Antidegradation Alternatives Analysis

Expanded Production Based NPDES Permit Limits

Alcoa, Inc.
Riverdale, IA

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Stanley Consultants INC.
A Stanley Group Company
Engineering, Environmental and Construction Services - Worldwide

Table of Contents

Certification

Section 1
Executive Summary 1-1

Section 2
Existing Conditions and Design Parameters 2-1

Section 3
Receiving Stream Network 3-1

Section 4
Effluent Limitations 4-1

Section 5
Identification of Alternatives 5-1
5.1 2012 Production Expansion 5-1
5.1.1 Alternative 1: Land Application 5-1
5.1.2 Alternative 2: Discharge to City of Davenport 5-2
5.1.3 Alternative 3: Increased BTF Capacity 5-2
5.1.4 Alternative 4: Increased Effluent Limits 5-2
5.2 Actual 2015 Production Expansion 5-3
5.2.1 Alternative 1: Land Application 5-3
5.2.2 Alternative 2: Discharge to City of Davenport 5-3
5.2.3 Alternative 3: Increased BTF Capacity 5-3
5.2.4 Alternative 4: Increased Effluent Limits 5-4
5.3 Estimated Costs 5-4

Section 6
Pollutants of Concern 6-6

Section 7
Alternative Evaluation and Selection 7-1

Section 8
Social and Economic Importance 8-1

Appendix A

Production Rates for Use with 40 CFR 467 2

Appendix B
NPDES Permit 1

Appendix C
Proposed Effluent Limits 1

Appendix D
Process Flow Diagrams 1

FIGURES

Figure 2-1 Current Plant Water Balance 2-2

2-2

Table 2-1 Existing Flows and Loading 2-3

Table 2-2 Existing Design Flows and Loadings 2-3

Table 3-1 Mississippi River Stream Designations 3-1

Table 3-2 Impairment Status[1] 3-1

Table 4-1 Existing Outfall 009 NPDES Permit Limits 4-1

Table 4-2 Proposed Outfall 009 NPDES Permit Limits Based on 2012 Production 4-2

Table 4-3 Proposed Outfall 009 NPDES Permit Limits Based on 2015 Production 4-2

Table 5-1 Alternatives Estimated Costs – 2012 Production Based Limits 5-4

Table 5-2 Alternatives Estimated Costs – Actual 2015 Production Based Limits 5-4

Table 6-1 Pollutant of Concern 6-6

Table 7-1 Alternative Classification and Evaluation - 2012 Production Based Limits 7-1

Table 7-2 Alternative Classification and Evaluation – Actual 2015 Production Based Limits 7-1

Table 7-3
Reasonable Alternatives Degradation Comparison for 2012 Production Based Limits 7-2

Table 7-4
Reasonable Alternatives Degradation Comparison for Actual 2015 Production Based Limits 7-2

Table 8-1 Estimated Employment Impacts 8-2

TABLES

Figure 2-1 Current Plant Water Balance 2-2

2-2

Table 2-1 Existing Flows and Loading 2-3

Table 2-2 Existing Design Flows and Loadings 2-3

Table 3-1 Mississippi River Stream Designations 3-1
Table 3-2 Impairment Status[1] 3-1
Table 4-1 Existing Outfall 009 NPDES Permit Limits 4-1
Table 4-2 Proposed Outfall 009 NPDES Permit Limits Based on 2012 Production 4-2
Table 4-3 Proposed Outfall 009 NPDES Permit Limits Based on 2015 Production 4-2
Table 5-1 Alternatives Estimated Costs – 2012 Production Based Limits 5-4
Table 5-2 Alternatives Estimated Costs – Actual 2015 Production Based Limits 5-4
Table 6-1 Pollutant of Concern 6-6
Table 7-1 Alternative Classification and Evaluation - 2012 Production Based Limits 7-1
Table 7-2 Alternative Classification and Evaluation – Actual 2015 Production Based Limits 7-1
Table 7-3 Reasonable Alternatives Degradation Comparison for 2012 Production Based Limits 7-2
Table 7-4 Reasonable Alternatives Degradation Comparison for Actual 2015 Production Based Limits 7-2
Table 8-1 Estimated Employment Impacts 8-2
Table 7-2 Alternatives Classification and Evaluation – Proposed 2015 Production Based Limits 7-1
Table 7-3 Reasonable Alternatives Degradation Comparison for 2012 Production Based Limits 7-2
Table 7-4 Reasonable Alternatives Degradation Comparison for Proposed 2015 Production Based Limits 7-2
Table 8-1 Estimated Employment Impacts 8-2

APPENDIX

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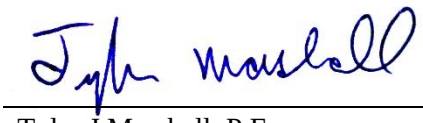
Certification

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.



July 11, 2016

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Section 1

Executive Summary

The Alcoa Davenport Works is located along the Mississippi River and has nine outfalls to the river (001 – 009). As part of the current NPDES permit renewal cycle, Alcoa is seeking expanded discharge limits related to their production-based permit limits, as detailed in their June 2013 NPDES renewal application. Previously, an antidegradation alternatives analysis had been submitted for this purpose. That analysis was rejected by IDNR on the basis that Alcoa is not entitled to increased Aluminum limits due to the Mississippi River's status as being impaired for Aluminum. This analysis removes aluminum from the requested increased limits.

Since the NPDES application was submitted in 2007 for Alcoa's current NPDES permit, the facility has seen increased production from the existing product lines, as shown in Appendix A. Several of the pollutant limits in Alcoa's current NPDES permit (a copy of which is located in Appendix B) are derived from production-based limits in the Federal Industry Effluent Guidelines for Aluminum Forming. Because production has increased, Alcoa wishes to pursue proportionate increases in the limits for those production-based pollutant limits. A summary of proposed effluent increases are shown in Appendix C.

Additionally, Alcoa has projected that a combination of expanded output from existing lines, as well as expanded production from new product lines, will result in further expansion of production at the facility for the year 2015, also shown in Appendix C.

Alcoa understands that increased NPDES permit limits are a trigger for IDNR requiring an Antidegradation Alternatives Analysis. This Antidegradation Alternatives Analysis identifies and evaluates one alternative that is an increase in permit limits to reflect the actual and proposed production based effluent concentration limits (Base Pollution Control Alternative [BPCA]), as well as three other alternatives which would result in no increase in direct discharge from the facility associated with increased production (Non Degrading Alternatives [NDA]). One set of alternatives is developed for each of the actual 2012 production values, and the actual 2015 production values.

The alternatives were evaluated based on their practicability, economic efficiency, affordability and degradation on a pollutant-by-pollutant basis. For both the 2012 and the 2015 scenarios, two of the alternatives (Land Application and Discharge to City of Davenport) were determined to be non-practicable. Alternative 3, Increased BTF Capacity was found to be non-degrading, however it is economically inefficient. This leaves Alternative 4 – Increased production based limits as the remaining reasonable alternative (i.e. the preferred alternative) for both the 2012 actual production increases and the actual 2015 production increases.

Although the preferred alternative is not expected to lead to significant increases in pollutant concentrations in the receiving stream (technology based criteria in this case are significantly below water quality based criteria), degradation for some pollutants of concern will occur by definition. Therefore, a description of the project social and economic importance is included at the end of the analysis.

This Antidegradation Alternatives Analysis was prepared in accordance with the Iowa Antidegradation Implementation Procedure dated February 17, 2010 and Iowa Administrative Code 567 Chapter 61.2(2).

