



**Region 6 Compliance Assurance and Enforcement Division
INSPECTION REPORT**

Inspection Date(s):	06/27-28/2017		
Media:	Water		
Regulatory Program(s)	Clean Water Act / NPDES		
Company Name:	Wyman-Gordon Forgings, Inc.		
Facility Name:	Wyman-Gordon – Houston Campus		
Facility Physical Location:	10825 Telge Road		
(city, state, zip code)	Houston, Texas 77095		
Mailing address:	P.O. Box 40456		
(city, state, zip code)	Houston, Texas 77240-0456		
County/Parish:	Harries County		
Facility Contact:	Michael O'Brien	Vice President	
	mlobrien@wyman.com		
FRS Number:	110000462115		
Identification/Permit Number:	TX0042129		
Media Number:			
NAICS:			
SIC:	3463		
Personnel participating in inspection:			
Kenneth L. AuBuchon	USEPA/6EN-WMH	Environmental Engineer	281-983-2151
Mike O'Brien	Wyman-Gordon - Houston	Vice President - Houston	281-856-3286
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Aaron Plocek	Wyman-Gordon - Houston	EHS Manager	281-856-3264
Jason Tietze	Wyman-Gordon - Houston	EHS / Facilities Manager	832-833-6326
Michael Dupont	Wyman-Gordon	Sr. Director, EHS	508-831-8491
EPA Lead Inspector Signature/Date	Kenneth L. AuBuchon		01/08/2018
	Kenneth L. AuBuchon		Date
Supervisor Signature/Date	Carol Peters		1/17/18
	Carol Peters		Date

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

EPA Region 6 inspector Kenneth L. AuBuchon arrived at Wyman-Gordon Forgings Inc. Houston at approximately 9:30 am on June 27, 2017 for an unannounced Compliance Evaluation Inspection (CEI). I met with Aaron Plocek, Wyman-Gordon Houston EHS Manager and Jason Tietze, Wyman-Gordon Houston EHS/Facilities Maintenance Manager, at the Opening Conference. I presented my credentials to both Mr. Plocek and Mr. Tietze and explained that this was an EPA inspection to determine compliance with the facility's National Pollutant Discharge Elimination System (NPDES) permit and Clean Water Act (CWA). The inspection was conducted under the authority of the NPDES permit program, in accordance with the Federal CWA.

This report is based on information supplied by Wyman-Gordon Forgings Inc. representatives (the permittee), observations made by the U.S. EPA inspector, and records and reports maintained by the permittee, the State of Texas, and the U.S. EPA.

FACILITY DESCRIPTION

The Wyman-Gordon Forgings, Inc. facility is located on approximately 330 acres northwest of Houston, Texas and employs approximately 500 people. Wyman-Gordon Forgings, Inc. (Wyman-Gordon) produces two main products: Closed-die forgings used mainly for aerospace applications; and extruded pipe.

The forgings operation begins with metal billets, whose composition are nickel-based and titanium alloys. The billets are heated to forging temperatures and then compressed into the required shape by hydraulic forging presses. After forging, the parts undergo a heat-treating and cooling cycle. The forged parts are then delivered to the onsite machine shop, where various machining processes are preformed prior to product shipment.

The extrusion process starts with metal ingots, mainly composed of carbon steel, although some stainless steel, nickel-based alloys, and titanium alloys are extruded as well. The ingots are heated and extruded into the different types of pipe by the hydraulic extrusion presses. After extrusion, the pipe undergoes a heat-treating and cooling cycle. Various finishing operations are then performed on the pipe prior to shipment, including straightening, sawing, inner and outer diameter grinding, and buffing.

Industrial wastewater is generated from both the forging and the extrusion operations. Pits located at the forging and extrusion process areas collect the operational leaks from the hydraulic press systems, die cooling and cleaning, water quenching, and various water cleaning and cooling operations. Industrial wastewater that accumulates in the pits beneath the forging presses is pumped to storage tanks located on the south side of the Forge Shop. Process wastewater is collected at sumps and pumped to the collection pit at the main wastewater treatment unit (also known as the Baker Unit). The mixed forging and extrusion wastewater passes through a corrugated plate interceptor (CPI) oil/water separator and is then stored in two holding tanks behind the Baker Unit.

Industrial wastewater drawn from the holding tanks is first mixed with poly-aluminum chloride coagulant. This serves to acidify the wastewater thereby breaking the oil / water emulsion. A flocculent is then added immediately downstream of the coagulant to pull out any suspended solids. The Industrial wastewater is then treated in a Dissolved Air Floatation (DAF) system for removal of the remaining fine solids. Solids are skimmed from the top of the DAF and the treated wastewater is pumped to 1 of 4 industrial treatment wastewater ponds.

After treatment in the Baker Unit, the effluent water is sent to Pond 4, an aerated biodegradation pond, where biological activity further reduces concentrations of BOD, COD, and ammonia. From Pond 4, the wastewater flows to Pond 5, which functions to provide further biodegradation of any remaining organics and ammonia, as well as settling of any suspended biological solids. From Pond 5, the wastewater flows to the Middle Lake (Pond 2). The Middle Lake is the largest of the industrial wastewater ponds and provides a point for final polishing treatment with regards to organics and suspended solids. A portion of the Middle Lake overflows to the Filtered Lake (Pond 3), which is pumped back to the forging and extrusion operations and recycled as wash down water in the process units. Treated wastewater from the Filtered Lake can also be recirculated and utilized as fire suppression system water. Any non-recycled flow is pumped from the Middle Lake to Outfall 002 for discharge. Treated wastewater is only discharged via Outfall 002 when the amount of treated water exceeds the facility's demand for recycled process wastewater.

Storm water from the site is collected in the Storm Water Lake (Pond 1) and discharged through Outfall 001.

Section II – OBSERVATIONS

During the review of the facility's required paperwork, it was recommended that Wyman-Gordon begin implementation of a new provision under its Draft TPDES Permit TX0042129 (Effective May 1, 2021). This recommended provision requires the permittee to develop and submit a Standard Operating Procedure for calculating and reporting self-monitoring data (Other Requirement No. 11). This recommendation was given due to the inaccurate information submitted on Net-DMRs and the inadequacy of sampling and monitoring conducted and reported by the Wyman-Gordon (Refer to Areas of Concern, Section III of this report).

The following information submitted to TCEQ in Wyman-Gordon's permit renewal application dated February 29, 2016 was not consistent with information provided during the inspection:

1. For Outfall 002's 'type of flow measurement device used' the permit application lists a Flow Meter. However, upon review there was no flow meter at Outfall 002. Flow's for outfall 002 are Pump Estimated.
2. The process flow (water balance) provided illustrates a carbon filter and a valve between the Middle Lake (Pond 2) and the Filtered Lake (Pond 3). However, upon review the carbon filter unit had been taken out and/or decommissioned with only an open pipe connecting Ponds 2 and 3.

3. The process flow (water balance) provided illustrates an API Separator for industrial wastewater that is coming from the Forge Shop before going to the Baker System. However, it was explained that the API Separator was not in use and had been out of operation for some time.

4. Wyman-Gordon listed Blue Bell Manor Utility Company as the waste disposal facility that receives its domestic sewage. However, it was explained that domestic waste is sent to the Gulf Coast Waste Disposal – Washburn Tunnel Facility and no one know where the Blue Bell Manor Utility Company came from.

Two oily wastewater streams were reviewed during the inspection. Wyman-Gordon identified the waste streams as a Wastewater Treatment Residual Flocculent (WGF-100015-2450) and an Oily Wastewater (WGF-100015-2451). At the time of the inspection, both were being sent to Petro-Tech Environmental, 8502 Cypress St, Houston, Texas 77012, for oil recovery and disposal. Waste profiling samples were dated April 25, 2012.

A tour of the Storm Water Pond (Pond 1), Outfall, the Baker Treatment System, and Ponds 2 through 5 was conducted on 6/28/2017 after the records review was concluded. It was explained that there is no active level alarm at Outfall 001 or its bypass; however, periodical checks are made on the level but not documented. Outfall 001 appeared to have multiple discharge locations due to the non-functional equipment in the area.



Section III – AREAS OF CONCERN

Requirement A: TPDES Permit No. TX0042129 (Appendices 1); Permit Conditions, 2. Compliance (a) Acceptance of the permit by the person to whom it is issued constitutes acknowledgement and agreement that such person will comply with all terms and conditions embodied in the permit, and the rules and other orders of the Commission. (b) The permittee has a duty to comply with all conditions of the permit. Failure to comply with any permit condition constitutes a violation of the permit and the Texas Water Code or the Texas Health and Safety Code, and is grounds for enforcement action, for permit amendment, revocation, or suspension, or for denial of a permit renewal application or an application for a permit for another facility.

Concern A: The requirements of the permit are not being followed and are not accurately being submitted. Sampling does not adequately represent the facility's discharge. Refer to the following requirements and concerns.

Requirement B: TPDES Permit No. TX0042129 (Appendices 1); Effluent Limitations and Monitoring Requirements, Outfall Number 002:

Flow Measurement Frequency: Continuous

Flow Sample Type: Record.

Concern B: Wyman-Gordon failed to provide a continuous flow measurement device and continuous flow recording device at outfall 002. Flows are 'Pump Estimates'.

Requirement C: TPDES Permit No. TX0042129 (Appendices 1); Effluent Limitations and Monitoring Requirements, Outfall Number 001 and Outfall Number 002: (see Permit)

Concern C1: Wyman-Gordon failed to obtain samples at frequency required by permit. The following table shows flow that was recorded for the month with no samples collected or reported values and no recorded flow. The table was developed from Wyman-Gordon recorded 2016 Outfall Discharges and a 2016 DMR Summary both are contained in Appendices 2.

Month	Recorded Discharge	DMR Value
June 2016 (outfall 001)	5,575,500 gallons	NODI-C (No Discharge)
July 2016 (outfall 001)	-0- gallons	DMR has reported values
August 2016 (outfall 001)	10,941,000 gallons	NODI-C (No Discharge)
February 2016 (outfall 002)	465,000 gallons	No Sample Data Provided
June 2016 (outfall 002)	522,000 gallons	NODI-C (No Discharge)
July 2016 (outfall 002)	-0- gallons	DMR has reported values
August 2016 (outfall 002)	144,000 gallons	NODI-C (No Discharge)

Concern C2: Mr. Plocek explained that, “at a maximum only one sample per month was obtained regardless of flow”, this does not meet the requirements of TPDES Permit No. TX0042129. Refer to the following table, which was developed from sample results supplied by Wyman-Gordon contained in Appendices 3. The table shows that only 5 samples were taken for Outfall 002 for the year of 2016. Also it shows the samples were taken with no recorded flows. The table only contains Outfall 002 COD analyses and data but is representative of all required parameters reviewed during the inspection due to the amount of errors with all reporting and sample collection data.)

Sample Collection Date:	COD Result mg/L	Flow at time of sample collection	DMR Reporting Month	DMR Additional Information
3/31/2016	295	No Recorded Flow	3/2016	
5/24/2016	210	No Recorded Flow	5/2016	
7/8/2016	244	No Recorded Flow	Not Reported	No Flow reported in 7/2016
8/12/2016	235	No Recorded Flow	7/2016	No Flow reported in 8/2016
11/11/2016	186	No Recorded Flow	11/2016	

Concern C3: Wyman-Gordon reported sample results obtained with no discharge on NetDMRs. The following DMR Summary excerpt show COD samples from the above table being reported. This is highlighted by the red box below and Blue numbers above. (The table and DMR excerpt only contain Outfall 002 COD analyses and data but is representative of all required parameters and data reviewed during the inspection).

Permit TX0042129

Version # 0

Outfall 002A

00340 Oxygen demand, chem. [high level] [COD] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Twice per Week

Limit		
Limit Unit Desc	Pounds per Day	Pounds per Day
Statistical Base	DAILY AV	DAILY MX
Limit Value	376	563
DMR Values		
1/31/16	250	563
2/29/16	215	563
3/31/16	295	563
4/30/16	NODI=C	NODI=C
5/31/16	210	563
6/30/16	NODI=C	NODI=C
7/31/16	235	563
8/31/16	NODI=C	NODI=C
9/30/16	NODI=C	NODI=C
10/31/16	NODI=C	NODI=C
11/30/16	186	563
12/31/16	264	563

Requirement D: TPDES Permit No. TX0042129 (Appendices 1); Effluent Limitations and Monitoring Requirements, Outfall Number 002: Daily Average (lbs/day) and Daily Maximum (lbs/day).

Concern D1: Wyman-Gordon failed to provide loading values as required by the permit for outfall 002 on NetDMRs. During the inspection, no documents were provided of loading calculations and Mr. Plocek stated that, “the numbers that were put on the NetDMRs came directly from the lab reports or the limit on the permit”. As explained in Concern C3, invalid data was inputted on NetDMRs. The DMR Summary excerpt and table from Concern C2 shows the COD analytical results provided in mg/L were directly inputted for loading values (lbs/day). This was also observed for all of Outfall 002s reported loading requirements (TSS, Oil & Grease, Ammonia, CBOD).

Concern D2: Wyman-Gordon reported erroneous values for results on NetDMRs. During the inspection, no documents were provided of loading calculations and Mr. Plocek stated that, “the numbers that were put on the NetDMRs came directly from the lab reports or **the limit on the permit**”. The blue oval on the following DMR Summary excerpt shows the permit limit value is reported for the Daily MX DMR Values. The DMR excerpt only shows Outfall 002 COD submitted data, but this concern was observed for all submitted data reviewed during the inspection.

Permit TX0042129

Version # 0

Outfall 002A

00340 Oxygen demand, chem. [high level] [COD] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Twice per Week

Limit		
Limit Unit Desc	Pounds per Day	Pounds per Day
Statistical Base	DAILY AV	DAILY MX
Limit Value	376	563
DMR Values		
1/31/16	250	563
2/29/16	315	563
3/31/16	295	563
4/30/16	NODI=C	NODI=C
5/31/16	210	563
6/30/16	NODI=C	NODI=C
7/31/16	235	563
8/31/16	NODI=C	NODI=C
9/30/16	NODI=C	NODI=C
10/31/16	NODI=C	NODI=C
11/30/16	186	563
12/31/16	264	563

Requirement E: TPDES Permit No. TX0042129 (Appendices 1); Effluent Limitations and Monitoring Requirements, Outfall Number 002: Sample Type is Composite for Total Suspended Solids, Ammonia (as N), Carbonaceous Biochemical Oxygen Demand (5-day), Chemical Oxygen Demand.

Concern E: Wyman-Gordon failed to properly collect composite samples for Total Suspended Solids, Ammonia (as N), Carbonaceous Biochemical Oxygen Demand (5-day), and Chemical Oxygen Demand. Mr. Plocek said that all samples are collected as grabs and chain of custody records only show single grab samples. Refer to the Chain of Custody records attached to the 2016 Laboratory Analyses for Outfall 002 in Appendices 3.

Requirement F: TPDES Permit No. TX0042129 (Appendices 1); Monitoring and Reporting Requirements; 2. Testing Procedures a. Unless otherwise specified in this permit, test procedures for the analysis of pollutants shall comply with procedures specified in 30 TAC 319.11-319.12...

Concern F1: Wyman-Gordon failed to utilize proper analytical methodology as required by the permit. The method used for Hexavalent Chromium ALS Group USA was SW7196 (a solid waste method) and is not an approved method per 40 CFR 136 for wastewater. See below.

ALS Group USA, Corp

Date: 18-Aug-16

Client:	Wyman-Gordon Forgings, LP	ANALYTICAL REPORT				
Project:	Outfall 002	WorkOrder:HS16080566				
Sample ID:	Outfall 002 - Hexavalent Cr	Lab ID:HS16080566-06				
Collection Date:	12-Aug-2016 09:26	Matrix:Aqueous				
ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
HEXAVALENT CHROMIUM BY SW7196A		Method:SW7196				Analyst: JHD
Chromium, Hexavalent	ND		0.0100	mg/L	1	12-Aug-2016 10:37

Concern F2: Wyman-Gordon failed to utilize proper analytical methodology as required by permit. Outfall 002 requires a Carbonaceous Biochemical Oxygen Demand (CBOD) analyses to be conducted. ALS Group USA is conducting a Biochemical Oxygen Demand (BOD) and Wyman-Gordon is reporting the BOD as CBOD. See Below.

ALS Group USA, Corp

Date: 18-Aug-16

Client:	Wyman-Gordon Forgings, LP	ANALYTICAL REPORT				
Project:	Outfall 002	WorkOrder:HS16080566				
Sample ID:	Outfall 002 - BOD	Lab ID:HS16080566-02				
Collection Date:	12-Aug-2016 09:30	Matrix:Aqueous				
ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BOD		Method:SM5210 B				Analyst: KMJ
Biochemical Oxygen Demand	39.7		2.00	mg/L	1	17-Aug-2016 15:17

Requirement G: TPDES Permit No. TX0042129 (Appendices 1); Effluent Limitations and Monitoring Requirements, Outfall Number 002: Whole Effluent Toxicity (WET); limit 14%; Ceriodaphnia dubia (water flea) [7-day chronic NOEC]

Concern G: On June 04, 2015 Ceriodaphnia dubia (water flea) failed reproduction testing requirements. On July 14, 2015 Ceriodaphnia dubia (water flea) failed reproduction testing requirements. A TCEQ report dated May 9, 2016 stated: 'In the past three years, 'Wyman-Gordon' has performed thirteen 24-hour acute tests, with seven demonstrations of significant mortality (i.e., seven failures) by the fathead minnow. Therefore, a 24-hour acute WET limit with no compliance period will be added to the permit.' Acute testing by Wyman-Gordon failed on April 18, 2017 and June 6, 2017 (refer to Appendices 4).

Requirement H: TPDES Permit No. TX0042129 (Appendices 1); Effluent Limitations and Monitoring Requirements, Outfall Number 002: Whole Effluent Toxicity (WET); sample type required: 24-hr Composite (refer to Appendices 4).

Concern H: Wyman-Gordon failed to obtain 24-hr Composite samples as required by the permit. Mr. Plocek said that all samples are collected as grabs and chain of custody records only show single grab samples.

Section IV – FOLLOW UP

Due to the amount of unreported, and reported in error data, on NetDMRs, this facility should be re-inspected to insure proper reporting procedures have been instituted.

7/19/2017 – E-mail from Jason Tieze regarding documents requested during June 27/28 inspection.

7/21/2017 – FedEx package received with Thumb Drive of documents requested during June 27/28 inspection.

7/24/2017 – E-mail to Jason Tieze regarding receipt of requested documents. Additional request for Bio-monitoring documents was not received.

Section V – LIST OF APPENDICES

Appendices 1 - TPDES Permit No. TX0042129

Appendices 2 - Recorded 2016 Outfall Discharges and 2016 DMR Summary

Appendices 3 - 2016 Laboratory Analyses for Outfall 002

Appendices 4 – Whole Effluent Toxicity (WET) Testing Laboratory Results

Appendix 1
TPDES Permit No. TX0042129

01402-000
W

EPA



TPDES PERMIT NO. WQ0001402000
[For TCEQ office use only -
EPA I.D. No. TX0042129]

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

P. O. Box 13087
Austin, Texas 78711-3087

This is a renewal of TPDES
Permit No. WQ0001402000,
issued on August 30, 2007.

PERMIT TO DISCHARGE WASTES

under provisions of
Section 402 of the Clean Water Act
and Chapter 26 of the Texas Water Code

Wyman-Gordon Forgings, Inc.

whose mailing address is

P.O. Box 40456

Houston, Texas 77240-0456

is authorized to treat and discharge wastes from a facility which manufactures extruded and forged metal products (SIC 3463, 3317, and 3462)

located at 10825 Telge Road, on the southwest corner of the intersection of U.S. Highway 290 and Telge Road, south of the Town of Cypress, Harris County, Texas

to an unnamed drainage ditch; thence to Harris County Flood Control District (HCFCD) ditch No. U106-13-00; thence to Horsepen Creek; thence to Langham Creek; thence to Bear Creek; thence to South Mayde Creek; thence to Buffalo Bayou Above Tidal in Segment No. 1014 of the San Jacinto River Basin

only according to effluent limitations, monitoring requirements and other conditions set forth in this permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ), the laws of the State of Texas, and other orders of the TCEQ. The issuance of this permit does not grant to the permittee the right to use private or public property for conveyance of wastewater along the discharge route described in this permit. This includes, but is not limited to, property belonging to any individual, partnership, corporation, or other entity. Neither does this permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the discharge route.

This permit shall expire at midnight on May 1, 2018.

ISSUED DATE: July 18, 2014

A handwritten signature in black ink, appearing to read "R. Q. A. Hyl".

For the Commission

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall Number 001

1. During the period beginning upon date of issuance and lasting through date of expiration, the permittee is authorized to discharge stormwater comingled with cooling tower blowdown and domestic wastewater (*5) subject to the following effluent limitations:

Volume: Intermittent and flow variable.

Effluent Characteristics	Discharge Limitations		Minimum Self-Monitoring Requirements	
	Daily Average mg/L	Daily Maximum mg/L	Single Grab mg/L	Report Daily Average and Daily Maximum Measurement Frequency Sample Type
Flow	Report MGD	Report MGD	N/A	1/week (*1) Estimate (*2)
Biochemical Oxygen Demand (5-day)	15	20	20	1/week (*1) Grab (*2)
Chemical Oxygen Demand	100	150	150	1/week (*1) Grab (*2)
<i>E coli</i> (*3) (CFU or MPN /100 mls)	(Report)	(Report)	N/A	1/week (*1) Grab (*2)
<i>E coli</i> (*4) (CFU or MPN /100 mls)	(126)	(399)	N/A	1/week (*1) Grab (*2)
Oil and Grease	10	15	15	1/week (*1) Grab (*2)
Total Suspended Solids	Report	65	65	1/week (*1) Grab (*2)
Chromium, Total	N/A	1.0	2.0	1/6 months (*1) Grab (*2)
Copper, Total	N/A	1.0	2.0	1/6 months (*1) Grab (*2)
Lead, Total	N/A	1.0	1.5	1/6 months (*1) Grab (*2)
Manganese, Total	N/A	2.0	3.0	1/6 months (*1) Grab (*2)
Nickel, Total	N/A	2.0	3.0	1/6 months (*1) Grab (*2)
Zinc, Total	N/A	2.0	3.0	1/6 months (*1) Grab (*2)
Chlorides	N/A	975	975	1/year (*1) Grab (*2)
Total Dissolved Solids	N/A	6000	6000	1/year (*1) Grab (*2)

(*1) When discharging.

(*2) Samples to be obtained within 30 minutes after discharge begins.

(*3) Effective beginning upon the date of permit issuance and lasting for 364 days.

(*4) Effective beginning 365 days from permit issuance and lasting through the expiration date.

(*5) See Other Requirement item No. 3.

2. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/day (*1) by grab sample (*2).

3. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.

(See the next page)

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall Number 001 (cont'd)

4. Effluent monitoring samples shall be taken at the following location: At Outfall 001, from the outlet weir at the stormwater pond (Stormwater reservoir) spillway, located ten feet north of the southeast property line prior to discharge to the unnamed drainage ditch.

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall Number 002

1. During the period beginning upon date of issuance and lasting through date of expiration, the permittee is authorized to discharge process wastewater, cooling water, and boiler blowdown subject to the following effluent limitations:

The daily average flow of effluent shall not exceed 0.225 million gallons per day (MGD). The daily maximum flow shall not exceed 0.55 MGD.

Effluent Characteristics	Discharge Limitations			Minimum Self-Monitoring Requirements		
	Daily Average lbs/day	mg/L	lbs/day	Daily Maximum mg/L	Single Grab mg/L	Report Daily Average and Daily Maximum Measurement Frequency Sample Type
Flow	0.225 MGD		0.55 MGD		N/A	Continuous Record
Total Suspended Solids	38	N/A	85	N/A	90	2/week Composite
Ammonia (as N)	8	N/A	20	N/A	38	2/week Composite
Carbonaceous Biochemical Oxygen Demand (5-day)	47	N/A	75	N/A	40	2/week Composite
Chemical Oxygen Demand	376	N/A	563	N/A	300	2/week Composite
Dissolved Oxygen		5.0 mg/L (Minimum)			5.0 (min.)	2/week Grab
Oil and Grease	19	N/A	28	N/A	15	2/week Grab
<i>E coli</i> (CFU or MPN /100 mls)	N/A	(Report)	N/A	(Report)	N/A	1/week Grab
Hexavalent Chromium (*1)	N/A	Report	N/A	Report	N/A	1/week Composite
Hexavalent Chromium (*2)	N/A	0.0132	N/A	0.0279	0.0279	1/week Composite
Aluminum, Total	N/A	0.834	N/A	1.77	1.77	1/6 months Composite
Chromium, Total	N/A	0.068	N/A	0.143	0.20	1/6 months Composite
Copper, Total	N/A	0.0173	N/A	0.0367	0.05	1/6 months Composite
Cyanide (Amenable)	N/A	0.0386	N/A	0.0816	0.10	1/6 months Composite
Fluoride	N/A	1.59	N/A	3.22	5.0	1/6 months Composite
Lead, Total	N/A	0.00835	N/A	0.0177	0.03	1/6 months Composite
Manganese, Total	N/A	N/A	N/A	2.0	3.0	1/6 months Composite
Mercury, Total	N/A	0.000039	N/A	0.000082	0.0002	1/6 months Composite
Nickel, Total	N/A	0.10	N/A	0.30	0.60	1/6 months Composite
Silver, Total	N/A	0.0022	N/A	0.005	0.005	1/6 months Composite
Zinc, Total	N/A	0.145	N/A	0.307	0.40	1/6 months Composite
Chloride	N/A	N/A	N/A	975	975	1/year Composite
Sulfate	N/A	N/A	N/A	689	689	1/year Composite
Total Dissolved Solids	N/A	N/A	N/A	6000	6000	1/year Grab

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall Number 002 (cont'd)

Effluent Characteristics	Discharge Limitations		Single Grab mg/L	Minimum Self-Monitoring Requirements	
	Daily Average lbs/day	Daily Maximum mg/L		Report Daily Average and Daily Maximum Measurement Frequency	Sample Type
Whole Effluent Toxicity (WET) limit 14% (Parameter 22414 (*3))					
Ceriodaphnia dubia [7-day chronic NOEC (*4)]	(14%)	(14%)		1/quarter	24-hr Composite
Pimephales promelas [7-day chronic NOEC (*4)]	(14%)	(14%)		1/quarter	24-hr Composite

(*1) Effective beginning upon date of permit issuance and lasting 364 days.

(*2) Effective beginning 365 days from permit issuance and lasting through the expiration date.

(*3) Report the lethal No Observed Effect Concentration (NOEC).

(*4) The lethal NOEC is defined as the greatest effluent dilution at which no significant lethality is demonstrated. Significant lethality is defined as a statistically significant difference between a specified effluent dilution and the control.

2. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/day by grab sample.

3. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.

4. Effluent monitoring samples shall be taken at the following location: At Outfall 002, located at the outlet pipe discharge from Middle Lake, prior to discharge into the unnamed drainage ditch.

Wyman-Gordon Forgings, Inc.

TPDES Permit No. WQ0001402000

DEFINITIONS AND STANDARD PERMIT CONDITIONS

As required by Title 30 Texas Administrative Code (TAC) Chapter 305, certain regulations appear as standard conditions in waste discharge permits. 30 TAC §§305.121 - 305.129 (relating to Permit Characteristics and Conditions) as promulgated under the Texas Water Code (TWC) §§5.103 and 5.105, and the Texas Health and Safety Code (THSC) §§361.017 and 361.024(a), establish the characteristics and standards for waste discharge permits, including sewage sludge, and those sections of 40 Code of Federal Regulations (CFR) Part 122 adopted by reference by the Commission. The following text includes these conditions and incorporates them into this permit. All definitions in Texas Water Code §26.001 and 30 TAC Chapter 305 shall apply to this permit and are incorporated by reference. Some specific definitions of words or phrases used in this permit are as follows:

1. Flow Measurements

- a. Annual average flow - the arithmetic average of all daily flow determinations taken within the preceding 12 consecutive calendar months. The annual average flow determination shall consist of daily flow volume determinations made by a totalizing meter, charted on a chart recorder, and limited to major domestic wastewater discharge facilities with a one million gallons per day or greater permitted flow.
- b. Daily average flow - the arithmetic average of all determinations of the daily flow within a period of one calendar month. The daily average flow determination shall consist of determinations made on at least four separate days. If instantaneous measurements are used to determine the daily flow, the determination shall be the arithmetic average of all instantaneous measurements taken during that month. Daily average flow determination for intermittent discharges shall consist of a minimum of three flow determinations on days of discharge.
- c. Daily maximum flow - the highest total flow for any 24-hour period in a calendar month.
- d. Instantaneous flow - the measured flow during the minimum time required to interpret the flow measuring device.
- e. 2-hour peak flow (domestic wastewater treatment plants) - the maximum flow sustained for a two-hour period during the period of daily discharge. The average of multiple measurements of instantaneous maximum flow within a two-hour period may be used to calculate the 2-hour peak flow.
- f. Maximum 2-hour peak flow (domestic wastewater treatment plants) - the highest 2-hour peak flow for any 24-hour period in a calendar month.

2. Concentration Measurements

- a. Daily average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar month, consisting of at least four separate representative measurements.
 - i. For domestic wastewater treatment plants - When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values in the previous four consecutive month period consisting of at least four measurements shall be utilized as the daily average concentration.
 - ii. For all other wastewater treatment plants - When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values taken during the month shall be utilized as the daily average concentration.
- b. 7-day average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar week, Sunday through Saturday.
- c. Daily maximum concentration - the maximum concentration measured on a single day, by the sample type specified in the permit, within a period of one calendar month.
- d. Daily discharge - the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in terms of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the sampling day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the sampling day.

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The "daily discharge" determination of concentration made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the "daily discharge" determination of concentration shall be the arithmetic average (weighted by flow value) of all samples collected during that day.

- e. Bacteria concentration (Fecal coliform, E. coli, or Enterococci) -- the number of colonies of bacteria per 100 milliliters effluent. The daily average bacteria concentration is a geometric mean of the values for the effluent samples collected in a calendar month. The geometric mean shall be determined by calculating the nth root of the product of all measurements made in a calendar month, where n equals the number of measurements made; or computed as the antilogarithm of the arithmetic mean of the logarithms of all measurements made in a calendar month. For any measurement of bacteria equaling zero, a substitute value of one shall be made for input into either computation method. If specified, the 7-day average for bacteria is the geometric mean of the values for all effluent samples collected during a calendar week.
 - f. Daily average loading (lbs/day) - the arithmetic average of all daily discharge loading calculations during a period of one calendar month. These calculations must be made for each day of the month that a parameter is analyzed. The daily discharge, in terms of mass (lbs/day), is calculated as (Flow, MGD x Concentration, mg/l x 8.34).
 - g. Daily maximum loading (lbs/day) - the highest daily discharge, in terms of mass (lbs/day), within a period of one calendar month.
3. Sample Type
- a. Composite sample - For domestic wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC §319.9 (a). For industrial wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC §319.9 (b).
 - b. Grab sample - an individual sample collected in less than 15 minutes.
4. Treatment Facility (facility) - wastewater facilities used in the conveyance, storage, treatment, recycling, reclamation and/or disposal of domestic sewage, industrial wastes, agricultural wastes, recreational wastes, or other wastes including sludge handling or disposal facilities under the jurisdiction of the Commission.
5. The term "sewage sludge" is defined as solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in 30 TAC Chapter 312. This includes the solids that have not been classified as hazardous waste separated from wastewater by unit processes.
6. Bypass - the intentional diversion of a waste stream from any portion of a treatment facility.

MONITORING AND REPORTING REQUIREMENTS

1. Self-Reporting

Monitoring results shall be provided at the intervals specified in the permit. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall conduct effluent sampling and reporting in accordance with 30 TAC §§319.4 - 319.12. Unless otherwise specified, a monthly effluent report shall be submitted each month, to the Enforcement Division (MC 224), by the 20th day of the following month for each discharge that is described by this permit whether or not a discharge is made for that month. Monitoring results must be reported on an approved self-report form that is signed and certified as required by Monitoring and Reporting Requirements No. 10.

As provided by state law, the permittee is subject to administrative, civil and criminal penalties, as applicable, for negligently or knowingly violating the Clean Water Act; TCW Chapters 26, 27, and 28; and THSC Chapter 361, including but not limited to knowingly making any false statement, representation, or certification on any report, record, or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, or falsifying, tampering with or knowingly rendering inaccurate any monitoring device or method required by this permit or violating any other requirement imposed by state or federal regulations.

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2. Test Procedures

- a. Unless otherwise specified in this permit, test procedures for the analysis of pollutants shall comply with procedures specified in 30 TAC §§319.11 - 319.12. Measurements, tests, and calculations shall be accurately accomplished in a representative manner.
- b. All laboratory tests submitted to demonstrate compliance with this permit must meet the requirements of 30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification.

3. Records of Results

- a. Monitoring samples and measurements shall be taken at times and in a manner so as to be representative of the monitored activity.
- b. Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), monitoring and reporting records, including strip charts and records of calibration and maintenance, copies of all records required by this permit, records of all data used to complete the application for this permit, and the certification required by 40 CFR §264.73(b)(9) shall be retained at the facility site, or shall be readily available for review by a TCEQ representative for a period of three years from the date of the record or sample, measurement, report, application or certification. This period shall be extended at the request of the Executive Director.
- c. Records of monitoring activities shall include the following:
 - i. date, time, and place of sample or measurement;
 - ii. identity of individual who collected the sample or made the measurement.
 - iii. date and time of analysis;
 - iv. identity of the individual and laboratory who performed the analysis;
 - v. the technique or method of analysis; and
 - vi. the results of the analysis or measurement and quality assurance/quality control records.

The period during which records are required to be kept shall be automatically extended to the date of the final disposition of any administrative or judicial enforcement action that may be instituted against the permittee.

4. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit using approved analytical methods as specified above, all results of such monitoring shall be included in the calculation and reporting of the values submitted on the approved self-report form. Increased frequency of sampling shall be indicated on the self-report form.

5. Calibration of Instruments

All automatic flow measuring or recording devices and all totalizing meters for measuring flows shall be accurately calibrated by a trained person at plant start-up and as often thereafter as necessary to ensure accuracy, but not less often than annually unless authorized by the Executive Director for a longer period. Such person shall verify in writing that the device is operating properly and giving accurate results. Copies of the verification shall be retained at the facility site and/or shall be readily available for review by a TCEQ representative for a period of three years.

6. Compliance Schedule Reports

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date to the Regional Office and the Enforcement Division (MC 224).

7. Noncompliance Notification

- a. In accordance with 30 TAC §305.125(9) any noncompliance that may endanger human health or safety, or the environment shall be reported by the permittee to the TCEQ. Report of such information shall be provided orally or by facsimile transmission (FAX) to the Regional Office within 24 hours of becoming aware of the noncompliance. A written submission of such information shall also be provided by the permittee to the Regional Office and the Enforcement Division (MC 224) within five working days of becoming aware of the noncompliance. The written submission shall contain a description of the

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noncompliance and its cause; the potential danger to human health or safety, or the environment; the period of noncompliance, including exact dates and times; if the noncompliance has not been corrected, the time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance, and to mitigate its adverse effects.

- b. The following violations shall be reported under Monitoring and Reporting Requirement 7.a.:
 - i. Unauthorized discharges as defined in Permit Condition 2(g).
 - ii. Any unanticipated bypass that exceeds any effluent limitation in the permit.
 - iii. Violation of a permitted maximum daily discharge limitation for pollutants listed specifically in the Other Requirements section of an Industrial TPDES permit.
- c. In addition to the above, any effluent violation that deviates from the permitted effluent limitation by more than 40% shall be reported by the permittee in writing to the Regional Office and the Enforcement Division (MC 224) within 5 working days of becoming aware of the noncompliance.
- d. Any noncompliance other than that specified in this section, or any required information not submitted or submitted incorrectly, shall be reported to the Enforcement Division (MC 224) as promptly as possible. For effluent limitation violations, noncompliances shall be reported on the approved self-report form.
1. In accordance with the procedures described in 30 TAC §§35.301 - 35.303 (relating to Water Quality Emergency and Temporary Orders) if the permittee knows in advance of the need for a bypass, it shall submit prior notice by applying for such authorization.
9. Changes in Discharges of Toxic Substances

All existing manufacturing, commercial, mining, and silvicultural permittees shall notify the Regional Office, orally or by facsimile transmission within 24 hours, and both the Regional Office and the Enforcement Division (MC 224) in writing within five (5) working days, after becoming aware of or having reason to believe:

- a. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant listed at 40 CFR Part 122, Appendix D, Tables II and III (excluding Total Phenols) that is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - i. One hundred micrograms per liter (100 µg/L);
 - ii. Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - iii. Five (5) times the maximum concentration value reported for that pollutant in the permit application; or
 - iv. The level established by the TCEQ.
- b. That any activity has occurred or will occur that would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant that is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - i. Five hundred micrograms per liter (500 µg/L);
 - ii. One milligram per liter (1 mg/L) for antimony;
 - iii. Ten (10) times the maximum concentration value reported for that pollutant in the permit application; or
 - iv. The level established by the TCEQ.

10. Signatories to Reports

All reports and other information requested by the Executive Director shall be signed by the person and in the manner required by 30 TAC §305.128 (relating to Signatories to Reports).

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11. All Publicly Owned Treatment Works (POTWs) must provide adequate notice to the Executive Director of the following:
- a. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to CWA §301 or §306 if it were directly discharging those pollutants;
 - b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit; and
 - c. For the purpose of this paragraph, adequate notice shall include information on:
 - i. The quality and quantity of effluent introduced into the POTW; and
 - ii. Any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

PERMIT CONDITIONS

1. General

- a. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in an application or in any report to the Executive Director, it shall promptly submit such facts or information.
- b. This permit is granted on the basis of the information supplied and representations made by the permittee during action on an application, and relying upon the accuracy and completeness of that information and those representations. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked, in whole or in part, in accordance with 30 TAC Chapter 305, Subchapter D, during its term for good cause including, but not limited to, the following:
 - i. Violation of any terms or conditions of this permit;
 - ii. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
 - iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.
- c. The permittee shall furnish to the Executive Director, upon request and within a reasonable time, any information to determine whether cause exists for amending, revoking, suspending, or terminating the permit. The permittee shall also furnish to the Executive Director, upon request, copies of records required to be kept by the permit.

2. Compliance

- a. Acceptance of the permit by the person to whom it is issued constitutes acknowledgment and agreement that such person will comply with all the terms and conditions embodied in the permit, and the rules and other orders of the Commission.
- b. The permittee has a duty to comply with all conditions of the permit. Failure to comply with any permit condition constitutes a violation of the permit and the Texas Water Code or the Texas Health and Safety Code, and is grounds for enforcement action, for permit amendment, revocation, or suspension, or for denial of a permit renewal application or an application for a permit for another facility.
- c. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.
- d. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal or other permit violation that has a reasonable likelihood of adversely affecting human health or the environment.
- e. Authorization from the Commission is required before beginning any change in the permitted facility or activity that may result in noncompliance with any permit requirements.
- f. A permit may be amended, suspended and reissued, or revoked for cause in accordance with 30 TAC §§305.62 and 305.66 and TWC §7.302. The filing of a request by the permittee for a permit amendment, suspension and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

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- g. There shall be no unauthorized discharge of wastewater or any other waste. For the purpose of this permit, an unauthorized discharge is considered to be any discharge of wastewater into or adjacent to water in the state at any location not permitted as an outfall or otherwise defined in the Other Requirements section of this permit.
- h. In accordance with 30 TAC §305.535(a), the permittee may allow any bypass to occur from a TPDES permitted facility that does not cause permitted effluent limitations to be exceeded or an unauthorized discharge to occur, but only if the bypass is also for essential maintenance to assure efficient operation.
- i. The permittee is subject to administrative, civil, and criminal penalties, as applicable, under Texas Water Code §§7.051 - 7.075 (relating to Administrative Penalties), 7.101 - 7.111 (relating to Civil Penalties), and 7.141 - 7.202 (relating to Criminal Offenses and Penalties) for violations including, but not limited to, negligently or knowingly violating the federal CWA §§301, 302, 306, 307, 308, 318, or 405, or any condition or limitation implementing any sections in a permit issued under the CWA § 402, or any requirement imposed in a pretreatment program approved under the CWA §§402 (a)(3) or 402 (b)(8).

3. Inspections and Entry

- a. Inspection and entry shall be allowed as prescribed in the TWC Chapters 26, 27, and 28, and THSC Chapter 361.
- b. The members of the Commission and employees and agents of the Commission are entitled to enter any public or private property at any reasonable time for the purpose of inspecting and investigating conditions relating to the quality of water in the state or the compliance with any rule, regulation, permit, or other order of the Commission. Members, employees, or agents of the Commission and Commission contractors are entitled to enter public or private property at any reasonable time to investigate or monitor or, if the responsible party is not responsive or there is an immediate danger to public health or the environment, to remove or remediate a condition related to the quality of water in the state. Members, employees, Commission contractors, or agents acting under this authority who enter private property shall observe the establishment's rules and regulations concerning safety, internal security, and fire protection, and if the property has management in residence, shall notify management or the person then in charge of his presence and shall exhibit proper credentials. If any member, employee, Commission contractor, or agent is refused the right to enter in or on public or private property under this authority, the Executive Director may invoke the remedies authorized in TWC §7.002. The statement above, that Commission entry shall occur in accordance with an establishment's rules and regulations concerning safety, internal security, and fire protection, is not grounds for denial or restriction of entry to any part of the facility, but merely describes the Commission's duty to observe appropriate rules and regulations during an inspection.

4. Permit Amendment and/or Renewal

- a. The permittee shall give notice to the Executive Director as soon as possible of any planned physical alterations or additions to the permitted facility if such alterations or additions would require a permit amendment or result in a violation of permit requirements. Notice shall also be required under this paragraph when:
 - i. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in accordance with 30 TAC §305.534 (relating to New Sources and New Dischargers); or
 - ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in the permit, nor to notification requirements in Monitoring and Reporting Requirements No. 9;
 - iii. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.
- b. Prior to any facility modifications, additions, or expansions that will increase the plant capacity beyond the permitted flow, the permittee must apply for and obtain proper authorization from the Commission before commencing construction.
- c. The permittee must apply for an amendment or renewal at least 180 days prior to expiration of the existing permit in order to continue a permitted activity after the expiration date of the permit. If an

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application is submitted prior to the expiration date of the permit, the existing permit shall remain in effect until the application is approved, denied, or returned. If the application is returned or denied, authorization to continue such activity shall terminate upon the effective date of the action. If an application is not submitted prior to the expiration date of the permit, the permit shall expire and authorization to continue such activity shall terminate.

- d. Prior to accepting or generating wastes that are not described in the permit application or that would result in a significant change in the quantity or quality of the existing discharge, the permittee must report the proposed changes to the Commission. The permittee must apply for a permit amendment reflecting any necessary changes in permit conditions, including effluent limitations for pollutants not identified and limited by this permit.
- e. In accordance with the TWC §26.029(b), after a public hearing, notice of which shall be given to the permittee, the Commission may require the permittee, from time to time, for good cause, in accordance with applicable laws, to conform to new or additional conditions.
- f. If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under CWA §307(a) for a toxic pollutant that is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition. The permittee shall comply with effluent standards or prohibitions established under CWA §307(a) for toxic pollutants within the time provided in the regulations that established those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

5. Permit Transfer

- a. Prior to any transfer of this permit, Commission approval must be obtained. The Commission shall be notified in writing of any change in control or ownership of facilities authorized by this permit. Such notification should be sent to the Applications Review and Processing Team (MC.148) of the Water Quality Division.
- b. A permit may be transferred only according to the provisions of 30 TAC §305.64 (relating to Transfer of Permits) and 30 TAC §50.133 (relating to Executive Director Action on Application or WQMP update).

6. Relationship to Hazardous Waste Activities

This permit does not authorize any activity of hazardous waste storage, processing, or disposal that requires a permit or other authorization pursuant to the Texas Health and Safety Code.

