN THE VICINITY OF THE NDO. AT LEAST ONCE A WEEK, BUILDING 1-MAIN AND THE OUTDOOR VAPOR RECOVERY SYSTEM SHALL BE INSPECTED TO VERIFY COMPLIANCE WITH THE OPERATING REQUIREMENTS SPECIFIED IN THE O&M PLAN. THESE INSPECTIONS SHALL BE RECORDED IN A LOGBOOK AND SHALL INCLUDE DATE, TIME, OBSERVER'S NAME, AND A BRIEF DESCRIPTION OF OBSERVATIONS, INCLUDING PROBLEMS/CORRECTIVE ACTIONS TAKEN. IF A PROBLEM IS ENCOUNTERED THAT CANNOT BE CORRECTED IMMEDIATELY, ACTION SHALL BE TAKEN TO MINIMIZE THE RELEASE OF ODOROUS POLLUTANTS, INCLUDING CESSATION OF THE RECEIPT OF WASTE, IF NECESSARY. THE LOGBOOK SHALL BE MAINTAINED ONSITE FOR AT LEAST 5 YEARS AND AVAILABLE FOR REVIEW UPON REQUEST BY NYSDEC. THE METHOD 204 O&M PLAN SHALL BE CONSIDERED PART OF THE ASF PERMIT.			

Monitoring applies to the following additional regulated contaminant(s): AMMONIA, VOC

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Emission Unit: 1-ANDIG Process: 002 Emission Source: FILTR				
9	PH HYDROGEN SULFIDE ****	6.0	8.0	MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE AS REQUIRED - SEE MONITORING DESCRIPTION MONTHLY RANGE-NOT TO FALL OUTSIDE OF STATED RANGE EXCEPT DURING STARTUP/SHUTDOWN
<p>THE BIOFILTER SHALL BE OPERATED WITHIN THE PH RANGE SPECIFIED BELOW TO ENSURE PROPER PERFORMANCE AND MAXIMUM REMOVAL EFFICIENCY. THE PH OF THE MEDIA ACROSS THE BED SHALL BE MEASURED AT LEAST MONTHLY, USING AN ACCEPTABLE METHOD. THE PH READINGS AND ANY ADJUSTMENTS MADE TO CORRECT THE PH, SHALL BE RECORDED IN A PERMANENTLY BOUND LOGBOOK OR ELECTRONICALLY ON A SECURE SERVER OR HARD DRIVE. RECORDS SHALL BE MAINTAINED ON SITE FOR A MINIMUM OF FIVE YEARS AND SHALL BE AVAILABLE FOR NYSDEC REVIEW UPON REQUEST.</p>				
Monitoring applies to the following additional regulated contaminant(s): AMMONIA, VOC				

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Num	Process Material	Units	
		Monitoring Frequency	Averaging Method

Emission Unit: 1-ANDIG Process: 002 Emission Source: FILTR

10	**** HYDROGEN SULFIDE ****			RECORD KEEPING/MAINTENANCE PROCEDURES
	BUFFALO BIOENERGY ADS FACILITY (BUFFALO BIOENERGY) OPERATES A BIOFILTER (EMISSION SOURCE CONTROL (ESC) FILTER) TO CONTROL EMISSIONS AND ODORS FROM THE LIQUID RECEIVING TANK (ES RECLQ), THE SOLID RECEIVING PIT, (ES RECSD) AND ASSOCIATED ACTIVITIES (GRINDING/ MACERATING, ETC.), AND THE LOADING OF SPENT BIOMASS INTO TANKER TRUCKS FOR OFFSITE DISPOSAL OR LAND APPLICATION (ES WASTE). THE POTENTIAL IMPACT OF HYDROGEN SULFIDE AND AMMONIA EMISSIONS ON THE SURROUNDING COMMUNITY IS A CONCERN. THEREFORE, HYDROGEN SULFIDE AND AMMONIA HAVE RECEIVED AN ENVIRONMENTAL RATING OF A, WHICH IS GIVEN TO ANY AIR CONTAMINANT WHOSE DISCHARGE RESULTS, OR MAY RESULT, IN SERIOUS ADVERSE EFFECTS ON RECEPTORS OR THE ENVIRONMENT. THESE EFFECTS MAY BE OF A HEALTH, ECONOMIC OR AESTHETIC NATURE OR ANY COMBINATION OF THESE.			AS REQUIRED - SEE MONITORING DESCRIPTION
	THE BIOFILTER SHALL BE DESIGNED TO ENSURE MAXIMUM BIODEGRADATION AND REMOVAL OF VOCS, AMMONIA, HYDROGEN SULFIDE AND OTHER INORGANIC CONTAMINANTS. TO ENSURE THAT THE BIOFILTER IS OPERATED EFFECTIVELY, THE ESTABLISHED MICROORGANISMS MUST REMAIN BIOLOGICALLY ACTIVE, VERIFIED THROUGH ACCEPTABLE BIOLOGICAL MONITORING METHODS. BUFFALO BIOENERGY SHALL OPERATE THE BIOFILTER WITH SUFFICIENT FOOD SOURCE, NUTRIENTS AND MINERALS, IF NECESSARY, TO ENSURE BIO-OXIDATION AND SHALL MONITOR PH, MOISTURE CONTENT, TEMPERATURE AND DIFFERENTIAL PRESSURE AS SPECIFIED IN THIS PERMIT. BUFFALO BIOENERGY SHALL ENSURE THAT THE BIOFILTER IS PROPERLY DESIGNED TO PREVENT ACID FORMATION, CORROSION PROBLEMS, PREMATURE COMPACTION OF THE MEDIA, SHORT-CIRCUITING THE MEDIA BED, INADEQUATE BIOLOGICAL ACTIVITY, AND OTHER PROBLEMS WHICH CAN RESULT IN SUB-STANDARD PERFORMANCE OF THE BIOFILTER. IF NECESSARY, THE BIOFILTER SHALL BE ENCLOSED IN A BUILDING OR OTHER STRUCTURE TO MINIMIZE MICROBIAL STRESS CAUSED BY EXPOSURE TO EXTREME (HOT/COLD) TEMPERATURE AND ADVERSE WEATHER CONDITIONS. ALL OPERATION AND MAINTENANCE RECORDS SHALL BE KEPT ONSITE TO VERIFY THAT THE BIOFILTER HAS BEEN OPERATED AND MAINTAINED IN A MANNER THAT IS CONDUCIVE TO MAINTAINING A HEALTHY ENVIRONMENT FOR THE MICROORGANISMS TO THRIVE IN AND CONTROL ODORS. DURING BIOFILTER ACCLIMATION, UPSETS, AND ANY OTHER ODOR CAUSING EVENTS, THE EMISSIONS AND ODORS FROM THESE EMISSION SOURCES SHALL BE CONTROLLED WITH PROPERLY SIZED ACTIVATED CARBON CANISTERS OR OTHER CONTROL TECHNOLOGY ACCEPTABLE TO NYSDEC. BUFFALO BIOENERGY MAY BE REQUIRED TO EVALUATE THE PERFORMANCE OF THE BIOFILTER AND COMPLIANCE WITH 6NYCRR212.9(B), BASED ON INLET/OUTLET SAMPLING, UPON REQUEST BY NYSDEC.			AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
	CONSIDERING THE ABOVE, AN OPERATION AND MAINTENANCE (O&M) PLAN SHALL PREPARED FOR THE BIOFILTER IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS OR ACCEPTABLE PROCEDURES AND SHALL BE SUBMITTED TO NYSDEC FOR REVIEW WITHIN 60 DAYS OF THE ISSUANCE OF THIS PERMIT. THE FINAL O&M PLAN SHALL BE CONSIDERED PART OF THE AIR STATE FACILITY PERMIT.			****
	Monitoring applies to the following additional regulated contaminant(s): AMMONIA, VOC			