Section 2

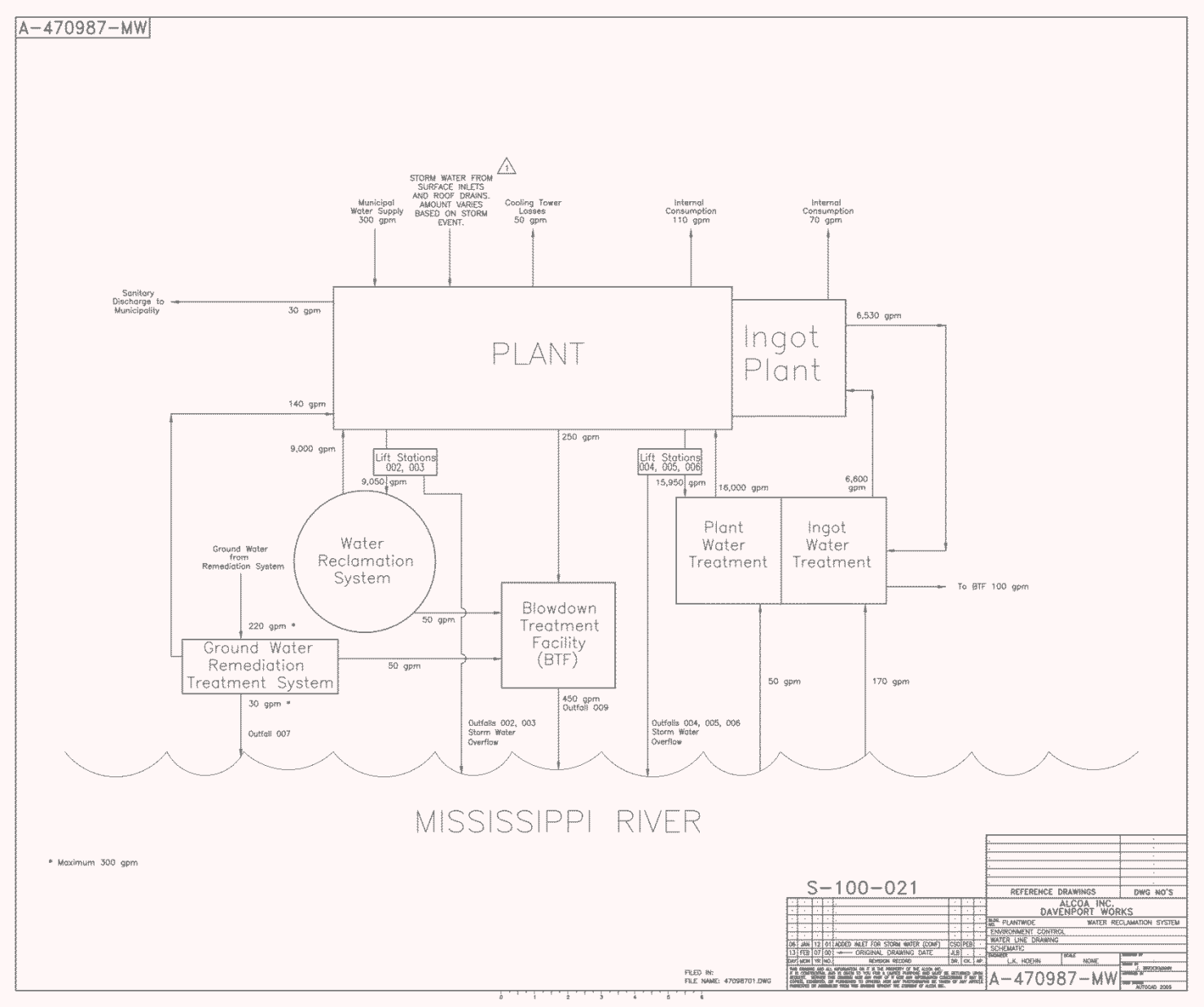
Existing Conditions and Design Parameters

Alcoa Inc. Davenport Works (Alcoa) is an aluminum fabrication plant that produces aluminum sheet and plate by casting and hot and cold rolling. The facility is located along the Mississippi River north of Davenport in Riverdale, Iowa. There are nine existing permitted outfalls. Outfalls 001, 002, 003, 004, 005 006 and 008 discharge storm water associated with industrial activity, outfall 007 discharges treated groundwater. Outfall 009 discharges treated process wastewater from the blowdown treatment system (BTF).

The Alcoa, Inc. plant uses water drawn from the Mississippi River, offsite potable water supply, and well water in both contact and non-contact applications. 97% of process water is recycled within the plant, through use of the plant Water Reclamation System. The bulk of Alcoa's water is used for non-contact cooling through heat exchanger applications. Blowdowns from water systems are treated in the BTF, and discharged to the Mississippi River.

Figure 2-1 is a schematic representation of the water flows within the Alcoa, Inc. facility.

Figure 2-1 Current Plant Water Balance



Tables 2-1 and 2-2 summarize existing and design wastewater influent flows and loadings for the current Alcoa, Inc. BTF.

Table 2-1 Existing Flows and Loading

Outfall	Flows (MGD)		Influent Pollutant Concentration (mg/L)		
				Average	Maximum
009	Max Day	0.813	Total Suspended Solids (TSS)	551	1,440
009	Max Month	0.706	Oil and Grease	52	156
009	Long Term Average	0.658	Zinc	0.38	0.84
009			Chromium	0.03	0.07
009					
007	Max Day	0.378			
007	Max Month	0.140			
007	Long Term Average	0.0453			

Table 2-2 Existing Design Flows and Loadings

Outfall	Flows (MGD)		Maximum Month Influent Loads (lbs/day)	
009	Continuous Operation	0.720 (original design) 0.691 (effective)[1]	TSS	750
009			Oil and Grease	1,800
009			Zinc	6
009			Chromium	6
009				
007	Continuous Operation	0.432		

1. Hydraulic restrictions in current system prevent operation at full design flow rate.

Alcoa, Inc. is currently in substantial compliance with its NPDES permit (No. 8278100 issued January 1, 2009 and amended July 12, 2012) and there are no enforceable schedules for improvements at this time.

The Process Flow Diagrams (PFD) in Appendix D show the existing BTF system. Alcoa is not necessarily proposing to increase the capacity of the BTF system as part of the current production increases. Much of the increases due to production fluctuations have been accommodated with no increase in loading to the current BTF due to water reduction and recycling strategies. The remainder of the increased loading has been within the demonstrated capacity of the BTF's treatment units. The current BTF system consistently meets NPDES permit limits. Similar wasteload reductions may be accomplished for future expansion either through selection of water-saving production technologies or through offsetting reductions in water generation elsewhere in the facility. Additionally, Alcoa has recently constructed a parallel treatment train for the BTF.

This parallel treatment train provides a backup system should the existing BTF experience an outage due to maintenance or equipment failure. Alcoa may consider re-rating the overall BTF in the future to expand the rated treatment capacity. However, this is impractical at this time due to the Aluminum impairment. This is why a separate antidegradation analysis is being developed for this permit increase at this time.

Section 3

Receiving Stream Network

The existing discharge is to the Mississippi River adjacent to the Alcoa, Inc. facility. The current receiving stream designations and impairment status are summarized in Tables 3-1 and 3-2:

Table 3-1 Mississippi River Stream Designations

Stream	Current Designations	Source
Mississippi River	A1, B(WW-1), HH, C	12/22/10 Surface Water Classification Document

Table 3-2 Impairment Status[1]

Stream	Impairment(s)	TMDL Status	Notes
Mississippi River	Aluminum	Not scheduled	Multiple downstream segments impaired

1. Source: Final 2014 Impaired Waters List

Section 4

Effluent Limitations

The current NPDES permit for the facility was issued by IDNR on January 1, 2009 and amended July 12, 2012. Existing NPDES permit limits are shown in Table 4-1. A copy of the facility's NPDES permit is found in Appendix B.

Table 4-1 Existing Outfall 009 NPDES Permit Limits

Outfall	Parameter	Concentration (mg/L)			Mass (lbs/day)		
		7 Day Ave/ Min	30 Day Average	Daily Maximum	7 Day Average	30 Day Average	Daily Maximum
009	TSS	-	-	-	-	249.5	484.6
009	pH	6.0		9.0	-	-	-
009	Aluminum, Total	-	-	-	-	23.2	49.3
009	Chromium, Total	-	-	-	-	1.31	3.19
009	Cyanide, Total	-	-	-	-	0.8	1.94
009	Oil and Grease	-	-	-	-	163.8	246.9
009	Zinc, Total	-	-	-	-	4.05	9.76

EPA promulgated federal effluent guidelines applicable to the discharge of process wastewater from aluminum forming operations at 40 CFR Part 467. The effluent limits in Table 4-1 are based on these guidelines.

Alcoa, Inc. is seeking changes to the existing permit limits related to production increases at the facility. The proposed production based limits and their derivations are included in Appendix C The proposed NPDES permit limits at Outfall 009 to reflect actual 2012 facility production rates are outlined in Table 4-2. The proposed NPDES permit limits at Outfall 009 to reflect actual 2015 facility production rates are outlined in Table 4-3. pH is omitted from these tables as there

are no proposed changes to those limits. Aluminum is omitted from these tables due to the impairment status of the Mississippi River.

Table 4-2 Proposed Outfall 009 NPDES Permit Limits Based on 2012 Production

Outfall	Parameter	2012 Calculated Mass (lbs/day)			2007 - 2012 Change (lbs/day)		
		7 Day Ave/ Min	30 Day Average	Daily Maximum	7 Day Average	30 Day Average	Daily Maximum
009	TSS	-	291.4	570.9	-	41.9	86.3
009	Chromium, Total	-	1.42	3.48	-	0.118	0.288
009	Cyanide, Total	-	0.877	2.13	-	0.076	0.183
009	Oil and Grease	-	190.1	289.4	-	26.3	42.6
009	Zinc, Total	-	4.44	10.7	-	0.383	0.920

Table 4-3 Proposed Outfall 009 NPDES Permit Limits Based on 2015 Production

Outfall	Parameter	Proposed 2015 Calculated Mass (lbs/day)			2012 - 2015 Change (lbs/day)		
		7 Day Ave/ Min	30 Day Average	Daily Maximum	7 Day Average	30 Day Average	Daily Maximum
009	TSS	-	306.5	586.6	-	15.1	15.7
009	Chromium, Total	-	1.71	4.18	-	0.29	0.70
009	Cyanide, Total	-	1.04	2.52	-	0.16	0.39
009	Oil and Grease	-	203	301	-	12.9	11.6
009	Zinc, Total	-	5.26	12.7	-	0.79	1.97

Section 5

Identification of Alternatives

Treatment alternatives have been developed for both the proposed effluent limits developed from the actual 2012 production level as well as the actual 2015 production levels. One set of alternatives is presented for each scenario. In order to estimate the costs associated with each option, the percentage increase in allowable loadings is estimated as an equivalent percentage increase in current BTF flows and loads. The current BTF facility flowrate is approximately 480 GPM. The 2012 Production based limits represent an average 12% increase in mass loading, which is approximated as a 12% increase in BTF flowrate, or 537 GPM. The 2015 proposed mass based limits represent an average increase of 21% in mass loading from the 2012 levels. Therefore the 2015 equivalent flowrate is approximated as a 21% increase over the 2012 equivalent flowrate, or 650 GPM.