7. Relationship to Water Rights

Disposal of treated effluent by any means other than discharge directly to water in the state must be specifically authorized in this permit and may require a permit pursuant to Texas Water Code Chapter 11.

8. Property Rights

A permit does not convey any property rights of any sort, or any exclusive privilege.

9. Permit Enforceability

The conditions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

10. Relationship to Permit Application

The application pursuant to which the permit has been issued is incorporated herein; provided, however, that in the event of a conflict between the provisions of this permit and the application, the provisions of the permit shall control.

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11. Notice of Bankruptcy.

- a. Each permittee shall notify the executive director, in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any chapter of Title 11 (Bankruptcy) of the United States Code (11 USC) by or against:
 - i. the permittee;
 - ii. an entity (as that term is defined in 11 USC, §101(15)) controlling the permittee or listing the permit or permittee as property of the estate; or
 - iii. an affiliate (as that term is defined in 11 USC, §101(2)) of the permittee.
- b. This notification must indicate:
 - i. the name of the permittee;
 - ii. the permit number(s);
 - iii. the bankruptcy court in which the petition for bankruptcy was filed; and
 - iv. the date of filing of the petition.

OPERATIONAL REQUIREMENTS

1. The permittee shall at all times ensure that the facility and all of its systems of collection, treatment, and disposal are properly operated and maintained. This includes, but is not limited to, the regular, periodic examination of wastewater solids within the treatment plant by the operator in order to maintain an appropriate quantity and quality of solids inventory as described in the various operator training manuals and according to accepted industry standards for process control. Process control, maintenance, and operations records shall be retained at the facility site, or shall be readily available for review by a TCEQ representative, for a period of three years.
2. Upon request by the Executive Director, the permittee shall take appropriate samples and provide proper analysis in order to demonstrate compliance with Commission rules. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall comply with all applicable provisions of 30 TAC Chapter 312 concerning sewage sludge use and disposal and 30 TAC §§319.21 - 319.29 concerning the discharge of certain hazardous metals.
3. Domestic wastewater treatment facilities shall comply with the following provisions:
 - a. The permittee shall notify the Municipal Permits Team, Wastewater Permitting Section (MC 148) of the Water Quality Division, in writing, of any facility expansion at least 90 days prior to conducting such activity.
 - b. The permittee shall submit a closure plan for review and approval to the Municipal Permits Team, Wastewater Permitting Section (MC 148) of the Water Quality Division, for any closure activity at least 90 days prior to conducting such activity. Closure is the act of permanently taking a waste management unit or treatment facility out of service and includes the permanent removal from service of any pit, tank, pond, lagoon, surface impoundment and/or other treatment unit regulated by this permit.
4. The permittee is responsible for installing prior to plant start-up, and subsequently maintaining, adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failures by means of alternate power sources, standby generators, and/or retention of inadequately treated wastewater.
5. Unless otherwise specified, the permittee shall provide a readily accessible sampling point and, where applicable, an effluent flow measuring device or other acceptable means by which effluent flow may be determined.
6. The permittee shall remit an annual water quality fee to the Commission as required by 30 TAC Chapter 21. Failure to pay the fee may result in revocation of this permit under TWC §7.302(b)(6).
7. Documentation

For all written notifications to the Commission required of the permittee by this permit, the permittee shall keep and make available a copy of each such notification under the same conditions as self-monitoring data are required to be kept and made available. Except for information required for TPDES permit applications, effluent data, including effluent data in permits, draft permits and permit applications, and other information specified as not confidential in 30 TAC §1.5(d), any information submitted pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted in the manner prescribed in the application form or by stamping the words "confidential business information" on each

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page containing such information. If no claim is made at the time of submission, information may be made available to the public without further notice. If the Commission or Executive Director agrees with the designation of confidentiality, the TCEQ will not provide the information for public inspection unless required by the Texas Attorney General or a court pursuant to an open records request. If the Executive Director does not agree with the designation of confidentiality, the person submitting the information will be notified.

8. Facilities that generate domestic wastewater shall comply with the following provisions; domestic wastewater treatment facilities at permitted industrial sites are excluded.
 - a. Whenever flow measurements for any domestic sewage treatment facility reach 75% of the permitted daily average or annual average flow for three consecutive months, the permittee must initiate engineering and financial planning for expansion and/or upgrading of the domestic wastewater treatment and/or collection facilities. Whenever the flow reaches 90% of the permitted daily average or annual average flow for three consecutive months, the permittee shall obtain necessary authorization from the Commission to commence construction of the necessary additional treatment and/or collection facilities. In the case of a domestic wastewater treatment facility that reaches 75% of the permitted daily average or annual average flow for three consecutive months, and the planned population to be served or the quantity of waste produced is not expected to exceed the design limitations of the treatment facility, the permittee shall submit an engineering report supporting this claim to the Executive Director of the Commission.

If in the judgment of the Executive Director the population to be served will not cause permit noncompliance, then the requirement of this section may be waived. To be effective, any waiver must be in writing and signed by the Director of the Enforcement Division (MC 149) of the Commission, and such waiver of these requirements will be reviewed upon expiration of the existing permit; however, any such waiver shall not be interpreted as condoning or excusing any violation of any permit parameter.
 - b. The plans and specifications for domestic sewage collection and treatment works associated with any domestic permit must be approved by the Commission, and failure to secure approval before commencing construction of such works or making a discharge is a violation of this permit and each day is an additional violation until approval has been secured.
 - c. Permits for domestic wastewater treatment plants are granted subject to the policy of the Commission to encourage the development of area-wide waste collection, treatment, and disposal systems. The Commission reserves the right to amend any domestic wastewater permit in accordance with applicable procedural requirements to require the system covered by this permit to be integrated into an area-wide system, should such be developed; to require the delivery of the wastes authorized to be collected in, treated by or discharged from said system, to such area-wide system; or to amend this permit in any other particular to effectuate the Commission's policy. Such amendments may be made when the changes required are advisable for water quality control purposes and are feasible on the basis of waste treatment technology, engineering, financial, and related considerations existing at the time the changes are required, exclusive of the loss of investment in or revenues from any then existing or proposed waste collection, treatment or disposal system.
9. Domestic wastewater treatment plants shall be operated and maintained by sewage plant operators holding a valid certificate of competency at the required level as defined in 30 TAC Chapter 30.
10. For Publicly Owned Treatment Works (POTWs), the 30-day average (or monthly average) percent removal for BOD and TSS shall not be less than 85%, unless otherwise authorized by this permit.
11. Facilities that generate industrial solid waste as defined in 30 TAC §335.1 shall comply with these provisions:
 - a. Any solid waste, as defined in 30 TAC §335.1 (including but not limited to such wastes as garbage, refuse, sludge from a waste treatment, water supply treatment plant or air pollution control facility, discarded materials, discarded materials to be recycled, whether the waste is solid, liquid, or semisolid), generated by the permittee during the management and treatment of wastewater, must be managed in accordance with all applicable provisions of 30 TAC Chapter 335, relating to Industrial Solid Waste Management.
 - b. Industrial wastewater that is being collected, accumulated, stored, or processed before discharge through any final discharge outfall, specified by this permit, is considered to be industrial solid waste until the wastewater passes through the actual point source discharge and must be managed in accordance with all applicable provisions of 30 TAC Chapter 335.

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- c. The permittee shall provide written notification, pursuant to the requirements of 30 TAC §335.8(b)(1), to the Corrective Action Section (MC 127) of the Remediation Division informing the Commission of any closure activity involving an Industrial Solid Waste Management Unit, at least 90 days prior to conducting such an activity.
- d. Construction of any industrial solid waste management unit requires the prior written notification of the proposed activity to the Registration and Reporting Section (MC 129) of the Permitting and Remediation Support Division. No person shall dispose of industrial solid waste, including sludge or other solids from wastewater treatment processes, prior to fulfilling the deed recordation requirements of 30 TAC §335.5.
- e. The term "industrial solid waste management unit" means a landfill, surface impoundment, waste-pile, industrial furnace, incinerator, cement kiln, injection well, container, drum, salt dome waste containment cavern, or any other structure vessel, appurtenance, or other improvement on land used to manage industrial solid waste.
- f. The permittee shall keep management records for all sludge (or other waste) removed from any wastewater treatment process. These records shall fulfill all applicable requirements of 30 TAC Chapter 335 and must include the following, as it pertains to wastewater treatment and discharge:
 - i. Volume of waste and date(s) generated from treatment process;
 - ii. Volume of waste disposed of on-site or shipped off-site;
 - iii. Date(s) of disposal;
 - iv. Identity of hauler or transporter;
 - v. Location of disposal site; and
 - vi. Method of final disposal.

The above records shall be maintained on a monthly basis. The records shall be retained at the facility site, or shall be readily available for review by authorized representatives of the TCEQ for at least five years.

12. For industrial facilities to which the requirements of 30 TAC Chapter 335 do not apply, sludge and solid wastes, including tank cleaning and contaminated solids for disposal, shall be disposed of in accordance with THSC Code Chapter 361.

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OTHER REQUIREMENTS

- Violations of daily maximum limitations for the following pollutants shall be reported orally or by facsimile to TCEQ Region 12, within 24 hours from the time the permittee becomes aware of the violation followed by a written report within five working days to TCEQ Region 12 and the Enforcement Division (MC 224):

POLLUTANT	MAL (mg/L)
Aluminum	0.030
Fluoride	0.500
Hexavalent Chromium	0.010
Cyanide (Amenable)	0.020
Chromium, Total	0.010
Copper, Total	0.010
Lead, Total	0.005
Mercury, Total	0.0002
Manganese, Total	1.000
Nickel, Total	0.010
Silver, Total	0.002
Zinc, Total	0.005

Test methods utilized shall be sensitive enough to demonstrate compliance with the permit effluent limitations. Permit compliance/noncompliance determinations will be based on the effluent limitations contained in this permit with consideration given to the minimum analytical level (MAL) for the parameters specified above.

When an analysis of an effluent sample for any of the parameters listed above indicates no detectable levels above the MAL and the test method detection level is as sensitive as the specified MAL, a value of zero (0) shall be used for that measurement when determining calculations and reporting requirements for the self-reporting form. This applies to determinations of daily maximum concentration, calculations of loading and daily averages, and other reportable results.

When a reported value is zero (0) based on this MAL provision, the permittee shall submit the following statement with the self-reporting form either as a separate attachment to the form or as a statement in the comments section of the form.

"The reported value(s) of zero (0) for ____ [list parameter(s)] ____ on the self-reporting form for [monitoring period date range] is based on the following conditions: 1) the analytical method used had a method detection level as sensitive as the MAL specified in the permit, and 2) the analytical results contained no detectable levels above the specified MAL."

When an analysis of an effluent sample for a parameter indicates no detectable levels and the test method detection level is not as sensitive as the MAL specified in the permit, or an MAL is not specified in the permit for that parameter, the level of detection achieved shall be used for that measurement when determining calculations and reporting requirements for the self-reporting form. A zero (0) may not be used.

- The permittee is hereby placed on notice that this permit may be reviewed by the TCEQ after the completion of any new intensive water quality survey on Segment No. 1014 of the San Jacinto River Basin and any subsequent updating of the water quality model for Segment No. 1014, in order to determine if the limitations and conditions contained herein are consistent with any such revised model. The permit may be amended, pursuant to 30 TAC Sections 305.62, as a result of such review.

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3. All domestic wastewater shall be given complete treatment (both primary and secondary) and chlorinated sufficiently to maintain at least a 1.0 mg/l chlorine residual and at most a 4.0 mg/l chlorine residual after at least 20 minutes contact time (based on peak flow) prior to mixing with any other waters. Effluent discharged via Outfall 001 shall not exceed a biochemical oxygen demand (5-day) content of 20 mg/l or a total suspended solids content of 65 mg/l on a grab sample. The TSS shall be monitored once per week at Outfall 001. The permittee shall provide a readily available sampling point for discharges from the domestic wastewater treatment facilities.
4. There is no mixing zone established for this discharge to an intermittent stream. Acute toxic criteria apply at the points of discharge from Outfalls 001 and 002.
5. There shall be no discharge of zinc phosphating wastewater.
6. All domestic wastewater effluent shall be given complete treatment (both primary and secondary) and chlorinated to meet the requirements of this permit. The residual chlorine present in the effluent after at least 20 minutes of contact time (based on peak flow) and prior to mixing with any other waters, must meet the minimum and maximum limits for residual chlorine in the permit.
7. The permittee shall report sampling results for parameters listed on the Effluent Limitations and Monitoring Requirements section (pages 2, 2a and 2b) of this permit on the following dates:
 - a. Pollutant parameters with a monitoring frequency of 1/year are due in the month of January, on or before the 20th.
 - b. Pollutant parameters with a sampling frequency of 1/6 months are due in the months of July and January, on or before the 20th.
 - c. Pollutant parameters with a sampling frequency of 1/quarter are due on or before the 20th in the months of April, July, August, and October.
8. The permittee may use treated wastewater for facility reuse and irrigation of company property within the facility property boundary, subject to the following provisions:
 - a. Reuse or irrigation with untreated wastewater is prohibited. The wastewater used for irrigation shall be tested for the parameters included on pages 2, 2a, 2b, and 2c of this permit, with the exception of the Whole Effluent Toxicity (WET) limitations.
 - b. The irrigation site shall be maintained with a vegetative cover. The irrigated fields shall be mowed at least once each year, and all resulting hay shall be removed from the fields. Fertilizers shall be used if required to maintain healthy grass on the irrigated fields.
 - c. No wastewater shall be applied within twenty-four hours after a measured rainfall of 0.5 inches or greater, or to any zone containing standing water.
 - d. The irrigation practices shall be designed and managed to prevent ponding or standing water.
 - e. Irrigation practices shall be designed and managed to prevent the occurrence of nuisance conditions.
 - f. Tail water control facilities shall be provided, where necessary, to prevent the discharge of any wastewater which might drain from irrigated lands to water in the state or to property not owed by this facility.

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- g. Adequate signs shall be erected stating that the irrigation water is from a non-potable water supply. Said signs shall consist of a red slash superimposed over the international symbol for drinking water accompanied by the message "Do not drink the water," in both English and Spanish.
 - h. The permittee shall maintain an operating log which records the volume of wastewater used for irrigation each day, the hours the wastewater is applied each day, and the actual surface area wetted each day. The operating log shall be retained onsite for five years and available for inspection by authorized representatives of the TCEQ.
9. Ponds.
- a. All newly constructed wastewater ponds or existing ponds that are rebuilt, expanded, or the liner is repaired, shall be lined in compliance with one of the following requirements:
 - i. Soil Liner: The soil liner shall contain clay-rich soil material (at least 30% of the liner material passing through a #200 mesh sieve, liquid limit greater than or equal to 30, and plasticity index greater than or equal to 15) along the sides and bottom of the pond. The liner material shall be compacted in lifts of no more than 8 inches to 95% standard proctor density at the optimum moisture content in accordance with ASTM D 698 to achieve a permeability equal to or less than 1×10^{-7} cm/sec. The liner shall be a minimum thickness of 2.0 feet for water depths less than or equal to 8.0 feet and a minimum thickness of 3.0 feet for water depths greater than 8.0 feet.
 - ii. Synthetic/Plastic/Rubber Liner: The liner shall be either a plastic or rubber membrane liner at least 40 mils in thickness which completely covers the sides and the bottom of the pond and which is not subject to degradation due to reaction with wastewater with which it will come into contact. If this lining material is vulnerable to ozone or ultraviolet deterioration it shall be covered with a protective layer of soil of at least six inches. A wastewater pond with a membrane liner must include an under-drain with a leachate detection and collection system.
 - iii. Alternate Liner: The permittee shall submit plans for any other pond lining method. Pond liner plans must be approved in writing by the Executive Director of the Texas Commission on Environmental Quality (TCEQ) prior to pond construction.

The permittee shall provide certification, signed/sealed by a Texas licensed professional engineer, that the completed pond lining and any required under-drain with leachate detection/collection system for the pond meet the above requirements prior to utilization of the facilities. The certification shall be provided to the TCEQ Water Quality Assessment Team (MC-150), the Compliance Monitoring Section (MC-224), and to the TCEQ Regional Office (Region 12). A copy of the liner certification shall be kept on-site for future reference. Also, liner and any under-drain construction details (i.e., as-built drawings) for the storage pond shall be provided to the TCEQ Water Quality Assessment Team (MC-150), the Enforcement Division (MC-224), and to the TCEQ Regional Office (Region 9) upon construction completion.
 - b. The permittee shall notify the TCEQ Regional Office upon completion of construction of any pond and at least a week prior to its use.
 - c. The permittee shall maintain a minimum two foot freeboard for all wastewater ponds.
 - d. At least once per month, the permittee shall inspect any pond leak detection systems that are in service. Leaking ponds shall be removed from service either until repairs are made or replacement ponds are constructed.

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- e. The liner shall be recertified by a Texas-licensed professional engineer ensuring that the liner for the storage pond meets the above requirements each time the liner undergoes repair or each time sediments are cleaned from the pond. Within 45 days of completion of repair or cleaning, liner certifications should be provided to the TCEQ Water Quality Assessment Team (MC-150), the Enforcement Division (MC-224), and to the TCEQ Regional Office (Region 9). A copy of the liner certification shall be kept on-site for future reference.
10. The permittee shall notify the Executive Director in writing, at least 90 days prior to discontinuing use of any surface impoundment, pit, or basin authorized by this permit. The permittee shall, at the request of the Executive Director, submit such information as is necessary to evaluate closure of the waste management unit(s) including, but not limited to, chemical analyses of bottom sediments, soils, and groundwater samples.
11. The permittee shall obtain representative soil samples from the root zones of the land application area. Composite sampling techniques shall be used. Each composite sample shall represent no more than 80 acres with no less than 15 subsamples representing each composite sample. Subsamples shall be composited by like sampling depth, type of crop and soil type for analysis and reporting. Soil types are soils that have like topsoil or plow layer textures. These soils shall be sampled individually from 0 to 6 inches, 6 to 18 inches and 18 to 30 inches below ground level. The permittee shall sample and analyze soils in December to February of each year. Soil samples shall be analyzed within 30 days of procurement.

The permittee shall provide annual soil analyses of the land application area according to the following table:

Parameter	Method	Minimum Analytical Level (MAL)	Reporting units
pH	2:1 (v/v) water to soil mixture	0.1	Standard units
Electrical Conductivity	Obtained from the SAR water saturated paste extract	0.01	dS/m (same as mmho/cm)
Nitrate-nitrogen	From a 1 N KCl soil extract	1	mg/kg (dry weight basis)
Total Kjeldahl Nitrogen (TKN)	For determination of Organic plus Ammonium Nitrogen. Procedures that use Mercury (Hg) are not acceptable.	20	mg/kg (dry weight basis)
Total Nitrogen	= TKN plus Nitrate-nitrogen		mg/kg (dry weight basis)
Plant-available: Phosphorus	Mehlich III with inductively coupled plasma	1	mg/kg (dry weight basis)
Plant-available: Potassium (K) Calcium (Ca) Magnesium (Mg)	May be determined in the same Mehlich III extract with inductively coupled	5 (K) 10 (Ca) 5 (Mg) 10 (Na)	mg/kg (dry weight basis)

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Parameter	Method	Minimum Analytical Level (MAL)	Reporting units
Sodium (Na) Sulfur (S)	plasma	1 (S)	
Water-soluble: Sodium (Na) Calcium (Ca) Magnesium (Mg)	Obtained from the SAR water saturated paste extract	1 (Na) 1 (Ca) 1 (Mg)	Water soluble constituents are reported in mg/L
Sodium Adsorption Ratio (SAR)	$SAR = \frac{Na}{\sqrt{\frac{(Ca + Mg)}{2}}}$		Express concentrations of Na, Ca and Mg in the water saturated paste extract in milliequivalents/liter (meq/L) to calculate the SAR. The SAR value is unit less.
Sodium Adsorption Ratio (SAR)	$SAR = \frac{Na}{\sqrt{\frac{(Ca + Mg)}{2}}}$		If the SAR is greater than 10, amendments (e.g., gypsum) shall be added to the soil to adjust the SAR to less than 10.
Amendment addition, e.g., gypsum	Recommendation from analytical laboratory		Report in short tons/acre in the year effected

A copy of this soil testing plan shall be provided to the analytical laboratory prior to sample analysis. The permittee shall submit the results of the annual soil sample analyses with copies of the laboratory reports with a map depicting the permanent sampling fields to the TCEQ Regional Office (MC Region 12) and the Water Quality Compliance Monitoring Team (MC 224) of the Enforcement Division, no later than the end of September of each sampling year. If wastewater is not applied in a particular year, no soil testing is needed. The permittee shall notify the same TCEQ offices and indicate that wastewater has not been applied, and therefore no sampling done, on the approved land irrigation site(s) during that year. Results of the soil analyses shall be retained on site for five years and available for inspection by authorized representatives of the TCEQ.

12. Waste treatment and storage facilities and wastewater irrigation areas shall have the following minimum buffer zones:
 - a. A minimum buffer area of 150 feet from all private and industrial water wells.
 - b. A minimum buffer area of 500 from all public water supply wells.
13. Monitoring results shall be provided at the intervals specified in the permit. For pollutants which are monitored annually, effluent reports shall be submitted in September of each year. For pollutants which are monitored twice per year, the first effluent report shall be submitted six

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months after the date of permit issuance and subsequent reports every six months thereafter. For pollutants which are monitored four times per year, the first effluent report shall be submitted three months after the date of permit issuance and subsequent reports every three months thereafter.

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CHRONIC BIOMONITORING REQUIREMENTS: FRESHWATER

The provisions of this Section apply to Outfall 002 for whole effluent toxicity (WET) testing (biomonitoring).

1. Scope, Frequency and Methodology

- a. The permittee shall test the effluent for toxicity in accordance with the provisions below. Such testing will determine if an appropriately dilute effluent sample adversely affects the survival, reproduction, or growth of the test organisms.
- b. The permittee shall conduct the following toxicity tests utilizing the test organisms, procedures and quality assurance requirements specified in this Part of the permit and in accordance with *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition (EPA-821-R-02-013), or its most recent update:
 - 1) Chronic static renewal survival and reproduction test using the water flea (*Ceriodaphnia dubia*) (Method 1002.0 or the most recent update). This test should be terminated when 60% of the surviving adults in the control produce three broods or at the end of eight days, whichever comes first. This test shall be conducted once per quarter.
 - 2) Chronic static renewal 7-day larval survival and growth test using the fathead minnow (*Pimephales promelas*) (Method 1000.0 or the most recent update). A minimum of five replicates with eight organisms per replicate shall be used in the control and in each dilution. This test shall be conducted once per quarter.

The permittee must perform and report a valid test for each test species during the prescribed reporting period. An invalid test must be repeated during the same reporting period. An invalid test is herein defined as any test failing to satisfy the test acceptability criteria, procedures, and quality assurance requirements specified in the test methods and permit. All test results, valid or invalid, must be submitted as described below.

- c. The permittee shall use five effluent dilution concentrations and a control in each toxicity test. These additional effluent concentrations are 6%, 8%, 11%, 14%, and 19% effluent. The critical dilution, defined as 14% effluent, is the effluent concentration representative of the proportion of effluent in the receiving water during critical low flow or critical mixing conditions.
- d. This permit may be amended to require a Whole Effluent Toxicity (WET) limit, Chemical-Specific (CS) effluent limits, a Best Management Practice (BMP), additional toxicity testing, or other appropriate actions to address sublethal toxicity. The permittee may be required to conduct a Toxicity Reduction Evaluation (TRE) for multiple toxic events.
- e. Testing Frequency Reduction
 - 1) If none of the first four consecutive quarterly tests demonstrates significant toxicity, the permittee may submit this information in writing and, upon approval, reduce the testing frequency to once per six months for the invertebrate test species and once per year for the vertebrate test species.
 - 2) If one or more of the first four consecutive quarterly tests demonstrates significant toxicity, the permittee shall continue quarterly testing for that species until the permit is reissued. If a testing frequency reduction had been

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previously granted and a subsequent test demonstrates significant toxicity, the permittee will resume a quarterly testing frequency for that species until the permit is reissued.

- f. The lethal No Observed Effect Concentration (NOEC) effluent limitations for both species of not less than 14% (see the EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS section) are effective at permit issuance.
- g. If a test species fails to meet the lethal NOEC of 14%, the testing frequency for that species will increase to monthly until such time compliance is demonstrated for a period of three consecutive months, at which time the permittee may return to quarterly testing.

2. Required Toxicity Testing Conditions

- a. Test Acceptance - The permittee shall repeat any toxicity test, including the control and all effluent dilutions, which fail to meet the following criteria:
 - 1) a control mean survival of 80% or greater;
 - 2) a control mean number of water flea neonates per surviving adult of 15 or greater;
 - 3) a control mean dry weight of surviving fathead minnow larvae of 0.25 mg or greater;
 - 4) a control Coefficient of Variation percent (CV%) of 40 or less in between replicates for the young of surviving females in the water flea reproduction and survival test; and the growth and survival endpoints in the fathead minnow growth and survival test.
 - 5) a critical dilution CV% of 40 or less for young of surviving females in the water flea reproduction and survival test; and the growth and survival endpoints for the fathead minnow growth and survival test. However, if statistically significant lethal or nonlethal effects are exhibited at the critical dilution, a CV% greater than 40 shall not invalidate the test.
 - 6) a Percent Minimum Significant Difference of 47 or less for water flea reproduction;
 - 7) a Percent Minimum Significant Difference of 30 or less for fathead minnow growth.
- b. Statistical Interpretation
 - 1) For the water flea survival test, the statistical analyses used to determine if there is a significant difference between the control and an effluent dilution shall be Fisher's Exact Test as described in the manual referenced above, or its most recent update.
 - 2) For the water flea reproduction test and the fathead minnow larval survival and growth tests, the statistical analyses used to determine if there is a significant difference between the control and an effluent dilution shall be in accordance with the manual referenced above, or its most recent update.
 - 3) The permittee is responsible for reviewing test concentration-response relationships to ensure that calculated test-results are interpreted and reported correctly. The EPA manual, Method Guidance and Recommendation for Whole

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Effluent Toxicity (WET) Testing (40 CFR Part 136)" (EPA 821-B-00-004), provides guidance on determining the validity of test results.

- 4) If significant lethality is demonstrated (that is, there is a statistically significant difference in survival at the critical dilution when compared to the control), the conditions of test acceptability are met, and the survival of the test organisms are equal to or greater than 80% in the critical dilution and all dilutions below that, then the permittee shall report a survival No Observed Effect Concentration (NOEC) of not less than the critical dilution for the reporting requirements.
- 5) The NOEC is defined as the greatest effluent dilution at which no significant effect is demonstrated. The Lowest Observed Effect Concentration (LOEC) is defined as the lowest effluent dilution at which a significant effect is demonstrated. A significant effect is herein defined as a statistically significant difference at the 95% confidence level between the survival, reproduction, or growth of the test organism(s) in a specified effluent dilution compared to the survival, reproduction, or growth of the test organism(s) in the control (0% effluent).
- 6) The use of NOECs and LOECs assumes either a monotonic (continuous) concentration-response relationship or a threshold model of the concentration-response relationship. For any test result that demonstrates a non-monotonic (non-continuous) response, the NOEC should be determined based on the guidance manual referenced in Item 3 above.
- 7) Pursuant to the responsibility assigned to the permittee in Part 2.b.3), test results that demonstrate a non-monotonic (non-continuous) concentration-response relationship may be submitted, prior to the due date, for technical review. The above-referenced guidance manual will be used when making a determination of test acceptability.
- 8) Staff will review test results for consistency with rules, procedures, and permit requirements.

c. Dilution Water

- 1) Dilution water used in the toxicity tests shall be the receiving water collected at a point upstream of the discharge as close as possible to the discharge point, but unaffected by the discharge. Where the toxicity tests are conducted on effluent discharges to receiving waters that are classified as intermittent streams, or where the toxicity tests are conducted on effluent discharges where no receiving water is available due to zero flow conditions, the permittee shall; (a) substitute a synthetic dilution water that has a pH, hardness, and alkalinity similar to that of the closest downstream perennial water unaffected by the discharge, or (b) utilize the closest downstream perennial water unaffected by the discharge.
- 2) Where the receiving water proves unsatisfactory as a result of pre-existing instream toxicity (i.e. fails to fulfill the test acceptance criteria of item 2.a.), the permittee may substitute synthetic dilution water for the receiving water in all subsequent tests provided the unacceptable receiving water test met the following stipulations:

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- a) a synthetic lab water control was performed (in addition to the receiving water control) which fulfilled the test acceptance requirements of item 2.a;
 - b) the test indicating receiving water toxicity was carried out to completion (i.e., 7 days);
 - c) the permittee submitted all test results indicating receiving water toxicity with the reports and information required in Part 3 of this Section.
- 3) The synthetic dilution water shall consist of standard, moderately hard, reconstituted water. Upon approval, the permittee may substitute other appropriate dilution water with chemical and physical characteristics similar to that of the receiving water.

d. Samples and Composites

- 1) The permittee shall collect a minimum of three composite samples from Outfall 002. The second and third composite samples will be used for the renewal of the dilution concentrations for each toxicity test.
- 2) The permittee shall collect the composite samples such that the samples are representative of any periodic episode of chlorination, biocide usage, or other potentially toxic substance discharged on an intermittent basis.
- 3) The permittee shall initiate the toxicity tests within 36 hours after collection of the last portion of the first composite sample. The holding time for any subsequent composite sample shall not exceed 72 hours. Samples shall be maintained at a temperature of 0-6 degrees Centigrade during collection, shipping, and storage.
- 4) If Outfall 002 ceases discharging during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum numbers of effluent portions, and the sample holding time, are waived during that sampling period. However, the permittee must have collected an effluent composite sample volume sufficient to complete the required toxicity tests with renewal of the effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate days if the discharge occurs over multiple days. The sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report.

3. Reporting

All reports, tables, plans, summaries, and related correspondence required in any Part of this Section shall be submitted to the attention of the Standards Implementation Team (MC 150) of the Water Quality Division.

- a. The permittee shall prepare a full report of the results of all tests conducted pursuant to this permit in accordance with the manual referenced above, or its most recent update, for every valid and invalid toxicity test initiated.
- b. The permittee shall routinely report the results of each biomonitoring test on the Table 1 forms included with this permit.
 - 1) Annual biomonitoring test results are due on or before January 20th for biomonitoring conducted during the previous 12 month period.

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- 2) Semiannual biomonitoring test results are due on or before July 20th and January 20th for biomonitoring conducted during the previous 6 month period.
 - 3) Quarterly biomonitoring test results are due on or before April 20th, July 20th, October 20th, and January 20th, for biomonitoring conducted during the previous calendar quarter.
 - 4) Monthly biomonitoring test results are due on or before the 20th day of the month following sampling.
- c. Enter the following codes for the appropriate parameters for valid tests only:
- 1) For the water flea, Parameter TLP3B, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."
 - 2) For the water flea, Parameter TOP3B, report the NOEC for survival.
 - 3) For the water flea, Parameter TXP3B, report the LOEC for survival.
 - 4) For the water flea, Parameter TWP3B, enter a "1" if the NOEC for reproduction is less than the critical dilution; otherwise, enter a "0."
 - 5) For the water flea, Parameter TPP3B, report the NOEC for reproduction.
 - 6) For the water flea, Parameter TYP3B, report the LOEC for reproduction.
 - 7) For the fathead minnow, Parameter TLP6C, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."
 - 8) For the fathead minnow, Parameter TOP6C, report the NOEC for survival.
 - 9) For the fathead minnow, Parameter TXP6C, report the LOEC for survival.
 - 10) For the fathead minnow, Parameter TWP6C, enter a "1" if the NOEC for growth is less than the critical dilution; otherwise, enter a "0."
 - 11) For the fathead minnow, Parameter TPP6C, report the NOEC for growth.
 - 12) For the fathead minnow, Parameter TYP6C, report the LOEC for growth.
 - 13) For both species, Parameter 22414, report the LOEC for survival.
- d. Enter the following codes for sublethal retests only:
- 1) For retest number 1, Parameter 22415, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."
 - 2) For retest number 2, Parameter 22416, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."
- e. The permittee shall report the lethal Whole Effluent Toxicity values for the 30-day Average Minimum and the 7-day Minimum under Parameter No. 22414 for the appropriate reporting period. If more than one valid test was performed during the reporting period, the test NOECs will be averaged arithmetically and reported as the Daily Average Minimum NOEC for that reporting period. The data submitted should reflect the lowest survival results during the reporting period.

4. Persistent Toxicity

The requirements of this Part apply only when a test demonstrates a significant sublethal effect (but not a lethal one) at the critical dilution. A significant sublethal effect is defined as a statistically significant difference between a specified endpoint (growth or reproduction) of the test organism in a specified effluent dilution when compared to the specified endpoint of the test organism in the control. Significant sublethality is defined as a statistically significant

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difference in growth/reproduction at the critical dilution when compared to the growth/reproduction of the test organism in the control.

- a. The permittee shall conduct a total of 2 additional tests (retests) for any species that demonstrates a significant sublethal effect at the critical dilution. The two retests shall be conducted consecutively during the next two months. The permittee shall not substitute either of the two retests in lieu of routine toxicity testing. All reports shall be submitted within 20 days of test completion. Test completion is defined as the last day of the test.
- b. No more than one retest per month is required for a species. The retest requirements are waived if the permittee is already performing increased testing due to noncompliance with the lethal WET limit.

5. Toxicity Reduction Evaluation

- a. Within 45 days of being so instructed, the permittee shall submit a General Outline for initiating a sublethal Toxicity Reduction Evaluation (TRE). The outline shall include, but not be limited to, a description of project personnel, a schedule for obtaining consultants (if needed), a discussion of influent, or effluent data available for review, a sampling and analytical schedule, and a proposed TRE initiation date.
- b. Within 90 days of being so instructed, the permittee shall submit a TRE Action Plan and Schedule for conducting a sublethal TRE. The plan shall specify the approach and methodology to be used in performing the TRE. A TRE is a step-wise investigation combining toxicity testing with physical and chemical analysis to determine actions necessary to eliminate or reduce effluent toxicity to a level not effecting significant sublethality at the critical dilution. The TRE Action Plan should lead to the successful elimination of significant sublethality for the species demonstrating significant sublethal effects. As a minimum, the TRE Action Plan shall include the following:
 - 1) Specific Activities - The TRE Action Plan shall specify the approach the permittee intends to utilize in conducting the TRE, including toxicity characterizations, identifications, confirmations, source evaluations, treatability studies, or alternative approaches. When conducting characterization analyses, the permittee shall perform multiple characterizations and follow the procedures specified in the document entitled, "Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I" (EPA/600/6-91/005F), or alternate procedures. The permittee shall perform multiple identifications and follow the methods specified in the documents entitled, "Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/080) and "Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/081). All characterization, identification, and confirmation tests shall be conducted in an orderly and logical progression;
 - 2) Sampling Plan - The TRE Action Plan should describe sampling locations, methods, holding times, chain of custody, and preservation techniques. The effluent sample volume collected for all tests shall be adequate to perform the toxicity characterization/ identification/ confirmation procedures, and chemical-specific analyses when the toxicity tests show significant sublethality. Where the permittee has identified or suspects specific pollutant(s) or source(s) of effluent toxicity, the permittee shall conduct, concurrent with

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- toxicity testing, chemical-specific analyses for the identified or suspected pollutant(s) or source(s) of effluent toxicity;
- 3) Quality Assurance Plan - The TRE Action Plan should address record keeping and data evaluation, calibration and standardization, baseline tests, system blanks, controls, duplicates, spikes, toxicity persistence in the samples, randomization, reference toxicant control charts, as well as mechanisms to detect artifactual toxicity; and
 - 4) Project Organization - The TRE Action Plan should describe the project staff, project manager, consulting engineering services (where applicable), consulting analytical and toxicological services, etc.
- c. Within 30 days of submittal of the TRE Action Plan and Schedule, the permittee shall implement the TRE with due diligence.
 - d. The permittee shall submit quarterly TRE Activities Reports concerning the progress of the TRE. The quarterly reports are due on or before April 20th, July 20th, October 20th, and January 20th. The report shall detail information regarding the TRE activities including:
 - 1) results and interpretation of any chemical-specific analyses for the identified or suspected pollutant(s) performed during the quarter;
 - 2) results and interpretation of any characterization, identification, and confirmation tests performed during the quarter;
 - 3) any data or substantiating documentation which identifies the pollutant(s) or source(s) of effluent toxicity;
 - 4) results of any studies/evaluations concerning the treatability of the facility's effluent toxicity;
 - 5) any data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet no significant sublethality at the critical dilution; and
 - 6) any changes to the initial TRE Plan and Schedule that are believed necessary as a result of the TRE findings.

Copies of the TRE Activities Report shall also be submitted to the U.S. EPA Region 6 office.
 - e. During the TRE, the permittee shall perform, at a minimum, quarterly testing using the more sensitive species; testing for the less sensitive species shall continue at the frequency specified in Part 1.b.
 - f. Based upon the results of the TRE and proposed corrective actions, this permit may be amended to modify the biomonitoring requirements, where necessary, to require a compliance schedule for implementation of corrective actions, to specify a sublethal WET limit, to specify a BMP, or to specify CS limits.

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TABLE 1 (SHEET 1 OF 4)

BIOMONITORING REPORTING

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION

Dates and Times Date Time Date Time
 Composites No. 1 FROM: _____ TO: _____
 Collected No. 2 FROM: _____ TO: _____
 No. 3 FROM: _____ TO: _____

Test initiated: _____ am/pm _____ date

Dilution water used: _____ Receiving water _____ Synthetic Dilution water

NUMBER OF YOUNG PRODUCED PER ADULT AT END OF TEST

REP	Percent effluent					
	0%	6%	8%	11%	14%	19%
A						
B						
C						
D						
E						
F						
G						
H						
I						
J						
Survival Mean						
Total Mean						
CV%*						
PMSD						

*Coefficient of Variation = standard deviation x 100/mean (calculation based on young of the surviving adults)

Designate males (M), and dead females (D), along with number of neonates (x) released prior to death.

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TABLE 1 (SHEET 2 OF 4)

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST

1. Dunnett's Procedure or Steel's Many-One-Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean number of young produced per adult significantly less than the number of young per adult in the control for the % effluent corresponding to significant nonlethal effects?

CRITICAL DILUTION (14%): _____ YES _____ NO

PERCENT SURVIVAL

Time of Reading	Percent effluent					
	0%	6%	8%	11%	14%	19%
24h						
48h						
End of Test						

2. Fisher's Exact Test:

Is the mean survival at test end significantly less than the control survival for the % effluent corresponding to lethality?

CRITICAL DILUTION (14%): _____ YES _____ NO

3. Enter percent effluent corresponding to each NOEC\LOEC below:

a.) NOEC survival = _____ % effluent

b.) LOEC survival = _____ % effluent

c.) NOEC reproduction = _____ % effluent

d.) LOEC reproduction = _____ % effluent

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TABLE 1 (SHEET 3 OF 4)

BIOMONITORING REPORTING

FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL

Dates and Times No. 1 FROM: _____ Date Time _____ Date Time _____ TO: _____
 Composites
 Collected No. 2 FROM: _____ TO: _____
 No. 3 FROM: _____ TO: _____

Test initiated: _____ am/pm _____ date

Dilution water used: _____ Receiving water _____ Synthetic dilution water

FATHEAD MINNOW GROWTH DATA

Effluent Concentration	Average Dry Weight in replicate chambers					Mean Dry Weight	CV%*
	A	B	C	D	E		
0%							
6%							
8%							
11%							
14%							
19%							
PMSD							

* Coefficient of Variation = standard deviation x 100/mean

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean dry weight (growth) at 7 days significantly less than the control's dry weight (growth) for the % effluent corresponding to significant nonlethal effects?

CRITICAL DILUTION (14%): _____ YES _____ NO

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TABLE 1 (SHEET 4 OF 4)

BIOMONITORING REPORTING

FATHEAD MINNOW GROWTH AND SURVIVAL TEST

FATHEAD MINNOW SURVIVAL DATA

Effluent Concentration	Percent Survival in replicate chambers					Mean percent survival			CV%*
	A	B	C	D	E	24h	48h	7 day	
0%									
6%									
8%									
11%									
14%									
19%									

* Coefficient of Variation = standard deviation x 100/mean

2. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean survival at 7 days significantly less than the control survival for the % effluent corresponding to lethality?

CRITICAL DILUTION (14%): _____ YES _____ NO

3. Enter percent effluent corresponding to each NOEC\LOEC below:

a.) NOEC survival = _____% effluent

b.) LOEC survival = _____% effluent

c.) NOEC growth = _____% effluent

d.) LOEC growth = _____% effluent

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24-HOUR ACUTE BIOMONITORING REQUIREMENTS: FRESHWATER

The provisions of this section apply to Outfall 002 for whole effluent toxicity (WET) testing.

1. Scope, Frequency and Methodology

- a. The permittee shall test the effluent for lethality in accordance with the provisions in this Section. Such testing will determine compliance with the Surface Water Quality Standard, 307.6(e)(2)(B), of greater than 50% survival of the appropriate test organisms in 100% effluent for a 24-hour period.
- b. The toxicity tests specified shall be conducted once per six months. The permittee shall conduct the following toxicity tests utilizing the test organisms, procedures, and quality assurance requirements specified in this section of the permit and in accordance with "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition" (EPA-821-R-02-012), or its most recent update:
 - 1) Acute 24-hour static toxicity test using the water flea (*Daphnia pulex* or *Ceriodaphnia dubia*). A minimum of five replicates with eight organisms per replicate shall be used in the control and in each dilution.
 - 2) Acute 24-hour static toxicity test using the fathead minnow (*Pimephales promelas*). A minimum of five replicates with eight organisms per replicate shall be used in the control and in each dilution.

A valid test result must be submitted for each reporting period. The permittee must report, and then repeat, an invalid test during the same reporting period. The repeat test shall include the control and the 100% effluent dilution and use the appropriate number of organisms and replicates, as specified above. An invalid test is herein defined as any test failing to satisfy the test acceptability criteria, procedures, and quality assurance requirements specified in the test methods and permit.

- c. In addition to an appropriate control, a 100% effluent concentration shall be used in the toxicity tests. The control and dilution water shall consist of standard, synthetic, moderately hard, reconstituted water.
- d. This permit may be amended to require a WET limit, a Best Management Practice (BMP), Chemical-Specific (CS) limits, or other appropriate actions to address toxicity. The permittee may be required to conduct a Toxicity Reduction Evaluation after multiple toxic events.

2. Required Toxicity Testing Conditions

- a. Test Acceptance - The permittee shall repeat any toxicity test, including the control, if the control fails to meet a mean survival equal to or greater than 90%.
- b. Dilution Water - In accordance with item 1.c., the control and dilution water shall consist of standard, synthetic, moderately hard, reconstituted water.
- c. Samples and Composites
 - 1) The permittee shall collect one composite sample from Outfall 002.
 - 2) The permittee shall collect the composite samples such that the samples are representative of any periodic episode of chlorination, biocide usage, or other potentially toxic substance discharged on an intermittent basis.

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- 3) The permittee shall initiate the toxicity tests within 36 hours after collection of the last portion of the composite sample. Samples shall be maintained at a temperature of 0-6 degrees Centigrade during collection, shipping, and storage.
- 4) If Outfall 002 ceases discharging during the collection of the effluent composite sample, the requirements for the minimum number of effluent portions are waived. However, the permittee must have collected a composite sample volume sufficient for completion of the required test. The abbreviated sample collection, duration, and methodology must be documented in the full report.

3. Reporting

All reports, tables, plans, summaries, and related correspondence required in any Part of this Section shall be submitted to the attention of the Standards Implementation Team (MC 150) of the Water Quality Division.