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Emission Unit: 1-ANDIG Process: 002 Emission Source: FILTR

11	PRESSURE DROP HYDROGEN SULFIDE ****		0.86	MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE AS REQUIRED - SEE MONITORING DESCRIPTION
	THE DIFFERENTIAL PRESSURE OR PRESSURE DROP (DELTA P) ACROSS THE BED SHALL BE MONITORED WEEKLY USING A MANOMETER OR OTHER ACCEPTABLE PRESSURE MEASURING DEVICE TO ENSURE THE EFFECTIVENESS OF THE BIOFILTER AND MAXIMUM REMOVAL EFFICIENCY. A DIFFERENTIAL PRESSURE READING GREATER THAN 50% OF THE DESIGN DIFFERENTIAL PRESSURE INDICATES THE NEED TO INSPECT AND MAKE NECESSARY ADJUSTMENTS TO LOWER DELTA P OR POSSIBLY REPLACE THE MEDIA.	inches of water		WEEKLY
	THE BIOFILTER SHALL BE OPERATED AND MAINTAINED SO THAT THE DIFFERENTIAL PRESSURE DOES NOT EXCEED THE DESIGN DIFFERENTIAL PRESSURE FOR THE FILTER BED MEDIA DETERMINED AS FOLLOWS: TOTAL DIFFERENTIAL PRESSURE=DM*UPD=DM*[8.82E(11)*(%VOIDS)E(-8.6)*UAR E(1.27)] WHERE: DM (FT) = BIOFILTER MEDIA DEPTH (FT) UPD = UNIT PRESSURE DROP UAR (FT3/MIN PER FT2)= Q/AM = AIR FLOWRATE (FT3/MIN)/BIOFLTER MEDIA SURFACE AREA (FT2) FOR DM=6 FEET AND UAR = 6 FT3 /MIN PER FT2, THE DESIGN DIFFERENTIAL PRESSURES FOR THE FOLLOWING PERCENT VOIDS ARE:			MAXIMUM - NOT TO BE EXCEEDED AT ANY TIME /INSTANTANFOIS/DISCRETFE OR
	PERCENT VOIDS DIFFERENTIAL PRESSURE (%) (IN. WATER)			
	40 0.86			
	50 0.13			
	60 0.03			
	THE PERCENT VOIDS OR PORE VOLUME OF THE BIOFILTER MEDIA MAY RANGE FROM 40% TO 60% AND MUST BE VERIFIED PRIOR TO START-UP. PERCENT VOID DETERMINATIONS WITH DATA SHALL BE RECORDED WITH DIFFERENTIAL PRESSURE READINGS IN A PERMANENTLY BOUND LOGBOOK OR ELECTRONICALLY ON A SECURE SERVER. ALL RECORDS SHALL BE MAINTAINED ONSITE FOR A MINIMUM OF FIVE YEARS AND BE READILY AVAILABLE FOR NYSDEC REVIEW UPON REQUEST.			
	Monitoring applies to the following additional regulated contaminant(s): AMMONIA, VOC			

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Averaging Method				
Emission Unit: 1-ANDIG Process: 002 Emission Source: FILTR				
12	TEMPERATURE HYDROGEN SULFIDE ****	77	104	MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE AS REQUIRED - SEE MONITORING DESCRIPTION CONTINUOUS RANGE-NOT TO FALL OUTSIDE OF STATED RANGE EXCEPT DURING STARTUP/SHUTDOWN
OPTIMAL MICROBIAL ACTIVITY AND TRANSFER OF CONTAMINANTS INTO THE BIOFILTER MEDIA ARE DEPENDENT ON OPERATING TEMPERATURE. TO ENSURE THAT THE BIOFILTER ACHIEVES SUFFICIENT BIODEGRADATION OF VOCs, H <sub>2</sub> S AND NH <sub>3</sub> AND MAXIMIZE REMOVAL EFFICIENCY, THE BIOFILTER SHALL BE OPERATED WITHIN THE TEMPERATURE RANGE SPECIFIED BELOW. THE TEMPERATURE ACROSS THE BIOFILTER BED SHALL BE MONITORED AND RECORDED CONTINUOUSLY USING AN ACCEPTABLE METHOD. SUDDEN CHANGES IN BIOFILTER TEMPERATURE SHALL BE AVOIDED, SINCE THIS MAY CAUSE FLUCTUATIONS IN MICROBIAL POPULATION AND DECREASED REMOVAL EFFICIENCY. TEMPERATURE RECORDS SHALL BE MAINTAINED ONSITE FOR AT LEAST FIVE YEARS AND SHALL BE AVAILABLE FOR NYSDEC REVIEW UPON REQUEST.				
Monitoring applies to the following additional regulated contaminant(s): AMMONIA, VOC				
13	MOISTURE CONTENT HYDROGEN SULFIDE ****	50	60	MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE AS REQUIRED - SEE MONITORING DESCRIPTION MONTHLY RANGE-NOT TO FALL OUTSIDE OF STATED RANGE EXCEPT DURING STARTUP/SHUTDOWN
BED MOISTURE CAN AFFECT THE REMOVAL EFFICIENCY OF THE BIOFILTER. TO ENSURE PROPER PERFORMANCE OF THE BIOFILTER AND MAXIMUM REMOVAL EFFICIENCY, THE BIOFILTER SHALL BE OPERATED WITHIN THE RANGE OF 50%-60% MOISTURE CONTENT. THE MOISTURE CONTENT OF THE MEDIA ACROSS THE BIOFILTER BED SHALL BE MONITORED AT LEAST MONTHLY USING ACCEPTABLE METHODS. MONITORING RESULTS AND ASSOCIATED ACTIVITIES SHALL BE RECORDED IN A PERMANENTLY BOUND LOGBOOK OR ELECTRONICALLY, IF STORED ON A SECURE SERVER. RECORDS SHALL BE MAINTAINED ONSITE FOR A MINIMUM OF FIVE YEARS AND BE AVAILABLE FOR NYSDEC REVIEW UPON REQUEST.				
Monitoring applies to the following additional regulated contaminant(s): AMMONIA, VOC				

Summary of Compliance Requirements

\*\*\* THIS SUMMARY IS NOT ENFORCEABLE BUT IS MERELY INTENDED TO PROVIDE A CONCISE VIEW OF THE MONITORING REQUIREMENTS.