5.1 2012 Production Expansion

5.1.1 Alternative 1: Land Application

Land application of the 2012 production equivalent increase in BTF wastewater would be a non-degrading alternative because there would be no increase in surface water discharge for the equivalent increase in discharge loadings. This alternative was evaluated and determined to be impracticable.

The Iowa Wastewater Facilities Design Standards Chapter 21 governs design requirements for land application of wastewater. The minimum storage required for land application is 200 days based on climatic restraints per Figure 3 of Chapter 21. The additional volume of storage required to allow land application of the proposed increase in design loading was calculated based upon the 2012 equivalent increase in BTF loading flowrate of 57 gpm. The storage requirement associated with storage of the additional flow for 200 days was calculated as roughly 16,400,000 gallons. The addition of this volume of wastewater storage at the Alcoa, Inc. Davenport facility is not physically or economically feasible.

Additionally, there would be regulatory restrictions on the land application of this wastewater due to the presence of metals, which would require pretreatment prior to land application.

5.1.2 Alternative 2: Discharge to City of Davenport

Pumping the equivalent additional wastewater to the City of Davenport was considered a non-degrading alternative in this analysis based on the assumption that the City wastewater treatment facility has adequate surplus treatment capacity available to accept the additional wastewater while remaining within its current permitted design capacities for both flow and loading.

The City of Davenport wastewater treatment plant is the nearest facility that could potentially accept the additional wastewater. This alternative was evaluated and determined to be economically inefficient. Capital and operation costs for a pumping station and force main to pump the wastewater flow were estimated. To implement this alternative, the wastewater from Alcoa, Inc. would have to be pumped at least one mile to tie into an existing gravity sewer with adequate capacity. The higher cost of this alternative is primarily due to the City fees for accepting the wastewater.

Because this option includes the continued operation of the BTF, the continued operation costs for the BTF are included in this analysis in order to ensure an accurate comparison.

5.1.3 Alternative 3: Increased BTF Capacity

This alternative includes installation of a supplemental 60 gpm treatment train that would only handle flows in excess of the existing BTF capacity of approximately 480 gpm. The purpose of this supplemental treatment expansion would be to remove the increase in pollutant loading equivalent to the 2012 production based limits. Refer to Appendix D for a sample figure which shows this type of treatment system. This is a non-degrading alternative because the treatment system would remove the pollutant loading to the river equivalent to the proposed increase in limits.

The proposed treatment process would include new acid mix and lime mix tanks installed in the location of the old carbon filters. These mix tanks would be required to ensure there is adequate chemical reaction time and sufficient hydraulic head prior to the new treatment train. The overflow from the new lime mix tank would enter a Lamella Clarifier. The Lamella Clarifier overflow would enter a Dynasand filter and then discharge via Outfall 009.

5.1.4 Alternative 4: Increased Effluent Limits

Alcoa's current NPDES permit limitations for Outfall 009 are based upon the production-based limits found at 40 CFR 467, for the aluminum forming point source category. Because Alcoa's production has increased for the current NPDES renewal cycle vs. the levels during their previous permit renewal in 2007, the effluent limitations for outfall 009 should increase proportionately. There would be no capital costs associated with these expanded limits. Operational costs are set as the current BTF operating budget.

5.2 Actual 2015 Production Expansion

5.2.1 Alternative 1: Land Application

Land application of the actual 2015 production increase equivalent in BTF wastewater would be a non-degrading alternative because there would be no increase in surface water discharge for the equivalent increase in discharge loadings. This alternative was evaluated and determined to be impracticable.

The Iowa Wastewater Facilities Design Standards Chapter 21 governs design requirements for land application of wastewater. The minimum storage required for land application is 200 days based on climatic restraints per Figure 3 of Chapter 21. The additional volume of storage required to allow land application of the proposed increase in design loading was calculated based upon the actual 2015 equivalent increase in BTF flowrate of 113 gpm over the 2012 production based flowrate. The storage requirement associated with storage of the additional flow for 200 days was calculated as roughly 32,510,000 gallons. The addition of this volume of wastewater storage at the Alcoa, Inc. Davenport facility is not physically or economically feasible.

Additionally, there would be regulatory restrictions on the land application of this wastewater due to the presence of metals, which would require pretreatment prior to land application.

5.2.2 Alternative 2: Discharge to City of Davenport

Pumping the equivalent additional wastewater to the City of Davenport was considered a non-degrading alternative in this analysis based on the assumption that the City wastewater treatment facility has adequate surplus treatment capacity available to accept the additional wastewater while remaining within the permitted flow and loading for 2012 production levels.

The City of Davenport wastewater treatment plant is the nearest facility that could potentially accept the additional wastewater. This alternative was evaluated and determined to be economically inefficient. Capital and operation costs for a pumping station and force main to pump the wastewater flow were estimated. To implement this alternative, the wastewater from Alcoa, Inc. would have to be pumped at least one mile to tie into an existing gravity sewer with adequate capacity. The higher cost of this alternative is primarily due to the City fees for accepting the wastewater.

Because this option includes the continued operation of the BTF, the continued operation costs for the BTF are included in this analysis in order to ensure an accurate comparison.

5.2.3 Alternative 3: Increased BTF Capacity

This alternative includes installation of a supplemental 113 gpm treatment train in addition to the existing BTF capacity. The purpose of this supplemental treatment expansion would be to remove the pollutant loading equivalent to the actual increase in 2015 production based limits, relative to the 2012 production based limits. Refer to Appendix D for a sample figure which shows this type of treatment system. This is a non-degrading alternative because the treatment system would remove the pollutant loading to the river equivalent to the proposed increase in limits.

The proposed treatment process would include new acid mix and lime mix tanks installed in the location of the old carbon filters. These mix tanks would be required to ensure there is adequate chemical reaction time and sufficient hydraulic head prior to the new treatment train. The overflow from the new lime mix tank would enter a Lamella Clarifier. The Lamella Clarifier overflow would enter a Dynasand filter and then discharge via Outfall 009.

5.2.4 Alternative 4: Increased Effluent Limits

Alcoa's current NPDES permit limitations for Outfall 009 are based upon the production-based limits found at 40 CFR 467, for the aluminum forming point source category. Because Alcoa is proposing an increase in production levels for 2015 relative to actual 2012 production levels as included in the current NPDES permit renewal, the effluent limitations for outfall 009 should increase proportionately. There would be no capital costs associated with these expanded limits. Operational costs are set as the current BTF operating budget.

5.3 Estimated Costs

Annualized costs associated with each alternative were developed. The costs for Alternative 2 were based on experience with similar projects, and include the capital costs for forcemain construction, as well as annual expenses for operation of a new pump station, and wastewater fees that would be levied by the City of Davenport. Costs for Alternative 3 are based on cost estimates developed by Alcoa for an unrelated potential BTF expansion.

Table 5-1 Alternatives Estimated Costs – 2012 Production Based Limits

Alt. No.	Description	Capital Cost[1,2]	Annual expenses[3,4]	Total life cycle cost[5]
1.	Land Application	N/A		
2.	Discharge to City of Davenport	$840,000	$874,000	$18,315,000
3.	Increased BTF Capacity	$721,000	$798,000	$16,672,000
4.	Increased Effluent Limits	$0	$712,000	$14,242,000

1. 2013 Dollars.
2. Costs were not estimated for Alternative 1 because it is not practicable.
3. Costs for Alternative 2 include sewer fees as set forth in the City of Davenport Ordinances Section 13.16.
4. Operation of proposed expanded BTF facilities based on proportional increase in current operating budget.
5. Assuming a 20-year life cycle

Table 5-2 Alternatives Estimated Costs – Actual 2015 Production Based Limits

Alt. No.	Description	Capital Cost[1,2]	Annual expenses[3,4]	Total life cycle cost[5]
1.	Land Application	N/A		
2.	Discharge to City of Davenport	$1,028,000	$1,033,000	$21,696,000
3.	Increased BTF Capacity	$2,150,000	$862,000	$20,025,000
4.	Increased Effluent Limits	$0	$712,000	$14,242,000

1. 2016 Dollars.
2. Costs were not estimated for Alternative 1 because it is not practicable.
3. Costs for Alternative 2 include sewer fees as set forth in the City of Davenport Ordinances Section 13.16.
4. Operation of proposed expanded BTF facilities based on proportional increase in current operating budget Assuming a 20-year life cycle

The economic value of the reduction in pollutant loading for the non-degrading alternatives is not included in this cost comparison. The combined average day pollutant loading (TSS, Oil and Grease, Chromium, Cyanide, Zinc and Aluminum) for the 2012 scenario and 2015 scenario are 513 lbs/day and 548 lbs/day, respectively. This is compared to a currently permitted total loading of 442 lbs/day. According to a study done by the United States Army Corps of Engineers, the Mississippi River has a background loading of TSS of approximately 56 mg/L. With a harmonic mean flow of about 19,900 mgd, the Mississippi River's background TSS load is almost 9.3 million lbs/day of TSS. This means that even only considering TSS in the river, the proposed combined pollutant load increases (71 lbs/day and 106 lbs/day) represent a less than 0.0007% and 0.0011% increase in the overall pollutant load. It is not possible using any currently available methodologies to assign an economic value to such insignificant increases in load.