- a. The permittee shall prepare a full report of the results of all tests conducted in accordance with the manual referenced above, or its most recent update thereof, for every valid and invalid toxicity test initiated.
- b. The permittee shall routinely report the results of each biomonitoring test on the Table 2 forms provided with this permit.
 - 1) Semiannual biomonitoring test results are due on or before January 20th and July 20th for biomonitoring conducted during the previous 6 month period.
 - 2) Quarterly biomonitoring test results are due on or before January 20th, April 20th, July 20th, and October 20th, for biomonitoring conducted during the previous calendar quarter.
- c. Enter the following codes on for the appropriate parameters for valid tests only:
 - 1) For the water flea, Parameter TIE3D, enter a "0" if the mean survival at 24-hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."
 - 2) For the fathead minnow, Parameter TIE6C, enter a "0" if the mean survival at 24-hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."
- d. Enter the following codes for retests only:
 - 1) For retest number 1, Parameter 22415, enter a "0" if the mean survival at 24-hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."
 - 2) For retest number 2, Parameter 22416, enter a "0" if the mean survival at 24-hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."

4. Persistent Mortality

The requirements of this Part apply when a toxicity test demonstrates significant lethality, here defined as a mean mortality of 50% or greater to organisms exposed to the 100% effluent concentration after 24-hours.

- a. The permittee shall conduct 2 additional tests (retests) for each species that demonstrates significant lethality. The two retests shall be conducted once per week for 2 weeks. Five effluent dilution concentrations in addition to an appropriate control

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The permittee may only apply this cessation of lethality provision once. If the effluent again demonstrates significant lethality to the same species, the permit will be amended to add a WET limit with a compliance period, if appropriate. However, prior to the effective date of the WET limit, the permittee may apply for a permit amendment removing and replacing the WET limit with an alternate toxicity control measure by identifying and confirming the toxicant and an appropriate control measure.

- g. The permittee shall complete the TRE and submit a Final Report on the TRE Activities no later than 18 months from the last test day of the retest that demonstrates significant lethality. The permittee may petition the Executive Director (in writing) for an extension of the 18-month limit. However, to warrant an extension the permittee must have demonstrated due diligence in their pursuit of the TIE/TRE and must prove that circumstances beyond their control stalled the TIE/TRE. The report shall specify the control mechanism(s) that will, when implemented, reduce effluent toxicity as specified in item 5.g. The report will also specify a corrective action schedule for implementing the selected control mechanism(s). A copy of the TRE Final Report shall also be submitted to the U.S. EPA Region 6 office.
- h. Within 3 years of the last day of the test confirming toxicity, the permittee shall comply with 307.6.(e)(2)(B), which requires greater than 50% survival of the test organism in 100% effluent at the end of 24-hours. The permittee may petition the Executive Director (in writing) for an extension of the 3-year limit. However, to warrant an extension the permittee must have demonstrated due diligence in their pursuit of the TIE/TRE and must prove that circumstances beyond their control stalled the TIE/TRE.

The requirement to comply with 307.6.(e)(2)(B) may be exempted upon proof that toxicity is caused by an excess, imbalance, or deficiency of dissolved salts. This exemption excludes instances where individually toxic components (e.g. metals) form a salt compound. Following the exemption, the permit may be amended to include an ion-adjustment protocol, alternate species testing, or single species testing.
- i. Based upon the results of the TRE and proposed corrective actions, this permit may be amended to modify the biomonitoring requirements where necessary, to require a compliance schedule for implementation of corrective actions, to specify a WET limit, to specify a BMP, and to specify a CS limit.

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TABLE 2 (SHEET 1 OF 2)

WATER FLEA SURVIVAL

GENERAL INFORMATION

	Time	Date
Composite Sample Collected		
Test Initiated		

PERCENT SURVIVAL

Time	Rep	Percent effluent					
		0%	6%	13%	25%	50%	100%
24h	A						
	B						
	C						
	D						
	E						
	MEAN						

Enter percent effluent corresponding to the LC50 below:

24 hour LC50 = _____% effluent

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shall be used in the retests. These additional effluent concentrations are 6%, 13%, 25%, 50% and 100% effluent. The first retest shall be conducted within 15 days of the laboratory determination of significant lethality. All test results shall be submitted within 20 days of test completion of the second retest. Test completion is defined as the 24th hour.

- b. If one or both of the two retests specified in item 4.a. demonstrates significant lethality, the permittee shall initiate the TRE requirements as specified in Part 5 of this Section.

5. Toxicity Reduction Evaluation

- a. Within 45 days of the retest that demonstrates significant lethality, the permittee shall submit a General Outline for initiating a Toxicity Reduction Evaluation (TRE). The outline shall include, but not be limited to, a description of project personnel, a schedule for obtaining consultants (if needed), a discussion of influent and effluent data available for review, a sampling and analytical schedule, and a proposed TRE initiation date.
- b. Within 90 days of the retest that demonstrates significant lethality, the permittee shall submit a TRE Action Plan and Schedule for conducting a TRE. The plan shall specify the approach and methodology to be used in performing the TRE. A TRE is a step-wise investigation combining toxicity testing with physical and chemical analysis to determine actions necessary to eliminate or reduce effluent toxicity to a level not effecting significant lethality at the critical dilution. The TRE Action Plan shall lead to the successful elimination of significant lethality for both test species defined in item 1.b. As a minimum, the TRE Action Plan shall include the following:
 - 1) Specific Activities - The TRE Action Plan shall specify the approach the permittee intends to utilize in conducting the TRE, including toxicity characterizations, identifications, confirmations, source evaluations, treatability studies, and alternative approaches. When conducting characterization analyses, the permittee shall perform multiple characterizations and follow the procedures specified in the document entitled, "Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures" (EPA/600/6-91/003), or alternate procedures. The permittee shall perform multiple identifications and follow the methods specified in the documents entitled, "Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/080) and "Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/081). All characterization, identification, and confirmation tests shall be conducted in an orderly and logical progression;
 - 2) Sampling Plan - The TRE Action Plan should describe sampling locations, methods, holding times, chain of custody, and preservation techniques. The effluent sample volume collected for all tests shall be adequate to perform the toxicity characterization/ identification/ confirmation procedures, and chemical-specific analyses when the toxicity tests show significant lethality. Where the permittee has identified or suspects specific pollutant(s) and source(s) of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical-specific analyses for the identified and suspected pollutant(s) and source(s) of effluent toxicity;

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- 3) Quality Assurance Plan - The TRE Action Plan should address record keeping and data evaluation, calibration and standardization, baseline tests, system blanks, controls, duplicates, spikes, toxicity persistence in the samples, randomization, reference toxicant control charts, as well as mechanisms to detect artifactual toxicity; and
 - 4) Project Organization - The TRE Action Plan should describe the project staff, project manager, consulting engineering services (where applicable), consulting analytical and toxicological services, etc.
- c. Within 30 days of submittal of the TRE Action Plan and Schedule, the permittee shall implement the TRE with due diligence.
- d. The permittee shall submit quarterly TRE Activities Reports concerning the progress of the TRE. The quarterly TRE Activities Reports are due on or before April 20th, July 20th, October 20th, and January 20th. The report shall detail information regarding the TRE activities including:
- 1) results and interpretation of any chemical-specific analyses for the identified and suspected pollutant(s) performed during the quarter;
 - 2) results and interpretation of any characterization, identification, and confirmation tests performed during the quarter;
 - 3) any data and substantiating documentation which identifies the pollutant(s) and source(s) of effluent toxicity;
 - 4) results of any studies/evaluations concerning the treatability of the facility's effluent toxicity;
 - 5) any data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to eliminate significant lethality; and
 - 6) any changes to the initial TRE Plan and Schedule that are believed necessary as a result of the TRE findings.

Copies of the TRE Activities Report shall also be submitted to the U.S. EPA Region 6 office.

- e. During the TRE, the permittee shall perform, at a minimum, quarterly testing using the more sensitive species; testing for the less sensitive species shall continue at the frequency specified in Part 1.b.
- f. If the effluent ceases to effect significant lethality (herein as defined below) the permittee may end the TRE. A "cessation of lethality" is defined as no significant lethality for a period of 12 consecutive weeks with at least weekly testing. At the end of the 12 weeks, the permittee shall submit a statement of intent to cease the TRE and may then resume the testing frequency specified in Part 1.b. The permittee may only apply the "cessation of lethality" provision once.

This provision accommodates situations where operational errors and upsets, spills, or sampling errors triggered the TRE, in contrast to a situation where a single toxicant or group of toxicants cause lethality. This provision does not apply as a result of corrective actions taken by the permittee. "Corrective actions" are herein defined as proactive efforts which eliminate or reduce effluent toxicity. These include, but are not limited to, source reduction or elimination, improved housekeeping, changes in chemical usage, and modifications of influent streams and effluent treatment.

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TABLE 2 (SHEET 2 OF 2)

FATHEAD MINNOW SURVIVAL

GENERAL INFORMATION

	Time	Date
Composite Sample Collected		
Test Initiated		

PERCENT SURVIVAL

Time	Rep	Percent effluent					
		0%	6%	13%	25%	50%	100%
24h	A						
	B						
	C						
	D						
	E						
	MEAN						

Enter percent effluent corresponding to the LC50 below:

24 hour LC50 = _____ % effluent

Appendix 2

Recorded 2016 Outfall Discharges / 2016 DMR Summary

2016 OUTFALL DISCHARGES

JANUARY

Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
1/7/2016	830	1700	522	1,827,000		1/1-1/4 2016	700	8600	4740	237,000
1/8/2016	730	1600	522	1,827,000					0	0
1/11/2016	630	1630	600	2,100,000					0	0
1/12/2016	630	1230	360	1,260,000					0	0
Total				7,014,000		Total				237,000
AVERAGE				1,753,500		AVERAGE				59,250

FEBRUARY

Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
			0	0		2/1/2016	1300	1400	60	3,000
			0	0		2/5/2016	630	2230	960	48,000
			0	0		2/8/2016-2/12/2016	630	14430	8280	414,000
Total				0		Total				465,000
AVERAGE				0		AVERAGE				155,000

MARCH

Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
3/11/2016	1100	3800	1620	5,670,000		3/21/2016	1100	1800	420	21,000
3/14/2016	700	1300	360	1,260,000		3/22/2016	730	4200	2082	104,100
			0	0		3/28/2016	700	7800	4260	213,000
Total				6,930,000		Total				338,100
AVERAGE				2,310,000		AVERAGE				112,700

APRIL

Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
4/20-4/22 2016	700	5400	2820	9,870,000					0	0
4/25/2016	930	1630	420	1,470,000					0	0
4/26/2016	630	1330	420	1,470,000					0	0
Total				12,810,000		Total				0
AVERAGE				4,270,000		AVERAGE				0

MAY

Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
5/3/2016	930	1530	360	1,260,000		5/4/16 to 5/12/16	600	18600	10800	540,000
5/18/2016	1030	2000	582	2,037,000					0	0
5/19/2016	630	2000	822	2,877,000					0	0
5/20/2016	630	2000	822	2,877,000					0	0
5/23/2016	630	800	102	357,000					0	0
5/31/2016	615	2000	831	2,908,500					0	0
Total				12,316,500		Total				540,000
AVERAGE				2,052,750		AVERAGE				90,000

JUNE

Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
6/1/2016	615	2000	831	2,908,500		6/13/2016	640	15640	9000	450,000
6/2/2016	515	1315	480	1,680,000		6/20/2016	600	3000	1440	72,000
6/7/2016	830	1300	282	987,000					0	0
Total				5,575,500		Total				522,000
AVERAGE				1,858,500		AVERAGE				174,000

JULY

Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
No Discharge			0	0		No Discharge			0	0
Total				0		Total				0
AVERAGE				0		AVERAGE				0

AUGUST

Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
8/17/2016	830	1600	462	1,617,000		8/8/2016	715	5515	2880	144,000
8/18/2016	700	1600	540	1,890,000					0	0
8/19/2016	830	1600	462	1,617,000					0	0
8/22/2016	700	1600	540	1,890,000					0	0
8/23/2016	630	1500	522	1,827,000					0	0
8/24/2016	700	1700	600	2,100,000					0	0
Total				10,941,000		Total				144,000
AVERAGE				1,823,500		AVERAGE				24,000

AUGUST 2016 SEMI-ANNUAL AND ANNUAL ANALYSIS

Metals	Chromium	Copper	Lead	Manganese	Nickel	Zinc	TDS	Chlorides
TPDES Limits (mg/l)	2	2	1.5	3	3	3	6000	975
AVERAGE	0	0	0	0	0	0	0	0

Soil Samples-3

SEPTEMBER

Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
No Discharge			0	0		No Discharge			0	0
Total				0		Total				0
AVERAGE				0		AVERAGE				0

OCTOBER

Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
No Discharge			0	0		No Discharge			0	0
Total				0		Total				0
AVERAGE				0		AVERAGE				0

NOVEMBER

Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
11/9/2016	630	3030	1440	5,040,000		11/1/2016	630	19830	11520	576,000
Total				5,040,000		Total				576,000
AVERAGE				5,040,000		AVERAGE				576,000

DECEMBER

Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
12/5/2016	730	3130	1440	5,040,000		12/12/2016	630	12630	7200	360,000
Total				5,040,000		Total				360,000
AVERAGE				5,040,000		AVERAGE				360,000

Annual Total- gal.

65,667,000

Annual Total- gal.

3,182,100

2017 OUTFALL DISCHARGES

JANUARY										
Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
1/3/2017	700	5500	2880	10,080,000		1/16/2017	900	5300	2640	132,000
1/18/2017	900	3300	1440	5,040,000		1/23 to 1/27	700	10900	6120	306,000
			0	0					0	0
Total				15,120,000		Total				438,000
AVERAGE				5,040,000		AVERAGE				146,000

FEBRUARY										
Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
2/29/17	600	3000	1440	5,040,000		4/10/2017	1030	4830	2280	114,000
				0						0
Total				5,040,000		Total				114,000
AVERAGE				2,520,000		AVERAGE				57,000

MARCH										
Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
Total				0		Total				0
AVERAGE				#DIV/0!		AVERAGE				#DIV/0!

APRIL										
Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
ND			0	0		ND			0	0
Total				0		Total				0
AVERAGE				0		AVERAGE				0

MAY										
Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
ND			0	0		ND			0	0
Total				0		Total				0
AVERAGE				0		AVERAGE				0

JUNE										
Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
6/8/2017	600	3000	1440	5,040,000		6/9/2017	600	4000	2040	102,000
			0	0					0	0
			0	0					0	0
			0	0					0	0
Total				5,040,000		Total				102,000
AVERAGE				1,260,000		AVERAGE				25,500

JULY										
Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
			0	0					0	0
			0	0					0	0
			0	0					0	0
			0	0					0	0
Total				0		Total				0
AVERAGE				0		AVERAGE				0

AUGUST										
Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
			0	0					0	0
			0	0					0	0
			0	0					0	0
			0	0					0	0
Total				0		Total				0
AVERAGE				0		AVERAGE				0

AUGUST 2017 SEMI-ANNUAL AND ANNUAL ANALYSIS								
Metals	Chromium	Copper	Lead	Manganese	Nickel	Zinc	TDS	Chlorides
TPDES Limits (mg/l)	2	2	1.5	3	3	3	6000	975
AVERAGE	0	0	0	0	0	0	0	0

SEPTEMBER										
Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
			0	0					0	0
			0	0					0	0
			0	0					0	0
			0	0					0	0
			0	0					0	0
Total				0		Total				0
AVERAGE				0		AVERAGE				0

OCTOBER										
Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
			0	0					0	0
			0	0					0	0
			0	0					0	0
			0	0					0	0
Total				0		Total				0
AVERAGE				0		AVERAGE				0

NOVEMBER										
Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
			0	0					0	0
			0	0					0	0
			0	0					0	0
			0	0					0	0
Total				0		Total				0
AVERAGE				0		AVERAGE				0

DECEMBER										
Outfall 001	Start Time	Stop Time	Minutes	Total Gallons		Outfall 002	Start Time	Stop Time	Minutes	Total Gallons
			0	0					0	0
			0	0					0	0
			0	0					0	0
			0	0					0	0
Total				0		Total				0
AVERAGE				0		AVERAGE				0

Annual Total				25,200,000		Annual Total				654,000
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DMR Summary

Permit TX0042129

Permit Name	Version Nmbr	Curr. Major Minor Status	Issue Date	Effective Date	Expiration Date
WYMAN-GORDON FORGINGS LP	0	Major	7/18/14	8/1/14	5/1/18

Version # 0

Outfall 001A

00310 BOD, 5-day, 20 deg. C / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Weekly

Limit		
Limit Unit Desc	Milligrams per Liter	Milligrams per Liter
Statistical Base	DAILY AV	DAILY MX
Limit Value	15	20
DMR Values		
1/31/15	0	0
2/28/15	NODI=C	NODI=C
3/31/15	5.3	5.3
4/30/15	NODI=C	NODI=C
5/31/15	NODI=C	NODI=C
6/30/15	2	3.7
7/31/15	NODI=C	NODI=C
8/31/15	6.2	6.2
9/30/15	14.3	20
10/31/15	3.3	20
11/30/15	3.3	20
12/31/15	3.3	20
1/31/16	5	20
2/29/16	NODI=C	NODI=C
3/31/16	6	20
4/30/16	4.2	20
5/31/16	8.1	20
6/30/16	NODI=C	NODI=C
7/31/16	3.02	20
8/31/16	NODI=C	NODI=C
9/30/16	NODI=C	NODI=C
10/31/16	NODI=C	NODI=C
11/30/16	8.53	20
12/31/16	4.12	20
1/31/17	3.08	20
2/28/17	5.51	20
3/31/17	NODI=C	NODI=C
4/30/17	NODI=C	NODI=C
5/31/17	NODI=C	NODI=C

00340 Oxygen demand, chem. [high level] [COD] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
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DMR Summary

Permit TX0042129

Version # 0

Outfall 001A

00340 Oxygen demand, chem. [high level] [COD] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Weekly

Limit		
Limit Unit Desc	Milligrams per Liter	Milligrams per Liter
Statistical Base	DAILY AV	DAILY MX
Limit Value	100	150
DMR Values		
1/31/15	20	20
2/28/15	NODI=C	NODI=C
3/31/15	35	35
4/30/15	NODI=C	NODI=C
5/31/15	NODI=C	NODI=C
6/30/15	15	33
7/31/15	NODI=C	NODI=C
8/31/15	45	45
9/30/15	41	150
10/31/15	33	150
11/30/15	33	150
12/31/15	33	150
1/31/16	27	150
2/29/16	NODI=C	NODI=C
3/31/16	40	150
4/30/16	38	150
5/31/16	37	150
6/30/16	NODI=C	NODI=C
7/31/16	32	150
8/31/16	NODI=C	NODI=C
9/30/16	NODI=C	NODI=C
10/31/16	NODI=C	NODI=C
11/30/16	39	150
12/31/16	44	150
1/31/17	33	150
2/28/17	32	150
3/31/17	NODI=C	NODI=C
4/30/17	NODI=C	NODI=C
5/31/17	NODI=C	NODI=C

00400 pH / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Daily

Limit		
Limit Unit Desc	Standard Units	Standard Units
Statistical Base	MINIMUM	MAXIMUM
Limit Value	6	9
DMR Values		
1/31/15	7	7
2/28/15	NODI=C	NODI=C
3/31/15	7	7.1
4/30/15	NODI=C	NODI=C

DMR Summary

Permit TX0042129
Version # 0
Outfall 001A
00400 pH / Location 1 / Season 0 / Base

DMR Values		
5/31/15	NODI=C	NODI=C
6/30/15	6	7.1
7/31/15	NODI=C	NODI=C
8/31/15	7.4	7.4
9/30/15	6.98	9
10/31/15	7.35	9
11/30/15	7.35	9
12/31/15	7.08	9
1/31/16	7.3	9
2/29/16	NODI=C	NODI=C
3/31/16	6	9
4/30/16	6	9
5/31/16	7.48	9
6/30/16	NODI=C	NODI=C
7/31/16	6	9
8/31/16	NODI=C	NODI=C
9/30/16	NODI=C	NODI=C
10/31/16	NODI=C	NODI=C
11/30/16	6	9
12/31/16	6	9
1/31/17	6	9
2/28/17	6	9
3/31/17	NODI=C	NODI=C
4/30/17	NODI=C	NODI=C
5/31/17	NODI=C	NODI=C

00530 Solids, total suspended / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Weekly

Limit		
Limit Unit Desc	Milligrams per Liter	Milligrams per Liter
Statistical Base	DAILY AV	DAILY MX
Limit Value		65
DMR Values		
1/31/15	13.2	13.2
2/28/15	NODI=C	NODI=C
3/31/15	NODI=F	NODI=F
4/30/15	NODI=C	NODI=C
5/31/15	NODI=C	NODI=C
6/30/15	2	39.2
7/31/15	NODI=C	NODI=C
8/31/15	39	39
9/30/15	34	65
10/31/15	24.4	65
11/30/15	24.4	65
12/31/15	24	65
1/31/16	45.6	65
2/29/16	NODI=C	NODI=C
3/31/16	48.4	65

DMR Summary

Permit TX0042129

Version # 0

Outfall 001A

00530 Solids, total suspended / Location 1 / Season 0 / Base

DMR Values		
4/30/16	20	65
5/31/16	43.9	65
6/30/16	NODI=C	NODI=C
7/31/16	10	65
8/31/16	NODI=C	NODI=C
9/30/16	NODI=C	NODI=C
10/31/16	NODI=C	NODI=C
11/30/16	40	65
12/31/16	22	65
1/31/17	20	65
2/28/17	12.8	65
3/31/17	NODI=C	NODI=C
4/30/17	NODI=C	NODI=C
5/31/17	NODI=C	NODI=C

00556 Oil & Grease / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Weekly

Limit		
Limit Unit Desc	Milligrams per Liter	Milligrams per Liter
Statistical Base	DAILY AV	DAILY MX
Limit Value	10	15
DMR Values		
1/31/15	0	0
2/28/15	NODI=C	NODI=C
3/31/15	0	0
4/30/15	NODI=C	NODI=C
5/31/15	NODI=C	NODI=C
6/30/15	0	0
7/31/15	NODI=C	NODI=C
8/31/15	0	0
9/30/15	0	15
10/31/15	0	15
11/30/15	0	15
12/31/15	0	15
1/31/16	0	15
2/29/16	NODI=C	NODI=C
3/31/16	0	15
4/30/16	0	15
5/31/16	0	15
6/30/16	NODI=C	NODI=C
7/31/16	0	15
8/31/16	NODI=C	NODI=C
9/30/16	NODI=C	NODI=C
10/31/16	NODI=C	NODI=C
11/30/16	0	15
12/31/16	0	15
1/31/17	0	15
2/28/17	0	0

DMR Summary

Permit TX0042129

Version # 0

Outfall 001A

00556 Oil & Grease / Location 1 / Season 0 / Base

DMR Values		
3/31/17	NODI=C	NODI=C
4/30/17	NODI=C	NODI=C
5/31/17	NODI=C	NODI=C

50050 Flow, in conduit or thru treatment plant / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	ESTIMA	Weekly

Limit		
Limit Unit Desc	Million Gallons per	Million Gallons per
Statistical Base	DAILY AV	DAILY MX
Limit Value		
DMR Values		
1/31/15	1.516	1.75
2/28/15	NODI=C	NODI=C
3/31/15	1.085	1.89
4/30/15	NODI=C	NODI=C
5/31/15	NODI=C	NODI=C
6/30/15	.0375	.0375
7/31/15	NODI=C	NODI=C
8/31/15	0	0
9/30/15	1.89	2.31
10/31/15	1.89	2.31
11/30/15	1.89	2.31
12/31/15	1.89	2.31
1/31/16	2.25	20
2/29/16	NODI=C	NODI=C
3/31/16	1.89	2.31
4/30/16	1.89	2.31
5/31/16	1.89	2.31
6/30/16	NODI=C	NODI=C
7/31/16	1.89	2.31
8/31/16	NODI=C	NODI=C
9/30/16	NODI=C	NODI=C
10/31/16	NODI=C	NODI=C
11/30/16	1.89	2.31
12/31/16	1.89	2.31
1/31/17	1.89	2.31
2/28/17	1.89	2.31
3/31/17	NODI=C	NODI=C
4/30/17	NODI=C	NODI=C
5/31/17	NODI=C	NODI=C

51040 E. coli / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	7/31/15	GRAB	Weekly
8/1/15	5/1/18	GRAB	Weekly

DMR Summary

Permit TX0042129

Version # 0

Outfall 001A

51040 E. coli / Location 1 / Season 0 / Base

Limit				
Limit Unit Desc	Colony Forming Uni	Colony Forming Uni	Colony Forming Uni	Colony Forming Uni
Statistical Base	DAILY AV	DAILY AV	DAILY MX	DAILY MX
Limit Value	126		399	
DMR Values				
1/31/15	<14	<14		
2/28/15	NODI=C	NODI=C		
3/31/15	1300	1300		
4/30/15	NODI=C	NODI=C		
5/31/15	NODI=C	NODI=C		
6/30/15	1	140		
7/31/15	NODI=C	NODI=C		
8/31/15	178	178		
9/30/15	126	399		
10/31/15	16.7	399		
11/30/15	73.58	399		
12/31/15	74	399		
1/31/16	17	399		
2/29/16	NODI=C	NODI=C		
3/31/16	387	399		
4/30/16	36	399		
5/31/16	33	399		
6/30/16	NODI=C	NODI=C		
7/31/16	126	399		
8/31/16	NODI=C	NODI=C		
9/30/16	NODI=C	NODI=C		
10/31/16	NODI=C	NODI=C		
11/30/16	41	399		
12/31/16	54	399		
1/31/17	45	399		
2/28/17	17	399		
3/31/17	NODI=C	NODI=C		
4/30/17	NODI=C	NODI=C		
5/31/17	NODI=C	NODI=C		

Outfall 001S

01034 Chromium, total [as Cr] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Once per 6 Months

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	DAILY MX
Limit Value	1
DMR Values	
6/30/15	0
12/31/15	.117
6/30/16	0
12/31/16	0

DMR Summary

Permit TX0042129

Version # 0

Outfall 001S

01034 Chromium, total [as Cr] / Location 1 / Season 0 / Base

01042 Copper, total [as Cu] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Once per 6 Months

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	DAILY MX
Limit Value	1
DMR Values	
6/30/15	.226
12/31/15	.226
6/30/16	.0033
12/31/16	.0033

01051 Lead, total [as Pb] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Once per 6 Months

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	DAILY MX
Limit Value	1
DMR Values	
6/30/15	.714
12/31/15	.714
6/30/16	0
12/31/16	0

01055 Manganese, total [as Mn] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Once per 6 Months

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	DAILY MX
Limit Value	2
DMR Values	
6/30/15	0
12/31/15	0
6/30/16	.0531
12/31/16	.0531

01067 Nickel, total [as Ni] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Once per 6 Months

DMR Summary

Permit TX0042129

Version # 0

Outfall 001S

01067 Nickel, total [as Ni] / Location 1 / Season 0 / Base

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	DAILY MX
Limit Value	2
DMR Values	
6/30/15	.578
12/31/15	.578
6/30/16	0
12/31/16	0

01092 Zinc, total [as Zn] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Once per 6 Months

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	DAILY MX
Limit Value	2
DMR Values	
6/30/15	.238
12/31/15	.238
6/30/16	.0217
12/31/16	.0217

Outfall 001Y

00940 Chloride [as Cl] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Annual

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	DAILY MX
Limit Value	975
DMR Values	
12/31/15	301
12/31/16	118.2

70295 Solids, total dissolved / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Annual

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	DAILY MX
Limit Value	6000
DMR Values	
12/31/15	760

DMR Summary

Permit TX0042129

Version # 0

Outfall 001Y

70295 Solids, total dissolved / Location 1 / Season 0 / Base

DMR Values	
12/31/16	285.9

Outfall 002A

00300 Oxygen, dissolved [DO] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Twice per Week

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	MO MIN
Limit Value	5
DMR Values	
1/31/15	5.92
2/28/15	8.7
3/31/15	6.8
4/30/15	NODI=C
5/31/15	NODI=C
6/30/15	NODI=C
7/31/15	NODI=C
8/31/15	NODI=C
9/30/15	5.88
10/31/15	5.31
11/30/15	7.77
12/31/15	7.69
1/31/16	5
2/29/16	9.08
3/31/16	7.53
4/30/16	NODI=C
5/31/16	6.21
6/30/16	NODI=C
7/31/16	6.83
8/31/16	NODI=C
9/30/16	NODI=C
10/31/16	NODI=C
11/30/16	6.73
12/31/16	6.42
1/31/17	5.92
2/28/17	6
3/31/17	NODI=C
4/30/17	NODI=C
5/31/17	NODI=C

00340 Oxygen demand, chem. [high level] [COD] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Twice per Week

DMR Summary

Permit TX0042129

Version # 0

Outfall 002A

00340 Oxygen demand, chem. [high level] [COD] / Location 1 / Season 0 / Base

Limit		
Limit Unit Desc	Pounds per Day	Pounds per Day
Statistical Base	DAILY AV	DAILY MX
Limit Value	376	563
DMR Values		
1/31/15	76	97.95
2/28/15	109.21	127.6
3/31/15	53.89	89.32
4/30/15	NODI=C	NODI=C
5/31/15	NODI=C	NODI=C
6/30/15	NODI=C	NODI=C
7/31/15	NODI=C	NODI=C
8/31/15	NODI=C	NODI=C
9/30/15	41	30
10/31/15	62	271
11/30/15	256	271
12/31/15	256	563
1/31/16	250	563
2/29/16	315	563
3/31/16	295	563
4/30/16	NODI=C	NODI=C
5/31/16	210	563
6/30/16	NODI=C	NODI=C
7/31/16	235	563
8/31/16	NODI=C	NODI=C
9/30/16	NODI=C	NODI=C
10/31/16	NODI=C	NODI=C
11/30/16	186	563
12/31/16	264	563
1/31/17	258	563
2/28/17	313	563
3/31/17	NODI=C	NODI=C
4/30/17	NODI=C	NODI=C
5/31/17	NODI=C	NODI=C

00400 pH / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Daily

Limit		
Limit Unit Desc	Standard Units	Standard Units
Statistical Base	MINIMUM	MAXIMUM
Limit Value	6	9
DMR Values		
1/31/15	6.92	7.05
2/28/15	7.4	7.6
3/31/15	7	7.1
4/30/15	NODI=C	NODI=C
5/31/15	NODI=C	NODI=C
6/30/15	NODI=C	NODI=C
7/31/15	NODI=C	NODI=C

DMR Summary

Permit TX0042129

Version # 0

Outfall 002A

00400 pH / Location 1 / Season 0 / Base

DMR Values		
8/31/15	NODI=C	NODI=C
9/30/15	7.5	9
10/31/15	7.28	9
11/30/15	7.38	9
12/31/15	7.44	9
1/31/16	7.45	9
2/29/16	7.7	9
3/31/16	7.48	9
4/30/16	NODI=C	NODI=C
5/31/16	7.23	9
6/30/16	NODI=C	NODI=C
7/31/16	6	9
8/31/16	NODI=C	NODI=C
9/30/16	NODI=C	NODI=C
10/31/16	NODI=C	NODI=C
11/30/16	6	9
12/31/16	6	9
1/31/17	6	9
2/28/17	6	9
3/31/17	NODI=C	NODI=C
4/30/17	NODI=C	NODI=C
5/31/17	NODI=C	NODI=C

00530 Solids, total suspended / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Twice per Week

Limit		
Limit Unit Desc	Pounds per Day	Pounds per Day
Statistical Base	DAILY AV	DAILY MX
Limit Value	38	85
DMR Values		
1/31/15	5.42	8.41
2/28/15	7.84	8.56
3/31/15	1.77	2.45
4/30/15	NODI=C	NODI=C
5/31/15	NODI=C	NODI=C
6/30/15	NODI=C	NODI=C
7/31/15	NODI=C	NODI=C
8/31/15	NODI=C	NODI=C
9/30/15	38	45
10/31/15	27	85
11/30/15	27	85
12/31/15	27	85
1/31/16	21.3	85
2/29/16	21.9	85
3/31/16	20.4	85
4/30/16	NODI=C	NODI=C
5/31/16	20.4	85
6/30/16	NODI=C	NODI=C

DMR Summary

Permit TX0042129

Version # 0

Outfall 002A

00530 Solids, total suspended / Location 1 / Season 0 / Base

DMR Values		
7/31/16	30	85
8/31/16	NODI=C	NODI=C
9/30/16	NODI=C	NODI=C
10/31/16	NODI=C	NODI=C
11/30/16	20.5	85
12/31/16	22.5	85
1/31/17	20.1	85
2/28/17	12.3	85
3/31/17	NODI=C	NODI=C
4/30/17	NODI=C	NODI=C
5/31/17	NODI=C	NODI=C

00556 Oil & Grease / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Twice per Week

Limit		
Limit Unit Desc	Pounds per Day	Pounds per Day
Statistical Base	DAILY AV	DAILY MX
Limit Value	19	28
DMR Values		
1/31/15	3.16	3.72
2/28/15	1.85	2.04
3/31/15	.73	3.82
4/30/15	NODI=C	NODI=C
5/31/15	NODI=C	NODI=C
6/30/15	NODI=C	NODI=C
7/31/15	NODI=C	NODI=C
8/31/15	NODI=C	NODI=C
9/30/15	3.23	28
10/31/15	5.59	5.59
11/30/15	0	28
12/31/15	0	28
1/31/16	5.71	28
2/29/16	9.35	28
3/31/16	9.79	28
4/30/16	NODI=C	NODI=C
5/31/16	6.67	28
6/30/16	NODI=C	NODI=C
7/31/16	0	28
8/31/16	NODI=C	NODI=C
9/30/16	NODI=C	NODI=C
10/31/16	NODI=C	NODI=C
11/30/16	2.39	28
12/31/16	5.82	28
1/31/17	5.91	28
2/28/17	10.3	28
3/31/17	NODI=C	NODI=C
4/30/17	NODI=C	NODI=C
5/31/17	NODI=C	NODI=C

DMR Summary

Permit TX0042129

Version # 0

Outfall 002A

00556 Oil & Grease / Location 1 / Season 0 / Base

00610 Nitrogen, ammonia total [as N] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Twice per Week

Limit		
Limit Unit Desc	Pounds per Day	Pounds per Day
Statistical Base	DAILY AV	DAILY MX
Limit Value	8	20
DMR Values		
1/31/15	.6	.74
2/28/15	.41	.49
3/31/15	.37	.6
4/30/15	NODI=C	NODI=C
5/31/15	NODI=C	NODI=C
6/30/15	NODI=C	NODI=C
7/31/15	NODI=C	NODI=C
8/31/15	NODI=C	NODI=C
9/30/15	.41	20
10/31/15	2.1	20
11/30/15	.41	20
12/31/15	.41	20
1/31/16	8	20
2/29/16	7	20
3/31/16	.42	20
4/30/16	NODI=C	NODI=C
5/31/16	.41	20
6/30/16	NODI=C	NODI=C
7/31/16	.41	20
8/31/16	NODI=C	NODI=C
9/30/16	NODI=C	NODI=C
10/31/16	NODI=C	NODI=C
11/30/16	8	20
12/31/16	8	20
1/31/17	8	20
2/28/17	8	20
3/31/17	NODI=C	NODI=C
4/30/17	NODI=C	NODI=C
5/31/17	NODI=C	NODI=C

01032 Chromium, hexavalent [as Cr] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	7/31/15	COMPOS	Weekly
8/1/15	5/1/18	COMPOS	Weekly

Limit				
Limit Unit Desc	Milligrams per Liter	Milligrams per Liter	Milligrams per Liter	Milligrams per Liter
Statistical Base	DAILY AV	DAILY AV	DAILY MX	DAILY MX
Limit Value	.0132		.0279	
DMR Values				
1/31/15	0	0		

DMR Summary

Permit TX0042129

Version # 0

Outfall 002A

01032 Chromium, hexavalent [as Cr] / Location 1 / Season 0 / Base

DMR Values		
2/28/15	0	0
3/31/15	0	0
4/30/15	NODI=C	NODI=C
5/31/15	NODI=C	NODI=C
6/30/15	NODI=C	NODI=C
7/31/15	NODI=C	NODI=C
8/31/15	NODI=C	NODI=C
9/30/15	.006	.0279
10/31/15	0	.0279
11/30/15	0	.0279
12/31/15	0	.0279
1/31/16	0	.0279
2/29/16	.0023	.0279
3/31/16	0	.0279
4/30/16	NODI=C	NODI=C
5/31/16	0	.0279
6/30/16	NODI=C	NODI=C
7/31/16	0	.0279
8/31/16	NODI=C	NODI=C
9/30/16	NODI=C	NODI=C
10/31/16	NODI=C	NODI=C
11/30/16	0	.0279
12/31/16	0	.0279
1/31/17	0	.0279
2/28/17	0	0
3/31/17	NODI=C	NODI=C
4/30/17	NODI=C	NODI=C
5/31/17	NODI=C	NODI=C

50050 Flow, in conduit or thru treatment plant / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	Recorder (auto)	Continuous

Limit		
Limit Unit Desc	Million Gallons per	Million Gallons per
Statistical Base	DAILY AV	DAILY MX
Limit Value	.225	.55
DMR Values		
1/31/15	.0347	.045
2/28/15	.045	.045
3/31/15	.02355	.03
4/30/15	NODI=C	NODI=C
5/31/15	NODI=C	NODI=C
6/30/15	NODI=C	NODI=C
7/31/15	NODI=C	NODI=C
8/31/15	NODI=C	NODI=C
9/30/15	.225	.55
10/31/15	.225	.55
11/30/15	.2	.55
12/31/15	.225	.55

DMR Summary

Permit TX0042129

Version # 0

Outfall 002A

50050 Flow, in conduit or thru treatment plant / Location 1 / Season 0 / Base

DMR Values		
1/31/16	.225	.55
2/29/16	.225	.55
3/31/16	.225	.55
4/30/16	NODI=C	NODI=C
5/31/16	.225	.55
6/30/16	NODI=C	NODI=C
7/31/16	.225	.55
8/31/16	NODI=C	NODI=C
9/30/16	NODI=C	NODI=C
10/31/16	NODI=C	NODI=C
11/30/16	.225	.55
12/31/16	.225	.55
1/31/17	.225	.55
2/28/17	.225	.55
3/31/17	NODI=C	NODI=C
4/30/17	NODI=C	NODI=C
5/31/17	NODI=C	NODI=C

51040 E. coli / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Weekly

Limit		
Limit Unit Desc	Colony Forming Uni	Colony Forming Uni
Statistical Base	DAILY AV	DAILY MX
Limit Value		
DMR Values		
1/31/15	<14	<14
2/28/15	43	43
3/31/15	<14	<14
4/30/15	NODI=C	NODI=C
5/31/15	NODI=C	NODI=C
6/30/15	NODI=C	NODI=C
7/31/15	NODI=C	NODI=C
8/31/15	NODI=C	NODI=C
9/30/15	129	399
10/31/15	16.7	399
11/30/15	73.59	399
12/31/15	131	399
1/31/16	70	1100
2/29/16	1	5
3/31/16	13	399
4/30/16	NODI=C	NODI=C
5/31/16	54	100
6/30/16	NODI=C	NODI=C
7/31/16	10	399
8/31/16	NODI=C	NODI=C
9/30/16	NODI=C	NODI=C
10/31/16	NODI=C	NODI=C
11/30/16	53	399

DMR Summary

Permit TX0042129

Version # 0

Outfall 002A

51040 E. coli / Location 1 / Season 0 / Base

DMR Values		
12/31/16	121	399
1/31/17	115	399
2/28/17	24	399
3/31/17	NODI=C	NODI=C
4/30/17	NODI=C	NODI=C
5/31/17	NODI=C	NODI=C

80082 BOD, carbonaceous [5 day, 20 C] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Twice per Week

Limit		
Limit Unit Desc	Pounds per Day	Pounds per Day
Statistical Base	DAILY AV	DAILY MX
Limit Value	47	75
DMR Values		
1/31/15	11.47	15.05
2/28/15	15.76	18.77
3/31/15	11.69	20.49
4/30/15	NODI=C	NODI=C
5/31/15	NODI=C	NODI=C
6/30/15	NODI=C	NODI=C
7/31/15	NODI=C	NODI=C
8/31/15	NODI=C	NODI=C
9/30/15	41	75
10/31/15	58	75
11/30/15	33	75
12/31/15	46	75
1/31/16	47	75
2/29/16	0	71
3/31/16	0	70
4/30/16	NODI=C	NODI=C
5/31/16	47	54
6/30/16	NODI=C	NODI=C
7/31/16	39.7	75
8/31/16	NODI=C	NODI=C
9/30/16	NODI=C	NODI=C
10/31/16	NODI=C	NODI=C
11/30/16	46	75
12/31/16	46	75
1/31/17	64.7	75
2/28/17	47	74.7
3/31/17	NODI=C	NODI=C
4/30/17	NODI=C	NODI=C
5/31/17	NODI=C	NODI=C

Outfall 002S

00722 Cyanide, free [amen. to chlorination] / Location 1 / Season 0 / Base

DMR Summary

Permit TX0042129

Version # 0

Outfall 002S

00722 Cyanide, free [amen. to chlorination] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Once per 6 Months

Limit		
Limit Unit Desc	Milligrams per Liter	Milligrams per Liter
Statistical Base	DAILY AV	DAILY MX
Limit Value	.0386	.0816
DMR Values		
6/30/15	0	.0816
12/31/15	0	.0816
6/30/16	0	.0816
12/31/16	0	.0816

00951 Fluoride, total [as F] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Once per 6 Months

Limit		
Limit Unit Desc	Milligrams per Liter	Milligrams per Liter
Statistical Base	DAILY AV	DAILY MX
Limit Value	1.66	3.22
DMR Values		
6/30/15	.32	3.22
12/31/15	.32	3.22
6/30/16	.155	3.22
12/31/16	.155	3.22

01034 Chromium, total [as Cr] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Once per 6 Months

Limit		
Limit Unit Desc	Milligrams per Liter	Milligrams per Liter
Statistical Base	DAILY AV	DAILY MX
Limit Value	.068	.143
DMR Values		
6/30/15	0	.143
12/31/15	0	.143
6/30/16	0	.143
12/31/16	0	.143

01042 Copper, total [as Cu] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Once per 6 Months

DMR Summary

Permit TX0042129

Version # 0

Outfall 002S

01042 Copper, total [as Cu] / Location 1 / Season 0 / Base

Limit		
Limit Unit Desc	Milligrams per Liter	Milligrams per Liter
Statistical Base	DAILY AV	DAILY MX
Limit Value	.0173	.0367
DMR Values		
6/30/15	.021	.0367
12/31/15	.21	.05
6/30/16	.00796	.0367
12/31/16	.00796	.0367

01051 Lead, total [as Pb] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Once per 6 Months

Limit		
Limit Unit Desc	Milligrams per Liter	Milligrams per Liter
Statistical Base	DAILY AV	DAILY MX
Limit Value	.00835	.0177
DMR Values		
6/30/15	0	.0177
12/31/15	0	.0177
6/30/16	0	.0177
12/31/16	0	.0177

01055 Manganese, total [as Mn] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Once per 6 Months

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	DAILY MX
Limit Value	2
DMR Values	
6/30/15	1.97
12/31/15	0
6/30/16	.591
12/31/16	.591

01067 Nickel, total [as Ni] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Once per 6 Months

Limit		
Limit Unit Desc	Milligrams per Liter	Milligrams per Liter
Statistical Base	DAILY AV	DAILY MX
Limit Value	.1	.3
DMR Values		
6/30/15	.261	.3
12/31/15	.261	.5

DMR Summary

Permit TX0042129

Version # 0

Outfall 002S

01067 Nickel, total [as Ni] / Location 1 / Season 0 / Base

DMR Values		
6/30/16	.0214	.3
12/31/16	.0214	.3

01077 Silver, total [as Ag] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Once per 6 Months

Limit		
Limit Unit Desc	Milligrams per Liter	Milligrams per Liter
Statistical Base	DAILY AV	DAILY MX
Limit Value	.0022	.005
DMR Values		
6/30/15	0	.005
12/31/15	0	.2
6/30/16	0	.005
12/31/16	0	.005

01092 Zinc, total [as Zn] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Once per 6 Months

Limit		
Limit Unit Desc	Milligrams per Liter	Milligrams per Liter
Statistical Base	DAILY AV	DAILY MX
Limit Value	.145	.307
DMR Values		
6/30/15	.193	.307
12/31/15	.193	.5
6/30/16	.0314	.307
12/31/16	.0314	.307