READERS ARE DIRECTED TO THE MAIN PERMIT FOR DETAILS REGARDING ENFORCEABLE CONDITIONS. \*\*\*

DEC ID 9146800224 Facility BUFFALO BIOENERGY ANAEROBIC DIGESTION FACILITY

Location 2900 N AMERICA DR WEST SENECA, NY 14224

Permit ID 9-1468-00224/00002 Application Recv'd 06/15/2012 Renewal No: 0 Mod No: 1 Report Only Includes Active Permit conditions

Permit Type ASF Status Issued

Compliance Assurance Monitoring

Activity Type

Monitored Parameter

Reporting Frequency

Cond Regulated Contaminant

Lower Limit

Upper Limit

Monitoring Frequency

Num Process Material

Units

Averaging Method

Emission Unit: 1-ANDIG Process: 002 Emission Source: FILTR

Cond	Regulated Contaminant	Lower Limit	Upper Limit	Monitoring Frequency
Num	Process Material	Units		Averaging Method
14	**** HYDROGEN SULFIDE ****		7.0	INTERMITTENT EMISSION TESTING
		parts per million (by volume)		AS REQUIRED - SEE MONITORING DESCRIPTION
	<p>BUFFALO BIOENERGY ADS FACILITY (BUFFALO BIOENERGY) OPERATES HYDROGEN SULFIDE (H2S) GENERATING EMISSION SOURCES AS PART OF PROCESS 001 AND PROCESS 002. HYDROGEN SULFIDE EMISSIONS FROM PROCESS 002, GENERATED BY THE LOADING/UNLOADING OF TANKS/TRUCKS ( ES RECLQ, ES RECS, ES WASTE) AND ASSOCIATED ACTIVITIES, ARE CONTROLLED THROUGH BIODEGRADATION IN A BIOFILTER WITH DIMENSIONS 20 FT L X 9 FT W X 6 FT D AND A RELEASE HEIGHT OF 10 FT. TO ENSURE MAXIMUM REMOVAL EFFICIENCY, THE BIOFILTER WAS DESIGNED TO ACHIEVE AN EMPTY BED RESIDENCE TIME OF AT LEAST 60 SECONDS.</p> <p>THE NEW YORK STATE 1-HOUR AMBIENT AIR QUALITY STANDARD FOR HYDROGEN SULFIDE IS 14 UG/M3 OR 0.01 PPM. BASED ON DATA FROM A SIMILAR SOURCE, IT IS ESTIMATED THAT THE H2S CONCENTRATION IN THE INLET TO THE BIOFILTER IS 6.4 PPMV. IF OPERATED PROPERLY THE BIOFILTER SHOULD ACHIEVE A MINIMUM OF 90% REMOVAL EFFICIENCY, RESULTING IN A CONCENTRATION OF 0.64 PPMV H2S AFTER TREATMENT OR 0.00042 G H2S/S. TO VERIFY COMPLIANCE WITH THE NYS AAQS, BUFFALO BIOENERGY CONDUCTED AN AIR QUALITY ANALYSIS USING AERSCREEN TO MODEL H2S EMISSIONS FROM THE BIOFILTER AS AN AREA SOURCE AT A RELEASE HEIGHT OF 6 FEET. RESULTS SHOWED THAT H2S EMISSIONS FROM THE BIOFILTER ALONE CAUSED PROPERTY LINE CONCENTRATIONS TO EXCEED THE 1-HOUR H2S NYS AAQS. A REFINED ANALYSIS OF H2S EMISSIONS FROM THE BIOFILTER AS AN AREA SOURCE WAS CONDUCTED USING AERMOD WHICH SHOWED 8.05 UG H2S/M3 AT THE PROPERTY LINE AT A RELEASE HEIGHT OF 10 FEET.</p> <p>TO ENSURE COMPLIANCE WITH THE 1-HR H2S NYS AAQS, THE H2S CONCENTRATION IN THE INLET TO THE BIOFILTER SHALL NOT EXCEED 7.0 PPMV. BUFFALO BIOENERGY SHALL CONDUCT DAILY MONITORING OF THE CONCENTRATION OF H2S IN THE INLET TO THE BIOFILTER USING A PORTABLE ANALYZER ABLE TO MEASURE AND RECORD H2S ACCURATELY TO THE SATISFACTION OF THE DEPARTMENT. READINGS TAKEN FOR H2S SHALL BE RECORDED AND STORED ELECTRONICALLY AS PART OF THE SCADA SYSTEM ON A SECURE SERVER. THE H2S ANALYZER SHALL BE CALIBRATED, MAINTAINED AND OPERATED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS/RECOMMENDATIONS. THE NAME OF THE PERSON WHO CONDUCTED THE SAMPLING, EQUIPMENT IDENTIFICATION, CALIBRATION DETAILS AND ANY OTHER PERTINENT INFORMATION THAT CAN BE USED TO VERIFY COMPLIANCE WITH THIS LIMIT SHALL BE RECORDED ELECTRONICALLY OR IN A PERMANENTLY BOUND LOGBOOK.</p> <p>THE BIOFILTER SHALL BE OPERATED AND MAINTAINED ACCORDING TO THE NYSDEC APPROVED BIOFILTER OPERATION AND MAINTENANCE PLAN TO ENSURE A MINIMUM OF 90% REMOVAL EFFICIENCY. IF THE H2S CONCENTRATION AT THE INLET EXCEEDS 7.0 PPMV, THE BIOFILTER IS NOT OPERATING/EXPERIENCING UPSETS AND/OR IF HYDROGEN SULFIDE ODORS ARE DETECTED AT OR BEYOND THE PROPERTY LINE OF THE FACILITY, PROCES 002 EMISSIONS SHALL BYPASS THE BIOFILTER FOR TREATMENT BY ESC ACARB (ACTIVATED CARBON ABLE TO ACHIEVE 99% CONTROL FOR H2S). BUFFALO BIOENERGY SHALL COMPLETE A PROGRAM OF ASSESSMENT AND REMEDIATION TO CORRECT THE POTENTIAL IMPACT OF H2S AND USE ALTERNATIVE MEASURES TO CONTROL HYDROGEN SULFIDE EMISSIONS, IF NECESSARY.</p>			AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
				1-HOUR AVERAGE

ALL RECORDS SHALL BE MAINTAINED ONSITE FOR A MINIMUM OF 5 YEARS AND SHALL BE AVAILABLE TO NYSDEC UPON REQUEST.

Summary of Compliance Requirements

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DEC ID 9146800224 Facility BUFFALO BIOENERGY ANAEROBIC DIGESTION FACILITY

Location 2900 N AMERICA DR WEST SENECA, NY 14224

Permit ID 9-1468-00224/00002 Application Recv'd 06/15/2012 Renewal No: 0 Mod No: 1 Report Only Includes Active Permit conditions

Permit Type ASF Status Issued

Compliance Assurance Monitoring

Monitored Parameter		Activity Type	
Cond	Regulated Contaminant	Lower Limit	Upper Limit
Num	Process Material	Units	
		Reporting Frequency	
		Monitoring Frequency	
		Averaging Method	