Section 6

Pollutants of Concern

Table 6-1 identifies the pollutants of concern (POCs) for the 2012 and actual 2015 increased production based permit limits. These POCs were taken from 40 CFR Part 467 pretreatment standards and from Alcoa's current NPDES permit limits for Outfall 009.

Table 6-1 Pollutant of Concern

POC	Secondary or WQBEL?	Beneficial Use Affected	Tier	Notes
TSS	Yes	General Uses	2	See Section 7 for discharge alternative determinations of degradation.
Oil and Grease	Yes	General Uses	2	See Section 7 for discharge alternative determinations of degradation.
Chromium, total	Yes	Aquatic Life, Human Health	2	See Section 7 for discharge alternative determinations of degradation.
Cyanide, Total	Yes	Aquatic Life, Human Health	2	See Section 7 for discharge alternative determinations of degradation.
Zinc, Total	Yes	Aquatic Life, Human Health	2	See Section 7 for discharge alternative determinations of degradation.

Section 7

Alternative Evaluation and Selection

Based on the criteria in the Iowa Antidegradation Implementation Procedure guidance, each alternative is evaluated for practicality, economic efficiency, affordability, and whether it is reasonable.

Table 7-1 Alternative Classification and Evaluation - 2012 Production Based Limits

Alternative	BPCA, NDA or LDA?	Is the Alternative:				
		Practicable?	Economically Efficient?	% of BPCA	Affordable?	Reasonable?
1.	NDA	No	N/A	N/A	N/A	No
2.	NDA	Yes	No	129%	No	No
3.	NDA	Yes	No	117%	No	No
4.	BPCA	Yes	Yes	100%	Yes	Yes

Table 7-2 Alternative Classification and Evaluation – Actual 2015 Production Based Limits

Alternative	BPCA, NDA or LDA?	Is the Alternative:				
		Practicable?	Economically Efficient?	% of BPCA	Affordable?	Reasonable?
1.	NDA	No	N/A	N/A	N/A	No
2.	NDA	Yes	No	152%	No	No
3.	NDA	Yes	No	139%	No	No
4.	BPCA	Yes	Yes	100%	Yes	Yes

The preferred alternative in each case is Alternative 4 – Increased Effluent Limits because none of the other alternatives are economically justifiable, and presents an extremely low degree of degradation of the receiving stream. Tables 7-3 and 7-4 summarize the reasonable alternatives on a pollutant by pollutant basis.

Table 7-3
Reasonable Alternatives Degradation Comparison for 2012 Production Based Limits

Pollutant of Concern	Potential Degradation? Alternative			Comments
	2	3	4	
TSS	No	No	Yes	Proposed increase in effluent mass loading would not result in a measurable increase in concentration in the receiving stream.
Oil and Grease	No	No	Yes	Proposed increase in effluent mass loading would not result in a measurable increase in concentration in the receiving stream.
Chromium	No	No	Yes	Proposed increase in effluent mass loading would not result in a measurable increase in concentration in the receiving stream.
Cyanide	No	No	Yes	Proposed increase in effluent mass loading would not result in a measurable increase in concentration in the receiving stream.
Zinc	No	No	Yes	Proposed increase in effluent mass loading would not result in a measurable increase in concentration in the receiving stream.

Table 7-4
Reasonable Alternatives Degradation Comparison for Actual 2015 Production Based Limits

Pollutant of Concern	Potential Degradation? Alternative			Comments
	2	3	4	
TSS	No	No	Yes	Proposed increase in effluent mass loading would not result in a measurable increase in concentration in the receiving stream.
Oil and Grease	No	No	Yes	Proposed increase in effluent mass loading would not result in a measurable increase in concentration in the receiving stream.
Chromium	No	No	Yes	Proposed increase in effluent mass loading would not result in a measurable increase in concentration in the receiving stream.
Cyanide	No	No	Yes	Proposed increase in effluent mass loading would not result in a measurable increase in concentration in the receiving stream.
Zinc	No	No	Yes	Proposed increase in effluent mass loading would not result in a measurable increase in concentration in the receiving stream.

As described above, it has been determined that some degradation of the receiving stream will occur, in the form of an additional quantity of very low level pollutants of concern. Because of this, the Social and Economic Importance of the project is demonstrated in Section 8.

Section 8

Social and Economic Importance

The preferred alternative will add new or potentially expanded amounts of pollutants into the receiving stream, and therefore leads to degradation of the receiving stream. However, the proposed increases would not result in a significant increase in pollutant concentrations.

The proposed increases in effluent limits are valuable as Alcoa strives to maintain a high level of compliance with their NPDES permit limits. The increases would allow Alcoa greater flexibility in operating their BTF and in meeting NPDES permit limits.

The Riverdale facility employs over 2,400 people on a full time basis. There are also a number of local contractors and suppliers that are intimately linked to the success of the facility. The economic effect that the facility has had on the surrounding communities is tremendous. Alcoa, Inc. has historically maintained a large employment base and has recently been adding production and jobs at the Riverdale facility.

The proposed production based limits increases' impact on the employment and economic status of the community is very hard to directly measure. However, if the increases are viewed in terms of the overall increase in allowable pollutant load, an approximation of overall plant production can be made:

Table 8-1 Estimated Employment Impacts

Production Year	Total pollutant load (NPDES technology based pollutant loading limit) (lbs/day)	Current total NPDES loading limit (lbs/day)	% increase	Equivalent employment increase (full time equivalent)
2012	513	442	16%	384
2015	548	442	24%	576

According to available salary survey data, Alcoa's median wage at the Davenport Works is $68,606/year. This means that the increases in limits for the 2012 and 2015 production levels could conceivably translate into an economic impact of roughly $26.3 million and $39.5 million, respectively.

Appendix A

Production Rates for Use with 40 CFR 467

Attachment N Production Information and Limits

2012 Production Data *(Based on 312 production days for 2012)*

Operation	Average Monthly Production (million off-lbs)	Average Daily Production (million off-lbs)
Rolling with Neat Oils Subcategory		
Core Without an Annealing Furnace Scrubber	20.66	0.79
Includes #3 Cold Mill (1948), PAHTS Mill (1953)		
Solution Heat Treatment Contact Cooling Water	20.80	0.80
Includes #7 (1942), #10 (1967), #11 (1966), #12 (1982), 50" (pre-1970), and 86" (1969) Heat Treatment (#7 and 50" line not in production in 2011)		
Cleaning or Etching Bath	7.16	0.28
Includes Caustic Etch (pre-1983)		
Cleaning or Etching Rinse	7.16	0.28
Includes Caustic Etch (pre-1983)		
Rolling with Emulsions Subcategory		
Core	180.20	6.93
Includes 220" (1969), 160" (1955), 100" (1948) and 144" (1948) Mills		
Direct Chill Casting Contact Cooling Water	28.16	1.08
Includes Ingot Casting (Holding Furnaces 15 [pre-1970], 16,[pre-1970] 17[pre-1970], and 18 [pre-1970])		
New Source		
Solution Heat Treatment Contact Cooling Water (Neat Oils)	14.76	0.57
Includes #14 (April 1996), #15 (January 1997), and #16 Heat Treat (Nov. 2002)		
Core Without an Annealing Furnace Scrubber (Neat oils)	33.41	1.29
Includes #1 Cold Mill (1990)		
Direct Chill Casting Contact Cooling Water (Emulsions)	56.10	2.16
Includes Ingot Casting (Holding Furnace #2 [1986], #3 [1988], and #4 [1991])		
TOTAL	368.40	14.17

Notes:

Average Daily Production = (Average Monthly Production X 12 months per year) /**312** production days per year