01105 Aluminum, total [as Al] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Once per 6 Months

Limit		
Limit Unit Desc	Milligrams per Liter	Milligrams per Liter
Statistical Base	DAILY AV	DAILY MX
Limit Value	.834	1.77
DMR Values		
6/30/15	.35	1.77
12/31/15	.35	1
6/30/16	.372	1.77
12/31/16	.372	1.77

71900 Mercury, total [as Hg] / Location 1 / Season 0 / Base

DMR Summary

Permit TX0042129

Version # 0

Outfall 002S

71900 Mercury, total [as Hg] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Once per 6 Months

Limit		
Limit Unit Desc	Milligrams per Liter	Milligrams per Liter
Statistical Base	DAILY AV	DAILY MX
Limit Value	.000039	.000082
DMR Values		
6/30/15	.000039	.000082
12/31/15	0	.000082
6/30/16	0	.000082
12/31/16	0	.000082

Outfall 002Y

00940 Chloride [as Cl] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	DAILY MX
Limit Value	975
DMR Values	
12/31/15	301
12/31/16	186

00945 Sulfate, total [as SO4] / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	DAILY MX
Limit Value	689
DMR Values	
12/31/15	4.87
12/31/16	4.87

70295 Solids, total dissolved / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	GRAB	Annual

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	DAILY MX
Limit Value	6000
DMR Values	

DMR Summary

Permit TX0042129

Version # 0

Outfall 002Y

70295 Solids, total dissolved / Location 1 / Season 0 / Base

DMR Values	
12/31/15	45
12/31/16	432.6

Outfall SO1Y

00094 Conductivity / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	micromhos per cent
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	1.17
8/31/16	1.16

00441 Sulphur, total elemental / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	2.09
8/31/16	79

00600 Nitrogen, total [as N] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	DAILY MX
Limit Value	
DMR Values	
8/31/15	0
8/31/16	0

00620 Nitrogen, nitrate total [as N] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

DMR Summary

Permit TX0042129

Version # 0

Outfall SO1Y

00620 Nitrogen, nitrate total [as N] / Location S / Season 0 / Base

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	0
8/31/16	0

00625 Nitrogen, Kjeldahl, total [as N] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.13
8/31/16	820

00665 Phosphorus, total [as P] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.137
8/31/16	22.1

00915 Calcium, dissolved [as Ca] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.3
8/31/16	29.2

00916 Calcium, total [as Ca] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

DMR Summary

Permit TX0042129

Version # 0

Outfall SO1Y

00916 Calcium, total [as Ca] / Location S / Season 0 / Base

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.005
8/31/16	1140

00925 Magnesium, dissolved [as Mg] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.307
8/31/16	8.13

00927 Magnesium, total [as Mg] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	1.77
8/31/16	342

00929 Sodium, total [as Na] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.0816
8/31/16	0

00930 Sodium, dissolved [as Na] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

DMR Summary

Permit TX0042129

Version # 0

Outfall SO1Y

00930 Sodium, dissolved [as Na] / Location S / Season 0 / Base

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	2.09
8/31/16	7.08

00931 Sodium adsorption ratio / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Ratio
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.143
8/31/16	.299

00937 Potassium, total [as K] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.0367
8/31/16	108

82583 pH, in soil / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Standard Units
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	7.31
8/31/16	7.08

Outfall SO2Y

00094 Conductivity / Location S / Season 0 / Base

DMR Summary

Permit TX0042129

Version # 0

Outfall SO2Y

00094 Conductivity / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	micromhos per cent
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	1.08
8/31/16	1.12

00441 Sulphur, total elemental / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	2.11
8/31/16	250

00600 Nitrogen, total [as N] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	DAILY MX
Limit Value	
DMR Values	
8/31/15	.143
8/31/16	1.61

00620 Nitrogen, nitrate total [as N] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.0367
8/31/16	1.61

00625 Nitrogen, Kjeldahl, total [as N] / Location S / Season 0 / Base

DMR Summary

Permit TX0042129

Version # 0

Outfall SO2Y

00625 Nitrogen, Kjeldahl, total [as N] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.125
8/31/16	870

00665 Phosphorus, total [as P] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.139
8/31/16	63.9

00915 Calcium, dissolved [as Ca] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.28
8/31/16	80.2

00916 Calcium, total [as Ca] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.004
8/31/16	8850

00925 Magnesium, dissolved [as Mg] / Location S / Season 0 / Base

DMR Summary

Permit TX0042129

Version # 0

Outfall SO2Y

00925 Magnesium, dissolved [as Mg] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.298
8/31/16	0

00927 Magnesium, total [as Mg] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	1.81
8/31/16	334

00929 Sodium, total [as Na] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.102
8/31/16	0

00930 Sodium, dissolved [as Na] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	2.12
8/31/16	0

00931 Sodium adsorption ratio / Location S / Season 0 / Base

DMR Summary

Permit TX0042129

Version # 0

Outfall SO2Y

00931 Sodium adsorption ratio / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Ratio
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.154
8/31/16	0

00937 Potassium, total [as K] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.0384
8/31/16	193

82583 pH, in soil / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Standard Units
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	7.21
8/31/16	7.02

Outfall SO3Y

00094 Conductivity / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	micromhos per cent
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	1.21

DMR Summary

Permit TX0042129

Version # 0

Outfall SO3Y

00094 Conductivity / Location S / Season 0 / Base

DMR Values	
8/31/16	1.12

00441 Sulphur, total elemental / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	2.26
8/31/16	320

00600 Nitrogen, total [as N] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.21
8/31/16	2.56

00620 Nitrogen, nitrate total [as N] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.0418
8/31/16	2.56

00625 Nitrogen, Kjeldahl, total [as N] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	

DMR Summary

Permit TX0042129

Version # 0

Outfall SO3Y

00625 Nitrogen, Kjeldahl, total [as N] / Location S / Season 0 / Base

DMR Values	
8/31/15	.128
8/31/16	0

00665 Phosphorus, total [as P] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.141
8/31/16	67.3

00915 Calcium, dissolved [as Ca] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.31
8/31/16	107

00916 Calcium, total [as Ca] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.0046
8/31/16	6210

00925 Magnesium, dissolved [as Mg] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

DMR Summary

Permit TX0042129

Version # 0

Outfall SO3Y

00925 Magnesium, dissolved [as Mg] / Location S / Season 0 / Base

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.314
8/31/16	6.86

00927 Magnesium, total [as Mg] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	1.82
8/31/16	297

00929 Sodium, total [as Na] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.0978
8/31/16	0

00930 Sodium, dissolved [as Na] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Liter
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	2.11
8/31/16	0

00931 Sodium adsorption ratio / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

DMR Summary

Permit TX0042129

Version # 0

Outfall SO3Y

00931 Sodium adsorption ratio / Location S / Season 0 / Base

Limit	
Limit Unit Desc	Ratio
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.149
8/31/16	0

00937 Potassium, total [as K] / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Milligrams per Kilogr
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	.0381
8/31/16	201

82583 pH, in soil / Location S / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Annual

Limit	
Limit Unit Desc	Standard Units
Statistical Base	MAXIMUM
Limit Value	
DMR Values	
8/31/15	7.26
8/31/16	7.21

Outfall TX2Q

22414 Whole effluent toxicity / Location U / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMP24	Quarterly

Limit		
Limit Unit Desc	Percent	Percent
Statistical Base	7 DA MIN	MO AV MN
Limit Value	14	14
DMR Values		
3/31/15	>29	>29
6/30/15	>29	>29
9/30/15	29	29
12/31/15	>29	>29
3/31/16	29	29

DMR Summary

Permit TX0042129

Version # 0

Outfall TX2Q

22414 Whole effluent toxicity / Location U / Season 0 / Base

DMR Values		
6/30/16	>29	>29
9/30/16	>29	>29
12/31/16	29	29
3/31/17	>29	>29

22414 Whole effluent toxicity / Location V / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMP24	Quarterly

Limit		
Limit Unit Desc	Percent	Percent
Statistical Base	7 DA MIN	MO AV MN
Limit Value	14	14
DMR Values		
3/31/15	>29	>29
6/30/15	>29	>29
9/30/15	29	29
12/31/15	>29	>29
3/31/16	29	29
6/30/16	17	17
9/30/16	>29	>29
12/31/16	29	29
3/31/17	>29	>29

22415 Whole effluent toxicity - retest #1 / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	See Permit

Limit		
Limit Unit Desc	Pass=0; Fail=1	Pass=0; Fail=1
Statistical Base	7 DA MIN	MO AV MN
Limit Value		
DMR Values		
3/31/15	NODI=9	NODI=9
6/30/15	0	0
9/30/15	Not Received	Not Received
12/31/15	NODI=9	NODI=9
3/31/16	Not Received	Not Received
6/30/16	Not Received	Not Received
9/30/16	NODI=9	NODI=9
12/31/16	0	0
3/31/17	NODI=9	NODI=9

22416 Whole effluent toxicity - retest #2 / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	See Permit

DMR Summary

Permit TX0042129

Version # 0

Outfall TX2Q

22416 Whole effluent toxicity - retest #2 / Location 1 / Season 0 / Base

Limit		
Limit Unit Desc	Pass=0; Fail=1	Pass=0; Fail=1
Statistical Base	7 DA MIN	MO AV MN
Limit Value		
DMR Values		
3/31/15	NODI=9	NODI=9
6/30/15	0	0
9/30/15	Not Received	Not Received
12/31/15	NODI=9	NODI=9
3/31/16	Not Received	Not Received
6/30/16	Not Received	Not Received
9/30/16	NODI=9	NODI=9
12/31/16	0	0
3/31/17	NODI=9	NODI=9

TLP3B Low Flow Pass/Fail Survival Test Static Renewal 7 Day Chronic Ceriodaphnia dubia /

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Quarterly

Limit		
Limit Unit Desc	Pass=0; Fail=1	Pass=0; Fail=1
Statistical Base	7 DA MIN	MO AV MN
Limit Value		
DMR Values		
3/31/15	0	0
6/30/15	0	0
9/30/15	0	0
12/31/15	0	0
3/31/16	0	0
6/30/16	0	0
9/30/16	0	0
12/31/16	0	0
3/31/17	0	0

TLP6C Low Flow Pass/Fail Survival Test Static Renewal 7 Day Chronic Pimephales promelas

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Quarterly

Limit		
Limit Unit Desc	Pass=0; Fail=1	Pass=0; Fail=1
Statistical Base	7 DA MIN	MO AV MN
Limit Value		
DMR Values		
3/31/15	0	0
6/30/15	0	0
9/30/15	0	0
12/31/15	0	0
3/31/16	0	0
6/30/16	0	0
9/30/16	0	0

DMR Summary

Permit TX0042129

Version # 0

Outfall TX2Q

TLP6C Low Flow Pass/Fail Survival Test Static Renewal 7 Day Chronic Pimephales promelas

DMR Values		
12/31/16	0	0
3/31/17	0	0

TOP3B NOEC Lethal Static Renewal 7 Day Chronic Ceriodaphnia dubia / Location 1 / Season

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Quarterly

Limit		
Limit Unit Desc	Percent	Percent
Statistical Base	7 DA MIN	MO AV MN
Limit Value		
DMR Values		
3/31/15	29	29
6/30/15	29	29
9/30/15	29	29
12/31/15	29	29
3/31/16	29	29
6/30/16	29	29
9/30/16	29	29
12/31/16	29	29
3/31/17	29	29

TOP6C NOEC Lethal Static Renewal 7 Day Chronic Pimephales promelas / Location 1 / Season

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Quarterly

Limit		
Limit Unit Desc	Percent	Percent
Statistical Base	7 DA MIN	MO AV MN
Limit Value		
DMR Values		
3/31/15	29	29
6/30/15	29	29
9/30/15	29	29
12/31/15	29	29
3/31/16	29	29
6/30/16	29	29
9/30/16	29	29
12/31/16	29	29
3/31/17	29	29

TPP3B NOEC Sub-Lethal Static Renewal 7 Day Chronic Ceriodaphnia dubia / Location 1 / Season

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Quarterly

DMR Summary

Permit TX0042129

Version # 0

Outfall TX2Q

TPP3B NOEC Sub-Lethal Static Renewal 7 Day Chronic Ceriodaphnia dubia / Location 1 / Sea

Limit		
Limit Unit Desc	Percent	Percent
Statistical Base	7 DA AVG	MO AV MN
Limit Value		
DMR Values		
3/31/15	22	22
6/30/15	12	12
9/30/15	29	29
12/31/15	22	22
3/31/16	22	22
6/30/16	17	17
9/30/16	9	9
12/31/16	17	17
3/31/17	29	29

TPP6C NOEC Sub-Lethal Static Renewal 7 Day Chronic Pimephales promelas / Location 1 / S

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Quarterly

Limit		
Limit Unit Desc	Percent	Percent
Statistical Base	7 DA MIN	MO AV MN
Limit Value		
DMR Values		
3/31/15	29	29
6/30/15	29	29
9/30/15	29	29
12/31/15	29	29
3/31/16	22	22
6/30/16	29	29
9/30/16	29	29
12/31/16	29	29
3/31/17	29	29

TWP3B Pass/Fail Sub-Lethal Static Renewal 7 Day Chronic Ceriodaphnia dubia / Location 1 /

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Quarterly

Limit		
Limit Unit Desc	Pass=0; Fail=1	Pass=0; Fail=1
Statistical Base	7 DA MIN	MO AV MN
Limit Value		
DMR Values		
3/31/15	0	0
6/30/15	1	1
9/30/15	0	0
12/31/15	0	0
3/31/16	0	0
6/30/16	1	1
9/30/16	1	1

DMR Summary

Permit TX0042129

Version # 0

Outfall TX2Q

TWP3B Pass/Fail Sub-Lethal Static Renewal 7 Day Chronic Ceriodaphnia dubia / Location 1 /

DMR Values		
12/31/16	1	1
3/31/17	0	0

TWP6C Pass/Fail Sub-Lethal Static Renewal 7 Day Chronic Pimephales promelas / Location 1

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Quarterly

Limit		
Limit Unit Desc	Pass=0; Fail=1	Pass=0; Fail=1
Statistical Base	7 DA MIN	MO AV MN
Limit Value		
DMR Values		
3/31/15	0	0
6/30/15	0	0
9/30/15	0	0
12/31/15	0	0
3/31/16	0	0
6/30/16	0	0
9/30/16	0	0
12/31/16	0	0
3/31/17	0	0

TXP3B LOEC Lethal Survival Static Renewal 7 Day Chronic Ceriodaphnia dubia / Location 1 /

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Quarterly

Limit		
Limit Unit Desc	Percent	Percent
Statistical Base	7 DA MIN	MO AV MN
Limit Value		
DMR Values		
3/31/15	NODI=Q	NODI=Q
6/30/15	NODI=Q	NODI=Q
9/30/15	29	29
12/31/15	NODI=Q	NODI=Q
3/31/16	NODI=Q	NODI=Q
6/30/16	NODI=Q	NODI=Q
9/30/16	NODI=Q	NODI=Q
12/31/16	NODI=Q	NODI=Q
3/31/17	NODI=Q	NODI=Q

TXP6C LOEC Lethal Survival Static Renewal 7 Day Chronic Pimephales promelas / Location

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Quarterly

DMR Summary

Permit TX0042129

Version # 0

Outfall TX2Q

TXP6C LOEC Lethal Survival Static Renewal 7 Day Chronic Pimephales promelas / Location

Limit		
Limit Unit Desc	Percent	Percent
Statistical Base	7 DA MIN	MO AV MN
Limit Value		
DMR Values		
3/31/15	NODI=Q	NODI=Q
6/30/15	NODI=Q	NODI=Q
9/30/15	29	29
12/31/15	NODI=Q	NODI=Q
3/31/16	NODI=Q	NODI=Q
6/30/16	NODI=Q	NODI=Q
9/30/16	NODI=Q	NODI=Q
12/31/16	NODI=Q	NODI=Q
3/31/17	NODI=Q	NODI=Q

TYP3B LOEC Sub-Lethal Reproduction Static Renewal 7 Day Chronic Ceriodaphnia dubia / L

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Quarterly

Limit		
Limit Unit Desc	Percent	Percent
Statistical Base	7 DA MIN	MO AV MN
Limit Value		
DMR Values		
3/31/15	29	29
6/30/15	17	17
9/30/15	29	29
12/31/15	NODI=Q	NODI=Q
3/31/16	29	29
6/30/16	22	22
9/30/16	12	12
12/31/16	22	22
3/31/17	NODI=Q	NODI=Q

TYP6C LOEC Sub-Lethal Reproduction Static Renewal 7 Day Chronic Pimephales promelas /

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Quarterly

Limit		
Limit Unit Desc	Percent	Percent
Statistical Base	7 DA MIN	MO AV MN
Limit Value		
DMR Values		
3/31/15	NODI=Q	NODI=Q
6/30/15	NODI=Q	NODI=Q
9/30/15	29	29
12/31/15	NODI=Q	NODI=Q
3/31/16	29	29
6/30/16	NODI=Q	NODI=Q
9/30/16	NODI=Q	NODI=Q

DMR Summary

Permit TX0042129

Version # 0

Outfall TX2Q

TYP6C LOEC Sub-Lethal Reproduction Static Renewal 7 Day Chronic Pimephales promelas /

DMR Values		
12/31/16	NODI=Q	NODI=Q
3/31/17	NODI=Q	NODI=Q

Outfall TXBS

22415 Whole effluent toxicity - retest #1 / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	See Permit

Limit	
Limit Unit Desc	Pass=0; Fail=1
Statistical Base	SINGSAMP
Limit Value	
DMR Values	
6/30/15	NODI=9
12/31/15	NODI=9
6/30/16	1
12/31/16	NODI=9

22416 Whole effluent toxicity - retest #2 / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	See Permit

Limit	
Limit Unit Desc	Pass=0; Fail=1
Statistical Base	SINGSAMP
Limit Value	
DMR Values	
6/30/15	NODI=9
12/31/15	NODI=9
6/30/16	0
12/31/16	NODI=9

TIE3D LC50 Pass/Fail Static 24Hr Acute D. Pulex / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Once per 6 Months

Limit	
Limit Unit Desc	Pass=0; Fail=1
Statistical Base	SINGSAMP
Limit Value	
DMR Values	
6/30/15	0
12/31/15	0
6/30/16	0
12/31/16	0

DMR Summary

Permit TX0042129

Version # 0

Outfall TXBS

TIE6C LC50 Pass/Fail Static 24Hr Acute Pimphales / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
8/1/14	5/1/18	COMPOS	Once per 6 Months

Limit	
Limit Unit Desc	Pass=0; Fail=1
Statistical Base	SINGSAMP
Limit Value	
DMR Values	
6/30/15	0
12/31/15	0
6/30/16	1
12/31/16	0

Appendix 3

2016 Laboratory Analyses for Outfall 002



10450 Stancliff Rd. Suite 210
Houston, TX 77099
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April 25, 2016

Aaron Plocek
Wyman-Gordon Forgings, LP
10825 Telge Road
Houston, TX 77095

Work Order: **HS16031389**

Laboratory Results for: **Outfall 002**

Dear Aaron,

ALS Environmental received 6 sample(s) on Mar 31, 2016 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Erica Padilla".

Generated By: Dayna.Fisher
Erica Padilla
PM

ALS Group USA, Corp

Date: 25-Apr-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Work Order: HS16031389

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS16031389-01	Outfall 002 - COD	Aqueous		31-Mar-2016 11:07	31-Mar-2016 14:45	☐
HS16031389-02	Outfall 002 - BOD	Aqueous		31-Mar-2016 11:08	31-Mar-2016 14:45	☐
HS16031389-03	Outfall 002 - OG	Aqueous		31-Mar-2016 11:09	31-Mar-2016 14:45	☐
HS16031389-04	Outfall 002 - TSS	Aqueous		31-Mar-2016 11:10	31-Mar-2016 14:45	☐
HS16031389-05	Outfall 002 - E.Coli	Aqueous		31-Mar-2016 11:11	31-Mar-2016 14:45	☐
HS16031389-06	Outfall 002 - Hexavalent Cr	Aqueous		31-Mar-2016 11:12	31-Mar-2016 14:45	☐

ALS Group USA, Corp

Date: 25-Apr-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Work Order: HS16031389

CASE NARRATIVE**Work Order Comments**

- The analysis for E.coli was subcontracted to Envirodyne Laboratories, Inc. in Houston, TX.

WetChemistry by Method M2540D**Batch ID: R272067**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E1664A**Batch ID: R272149**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E410.4**Batch ID: R272103**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW7196**Batch ID: R271856**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SM5210 B**Batch ID: 102887**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Group USA, Corp

Date: 25-Apr-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - COD
Collection Date: 31-Mar-2016 11:07

ANALYTICAL REPORT

WorkOrder: HS16031389
Lab ID: HS16031389-01
Matrix: Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
CHEMICAL OXYGEN DEMAND BY E410.4		Method: E410.4		Analyst: KMU		
Chemical Oxygen Demand	295		15.0	mg/L	1	06-Apr-2016 17:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 25-Apr-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - BOD
Collection Date: 31-Mar-2016 11:08

ANALYTICAL REPORT

WorkOrder: HS16031389
Lab ID: HS16031389-02
Matrix: Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BOD	Method: SM5210 B				Prep: SM5210 B / 01-Apr-2016	Analyst: KMU
Biochemical Oxygen Demand	70.0		2.00	mg/L	1	06-Apr-2016 15:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 25-Apr-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - OG
Collection Date: 31-Mar-2016 11:09

ANALYTICAL REPORT

WorkOrder: HS16031389
Lab ID: HS16031389-03
Matrix: Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
OIL & GREASE (HEM) BY E1664A		Method: E1664A		Analyst: KAH		
Oil and Grease	9.79		2.00	mg/L	1	07-Apr-2016 14:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 25-Apr-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - TSS
Collection Date: 31-Mar-2016 11:10

ANALYTICAL REPORT

WorkOrder: HS16031389
Lab ID: HS16031389-04
Matrix: Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL SUSPENDED SOLIDS BY SM 2540D		Method: M2540D		Analyst: KAH		
Suspended Solids (Residue, Non -Filterable)	20.4		2.00	mg/L	1	06-Apr-2016 15:04

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 25-Apr-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - E.Coli
Collection Date: 31-Mar-2016 11:11

ANALYTICAL REPORT

WorkOrder: HS16031389
Lab ID: HS16031389-05
Matrix: Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - E. COLI		Method: NA		Analyst: EDL		
Subcontract Analysis	See Attached				1	25-Apr-2016 09:33

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 25-Apr-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - Hexavalent Cr
Collection Date: 31-Mar-2016 11:12

ANALYTICAL REPORT

WorkOrder:HS16031389
Lab ID:HS16031389-06
Matrix:Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
HEXAVALENT CHROMIUM BY SW7196A		Method:SW7196		Analyst: JHD		
Chromium, Hexavalent	ND		0.0100	mg/L	1	31-Mar-2016 15:55

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 25-Apr-16

WEIGHT LOG

Client: Wyman-Gordon Forgings, LP

Project: Outfall 002

WorkOrder: HS16031389

Batch ID: 102887

Method: BOD

Prep: BOD_PR 5210B

SampleID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS16031389-02	1	300	300 (mL)	1

ALS Group USA, Corp

Date: 25-Apr-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
WorkOrder: HS16031389

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 102887 Test Name : BOD Matrix: Aqueous						
HS16031389-02	Outfall 002 - BOD	31 Mar 2016 11:08		01 Apr 2016 15:00	06 Apr 2016 15:42	1
Batch ID R271856 Test Name : HEXAVALENT CHROMIUM BY SW7196A Matrix: Aqueous						
HS16031389-06	Outfall 002 - Hexavalent Cr	31 Mar 2016 11:12			31 Mar 2016 15:55	1
Batch ID R272067 Test Name : TOTAL SUSPENDED SOLIDS BY SM 2540D Matrix: Aqueous						
HS16031389-04	Outfall 002 - TSS	31 Mar 2016 11:10			06 Apr 2016 15:04	1
Batch ID R272103 Test Name : CHEMICAL OXYGEN DEMAND BY E410.4 Matrix: Aqueous						
HS16031389-01	Outfall 002 - COD	31 Mar 2016 11:07			06 Apr 2016 17:10	1
Batch ID R272149 Test Name : OIL & GREASE (HEM) BY E1664A Matrix: Aqueous						
HS16031389-03	Outfall 002 - OG	31 Mar 2016 11:09			07 Apr 2016 14:15	1
Batch ID R273068 Test Name : SUBCONTRACT ANALYSIS - E. COLI Matrix: Aqueous						
HS16031389-05	Outfall 002 - E.Coli	31 Mar 2016 11:11			25 Apr 2016 09:33	1

ALS Group USA, Corp

Date: 25-Apr-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16031389

QC BATCH REPORT

Batch ID: 102887		Instrument: ManTech01		Method: SM5210 B				
MBLK	Sample ID: MBLK-102887	Units: mg/L		Analysis Date: 06-Apr-2016 15:42				
Client ID:	Run ID: ManTech01_272101	SeqNo: 3640188		PrepDate: 01-Apr-2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD Limit Qual
Biochemical Oxygen Demand	ND	2.00						

LCS	Sample ID: LCS-102887	Units: mg/L		Analysis Date: 06-Apr-2016 15:42				
Client ID:	Run ID: ManTech01_272101	SeqNo: 3640187		PrepDate: 01-Apr-2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD Limit Qual
Biochemical Oxygen Demand	174	2.00	198	0	87.9	85 - 115		

LCSD	Sample ID: LCSD-102887	Units: mg/L		Analysis Date: 06-Apr-2016 15:42				
Client ID:	Run ID: ManTech01_272101	SeqNo: 3640190		PrepDate: 01-Apr-2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD Limit Qual
Biochemical Oxygen Demand	175.5	2.00	198	0	88.6	85 - 115	174	0.858 20

DUP	Sample ID: HS16031394-01DUP	Units: mg/L		Analysis Date: 06-Apr-2016 15:42				
Client ID:	Run ID: ManTech01_272101	SeqNo: 3640189		PrepDate: 01-Apr-2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD Limit Qual
Biochemical Oxygen Demand	ND	2.00					1.9	0 20

The following samples were analyzed in this batch: HS16031389-02

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 25-Apr-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16031389

QC BATCH REPORT

Batch ID: R271856		Instrument: UV-2450		Method: SW7196			
MBLK	Sample ID: MBLK-271856	Units: mg/L		Analysis Date: 31-Mar-2016 15:55			
Client ID:	Run ID: UV-2450_271856	SeqNo: 3635073		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD RPD Limit Qual
Chromium, Hexavalent	ND	0.0100					
LCS	Sample ID: LCS-271856	Units: mg/L		Analysis Date: 31-Mar-2016 15:55			
Client ID:	Run ID: UV-2450_271856	SeqNo: 3635074		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD RPD Limit Qual
Chromium, Hexavalent	0.244	0.0100	0.25	0	97.6	80 - 120	
MS	Sample ID: HS16031382-15MS	Units: mg/L		Analysis Date: 31-Mar-2016 15:55			
Client ID:	Run ID: UV-2450_271856	SeqNo: 3635076		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD RPD Limit Qual
Chromium, Hexavalent	0.252	0.0100	0.25	-0.005	103	75 - 125	
MSD	Sample ID: HS16031382-15MSD	Units: mg/L		Analysis Date: 31-Mar-2016 15:55			
Client ID:	Run ID: UV-2450_271856	SeqNo: 3635077		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD RPD Limit Qual
Chromium, Hexavalent	0.247	0.0100	0.25	-0.005	101	75 - 125	0.252 2 20
The following samples were analyzed in this batch: HS16031389-06							

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 25-Apr-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16031389

QC BATCH REPORT

Batch ID: R272067		Instrument: Balance1		Method: M2540D	
MBLK	Sample ID: WBLKW1-040616	Units: mg/L		Analysis Date: 06-Apr-2016 15:04	
Client ID:	Run ID: Balance1_272067	SeqNo: 3639407		PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD RPD Limit Qual
Suspended Solids (Residue, Non-Filterable)	ND	2.00			
LCS	Sample ID: WLCSW1-040616	Units: mg/L		Analysis Date: 06-Apr-2016 15:04	
Client ID:	Run ID: Balance1_272067	SeqNo: 3639408		PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD RPD Limit Qual
Suspended Solids (Residue, Non-Filterable)	89	2.00	100	0 89.0	78 - 120
DUP	Sample ID: HS16040145-01DUP	Units: mg/L		Analysis Date: 06-Apr-2016 15:04	
Client ID:	Run ID: Balance1_272067	SeqNo: 3639405		PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD RPD Limit Qual
Suspended Solids (Residue, Non-Filterable)	33.2	2.00			34.8 4.71 5
DUP	Sample ID: HS16040079-01DUP	Units: mg/L		Analysis Date: 06-Apr-2016 15:04	
Client ID:	Run ID: Balance1_272067	SeqNo: 3639403		PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD RPD Limit Qual
Suspended Solids (Residue, Non-Filterable)	1988	2.00			1912 3.9 5
The following samples were analyzed in this batch: HS16031389-04					

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 25-Apr-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16031389

QC BATCH REPORT

Batch ID: R272103		Instrument: WetChem_HS		Method: E410.4	
MBLK	Sample ID: MBLK-272103	Units: mg/L		Analysis Date: 06-Apr-2016 17:10	
Client ID:	Run ID: WetChem_HS_272103	SeqNo: 3640205		PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC Control Limit RPD Ref Value %RPD Limit Qual
Chemical Oxygen Demand	ND	15.0			
LCS	Sample ID: LCS-272103	Units: mg/L		Analysis Date: 06-Apr-2016 17:10	
Client ID:	Run ID: WetChem_HS_272103	SeqNo: 3640206		PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC Control Limit RPD Ref Value %RPD Limit Qual
Chemical Oxygen Demand	946	15.0	1000	0	94.6 85 - 115
MS	Sample ID: HS16031389-01MS	Units: mg/L		Analysis Date: 06-Apr-2016 17:10	
Client ID: Outfall 002 - COD	Run ID: WetChem_HS_272103	SeqNo: 3640208		PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC Control Limit RPD Ref Value %RPD Limit Qual
Chemical Oxygen Demand	776	15.0	500	295	96.2 80 - 120
DUP	Sample ID: HS16031389-01DUP	Units: mg/L		Analysis Date: 06-Apr-2016 17:10	
Client ID: Outfall 002 - COD	Run ID: WetChem_HS_272103	SeqNo: 3640207		PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC Control Limit RPD Ref Value %RPD Limit Qual
Chemical Oxygen Demand	292	15.0			295 1.02 20
The following samples were analyzed in this batch: HS16031389-01					

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 25-Apr-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16031389

QC BATCH REPORT

Batch ID: R272149		Instrument: Balance1		Method: E1664A					
MBLK	Sample ID: WBLKW-040716	Units: mg/L		Analysis Date: 07-Apr-2016 14:15					
Client ID:	Run ID: Balance1_272149	SeqNo: 3640825		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Oil and Grease	ND	2.00							
LCS	Sample ID: WLCSW-040716	Units: mg/L		Analysis Date: 07-Apr-2016 14:15					
Client ID:	Run ID: Balance1_272149	SeqNo: 3640827		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Oil and Grease	38.4	2.00	40	0	96.0	78 - 114			
LCSD	Sample ID: WLCSDW-040716	Units: mg/L		Analysis Date: 07-Apr-2016 14:15					
Client ID:	Run ID: Balance1_272149	SeqNo: 3640826		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Oil and Grease	36	2.00	40	0	90.0	78 - 114	38.4	6.45	18
MS	Sample ID: HS16040227-04MS	Units: mg/L		Analysis Date: 07-Apr-2016 14:15					
Client ID:	Run ID: Balance1_272149	SeqNo: 3640824		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Oil and Grease	43.86	2.00	40	0.7692	108	78 - 114			
The following samples were analyzed in this batch: HS16031389-03									

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 25-Apr-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
WorkOrder: HS16031389

**QUALIFIERS,
ACRONYMS, UNITS**
Qualifier **Description**

*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym **Description**

DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported **Description**

mg/L	Milligrams per Liter
------	----------------------

ALS Group USA, Corp

Date: 25-Apr-16

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	16-022-0	27-Mar-2017
California	2919	31-Jul-2016
Illinois	003622	09-May-2016
Kansas	E-10352 2014-2015	31-Jul-2016
Kentucky	KY 2015-2016	30-Apr-2016
Louisiana	03087 2015/2016	30-Jun-2016
North Carolina	624 - 2016	31-Dec-2016
North Dakota	R-193 2015-2016	30-Apr-2016
Oklahoma	2015-047	31-Aug-2016
Texas	T104704231-15-15	30-Apr-2016

ALS Group USA, Corp

Date: 25-Apr-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Work Order: HS16031389

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS16031389-01	Outfall 002 - COD	Login	3/31/2016 3:09:21 PM	CGG	13B
HS16031389-02	Outfall 002 - BOD	Login	3/31/2016 3:09:21 PM	CGG	13B
HS16031389-03	Outfall 002 - OG	Login	3/31/2016 3:09:21 PM	CGG	10E
HS16031389-04	Outfall 002 - TSS	Login	3/31/2016 3:09:21 PM	CGG	13B
HS16031389-05	Outfall 002 - E.Coli	Login	3/31/2016 3:09:21 PM	CGG	Sub
HS16031389-06	Outfall 002 - Hexavalent Cr	Login	3/31/2016 3:09:21 PM	CGG	13B

ALS Group USA, Corp

Date: 25-Apr-16

Sample Receipt Checklist

Client Name: WYMAN-GORDON-HOU

Date/Time Received: **31-Mar-2016 14:45**

Work Order: HS16031389

Received by: **BHH**Checklist completed by: Corey Grandits 31-Mar-2016
eSignature DateReviewed by: Erica Padilla 1-Apr-2016
eSignature DateMatrices: **Water**Carrier name: **Client**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
TX1005 solids received in hermetically sealed vials?	Yes ☐	No ☐	N/A ☒
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	

Temperature(s)/Thermometer(s):

2.4c/3.0c uc/c

IR#5

Cooler(s)/Kit(s):

24541

Date/Time sample(s) sent to storage:

03/31/2016 15:20

Water - VOA vials have zero headspace?

Yes ☐ No ☐ No VOA vials submitted ☒

Water - pH acceptable upon receipt?

Yes ☒ No ☐ N/A ☐

pH adjusted?

Yes ☐ No ☒ N/A ☐

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By: 0

Regarding:

Comments:

Corrective Action:



Environmental

Cincinnati, OH
+1 513 733 5336Everett, WA
+1 425 356 2600Fort Collins, CO
+1 970 490 1511Holland, MI
+1 616 399 6070

Chain of Custody For

Page ____ of ____

COC ID: 138203

ALS Project Manager:

HS16031389

Wyman-Gordon Forgings, LP

Outfall 002

in, WV
8

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Customer Information				Project Information															
Purchase Order		Project Name	Outfall 002	A	COD														
Work Order		Project Number		B	BOD														
Company Name	Wyman-Gordon Forgings, LP	Bill To Company	Wyman-Gordon Forgings, LP	C	Oil and Grease														
Send Report To	Aaron Plocek	Invoice Attn	Aaron Plocek	D	TSS														
Address	10825 Telge Road	Address	10825 Telge Road	E	E.Coli *8 Hr Hold Time*														
				F	Hexvalent Chromium *24 Hr Hold Time*														
City/State/Zip	Houston, TX 770955038	City/State/Zip	Houston, TX 770955038	G															
Phone		Phone	(281) 856-9900	H															
Fax		Fax		I															
e-Mail Address	aplocek@wyman.com	e-Mail Address	aplocek@wyman.com	J															

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Outfall 2-COD	3/31/16	11:07	Aqueous		1	X										
2	Outfall 2-BOD		11:08	Aqueous		1		X									
3	Outfall 2-OG		11:09	Aqueous		2			X								
4	Outfall 2-TSS		11:10	Aqueous		1				X							
5	Outfall 2-E.Coli		11:11	Aqueous		2					X						
6	Outfall 2-Hexavalent Cr		11:12	Aqueous		1						X					
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign <i>Aaron Plocek</i>		Shipment Method <i>Hand Delivered</i>		Required Turnaround Time: (Check Box) ☒ Std 10 WK days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour ☐ Other _____				Results Due Date:	
Relinquished by: <i>Aaron Plocek</i>		Date: 3/31/16	Time: 14:45pm	Received by: <i>[Signature]</i>				Notes: 10 Day TAT.	
Relinquished by:		Date:	Time:	Received by Laboratory: <i>[Signature]</i>				Cooler ID: 24541	Cooler Temp.: 2.4
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):				QC Package: (Check One Box Below) ☒ Level 2 Std QC ☐ TRRP Chk list ☐ Level 3 Std QC/Row da ☐ TRRP Level 4 ☐ Level 4 SW846/CLP ☐ Other/EDQ	
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035									

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.



Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

04 April 2016

ALS Group USA, Corp.
Bernadette Fini
10450 Stancliff Rd. Suite #210
Houston, TX 77099

ALS

Enclosed are the results of analyses for samples received by the laboratory on 31-Mar-16 16:15. The analytical data provided relates only to the samples as received in this laboratory report.

ELI certifies that all results are NELAP compliant and performed in accordance with the referenced method except as noted in the Case Narrative or as noted with a qualifier. Any reproductions of this laboratory report should be in full and only with the written authorization from the client.

The total number of pages in this report is 5

Thank you for selecting ELI for your analytical needs. If you have any questions regarding this report, please contact us.

Sincerely,

A handwritten signature in cursive script that reads 'Monica Smith'.

Monica Smith
Project Manager



Certificate No: TX104704265



Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16C3601

Reported:
04-Apr-16 13:00

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
HS 16031389-05 OUTFALL 002	16C3601-01	Water	31-Mar-16 11:11	31-Mar-16 16:15

Envirodyne Laboratories, Inc.

Monica Smith

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16C3601

Reported:
04-Apr-16 13:00

HS 16031389-05 OUTFALL 002
16C3601-01 (Water) Sampled: 31-Mar-16 11:11

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Analyst	Notes
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Envirodyne Laboratories, Inc.

Microbiology

E.coli	13	I	MPN/100 mL	I	B6D0147	31-Mar-16	31-Mar-16 16:30	SM9223 B	LTC	
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Envirodyne Laboratories, Inc.

Monica Smith

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16C3601

Reported:
04-Apr-16 13:00

Microbiology - Quality Control
Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6D0147 - Microbiology										
Blank (B6D0147-BLK1)					Prepared & Analyzed: 31-Mar-16					
E.coli	<1		1 MPN/100 mL							
Duplicate (B6D0147-DUP1)					Source: 16C2795-01 Prepared & Analyzed: 31-Mar-16					
E.coli	<2		2 MPN/100 mL		<2			0	0.479	

Envirodyne Laboratories, Inc.

Monica Smith

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16C3601

Reported:
04-Apr-16 13:00

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference
CLT Client Representative

Envirodyne Laboratories, Inc.

Monica Smith

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

1603601



Environmental

CHAIN OF CUSTODY RECORD

Page 1 of 1

Date 31 Mar 2016

COC ID 4465

Due date 08 APR 16

Subcontractor

Envirodyne Laboratories, Inc.	Phone
11011 Brooklet, Ste 230	2815687880
Houston, TX 77099	Fax
	2815688004

Customer Information		Project Information	
PO	HS16031389	Project Name	HS16031389

Company Name	ALS Houston	Company Name	ALS Houston
		Inv Attn	Accounts Payable
Address	10450 Standcliff Rd, Ste 210	Address	10450 Standcliff Rd, Ste 210
	Houston, TX 77099		Houston, TX 77099
Phone	281-530-5656	Phone	281-530-5656
Email1	erica.padilla@alsglobal.com	Email2	jumoke.lawal@alsglobal.com

Lab ID	Client Samp ID	Collection Date	Matrix	Analysis Requested
HS16031389-05	Outfall 002 - E.Coli	31-Mar-16 11:11 am	Aqueous	SUB_E. Coli

Comments Please analyze for the analysis listed above. Send report to the emails shown above.

Relinquished by:	Date/Time:	Received by:	Date/Time:	Cooler IDs:	Report/QC Level
	3/31/16 1615		3/31/16 1615	3.2 IR#3	STD



10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

June 02, 2016

Aaron Plocek
Wyman-Gordon Forgings, LP
10825 Telge Road
Houston, TX 77095

Work Order: **HS16051314**

Laboratory Results for: **Outfall 002**

Dear Aaron,

ALS Environmental received 6 sample(s) on May 24, 2016 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Erica Padilla".

Generated By: Jumoke.Lawal
Erica Padilla
PM

ALS Group USA, Corp

Date: 02-Jun-16

Client: Wyman-Gordon Forgings, LP

Project: Outfall 002

Work Order: HS16051314

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS16051314-01	Outfall 002 - COD	Aqueous		24-May-2016 10:10	24-May-2016 11:30	☐
HS16051314-02	Outfall 002 - BOD	Aqueous		24-May-2016 10:11	24-May-2016 11:30	☐
HS16051314-03	Outfall 002 - OG	Aqueous		24-May-2016 10:12	24-May-2016 11:30	☐
HS16051314-04	Outfall 002 - TSS	Aqueous		24-May-2016 10:13	24-May-2016 11:30	☐
HS16051314-05	Outfall 002 - E.Coli	Aqueous		24-May-2016 10:14	24-May-2016 11:30	☐
HS16051314-06	Outfall 002 - Hexavalent Cr	Aqueous		24-May-2016 10:15	24-May-2016 11:30	☐

ALS Group USA, Corp

Date: 02-Jun-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Work Order: HS16051314

CASE NARRATIVE**Work Order Comments**

- The analysis for E.coli was subcontracted to Envirodyne Laboratories, Inc. in Houston, TX.