Emission Unit: 1-ANDIG Emission Point: 00001 Process: 001 Emission Source: ENG01

15	FORMALDEHYDE FORMALDEHYDE ****		0.008	INTERMITTENT EMISSION TESTING
		pounds per hour		AS REQUIRED - SEE MONITORING DESCRIPTION
	BUFFALO BIOENERGY OPERATES A DIGESTER-GAS FUELED, 4 STROKE, LEAN BURN SPARK IGNITION (SI) INTERNAL COMBUSTION ENGINE (ICE) TO GENERATE ELECTRICITY FOR SALE TO THE UTILITY GRID. COMBUSTION PRODUCTS CONTAINED IN THE ICE EXHAUST INCLUDE FORMALDEHYDE, ACROLEIN AND ACETALDEHYDE. BOTH FORMALDEHYDE AND ACROLEIN ARE CLASSIFIED AS HIGH TOXICITY AIR CONTAMINANTS AND HAVE BEEN GIVEN AN ENVIRONMENTAL RATING OF A. AN A-RATED AIR CONTAMINANT IS ONE WHOSE DISCHARGE RESULTS, OR MAY RESULT, IN SERIOUS ADVERSE EFFECTS ON RECEPTORS OR THE ENVIRONMENT. THESE EFFECTS MAY BE OF A HEALTH, ECONOMIC OR AESTHETIC NATURE OR ANY COMBINATION OF THESE.			AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
				1-HOUR AVERAGE

FORMALDEHYDE, ACROLEIN AND ACETALDEHYDE MAY BE EMITTED FROM THE ENGINE AT LEVELS THAT RESULT IN OFFSITE AMBIENT AIR CONCENTRATIONS THAT EXCEED THE CORRESPONDING SHORT-TERM GUIDELINE CONCENTRATIONS (SGCS) AND/OR ANNUAL GUIDELINE CONCENTRATIONS (AGCS). THEREFORE, TO PROTECT THE PUBLIC FROM ADVERSE ACUTE AND CHRONIC EXPOSURE TO THESE TOXIC AIR CONTAMINANTS, BUFFALO BIOENERGY SHALL MONITOR AND CONTROL THE EMISSION RATE OF THESE CONTAMINANTS, IF NECESSARY. SINCE FORMALDEHYDE IS THE GOVERNING TOXIC CONTAMINANT IN THE ENGINE EMISSIONS BASED ON THE AGC, BUFFALO BIOENERGY SHALL ONLY BE REQUIRED TO MONITOR FORMALDEHYDE EMISSIONS.

SINCE A VERIFIED EMISSION FACTOR FOR FORMALDEHYDE DOES NOT EXIST IN THE LITERATURE FOR THIS TYPE OF EMISSION SOURCE, BUFFALO BIOENERGY SHALL CONDUCT A STACK TEST TO DETERMINE THE EMISSION RATE OF FORMALDEHYDE FROM THE ENGINE AND VERIFY COMPLIANCE WITH THE EMISSION LIMIT SPECIFIED BELOW. IF THE STACK TEST RESULTS SHOW AN EMISSION RATE FOR FORMALDEHYDE THAT IS GREATER THAN THE LIMIT, BUFFALO BIOENERGY SHALL CONDUCT AN AIR QUALITY ANALYSIS WITH AERMOD, USING THE HIGHEST EMISSION RATE FOR FORMALDEHYDE DETERMINED DURING THE STACK TEST. IF AERMOD RESULTS SHOW THAT THE AMBIENT IMPACT OF FORMALDEHYDE EXCEEDS THE CORRESPONDING AGC AND/OR SGC, BUFFALO BIOENERGY SHALL INSTALL THE APPROPRIATE EQUIPMENT TO CONTROL EMISSIONS TO A LEVEL THAT DOES NOT RESULT IN OFFSITE AMBIENT AIR CONCENTRATIONS THAT EXCEED THE AGC AND/OR SGC FOR FORMALDEHYDE. A PERFORMANCE TEST SHALL BE CONDUCTED WITHIN 180 DAYS OF START-UP. PRIOR TO INSTALLATION, BUFFALO BIOENERGY SHALL SUBMIT AN OPERATION AND MAINTENANCE PLAN FOR THE CONTROL EQUIPMENT, PREPARED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS/SPECIFICATIONS AND ACCEPTED PROCEDURES. THE O& M PLAN SHALL BE CONSIDERED PART OF THIS PERMIT.

IF THE STACK TEST RESULTS SHOW COMPLIANCE WITH THE EMISSION LIMIT FOR FORMALDEHYDE OR IF THE OFFSITE AMBIENT AIR CONCENTRATIONS OF FORMALDEHYDE DETERMINED VIA THE AERMOD ANALYSIS AND STACK TEST RESULTS IS LESS THAN THE SGC AND AGC FOR FORMALDEHYDE, THEN THE INSTALLATION OF CONTROL EQUIPMENT ON THE ENGINE EXHAUST IS NOT REQUIRED. IN THAT CASE, DUE TO THE VARIABILITY OF THE WASTE DIGESTED, BUFFALO BIOENERGY SHALL CONDUCT STACK TESTS FOR FORMALDEHYDE ACCORDING TO THE SCHEDULE SPECIFIED UNDER 40CFR60, SUBPART JJJJ (8760 HOURS OF OPERATION OR 3 YEARS, WHICHEVER IS SOONER) TO VERIFY COMPLIANCE WITH THE EMISSION LIMIT OR THAT THE AMBIENT IMPACT REMAINS ACCEPTABLE.

IN LIEU OF THE STACK TESTING REQUIREMENTS DESCRIBED ABOVE, BUFFALO BIOENERGY MAY INSTALL A CATALYST OR OTHER ACCEPTABLE CONTROL EQUIPMENT TO REMOVE FORMALDEHYDE, ACROLEIN AND ACETALDEHYDE FROM THE ENGINE EXHAUST.

Summary of Compliance Requirements

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Monitored Parameter		Activity Type	
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Num	Process Material	Units	

PERFORMANCE TEST SHALL BE CONDUCTED WITHIN 180 DAYS OF START-UP TO DETERMINE THE EMISSION RATE OF FORMALDEHYDE FROM THE ENGINE WITH CONTROL AND VERIFY COMPLIANCE WITH THE LIMIT SPECIFIED BELOW. AN AIR QUALITY ANALYSIS SHALL BE PERFORMED AS DESCRIBED ABOVE.

ALL STACK TEST PROTOCOLS SHALL BE SUBMITTED TO THE DEPARTMENT AT LEAST 45 DAYS PRIOR TO A SCHEDULED TEST. AN EMISSIONS REPORT SHALL BE SUBMITTED WITHIN 60 DAYS OF CONDUCTING THE STACK TEST. THE ANNUAL AND SHORT-TERM OFFSITE AMBIENT AIR CONCENTRATIONS OF FORMALDEHYDE AND A COMPARISON TO THE AGC AND SGC SHALL BE INCLUDED WITH ALL STACK TEST REPORTS.

ALL RECORDS ASSOCIATED WITH THESE REQUIREMENTS SHALL BE MAINTAINED ONSITE FOR A MINIMUM OF 5 YEARS AND MUST BE AVAILABLE FOR NYSDEC REVIEW UPON REQUEST.