Attachment N Production Information and Limits

2015 Production Data *(Based on 312 production days for 2015)*

Operation	Average Monthly Production (million off-lbs)	Average Daily Production (million off-lbs)
Rolling with Neat Oils Subcategory		
Core Without an Annealing Furnace Scrubber	42.74	1.64
Includes #3 Cold Mill (1948), PAHTS Mill (1953)		
Solution Heat Treatment Contact Cooling Water	19.76	0.76
Includes #7 (1942), #10 (1967), #11 (1966), #12 (1982), 50" (pre-1970), and 86" (1969) Heat Treatment (#7 and 50" line not in production)		
Cleaning or Etching Bath	6.67	0.26
Includes Caustic Etch (pre-1983)		
Cleaning or Etching Rinse	6.67	0.26
Includes Caustic Etch (pre-1983)		
Rolling with Emulsions Subcategory		
Core	259.35	9.98
Includes 220" (1969), 160" (1955), 100" (1948) and 144" (1948) Mills		
Direct Chill Casting Contact Cooling Water	26.98	1.04
Includes Ingot Casting (Holding Furnaces 15 [pre-1970], 16,[pre-1970] 17[pre-1970], and 18 [pre-1970])		
New Source		
Solution Heat Treatment Contact Cooling Water (Neat Oils)	34.19	1.31
Includes #14 (April 1996), #15 (January 1997), and #16 Heat Treat (Nov. 2002), 88" Heat Treat (2014 anticipated)		
Core Without an Annealing Furnace Scrubber (Neat oils)	40.86	1.57
Includes #1 Cold Mill (1990)		
Direct Chill Casting Contact Cooling Water (Emulsions)	56.48	2.17
Includes Ingot Casting (Holding Furnace #2 [1986], #3 [1988], and #4 [1991])		
TOTAL	493.71	18.99

Notes:

Average Daily Production = (Average Monthly Production X 12 months per year) / **312** production days per year

2015 production values are provided by Alcoa, Inc.

Appendix B

NPDES Permit

IOWA DEPARTMENT OF NATURAL RESOURCES
National Pollutant Discharge Elimination System (NPDES) Permit

OWNER NAME & ADDRESS

ALCOA, INC.
201 ISABELLA STREET
PITTSBURG, PA 15212 -

FACILITY NAME AND ADDRESS

ALCOA, INC. DAVENPORT WORKS
4879 STATE STREET
BETTENDORF, IA 52722 - 8030

Section 26, T 78N, R 04E
SCOTT County

IOWA NPDES PERMIT NUMBER: 8278100

DATE OF ISSUANCE: 1/1/2009

DATE OF EXPIRATION 12/31/2013

YOU ARE REQUIRED TO FILE FOR RENEWAL OF THIS PERMIT BY: 7/4/2013

EPA NUMBER: IA0003395

This permit is issued pursuant to the authority of section 402(b) of the Clean Water Act (33 U.S.C 1342(b)), Iowa Code section 455B.174, and rule 567-64.3, Iowa Administrative Code. You are authorized to operate the disposal system and to discharge the pollutants specified in this permit in accordance with the effluent limitations, monitoring requirements and other terms set forth in this permit.

You may appeal any condition of this permit by filing a written notice of appeal and request for administrative hearing with the director of this department within 30 days of your receipt of this permit.

Any existing, unexpired Iowa operation permit or Iowa NPDES permit previously issued by the department for the facility identified above is revoked by the issuance of this permit. This provision does not apply to any authorization to discharge under the terms and conditions of a general permit issued by the department or to any permit issued exclusively for the discharge of stormwater.

FOR THE DEPARTMENT OF NATURAL RESOURCES

By _____

Steven Williams
NPDES Section
ENVIRONMENTAL SERVICES DIVISION

Facility Name: ALCOA, INC. DAVENPORT WORKS

Permit Number: 8278100

Outfall Number	Outfall Description
001	STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITY.

Receiving Stream: MISSISSIPPI RIVER

Route of Flow:

Class A1 waters are primary contact recreational use waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risks of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing.

Waters designated Class B(WW1) are those in which temperature, flow and other habitat characteristics are suitable to maintain warm water game fish populations along with a resident aquatic community that includes a variety of native nongame fish and invertebrates species. These waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams.

Waters designated Class HH are those in which fish are routinely harvested for human consumption or waters both designated as a drinking water supply and in which fish are routinely harvested for human consumption.

002	STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITY PLUS PROCESS WATER FROM SHEET FINISHING OPERATIONS AND PLANT-WIDE PROCESS WATER.

Receiving Stream: MISSISSIPPI RIVER

Route of Flow:

Class A1 waters are primary contact recreational use waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risks of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing.

Waters designated Class B(WW1) are those in which temperature, flow and other habitat characteristics are suitable to maintain warm water game fish populations along with a resident aquatic community that includes a variety of native nongame fish and invertebrates species. These waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams.

Waters designated Class HH are those in which fish are routinely harvested for human consumption or waters both designated as a drinking water supply and in which fish are routinely harvested for human consumption.

003	STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITY PLUS PROCESS WATER FROM COLD ROLLING, SHEET FINISHING, ANNEALING FURNACE AND PLANT-WIDE USAGE.

Facility Name: ALCOA, INC. DAVENPORT WORKS

Permit Number: 8278100

Receiving Stream: MISSISSIPPI RIVER

Route of Flow:

Class A1 waters are primary contact recreational use waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risks of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing.

Waters designated Class B(WW1) are those in which temperature, flow and other habitat characteristics are suitable to maintain warm water game fish populations along with a resident aquatic community that includes a variety of native nongame fish and invertebrates species. These waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams.

Waters designated Class HH are those in which fish are routinely harvested for human consumption or waters both designated as a drinking water supply and in which fish are routinely harvested for human consumption.

004 STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITY PLUS PROCESS WATER FROM HOT ROLLING OPERATIONS AND PLANT-WIDE USAGE.

Receiving Stream: MISSISSIPPI RIVER

Route of Flow:

Class A1 waters are primary contact recreational use waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risks of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing.

Waters designated Class B(WW1) are those in which temperature, flow and other habitat characteristics are suitable to maintain warm water game fish populations along with a resident aquatic community that includes a variety of native nongame fish and invertebrates species. These waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams.

Waters designated Class HH are those in which fish are routinely harvested for human consumption or waters both designated as a drinking water supply and in which fish are routinely harvested for human consumption.

005 STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITY PLUS PLANT-WIDE PROCESS WATER INCLUDING HOT ROLLING OPERATIONS.

Receiving Stream: MISSISSIPPI RIVER

Route of Flow:

Class A1 waters are primary contact recreational use waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risks of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing.

Waters designated Class B(WW1) are those in which temperature, flow and other habitat characteristics are suitable to maintain warm water game fish populations along with a resident aquatic community that includes a variety of native nongame fish and invertebrates species. These waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams.

Waters designated Class HH are those in which fish are routinely harvested for human consumption or waters both designated as a drinking water supply and in which fish are routinely harvested for human consumption.

006 STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITY PLUS CONTACT AND NONCONTACT PROCESS WATER FROM INGOT CASTING AND PLANT-WIDE USAGE.

Receiving Stream: MISSISSIPPI RIVER

Route of Flow:

Class A1 waters are primary contact recreational use waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risks of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing.

Waters designated Class B(WW1) are those in which temperature, flow and other habitat characteristics are suitable to maintain warm water game fish populations along with a resident aquatic community that includes a variety of native nongame fish and invertebrates species. These waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams.

Waters designated Class HH are those in which fish are routinely harvested for human consumption or waters both designated as a drinking water supply and in which fish are routinely harvested for human consumption.

007 TREATED GROUND WATER CONTAMINATED WITH TETRACHLOROETHYLENE.

Receiving Stream: MISSISSIPPI RIVER

Route of Flow:

Class A1 waters are primary contact recreational use waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risks of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing.

Waters designated Class B(WW1) are those in which temperature, flow and other habitat characteristics are suitable to maintain warm water game fish populations along with a resident aquatic community that includes a variety of native nongame fish and invertebrates species. These waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams.

Waters designated Class HH are those in which fish are routinely harvested for human consumption or waters both designated as a drinking water supply and in which fish are routinely harvested for human consumption.

008 STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITY FROM THE INGOT PLANT.

Facility Name: ALCOA, INC. DAVENPORT WORKS

Permit Number: 8278100

Receiving Stream: MISSISSIPPI RIVER

Route of Flow:

Class A1 waters are primary contact recreational use waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risks of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing.

Waters designated Class B(WW1) are those in which temperature, flow and other habitat characteristics are suitable to maintain warm water game fish populations along with a resident aquatic community that includes a variety of native nongame fish and invertebrates species. These waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams.

Waters designated Class HH are those in which fish are routinely harvested for human consumption or waters both designated as a drinking water supply and in which fish are routinely harvested for human consumption.

009 BLOWDOWN TREATMENT FACILITY EFFLUENT

Receiving Stream: MISSISSIPPI RIVER

Route of Flow:

Class A1 waters are primary contact recreational use waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risks of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing.

Waters designated Class B(WW1) are those in which temperature, flow and other habitat characteristics are suitable to maintain warm water game fish populations along with a resident aquatic community that includes a variety of native nongame fish and invertebrates species. These waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams.

Waters designated Class HH are those in which fish are routinely harvested for human consumption or waters both designated as a drinking water supply and in which fish are routinely harvested for human consumption.