WetChemistry by Method M2540D

Batch ID: R275203

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E410.4

Batch ID: R275412

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E1664A

Batch ID: R275401

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW7196

Batch ID: R274930

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SM5210 B

Batch ID: 104677

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Group USA, Corp

Date: 02-Jun-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - COD
Collection Date: 24-May-2016 10:10

ANALYTICAL REPORT

WorkOrder:HS16051314
Lab ID:HS16051314-01
Matrix:Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
CHEMICAL OXYGEN DEMAND BY E410.4		Method:E410.4		Analyst: KMU		
Chemical Oxygen Demand	210		75.0	mg/L	5	01-Jun-2016 09:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 02-Jun-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - BOD
Collection Date: 24-May-2016 10:11

ANALYTICAL REPORT

WorkOrder:HS16051314
Lab ID:HS16051314-02
Matrix:Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BOD		Method:SM5210 B				
Biochemical Oxygen Demand	54.0		2.00	mg/L	1	30-May-2016 16:22

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 02-Jun-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - OG
Collection Date: 24-May-2016 10:12

ANALYTICAL REPORT

WorkOrder:HS16051314
Lab ID:HS16051314-03
Matrix:Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
OIL & GREASE (HEM) BY E1664A		Method:E1664A				Analyst: KAH
Oil and Grease	6.67		2.00	mg/L	1	31-May-2016 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 02-Jun-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - TSS
Collection Date: 24-May-2016 10:13

ANALYTICAL REPORT

WorkOrder: HS16051314
Lab ID: HS16051314-04
Matrix: Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL SUSPENDED SOLIDS BY SM 2540D		Method: M2540D		Analyst: KAH		
Suspended Solids (Residue, Non -Filterable)	107		2.00	mg/L	1	27-May-2016 11:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 02-Jun-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - E.Coli
Collection Date: 24-May-2016 10:14

ANALYTICAL REPORT

WorkOrder:HS16051314
Lab ID:HS16051314-05
Matrix:Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - E. COLI		Method:NA				Analyst: EDL
Subcontract Analysis	See Attached				1	31-May-2016 17:05

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 02-Jun-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - Hexavalent Cr
Collection Date: 24-May-2016 10:15

ANALYTICAL REPORT

WorkOrder:HS16051314

Lab ID:HS16051314-06

Matrix:Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
HEXAVALENT CHROMIUM BY SW7196A		Method:SW7196		Analyst: JHD		
Chromium, Hexavalent	ND		0.0100	mg/L	1	24-May-2016 14:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 02-Jun-16

WEIGHT LOG

Client: Wyman-Gordon Forgings, LP

Project: Outfall 002

WorkOrder: HS16051314

Batch ID: 104677 **Method:** BOD **Prep:** BOD_PR 5210B

SampleID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS16051314-02	1	300	300 (mL)	1

ALS Group USA, Corp

Date: 02-Jun-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
WorkOrder: HS16051314

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 104677	Test Name : BOD				Matrix: Aqueous	
HS16051314-02	Outfall 002 - BOD	24 May 2016 10:11		25 May 2016 03:50	30 May 2016 16:22	1
Batch ID R274930	Test Name : HEXAVALENT CHROMIUM BY SW7196A				Matrix: Aqueous	
HS16051314-06	Outfall 002 - Hexavalent Cr	24 May 2016 10:15			24 May 2016 14:42	1
Batch ID R275203	Test Name : TOTAL SUSPENDED SOLIDS BY SM 2540D				Matrix: Aqueous	
HS16051314-04	Outfall 002 - TSS	24 May 2016 10:13			27 May 2016 11:45	1
Batch ID R275384	Test Name : SUBCONTRACT ANALYSIS - E. COLI				Matrix: Aqueous	
HS16051314-05	Outfall 002 - E.Coli	24 May 2016 10:14			31 May 2016 17:05	1
Batch ID R275401	Test Name : OIL & GREASE (HEM) BY E1664A				Matrix: Aqueous	
HS16051314-03	Outfall 002 - OG	24 May 2016 10:12			31 May 2016 15:15	1
Batch ID R275412	Test Name : CHEMICAL OXYGEN DEMAND BY E410.4				Matrix: Aqueous	
HS16051314-01	Outfall 002 - COD	24 May 2016 10:10			01 Jun 2016 09:30	5

ALS Group USA, Corp

Date: 02-Jun-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16051314

QC BATCH REPORT

Batch ID: 104677		Instrument: ManTech01		Method: SM5210 B			
MBLK	Sample ID: MBLK-104677	Units: mg/L		Analysis Date: 30-May-2016 16:22			
Client ID:	Run ID: ManTech01_275290	SeqNo: 3703883		PrepDate: 25-May-2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Biochemical Oxygen Demand	ND	2.00					
LCS	Sample ID: LCS-104677	Units: mg/L		Analysis Date: 30-May-2016 16:22			
Client ID:	Run ID: ManTech01_275290	SeqNo: 3703881		PrepDate: 25-May-2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Biochemical Oxygen Demand	179.5	2.00	198	0	90.7	85 - 115	
LCSD	Sample ID: LCSD-104677	Units: mg/L		Analysis Date: 30-May-2016 16:22			
Client ID:	Run ID: ManTech01_275290	SeqNo: 3703884		PrepDate: 25-May-2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Biochemical Oxygen Demand	180.5	2.00	198	0	91.2	85 - 115	179.5 0.556 20
DUP	Sample ID: HS16051324-01DUP	Units: mg/L		Analysis Date: 30-May-2016 16:22			
Client ID:	Run ID: ManTech01_275290	SeqNo: 3703882		PrepDate: 25-May-2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Biochemical Oxygen Demand	ND	2.00					1.4 0 20
The following samples were analyzed in this batch: HS16051314-02							

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 02-Jun-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16051314

QC BATCH REPORT

Batch ID: R274930		Instrument: UV-2450		Method: SW7196			
MBLK	Sample ID: MBLK-274930	Units: mg/L		Analysis Date: 24-May-2016 10:07			
Client ID:	Run ID: UV-2450_274930	SeqNo: 3696439		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Chromium, Hexavalent	ND	0.0100					
LCS	Sample ID: LCS-274930	Units: mg/L		Analysis Date: 24-May-2016 10:07			
Client ID:	Run ID: UV-2450_274930	SeqNo: 3696440		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Chromium, Hexavalent	0.263	0.0100	0.25	0	105	80 - 120	
MS	Sample ID: HS16051288-05MS	Units: mg/L		Analysis Date: 24-May-2016 10:07			
Client ID:	Run ID: UV-2450_274930	SeqNo: 3696442		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Chromium, Hexavalent	0.266	0.0100	0.25	-0.002	107	75 - 125	
MSD	Sample ID: HS16051288-05MSD	Units: mg/L		Analysis Date: 24-May-2016 10:07			
Client ID:	Run ID: UV-2450_274930	SeqNo: 3696443		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Chromium, Hexavalent	0.254	0.0100	0.25	-0.002	102	75 - 125	0.266 4.62 20
The following samples were analyzed in this batch: HS16051314-06							

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 02-Jun-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16051314

QC BATCH REPORT

Batch ID: R275203		Instrument: Balance1		Method: M2540D			
MBLK	Sample ID: WBLKW1-052716	Units: mg/L		Analysis Date: 27-May-2016 11:45			
Client ID:	Run ID: Balance1_275203	SeqNo: 3702094		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Suspended Solids (Residue, Non-Filterable)	ND	2.00					
LCS	Sample ID: WLCSW1-052716	Units: mg/L		Analysis Date: 27-May-2016 11:45			
Client ID:	Run ID: Balance1_275203	SeqNo: 3702095		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Suspended Solids (Residue, Non-Filterable)	92	2.00	100	0	92.0	78 - 120	
DUP	Sample ID: HS16051314-04DUP	Units: mg/L		Analysis Date: 27-May-2016 11:45			
Client ID: Outfall 002 - TSS	Run ID: Balance1_275203	SeqNo: 3702089		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Suspended Solids (Residue, Non-Filterable)	108.3	2.00				106.7	1.55 5
DUP	Sample ID: HS16051202-04DUP	Units: mg/L		Analysis Date: 27-May-2016 11:45			
Client ID:	Run ID: Balance1_275203	SeqNo: 3704359		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Suspended Solids (Residue, Non-Filterable)	62.67	2.00				64.67	3.14 5
The following samples were analyzed in this batch: HS16051314-04							

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 02-Jun-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16051314

QC BATCH REPORT

Batch ID: R275401		Instrument: Balance1		Method: E1664A			
MBLK	Sample ID: WBLKW-053116	Units: mg/L		Analysis Date: 31-May-2016 15:15			
Client ID:	Run ID: Balance1_275401	SeqNo: 3705633		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Oil and Grease	ND	2.00					
LCS	Sample ID: WLCSW-053116	Units: mg/L		Analysis Date: 31-May-2016 15:15			
Client ID:	Run ID: Balance1_275401	SeqNo: 3705635		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Oil and Grease	36.8	2.00	40	0	92.0	78 - 114	
LCSD	Sample ID: WLCSDW-053116	Units: mg/L		Analysis Date: 31-May-2016 15:15			
Client ID:	Run ID: Balance1_275401	SeqNo: 3705634		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Oil and Grease	35.1	2.00	40	0	87.8	78 - 114	36.8 4.73 18
MS	Sample ID: HS16051386-01MS	Units: mg/L		Analysis Date: 31-May-2016 15:15			
Client ID:	Run ID: Balance1_275401	SeqNo: 3705624		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Oil and Grease	39.66	2.00	40	0.4494	98.0	78 - 114	
The following samples were analyzed in this batch: HS16051314-03							

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 02-Jun-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16051314

QC BATCH REPORT

Batch ID: R275412		Instrument: WetChem_HS		Method: E410.4	
MBLK	Sample ID: MBLK-275412	Units: mg/L		Analysis Date: 01-Jun-2016 09:30	
Client ID:	Run ID: WetChem_HS_275412		SeqNo: 3706073	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD RPD Limit Qual
Chemical Oxygen Demand	ND	15.0			
LCS	Sample ID: LCS-275412	Units: mg/L		Analysis Date: 01-Jun-2016 09:30	
Client ID:	Run ID: WetChem_HS_275412		SeqNo: 3706074	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD RPD Limit Qual
Chemical Oxygen Demand	99	15.0	100	0 99.0	85 - 115
MS	Sample ID: HS16051500-01MS	Units: mg/L		Analysis Date: 01-Jun-2016 09:30	
Client ID:	Run ID: WetChem_HS_275412		SeqNo: 3706076	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD RPD Limit Qual
Chemical Oxygen Demand	145	15.0	50	105 80.0	80 - 120
DUP	Sample ID: HS16051500-01DUP	Units: mg/L		Analysis Date: 01-Jun-2016 09:30	
Client ID:	Run ID: WetChem_HS_275412		SeqNo: 3706075	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD RPD Limit Qual
Chemical Oxygen Demand	104	15.0			105 0.957 20
The following samples were analyzed in this batch: HS16051314-01					

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 02-Jun-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16051314

**QUALIFIERS,
ACRONYMS, UNITS**

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: 02-Jun-16

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	16-022-0	27-Mar-2017
California	2919	31-Jul-2016
Kansas	E-10352 2014-2015	31-Jul-2016
Kentucky	96 2016-2017	30-Apr-2017
Louisiana	03087 2015/2016	30-Jun-2016
North Carolina	624 - 2016	31-Dec-2016
North Dakota	R193 2016-2017	30-Apr-2017
Oklahoma	2015-047	31-Aug-2016
Texas	TX104704231-16-17	30-Apr-2017

ALS Group USA, Corp

Date: 02-Jun-16

Client: Wyman-Gordon Forgings, LP

Project: Outfall 002

Work Order: HS16051314

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS16051314-01	Outfall 002 - COD	Login	5/24/2016 11:48:21 AM	CGG	14C
HS16051314-02	Outfall 002 - BOD	Login	5/24/2016 11:48:21 AM	CGG	14C
HS16051314-03	Outfall 002 - OG	Login	5/24/2016 11:48:21 AM	CGG	14E
HS16051314-04	Outfall 002 - TSS	Login	5/24/2016 11:48:21 AM	CGG	14C
HS16051314-05	Outfall 002 - E.Coli	Login	5/24/2016 11:48:21 AM	CGG	Sub
HS16051314-06	Outfall 002 - Hexavalent Cr	Login	5/24/2016 11:48:21 AM	CGG	14C

ALS Group USA, Corp

Date: 02-Jun-16

Sample Receipt Checklist

Client Name: WYMAN-GORDON-HOU

Date/Time Received: 24-May-2016 11:30

Work Order: HS16051314

Received by: JRMChecklist completed by: Corey Grandits 24-May-2016
eSignature DateReviewed by: Erica Padilla 27-May-2016
eSignature DateMatrices: WaterCarrier name: Client

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
TX1005 solids received in hermetically sealed vials?	Yes ☐	No ☐	N/A ☒
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	4.2c/4.9c uc/c IR#4		
Cooler(s)/Kit(s):	5608		
Date/Time sample(s) sent to storage:	05/24/2016 12:05		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☒	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By: 0

Regarding:

Comments:

Corrective Action:



Environmental

Cincinnati, OH
+1 513 733 5336Everett, WA
+1 425 356 2600Fort Collins, CO
+1 970 490 1511Holland, MI
+1 616 399 6070

Chain of Custody Form

Page ____ of ____

COC ID: 145724

ALS Project Manager:

HS16051314

Wyman-Gordon Forgings, LP

Outfall 002



Customer Information		Project Information		
Purchase Order		Project Name	Outfall 002	A COD
Work Order		Project Number		B BOD
Company Name	Wyman-Gordon Forgings, LP	Bill To Company	Wyman-Gordon Forgings, LP	C Oil and Grease
Send Report To	Aaron Plocek	Invoice Attn	Aaron Plocek	D TSS
Address	10825 Telge Road	Address	10825 Telge Road	E E.Coli *8 Hr Hold Time*
				F Hexvalent Chromium *24 Hr Hold Time*
City/State/Zip	Houston, TX 770955038	City/State/Zip	Houston, TX 770955038	G
Phone		Phone	(281) 856-9900	H
Fax		Fax		I
e-Mail Address	aplocek@wyman.com	e-Mail Address	aplocek@wyman.com	J

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Outfall -COD	5/24/16	10:10 AM	Aqueous		1	X										
2	Outfall -BOD		10:11 AM	Aqueous		1		X									
3	Outfall -OG		10:12 AM	Aqueous		2			X								
4	Outfall -TSS		10:13 AM	Aqueous		1				X							
5	Outfall -E.Coli		10:14 AM	Aqueous		2					X						
6	Outfall -Hexavalent Cr		10:15 AM	Aqueous		1						X					
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign <i>Aaron Plocek</i>		Shipment Method <i>Hand Delivery</i>		Required Turnaround Time: (Check Box) ☒ Std 10 WK days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour		Results Due Date:	
Relinquished by: <i>Aaron Plocek</i>		Date: 5/24/16	Time: 11:30 AM	Received by: <i>JM</i> 05/24/16 11:30		Notest 0 Day TAT.	
Relinquished by:		Date:	Time:	Received by (Laboratory): <i>ALS HS</i>		Cooler ID <i>5608</i>	
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):		Cooler Temp. <i>4.2</i>	
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035 QC Package: (Check One Box Below) ☒ Level 2 Std QC ☐ Level 3 Std QC/Row da ☐ Level 4 SW846/CLP ☐ Other/EDD ☐ TRRP Level 4							

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.

3. The Chain of Custody is a legal document. All information must be accurate.

Page 21 of 27

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RIGHT SOLUTIONS | RIGHT PARTNER



Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

31 May 2016

ALS Group USA, Corp.
Bernadette Fini
10450 Stancliff Rd. Suite #210
Houston, TX 77099

ALS

Enclosed are the results of analyses for samples received by the laboratory on 24-May-16 13:30. The analytical data provided relates only to the samples as received in this laboratory report.

ELI certifies that all results are NELAP compliant and performed in accordance with the referenced method except as noted in the Case Narrative or as noted with a qualifier. Any reproductions of this laboratory report should be in full and only with the written authorization from the client.

The total number of pages in this report is 5

Thank you for selecting ELI for your analytical needs. If you have any questions regarding this report, please contact us.

Sincerely,

A handwritten signature in cursive script that reads 'Monica Smith'.

Monica Smith
Project Manager



Certificate No: TX104704265



Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16E2970

Reported:
31-May-16 13:45

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
HS16051314-05 OUTFALL 002- ECOLI	16E2970-01	Water	24-May-16 10:14	24-May-16 13:30

Envirodyne Laboratories, Inc.

Monica Smith

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16E2970

Reported:
31-May-16 13:45

HS16051314-05 OUTFALL 002- ECOLI
16E2970-01 (Water) Sampled: 24-May-16 10:14

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Analyst	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	---------	-------

Envirodyne Laboratories, Inc.

Microbiology

E.coli	54	1	MPN/100 mL	1	B6E3100	24-May-16	24-May-16 14:15	SM9223 B	LTB	
--------	----	---	------------	---	---------	-----------	-----------------	----------	-----	--

Envirodyne Laboratories, Inc.

Monica Smith

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16E2970

Reported:
31-May-16 13:45

Microbiology - Quality Control
Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch B6E3100 - Microbiology

Blank (B6E3100-BLK1)

E.coli <1 1 MPN/100 mL

Prepared & Analyzed: 24-May-16

Duplicate (B6E3100-DUP1)

E.coli 2.00 1 MPN/100 mL

Source: 16E2105-01

Prepared & Analyzed: 24-May-16

6.00

100

0.479

Envirodyne Laboratories, Inc.

Monica Smith

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16E2970

Reported:
31-May-16 13:45

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
CLT	Client Representative

Envirodyne Laboratories, Inc.

Monica Smith

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



CHAIN OF CUSTODY RECORD

Page 1 of 1

Date

24 May 2016

COC ID

4726

Due date

01 JUN 16

Subcontractor

Envirodyne Laboratories, Inc.
11011 Brooklet, Ste 230
Houston, TX 77099

Phone
2815687880
Fax
2815688004

16E2970

Customer Information		Project Information	
PO	HS16051314	Project Name	HS16051314
Company Name	ALS Houston	Company Name	ALS Houston
		Inv Attn	Accounts Payable
Address	10450 Standcliff Rd, Ste 210	Address	10450 Standcliff Rd, Ste 210
	Houston, TX 77099		Houston, TX 77099
Phone	281-530-5656	Phone	281-530-5656
Email1	erica.padilla@alsglobal.com	Email2	jumoke.lawa@alsglobal.com

Lab ID	Client Samp ID	Collection Date	Matrix	Analysis Requested
HS16051314-05	Outfall 002 - E.Coli	24-May-16 10:14 am	Aqueous	SUB_E. Coli

Comments Please analyze for the analysis listed above. Send report to the emails shown above.

Relinquished by:	Date/Time:	Received by:	Date/Time:	Cooler IDs:	Report/QC Level
<i>Erin Smith</i>	5/24/16 13:50	<i>Don M</i>	5/24/16 13:30		STD



10450 Stancliff Rd. Suite 210
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F: +1 281 530 5887
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July 19, 2016

Steve Howard
Wyman-Gordon Forgings, LP
10825 Telge Road
Houston, TX 77095

Work Order: **HS16070273**

Laboratory Results for: **Outfall 002**

Dear Steve,

ALS Environmental received 6 sample(s) on Jul 08, 2016 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Erica Padilla".

Generated By: Dayna.Fisher
Erica Padilla
PM

ALS Group USA, Corp

Date: 19-Jul-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Work Order: HS16070273

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS16070273-01	Outfall 002 - COD	Aqueous		08-Jul-2016 10:30	08-Jul-2016 12:02	☐
HS16070273-02	Outfall 002 - BOD	Aqueous		08-Jul-2016 10:31	08-Jul-2016 12:02	☐
HS16070273-03	Outfall 002 - OG	Aqueous		08-Jul-2016 10:32	08-Jul-2016 12:02	☐
HS16070273-04	Outfall 002 - TSS	Aqueous		08-Jul-2016 10:34	08-Jul-2016 12:02	☐
HS16070273-05	Outfall 002 - E.Coli	Aqueous		08-Jul-2016 10:35	08-Jul-2016 12:02	☐
HS16070273-06	Outfall 002 - Hexavalent Cr	Aqueous		08-Jul-2016 10:37	08-Jul-2016 12:02	☐

ALS Group USA, Corp

Date: 19-Jul-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Work Order: HS16070273

CASE NARRATIVE**Work Order Comments**

- The analysis for E.coli was subcontracted to Envirodyne Laboratories, Inc. in Houston, TX. Final report attached.

WetChemistry by Method E1664A

Batch ID: R278154

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E410.4

Batch ID: R278263

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method M2540D

Batch ID: R277948

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW7196

Batch ID: R277822

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SM5210 B

Batch ID: 106096

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Group USA, Corp

Date: 19-Jul-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - COD
Collection Date: 08-Jul-2016 10:30

ANALYTICAL REPORT

WorkOrder:HS16070273
Lab ID:HS16070273-01
Matrix:Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
CHEMICAL OXYGEN DEMAND BY E410.4		Method:E410.4		Analyst: KMU		
Chemical Oxygen Demand	244		30.0	mg/L	2	18-Jul-2016 18:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 19-Jul-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - BOD
Collection Date: 08-Jul-2016 10:31

ANALYTICAL REPORT

WorkOrder:HS16070273
Lab ID:HS16070273-02
Matrix:Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BOD		Method:SM5210 B			Prep:SM5210 B / 08-Jul-2016	Analyst: KMU
Biochemical Oxygen Demand	61.0		2.00	mg/L	1	13-Jul-2016 14:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 19-Jul-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - OG
Collection Date: 08-Jul-2016 10:32

ANALYTICAL REPORT

WorkOrder: HS16070273
Lab ID: HS16070273-03
Matrix: Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
OIL & GREASE (HEM) BY E1664A		Method: E1664A		Analyst: KAH		
Oil and Grease	4.35		2.00	mg/L	1	15-Jul-2016 12:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 19-Jul-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - TSS
Collection Date: 08-Jul-2016 10:34

ANALYTICAL REPORT

WorkOrder: HS16070273
Lab ID: HS16070273-04
Matrix: Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL SUSPENDED SOLIDS BY SM 2540D		Method: M2540D		Analyst: KAH		
Suspended Solids (Residue, Non-Filterable)	48.0		2.00	mg/L	1	12-Jul-2016 14:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 19-Jul-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - E.Coli
Collection Date: 08-Jul-2016 10:35

ANALYTICAL REPORT

WorkOrder:HS16070273
Lab ID:HS16070273-05
Matrix:Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - E. COLI		Method:NA		Analyst: EDL		
Subcontract Analysis	See Attached				1	12-Jul-2016 12:18

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 19-Jul-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - Hexavalent Cr
Collection Date: 08-Jul-2016 10:37

ANALYTICAL REPORT

WorkOrder: HS16070273
Lab ID: HS16070273-06
Matrix: Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
HEXAVALENT CHROMIUM BY SW7196A		Method: SW7196		Analyst: JHD		
Chromium, Hexavalent	ND		0.0100	mg/L	1	08-Jul-2016 15:44

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 19-Jul-16

WEIGHT LOG

Client: Wyman-Gordon Forgings, LP

Project: Outfall 002

WorkOrder: HS16070273

Batch ID: 106096 **Method:** BOD **Prep:** BOD_PR 5210B

SampleID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS16070273-02	1	300	300 (mL)	1

ALS Group USA, Corp

Date: 19-Jul-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16070273

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 106096	Test Name : BOD				Matrix: Aqueous	
HS16070273-02	Outfall 002 - BOD	08 Jul 2016 10:31		08 Jul 2016 15:20	13 Jul 2016 14:42	1
Batch ID R277822	Test Name : HEXAVALENT CHROMIUM BY SW7196A				Matrix: Aqueous	
HS16070273-06	Outfall 002 - Hexavalent Cr	08 Jul 2016 10:37			08 Jul 2016 15:44	1
Batch ID R277885	Test Name : SUBCONTRACT ANALYSIS - E. COLI				Matrix: Aqueous	
HS16070273-05	Outfall 002 - E.Coli	08 Jul 2016 10:35			12 Jul 2016 12:18	1
Batch ID R277948	Test Name : TOTAL SUSPENDED SOLIDS BY SM 2540D				Matrix: Aqueous	
HS16070273-04	Outfall 002 - TSS	08 Jul 2016 10:34			12 Jul 2016 14:25	1
Batch ID R278154	Test Name : OIL & GREASE (HEM) BY E1664A				Matrix: Aqueous	
HS16070273-03	Outfall 002 - OG	08 Jul 2016 10:32			15 Jul 2016 12:25	1
Batch ID R278263	Test Name : CHEMICAL OXYGEN DEMAND BY E410.4				Matrix: Aqueous	
HS16070273-01	Outfall 002 - COD	08 Jul 2016 10:30			18 Jul 2016 18:00	2

ALS Group USA, Corp

Date: 19-Jul-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16070273

QC BATCH REPORT

Batch ID: 106096		Instrument: ManTech01		Method: SM5210 B	
MBLK	Sample ID: MBLK-106096	Units: mg/L		Analysis Date: 13-Jul-2016 14:42	
Client ID:	Run ID: ManTech01_278009	SeqNo: 3759085		PrepDate: 08-Jul-2016	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC Control Limit RPD Ref Value %RPD Limit Qual
Biochemical Oxygen Demand	ND	2.00			
LCS	Sample ID: LCS-106096	Units: mg/L		Analysis Date: 13-Jul-2016 14:42	
Client ID:	Run ID: ManTech01_278009	SeqNo: 3759084		PrepDate: 08-Jul-2016	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC Control Limit RPD Ref Value %RPD Limit Qual
Biochemical Oxygen Demand	180	2.00	198	0	90.9 85 - 115
DUP	Sample ID: HS16070229-01DUP	Units: mg/L		Analysis Date: 13-Jul-2016 14:42	
Client ID:	Run ID: ManTech01_278009	SeqNo: 3759083		PrepDate: 08-Jul-2016	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC Control Limit RPD Ref Value %RPD Limit Qual
Biochemical Oxygen Demand	ND	2.00			1.9 0 20
The following samples were analyzed in this batch: HS16070273-02					

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 19-Jul-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16070273

QC BATCH REPORT

Batch ID: R277822		Instrument: UV-2450		Method: SW7196			
MBLK	Sample ID: MBLK-277822	Units: mg/L		Analysis Date: 08-Jul-2016 15:44			
Client ID:	Run ID: UV-2450_277822	SeqNo: 3755383		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Chromium, Hexavalent	ND	0.0100					
LCS	Sample ID: LCS-277822	Units: mg/L		Analysis Date: 08-Jul-2016 15:44			
Client ID:	Run ID: UV-2450_277822	SeqNo: 3755384		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Chromium, Hexavalent	0.243	0.0100	0.25	0	97.2	80 - 120	
MS	Sample ID: HS16070272-06MS	Units: mg/L		Analysis Date: 08-Jul-2016 15:44			
Client ID:	Run ID: UV-2450_277822	SeqNo: 3755386		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Chromium, Hexavalent	0.267	0.0100	0.25	0.002	106	75 - 125	
MSD	Sample ID: HS16070272-06MSD	Units: mg/L		Analysis Date: 08-Jul-2016 15:44			
Client ID:	Run ID: UV-2450_277822	SeqNo: 3755387		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Chromium, Hexavalent	0.262	0.0100	0.25	0.002	104	75 - 125	0.267 1.89 20
The following samples were analyzed in this batch: HS16070273-06							

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 19-Jul-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16070273

QC BATCH REPORT

Batch ID: R277948		Instrument: Balance1		Method: M2540D			
MBLK	Sample ID: WBLKW1-071216	Units: mg/L		Analysis Date: 12-Jul-2016 14:25			
Client ID:	Run ID: Balance1_277948	SeqNo: 3757970		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Suspended Solids (Residue, Non-Filterable)	ND	2.00					
LCS	Sample ID: WLCSW1-071216	Units: mg/L		Analysis Date: 12-Jul-2016 14:25			
Client ID:	Run ID: Balance1_277948	SeqNo: 3757971		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Suspended Solids (Residue, Non-Filterable)	99	2.00	100	0	99.0	78 - 120	
DUP	Sample ID: HS16070229-01DUP	Units: mg/L		Analysis Date: 12-Jul-2016 14:25			
Client ID:	Run ID: Balance1_277948	SeqNo: 3757948		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Suspended Solids (Residue, Non-Filterable)	11.56	2.00				11.78	1.9 5
DUP	Sample ID: HS16070208-03DUP	Units: mg/L		Analysis Date: 12-Jul-2016 14:25			
Client ID:	Run ID: Balance1_277948	SeqNo: 3757943		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Suspended Solids (Residue, Non-Filterable)	69.09	2.00				71.82	3.87 5
The following samples were analyzed in this batch: HS16070273-04							

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 19-Jul-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16070273

QC BATCH REPORT

Batch ID: R278154		Instrument: Balance1		Method: E1664A					
MBLK	Sample ID: WBLKW-071516	Units: mg/L		Analysis Date: 15-Jul-2016 12:25					
Client ID:	Run ID: Balance1_278154	SeqNo: 3762280		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Oil and Grease	ND	2.00							
LCS	Sample ID: WLCSW-071516	Units: mg/L		Analysis Date: 15-Jul-2016 12:25					
Client ID:	Run ID: Balance1_278154	SeqNo: 3762282		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Oil and Grease	38.2	2.00	40	0	95.5	78 - 114			
LCSD	Sample ID: WLCSDW-071516	Units: mg/L		Analysis Date: 15-Jul-2016 12:25					
Client ID:	Run ID: Balance1_278154	SeqNo: 3762281		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Oil and Grease	36	2.00	40	0	90.0	78 - 114	38.2	5.93	18
MS	Sample ID: HS16070212-02MS	Units: mg/L		Analysis Date: 15-Jul-2016 12:25					
Client ID:	Run ID: Balance1_278154	SeqNo: 3762275		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Oil and Grease	40.44	2.00	40	0.1099	101	78 - 114			
The following samples were analyzed in this batch: HS16070273-03									

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 19-Jul-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16070273

QC BATCH REPORT

Batch ID: R278263		Instrument: WetChem_HS		Method: E410.4			
MBLK	Sample ID: MBLK-278263	Units: mg/L		Analysis Date: 18-Jul-2016 18:00			
Client ID:	Run ID: WetChem_HS_278263		SeqNo: 3764422		PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Chemical Oxygen Demand	ND	15.0					
LCS	Sample ID: LCS-278263	Units: mg/L		Analysis Date: 18-Jul-2016 18:00			
Client ID:	Run ID: WetChem_HS_278263		SeqNo: 3764423		PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Chemical Oxygen Demand	95	15.0	100	0	95.0	85 - 115	
MS	Sample ID: HS16070431-02MS	Units: mg/L		Analysis Date: 18-Jul-2016 18:00			
Client ID:	Run ID: WetChem_HS_278263		SeqNo: 3764425		PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Chemical Oxygen Demand	112	15.0	50	57	110	80 - 120	
DUP	Sample ID: HS16070431-02DUP	Units: mg/L		Analysis Date: 18-Jul-2016 18:00			
Client ID:	Run ID: WetChem_HS_278263		SeqNo: 3764424		PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Chemical Oxygen Demand	59	15.0				57	3.45 20
The following samples were analyzed in this batch: HS16070273-01							

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 19-Jul-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16070273

**QUALIFIERS,
ACRONYMS, UNITS**

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: 19-Jul-16

CERTIFICATIONS, ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	16-022-0	27-Mar-2017
California	2919	31-Jul-2016
Illinois	003872	09-May-2017
Kansas	E-10352 2014-2015	31-Jul-2016
Kentucky	96 2016-2017	30-Apr-2017
Louisiana	03087 2016/2017	30-Jun-2017
North Carolina	624 - 2016	31-Dec-2016
North Dakota	R193 2016-2017	30-Apr-2017
Oklahoma	2015-047	31-Aug-2016
Texas	TX104704231-16-17	30-Apr-2017

ALS Group USA, Corp

Date: 19-Jul-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Work Order: HS16070273

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS16070273-01	Outfall 002 - COD	Login	7/8/2016 12:13:13 PM	CGG	16C
HS16070273-02	Outfall 002 - BOD	Login	7/8/2016 12:13:13 PM	CGG	16C
HS16070273-03	Outfall 002 - OG	Login	7/8/2016 12:13:13 PM	CGG	11E
HS16070273-04	Outfall 002 - TSS	Login	7/8/2016 12:13:13 PM	CGG	16C
HS16070273-05	Outfall 002 - E.Coli	Login	7/8/2016 12:13:13 PM	CGG	Sub
HS16070273-06	Outfall 002 - Hexavalent Cr	Login	7/8/2016 12:13:13 PM	CGG	16C

ALS Group USA, Corp

Date: 19-Jul-16

Sample Receipt Checklist

Client Name: WYMAN-GORDON-HOU
 Work Order: HS16070273

Date/Time Received: **08-Jul-2016 12:02**
 Received by: **CGG**

Checklist completed by: Corey Grandits 8-Jul-2016 Reviewed by: Erica Padilla 13-Jul-2016
 eSignature Date eSignature Date

Matrices: **Water**Carrier name: **Client**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
TX1005 solids received in hermetically sealed vials?	Yes ☐	No ☐	N/A ☒
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	2.3c/2.9c uc/c IR#5		
Cooler(s)/Kit(s):	25309		
Date/Time sample(s) sent to storage:	07/08/2016 12:30		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☒	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



Environmental

Cincinnati, OH
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+1 425 356 2600Fort Collins, CO
+1 970 490 1511Holland, MI
+1 616 399 6070

Chain of Custody Fo

Page ____ of ____

COC ID: 142651

ALS Project Manager:

HS16070273

Wyman-Gordon Forgings, LP

Outfall 002



Customer Information				Project Information															
Purchase Order		Project Name	Outfall 002																
Work Order		Project Number																	
Company Name	Wyman-Gordon Forgings, LP	Bill To Company	Wyman-Gordon Forgings, LP																
Send Report To	Aaron Plocek	Invoice Attn	Aaron Plocek																
Address	10825 Telge Road	Address	10825 Telge Road																
City/State/Zip	Houston, TX 770955038	City/State/Zip	Houston, TX 770955038																
Phone		Phone	(281) 856-9900																
Fax		Fax																	
e-Mail Address	aplocek@wyman.com	e-Mail Address	aplocek@wyman.com																

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Outfall -COD	7/8/16	10:30	Aqueous		1	X										
2	Outfall -BOD		10:31	Aqueous		1		X									
3	Outfall -OG		10:32	Aqueous		2			X								
4	Outfall -TSS		10:34	Aqueous		1				X							
5	Outfall -E.Coli		10:35	Aqueous		2					X						
6	Outfall -Hexavalent Cr		10:37	Aqueous		1						X					
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign <i>Aaron Plocek</i>		Shipment Method <i>Hand Deliver</i>		Required Turnaround Time: (Check Box) ☒ Std 10 WK days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour				Results Due Date:	
Relinquished by: <i>Aaron Plocek</i>	Date: 7/8/16	Time:	Received by:	Notes: 10 Day TAT.					
Relinquished by:	Date:	Time:	Received by (Laboratory): <i>LMG 7-8-16 1202</i>	Cooler ID <i>1RS</i>	Cooler Temp. <i>2.3</i>	QC Package: (Check One Box Below) ☒ Level 2 Std QC ☐ Level 3 Std QC/Row da ☐ Level 4 SW846/CLP ☐ Other/EDD			
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):						

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-Na₂S₂O₃ 6-NaHSO₄ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
 3. The Chain of Custody is a legal document. All information must be completed accurately.

Page 21 of 27

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RIGHT SOLUTIONS | RIGHT PARTNER



Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

12 July 2016

ALS Group USA, Corp.
Bernadette Fini
10450 Stancliff Rd. Suite #210
Houston, TX 77099

ALS

Enclosed are the results of analyses for samples received by the laboratory on 08-Jul-16 12:45. The analytical data provided relates only to the samples as received in this laboratory report.

ELI certifies that all results are NELAP compliant and performed in accordance with the referenced method except as noted in the Case Narrative or as noted with a qualifier. Any reproductions of this laboratory report should be in full and only with the written authorization from the client.

The total number of pages in this report is 5

Thank you for selecting ELI for your analytical needs. If you have any questions regarding this report, please contact us.

Sincerely,

A handwritten signature in blue ink that reads 'Monica Smith'.

Monica Smith
Project Manager



Certificate No: TX104704265



Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16G1144

Reported:
12-Jul-16 12:04

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
HS 16070273-05 OUTFALL 002	16G1144-01	Water	08-Jul-16 10:35	08-Jul-16 12:45

Envirodyne Laboratories, Inc.

Monica Smith

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16G1144

Reported:
12-Jul-16 12:04

HS 16070273-05 OUTFALL 002
16G1144-01 (Water) Sampled: 08-Jul-16 10:35

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Analyst	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	---------	-------

Envirodyne Laboratories, Inc.

Microbiology

E.coli	248	1	MPN/100 mL	1	B6G1088	08-Jul-16	08-Jul-16 14:03	SM9223 B	LTB	
--------	-----	---	------------	---	---------	-----------	-----------------	----------	-----	--

Envirodyne Laboratories, Inc.

Monica Smith

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Envirodyne Laboratories, Inc
 11011 Brooklet Dr., # 230
 Houston, TX 77099
 281.568.7880 Phone
 www.envirodyne.com

Client: ALS Group USA, Corp.
 Project: ALS
 Work Order: 16G1144

Reported:
 12-Jul-16 12:04

Microbiology - Quality Control
Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6G1088 - Microbiology										
Blank (B6G1088-BLK1)										
E.coli	<1		1 MPN/100 mL							Prepared & Analyzed: 08-Jul-16
Duplicate (B6G1088-DUP1)										
E.coli	<2		2 MPN/100 mL					0	0.479	Source: 16G0624-02 Prepared & Analyzed: 08-Jul-16

Envirodyne Laboratories, Inc.

Monica Smith

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16G1144

Reported:
12-Jul-16 12:04

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference
CLT Client Representative

Envirodyne Laboratories, Inc.

Monica Smith

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

16G1144



Environmental

CHAIN OF CUSTODY RECORD

Page 1 of 1

Date 8 Jul 2016

COC ID 4983

Due date 20 JUL 16

Subcontractor

Envirodyne Laboratories, Inc

Phone

11011 Brooklet, Ste 230

2815687660

Houston, TX 77099

Fax

2815688004

Customer Information		Project Information	
PO	HS16070273	Project Name	HS16070273

Company Name	ALS Houston	Company Name	ALS Houston
		Inv Attn	Accounts Payable
Address	10450 Standliff Rd, Ste 210	Address	10450 Standliff Rd, Ste 210
	Houston, TX 77099		Houston, TX 77099
Phone	281-530-5656	Phone	281-530-5656
Email1	erica.padiella@alsglobal.com	Email2	jumoke.lawal@alsglobal.com

Lab ID	Client Samp ID	Collection Date	Matrix	Analysis Requested
HS16070273-05	Outfall 002 - E.Coli	08-Jul-16 10:35 am	Aqueous	SUB_E. Coli

Comments Please analyze for the analysis listed above. Send report to the emails shown above.

Relinquished by:	Date/Time:	Received by:	Date/Time:	Cooler IDs:	Report/QC Level
<i>Plt</i>	7/8/16 12:45	<i>Chris O'Dy</i>	7/8/16 12:45	55/55743	STD



10450 Standcliff Rd. Suite 210
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T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

August 18, 2016

Steve Howard
Wyman-Gordon Forgings, LP
10825 Telge Road
Houston, TX 77095

Work Order: **HS16080566**

Laboratory Results for: **Outfall 002**

Dear Steve,

ALS Environmental received 6 sample(s) on Aug 12, 2016 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Erica Padilla".

Generated By: Jumokey.Lawal
Erica Padilla
PM

ALS Group USA, Corp

Date: 18-Aug-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Work Order: HS16080566

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS16080566-01	Outfall 002 - COD	Aqueous		12-Aug-2016 09:27	12-Aug-2016 10:15	☐
HS16080566-02	Outfall 002 - BOD	Aqueous		12-Aug-2016 09:30	12-Aug-2016 10:15	☐
HS16080566-03	Outfall 002 - OG	Aqueous		12-Aug-2016 09:28	12-Aug-2016 10:15	☐
HS16080566-04	Outfall 002 - TSS	Aqueous		12-Aug-2016 09:32	12-Aug-2016 10:15	☐
HS16080566-05	Outfall 002 - E.Coli	Aqueous		12-Aug-2016 09:25	12-Aug-2016 10:15	☐
HS16080566-06	Outfall 002 - Hexavalent Cr	Aqueous		12-Aug-2016 09:26	12-Aug-2016 10:15	☐

ALS Group USA, Corp

Date: 18-Aug-16

Client: Wyman-Gordon Forgings, LP

CASE NARRATIVE

Project: Outfall 002

Work Order: HS16080566

Work Order Comments

- The analysis for E.coli was subcontracted to Envirodyne Laboratories, Inc. in Houston, TX. Final report attached.

WetChemistry by Method E410.4

Batch ID: R279884

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E1664A

Batch ID: R280023

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method M2540D

Batch ID: R279951

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW7196

Batch ID: R279691

Sample ID: Outfall 002 - Hexavalent Cr (HS16080566-06)

- Sample Filtered

WetChemistry by Method SM5210 B

Batch ID: 107134

Sample ID: MBLK-107134

- The calculated seed correction factor was outside of the acceptance limits.