Summary of Compliance Requirements

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Compliance Assurance Monitoring

Monitored Parameter		Lower Limit	Upper Limit	Activity Type
Cond Num	Regulated Contaminant	Units		Reporting Frequency
				Monitoring Frequency
				Averaging Method

Emission Unit: 1-ANDIG Emission Point: 00001 Process: 001 Emission Source: ENG01

17	CARBON MONOXIDE CARBON MONOXIDE ****		4.13	INTERMITTENT EMISSION TESTING
	OWNERS AND OPERATORS OF STATIONARY SPARK IGNITION INTERNAL COMBUSTION ENGINES (SI ICE) WITH A MAXIMUM ENGINE POWER GREATER THAN OR EQUAL TO 75 KW (100 HP) (EXCEPT GASOLINE AND RICH BURN ENGINES THAT USE LPG) MUST COMPLY WITH THE EMISSION STANDARD LISTED BELOW FOR THEIR STATIONARY SI ICE. THE SPECIFIED LIMIT OF 4.13 G/DSCF CO CORRESPONDS TO 475 PPMVD CO @ 15% O <sub>2</sub> .	grams per brake horsepower-hour		AS REQUIRED - SEE MONITORING DESCRIPTION
	BUFFALO BIOENERGY ADS FACILITY (BUFFALO BIOENERGY) OPERATES A 1600 KW CATERPILLAR G3520C SI ICE WITH MAXIMUM ENGINE POWER OF 2233 BHP. THE POTENTIAL TO EMIT (PTE) CARBON MONOXIDE (CO) DETERMINED USING THIS ENGINE'S EMISSION TEST DATA FOR NOT TO EXCEED (NTE) CO AT MAXIMUM POWER GENERATION AND LOAD IS 88.9 TPY. THE NTE CO OF 4.13 G/BHP-HR IS THE MAXIMUM EMISSION RATE THAT THE ENGINE CAN ACHIEVE BASED ON DESIGN, WITH PROPER MAINTENANCE AND OPERATION. CONSIDERING THIS, THE NTE CO SHALL BE THE LIMIT FOR CO, IN LIEU OF THE 5.0 G/BHP-HR STANDARD SPECIFIED UNDER SUBPART JJJJ.			AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
	AN INITIAL PERFORMANCE TEST SHALL BE CONDUCTED WITHIN 1 YEAR OF THE ENGINE'S INITIAL STARTUP, BUT NOT BEFORE 100 HOURS OF OPERATION. SUBSEQUENT PERFORMANCE TESTING SHALL BE CONDUCTED EVERY 8,760 HOURS OR 3 YEARS, WHICHEVER COMES FIRST, THEREAFTER TO DEMONSTRATE COMPLIANCE. A STACK TEST PROTOCOL SHALL BE SUBMITTED WITHIN 45 DAYS OF THE SCHEDULED PERFORMANCE TEST FOR NYSDEC REVIEW AND APPROVAL. IN ACCORDANCE WITH 60.4245(D), THE STACK TEST REPORT SHALL BE SUBMITTED TO NYSDEC WITHIN 60 DAYS OF CONDUCTING THE STACK TEST.			AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATED
	CARBON MONOXIDE CONTENT IN THE ENGINE'S EXHAUST SHALL BE DETERMINED QUARTERLY AT MAXIMUM LOAD USING A PORTABLE CO ANALYZER ABLE TO MEASURE AND RECORD CO ACCURATELY TO VERIFY COMPLIANCE WITH THE 4.13 G/BHP-HR CO LIMIT. DURING EACH STACK TEST, THE CO SHALL ALSO BE MEASURED WITH THE PORTABLE CO ANALYZER TO ENSURE THAT THE ANALYZER READINGS CONCUR WITH STACK TEST RESULTS. THE CO ANALYZER READINGS SHALL BE INCLUDED IN THE STACK TEST REPORT. IF A QUARTERLY CO READING TAKEN USING THE ANALYZER DOES NOT SHOW COMPLIANCE WITH THE 4.13 G/BHP-HR LIMIT, A STACK TEST SHALL BE CONDUCTED WITHIN 30 DAYS TO VERIFY CO EMISSIONS. THE CO ANALYZER SHALL BE CALIBRATED, MAINTAINED AND OPERATED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. ALL QUARTERLY CO READINGS SHALL BE RECORDED WITH CALIBRATION DATA AND ANY OTHER PERTINENT INFORMATION IN A PERMANENTLY BOUND LOGBOOK OR ELECTRONICALLY ON A SECURE SERVER.			
	IF A STACK TEST FAILS TO SHOW COMPLIANCE WITH THE 4.13 G/BHP-HR LIMIT, BUFFALO BIOENERGY SHALL EVALUATE THE FACILITY-WIDE POTENTIAL TO EMIT CO AND APPLICABILITY OF 6NYCRR PART 201-6 BASED ON THE NONCOMPLIANT CO STACK TEST RESULTS. THE EVALUATION SHALL BE SUBMITTED WITH THE PERFORMANCE TEST REPORT. IF THE EVALUATION SHOWS THAT THE FACILITY-WIDE PTE CO EXCEEDS THE MAJOR SOURCE THRESHOLD OF 100 TPY FOR CO, BUFFALO BIOENERGY SHALL SUBMIT AN APPLICATION FOR A PERMIT MODIFICATION FOR A FEDERALLY ENFORCEABLE EMISSION CAP ON CO OR A TITLE V PERMIT, WHICHEVER IS APPLICABLE, NO LATER THAN 30 DAYS AFTER THE EVALUATION IS SUBMITTED.			

Summary of Compliance Requirements

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DEC ID 9146800224 Facility BUFFALO BIOENERGY ANAEROBIC DIGESTION FACILITY

Location 2900 N AMERICA DR WEST SENECA, NY 14224

Permit ID 9-1468-00224/00002 Application Recv'd 06/15/2012 Renewal No: 0 Mod No: 1 Report Only Includes Active Permit conditions

Permit Type ASF Status Issued

Compliance Assurance Monitoring

<u>Monitored Parameter</u>				<u>Activity Type</u>
<u>Cond</u>	<u>Regulated Contaminant</u>	<u>Lower Limit</u>	<u>Upper Limit</u>	<u>Reporting Frequency</u>
<u>Num</u>	<u>Process Material</u>	<u>Units</u>		<u>Monitoring Frequency</u>
				<u>Averaging Method</u>

ALL RECORDS SHALL BE MAINTAINED ONSITE FOR A MINIMUM OF FIVE YEARS AND SHALL BE READILY AVAILABLE FOR NYSDEC REVIEW UPON REQUEST.