010 DEWATERING TO ACCOMODATE CONSTRUCTION OF A FACILITY EXPANSION. DISCHARGE THROUGH OUTFALL 010 IS AUTHORIZED ONLY UNTIL COMPLETION OF DEWATERING ACTIVITIES OR UNTIL DECEMBER 31, 2012 WHICHEVER IS LATER. ALL DISCHARGE THROUGH OUTFALL 010 MUST CEASE AND THE OUTFALL MUST BE ELIMINATED NO LATER THAN DECEMBER 31, 2012.

Receiving Stream: MISSISSIPPI RIVER

Route of Flow:

Class A1 waters are primary contact recreational use waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risks of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing.

Waters designated Class B(WW1) are those in which temperature, flow and other habitat characteristics are suitable to maintain warm water game fish populations along with a resident aquatic community that includes a variety of native nongame fish and invertebrates species. These waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams.

Waters designated Class HH are those in which fish are routinely harvested for human consumption or waters both designated as a drinking water supply and in which fish are routinely harvested for human consumption.

Facility Name: ALCOA, INC. DAVENPORT WORKS

Permit Number: 8278100

Effluent Limitations

Outfall No.: 007 TREATED GROUND WATER CONTAMINATED WITH TETRACHLOROETHYLENE.

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

Wastewater Parameter	Season	Type of Limit	% Removal	EFFLUENT LIMITATIONS							
				Concentration				Mass			
				7 Day Average/Min	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
TRICHLOROETHENE	YEARLY	FINAL				10.0	UG/L				
TETRACHLOROETHENE	YEARLY	FINAL				33.0	UG/L				
CIS, 1,2 DICHLOROETHENE	YEARLY	FINAL				78.0	UG/L				

Note: If seasonal limits apply, summer is from March 15 through November 15, and winter is from November 16 through March 14.

Facility Name: ALCOA, INC. DAVENPORT WORKS

Permit Number: 8278100

Effluent Limitations

Outfall No.: 009 BLOWDOWN TREATMENT FACILITY EFFLUENT

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

Wastewater Parameter	Season	Type of Limit	% Removal	EFFLUENT LIMITATIONS							
				Concentration				Mass			
				7 Day Average/Min	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
TOTAL SUSPENDED SOLIDS	YEARLY	FINAL							249.5	484.6	LBS/DAY
PH (MINIMUM - MAXIMUM)	YEARLY	FINAL		6.0		9.0	STD UNITS				
ALUMINUM,TOTAL (AS AL)	YEARLY	FINAL							23.2	49.3	LBS/DAY
CHROMIUM,TOTAL (AS CR)	YEARLY	FINAL							1.31	3.19	LBS/DAY
CYANIDE,TOTAL (AS CN)	YEARLY	FINAL							0.8	1.94	LBS/DAY
OIL AND GREASE	YEARLY	FINAL							163.8	246.9	LBS/DAY
ZINC,TOTAL (AS ZN)	YEARLY	FINAL							4.05	9.76	LBS/DAY
ACUTE TOXICITY, CERIODAPHNIA	YEARLY	FINAL							1.0		NO TOXICITY
ACUTE TOXICITY, PIMEPHALES	YEARLY	FINAL							1.0		NO TOXICITY

Note: If seasonal limits apply, summer is from March 15 through November 15, and winter is from November 16 through March 14.

Facility Name: ALCOA, INC. DAVENPORT WORKS

Permit Number: 8278100

Effluent Limitations

Outfall No.: 010 DEWATERING TO ACCOMODATE CONSTRUCTION OF A FACILITY EXPANSION. DISCHARGE THROUGH OUTFALL 010 IS AUTHORIZED ONLY UNTIL COMPLETION OF DEWATERING ACTIVITIES OR UNTIL DECEMBER 31, 2012 WHICHEVER IS LATER. ALL DISCHARGE THROUGH OUTFALL 010 MUST CEASE AND THE OUTFALL MUST BE ELIMINATED NO LATER THAN DECEMBER 31, 2012.

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

Wastewater Parameter	Season	Type of Limit	% Removal	EFFLUENT LIMITATIONS							
				Concentration				Mass			
				7 Day Average/Min	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
VINYL CHLORIDE	YEARLY	FINAL			3.472	3.472	MG/L				
TRICHLOROETHENE	YEARLY	FINAL			43.0	201.9	MG/L				
TETRACHLOROETHENE	YEARLY	FINAL			45.84	45.84	MG/L				
PCBS (TOTAL)	YEARLY	FINAL			0.00089	0.1009	MG/L				
CIS, 1,2 DICHLOROETHENE	YEARLY	FINAL			375.8	375.8	MG/L				
TRANS 1,2 DICHLOROETHENE	YEARLY	FINAL			75.26	75.26	MG/L				

Note: If seasonal limits apply, summer is from March 15 through November 15, and winter is from November 16 through March 14.

Facility Name: ALCOA, INC. DAVENPORT WORKS

Permit Number: 8278100

Monitoring and Reporting Requirements

(a) Samples and measurements taken shall be representative of the volume and nature of the monitored wastewater.

(b) Analytical and sampling methods specified in 40 CFR Part 136 or other methods approved in writing by the department shall be utilized. Samples collected for operational testing need not be analyzed by approved analytical methods; however, commonly accepted test methods should be used.

(c) You are required to report all data including calculated results needed to determine compliance with the limitations contained in this permit. The results of any monitoring not specified in this permit performed at the compliance monitoring point and analyzed according to 40 CFR Part 136 shall be included in the calculation and reporting of any data submitted in accordance with this permit. This includes daily maximums and minimums and 30-day and 7-day averages for all parameters that have concentration (mg/l) and mass (lbs/day) limits. In addition, flow data shall be reported in million gallons per day (MGD).

(d) Results of all monitoring shall be recorded on forms provided by, or approved by, the department, and shall be submitted to the appropriate regional field office of the department by the fifteenth day following the close of the reporting period. Your reporting period is on a monthly basis, ending on the last day of each reporting period.

(e) Any records of monitoring activites and results shall include for all samples: the date, exact place and time of the sampling; the dates the analyses were performed; who performed the analyses; the analytical techniques or methods used; and the results of such analyses.

(f) Chapter 63 of the Iowa Administrative Code contains further explanation of these monitoring requirements.

Outfall Number	Wastewater Parameter	Sample Frequency	Sample Type	Monitoring Location
001	ALUMINUM,TOTAL (AS AL)	QUARTERLY	GRAB	FINAL EFFLUENT - SEE PAGE 20
001	ZINC,TOTAL (AS ZN)	QUARTERLY	GRAB	FINAL EFFLUENT - SEE PAGE 20
002	ALUMINUM,TOTAL (AS AL)	QUARTERLY	GRAB	FINAL EFFLUENT - SEE PAGE 20
002	ZINC,TOTAL (AS ZN)	QUARTERLY	GRAB	FINAL EFFLUENT - SEE PAGE 20
003	ALUMINUM,TOTAL (AS AL)	QUARTERLY	GRAB	FINAL EFFLUENT - SEE PAGE 20
003	ZINC,TOTAL (AS ZN)	QUARTERLY	GRAB	FINAL EFFLUENT - SEE PAGE 20
004	ALUMINUM,TOTAL (AS AL)	QUARTERLY	GRAB	FINAL EFFLUENT - SEE PAGE 20
004	ZINC,TOTAL (AS ZN)	QUARTERLY	GRAB	FINAL EFFLUENT - SEE PAGE 20
005	ALUMINUM,TOTAL (AS AL)	QUARTERLY	GRAB	FINAL EFFLUENT - SEE PAGE 20
005	ZINC,TOTAL (AS ZN)	QUARTERLY	GRAB	FINAL EFFLUENT - SEE PAGE 20
006	ALUMINUM,TOTAL (AS AL)	QUARTERLY	GRAB	FINAL EFFLUENT - SEE PAGE 20
006	ZINC,TOTAL (AS ZN)	QUARTERLY	GRAB	FINAL EFFLUENT - SEE PAGE 20

Facility Name: ALCOA, INC. DAVENPORT WORKS

Permit Number: 8278100

Monitoring and Reporting Requirements

(a) Samples and measurements taken shall be representative of the volume and nature of the monitored wastewater.

(b) Analytical and sampling methods specified in 40 CFR Part 136 or other methods approved in writing by the department shall be utilized. Samples collected for operational testing need not be analyzed by approved analytical methods; however, commonly accepted test methods should be used.

(c) You are required to report all data including calculated results needed to determine compliance with the limitations contained in this permit. The results of any monitoring not specified in this permit performed at the compliance monitoring point and analyzed according to 40 CFR Part 136 shall be included in the calculation and reporting of any data submitted in accordance with this permit. This includes daily maximums and minimums and 30-day and 7-day averages for all parameters that have concentration (mg/l) and mass (lbs/day) limits. In addition, flow data shall be reported in million gallons per day (MGD).

(d) Results of all monitoring shall be recorded on forms provided by, or approved by, the department, and shall be submitted to the appropriate regional field office of the department by the fifteenth day following the close of the reporting period. Your reporting period is on a monthly basis, ending on the last day of each reporting period.