ALS Group USA, Corp

Date: 18-Aug-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - COD
Collection Date: 12-Aug-2016 09:27

ANALYTICAL REPORT

WorkOrder: HS16080566
Lab ID: HS16080566-01
Matrix: Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
CHEMICAL OXYGEN DEMAND BY E410.4		Method: E410.4				Analyst: KMU
Chemical Oxygen Demand	235		15.0	mg/L	1	16-Aug-2016 16:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 18-Aug-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - BOD
Collection Date: 12-Aug-2016 09:30

ANALYTICAL REPORT

WorkOrder: HS16080566
Lab ID: HS16080566-02
Matrix: Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BOD		Method: SM5210 B				
Biochemical Oxygen Demand	39.7		2.00	mg/L	1	17-Aug-2016 15:17

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 18-Aug-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - OG
Collection Date: 12-Aug-2016 09:28

ANALYTICAL REPORT

WorkOrder: HS16080566
Lab ID: HS16080566-03
Matrix: Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
OIL & GREASE (HEM) BY E1664A		Method: E1664A				Analyst: KAH
Oil and Grease	ND		2.00	mg/L	1	18-Aug-2016 11:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 18-Aug-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - TSS
Collection Date: 12-Aug-2016 09:32

ANALYTICAL REPORT

WorkOrder:HS16080566

Lab ID:HS16080566-04

Matrix:Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL SUSPENDED SOLIDS BY SM 2540D		Method:M2540D				Analyst: KAH
Suspended Solids (Residue, Non -Filterable)	30.0		2.00	mg/L	1	17-Aug-2016 11:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 18-Aug-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - E.Coli
Collection Date: 12-Aug-2016 09:25

ANALYTICAL REPORT

WorkOrder:HS16080566
Lab ID:HS16080566-05
Matrix:Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - E. COLI		Method:NA				Analyst: EDL
Subcontract Analysis	See Attached				1	16-Aug-2016 07:22

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 18-Aug-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - Hexavalent Cr
Collection Date: 12-Aug-2016 09:26

ANALYTICAL REPORT

WorkOrder:HS16080566
Lab ID:HS16080566-06
Matrix:Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
HEXAVALENT CHROMIUM BY SW7196A		Method:SW7196				Analyst: JHD
Chromium, Hexavalent	ND		0.0100	mg/L	1	12-Aug-2016 10:37

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 18-Aug-16

WEIGHT LOG

Client: Wyman-Gordon Forgings, LP

Project: Outfall 002

WorkOrder: HS16080566

Batch ID: 107134

Method: BOD

Prep: BOD_PR 5210B

SampleID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS16080566-02	1	300	300 (mL)	1

ALS Group USA, Corp

Date: 18-Aug-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
WorkOrder: HS16080566

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 107134	Test Name : BOD				Matrix: Aqueous	
HS16080566-02	Outfall 002 - BOD	12 Aug 2016 09:30		12 Aug 2016 14:00	17 Aug 2016 15:17	1
Batch ID R279691	Test Name : HEXAVALENT CHROMIUM BY SW7196A				Matrix: Aqueous	
HS16080566-06	Outfall 002 - Hexavalent Cr	12 Aug 2016 09:26			12 Aug 2016 10:37	1
Batch ID R279815	Test Name : SUBCONTRACT ANALYSIS - E. COLI				Matrix: Aqueous	
HS16080566-05	Outfall 002 - E.Coli	12 Aug 2016 09:25			16 Aug 2016 07:22	1
Batch ID R279884	Test Name : CHEMICAL OXYGEN DEMAND BY E410.4				Matrix: Aqueous	
HS16080566-01	Outfall 002 - COD	12 Aug 2016 09:27			16 Aug 2016 16:30	1
Batch ID R279951	Test Name : TOTAL SUSPENDED SOLIDS BY SM 2540D				Matrix: Aqueous	
HS16080566-04	Outfall 002 - TSS	12 Aug 2016 09:32			17 Aug 2016 11:25	1
Batch ID R280023	Test Name : OIL & GREASE (HEM) BY E1664A				Matrix: Aqueous	
HS16080566-03	Outfall 002 - OG	12 Aug 2016 09:28			18 Aug 2016 11:40	1

ALS Group USA, Corp

Date: 18-Aug-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16080566

QC BATCH REPORT

Batch ID: 107134		Instrument: ManTech01		Method: SM5210 B	
MBLK	Sample ID: MBLK-107134	Units: mg/L		Analysis Date: 17-Aug-2016 15:17	
Client ID:	Run ID: ManTech01_279981	SeqNo: 3799167		PrepDate: 12-Aug-2016	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC Control Limit RPD Ref Value %RPD Limit Qual
Biochemical Oxygen Demand	ND	2.00			
LCS	Sample ID: LCS-107134	Units: mg/L		Analysis Date: 17-Aug-2016 15:17	
Client ID:	Run ID: ManTech01_279981	SeqNo: 3799166		PrepDate: 12-Aug-2016	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC Control Limit RPD Ref Value %RPD Limit Qual
Biochemical Oxygen Demand	188.9	2.00	198	0	95.4 85 - 115
DUP	Sample ID: HS16080582-01DUP	Units: mg/L		Analysis Date: 17-Aug-2016 15:17	
Client ID:	Run ID: ManTech01_279981	SeqNo: 3799165		PrepDate: 12-Aug-2016	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC Control Limit RPD Ref Value %RPD Limit Qual
Biochemical Oxygen Demand	ND	2.00			1.81 0 20
The following samples were analyzed in this batch: HS16080566-02					

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 18-Aug-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16080566

QC BATCH REPORT

Batch ID: R279691 Instrument: UV-2450 Method: SW7196

MBLK	Sample ID: MBLK-279691	Units: mg/L	Analysis Date: 12-Aug-2016 10:37							
Client ID:	Run ID: UV-2450_279691	SeqNo: 3793828	PrepDate:	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Chromium, Hexavalent ND 0.0100

LCS	Sample ID: LCS-279691	Units: mg/L	Analysis Date: 12-Aug-2016 10:37						
Client ID:	Run ID: UV-2450_279691	SeqNo: 3793829	PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual

Chromium, Hexavalent 0.251 0.0100 0.25 0 100 80 - 120

MS	Sample ID: HS16080554-06MS		Units: mg/L		Analysis Date: 12-Aug-2016 10:37				
Client ID:	Run ID: UV-2450_279691		SeqNo: 3793830		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual

Chromium, Hexavalent 0.258 0.0100 0.25 -0.002 104 75 - 125

MSD	Sample ID: HS16080554-06MSD			Units: mg/L		Analysis Date: 12-Aug-2016 10:37			
Client ID:	Run ID: UV-2450_279691			SeqNo: 3793831		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual

Chromium, Hexavalent 0.254 0.0100 0.25 -0.002 102 75 - 125 0.258 1.56 20

The following samples were analyzed in this batch: HS16080566-06

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 18-Aug-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16080566

QC BATCH REPORT

Batch ID: R279884		Instrument: WetChem_HS		Method: E410.4	
MBLK	Sample ID: MBLK-279884	Units: mg/L		Analysis Date: 16-Aug-2016 16:30	
Client ID:	Run ID: WetChem_HS_279884	SeqNo: 3797617		PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC Control Limit RPD Ref Value %RPD Limit Qual
Chemical Oxygen Demand	ND	15.0			
LCS	Sample ID: LCS-279884	Units: mg/L		Analysis Date: 16-Aug-2016 16:30	
Client ID:	Run ID: WetChem_HS_279884	SeqNo: 3797618		PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC Control Limit RPD Ref Value %RPD Limit Qual
Chemical Oxygen Demand	905	15.0	1000	0	90.5 85 - 115
MS	Sample ID: HS16080650-02MS	Units: mg/L		Analysis Date: 16-Aug-2016 16:30	
Client ID:	Run ID: WetChem_HS_279884	SeqNo: 3797620		PrepDate:	DF: 5
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC Control Limit RPD Ref Value %RPD Limit Qual
Chemical Oxygen Demand	3555	75.0	2500	1230	93.0 80 - 120
DUP	Sample ID: HS16080650-02DUP	Units: mg/L		Analysis Date: 16-Aug-2016 16:30	
Client ID:	Run ID: WetChem_HS_279884	SeqNo: 3797619		PrepDate:	DF: 5
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC Control Limit RPD Ref Value %RPD Limit Qual
Chemical Oxygen Demand	1240	75.0			1230 0.81 20
The following samples were analyzed in this batch: HS16080566-01					

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 18-Aug-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16080566

QC BATCH REPORT

Batch ID: R279951 Instrument: Balance1 Method: M2540D

MBLK	Sample ID: WBLKW1-081716			Units: mg/L	Analysis Date: 17-Aug-2016 11:25				
Client ID:	Run ID: Balance1_279951			SeqNo: 3798863	PrepDate:			DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Suspended Solids (Residue, Non-Filterable) ND 2.00

[Filterable]									
LCS		Sample ID: WLCSW1-081716		Units: mg/L		Analysis Date: 17-Aug-2016 11:25			
Client ID:		Run ID: Balance1_279951		SeqNo: 3798864		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Suspended Solids (Residue, Non-Filterable) 102 2.00 100 0 102 78 - 120

Filterable										
DUP	Sample ID: HS16080715-09DUP			Units: mg/L		Analysis Date: 17-Aug-2016 11:25				
Client ID:	Run ID: Balance1_279951			SeqNo: 3798858		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Suspended Solids (Residue, Non-Filterable) 152.3 2.00 147.7 3.08 5

Filterable										
DUP	Sample ID: HS16080566-04DUP			Units: mg/L		Analysis Date: 17-Aug-2016 11:25				
Client ID:	Outfall 002 - TSS		Run ID: Balance1_279951		SeqNo: 3798851		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Suspended Solids (Residue, Non-Filterable) 29 2.00 30 3.39 5

The following samples were analyzed in this batch: HS16080566-04

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 18-Aug-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16080566

QC BATCH REPORT

Batch ID: R280023 Instrument: Balance1 Method: E1664A

MBLK Sample ID: WBLKW-081816 Units: mg/L Analysis Date: 18-Aug-2016 11:40
 Client ID: Run ID: Balance1_280023 SeqNo: 3800102 PrepDate: DF: 1
 Analyte Result PQL SPK Val SPK Ref Value %REC Control Limit RPD Ref Value %RPD Limit Qual

Oil and Grease ND 2.00

LCS Sample ID: WLC SW-081816 Units: mg/L Analysis Date: 18-Aug-2016 11:40
 Client ID: Run ID: Balance1_280023 SeqNo: 3800104 PrepDate: DF: 1
 Analyte Result PQL SPK Val SPK Ref Value %REC Control Limit RPD Ref Value %RPD Limit Qual

Oil and Grease 36.7 2.00 40 0 91.8 78 - 114

LCSD Sample ID: WLCSDW-081816 Units: mg/L Analysis Date: 18-Aug-2016 11:40
 Client ID: Run ID: Balance1_280023 SeqNo: 3800103 PrepDate: DF: 1
 Analyte Result PQL SPK Val SPK Ref Value %REC Control Limit RPD Ref Value %RPD Limit Qual

Oil and Grease 37.4 2.00 40 0 93.5 78 - 114 36.7 1.89 18

MS Sample ID: HS16080587-01MS Units: mg/L Analysis Date: 18-Aug-2016 11:40
 Client ID: Run ID: Balance1_280023 SeqNo: 3800081 PrepDate: DF: 1
 Analyte Result PQL SPK Val SPK Ref Value %REC Control Limit RPD Ref Value %RPD Limit Qual

Oil and Grease 39.66 2.00 40 0 99.2 78 - 114

The following samples were analyzed in this batch: HS16080566-03

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 18-Aug-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
WorkOrder: HS16080566

**QUALIFIERS,
ACRONYMS, UNITS**

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: 18-Aug-16

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	16-022-1	27-Mar-2017
Illinois	003872	09-May-2017
Kentucky	96 2016-2017	30-Apr-2017
Louisiana	03087 2016/2017	30-Jun-2017
North Carolina	624 - 2016	31-Dec-2016
North Dakota	R193 2016-2017	30-Apr-2017
Oklahoma	2015-047	31-Aug-2016
Texas	TX104704231-16-17	30-Apr-2017

ALS Group USA, Corp

Date: 18-Aug-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Work Order: HS16080566

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS16080566-01	Outfall 002 - COD	Login	8/12/2016 10:46:03 AM	CGG	13C
HS16080566-02	Outfall 002 - BOD	Login	8/12/2016 10:46:03 AM	CGG	13C
HS16080566-03	Outfall 002 - OG	Login	8/12/2016 10:46:03 AM	CGG	1E
HS16080566-04	Outfall 002 - TSS	Login	8/12/2016 10:46:03 AM	CGG	13C
HS16080566-05	Outfall 002 - E.Coli	Login	8/12/2016 10:46:03 AM	CGG	Sub
HS16080566-06	Outfall 002 - Hexavalent Cr	Login	8/12/2016 10:46:03 AM	CGG	13C

ALS Group USA, Corp

Date: 18-Aug-16

Sample Receipt Checklist

Client Name: WYMAN-GORDON-HOU

Date/Time Received: 12-Aug-2016 10:15

Work Order: HS16080566

Received by: Jared R. Makan

Checklist completed by: Corey Grandits
eSignature12-Aug-2016
DateReviewed by: Erica Padilla
eSignature12-Aug-2016
DateMatrices: WaterCarrier name: Client

Shipping container/cooler in good condition?

Yes ☒No ☐Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐No ☐Not Present ☒

Custody seals intact on sample bottles?

Yes ☐No ☐Not Present ☒

Chain of custody present?

Yes ☒No ☐

Chain of custody signed when relinquished and received?

Yes ☒No ☐

Chain of custody agrees with sample labels?

Yes ☒No ☐

Samples in proper container/bottle?

Yes ☒No ☐

Sample containers intact?

Yes ☒No ☐

TX1005 solids received in hermetically sealed vials?

Yes ☐No ☐N/A ☒

Sufficient sample volume for indicated test?

Yes ☒No ☐

All samples received within holding time?

Yes ☒No ☐

Container/Temp Blank temperature in compliance?

Yes ☒No ☐

Temperature(s)/Thermometer(s):

4.2c/4.9c uc/c

IR#11

Cooler(s)/Kit(s):

23883

Date/Time sample(s) sent to storage:

08/12/2016 18:10

Water - VOA vials have zero headspace?

Yes ☐No ☐No VOA vials submitted ☒

Water - pH acceptable upon receipt?

Yes ☒No ☐N/A ☐

pH adjusted?

Yes ☐No ☒N/A ☐

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



Environmental

Cincinnati, OH
+1 513 733 5336Everett, WA
+1 425 356 2600Fort Collins, CO
+1 970 490 1511Holland, MI
+1 616 399 6070

Chain of Custody Form

Page ____ of ____

COC ID: 14025

ALS Project Manager:

HS16080566

Wyman-Gordon Forgings, LP

Outfall 002



Customer Information		Project Information																		
Purchase Order		Project Name	Outfall 002	A	COD															
Work Order		Project Number		B	BOD															
Company Name	Wyman-Gordon Forgings, LP	Bill To Company	Wyman-Gordon Forgings, LP	C	Oil and Grease															
Send Report To	Aaron Plocek	Invoice Attn	Aaron Plocek	D	TSS															
Address	10825 Telge Road	Address	10825 Telge Road	E	E.Coli *8 Hr Hold Time*															
				F	Hexvalent Chromium *24 Hr Hold Time*															
City/State/Zip	Houston, TX 770955038	City/State/Zip	Houston, TX 770955038	G																
Phone		Phone	(281) 856-9900	H																
Fax		Fax		I																
e-Mail Address	aplocek@wyman.com	e-Mail Address	aplocek@wyman.com	J																

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Outfall -COD	8/12	9:27	Aqueous		1	X										
2	Outfall -BOD		9:30	Aqueous		1		X									
3	Outfall -OG		9:28	Aqueous		2			X								
4	Outfall -TSS		9:32	Aqueous		1				X							
5	Outfall -E.Coli		9:25 AM	Aqueous		2					X						
6	Outfall -Hexavalent Cr		9:26 AM	Aqueous		1						X					
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign <i>Aaron Plocek</i>		Shipment Method <i>Hand Delivery</i>		Required Turnaround Time: (Check Box) ☒ Std 10 WK days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour				Results Due Date:	
Relinquished by: <i>Aaron Plocek</i>	Date: 8/12/2016	Time: 10:15 AM	Received by:	Notes: 10 Day TAT.					
Relinquished by:	Date:	Time:	Received by (Laboratory): <i>JM 08/12/16 10:15</i>	Cooler ID: <i>23889</i>	Cooler Temp. <i>4.2</i>	QC Package: (Check One Box Below)			
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):			☒ Level 2 Std QC	☐ TRRP ChkList		
						☐ Level 3 Std QC/Row de	☐ TRRP Level 4		
						☐ Level 4 SW846/CLP			
						☐ Other/EDD			
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035									

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
 3. The Chain of Custody is a legal document. All information must be accurate.

Page 21 of 27

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Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

16 August 2016

ALS Group USA, Corp.
Bernadette Fini
10450 Stancliff Rd. Suite #210
Houston, TX 77099

ALS

Enclosed are the results of analyses for samples received by the laboratory on 12-Aug-16 13:25. The analytical data provided relates only to the samples as received in this laboratory report.

ELI certifies that all results are NELAP compliant and performed in accordance with the referenced method except as noted in the Case Narrative or as noted with a qualifier. Any reproductions of this laboratory report should be in full and only with the written authorization from the client.

The total number of pages in this report is 5

Thank you for selecting ELI for your analytical needs. If you have any questions regarding this report, please contact us.

Sincerely,

A handwritten signature in blue ink that reads 'Monica Smith'.

Monica Smith
Project Manager



Certificate No: TX104704265



Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16H1903

Reported:
16-Aug-16 10:14

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
HS16080566-05 OUTFALL 002 E-Coli	16H1903-01	Water	12-Aug-16 09:25	12-Aug-16 13:25

Envirodyne Laboratories, Inc.

Monica Smith

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Envirodyne Laboratories, Inc.
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16H1903

Reported:
16-Aug-16 10:14

HS16080566-05 OUTFALL 002 E-Coli
16H1903-01 (Water) Sampled: 12-Aug-16 09:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Analyst	Notes
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Envirodyne Laboratories, Inc.

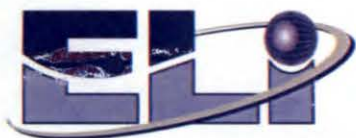
Microbiology

E.coli	10	1	MPN/100 mL	1	B6H1781	12-Aug-16	12-Aug-16 14:55	SM9223 B	LTB	
--------	----	---	------------	---	---------	-----------	-----------------	----------	-----	--

Envirodyne Laboratories, Inc.

Monica Smith

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Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16H1903

Reported:
16-Aug-16 10:14

Microbiology - Quality Control
Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch B6H1781 - Microbiology

Blank (B6H1781-BLK1)

E.coli <1 1 MPN/100 mL

Prepared & Analyzed: 12-Aug-16

Duplicate (B6H1781-DUP1)

E.coli 137 1 MPN/100 mL 107 24.6 0.479

Source: 16H0955-02 Prepared & Analyzed: 12-Aug-16

Envirodyne Laboratories, Inc.

Monica Smith

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Envirodyne Laboratories, Inc
11011 Brooklet Dr., #230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16H1903

Reported:
16-Aug-16 10:14

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference
CLT Client Representative

Envirodyne Laboratories, Inc.

Monica Smith

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

16H1903



Environmental

CHAIN OF CUSTODY RECORD

Page 1 of 1

Date 12 Aug 2016

COC ID 5251

Due date 22 AUG 16

Subcontractor

Envirodyne Laboratories, Inc.
11011 Brooklet, Ste 230
Houston, TX 77099

Phone
2815687880
Fax
2815688004

Customer Information		Project Information	
PC	HS16080566	Project Name	HS16080566

Company Name	ALS Houston	Company Name	ALS Houston
		Inv Attn	Accounts Payable
Address	10450 Stancliff Rd, Ste 210	Address	10450 Stancliff Rd, Ste 210
	Houston, TX 77099		Houston, TX 77099
Phone	281-530-5656	Phone	281-530-5656
Email1	erica.padilla@alsglobal.com	Email2	jumoke.lawal@alsglobal.com

Lab ID	Client Samp ID	Collection Date	Matrix	Analysis Requested
HS16080566-05	Outfall 002 - E.Coli	12-Aug-16 09:25 am	Aqueous	SUB_E. Coli

Comments Please analyze for the analysis listed above. Send report to the emails shown above.

Released by:	Date/Time:	Received by:	Date/Time:	Cooler IDs:	Report/QC Level
<i>[Signature]</i>	8-12-16 1325	<i>[Signature]</i>	1325	1-1/0.7	STD
		<i>[Signature]</i>	8/12/16	IR#3	



10450 Stancliff Rd. Suite 210
Houston, TX 77099
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www.alsglobal.com

November 21, 2016

Aaron Plocek
Wyman-Gordon Forgings, LP
10825 Telge Road
Houston, TX 77095

Work Order: **HS16110564**

Laboratory Results for: **Outfall 002**

Dear Aaron,

ALS Environmental received 6 sample(s) on Nov 11, 2016 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Erica Padilla".

Generated By: Jumokey.Lawal
Erica Padilla
PM

ALS Group USA, Corp

Date: 21-Nov-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Work Order: HS16110564

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS16110564-01	Outfall 002 - COD	Aqueous		11-Nov-2016 11:02	11-Nov-2016 12:00	☐
HS16110564-02	Outfall 002 - BOD	Aqueous		11-Nov-2016 11:03	11-Nov-2016 12:00	☐
HS16110564-03	Outfall 002 - OG	Aqueous		11-Nov-2016 11:01	11-Nov-2016 12:00	☐
HS16110564-04	Outfall 002 - TSS	Aqueous		11-Nov-2016 10:57	11-Nov-2016 12:00	☐
HS16110564-05	Outfall 002 - E.Coli	Aqueous		11-Nov-2016 10:59	11-Nov-2016 12:00	☐
HS16110564-06	Outfall 002 - Hexavalent Cr	Aqueous		11-Nov-2016 10:58	11-Nov-2016 12:00	☐

ALS Group USA, Corp

Date: 21-Nov-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Work Order: HS16110564

CASE NARRATIVE**Work Order Comments**

- The analysis for E.coli was subcontracted to Envirodyne Laboratories, Inc. in Houston, TX. Final report attached.

WetChemistry by Method E410.4**Batch ID: R285113**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW7196**Batch ID: R285164**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method M2540D**Batch ID: R285108**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E1664A**Batch ID: R285102**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SM5210 B**Batch ID: 109830**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Group USA, Corp

Date: 21-Nov-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - COD
Collection Date: 11-Nov-2016 11:02

ANALYTICAL REPORT

WorkOrder: HS16110564
Lab ID: HS16110564-01
Matrix: Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
CHEMICAL OXYGEN DEMAND BY E410.4		Method: E410.4		Analyst: KMU		
Chemical Oxygen Demand	186		30.0	mg/L	2	18-Nov-2016 15:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 21-Nov-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - BOD
Collection Date: 11-Nov-2016 11:03

ANALYTICAL REPORT

WorkOrder: HS16110564
Lab ID: HS16110564-02
Matrix: Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BOD		Method: SM5210 B				
Biochemical Oxygen Demand	46.0		2.00	mg/L	1	16-Nov-2016 15:13

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 21-Nov-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - OG
Collection Date: 11-Nov-2016 11:01

ANALYTICAL REPORT

WorkOrder: HS16110564
Lab ID: HS16110564-03
Matrix: Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
OIL & GREASE (HEM) BY E1664A		Method: E1664A		Analyst: KAH		
Oil and Grease	2.39		2.00	mg/L	1	18-Nov-2016 13:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 21-Nov-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - TSS
Collection Date: 11-Nov-2016 10:57

ANALYTICAL REPORT

WorkOrder:HS16110564
Lab ID:HS16110564-04
Matrix:Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL SUSPENDED SOLIDS BY SM 2540D		Method:M2540D				Analyst: KAH
Suspended Solids (Residue, Non -Filterable)	20.5		2.00	mg/L	1	18-Nov-2016 11:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 21-Nov-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - E.Coli
Collection Date: 11-Nov-2016 10:59

ANALYTICAL REPORT

WorkOrder:HS16110564
Lab ID:HS16110564-05
Matrix:Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - E. COLI		Method:NA		Analyst: EDL		
Subcontract Analysis	See Attached				1	18-Nov-2016 10:06

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 21-Nov-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Sample ID: Outfall 002 - Hexavalent Cr
Collection Date: 11-Nov-2016 10:58

ANALYTICAL REPORT

WorkOrder:HS16110564
Lab ID:HS16110564-06
Matrix:Aqueous

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
HEXAVALENT CHROMIUM BY SW7196A		Method:SW7196				Analyst: JHD
Chromium, Hexavalent	ND		0.0100	mg/L	1	11-Nov-2016 17:35

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 21-Nov-16

WEIGHT LOG

Client: Wyman-Gordon Forgings, LP

Project: Outfall 002

WorkOrder: HS16110564

Batch ID: 109830 **Method:** BOD **Prep:** BOD_PR 5210B

SampleID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS16110564-02	1	300	300 (mL)	1

ALS Group USA, Corp

Date: 21-Nov-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
WorkOrder: HS16110564

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 109830	Test Name : BOD				Matrix: Aqueous	
HS16110564-02	Outfall 002 - BOD	11 Nov 2016 11:03		11 Nov 2016 13:00	16 Nov 2016 15:13	1
Batch ID R285051	Test Name : SUBCONTRACT ANALYSIS - E. COLI				Matrix: Aqueous	
HS16110564-05	Outfall 002 - E.Coli	11 Nov 2016 10:59			18 Nov 2016 10:06	1
Batch ID R285102	Test Name : OIL & GREASE (HEM) BY E1664A				Matrix: Aqueous	
HS16110564-03	Outfall 002 - OG	11 Nov 2016 11:01			18 Nov 2016 13:50	1
Batch ID R285108	Test Name : TOTAL SUSPENDED SOLIDS BY SM 2540D				Matrix: Aqueous	
HS16110564-04	Outfall 002 - TSS	11 Nov 2016 10:57			18 Nov 2016 11:30	1
Batch ID R285113	Test Name : CHEMICAL OXYGEN DEMAND BY E410.4				Matrix: Aqueous	
HS16110564-01	Outfall 002 - COD	11 Nov 2016 11:02			18 Nov 2016 15:30	2
Batch ID R285164	Test Name : HEXAVALENT CHROMIUM BY SW7196A				Matrix: Aqueous	
HS16110564-06	Outfall 002 - Hexavalent Cr	11 Nov 2016 10:58			11 Nov 2016 17:35	1

ALS Group USA, Corp

Date: 21-Nov-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16110564

QC BATCH REPORT

Batch ID: 109830 Instrument: ManTech01 Method: SM5210 B

MBLK	Sample ID: MBLK-109830	Units: mg/L			Analysis Date: 16-Nov-2016 15:13					
Client ID:	Run ID: ManTech01_284941	SeqNo: 3895203		PrepDate: 11-Nov-2016		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Biochemical Oxygen Demand ND 2.00

LCS	Sample ID: LCS-109830	Units: mg/L	Analysis Date: 16-Nov-2016 15:13							
Client ID:	Run ID: ManTech01_284941	SeqNo: 3895202	PrepDate: 11-Nov-2016 DF: 1							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Biochemical Oxygen Demand 178.9 2.00 198 0 90.3 85 - 115

DUP	Sample ID: HS16110496-01DUP	Units: mg/L	Analysis Date: 16-Nov-2016 15:13							
Client ID:	Run ID: ManTech01_284941	SeqNo: 3895201	PrepDate: 11-Nov-2016 DF: 1							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Biochemical Oxygen Demand ND 2.00 2.05 0 20

The following samples were analyzed in this batch: HS16110564-02

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 21-Nov-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16110564

QC BATCH REPORT

Batch ID: R285102 Instrument: Balance1 Method: E1664A

MBLK Sample ID: WBLKW-111816 Units: mg/L Analysis Date: 18-Nov-2016 13:50
 Client ID: Run ID: Balance1_285102 SeqNo: 3898767 PrepDate: DF: 1
 Analyte Result PQL SPK Val SPK Ref Value %REC Control Limit RPD Ref Value %RPD RPD Limit Qual

Oil and Grease ND 2.00

LCS Sample ID: WLCSW-111816 Units: mg/L Analysis Date: 18-Nov-2016 13:50
 Client ID: Run ID: Balance1_285102 SeqNo: 3898769 PrepDate: DF: 1
 Analyte Result PQL SPK Val SPK Ref Value %REC Control Limit RPD Ref Value %RPD RPD Limit Qual

Oil and Grease 37.5 2.00 40 0 93.8 78 - 114

LCSD Sample ID: WLCSDW-111816 Units: mg/L Analysis Date: 18-Nov-2016 13:50
 Client ID: Run ID: Balance1_285102 SeqNo: 3898768 PrepDate: DF: 1
 Analyte Result PQL SPK Val SPK Ref Value %REC Control Limit RPD Ref Value %RPD RPD Limit Qual

Oil and Grease 37.1 2.00 40 0 92.8 78 - 114 37.5 1.07 18

MS Sample ID: HS16110628-03MS Units: mg/L Analysis Date: 18-Nov-2016 13:50
 Client ID: Run ID: Balance1_285102 SeqNo: 3898765 PrepDate: DF: 1
 Analyte Result PQL SPK Val SPK Ref Value %REC Control Limit RPD Ref Value %RPD RPD Limit Qual

Oil and Grease 39.21 2.00 40 0.2247 97.5 78 - 114

The following samples were analyzed in this batch: HS16110564-03

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 21-Nov-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16110564

QC BATCH REPORT

Batch ID: R285108 Instrument: Balance1 Method: M2540D

MBLK	Sample ID: WBLKW1-111816	Units: mg/L	Analysis Date: 18-Nov-2016 11:30
Client ID:	Run ID: Balance1_285108	SeqNo: 3898863	PrepDate: DF: 1
Analyte	Result	PQL	SPK Val

Suspended Solids (Residue, Non-Filterable) ND 2.00

LCS	Sample ID: WLCSW1-111816	Units: mg/L	Analysis Date: 18-Nov-2016 11:30
Client ID:	Run ID: Balance1_285108	SeqNo: 3898864	PrepDate: DF: 1
Analyte	Result	PQL	SPK Val

Suspended Solids (Residue, Non-Filterable) 91 2.00 100 0 91.0 78 - 120

DUP	Sample ID: HS16110680-01DUP	Units: mg/L	Analysis Date: 18-Nov-2016 11:30
Client ID:	Run ID: Balance1_285108	SeqNo: 3898857	PrepDate: DF: 1
Analyte	Result	PQL	SPK Val

Suspended Solids (Residue, Non-Filterable) 23.6 2.00 24.8 4.96 5

DUP	Sample ID: HS16110628-01DUP	Units: mg/L	Analysis Date: 18-Nov-2016 11:30
Client ID:	Run ID: Balance1_285108	SeqNo: 3898853	PrepDate: DF: 1
Analyte	Result	PQL	SPK Val

Suspended Solids (Residue, Non-Filterable) 82.67 2.00 83.56 1.07 5

The following samples were analyzed in this batch: HS16110564-04

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 21-Nov-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16110564

QC BATCH REPORT

Batch ID: R285113 Instrument: WetChem_HS Method: E410.4

MBLK Sample ID: MBLK-285113 Units: mg/L Analysis Date: 18-Nov-2016 15:30
 Client ID: Run ID: WetChem_HS_285113 SeqNo: 3898933 PrepDate: DF: 1
 Analyte Result PQL SPK Val SPK Ref Value %REC Control Limit RPD Ref Value %RPD RPD Limit Qual

Chemical Oxygen Demand ND 15.0

LCS Sample ID: LCS-285113 Units: mg/L Analysis Date: 18-Nov-2016 15:30
 Client ID: Run ID: WetChem_HS_285113 SeqNo: 3898934 PrepDate: DF: 1
 Analyte Result PQL SPK Val SPK Ref Value %REC Control Limit RPD Ref Value %RPD RPD Limit Qual

Chemical Oxygen Demand 91 15.0 100 0 91.0 85 - 115

MS Sample ID: HS16110817-01MS Units: mg/L Analysis Date: 18-Nov-2016 15:30
 Client ID: Run ID: WetChem_HS_285113 SeqNo: 3898936 PrepDate: DF: 1
 Analyte Result PQL SPK Val SPK Ref Value %REC Control Limit RPD Ref Value %RPD RPD Limit Qual

Chemical Oxygen Demand 131 15.0 50 82 98.0 80 - 120

DUP Sample ID: HS16110817-01DUP Units: mg/L Analysis Date: 18-Nov-2016 15:30
 Client ID: Run ID: WetChem_HS_285113 SeqNo: 3898935 PrepDate: DF: 1
 Analyte Result PQL SPK Val SPK Ref Value %REC Control Limit RPD Ref Value %RPD RPD Limit Qual

Chemical Oxygen Demand 79 15.0 82 3.73 20

The following samples were analyzed in this batch: HS16110564-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 21-Nov-16

Client: Wyman-Gordon Forgings, LP
 Project: Outfall 002
 WorkOrder: HS16110564

QC BATCH REPORT

Batch ID: R285164 Instrument: UV-2450 Method: SW7196

MBLK	Sample ID: MBLK-285164	Units: mg/L	Analysis Date: 11-Nov-2016 17:35							
Client ID:	Run ID: UV-2450_285164	SeqNo: 3899888	PrepDate:		DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent ND 0.0100

LCS	Sample ID: LCS-285164	Units: mg/L	Analysis Date: 11-Nov-2016 17:35							
Client ID:	Run ID: UV-2450_285164	SeqNo: 3899889	PrepDate: DF: 1							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 0.275 0.0100 0.25 0 110 80 - 120

LCSD	Sample ID: LCSD-285164	Units: mg/L	Analysis Date: 11-Nov-2016 17:35						
Client ID:	Run ID: UV-2450_285164	SeqNo: 3899890	PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Chromium, Hexavalent 0.272 0.0100 0.25 0 109 80 - 120 0.275 1.1 20

MS	Sample ID: HS16110561-06MS	Units: mg/L	Analysis Date: 11-Nov-2016 17:35						
Client ID:	Run ID: UV-2450_285164	SeqNo: 3899891	PrepDate: DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Chromium, Hexavalent 0.275 0.0100 0.25 0.003 109 75 - 125

The following samples were analyzed in this batch: HS16110564-06

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp

Date: 21-Nov-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
WorkOrder: HS16110564

**QUALIFIERS,
ACRONYMS, UNITS****Qualifier** **Description**

*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym **Description**

DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported **Description**

mg/L	Milligrams per Liter
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ALS Group USA, Corp

Date: 21-Nov-16

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	16-022-1	27-Mar-2017
California	2919 2016-2018	31-Jul-2018
Illinois	003872	09-May-2017
Kansas	E-10352 2016-2017	31-Jul-2017
Kentucky	96 2016-2017	30-Apr-2017
Louisiana	03087 2016-2017	30-Jun-2017
North Carolina	624 - 2016	31-Dec-2016
North Dakota	R193 2016-2017	30-Apr-2017
Oklahoma	2016-122	31-Aug-2017
Texas	TX104704231-16-17	30-Apr-2017

ALS Group USA, Corp

Date: 21-Nov-16

Client: Wyman-Gordon Forgings, LP
Project: Outfall 002
Work Order: HS16110564

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS16110564-01	Outfall 002 - COD	Login	11/11/2016 2:38:27 PM	JRM	Disposed
HS16110564-02	Outfall 002 - BOD	Login	11/11/2016 2:38:29 PM	JRM	Disposed
HS16110564-03	Outfall 002 - OG	Login	11/11/2016 2:38:32 PM	JRM	1E
HS16110564-04	Outfall 002 - TSS	Login	11/11/2016 2:38:35 PM	JRM	Disposed
HS16110564-05	Outfall 002 - E.Coli	Login	11/11/2016 2:38:39 PM	JRM	Sub
HS16110564-06	Outfall 002 - Hexavalent Cr	Login	11/11/2016 2:38:41 PM	JRM	Disposed

ALS Group USA, Corp

Date: 21-Nov-16

Sample Receipt Checklist

Client Name: WYMAN-GORDON-HOU

Date/Time Received: 11-Nov-2016 12:00

Work Order: HS16110564

Received by: CL

Checklist completed by: Jared R. Makan 11-Nov-2016
eSignature DateReviewed by: Erica Padilla 14-Nov-2016
eSignature DateMatrices: WaterCarrier name: Client

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☒	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
TX1005 solids received in hermetically sealed vials?	Yes ☐	No ☐	N/A ☒
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	

Temperature(s)/Thermometer(s):

0.8c/1.1c UC/C

IR11

Cooler(s)/Kit(s):

42551

Date/Time sample(s) sent to storage:

11/11/2016 14:45

Water - VOA vials have zero headspace?

Yes ☐ No ☐ No VOA vials submitted ☒

Water - pH acceptable upon receipt?

Yes ☒ No ☐ N/A ☐

pH adjusted?

Yes ☐ No ☐ N/A ☒

pH adjusted by:

Login Notes: Sample ID differs for all samples: COC = Outfall 001, Sample container and COC Project Name = Outfall 002. Logged in as Outfall 002.

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



Environmental

Cincinnati, OH
+1 513 733 5336Everett, WA
+1 425 356 2600Fort Collins, CO
+1 970 490 1511Holland, MI
+1 616 399 6070

Chain of Custody Form

Page ____ of ____

COC ID: 26745

Houston, TX
+1 281 530 5656Middletown, PA
+1 717 944 5541Spring City, PA
+1 610 948 4903Salt Lake City, UT
+1 801 266 7700South Charleston, WV
+1 304 356 3168York, PA
+1 717 505 5280

ALS Project Manager:

ALS Work Order #:

Customer Information		Project Information		Parameter/Method Request for Analysis												
Purchase Order		Project Name	Outfall 002	A	COD											
Work Order		Project Number		B	BOD											
Company Name	Wyman Gordon Forgings, Inc.	Bill To Company	Wyman Gordon	C	Oil & Grease											
Send Report To	Aaron Plouch	Invoice Attn	Aaron Plouch	D	TSS											
Address	10825 Teye Rd	Address	10825 Teye Rd	E	E. Coli											
City/State/Zip	Houston, TX 77095	City/State/Zip	Houston, TX 77095	F	Hexavalent Chromium											
Phone		Phone		G												
Fax		Fax		H												
e-Mail Address	aplouch@wyman.com	e-Mail Address	aplouch@wyman.com	I												
				J												

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H
1	Outfall 001 - COD	11/11/16	11:02 AM			1	X							
2	- BOD		11:03 AM			1		X						
3	- OG		11:01 AM			2			X					
4	- TSS		10:57 AM			1				X				
5	- E. Coli		10:59 AM			2					X			
6	- Hex. Cr		10:58 AM			1						X		
7														
8														
9														
10														

Sampler(s) Please Print & Sign Aaron Plouch		Shipment Method Hand Delivery		Required Turnaround Time: (Check Box) ☐ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour		Results Due Date:	
Relinquished by: Aaron Plouch	Date: 11/11/2016	Time: 1:12p	Received by:	Notes:			
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID 42531	Cooler Temp 0.8	QC Package: (Check One Box Below)	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	11-11-16	11:12	☐ Level II Std QC ☐ TRRP Checklist ☐ Level III Std QC/Raw Data ☐ TRRP Level IV ☐ Level IV SW846/CLP ☐ Other	
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035							


 HS16110564
 Wyman-Gordon Forgings, LP
 Outfall 002

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
 3. The Chain of Custody is a legal document. All information must be completed accurately.

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www.envirodyne.com

17 November 2016

ALS Group USA, Corp.
Bernadette Fini
10450 Stancliff Rd. Suite #210
Houston, TX 77099

ALS

Enclosed are the results of analyses for samples received by the laboratory on 11-Nov-16 15:06. The analytical data provided relates only to the samples as received in this laboratory report.

ELI certifies that all results are NELAP compliant and performed in accordance with the referenced method except as noted in the Case Narrative or as noted with a qualifier. Any reproductions of this laboratory report should be in full and only with the written authorization from the client.

The total number of pages in this report is 5

Thank you for selecting ELI for your analytical needs. If you have any questions regarding this report, please contact us.

Sincerely,

A handwritten signature in cursive script that reads 'Monica Smith'.

Monica Smith
Project Manager



Certificate No: TX104704265



Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16K1966

Reported:
17-Nov-16 22:15

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
HS 16110564-05 Outfall 002- E Coli	16K1966-01	Water	11-Nov-16 10:59	11-Nov-16 15:06

Envirodyne Laboratories, Inc.

Monica Smith

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Envirodyne Laboratories, Inc
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Houston, TX 77099
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www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16K1966

Reported:
17-Nov-16 22:15

HS 16110564-05 Outfall 002- E Coli
16K1966-01 (Water) Sampled: 11-Nov-16 10:59

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Analyst	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	---------	-------

Envirodyne Laboratories, Inc.

Microbiology

E.coli	53	1	MPN/100 mL	1	B6K1798	11-Nov-16	11-Nov-16 14:35	SM9223 B	VLM	
--------	----	---	------------	---	---------	-----------	-----------------	----------	-----	--

Envirodyne Laboratories, Inc.

Monica Smith

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www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16K1966

Reported:
17-Nov-16 22:15

Microbiology - Quality Control
Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch B6K1798 - Microbiology

Blank (B6K1798-BLK1)

E.coli <1 1 MPN/100 mL

Prepared & Analyzed: 11-Nov-16

Duplicate (B6K1798-DUP1)

E.coli <2 2 MPN/100 mL

Source: 16K1087-02

Prepared & Analyzed: 11-Nov-16

<2 0 0.6095

Envirodyne Laboratories, Inc.

Monica Smith

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Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client: ALS Group USA, Corp.
Project: ALS
Work Order: 16K1966

Reported:
17-Nov-16 22:15

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference
CLT Client Representative

Envirodyne Laboratories, Inc.

Monica Smith

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

16K1966



Environmental

CHAIN OF CUSTODY RECORD

Page 1 of 1

Date 11 Nov 2016

COC ID 5727

Due date 21 NOV 16

Subcontractor

Envirodyne Laboratories, Inc.	Phone
11011 Brooklet, Ste 230	2815687880
Houston, TX 77099	Fax
	2815688004

Customer Information		Project Information	
PO	HS16110564	Project Name	HS16110564
Company Name	ALS Houston	Company Name	ALS Houston
		Inv Attn	Accounts Payable
Address	10450 Stancliff Rd, Ste 210	Address	10450 Stancliff Rd, Ste 210
	Houston, TX 77099		Houston, TX 77099
Phone	281-530-5656	Phone	281-530-5656
Email1	erica.padilla@alsglobal.com	Email2	jumoke.lawal@alsglobal.com

Lab ID	Client Samp ID	Collection Date	Matrix	Analysis Requested
HS16110564-05	Outfall 002 - E.Coli	11-Nov-16 10:59 am	Aqueous	SUB_E. Coli

Comments Please analyze for the analysis listed above. Send report to the emails shown above.

Relinquished by:	Date/Time:	Received by:	Date/Time:	Cooler IDs:	Report/QC Level
J. MAKAN	11/11/16 15:06	M. Day	11/11/16 15:00	0.9/0.2 1R#3	STD

Appendix 4

Whole Effluent Toxicity (WET) Testing Laboratory Results



Bio-Aquatic Testing, Inc.



TCEQ TNI Accredited

Wyman-Gordon Forgings, Inc.
Cypress Plant
OUTFALL 002

Client Address:
10825 TELGE ROAD
HOUSTON, TX 77095

24 Hr Acute Biomonitoring Report

65974

Pimephales promelas

June 06, 2017

Approved by: Joshua Reed

Bio-Aquatic Testing, Inc. ♦ 2501 Mayes Rd. Ste. 100 ♦ Carrollton, Texas ♦ 75006

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SURVIVAL TEST SUMMARY	4
STATISTICAL & CHEMICAL ANALYSIS	Appendix A
REFERENCE TOXICANTS	Appendix B
LITERATURE REFERENCES	Appendix C
CHAIN-OF-CUSTODY SHEETS	Appendix D
REGULATORY AGENCY TABLES	Appendix E

Unless otherwise noted in the body of the report, all data reported in this document are in compliance with most current TNI standards and apply only to the samples referenced within. This report document may not be edited or reproduced in part or in full by any other entity, unless Bio-Aquatic Testing, Inc. issues written approval.

***HAND-WRITTEN RAW DATA TABLES ARE AVAILABLE UPON REQUEST**

BIO-AQUATIC TESTING, INC.

2501 Mayes Road, Suite 100

Carrollton, Texas 75006

Tel: (972) 242-7750

Fax: (972) 242-7749

TOXICITY TEST REPORT - 24 Hr Acute

Client: Wyman-Gordon Forgings, Inc.

Facility: Cypress Plant

Permit No. WQ0001402000

Sample: 002

Laboratory Number: 65974

Date: June 06, 2017

Pimephales promelas failed survival testing requirements.

SAMPLE COLLECTION:

A grab effluent sample from Wyman-Gordon Forgings, Inc., Cypress Plant, was transported to Bio-Aquatic Testing on June 06, 2017. The effluent sample was collected from Outfall 002 by facility personnel.

The effluent sample was analyzed for total residual chlorine using the Hanna Ion Specific Meter #711 and contained <0.10 mg/L. Effluent and laboratory dilution water pH, temperature, salinity, and dissolved oxygen data were collected daily.

TEST PROCEDURES:*Pimephales promelas***EPA METHOD: 2000**

The 24 Hr Acute *Pimephales promelas* test was initiated at 15:00 hours on June 06, 2017. Replicates were prepared using 100% effluent. A control solution of moderately hard synthetic water was also prepared. The test was set up with 450mL plastic cups containing 250mL of test solution as test chambers. Each concentration consisted of five replicate chambers containing eight organisms each. Test organisms were laboratory cultured *P. promelas* one to fourteen days old, and all larvae used in each test are hatched within 24 hours of each other. The test proceeded for 24 hours, after which, data was collected. A control of five replicate cups of eight organisms each in synthetic water was conducted concurrently with the test. There was 100% survival in the control. Data on surviving organisms and water quality were collected. The test ended at 14:30 hours on June 07, 2017.

SURVIVAL:*Pimephales promelas*

The *Pimephales promelas* survival data demonstrated <50% in the 100% effluent as compared to the control.

LOEC: 100% Effluent**NOEC: 0% Effluent**

BIO-AQUATIC TESTING, INC.

TOXICITY TEST

24 Hr Acute*Pimephales promelas*

Lab ID: 65974

Client: Wyman-Gordon Forgings, Inc. Cypress Plant

Test Temperature (oC): 25 ± 1

Permit Number: TPDES

WQ0001402000

Photo Period: 16 hours light
8 hours dark

Sample Type: Grab

Outfall Name: 002

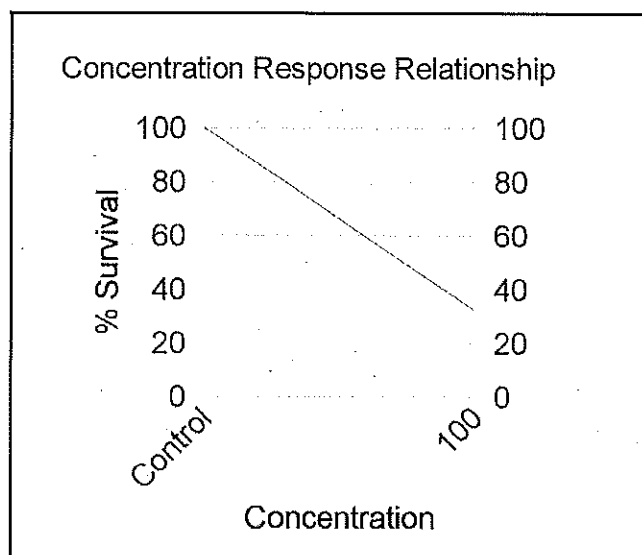
Begin Date: 6/6/2017

Receiving Water Name: N/A

End Date: 6/7/2017

Test Start Time: 15:00 Test End Time: 14:30

Effluent Concentration %	SURVIVAL										Avg% Surv.
	Number Of Alive Per Replicate										
	6/6					6/7					
	A	B	C	D	E	A	B	C	D	E	
Control	8	8	8	8	8	8	8	8	8	8	100.0%
100	8	8	8	8	8	4	2	0	4	3	32.5%



BIO-AQUATIC TESTING, INC.