Summary of Compliance Requirements

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Activity Type

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Reporting Frequency

Cond Regulated Contaminant

Lower Limit

Upper Limit

Monitoring Frequency

Num Process Material

Units

Averaging Method

Emission Unit: 1-ANDIG Emission Point: 00001 Process: 001 Emission Source: ENG01

Cond Num	Regulated Contaminant	Lower Limit	Upper Limit	Reporting Frequency	Monitoring Frequency	Averaging Method
18	OXIDES OF NITROGEN OXIDES OF NITROGEN ****		0.50	INTERMITTENT EMISSION TESTING		
	OWNERS AND OPERATORS OF STATIONARY SPARK IGNITION INTERNAL COMBUSTION ENGINES (SI ICE OR ENGINE) WITH A MAXIMUM ENGINE POWER GREATER THAN OR EQUAL TO 75 KW (100 HP) (EXCEPT GASOLINE AND RICH BURN ENGINES THAT USE LPG) MUST COMPLY WITH THE EMISSION STANDARD LISTED BELOW FOR THEIR STATIONARY SI ICE. THE SPECIFIED LIMIT OF 0.5 G/DSCF NOX AS NO2 CORRESPONDS TO 35 PPMVD NOX (AS NO2) @ 15% O2. THIS LIMIT IS THE MANUFACTURER'S GUARANTEE WHICH WAS SET IN LIEU OF THE 2.0 G/BHP-HR STANDARD SPECIFIED UNDER SUBPART JJJJ TO ENSURE COMPLIANCE WITH THE 1-HR NAAQS FOR NO2 AT THE PROPERTY LINE AS DESCRIBED BELOW.			AS REQUIRED - SEE MONITORING DESCRIPTION		
	AN INITIAL PERFORMANCE TEST SHALL BE CONDUCTED WITHIN 1 YEAR OF THE ENGINE'S INITIAL STARTUP, BUT NOT BEFORE 100 HOURS OF OPERATION. SUBSEQUENT PERFORMANCE TESTING SHALL BE CONDUCTED EVERY 8,760 HOURS OR 3 YEARS, WHICHEVER COMES FIRST, THEREAFTER TO DEMONSTRATE COMPLIANCE. A STACK TEST PROTOCOL SHALL BE SUBMITTED WITHIN 45 DAYS OF THE SCHEDULED PERFORMANCE TEST FOR NYSDEC REVIEW AND APPROVAL. IN ACCORDANCE WITH 60.4245(D), THE STACK TEST REPORT SHALL BE SUBMITTED TO NYSDEC WITHIN 60 DAYS OF CONDUCTING THE STACK TEST.			AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION		
	THE NATIONAL PRIMARY 1-HOUR AMBIENT AIR QUALITY STANDARD (NAAQS) FOR OXIDES OF NITROGEN (WITH NITROGEN DIOXIDE (NO2) AS THE INDICATOR) IS 100 PPB (188 UG NO2/M3). AERSCREEN MODELING RESULTS FOR THE ENGINE EMISSIONS AT 100% LOAD AND 0.5 G/BHP-HR SHOW AN AMBIENT NO2 CONCENTRATION OF 185 UG/M3 AT THE PROPERTY LINE, WHICH IS 98% OF THE 1-HR NAAQS FOR NO2. THEREFORE, IN ADDITION TO THE STACK TEST REQUIREMENTS UNDER 40CFR60, SUBPART JJJJ, THE EMISSION RATE OF NO2 FROM THE ENGINE SHALL BE DETERMINED QUARTERLY AT MAXIMUM LOAD USING A PORTABLE NO2 ANALYZER ABLE TO MEASURE AND RECORD NO2 ACCURATELY TO THE SATISFACTION OF THE DEPARTMENT. DURING EACH STACK TEST, THE NO2 IN THE ENGINE EXHAUST SHALL ALSO BE MEASURED WITH THE PORTABLE NO2 ANALYZER TO ENSURE THAT THE ANALYZER READINGS CONCUR WITH STACK TEST RESULTS. THE NO2 ANALYZER READINGS SHALL BE INCLUDED IN THE STACK TEST REPORT. THE NO2 ANALYZER SHALL BE CALIBRATED, MAINTAINED AND OPERATED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. ALL NO2 READINGS SHALL BE RECORDED ELECTRONICALLY (I.E. SCADA) ON A SECURE SERVER OR IN A PERMANENTLY BOUND LOGBOOK WITH THE NAME OF THE PERSON WHO CONDUCTED THE SAMPLING, EQUIPMENT IDENTIFICATION, CALIBRATION DETAILS AND ANY OTHER PERTINENT INFORMATION THAT CAN BE USED TO VERIFY COMPLIANCE WITH THIS LIMIT. IF A QUARTERLY NO2 READING TAKEN USING THE ANALYZER FAILS TO SHOW COMPLIANCE WITH THE 0.5 G/BHP-HR LIMIT, THEN A STACK TEST SHALL BE CONDUCTED WITHIN 30 DAYS TO VERIFY NO2 EMISSIONS FROM THE ENGINE OPERATING AT 100% LOAD.			AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATED		
	IF STACK TESTING SHOWS THAT THE NO2 EMISSION RATE FOR THE ENGINE IS HIGHER THAN THE EMISSION RATE FOR NOX (AS NO2) SPECIFIED BELOW AND A REFINED AIR QUALITY IMPACT ANALYSIS USING AERMOD FAILS TO SHOW COMPLIANCE WITH THE 1-HR STANDARD FOR NITROGEN DIOXIDE AT THE PROPERTY LINE, BUFFALO BIOENERGY SHALL COMPLETE A PROGRAM OF ASSESSMENT AND REMEDIATION TO CORRECT THE POTENTIAL IMPACTS. BUFFALO BIOENERGY SHALL BE REQUIRED TO USE ALTERNATIVE MEASURES TO CONTROL NITROGEN DIOXIDE EMISSIONS FROM THE ENGINE TO LESS THAN OR EQUAL TO 0.5 G/BHP-HR OR 35 PPMVD @ 15% O2, IF NECESSARY.					

\*\*\*\* No Data

A14

Summary of Compliance Requirements

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Compliance Assurance Monitoring

Compliance Assurance Monitoring				Activity Type
Monitored Parameter				Reporting Frequency
Cond	Regulated Contaminant	Lower Limit	Upper Limit	Monitoring Frequency
Num	Process Material	Units		Averaging Method
19	**** **** ****  BUFFALO BIOENERGY ANAEROBIC DIGESTION FACILITY SHALL BURN GAS IN THE SI ICE AS SPECIFIED BY THE MANUFACTURER WITH AIR FUEL RATIO CONTROL. THE ENGINE (ES ENG01) AND BACKUP UTILITY FLARE (ES FLARE) SHALL EACH BE EQUIPPED WITH AN HOUR METER. OPERATING HOURS (DATE AND TIME) FOR ES ENG01 AND ES FLARE, ENGINE POWER (BHP), GENERATOR POWER (KW) AND FUEL CONSUMPTION FOR ES ENG01 AND ES FLARE SHALL BE RECORDED. ALL RECORDS SHALL BE MAINTAINED ONSITE FOR A MINIMUM OF FIVE YEARS AND SHALL BE AVAILABLE FOR NYSDEC REVIEW UPON REQUEST.			RECORD KEEPING/MAINTENANCE PROCEDURES  UPON REQUEST BY REGULATORY AGENCY  AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION  ****
20	VOC VOC ****  OWNERS AND OPERATORS OF STATIONARY SPARK IGNITION INTERNAL COMBUSTION ENGINES (SI ICE) WITH A MAXIMUM ENGINE POWER GREATER THAN OR EQUAL TO 75 KW (100 HP) (EXCEPT GASOLINE AND RICH BURN ENGINES THAT USE LPG) MUST COMPLY WITH THE EMISSION STANDARD LISTED BELOW FOR THEIR STATIONARY SI ICE. THE SPECIFIED LIMIT OF 1.0 G/DSCF VOC CORRESPONDS TO 80 PPMVD VOC @ 15% O2.  AN INITIAL PERFORMANCE TEST SHALL BE CONDUCTED WITHIN 1 YEAR OF THE ENGINE'S INITIAL STARTUP, BUT NOT BEFORE 100 HOURS OF OPERATION. SUBSEQUENT PERFORMANCE TESTING SHALL BE CONDUCTED EVERY 8,760 HOURS OR 3 YEARS, WHICHEVER COMES FIRST, THEREAFTER TO DEMONSTRATE COMPLIANCE. A STACK TEST PROTOCOL SHALL BE SUBMITTED WITHIN 45 DAYS OF THE SCHEDULED PERFORMANCE TEST FOR NYSDEC REVIEW AND APPROVAL. IN ACCORDANCE WITH 60.4245(D), THE STACK TEST REPORT SHALL BE SUBMITTED TO NYSDEC WITHIN 60 DAYS OF CONDUCTING THE STACK TEST.		1.0  grams per brake horsepower-hour	INTERMITTENT EMISSION TESTING  AS REQUIRED - SEE MONITORING DESCRIPTION  AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION  AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATED

Summary of Compliance Requirements

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Cond	Regulated Contaminant	Lower Limit	Upper Limit
Num	Process Material	Units	
		Monitoring Frequency	Averaging Method

Emission Unit: 1-ANDIG Emission Point: 00001 Process: 001 Emission Source: ENG01

22	**** **** ****			RECORD KEEPING/MAINTENANCE PROCEDURES  UPON REQUEST BY REGULATORY AGENCY  AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION  ****
<p>THE OWNER OR OPERATOR OF A STATIONARY SI INTERNAL COMBUSTION ENGINE GREATER THAN 500 HP MUST KEEP A MAINTENANCE PLAN AND RECORDS OF CONDUCTED MAINTENANCE AND MUST, TO THE EXTENT PRACTICABLE, MAINTAIN AND OPERATE THE ENGINE IN A MANNER CONSISTENT WITH GOOD AIR POLLUTION CONTROL PRACTICE FOR MINIMIZING EMISSIONS. IN ADDITION, AN INITIAL PERFORMANCE TEST AND SUBSEQUENT PERFORMANCE TESTING EVERY 8,760 HOURS OR 3 YEARS, WHICHEVER COMES FIRST, MUST BE CONDUCTED THEREAFTER TO DEMONSTRATE COMPLIANCE . ALL MAINTENANCE RECORDS, MANUFACTURER'S OPERATING AND MAINTENANCE MANUAL AND OTHER INFORMATION THAT CAN BE USED TO VERIFY COMPLIANCE WITH THIS REQUIREMENT SHALL BE KEPT ONSIDE FOR A MINIMUM OF FIVE YEARS AND SHALL BE READILY AVAILABLE FOR NYSDEC REVIEW UPON REQUEST.</p>				

24	**** **** ****			RECORD KEEPING/MAINTENANCE PROCEDURES  UPON REQUEST BY REGULATORY AGENCY  AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION  ****
<p>A) OWNERS AND OPERATORS OF ALL STATIONARY SI ICE MUST KEEP RECORDS OF THE INFORMATION IN PARAGRAPHS (A)(1) THROUGH (4) OF THIS SECTION.</p> <p>(1) ALL NOTIFICATIONS SUBMITTED TO COMPLY WITH THIS SUBPART AND ALL DOCUMENTATION SUPPORTING ANY NOTIFICATION.</p> <p>(2) MAINTENANCE CONDUCTED ON THE ENGINE.</p> <p>(4) DOCUMENTATION THAT THE ENGINE MEETS THE EMISSION STANDARDS.</p>				

Summary of Compliance Requirements

\*\*\* THIS SUMMARY IS NOT ENFORCEABLE BUT IS MERELY INTENDED TO PROVIDE A CONCISE VIEW OF THE MONITORING REQUIREMENTS.

READERS ARE DIRECTED TO THE MAIN PERMIT FOR DETAILS REGARDING ENFORCEABLE CONDITIONS. \*\*\*

DEC ID 9146800224 Facility BUFFALO BIOENERGY ANAEROBIC DIGESTION FACILITY

Location 2900 N AMERICA DR WEST SENECA, NY 14224

Permit ID 9-1468-00224/00002 Application Recv'd 06/15/2012 Renewal No: 0 Mod No: 1 Report Only Includes Active Permit conditions

Permit Type ASF Status Issued

Compliance Assurance Monitoring

Cond Num	Monitored Parameter Regulated Contaminant Process Material	Lower Limit	Upper Limit	Activity Type
				Reporting Frequency
				Monitoring Frequency
				Averaging Method
Emission Unit: 1-ANDIG Emission Point: 00001 Process: 001 Emission Source: ENG01				
25	**** **** ****			RECORD KEEPING/MAINTENANCE PROCEDURES
	(C) OWNERS AND OPERATORS OF STATIONARY SI ICE GREATER THAN OR EQUAL TO 500 HP THAT HAVE NOT BEEN CERTIFIED BY AN ENGINE MANUFACTURER TO MEET THE EMISSION STANDARDS IN § 60.4231 MUST SUBMIT AN INITIAL NOTIFICATION AS REQUIRED IN § 60.7(A)(1) AND § 60.4. THE NOTIFICATION MUST INCLUDE THE INFORMATION IN PARAGRAPHS (C)(1) THROUGH (5) OF THIS SECTION.			AS REQUIRED - SEE MONITORING DESCRIPTION
	(1) NAME AND ADDRESS OF THE OWNER OR OPERATOR;			AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
	(2) THE ADDRESS OF THE AFFECTED SOURCE;			****
	(3) ENGINE INFORMATION INCLUDING MAKE, MODEL, ENGINE FAMILY, SERIAL NUMBER, MODEL YEAR, MAXIMUM ENGINE POWER, AND ENGINE DISPLACEMENT;			
	(4) EMISSION CONTROL EQUIPMENT; AND			
	(5) FUEL USED.			

Summary of Compliance Requirements

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Compliance Assurance Monitoring