(e) Any records of monitoring activites and results shall include for all samples: the date, exact place and time of the sampling; the dates the analyses were performed; who performed the analyses; the analytical techniques or methods used; and the results of such analyses.

(f) Chapter 63 of the Iowa Administrative Code contains further explanation of these monitoring requirements.

Outfall Number	Wastewater Parameter	Sample Frequency	Sample Type	Monitoring Location
007	FLOW	1 TIME PER WEEK	24 HOUR TOTAL	FINAL EFFLUENT
007	TRICHLOROETHENE	1 TIME PER WEEK	GRAB	FINAL EFFLUENT
007	TETRACHLOROETHENE	1 TIME PER WEEK	GRAB	FINAL EFFLUENT
007	CIS, 1,2 DICHLOROETHENE	1 TIME PER WEEK	GRAB	FINAL EFFLUENT
008	ALUMINUM,TOTAL (AS AL)	QUARTERLY	GRAB	FINAL EFFLUENT - SEE PAGE 20
008	ZINC,TOTAL (AS ZN)	QUARTERLY	GRAB	FINAL EFFLUENT - SEE PAGE 20
009	FLOW	7/WEEK OR DAILY	24 HOUR TOTAL	FINAL EFFLUENT
009	TOTAL SUSPENDED SOLIDS	1 TIME PER WEEK	24 HOUR COMPOSITE	FINAL EFFLUENT
009	PH (MINIMUM - MAXIMUM)	1 TIME PER WEEK	GRAB	FINAL EFFLUENT
009	ALUMINUM,TOTAL (AS AL)	1 TIME PER WEEK	24 HOUR COMPOSITE	FINAL EFFLUENT
009	CHROMIUM,TOTAL (AS CR)	2 TIMES PER WEEK	24 HOUR COMPOSITE	FINAL EFFLUENT
009	CYANIDE,TOTAL (AS CN)	1 TIME PER WEEK	GRAB	FINAL EFFLUENT - SEE PAGE 14 FOR ADDITIONAL REQUIREMENTS

Facility Name: ALCOA, INC. DAVENPORT WORKS

Permit Number: 8278100

Monitoring and Reporting Requirements

(a) Samples and measurements taken shall be representative of the volume and nature of the monitored wastewater.

(b) Analytical and sampling methods specified in 40 CFR Part 136 or other methods approved in writing by the department shall be utilized. Samples collected for operational testing need not be analyzed by approved analytical methods; however, commonly accepted test methods should be used.

(c) You are required to report all data including calculated results needed to determine compliance with the limitations contained in this permit. The results of any monitoring not specified in this permit performed at the compliance monitoring point and analyzed according to 40 CFR Part 136 shall be included in the calculation and reporting of any data submitted in accordance with this permit. This includes daily maximums and minimums and 30-day and 7-day averages for all parameters that have concentration (mg/l) and mass (lbs/day) limits. In addition, flow data shall be reported in million gallons per day (MGD).

(d) Results of all monitoring shall be recorded on forms provided by, or approved by, the department, and shall be submitted to the appropriate regional field office of the department by the fifteenth day following the close of the reporting period. Your reporting period is on a monthly basis, ending on the last day of each reporting period.

(e) Any records of monitoring activites and results shall include for all samples: the date, exact place and time of the sampling; the dates the analyses were performed; who performed the analyses; the analytical techniques or methods used; and the results of such analyses.

(f) Chapter 63 of the Iowa Administrative Code contains further explanation of these monitoring requirements.

Outfall Number	Wastewater Parameter	Sample Frequency	Sample Type	Monitoring Location
009	OIL AND GREASE	1 TIME PER WEEK	GRAB	FINAL EFFLUENT
009	ZINC,TOTAL (AS ZN)	2 TIMES PER WEEK	24 HOUR COMPOSITE	FINAL EFFLUENT
009	ACUTE TOXICITY, CERIODAPHNIA	1 EVERY 12 MONTHS	24 HOUR COMPOSITE	FINAL EFFLUENT
009	ACUTE TOXICITY, PIMEPHALES	1 EVERY 12 MONTHS	24 HOUR COMPOSITE	FINAL EFFLUENT
010	VINYL CHLORIDE	1 TIME PER WEEK	GRAB	EFFLUENT FROM CONSTRUCTION DEWATERING PRIOR TO COMBINING WITH ANY OTHER WASTEWATER DISCHARGES
010	TRICHLOROETHENE	1 TIME PER WEEK	GRAB	EFFLUENT FROM CONSTRUCTION DEWATERING PRIOR TO COMBINING WITH ANY OTHER WASTEWATER DISCHARGES
010	TETRACHLOROETHENE	1 TIME PER WEEK	GRAB	EFFLUENT FROM CONSTRUCTION DEWATERING PRIOR TO COMBINING WITH ANY OTHER WASTEWATER DISCHARGES
010	PCBS (TOTAL)	3 TIMES PER WEEK	GRAB	EFFLUENT FROM CONSTRUCTION DEWATERING PRIOR TO COMBINING WITH ANY OTHER WASTEWATER DISCHARGES
010	CIS, 1,2 DICHLOROETHENE	1 TIME PER WEEK	GRAB	EFFLUENT FROM CONSTRUCTION DEWATERING PRIOR TO COMBINING WITH ANY OTHER WASTEWATER DISCHARGES
010	TRANS 1,2 DICHLOROETHENE	1 TIME PER WEEK	GRAB	EFFLUENT FROM CONSTRUCTION DEWATERING PRIOR TO COMBINING WITH ANY OTHER WASTEWATER DISCHARGES

Facility Name: ALCOA, INC. DAVENPORT WORKS

Permit Number: 8278100

Best Management Practices

(1) Prior to commencement of discharge through outfall 010 the permittee shall develop a Best Management Practices Plan (BMP Plan). The BMP Plan must address the installation and/or implementation of structural and non-structural controls designed to minimize the discharge of total suspended solids and oil & grease in water resulting from dewatering during construction of the auto expansion project. All structural and non-structural controls addressed in the Plan shall be installed or implemented prior to commencement of discharge. The controls must be sufficient to ensure compliance with the following criteria:

- The discharge shall not contain floating debris, oil, grease, scum, and other floating materials in amounts sufficient to create a nuisance.
- The discharge shall not contain materials that produce objectionable color, odor, or other aesthetically objectionable conditions in the Mississippi River.
- The discharge shall not contain substances that can settle to form sludge deposits in the Mississippi River.
- The discharge shall not contain substances that increase the turbidity of the Mississippi River at any point by more than 25 Nephelometric turbidity units.

(2) The BMP Plan shall specify a schedule for regular visual inspections of structural and non-structural controls and the final effluent. Written reports of all inspections shall document the date and time of the inspection, name of the inspector, observations, and any required corrective actions necessary to ensure compliance with the criteria in item (1) above. The visual inspection of the final effluent shall document observation of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of water pollution.

(3) The BMP Plan shall specify the time frame for expeditiously correcting deficiencies documented during an inspection. Written documentation that a deficiency has been corrected shall be maintained with the plan.

Facility Name: ALCOA, INC. DAVENPORT WORKS

Permit Number: 8278100

Special Monitoring Requirements

Outfall Number	Description
009	CYANIDE,TOTAL (AS CN)

The requirement for weekly sampling and analysis of outfall 009 for cyanide specified on page #10 is not required if the first sample of each calendar year is analyzed and found to contain less than 0.07 mg/l of cyanide and the permittee certifies in writing that cyanide is not and will not be used in the aluminum forming process.

Facility Name: ALCOA, INC. DAVENPORT WORKS

Permit Number: 8278100

Outfall Number: 009

Ceriodaphnia and Pimephales Toxicity Effluent Testing

1. For facilities that have not been required to conduct toxicity testing by a previous NPDES permit, the initial annual toxicity test shall be conducted within three (3) months of permit issuance. For facilities that have been required to conduct toxicity testing by a previous NPDES permit, the initial annual toxicity test shall be conducted within twelve months (12) of the last toxicity test.

2. The test organisms that are to be used for acute toxicity testing shall be Ceriodaphnia dubia and Pimephales promelas. The acute toxicity testing procedures used to demonstrate compliance with permit limits shall be those listed in 40 CFR Part 136 and adopted by reference in rule 567--63.1(1). The method for measuring acute toxicity is specified in USEPA. October 2002, Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition. U.S. Environmental Protection Agency, Office of Water, Washington, D.C., EPA 821-R-02-012.

3. The diluted effluent sample must contain a minimum of 1.80 % effluent and no more than 98.20 % of culture water.

4. One valid positive toxicity result will require quarterly testing for effluent toxicity.

5. Two successive valid positive toxicity results or three positive results out of five successive valid effluent toxicity tests will require a toxic reduction evaluation to be completed to eliminate the toxicity.

6. A non-toxic test result shall be indicated as a "1" on the monthly operation report. A toxic test result shall be indicated as a "2" on the monthly operation report. DNR Form 542-1381 shall also be submitted to the DNR field office along with the monthly operation report.