2501 Mayes Road, Suite 100
 Carrollton, Texas 75006
 Tel: 972-242-7750
 Fax: 972-242-7749

24 HOUR ACUTE SURVIVAL

Organism: Pimephales promelas 24 Hr Acute

Client: Wyman-Gordon Forgings, Inc. - Cypress Plant

Outfall Name 002

Lab ID: 65974

Sample Type Grab

TEST INSTRUCTIONS:

Net DMR

acute test only w/ chronic

Date Test Started: 6-6-17 Time: 1500 Technician: JF

Date Test Ended: 6-7-17 Time: 1430 Technician: 3

Culture No.: P0-17-150B

Units %	No. Surviving Organisms, 0 Hrs.					No. Surviving Organisms, 24 Hrs.				
Concentration	A	B	C	D	E	A	B	C	D	E
Control	8					8				
100	8					44	26	08	44	35

Test Temperatures

	0Hr	24Hr
	new	old
Control	25.8	26.2
100	25.2	
IR GUN ID #	009	009

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

APPENDIX A

STATISTICS SUMMARY

Both the lethal and sub-lethal endpoints were statistically calculated according to their respective EPA guidelines. The Chronic Freshwater organisms were calculated according to EPA-821-R-02-013, October 2002 Fourth Edition. The Chronic Marine and Estuarine organisms were calculated according to EPA-821-R-02-014, October 2002 Third Edition. The Acute Freshwater and Marine organisms were calculated according to EPA-821-R-02-012, October 2002 Fifth Edition. The fertilization organisms were calculated according to EPA-600-R-95-136 or EPA-600-R-12-022, dependent upon the species. Listed below are the basic principles of these guidelines. If you would like a copy of the raw statistical calculations for your test then please contact us.

The chronic and acute *Pimephales promelas* and *Menidia beryllina* survival data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts (parametric). If the data fails Shapiro Wilks Test or Bartlett's Test then Steels Many One Test (non-parametric) is used. The chronic *Pimephales promelas* and *Menidia beryllina* growth data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Shipiro Wilks Test and Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The chronic *Mysidopsis bahia* survival data is analyzed using Chi-square test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test or Bartlett's Test then Steels Many One Test is used. *Mysidopsis bahia* growth data is analyzed using Chi-square test and Bartlett's Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test and Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The acute *Mysidopsis bahia* survival data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Shipiro Wilks Test or Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The chronic *Ceriodaphnia dubia* survival data are analyzed using the Fisher's Exact Test. The chronic *Ceriodaphnia dubia* reproduction and are analyzed using the Chi-square test and Bartlett Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test and Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The acute *Daphnia pulex* and *Ceriodaphnia dubia* survival data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Shapiro Wilks Test or Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The fertilization data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Shapiro Wilks Test or Bartlett's Test then Steels Many One Test is used. Point estimation or TST methodology may also be used.

65974

Bio-Aquatic Testing, Inc.

FRESH WATER TEST SETUP FORM

Client: Wyman-Gordon Forgings, Inc.Permit WQ0001402000Facility: Cypress PlantLab Number 65974Outfall Name: 002Number of samples 1Dilution Water: Synthetic Lab

Sx #	Rcvd Date	Rcvd Time	Sampling Dates		Sampling Times	
			Begin Date	End Date	Start	End
1	06/06/17	11:00	06/05/17	06/05/17	11:00	11:05

Receiving Water Name: N/ADechlorinate Sample: No**Type of Test(s)**Pimephales promelas 24 Hr AcuteStart Sx # 1 Date: 6/6/2017

Renew Sx # _____ Date: _____

Renew Sx # _____ Date: _____

Renew Sx # _____ Date: _____

Renew Sx # _____ Date: _____

Renew Sx # _____ Date: _____

Renew Sx # _____ Date: _____

Controls: Synthetic

pH Match: _____

Hardness Match: Moderate

Test Start Date: _____ Test End Date: _____

6/6/2017 6/7/2017Pimephales Test Set Up: 5 Reps & 8 Organisms per Rep

Test Set Up: _____

Concentrations: 100 % LF % 100Test Chemistry on these dilutions: 100

Samples received by:

☒ Greyhound	☐ UPS Next Day	☐ Delta Dash	☐ Delta
☐ Pony Express	☐ Client Delivered	☐ Southwest Airlines	☐ DHL
☐ Federal Express	☐ American Airlines	☐ Bio Pick Up	

 Other: _____

BIO-AQUATIC TESTING, INC.

Hardness, Alkalinity, Residual Chlorine, Specific Conductivity, and Salinity Analysis Data

Client: Wyman-Gordon Forgings, Inc.

Lab ID: 65974

Facility: Cypress Plant

Outfall: 002

Dilution Water(s): Synthetic Lab

Test Date: June 6, 2017

** 100 %

Effluent Sample #	Received		** Residual Cl ₂	DeChlor (ml/L)	** Ammonia mg/L	Analyst Initials	Initial Salinity	Adjusted Salinity	Temp. Received
	Date	Time							
1	6/6/17	11:00	<0.10	N/A	<0.25	JR	N/A	N/A	3.6

Chlorine Analysis Method: Hanna Ion Specific Meter #711Dechlorination Reagent: 0.025 N Sodium Thiosulfate

Sample #	Received		Hardness (EDTA) As mg/L CaCO ₃		ALKALINITY TO END POINT pH 4.50 +/- 0.05 as mg/L CaCO ₃		Analyst Initials
	Date	Time	CON	100	CON	100	
1	6/6/17	11:00	160	2	59	106	JR

Date	Lab	Sample #	Values are at Highest Dilution		Values are at 100% Dilution		Analyst	Other
			Specific Conductivity as umhos/cm	Salinity (ppt)	Residual Chlorine as mg Cl ₂ /L	1 ml 0.02N Na ₂ S ₂ O ₃ /L		
6/6	Lab H2O		439	0.3			JF	
6/7	Lab H2O						JF	
6/8	Lab H2O							
6/9	Lab H2O							
6/10	Lab H2O							
6/11	Lab H2O							
6/12	Lab H2O							
6/6	OUTFALL*	1	931	0.5	<0.10	N/A	JF	
6/7	OUTFALL*						JF	
6/8	OUTFALL*							
6/9	OUTFALL*							
6/10	OUTFALL*							
6/11	OUTFALL*							
6/12	OUTFALL*							

*Conductivity is taken on the highest remaining effluent concentration used for test renewal, not necessarily 100%

BIO-AQUATIC TESTING, INC.

pH, Dissolved Oxygen

24 Hr Acute

Pimephales promelas

Client: Wyman-Gordon Forgings, Inc.

Lab ID: 65974

Facility: Cypress Plant

Dilution Water(s): Synthetic Lab

Outfall: 002

Test Begin Date: June 6, 2017

NR indicates that the test is non-renewal.

ANALYST	DATE	TIME	SX#	UNIT	Concentration									
					Control	100								
JF	6/6	Start	1	pH	8.1	8.2								
		25 ± 1		DO (mg/L)	7.9	7.3								
JF	6/7	24 Hr	1	pH	8.1	8.2								
		25 ± 1		DO (mg/L)	7.6	7.5								
	6/8	Renew		pH										
			DO (mg/L)											
	6/8	48 Hr		pH										
		25 ± 1	DO (mg/L)											
	6/9	Renew		pH										
			DO (mg/L)											
	6/10	72 Hr		pH										
		25 ± 1	DO (mg/L)											
	6/10	Renew		pH										
			DO (mg/L)											
	6/11	96 Hr		pH										
		25 ± 1	DO (mg/L)											
	6/11	Renew		pH										
			DO (mg/L)											
	6/12	120 Hr		pH										
		25 ± 1	DO (mg/L)											
	6/12	Renew		pH										
			DO (mg/L)											
	6/13	144 Hr		pH										
		25 ± 1	DO (mg/L)											
	6/13	Renew		pH										
			DO (mg/L)											
	6/13	168 Hr		pH										
		25 ± 1	DO (mg/L)											

Appendix B

Pimephales promelas

BIO-AQUATIC TESTING, INC.

Carrollton, TX

REFERENCE TOXICANTS

Bio-Aquatic Testing conducts reference toxicant testing monthly for organisms cultured in-house. For studies requiring purchased organisms, reference toxicant testing is performed simultaneously. Reference toxicant testing validates data and measures organism consistency. Only reagent grade chemicals are used of the following choices: sodium laurel sulfate (SLS), copper sulfate, copper chloride, potassium chloride, and sodium chloride. Organism responses are tracked with control charts for each reference toxicant/organism combination. The data are examined for sensitivity trends and to determine if results are within EPA described limits.

ACUTE REFERENCE TOXICANT TEST RESULTS

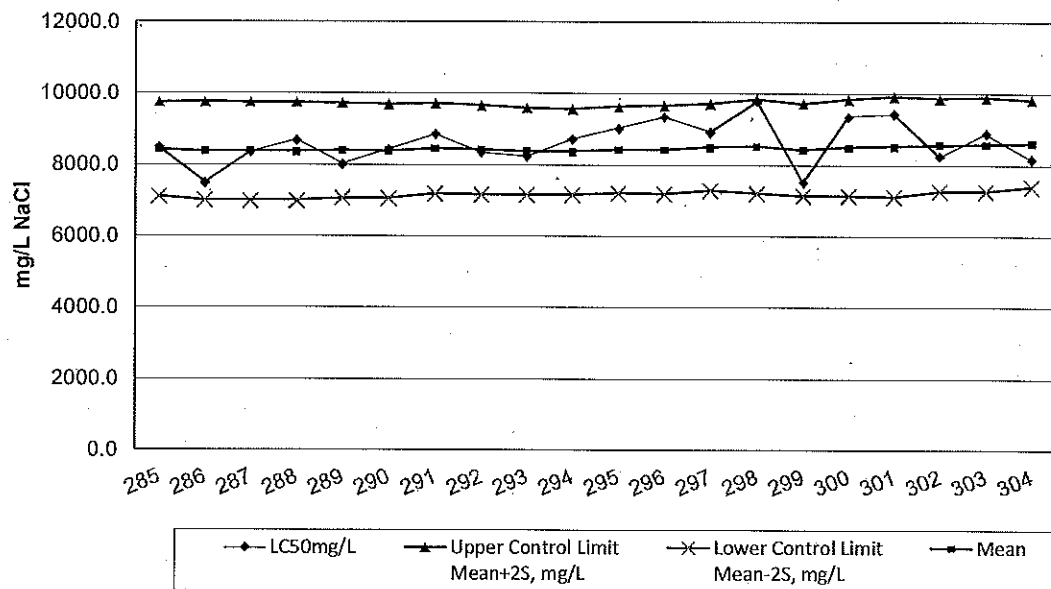
DILUTION WATER:	Standard Synthetic Freshwater
CHEMICAL:	Sodium Chloride
DURATION:	48 Hour Acute
TEST NUMBER:	304
PROJECT NUMBER:	63938
START DATE:	5/30/2017
START TIME:	1:40
TOTAL NUMBER EXPOSED:	40 organisms per concentration
CONCENTRATIONS (mg/L):	CON 2000 4000 6000 8000 10000 12000
NUMBER DEAD PER CONCENTRATION:	0 0 0 0 15 39 40
TEST METHODS:	As listed in EPA-821-R-02-012
STATISTICAL METHODS:	SURVIVAL: Trimmed Spearman-Kärber
LC50:	8168.64 mg/L
95% LOWER CONFIDENCE LIMITS:	7845.49 mg/L
95% UPPER CONFIDENCE LIMITS:	8505.09 mg/L

Bio-Aquatic Testing, Inc.

REFERENCE TOXICANT STATISTICAL RESULTS: LC50 AND CONTROL LIMITS
***Pimephales promelas* EXPOSED TO SODIUM CHLORIDE, 48 HOUR STATIC RENEWAL**

Test Number	Date	Project Number	Toxicant Lot Number	Statistical Method	LC50mg/L	Mean	Twice Standard Deviation 2S	Upper Control Limit Mean+2S, mg/L	Lower Control Limit Mean-2S, mg/L
285	10/27/2015	60056	2014100822	Trimmed Spearman-Kärber	8498.9	8431.8	1320.7	9752.5	7111.1
286	11/24/2015	60057	2014100822	Trimmed Spearman-Kärber	7514.6	8385.8	1383.0	9768.8	7002.9
287	12/29/2015	60058	2015030582	Trimmed Spearman-Kärber	8360.9	8377.4	1381.3	9758.7	6996.1
288	1/26/2016	61960	2015030582	Trimmed Spearman-Kärber	8688.8	8374.4	1378.1	9752.5	6996.2
289	2/24/2016	61961	2015030582	Trimmed Spearman-Kärber	8024.2	8399.0	1331.4	9730.4	7067.6
290	3/30/2016	61962	2015030582	Trimmed Spearman-Kärber	8433.6	8379.7	1316.8	9696.4	7062.9
291	4/28/2016	61963	2015030582	Trimmed Spearman-Kärber	8852.3	8445.7	1269.2	9715.0	7176.5
292	5/31/2016	61964	2015620694	Trimmed Spearman-Kärber	8350.3	8420.9	1255.5	9676.4	7165.4
293	6/28/2016	61965	2015620694	Trimmed Spearman-Kärber	8231.8	8379.5	1220.9	9600.3	7158.6
294	7/28/2016	61966	2015620694	Trimmed Spearman-Kärber	8720.1	8366.0	1198.2	9564.1	7167.8
295	8/31/2016	61967	2015091431	Trimmed Spearman-Kärber	9031.8	8423.6	1210.3	9634.0	7213.3
296	9/27/2016	61968	2015091431	Trimmed Spearman-Kärber	9347.5	8437.1	1246.5	9683.6	7190.6
297	10/27/2016	61969	2015091431	Trimmed Spearman-Kärber	8932.5	8499.3	1212.9	9712.2	7286.4
298	11/22/2016	61970	2015091431	Trimmed Spearman-Kärber	9798.6	8537.3	1326.3	9863.5	7211.0
299	12/27/2016	61971	2015091431	Trimmed Spearman-Kärber	7520.3	8432.6	1298.9	9731.5	7133.7
300	1/31/2017	63894	2015091431	Trimmed Spearman-Kärber	9361.7	8494.5	1353.8	9848.3	7140.8
301	2/28/2017	63909	2015091431	Trimmed Spearman-Kärber	9432.2	8524.6	1410.7	9935.3	7113.9
302	3/28/2017	63921	2015091431	Trimmed Spearman-Kärber	8246.9	8570.0	1304.4	9874.4	7265.7
303	4/26/2017	63930	201605093	Trimmed Spearman-Kärber	8895.1	8583.9	1312.4	9896.3	7271.5
304	5/30/2017	63938	201605093	Trimmed Spearman-Kärber	8168.6	8620.5	1214.7	9835.3	7405.8

***Pimephales promelas* Acute Control Chart**



APPENDIX C

LITERATURE REFERENCES

- U.S.E.P.A., 2002. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents And Receiving Water To Freshwater Organisms (Fifth Edition) U.S. Environmental Protection Agency, Office of Water, Washington D.C., EPA-821-R-02-012.
- U.S.E.P.A., 2002. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents and Receiving Water To Marine And Estuarine Organisms (Third Edition) U.S. Environmental Protection Agency, Office of Water, Washington D.C., EPA-821-R-02-014.
- U.S.E.P.A., 2002. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents And Receiving Water To Freshwater Organisms (Fourth Edition) U.S. Environmental Protection Agency, Office of Water, Washington D.C., EPA-821-R-02-013.
- U.S.E.P.A., 2012. Tropical Collector Urchin, *Tripneustes gratilla* (First Edition) U.S. Environmental Protection Agency, Office of Research and Development and Region 9, EPA-600-R-12-022.
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- U.S.E.P.A., 2010. National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document, U.S. Environmental Protection Agency, Office of Wastewater, Washington D.C., EPA-833-R-10-004.
- U.S.E.P.A., 1991. Technical Support Document For Water Quality-Based Toxics Control, U.S. Environmental Protection Agency, EPA-505-2-90-001.
- Zarr, Jerrold, H., 1984. Biostatistical Analysis, (Second Edition). Prentice-Hall, Inc., Englewood Cliffs, N.J.

CHAIN-OF-CUSTODY SHEETS

Appendix D



BIO-AQUATIC TESTING, INC.
2501 MAYES RD., STE. 100
CARROLLTON, TX 75006
PH: 972-242-7750 FAX: 972-242-7749

Report Date: 06/29/2017 Revision: 0

Client: Wyman-Gordon Forgings, Inc.

Facility: Cypress Plant

Permit No: WQ00001402000

Outfall: 002

Client Contact: AARON PLOCEK

Client Phone: 281-856-3264

A. REVIEW SCHEDULED TEST(S):

Chronic	Ceriodaphnia dubia
Chronic	Pimephales promelas

Concentration: 9 12 17 22 29

To Ship the
1st Sample on:
6/5/2017

(For TX) Setup separate 24hr Acute Test? Yes

Sample ID or Location: (Outfall No. or Name)	Sample Type: E = Effluent R = Receiving Stream S = Sediment	Sample Date		Grab or Composite	Sampled By: (Sign and Print Name)	Number Of Containers Shipped
		From	To			
1 002	E	6/5/2017	6/5/2017	Grab	<i>Aaron Plocek</i>	1
2						
3						

Relinquished By:		Received By:		Date	Time
<i>Aaron Plocek</i>		<i>Aaron Plocek</i>		6-6-17	11:00

Bio-Aquatic Sample Log		BAT sample personnel:		Date	Time	Temp	IR#
Yes ☐ No ☐ Decolorize Sample: Yes ☐ No ☐ Dilution Water: Living Stream ☐		Yes ☐ No ☐ Decolorize Sample: Yes ☐ No ☐ Dilution Water: Living Stream ☐		6-6-17	11:00	3.6	002

Freshwater Species		Saltwater Species	
C. dubia (water flea)	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	D. magna (water flea)	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour
D. pulex (water flea)	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	P. promelas (minnow)	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour
Selenastrum (green algae)	☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	M. beryllina (minnow)	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour
Mysidopsis (shrimp)	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour		

B. Use area below to make changes, if the Scheduled Test(s) in "A" are incorrect:

Check Sample No.: ☒ First, ☐ Second, or ☐ Third. P.O. No:

Notes: 2nd Quarter
Has Sub-Lethal Language (AS)
Include 2nd Quarter 24hr. Fathead

CHAIN OF CUSTODY

Bio Only:
No Sample Left

Lab Id: 65969

Please Review & Complete Sections A, B, C, & D.

Sample No: 65969

Revision: 0

Check Sample No.: ☒ First, ☐ Second, or ☐ Third.

P.O. No:

REGULATORY AGENCY TABLES

Appendix E

Table 2 (Sheet 1 of 1)
BIOMONITORING REPORT

Pimephales promelas SURVIVAL TEST

Permittee: Wyman-Gordon Forgings, Inc. - Cypress Plant
 Permit No.: WQ0001402000
 Outfall No.: 002

Dates and times
 Composites were collected: FROM: 6/5/2017 @ 11:00 TO: 6/5/2017 @ 11:05

Test Initiation: Time: 15:00 Date: 6/6/2017

Dilution Water Used: ☐ Receiving Water ☒ Synthetic Dilution Water

DATA TABLE FOR SURVIVAL OF *Pimephales promelas*

TIME	REPLICATE	EFFLUENT CONC. (%)	
		0%	100 %
24 HOUR	A	100	50
	B	100	25
	C	100	0
	D	100	50
	E	100	37.5
MEAN		100	32.5

Is the mean survival at 24 hours in the 100% effluent greater than 50%?

CRITICAL DILUTION (100 %) : X YES NO

If yes is checked enter a '0' for Parameter TIE6C, otherwise enter '1'.

Enter the percent effluent corresponding to LC50 below:

24 Hour LC50 (*Pimephales promelas*) = <100 % Effluent

95 % Confidence Interval : *Q

Method of LC50 Calculation: Visual Inspection

Q* refers to a value that is not calculable

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 6 Laboratory
 Environmental Services Branch

Corrective Action (CA) and Re-Prep Form

CA WORK ORDER: (assigned by QA Coordinator)	1709022
PROJECT / WORK ORDER(s) AFFECTED:	WS-253 PE Study (17SDWA096) wo# 1708003
SOP / METHOD:	6SOP067 / 300.1
CATEGORY: (Method Performance; PT failure; customer complaint; lab error; equipment/instrument; data review, LIMS, re-ext, etc)	PT failure
SAMPLES TO BE RE-PREP'D: (if applicable)	NA
STAFF INVOLVED IN RESOLUTION:	Neal Nguyen, Mel Ritter
TEAM / AREA AFFECTED:	IC
PERSON INITIATING THIS FORM:	Sylvia Gorostiza
DATE:	09/25/2017

RECORD INFORMATION BELOW OR ATTACH ADDITIONAL SHEETS. PROVIDE DOCUMENTATION WHENEVER POSSIBLE.

EVENT DESCRIPTION:

Describe the nonconforming event or analysis result. Include details of staff member notified, customer or outside involvement, analysis data, etc., as applicable. Attach any documentation that supports and/or supplements this description. If PT Failure, attach copy of PT report.

Bromide reported value (0.229 ug/L) was outside acceptance limits (245 - 331 ug/L).

EVENT RESPONSE / INVESTIGATION STEPS:

Indicate the response(s) to the nonconformance, including all processes or raw data reviewed, QA or Management staff notified, analysis repeated, analysis halted, etc.

ROOT CAUSE DETERMINATION:

State the root cause (reason) for the nonconformance with the analysis or process.

ACTION(S) TAKEN TO RESOLVE ISSUE AND PREVENT RECURRENCE:

(Include SOP revision, staff training, purchase of standards or equipment, document/form revision, etc.)

Submitted By:		Date:
Reviewed By: Team Coordinator		Date:
Reviewed By: Supervisor (If Applicable)		Date:
Reviewed By: ESAT Team Mgr (If Applicable)		Date:
Reviewed By: ESAT PO (If Applicable)		Date:

By signature and comments below, the QA Coordinator and Technical Manager approve this corrective action plan.

Approved By: Technical Manager		Date:
Approved By: QA Coordinator		Date:
Reviewer Comments or Additional Actions Recommended:		



Bio-Aquatic Testing, Inc.



TCEQ TNI Accredited

Wyman-Gordon Forgings, Inc.
Cypress Plant
OUTFALL 002

Client Address:
10825 TELGE ROAD
HOUSTON, TX 77095

24 Hr Acute Biomonitoring Report

65974

Pimephales promelas

June 06, 2017

Approved by: _____

Justin Reed

Bio-Aquatic Testing, Inc. • 2501 Mayes Rd. Ste. 100 • Carrollton, Texas • 75006

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Unless otherwise noted in the body of the report, all data reported in this document are in compliance with most current TNI standards and apply only to the samples referenced within. This report document may not be edited or reproduced in part or in full by any other entity, unless Bio-Aquatic Testing, Inc. issues written approval.

***HAND-WRITTEN RAW DATA TABLES ARE AVAILABLE UPON REQUEST**

BIO-AQUATIC TESTING, INC.

2501 Mayes Road, Suite 100

Carrollton, Texas 75006

Tel: (972) 242-7750

Fax: (972) 242-7749

TOXICITY TEST REPORT - 24 Hr Acute

Client: Wyman-Gordon Forgings, Inc.

Facility: Cypress Plant

Permit No. WQ0001402000

Sample: 002

Laboratory Number: 65974

Date: June 06, 2017

Pimephales promelas **failed** survival testing requirements.

SAMPLE COLLECTION: A grab effluent sample from Wyman-Gordon Forgings, Inc., Cypress Plant, was transported to Bio-Aquatic Testing on June 06, 2017. The effluent sample was collected from Outfall 002 by facility personnel.

The effluent sample was analyzed for total residual chlorine using the Hanna Ion Specific Meter #711 and contained <0.10 mg/L. Effluent and laboratory dilution water pH, temperature, salinity, and dissolved oxygen data were collected daily.

TEST PROCEDURES:*Pimephales promelas***EPA METHOD: 2000**

The 24 Hr Acute *Pimephales promelas* test was initiated at 15:00 hours on June 06, 2017. Replicates were prepared using 100% effluent. A control solution of moderately hard synthetic water was also prepared. The test was set up with 450mL plastic cups containing 250mL of test solution as test chambers. Each concentration consisted of five replicate chambers containing eight organisms each. Test organisms were laboratory cultured *P. promelas* one to fourteen days old, and all larvae used in each test are hatched within 24 hours of each other. The test proceeded for 24 hours, after which, data was collected. A control of five replicate cups of eight organisms each in synthetic water was conducted concurrently with the test. There was 100% survival in the control. Data on surviving organisms and water quality were collected. The test ended at 14:30 hours on June 07, 2017.

SURVIVAL:*Pimephales promelas*

The *Pimephales promelas* survival data demonstrated <50% in the 100% effluent as compared to the control.

LOEC: 100% Effluent**NOEC: 0% Effluent**

BIO-AQUATIC TESTING, INC.**TOXICITY TEST****24 Hr Acute***Pimephales promelas*

Lab ID: 65974

Client: Wyman-Gordon Forgings, Inc. Cypress Plant

Test Temperature (°C): 25 ± 1

Permit Number: TPDES

WQ0001402000

Photo Period: 16 hours light
8 hours dark

Sample Type: Grab

Outfall Name: 002

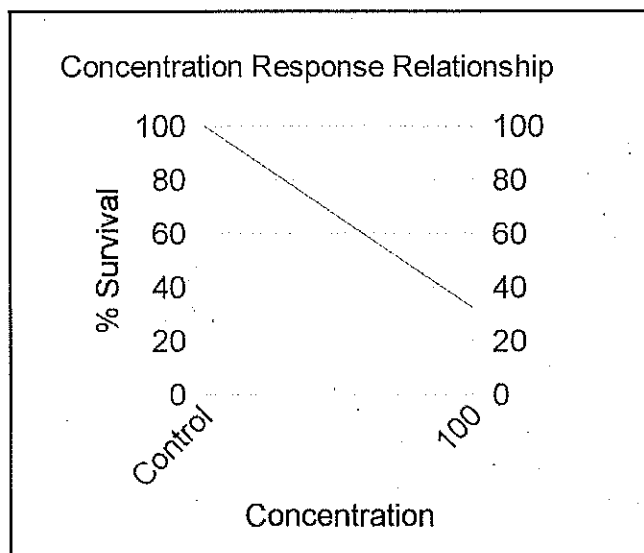
Begin Date: 6/6/2017

Receiving Water Name: N/A

End Date: 6/7/2017

Test Start Time: 15:00 Test End Time: 14:30

Effluent Concentration %	SURVIVAL										Avg% Surv.
	Number Of Alive Per Replicate										
	6/6					6/7					
	A	B	C	D	E	A	B	C	D	E	
Control	8	8	8	8	8	8	8	8	8	8	100.0%
100	8	8	8	8	8	4	2	0	4	3	32.5%



BIO-AQUATIC TESTING, INC.

2501 Mayes Road, Suite 100
 Carrollton, Texas 75006
 Tel: 972-242-7750
 Fax: 972-242-7749

24 HOUR ACUTE SURVIVAL

Organism: Pimephales promelas 24 Hr Acute

Client: Wyman-Gordon Forgings, Inc. - Cypress Plant

Outfall Name 002

Lab ID: 65974

Sample Type Grab

TEST INSTRUCTIONS:

Net DMR

acute test only w/ chronic

Date Test Started: 6-6-17 Time: 1500 Technician: JF

Date Test Ended: 6-7-17 Time: 1430 Technician: 32

Culture No.: P0-17-150B

Units % No. Surviving Organisms, 0 Hrs. No. Surviving Organisms, 24 Hrs.

Concentration	A	B	C	D	E	A	B	C	D	E
Control	8					8				
100	8					44	26	08	44	35

Test Temperatures

	0Hr	24Hr
	new	old
Control	25.8	20.2
100	25.2	1
IR GUN ID #	009	009

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

APPENDIX A

STATISTICS SUMMARY

Both the lethal and sub-lethal endpoints were statistically calculated according to their respective EPA guidelines. The Chronic Freshwater organisms were calculated according to EPA-821-R-02-013, October 2002 Fourth Edition. The Chronic Marine and Estuarine organisms were calculated according to EPA-821-R-02-014, October 2002 Third Edition. The Acute Freshwater and Marine organisms were calculated according to EPA-821-R-02-012, October 2002 Fifth Edition. The fertilization organisms were calculated according to EPA-600-R-95-136 or EPA-600-R-12-022, dependent upon the species. Listed below are the basic principles of these guidelines. If you would like a copy of the raw statistical calculations for your test then please contact us.

The chronic and acute *Pimephales promelas* and *Menidia beryllina* survival data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts (parametric). If the data fails Shapiro Wilks Test or Bartlett's Test then Steels Many One Test (non-parametric) is used. The chronic *Pimephales promelas* and *Menidia beryllina* growth data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Shipiro Wilks Test and Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The chronic *Mysidopsis bahia* survival data is analyzed using Chi-square test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test or Bartlett's Test then Steels Many One Test is used. *Mysidopsis bahia* growth data is analyzed using Chi-square test and Bartlett's Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test and Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The acute *Mysidopsis bahia* survival data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Shipiro Wilks Test or Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The chronic *Ceriodaphnia dubia* survival data are analyzed using the Fisher's Exact Test. The chronic *Ceriodaphnia dubia* reproduction and are analyzed using the Chi-square test and Bartlett Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test and Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The acute *Daphnia pulex* and *Ceriodaphnia dubia* survival data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Shapiro Wilks Test or Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The fertilization data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Shapiro Wilks Test or Bartlett's Test then Steels Many One Test is used. Point estimation or TST methodology may also be used.

65974

Bio-Aquatic Testing, Inc.**FRESH WATER TEST SETUP FORM**Client: Wyman-Gordon Forgings, Inc.Permit WQ0001402000Facility: Cypress PlantLab Number 65974Outfall Name: 002Number of samples 1Dilution Water: Synthetic Lab

Sx #	Rcvd Date	Rcvd Time	Sampling Dates		Sampling Times	
			Begin Date	End Date	Start	End
1	06/06/17	11:00	06/05/17	06/05/17	11:00	11:05

Receiving Water Name: N/ADechlorinate Sample: No**Type of Test(s)**Pimephales promelas 24 Hr AcuteStart Sx # 1 Date: 6/6/2017

Renew Sx # _____ Date: _____

Renew Sx # _____ Date: _____

Renew Sx # _____ Date: _____

Renew Sx # _____ Date: _____

Renew Sx # _____ Date: _____

Renew Sx # _____ Date: _____

Controls: Synthetic

pH Match: _____

Hardness Match: Moderate

Test Start Date: _____ Test End Date: _____

6/6/2017 6/7/2017Pimephales Test Set Up: 5 Reps & 8 Organisms per Rep

Test Set Up: _____

Concentrations: 100 % LF % 100Test Chemistry on these dilutions: 100

Samples received by:

- | | | | |
|--|---|--|-----------------------------|
| ☒ Greyhound | ☐ UPS Next Day | ☐ Delta Dash | ☐ Delta |
| ☐ Pony Express | ☐ Client Delivered | ☐ Southwest Airlines | ☐ DHL |
| ☐ Federal Express | ☐ American Airlines | ☐ Bio Pick Up | |

Other: _____

BIO-AQUATIC TESTING, INC.

Hardness, Alkalinity, Residual Chlorine, Specific Conductivity, and Salinity Analysis Data

Client: Wyman-Gordon Forgings, Inc.

Lab ID: 65974

Facility: Cypress Plant

Outfall: 002

Dilution Water(s): Synthetic Lab

Test Date: June 6, 2017

** 100 %

Effluent Sample #	Received		** Residual Cl ₂	DeChlor (ml/L)	** Ammonia mg/L	Analyst Initials	Initial Salinity	Adjusted Salinity	Temp. Received
	Date	Time							
1	6/6/17	11:00	<0.10	N/A	<0.25	JR	N/A	N/A	3.6

Chlorine Analysis Method: Hanna Ion Specific Meter #711

Dechlorination Reagent: 0.025 N Sodium Thiosulfate

Sample #	Received		Hardness (EDTA) As mg/L CaCO ₃		ALKALINITY TO END POINT pH 4.50 $\pm$ 0.05 as mg/L CaCO ₃		Analyst Initials
	Date	Time	CON	100	CON	100	
1	6/6/17	11:00	160	2	59	106	JR

Date	Lab	Sample #	Values are at Highest Dilution		Values are at 100% Dilution		Analyst	Other
			Specific Conductivity as umhos/cm	Salinity (ppt)	Residual Chlorine as mg Cl ₂ /L	¹ ml 0.02N Na ₂ S ₂ O ₃ /L		
6/6	Lab H2O		439	0.3			JF	
6/7	Lab H2O						JF	
6/8	Lab H2O							
6/9	Lab H2O							
6/10	Lab H2O							
6/11	Lab H2O							
6/12	Lab H2O							
6/6	OUTFALL*	1	931	0.5	<0.10	N/A	JF	
6/7	OUTFALL*						JF	
6/8	OUTFALL*							
6/9	OUTFALL*							
6/10	OUTFALL*							
6/11	OUTFALL*							
6/12	OUTFALL*							

*Conductivity is taken on the highest remaining effluent concentration used for test renewal, not necessarily 100%

BIO-AQUATIC TESTING, INC.

pH, Dissolved Oxygen

24 Hr Acute

Pimephales promelas

Client: Wyman-Gordon Forgings, Inc.

Lab ID: 65974

Facility: Cypress Plant

Dilution Water(s): Synthetic Lab

Outfall: 002

Test Begin Date: June 6, 2017

NR indicates that the test is non-renewal.

				Concentration							
ANALYST	DATE	TIME	SX#	UNIT	Control	100					
JF	6/6	Start	1	pH	8.1	8.2					
		25 ± 1		DO (mg/L)	7.9	7.3					
JF	6/7	24 Hr	1	pH	8.1	8.2					
		25 ± 1		DO (mg/L)	7.6	7.5					
	6/8	Renew		pH							
				DO (mg/L)							
	6/9	48 Hr		pH							
		25 ± 1		DO (mg/L)							
	6/10	Renew		pH							
				DO (mg/L)							
	6/11	72 Hr		pH							
		25 ± 1		DO (mg/L)							
	6/12	Renew		pH							
				DO (mg/L)							
	6/13	96 Hr		pH							
		25 ± 1		DO (mg/L)							
		Renew		pH							
				DO (mg/L)							
		120 Hr		pH							
		25 ± 1		DO (mg/L)							
		Renew		pH							
				DO (mg/L)							
		144 Hr		pH							
		25 ± 1		DO (mg/L)							
		Renew		pH							
				DO (mg/L)							
		168 Hr		pH							
		25 ± 1		DO (mg/L)							

Appendix B

Pimephales promelas

BIO-AQUATIC TESTING, INC.

Carrollton, TX

REFERENCE TOXICANTS

Bio-Aquatic Testing conducts reference toxicant testing monthly for organisms cultured in-house. For studies requiring purchased organisms, reference toxicant testing is performed simultaneously. Reference toxicant testing validates data and measures organism consistency. Only reagent grade chemicals are used of the following choices: sodium laurel sulfate (SLS), copper sulfate, copper chloride, potassium chloride, and sodium chloride. Organism responses are tracked with control charts for each reference toxicant/organism combination. The data are examined for sensitivity trends and to determine if results are within EPA described limits.

ACUTE REFERENCE TOXICANT TEST RESULTS

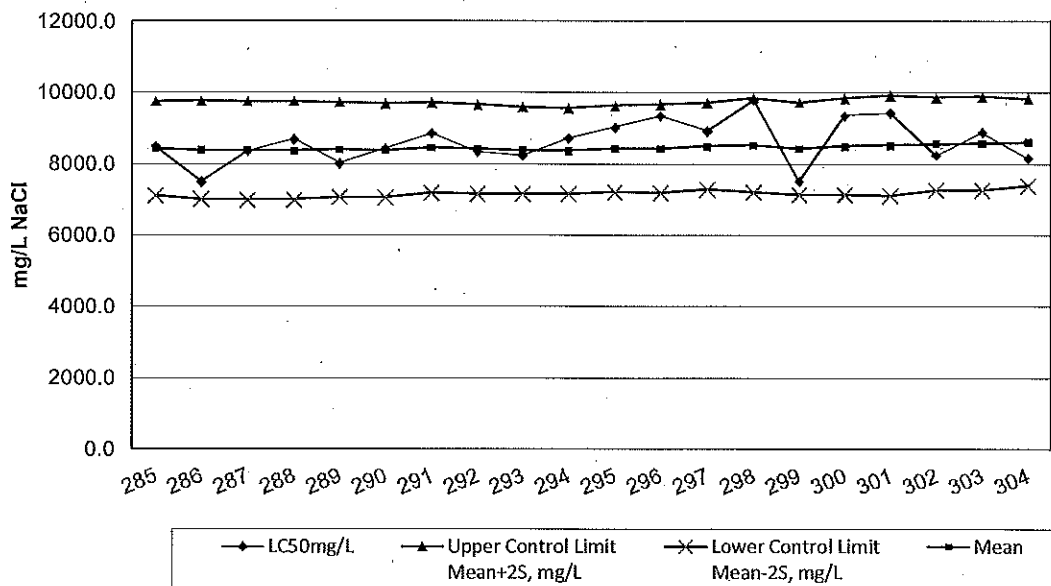
DILUTION WATER:	Standard Synthetic Freshwater
CHEMICAL:	Sodium Chloride
DURATION:	48 Hour Acute
TEST NUMBER:	304
PROJECT NUMBER:	63938
START DATE:	5/30/2017
START TIME:	1:40
TOTAL NUMBER EXPOSED:	40 organisms per concentration
CONCENTRATIONS (mg/L):	CON 2000 4000 6000 8000 10000 12000
NUMBER DEAD PER CONCENTRATION:	0 0 0 0 15 39 40
TEST METHODS:	As listed in EPA-821-R-02-012
STATISTICAL METHODS:	SURVIVAL: Trimmed Spearman-Kärber
LC50:	8168.64 mg/L
95% LOWER CONFIDENCE LIMITS:	7845.49 mg/L
95% UPPER CONFIDENCE LIMITS:	8505.09 mg/L

Bio-Aquatic Testing, Inc.

REFERENCE TOXICANT STATISTICAL RESULTS: LC50 AND CONTROL LIMITS
***Pimephales promelas* EXPOSED TO SODIUM CHLORIDE, 48 HOUR STATIC RENEWAL**

Test Number	Date	Project Number	Toxicant Lot Number	Statistical Method	LC50mg/L	Mean	Twice Standard Deviation 2S	Upper Control Limit Mean+2S, mg/L	Lower Control Limit Mean-2S, mg/L
285	10/27/2015	60056	2014100822	Trimmed Spearman-Kärber	8498.9	8431.8	1320.7	9752.5	7111.1
286	11/24/2015	60057	2014100822	Trimmed Spearman-Kärber	7514.6	8385.8	1383.0	9768.8	7002.9
287	12/29/2015	60058	2015030582	Trimmed Spearman-Kärber	8360.9	8377.4	1381.3	9758.7	6996.1
288	1/26/2016	61960	2015030582	Trimmed Spearman-Kärber	8688.8	8374.4	1378.1	9752.5	6996.2
289	2/24/2016	61961	2015030582	Trimmed Spearman-Kärber	8024.2	8399.0	1331.4	9730.4	7067.6
290	3/30/2016	61962	2015030582	Trimmed Spearman-Kärber	8433.6	8379.7	1316.8	9696.4	7062.9
291	4/28/2016	61963	2015030582	Trimmed Spearman-Kärber	8852.3	8445.7	1269.2	9715.0	7176.5
292	5/31/2016	61964	2015620694	Trimmed Spearman-Kärber	8350.3	8420.9	1255.5	9676.4	7165.4
293	6/28/2016	61965	2015620694	Trimmed Spearman-Kärber	8231.8	8379.5	1220.9	9600.3	7158.6
294	7/28/2016	61966	2015620694	Trimmed Spearman-Kärber	8720.1	8366.0	1198.2	9564.1	7167.8
295	8/31/2016	61967	2015091431	Trimmed Spearman-Kärber	9031.8	8423.6	1210.3	9634.0	7213.3
296	9/27/2016	61968	2015091431	Trimmed Spearman-Kärber	9347.5	8437.1	1246.5	9683.6	7190.6
297	10/27/2016	61969	2015091431	Trimmed Spearman-Kärber	8932.5	8499.3	1212.9	9712.2	7286.4
298	11/22/2016	61970	2015091431	Trimmed Spearman-Kärber	9798.6	8537.3	1326.3	9863.5	7211.0
299	12/27/2016	61971	2015091431	Trimmed Spearman-Kärber	7520.3	8432.6	1298.9	9731.5	7133.7
300	1/31/2017	63894	2015091431	Trimmed Spearman-Kärber	9361.7	8494.5	1353.8	9848.3	7140.8
301	2/28/2017	63909	2015091431	Trimmed Spearman-Kärber	9432.2	8524.6	1410.7	9935.3	7113.9
302	3/28/2017	63921	2015091431	Trimmed Spearman-Kärber	8246.9	8570.0	1304.4	9874.4	7265.7
303	4/26/2017	63930	201605093	Trimmed Spearman-Kärber	8895.1	8583.9	1312.4	9896.3	7271.5
304	5/30/2017	63938	201605093	Trimmed Spearman-Kärber	8168.6	8620.5	1214.7	9835.3	7405.8

***Pimephales promelas* Acute Control Chart**



APPENDIX C

LITERATURE REFERENCES

- U.S.E.P.A., 2002. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents And Receiving Water To Freshwater Organisms (Fifth Edition) U.S. Environmental Protection Agency, Office of Water, Washington D.C., EPA-821-R-02-012.
- U.S.E.P.A., 2002. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents and Receiving Water To Marine And Estuarine Organisms (Third Edition) U.S. Environmental Protection Agency, Office of Water, Washington D.C., EPA-821-R-02-014.
- U.S.E.P.A., 2002. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents And Receiving Water To Freshwater Organisms (Fourth Edition) U.S. Environmental Protection Agency, Office of Water, Washington D.C., EPA-821-R-02-013.
- U.S.E.P.A., 2012. Tropical Collector Urchin, *Tripneustes gratilla* (First Edition) U.S. Environmental Protection Agency, Office of Research and Development and Region 9, EPA-600-R-12-022.
- U.S.E.P.A., 1995. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents And Receiving Water To West Coast Marine and Estuarine Organisms (First Edition) U.S. Environmental Protection Agency, EPA-600-R-95-136.
- U.S.E.P.A., 2010. National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document, U.S. Environmental Protection Agency, Office of Wastewater, Washington D.C., EPA-833-R-10-004.
- U.S.E.P.A., 1991. Technical Support Document For Water Quality-Based Toxics Control, U.S. Environmental Protection Agency, EPA-505-2-90-001.
- Zarr, Jerrold, H., 1984. Biostatistical Analysis, (Second Edition). Prentice-Hall, Inc., Englewood Cliffs, N.J.