Conc Num	Regulated Contaminant Process Material	Lower Limit	Upper Limit	Activity Type
				Reporting Frequency
				Monitoring Frequency
				Averaging Method
Emission Unit: 1-ANDIG Emission Point: 00002 Process: 001 Emission Source: FLARE				
27	TEMPERATURE HYDROGEN SULFIDE ****	1565 degrees Fahrenheit	2100	MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE UPON REQUEST BY REGULATORY AGENCY  AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION  RANGE-NOT TO FALL OUTSIDE OF STATED RANGE EXCEPT DURING STARTUP/SHUTDOWN
<p>BUFFALO BIOENERGY ADS FACILITY SHALL OPERATE THE BACKUP UTILITY FLARE IDENTIFIED AS EMISSION SOURCE (ES) FLARE WHEN THE ENGINE IS NOT OPERATING TO REDUCE AND DESTROY VOC EMISSIONS FROM THE COLLECTED DIGESTER GAS. TO ENSURE COMPLETE COMBUSTION, MAXIMIZE THE DESTRUCTION OF VOCs AND MINIMIZE THE FORMATION OF NOx, THE FLARE SHALL BE OPERATED SO THAT THE TEMPERATURE THROUGHOUT THE FLAME IS WITHIN THE RANGE SPECIFIED BELOW. THE FLARE SHALL BE OPERATED IN ACCORDANCE WITH 40CFR60.18 PARAGRAPHS (C) THROUGH (F) OF THE FEDERAL NEW SOURCE PERFORMANCE STANDARDS ESTABLISHED FOR OPEN FLARES. ES FLARE SHALL MEET, AT A MINIMUM, THE FOLLOWING CONDITIONS:</p> <p>C)(1) BE DESIGNED FOR AND OPERATED WITH NO VISIBLE EMISSIONS AS DETERMINED BY THE METHODS SPECIFIED IN 40 CFR 60.18(F)(1), EXCEPT FOR PERIODS NOT TO EXCEED 5 MINUTES DURING ANY 2 CONSECUTIVE HOURS; (2) FLARES SHALL BE OPERATED WITH A FLAME PRESENT AT ALL TIMES, AS DETERMINED BY THE METHODS SPECIFIED IN 40 CFR 60.18(F)(2);</p> <p>(3) AN OWNER/OPERATOR HAS THE CHOICE OF ADHERING TO EITHER THE HEAT CONTENT SPECIFICATIONS IN 40 CFR 60.18(C)(3)(II) AND THE MAXIMUM TIP VELOCITY SPECIFICATIONS IN 40 CFR 60.18(C)(4), OR ADHERING TO THE REQUIREMENTS IN 40 CFR 60.18(C)(3)(I).</p> <p>(4) STEAM ASSISTED AND NON ASSISTED FLARES SHALL BE DESIGNED FOR AND OPERATE WITH AN EXIT VELOCITY, AS DETERMINED BY THE METHODS SPECIFIED IN 40 CFR 60.18(F)(4), LESS THAN 18.3 M/SEC (60 FT/SEC), EXCEPT AS PROVIDED IN 40 CFR 60.18(C)(4)(II) AND (III).</p> <p>(5) AIR-ASSISTED FLARES SHALL BE DESIGNED AND OPERATED WITH AN EXIT VELOCITY LESS THAN THE VELOCITY, VMAX , AS DETERMINED BY THE METHOD SPECIFIED IN 40CFR60.18 (F)(6).</p> <p>(6) FLARES USED TO COMPLY WITH 40 CFR 60.18(C) SHALL BE STEAM-ASSISTED, AIR-ASSISTED OR NON-ASSISTED.</p> <p>D) OWNERS OR OPERATORS OF FLARES USED TO COMPLY WITH THE PROVISIONS OF 40 CFR 60.18 SHALL MONITOR THESE CONTROL DEVICES TO ENSURE THAT THEY ARE OPERATED AND MAINTAINED IN CONFORMANCE WITH THEIR DESIGNS.</p> <p>E)FLARES USED TO COMPLY WITH PROVISIONS OF THIS SUBPART SHALL BE OPERATED AT ALL TIMES WHEN EMISSIONS MAY BE VENTED TO THEM.</p> <p>F)(1) REFERENCE METHOD 22 SHALL BE USED TO DETERMINE THE COMPLIANCE OF FLARES WITH THE VISIBLE EMISSION PROVISIONS OF THIS SUBPART. THE OBSERVATION PERIOD IS 2 HOURS AND SHALL BE USED ACCORDING TO METHOD 22.</p> <p>(3) THE NET HEATING VALUE OF THE GAS BEING COMBUSTED IN A FLARE SHALL BE CALCULATED USING THE EQUATION FOUND IN 40CFR 60.18(F)(3)</p>				

\*\*\*\* No Data

A18

Summary of Compliance Requirements

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DEC ID 9146800224 Facility BUFFALO BIOENERGY ANAEROBIC DIGESTION FACILITY

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				Averaging Method

(4) THE ACTUAL EXIT VELOCITY OF A FLARE SHALL BE DETERMINED BY DIVIDING THE VOLUMETRIC FLOWRATE (IN UNITS OF STANDARD TEMPERATURE AND PRESSURE), AS DETERMINED BY REFERENCE METHODS 2, 2A, 2C, OR 2D AS APPROPRIATE; BY THE UNOBSTRUCTED (FREE) CROSS SECTIONAL AREA OF THE FLARE TIP.

(5) THE MAXIMUM PERMITTED VELOCITY, VMAX, FOR FLARES COMPLYING WITH 40CFR 60.18(C)(4)(III) SHALL BE DETERMINED BY THE EQUATION GIVEN IN 40CFR 60.18(F)(5).

(6) THE MAXIMUM PERMITTED VELOCITY, VMAX, FOR AIR ASSISTED FLARES SHALL BE DETERMINED BY THE EQUATION GIVEN IN 40CFR 60.18(F)(6).

THE ON-GOING COMPLIANCE MONITORING OF THE OPEN FLARE SHALL INCLUDE:

- A.) OPERATION AND MAINTENANCE OF THE FLARE TO PREVENT DETERIORATION AND PROMOTE GOOD COMBUSTION IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS.
- B.) OPERATION, MAINTENANCE AND CALIBRATION OF A TEMPERATURE MONITORING DEVICE EQUIPPED WITH A CONTINUOUS RECORDER TO DOCUMENT THE FLAME TEMPERATURE WHILE THE FLARE IS OPERATIONAL.
- C.) OPERATION, MAINTENANCE AND CALIBRATION OF A GAS FLOW RATE MEASURING DEVICE THAT SHALL RECORD THE FLOW AT LEAST EVERY 15 MINUTES WHILE THE FLARE IS OPERATIONAL.

BUFFALO BIOENERGY ADS FACILITY SHALL MAINTAIN ALL RECORDS RELATED TO ES FLARE ONSITE FOR A MINIMUM OF FIVE YEARS AND SHALL MAKE THESE RECORDS AVAILABLE TO NYSDEC UPON REQUEST.

Monitoring applies to the following additional regulated contaminant(s): AMMONIA, VOC

Summary of Compliance Requirements

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DEC ID 9146800224 Facility BUFFALO BIOENERGY ANAEROBIC DIGESTION FACILITY

Location 2900 N AMERICA DR WEST SENECA, NY 14224

Permit ID 9-1468-00224/00002 Application Recv'd 06/15/2012 Renewal No: 0 Mod No: 1 Report Only Includes Active Permit conditions

Permit Type ASF Status Issued

Compliance Assurance Monitoring

Compliance Assurance Monitoring				Activity Type
Monitored Parameter				Reporting Frequency
Cond	Regulated Contaminant	Lower Limit	Upper Limit	Monitoring Frequency
Num	Process Material	Units		Averaging Method
32	****			RECORD KEEPING/MAINTENANCE PROCEDURES
	****			
	****			AS REQUIRED - SEE MONITORING DESCRIPTION
	ANY REPORTS OR SUBMISSIONS REQUIRED BY THIS PERMIT SHALL BE SUBMITTED TO THE REGIONAL AIR POLLUTION CONTROL ENGINEER (RAPCE) AT THE FOLLOWING ADDRESS:			****
	DIVISION OF AIR RESOURCES NYS DEPT. OF ENVIRONMENTAL CONSERVATION REGION 9 270 MICHIGAN AVE. BUFFALO, NY 14203			****

Summary of Compliance Requirements

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Location 2900 N AMERICA DR WEST SENECA, NY 14224

Permit ID 9-1468-00224/00002 Application Recv'd 08/21/2013 Renewal No: 0 Mod No: 1 Report Only Includes Active Permit Conditions

Permit Type ASF Status Issued