CHAIN-OF-CUSTODY SHEETS

Appendix D

BIO-AQUATIC TESTING, INC. 2501 MAYES RD., STE. 100 CARROLLTON, TX 75006 PH: 972-242-7750 FAX: 972-242-7749		CHAIN OF CUSTODY Please Review & Complete Sections A, B, C, & D. Bio Only? ☐ No Sample Left		Lab Id : 65969 Sample No: 65969 Check Sample No.: ☒ First, ☐ Second, or ☐ Third. P.O. No:																															
A. REVIEW SCHEDULED TEST(S): <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Chronic</td> <td>Ceriodaphnia dubia</td> </tr> <tr> <td>Chronic</td> <td>Pimephales promelas</td> </tr> </table> Concentration: 9 12 17 22 29 To Ship the 1st Sample on: 6/5/2017		Chronic	Ceriodaphnia dubia	Chronic	Pimephales promelas	B. Use area below to make changes, if the Scheduled Test(s) in "A" are incorrect: <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="4">Freshwater Species</th> <th colspan="4">Saltwater Species</th> </tr> <tr> <th>C. dubia (water flea)</th> <th>D. pulex (water flea)</th> <th>P. promelas (minnow)</th> <th>Selenastrum (green algae)</th> <th>M. beryllina (minnow)</th> <th>Mysidopsis (shrimp)</th> <th colspan="2"></th> </tr> <tr> <td> ☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour </td> <td> ☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour </td> <td> ☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour </td> <td> ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour </td> <td> ☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour </td> <td> ☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour </td> <td colspan="2"></td> </tr> </table> Notes: 2nd Quarter Has Sub-Lethal Language (AS) *Include 2nd Quarter 24hr. Fathead*				Freshwater Species				Saltwater Species				C. dubia (water flea)	D. pulex (water flea)	P. promelas (minnow)	Selenastrum (green algae)	M. beryllina (minnow)	Mysidopsis (shrimp)			☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour				
Chronic	Ceriodaphnia dubia																																		
Chronic	Pimephales promelas																																		
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☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour																														
C. (For TX) Setup separate 24hr Acute Test? ☐ Yes		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th rowspan="2">Sample ID or Location: (Outfall No. or Name)</th> <th rowspan="2">Sample Type: E = Effluent RS = Rec. Stream S = Sediment</th> <th colspan="2">Sample Date</th> <th rowspan="2">Grab or Composite</th> <th rowspan="2">Sampled By: (Sign and Print Name)</th> <th rowspan="2">Number Of Containers Shipped</th> </tr> <tr> <th>From</th> <th>To</th> </tr> <tr> <td>1 002</td> <td>E</td> <td>6/5/2017</td> <td>6/5/2017</td> <td>Grab</td> <td><i>Aaron Plocek</i></td> <td>1</td> </tr> <tr> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				Sample ID or Location: (Outfall No. or Name)	Sample Type: E = Effluent RS = Rec. Stream S = Sediment	Sample Date		Grab or Composite	Sampled By: (Sign and Print Name)	Number Of Containers Shipped	From	To	1 002	E	6/5/2017	6/5/2017	Grab	<i>Aaron Plocek</i>	1	2							3						
Sample ID or Location: (Outfall No. or Name)	Sample Type: E = Effluent RS = Rec. Stream S = Sediment	Sample Date		Grab or Composite	Sampled By: (Sign and Print Name)			Number Of Containers Shipped																											
		From	To																																
1 002	E	6/5/2017	6/5/2017	Grab	<i>Aaron Plocek</i>	1																													
2																																			
3																																			
D. Relinquished By: <i>Aaron Plocek</i>		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Date</th> <th>Time</th> <th>Received By:</th> <th>Date</th> <th>Time</th> </tr> <tr> <td>6-6-17</td> <td>11:00</td> <td><i>John Reed</i></td> <td>6-6-17</td> <td>11:00</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				Date	Time	Received By:	Date	Time	6-6-17	11:00	<i>John Reed</i>	6-6-17	11:00																				
Date	Time	Received By:	Date	Time																															
6-6-17	11:00	<i>John Reed</i>	6-6-17	11:00																															
Bio-Aquatic Testing, Inc. origin		BAT sample personnel: ☐ Yes ☒ No Dechlorinate Sample: ☐ Yes ☒ No Dilution Water: ☒ Living Stream ☐ ab																																	
Date: 6/29/2017		Date: 6-6-17 Time: 11:00 By: 11:00 Temperature: 32 (C) IR#: 002 Chlorine: 10.1 mg/l Ammonia: 20.34 mg/l Int. Salinity: ppt Adj. Salinity: ppt pH: 7.5 Hardness: 7.0 mg/l (L) Other: DO: 5.4 mg/l Alkalinity: 106 mg/l (K) Condition: Good																																	

REGULATORY AGENCY TABLES

Appendix E

Table 2 (Sheet 1 of 1)
BIOMONITORING REPORT

Pimephales promelas SURVIVAL TEST

Permittee: Wyman-Gordon Forgings, Inc. - Cypress Plant
 Permit No.: WQ0001402000
 Outfall No.: 002

Dates and times Date/Time Date/Time
 Composites were collected: FROM: 6/5/2017 @11:00 TO: 6/5/2017@ 11:05

Test Initiation: Time: 15:00 Date: 6/6/2017

Dilution Water Used: ☐ Receiving Water ☒ Synthetic Dilution Water

DATA TABLE FOR SURVIVAL OF *Pimephales promelas*

TIME	REPLICATE	EFFLUENT CONC. (%)	
		0%	100 %
24 HOUR	A	100	50
	B	100	25
	C	100	0
	D	100	50
	E	100	37.5
MEAN		100	32.5

Is the mean survival at 24 hours in the 100% effluent greater than 50%?

CRITICAL DILUTION (100 %) : X YES NO

If yes is checked enter a '0' for Parameter TIE6C, otherwise enter '1'.

Enter the percent effluent corresponding to LC50 below:

24 Hour LC50 (*Pimephales promelas*) = <100 % Effluent
 95 % Confidence Interval : *Q
 Method of LC50 Calculation: Visual Inspection

Q* refers to a value that is not calculable



Bio-Aquatic Testing, Inc.



TCEQ TNI Accredited

Wyman-Gordon Forgings, Inc.
Cypress Plant
OUTFALL 002

Client Address:
10825 TELGE ROAD
HOUSTON, TX 77095

24 Hr Acute Biomonitoring Report

65972

Daphnia pulex
Pimephales promelas

April 18, 2017

Approved by: Chi Roberson

Bio-Aquatic Testing, Inc. ♦ 2501 Mayes Rd. Ste. 100 ♦ Carrollton, Texas ♦ 75006

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LITERATURE REFERENCES	Appendix C
CHAIN-OF-CUSTODY SHEETS	Appendix D
REGULATORY AGENCY TABLES	Appendix E

Unless otherwise noted in the body of the report, all data reported in this document are in compliance with current TNI standards and apply only to the samples referenced within. This report document may not be edited or reproduced in part or in full by any other entity, unless Bio-Aquatic Testing, Inc. issues written approval.

***HAND-WRITTEN RAW DATA TABLES ARE AVAILABLE UPON REQUEST**

BIO-AQUATIC TESTING, INC.

2501 Mayes Road, Suite 100

Carrollton, Texas 75006

Tel: (972) 242-7750

Fax: (972) 242-7749

TOXICITY TEST REPORT - 24 Hr Acute

Client: Wyman-Gordon Forgings, Inc.

Facility: Cypress Plant

Permit No. WQ0001402000

Sample: 002

Laboratory Number: 65972

Date: April 18, 2017

Daphnia pulex **passed** survival testing requirements. *Pimephales promelas* **failed** survival testing requirements.

SAMPLE COLLECTION: A composite effluent sample from Wyman-Gordon Forgings, Inc., Cypress Plant, was transported to Bio-Aquatic Testing on April 18, 2017. The effluent sample was collected from Outfall 002 by facility personnel.

The effluent sample was analyzed for total residual chlorine using the Hanna Ion Specific Meter #711 and contained <0.10 mg/L. Effluent and laboratory dilution water pH, temperature, salinity, and dissolved oxygen data were collected daily.

TEST PROCEDURES:*Daphnia pulex***EPA METHOD: 2021**

The 24 Hr Acute *Daphnia pulex* test was initiated at 14:20 hours on April 18, 2017. Replicates were prepared using 100% effluent. A control solution of moderately hard synthetic laboratory water was also prepared. The test was set up with 30mL plastic cups containing 20mL of test solution. Each effluent concentration included five replicate cups with eight organisms in each cup. Test organisms were less than 24-hour old laboratory cultured neonates. The test proceeded for 24 hours. Data on survival was collected daily. A control of five replicate plastic cups containing eight organisms per cup in synthetic water was conducted concurrently with the test. There was 100% survival in the control. Data on surviving organisms and water quality were collected. The test ended at 12:00 hours on April 19, 2017.

SURVIVAL:*Daphnia pulex*

The *Daphnia pulex* survival data demonstrated >50% in the 100% effluent as compared to the control.

LOEC: Not Calculable (Q)**NOEC: 100% Effluent**

TEST PROCEDURES:*Pimephales promelas***EPA METHOD: 2000**

The 24 Hr Acute *Pimephales promelas* test was initiated at 14:27 hours on April 18, 2017. Replicates were prepared using 100% effluent. A control solution of moderately hard synthetic water was also prepared. The test was set up with 450mL plastic cups containing 250mL of test solution as test chambers. Each concentration consisted of five replicate chambers containing eight organisms each. Test organisms were laboratory cultured *P. promelas* one to fourteen days old, and all larvae used in each test are hatched within 24 hours of each other. The test proceeded for 24 hours, after which, data was collected. A control of five replicate cups of eight organisms each in synthetic water was conducted concurrently with the test. There was 100% survival in the control. Data on surviving organisms and water quality were collected. The test ended at 11:35 hours on April 19, 2017.

SURVIVAL:*Pimephales promelas*

The *Pimephales promelas* survival data demonstrated <50% in the 100% effluent as compared to the control.

LOEC: 100% Effluent**NOEC: 0% Effluent**

BIO-AQUATIC TESTING, INC.

TOXICITY TEST

24 Hr Acute*Daphnia pulex*

Lab ID: 65972

Client: Wyman-Gordon Forgings, Inc. Cypress Plant

Test Temperature (oC): 25 ± 1

Permit Number: TPDES

WQ0001402000

Photo Period: 16 hours light
8 hours dark

Sample Type: Composite

Outfall Name: 002

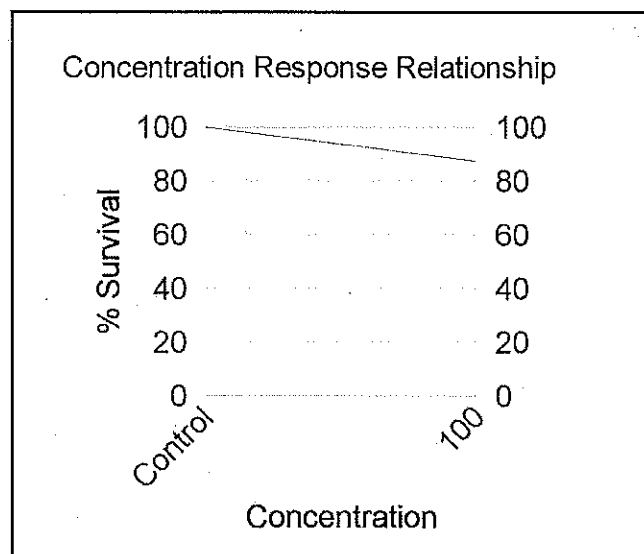
Begin Date: 4/18/2017

Receiving Water Name: N/A

End Date: 4/19/2017

Test Start Time: 14:20 Test End Time: 12:00

Effluent Concentration %	SURVIVAL										Avg% Surv.
	Number Of Alive Per Replicate										
	4/18					4/19					
	A	B	C	D	E	A	B	C	D	E	
Control	8	8	8	8	8	8	8	8	8	8	100.0%
100	8	8	8	8	8	7	7	6	7	8	87.5%



BIO-AQUATIC TESTING, INC.

2501 Mayes Road, Suite 100
 Carrollton, Texas 75006
 Tel: 972-242-7750
 Fax: 972-242-7749

24 HOUR ACUTE SURVIVAL

Organism: Daphnia pulex 24 Hr Acute

Client: Wyman-Gordon Forgings, Inc. - Cypress Plant

Outfall Name 002

Lab ID: 65972

Sample Type Composite

TEST INSTRUCTIONS:

NET DMR

Date Test Started: 4-18-17 Time: 1420 Technician: SC
 Date Test Ended: 4-19-17 Time: 1200 Technician: SC
 Culture No.: DP041817

Units % No. Surviving Organisms, 0 Hrs. No. Surviving Organisms, 24 Hrs.

Concentration	A	B	C	D	E	A	B	C	D	E
Control	8	—	—	—	—	8	—	—	—	—
100	8	—	—	—	—	7	7	6 ²	8 ³	8

Test Temperatures

	0Hr	24Hr
	new	old
Control	8.5	20.1
100		
IR GUN ID #	800011	00

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC.**TOXICITY TEST****24 Hr Acute***Pimephales promelas*

Lab ID: 65972

Client: Wyman-Gordon Forgings, Inc. Cypress Plant

Test Temperature (oC): 25 ± 1

Permit Number: TPDES

WQ0001402000

Photo Period: 16 hours light
8 hours dark

Sample Type: Composite

Outfall Name: 002

Begin Date: 4/18/2017

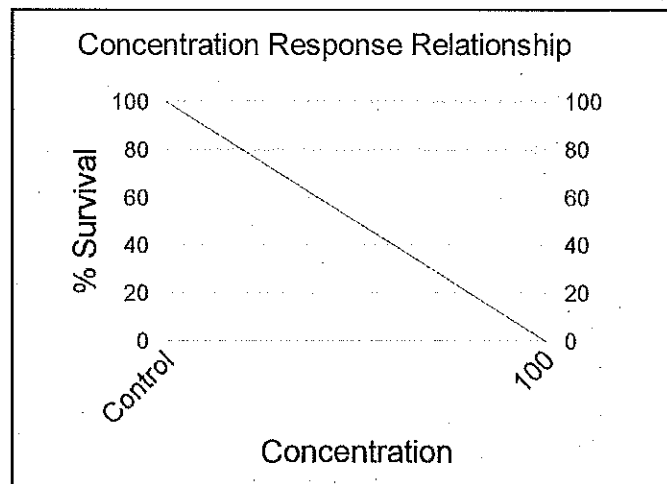
Receiving Water Name: N/A

End Date: 4/19/2017

Test Start Time: 14:27

Test End Time: 11:35

Effluent Con. %	SURVIVAL										Avg% Surv.
	Number Of Alive Per Replicate										
	4/18					4/19					
	A	B	C	D	E	A	B	C	D	E	
Control	8	8	8	8	8	8	8	8	8	8	100.0%
100	8	8	8	8	8	0	0	0	0	0	0.0%



BIO-AQUATIC TESTING, INC.

2501 Mayes Road, Suite 100
 Carrollton, Texas 75006
 Tel: 972-242-7750
 Fax: 972-242-7749

24 HOUR ACUTE SURVIVAL

Organism: Pimephales promelas 24 Hr AcuteClient: Wyman-Gordon Forgings, Inc.

Cypress Plant

Lab ID: 65972Outfall Name 002Sample Type Composite

TEST INSTRUCTIONS:

NET DMR

Date Test Started: 4-18-17Time: 1427Technician: [Signature]Date Test Ended: 4-19-17Time: 1135Technician: [Signature]Culture No. : P0-17-102

Units %	No. Surviving Organisms, 0 Hrs.					No. Surviving Organisms, 24 Hrs.				
Concentration	A	B	C	D	E	A	B	C	D	E
Control	8					8				
100	8					8				

Test Temperatures

	0Hr	24Hr
	new	old
Control	23.3	23.3
100		
IR GUN ID #	009	009

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

APPENDIX A

STATISTICS SUMMARY

Both the lethal and sub-lethal endpoints were statistically calculated according to their respective EPA guidelines. The Chronic Freshwater organisms were calculated according to EPA-821-R-02-013, October 2002 Fourth Edition. The Chronic Marine and Estuarine organisms were calculated according to EPA-821-R-02-014, October 2002 Third Edition. The Acute Freshwater and Marine organisms were calculated according to EPA-821-R-02-012, October 2002 Fifth Edition. The fertilization organisms were calculated according to EPA-600-R-95-136 or EPA-600-R-12-022, dependent upon the species. Listed below are the basic principles of these guidelines. If you would like a copy of the raw statistical calculations for your test then please contact us.

The chronic and acute *Pimephales promelas* and *Menidia beryllina* survival data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts (parametric). If the data fails Shapiro Wilks Test or Bartlett's Test then Steels Many One Test (non-parametric) is used. The chronic *Pimephales promelas* and *Menidia beryllina* growth data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Shipiro Wilks Test and Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The chronic *Mysidopsis bahia* survival data is analyzed using Chi-square test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test or Bartlett's Test then Steels Many One Test is used. *Mysidopsis bahia* growth data is analyzed using Chi-square test and Bartlett's Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test and Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The acute *Mysidopsis bahia* survival data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Shipiro Wilks Test or Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The chronic *Ceriodaphnia dubia* survival data are analyzed using the Fisher's Exact Test. The chronic *Ceriodaphnia dubia* reproduction and are analyzed using the Chi-square test and Bartlett Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test and Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The acute *Daphnia pulex* and *Ceriodaphnia dubia* survival data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Shapiro Wilks Test or Bartlett's Test then Steels Many One Test is used. Point estimation may also be used.

The fertilization data is analyzed using Shapiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Shapiro Wilks Test or Bartlett's Test then Steels Many One Test is used. Point estimation or TST methodology may also be used.

65972

Bio-Aquatic Testing, Inc.

FRESH WATER TEST SETUP FORM

Client: Wyman-Gordon Forgings, Inc.Permit WQ0001402000Facility: Cypress PlantLab Number 65972Outfall Name: 002Number of samples 1Dilution Water: Synthetic LabReceiving Water Name: N/ADechlorinate Sample: No

Sx #	Rcvd Date	Rcvd Time	Sampling Dates		Sampling Times	
			Begin Date	End Date	Start	End
1	04/18/17	13:30	04/17/17	04/17/17	13:50	14:00

Type of Test(s)

Daphnia pulex 24 Hr Acute
Pimephales promelas 24 Hr Acute

Start Sx # 1 Date: 4/18/2017

Renew Sx # _____ Date: _____

Renew Sx # _____ Date: _____

Renew Sx # _____ Date: _____

Renew Sx # _____ Date: _____

Renew Sx # _____ Date: _____

Renew Sx # _____ Date: _____

Test Start Date: _____ Test End Date: _____

4/18/2017 4/19/2017Controls: Synthetic

pH Match: _____

Hardness Match: ModerateDaphnia pulex Test Set Up: 5 Reps & 8 Organisms per RepPimephales Test Set Up: 5 Reps & 8 Organism per RepConcentrations: 100 % LF % 100Test Chemistry on these dilutions: 100

Samples received by:

- | | | | |
|--|---|--|-----------------------------|
| ☐ Greyhound | ☐ UPS Next Day | ☐ Delta Dash | ☐ Delta |
| ☐ Pony Express | ☐ Client Delivered | ☐ Southwest Airlines | ☐ DHL |
| ☒ Federal Express | ☐ American Airlines | ☐ Bio Pick Up | |

Other: _____

BIO-AQUATIC TESTING, INC.

Hardness, Alkalinity, Residual Chlorine, Specific Conductivity, and Salinity Analysis Data

Client: Wyman-Gordon Forgings, Inc.

Lab ID: 65972

Facility: Cypress Plant

Outfall: 002

Dilution Water(s): Synthetic Lab

Test Date: April 18, 2017

** 100 %

Effluent Sample #	Received		** Residual Cl ₂	DeChlor (ml/L)	** Ammonia mg/L	Analyst Initials	Initial Salinity	Adjusted Salinity	Temp. Received
	Date	Time							
1	4/18/17	13:30	<0.10	N/A	<0.25	DF	N/A	N/A	2.9

Chlorine Analysis Method:

Hanna Ion Specific Meter #711

Dechlorination Reagent:

0.025 N Sodium Thiosulfate

Sample #	Received		Hardness (EDTA) As mg/L CaCO ₃		ALKALINITY TO END POINT pH 4.50 +/- 0.05 as mg/L CaCO ₃		Analyst Initials
	Date	Time	CON	100	CON	100	
1	4/18/17	13:30	152.0	170.0	58.0	104.0	JAS

Date	Sample #	Values are at Highest Dilution		Values are at 100% Dilution		Analyst	Other
		Specific Conductivity as umhos/cm	Salinity (ppt)	Residual Chlorine as mg Cl ₂ /L	¹ ml 0.02N Na ₂ S ₂ O ₃ /L		
4/18	Lab H2O	447	0.3			SF	
4/19	Lab H2O					SF	
4/20	Lab H2O						
4/21	Lab H2O						
4/22	Lab H2O						
4/23	Lab H2O						
4/24	Lab H2O						
4/18	OUTFALL*	903	0.5			SF	
4/19	OUTFALL*					SF	
4/20	OUTFALL*						
4/21	OUTFALL*						
4/22	OUTFALL*						
4/23	OUTFALL*						
4/24	OUTFALL*						

*Conductivity is taken on the highest remaining effluent concentration used for test renewal, not necessarily 100%

BIO-AQUATIC TESTING, INC.

pH, Dissolved Oxygen

24 Hr Acute

Daphnia pulex

Client: Wyman-Gordon Forgings, Inc.

Lab ID: 65972

Facility: Cypress Plant

Dilution Water(s): Synthetic Lab

Outfall: 002

Test Begin Date: April 18, 2017

NR indicates that the test is non-renewal.

ANALYST	DATE	TIME	SX#	UNIT	Concentration							
					Control	100						
SF	4/18	Start		pH	8.1	7.7						
		25 ± 1		DO (mg/L)	8.2	7.8						
SF	4/19	24 Hr		pH	8.1	8.0						
		25 ± 1		DO (mg/L)	8.7	8.5						
	4/20	Renew		pH								
				DO (mg/L)								
	4/20	48 Hr		pH								
		25 ± 1		DO (mg/L)								
	4/21	Renew		pH								
				DO (mg/L)								
	4/21	72 Hr		pH								
		25 ± 1		DO (mg/L)								
	4/22	Renew		pH								
				DO (mg/L)								
	4/22	96 Hr		pH								
		25 ± 1		DO (mg/L)								
	4/23	Renew		pH								
				DO (mg/L)								
	4/23	120 Hr		pH								
		25 ± 1		DO (mg/L)								
	4/24	Renew		pH								
				DO (mg/L)								
	4/24	144 Hr		pH								
		25 ± 1		DO (mg/L)								
	4/25	Renew		pH								
				DO (mg/L)								
	4/25	168 Hr		pH								
		25 ± 1		DO (mg/L)								

BIO-AQUATIC TESTING, INC.

pH, Dissolved Oxygen

24 Hr Acute

Pimephales promelas

Client: Wyman-Gordon Forgings, Inc.

Lab Number: 65972

Facility: Cypress Plant

Dilution Water(s): Synthetic Lab

Outfall: 002

Test Begin Date: April 18, 2017

NR indicates that the test is non-renewal.

ANALYST	DATE	TIME	SX#	UNIT	Concentration							
					Control	100						
SF	4/18	Start		pH	8.1	7.7						
		25 ± 1		DO (mg/L)	8.2	7.8						
SF	4/19	24 Hr		pH	7.8	7.8						
		25 ± 1		DO (mg/L)	7.8	7.6						
	4/20	Renew		pH								
				DO (mg/L)								
	4/21	48 Hr		pH								
		25 ± 1		DO (mg/L)								
	4/22	Renew		pH								
				DO (mg/L)								
	4/23	72 Hr		pH								
		25 ± 1		DO (mg/L)								
	4/24	Renew		pH								
				DO (mg/L)								
	4/25	96 Hr		pH								
		25 ± 1		DO (mg/L)								
	4/25	Renew		pH								
				DO (mg/L)								
	4/25	120 Hr		pH								
		25 ± 1		DO (mg/L)								
	4/25	Renew		pH								
				DO (mg/L)								
	4/25	144 Hr		pH								
		25 ± 1		DO (mg/L)								
	4/25	Renew		pH								
				DO (mg/L)								
	4/25	168 Hr		pH								
		25 ± 1		DO (mg/L)								

Appendix B

Daphnia pulex

BIO-AQUATIC TESTING, INC.

Carrollton, TX

REFERENCE TOXICANTS

Bio-Aquatic Testing conducts reference toxicant testing monthly for organisms cultured in-house. For studies requiring purchased organisms, reference toxicant testing is performed simultaneously. Reference toxicant testing validates data and measures organism consistency. Only reagent grade chemicals are used of the following choices: sodium laurel sulfate (SLS), copper sulfate, copper chloride, potassium chloride, and sodium chloride. Organism responses are tracked with control charts for each reference toxicant/organism combination. The data are examined for sensitivity trends and to determine if results are within EPA described limits.

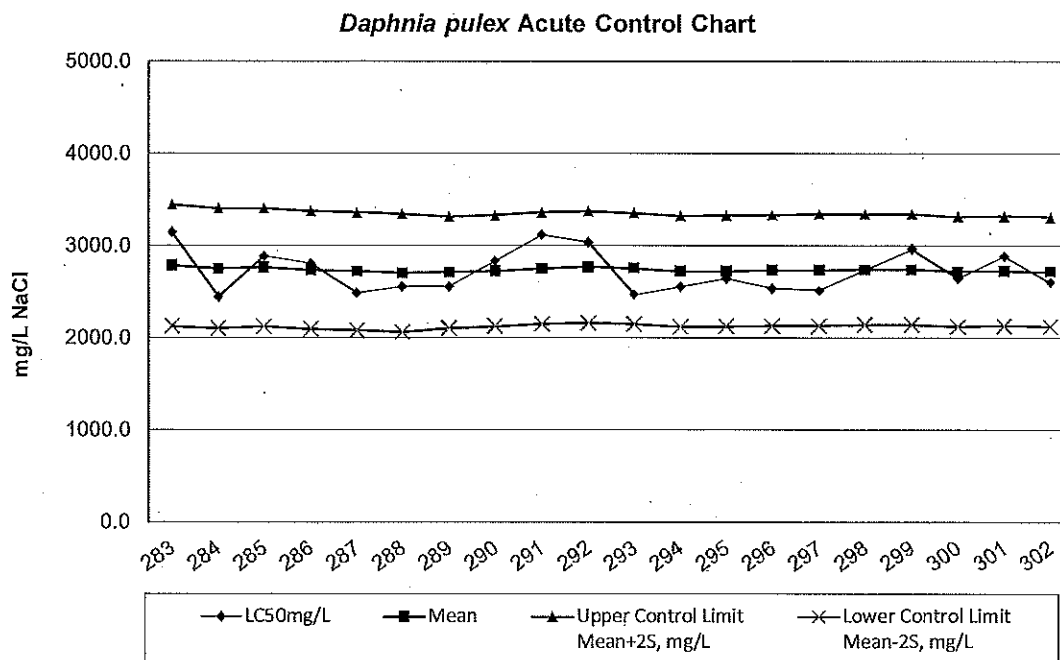
ACUTE REFERENCE TOXICANT TEST RESULTS

DILUTION WATER:	Standard Synthetic Freshwater
CHEMICAL:	Sodium Chloride
DURATION:	48 Hour Acute
TEST NUMBER:	302
PROJECT NUMBER:	63920
START DATE:	3/28/2017
START TIME:	13:26
TOTAL NUMBER EXPOSED:	40 organisms per concentration
CONCENTRATIONS (mg/L):	CON 250 500 1000 2000 3000 4000
NUMBER DEAD PER CONCENTRATION:	0 0 0 0 0 33 40
TEST METHODS:	As listed in EPA-821-R-02-012
STATISTICAL METHODS:	SURVIVAL: Trimmed Spearman-Kärber
LC50:	2602.65 mg/L
95% LOWER CONFIDENCE LIMITS:	2496.49 mg/L
95% UPPER CONFIDENCE LIMITS:	2713.32 mg/L

Bio-Aquatic Testing, Inc.

REFERENCE TOXICANT STATISTICAL RESULTS: LC50 AND CONTROL LIMITS
Daphnia pulex EXPOSED TO SODIUM CHLORIDE, 48 HOUR STATIC RENEWAL

Test Number	Date	Project Number	Toxicant Lot Number	Statistical Method	LC50mg/L	Mean	Twice Standard Deviation 2S	Upper Control Limit Mean+2S, mg/L	Lower Control Limit Mean-2S, mg/L
283	8/25/2015	60014	2014100822	Trimmed Spearman-Kärber	3149.2	2786.9	660.9	3447.8	2126.0
284	9/30/2015	60015	2014100822	Trimmed Spearman-Kärber	2449.5	2753.5	651.5	3405.0	2102.0
285	10/28/2015	60016	2014100822	Trimmed Spearman-Kärber	2887.8	2765.3	643.2	3408.5	2122.1
286	11/25/2015	60017	2014100822	Trimmed Spearman-Kärber	2813.7	2735.7	641.9	3377.6	2093.9
287	12/29/2015	60018	2014031485A	Trimmed Spearman-Kärber	2492.3	2722.2	641.7	3363.9	2080.6
288	1/26/2016	61948	2014031485A	Trimmed Spearman-Kärber	2557.9	2703.8	642.4	3346.1	2061.4
289	2/26/2016	61949	2014031485A	Trimmed Spearman-Kärber	2557.9	2710.0	607.1	3317.1	2102.9
290	3/30/2016	61950	2014031485A	Trimmed Spearman-Kärber	2838.2	2728.0	602.4	3330.3	2125.6
291	4/28/2016	61951	2015030582	Trimmed Spearman-Kärber	3122.0	2756.6	604.6	3361.2	2152.0
292	5/31/2016	61952	2015620694	Trimmed Spearman-Kärber	3041.9	2771.3	605.2	3376.5	2166.1
293	6/28/2016	61953	2015620694	Trimmed Spearman-Kärber	2470.8	2757.9	600.7	3358.6	2157.3
294	7/28/2016	61954	2015620694	Trimmed Spearman-Kärber	2557.9	2724.7	601.6	3326.3	2123.1
295	8/31/2016	61955	2015091431	Trimmed Spearman-Kärber	2648.1	2728.8	601.6	3330.4	2127.3
296	9/27/2016	61956	2015091431	Trimmed Spearman-Kärber	2535.9	2735.4	603.0	3338.4	2132.4
297	10/27/2016	61957	2015091431	Trimmed Spearman-Kärber	2514.0	2737.9	604.9	3342.8	2133.0
298	11/22/2016	61958	2015091431	Trimmed Spearman-Kärber	2741.5	2743.2	597.4	3340.6	2145.7
299	12/27/2016	61959	2015091431	Trimmed Spearman-Kärber	2963.9	2742.0	598.7	3340.7	2143.3
300	1/31/2017	63893	2015091431	Trimmed Spearman-Kärber	2648.1	2720.5	597.9	3318.4	2122.6
301	2/28/2017	63908	2015091431	Trimmed Spearman-Kärber	2887.8	2727.1	593.9	3321.0	2133.2
302	3/28/2017	63920	2015091431	Trimmed Spearman-Kärber	2602.7	2718.6	594.7	3313.3	2124.0



Appendix B

Pimephales promelas

BIO-AQUATIC TESTING, INC.

Carrollton, TX

REFERENCE TOXICANTS

Bio-Aquatic Testing conducts reference toxicant testing monthly for organisms cultured in-house. For studies requiring purchased organisms, reference toxicant testing is performed simultaneously. Reference toxicant testing validates data and measures organism consistency. Only reagent grade chemicals are used of the following choices: sodium laurel sulfate (SLS), copper sulfate, copper chloride, potassium chloride, and sodium chloride. Organism responses are tracked with control charts for each reference toxicant/organism combination. The data are examined for sensitivity trends and to determine if results are within EPA described limits.

ACUTE REFERENCE TOXICANT TEST RESULTS

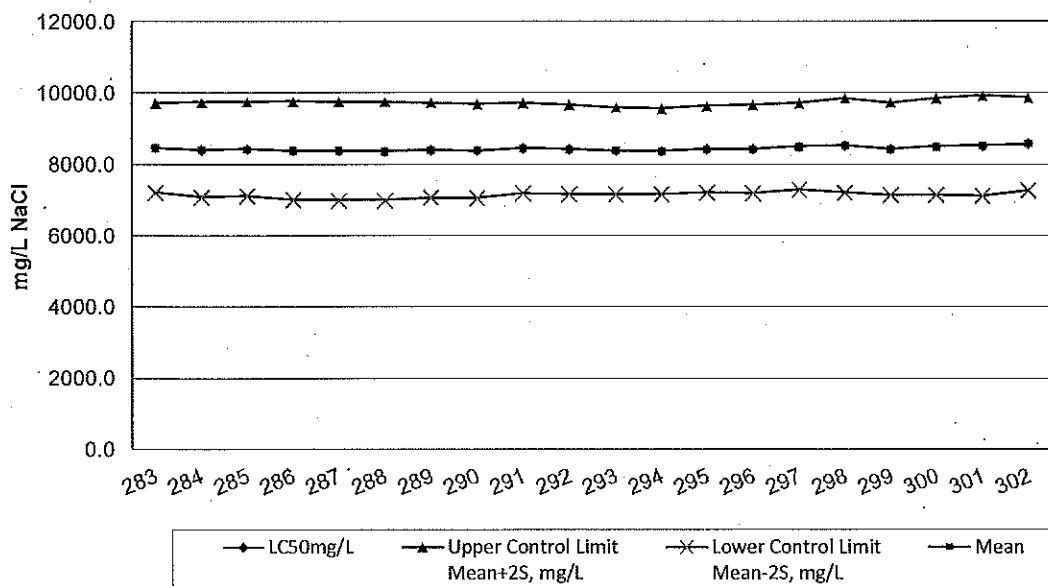
DILUTION WATER:	Standard Synthetic Freshwater
CHEMICAL:	Sodium Chloride
DURATION:	48 Hour Acute
TEST NUMBER:	303
PROJECT NUMBER:	63921
START DATE:	3/28/2017
START TIME:	13:19
TOTAL NUMBER EXPOSED:	40 organisms per concentration
CONCENTRATIONS (mg/L):	CON 2000 4000 6000 8000 10000 12000
NUMBER DEAD PER CONCENTRATION:	0 0 0 2 10 40 40
TEST METHODS:	As listed in EPA-821-R-02-012
STATISTICAL METHODS:	SURVIVAL: Trimmed Spearman-Kärber
LC50:	8246.85 mg/L
95% LOWER CONFIDENCE LIMITS:	7904.87 mg/L
95% UPPER CONFIDENCE LIMITS:	8603.62 mg/L

Bio-Aquatic Testing, Inc.

REFERENCE TOXICANT STATISTICAL RESULTS: LC50 AND CONTROL LIMITS
***Pimephales promelas* EXPOSED TO SODIUM CHLORIDE, 48 HOUR STATIC RENEWAL**

Test Number	Date	Project Number	Toxicant Lot Number	Statistical Method	LC50mg/L	Mean	Twice Standard Deviation 2S	Upper Control Limit Mean+2S, mg/L	Lower Control Limit Mean-2S, mg/L
283	8/25/2015	60054	2014100822	Trimmed Spearman-Kärber	8617.7	8461.0	1252.1	9713.0	7208.9
284	9/30/2015	60055	2014100822	Trimmed Spearman-Kärber	7436.1	8407.9	1332.9	9740.8	7075.0
285	10/27/2015	60056	2014100822	Trimmed Spearman-Kärber	8498.9	8431.8	1320.7	9752.5	7111.1
286	11/24/2015	60057	2014100822	Trimmed Spearman-Kärber	7514.6	8385.8	1383.0	9768.8	7002.9
287	12/29/2015	60058	2015030582	Trimmed Spearman-Kärber	8360.9	8377.4	1381.3	9758.7	6996.1
288	1/26/2016	61960	2015030582	Trimmed Spearman-Kärber	8688.8	8374.4	1378.1	9752.5	6996.2
289	2/24/2016	61961	2015030582	Trimmed Spearman-Kärber	8024.2	8399.0	1331.4	9730.4	7067.6
290	3/30/2016	61962	2015030582	Trimmed Spearman-Kärber	8433.6	8379.7	1316.8	9696.4	7062.9
291	4/28/2016	61963	2015030582	Trimmed Spearman-Kärber	8852.3	8445.7	1269.2	9715.0	7176.5
292	5/31/2016	61964	2015620694	Trimmed Spearman-Kärber	8350.3	8420.9	1255.5	9676.4	7165.4
293	6/28/2016	61965	2015620694	Trimmed Spearman-Kärber	8231.8	8379.5	1220.9	9600.3	7158.6
294	7/28/2016	61966	2015620694	Trimmed Spearman-Kärber	8720.1	8366.0	1198.2	9564.1	7167.8
295	8/31/2016	61967	2015091431	Trimmed Spearman-Kärber	9031.8	8423.6	1210.3	9634.0	7213.3
296	9/27/2016	61968	2015091431	Trimmed Spearman-Kärber	9347.5	8437.1	1246.5	9683.6	7190.6
297	10/27/2016	61969	2015091431	Trimmed Spearman-Kärber	8932.5	8499.3	1212.9	9712.2	7286.4
298	11/22/2016	61970	2015091431	Trimmed Spearman-Kärber	9798.6	8537.3	1326.3	9863.5	7211.0
299	12/27/2016	61971	2015091431	Trimmed Spearman-Kärber	7520.3	8432.6	1298.9	9731.5	7133.7
300	1/31/2017	63894	2015091431	Trimmed Spearman-Kärber	9361.7	8494.5	1353.8	9848.3	7140.8
301	2/28/2017	63909	2015091431	Trimmed Spearman-Kärber	9432.2	8524.6	1410.7	9935.3	7113.9
302	3/28/2017	63921	2015091431	Trimmed Spearman-Kärber	8246.9	8570.0	1304.4	9874.4	7265.7

***Pimephales promelas* Acute Control Chart**



APPENDIX C

LITERATURE REFERENCES

- U.S.E.P.A., 2002. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents And Receiving Water To Freshwater Organisms (Fifth Edition) U.S. Environmental Protection Agency, Office of Water, Washington D.C., EPA-821-R-02-012.
- U.S.E.P.A., 2002. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents and Receiving Water To Marine And Estuarine Organisms (Third Edition) U.S. Environmental Protection Agency, Office of Water, Washington D.C., EPA-821-R-02-014.
- U.S.E.P.A., 2002. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents And Receiving Water To Freshwater Organisms (Fourth Edition) U.S. Environmental Protection Agency, Office of Water, Washington D.C., EPA-821-R-02-013.
- U.S.E.P.A., 2012. Tropical Collector Urchin, *Tripneustes gratilla* (First Edition) U.S. Environmental Protection Agency, Office of Research and Development and Region 9, EPA-600-R-12-022.
- U.S.E.P.A., 1995. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents And Receiving Water To West Coast Marine and Estuarine Organisms (First Edition) U.S. Environmental Protection Agency, EPA-600-R-95-136.
- U.S.E.P.A., 2010. National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document, U.S. Environmental Protection Agency, Office of Wastewater, Washington D.C., EPA-833-R-10-004.
- U.S.E.P.A., 1991. Technical Support Document For Water Quality-Based Toxics Control, U.S. Environmental Protection Agency, EPA-505-2-90-001.
- Zarr, Jerrold, H., 1984. Biostatistical Analysis, (Second Edition). Prentice-Hall, Inc., Englewood Cliffs, N.J.

CHAIN-OF-CUSTODY SHEETS

Appendix D

BIO-AQUATIC TESTING, INC. 2501 MAYES RD., STE. 100 CARROLLTON, TX 75006 PH: 972-242-7750 FAX: 972-242-7749		CHAIN OF CUSTODY Please Review & Complete Sections A, B, C, & D. Check Sample No.: ☒ First, ☐ Second, or ☐ Third.		Lab Id: 65968 Sample No: 65968 P.O. No:																																							
C. REVIEW SCHEDULED TEST(S): <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">Chronic</td> <td style="width:30%;">Ceriodaphnia dubia</td> <td style="width:10%;">9</td> <td style="width:10%;">12</td> <td style="width:10%;">17</td> <td style="width:10%;">22</td> <td style="width:10%;">29</td> </tr> <tr> <td>Chronic</td> <td>Pimephales promelas</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> Concentration:		Chronic	Ceriodaphnia dubia	9	12	17	22	29	Chronic	Pimephales promelas						B. Use area below to make changes, if the Scheduled Test(s) in "A" are incorrect: <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="4">Freshwater Species</th> <th colspan="4">Saltwater Species</th> </tr> <tr> <th></th> <th>C. dubia (water flea)</th> <th>D. pulex (water flea)</th> <th>D. magna (water flea)</th> <th>P. promelas (minnow)</th> <th>Selenastrum (green algae)</th> <th>M. beryllina (minnow)</th> <th>Mysidopsis (shrimp)</th> </tr> <tr> <td></td> <td> ☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour </td> <td> ☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour </td> <td> ☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour </td> <td> ☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour </td> <td> ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour </td> <td> ☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour </td> <td> ☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour </td> </tr> </table>				Freshwater Species				Saltwater Species					C. dubia (water flea)	D. pulex (water flea)	D. magna (water flea)	P. promelas (minnow)	Selenastrum (green algae)	M. beryllina (minnow)	Mysidopsis (shrimp)		☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour
Chronic	Ceriodaphnia dubia	9	12	17	22	29																																					
Chronic	Pimephales promelas																																										
Freshwater Species				Saltwater Species																																							
	C. dubia (water flea)	D. pulex (water flea)	D. magna (water flea)	P. promelas (minnow)	Selenastrum (green algae)	M. beryllina (minnow)	Mysidopsis (shrimp)																																				
	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour	☐ Chronic ☐ 96 Hour ☐ 48 Hour ☐ 24 Hour																																				
D. (For TX) Setup separate 24hr Acute Test? ☐ Yes ☒ No		Notes: 1st Quarter Has Sub-Lethal Language (AS) *Include 1st Semi-Annual Acute*																																									
E. Sample ID or Location: (Outfall No. or Name)		Sample Type: E = Effluent RS = Rec. Stream S = Sediment		Sample Date From To		Grab or Composite From To		Sampled By: (Sign and Print Name)		Number Of Containers Shipped																																	
1 502		E		4/11/17 4:12 p		4:12 p 2:00 p		A. Plocek		1																																	
2										1																																	
3										1																																	
D. Relinquished By:		Date		Time		Received By:		Date		Time																																	
A. Plocek		4/11/17		3:00 pm		C. Plocek		4/11/17		1:30																																	
2																																											
3																																											
Bio-Aquatic Sample Login																																											
BAT sample personnel: ☐ Yes ☒ No																																											
Check for Ammonia: ☐ Yes ☒ No																																											
Dechlorinate Sample: ☐ Yes ☒ No																																											
Dilution Water: ☐ Receiving Stream ☒ Synthetic Lab																																											
Date: 4/18				Time: 1330				By: A																																			
Temperature: 29.9 (C)				IR#: 0024				Int. Salinity:																																			
Chlorine: 10.1 mg/l				Ammonia: 0.25 mg/l				Other:																																			
pH: 7.6				DO: 8.1 mg/l				Condition:																																			

REGULATORY AGENCY TABLES

Appendix E

Table 2 (Sheet 1 of 2)
BIOMONITORING REPORT

Daphnia pulex SURVIVAL TEST

Permittee: Wyman-Gordon Forgings, Inc. - Cypress Plant
 Permit No.: WQ0001402000
 Outfall No.: 002

Dates and times
 Composites were collected: FROM: 4/17/2017 @13:50 TO: 4/17/2017@ 14:00

Test Initiation: Time: 14:20 Date: 4/18/2017

Dilution Water Used: ☐ Receiving Water ☒ Synthetic Dilution Water

DATA TABLE FOR SURVIVAL OF *Daphnia pulex*

TIME	REPLICATE	EFFLUENT CONC. (%)	
		0%	100 %
24 HOUR	A	100	87.5
	B	100	87.5
	C	100	75
	D	100	87.5
	E	100	100
MEAN		100	87.5

Is the mean survival at 24 hours in the 100% effluent greater than 50%?

CRITICAL DILUTION (100 %) : X YES NO

If yes is checked enter a '0' for Parameter TIE3D, otherwise enter '1'.

Enter the percent effluent corresponding to LC50 below:

24 Hour LC50 (*Daphnia pulex*) = >100 % Effluent

95 % Confidence Interval : *Q

Method of LC50 Calculation: Visual Inspection

Q* refers to a value that is not calculable

Table 2 (Sheet 2 of 2)
BIOMONITORING REPORT

Pimephales promelas SURVIVAL TEST

Permittee: Wyman-Gordon Forgings, Inc. - Cypress Plant

Permit No.: WQ0001402000

Outfall No.: 002

Dates and times Date/Time Date/Time
FROM: 4/17/2017 @ 13:50 TO: 4/17/2017 @ 14:00
Composites were collected:

Test Initiation: Time: 14:27 Date: 4/18/2017

Dilution Water Used: ☐ Receiving Water ☒ Synthetic Dilution Water

DATA TABLE FOR SURVIVAL OF *Pimephales promelas*

TIME	REPLICATE	EFFLUENT CONC. (%)	
		0%	100 %
24 HOUR	A	100	0
	B	100	0
	C	100	0
	D	100	0
	E	100	0
MEAN		100	0

Is the mean survival at 24 hours in the 100% effluent greater than 50%?

CRITICAL DILUTION (100 %) : YES X NO

If yes is checked enter a '0' for Parameter TIE6C, otherwise enter '1'.

Enter the percent effluent corresponding to LC50 below:

24 Hour LC50 (*Pimephales promelas*) = <100 % Effluent

95 % Confidence Interval : *Q

Method of LC50 Calculation: Visual Inspection

Q* refers to a value that is not calculable