Ceriodaphnia and Pimephales Toxicity Effluent Limits

The 30 day average mass limit of "1" for the parameters Acute Toxicity, Ceriodaphnia and Acute Toxicity, Pimephales means no positive toxicity results.

Definition: "Positive toxicity result" means a statistical difference of mortality rate between the control and the diluted effluent sample. For more information see USEPA. October 2002, Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA 821-R-02-012.

RIVER WATER INTAKE STRUCTURE CLEANING

The permittee is authorized to return solids that accumulate in the river water intake structure to the Mississippi River. A discharge of solids from the intake structure that originated from and are returned to the river is not a "discharge of a pollutant" and is not subject to requirements of the Clean Water Act and is not required to be authorized by an NPDES permit.

OTHER PERMIT REQUIREMENTS

1. Anticipated Bypasses

A bypass is the intentional diversion of a waste stream from any portion of a treatment facility. Alcoa's wastewater treatment system consists of five pump stations, recycle reservoirs and a blowdown treatment system. Normally, under dry weather conditions, water that flows to the pump stations is returned to the production process for reuse. When the volume of storm water runoff exceeds the capacity of the plant recycle system a portion of the water overflows the pump station and discharges directly to the Mississippi River and is subject to the storm water requirements specified elsewhere in this permit. Pump stations 002 through 006 are an integral part of the overall recycle and treatment system because without these lift stations recycling and reuse would not be possible. Annual maintenance of these lift stations is essential to the proper and efficient operation of the entire wastewater system. Alcoa is authorized to bypass pump stations 002 through 006 for essential maintenance subject to the following:

- Bypassing of each lift station is allowed once in a calendar year for essential maintenance.
- Bypassing shall be restricted to the extent possible to dry weather periods when the discharge is not materially affected by storm water.
- A single bypass event shall not last more than 48 hours unless additional notification is made.
- Initial notice shall be provided to the department's field office at least seven (7) days prior to an anticipated bypass.

2. Unanticipated Bypasses

Discharges from outfalls 002 through 006 due to the unexpected failure of mechanical or electrical components at a pump station are considered unanticipated bypasses and are subject to the conditions specified in Standard Condition #21 of this permit and 40 CFR part 122.41(m).

3. Other Discharges

Discharges that occur from outfalls 002 through 006 that are not either anticipated or unanticipated bypasses as described above are authorized provided the following best management practices and other operating requirements are met:

- The storm water pollution prevention plan required by this permit must be implemented and maintained.

- Alcoa must evaluate and where feasible optimize the water recycle system by completing the following actions:
    - Alcoa must identify storm water sources originating off-site which enter the water recycle system and undertake projects shown to be feasible for reducing or eliminating such sources.
    - Alcoa shall make optimum use of the water recycle systems at all times
    - Alcoa must continue to identify and convert processes that do not use recycled water to use recycled water where feasible.
    - Alcoa must assess options to minimize or prevent discharges from outfalls 002-006 resulting from production process releases to the water recycle system.
    - Alcoa must investigate the installation and use of ion exchange, reverse osmosis, and other treatment processes on internal waste streams such as quench tanks and process baths designed to extend bath life, reduce the amount of water discharged to the recycle system and thus reduce or eliminate the potential for dry weather discharges from outfalls 002 – 006.
    -
- Alcoa must maintain a log of all discharges from outfalls 002-006 that are not the result of precipitation causing the hydraulic capacity of the recycle system to be exceeded. The log shall list the outfall number, date of discharge, approximate duration of discharge, estimated volume of water discharged and the suspected reason(s) for the discharge.

- Samples shall be collected from the reservoir at least once every three months and shall be analyzed for total suspended solids, oil & grease, aluminum, total chromium, total cyanide and total zinc. Samples collected for cyanide and oil & grease analysis shall be grab samples. Samples for all other pollutants shall be 24-hour composite samples. Samples shall be collected at times when water in the reservoir is not materially affected by storm water runoff in the recycle system. These sample results are for information only and will not be used by the department to assess compliance with the effluent limitations specified elsewhere in this permit.

STORM WATER DISCHARGES COVERED UNDER THIS PERMIT

PART I. DESCRIPTION OF STORM WATER DISCHARGES

A. DISCHARGES COVERED UNDER THIS PERMIT

This permit authorizes the discharge of storm water associated with industrial activity from outfalls 001, 002, 003, 004, 005, 006 and 008 identified on pages #2 through #4.

B. STORM WATER DISCHARGE NOT ASSOCIATED WITH INDUSTRIAL ACTIVITY

Storm water discharge associated with industrial activity (as defined in chapter 567-60 of the Iowa Administrative Code) authorized by this permit may be combined with other sources of storm water that are not classified as associated with industrial activity pursuant to 40 CFR 122.26(b)(14) or with wastewater from outfalls defined elsewhere in this permit.

C. LIMITATION ON COVERAGE

Unless specifically identified elsewhere in this permit, the following discharges are not authorized by this permit:

- storm water discharge associated with industrial activity from construction activity, specifically any land disturbing activity of one or more acres;

- storm water discharges from materials storage piles.

D. NON-STORM WATER DISCHARGES

The following non-storm water discharges are authorized by this permit provided the non-storm water component of the discharge is in compliance with the conditions listed in the storm water portion of this permit:

discharges from fire fighting activities, fire hydrant flushing, potable water sources including waterline flushing, drinking fountain water, uncontaminated compressor condensate, irrigation drainage, lawn watering, routine external building washdown that does not use detergents or other compounds, pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used, air conditioning condensate, uncontaminated springs, uncontaminated ground water, and foundation or footing drains where flows are not contaminated with process materials such as solvents.

PART II. SPECIAL CONDITIONS

ADDITIONAL REQUIREMENTS FOR FACILITIES WITH SALT STORAGE

Storage piles of salt used for deicing or other commercial or industrial purposes and that generate a storm water discharge to waters of the United States shall be enclosed or covered to prevent exposure to precipitation, except for exposure resulting from adding or removing materials from the pile.

PART III. STORM WATER POLLUTION PREVENTION PLAN

The storm water pollution prevention plan as described and required in the permit previously issued to this facility must continue to be implemented. The plan must identify potential sources of pollution that may reasonably be expected to affect the quality of storm water discharge associated with industrial activity from the facility. In addition, the plan must describe and ensure the implementation of practices that are used to reduce the pollutants in storm water discharge associated with industrial activity at the facility and to ensure compliance with the terms and conditions of this permit. The permittee must continue to implement the provisions of the storm water pollution prevention plan required under the previous permit.

The plan shall be amended whenever there is a change in design, construction, operation, or maintenance, that has a significant effect on the potential for the discharge of pollutants to the waters of the United States or if the storm water pollution prevention plan proves to be ineffective in eliminating or significantly minimizing the discharge of pollutants or in otherwise achieving the general objectives of controlling pollutants in storm water discharges associated with industrial activity. New owners shall review the existing plan and make appropriate changes.

The storm water pollution prevention plan required by this permit must be modified within 14 calendar days of the occurrence of any "hazardous condition" to provide a description of the release, the circumstances leading to the release, and the date of the release. In addition, the plan must be reviewed by the permittee to identify measures to prevent the reoccurrence of such a condition and to respond to such discharges, and the plan must be modified where appropriate.

PART IV. DEFINITIONS

1. Storm water means storm water runoff, snow melt runoff, and surface runoff and drainage.
2. Waters of the United States means all waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;

a. All interstate waters, including interstate wetlands;

b. All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

c. That are or could be used by interstate or foreign travelers for recreational or other purposes;

d. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

e. That are used or could be used for industrial purposes by industries in interstate commerce;

f. All impoundment of waters otherwise defined as waters of the United States under this definition;

g. Tributaries of waters identified in paragraphs (a) through (d) of this definition;

h. The territorial sea; and

i. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

STORM WATER MONITORING REQUIREMENTS

The permittee shall sample, analyze and visually examine storm water discharges from outfalls 001, 002, 003, 004, 005, 006 and 008 as specified on pages 8 through 10 of this permit. The sampling and visual examinations must be conducted at least once in each of the following periods: January through March; April through June; July through September; and October through December during daylight hours unless there is insufficient rainfall or snow melt to produce a runoff event. Each sampling event shall be made a minimum of 30 days from the date of the last sampling event at the same outfall.

All visual examinations shall be conducted within the first 30 minutes (or as soon thereafter as practical, but not to exceed 1 hour) of when the runoff or snowmelt begins discharging. Visual examinations shall document observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. The visual examination must be conducted in a well-lit area. Where practicable, the same individual should carry out the visual examination of discharges for the entire permit term.

Samples shall be collected within the first 30 minutes (or as soon thereafter as practical, but not to exceed 1 hour) of a discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event.

Both visual examination and analytical monitoring reports must be maintained on-site in the pollution prevention plan. All reports shall include the date and time, examination personnel, the nature of the discharge (i.e., runoff or snow melt), visual quality of the storm water discharge (including observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution), analytical results and probable sources of any observed storm water contamination. The results of analytical monitoring must be reported to the department. Do not submit the results of visual monitoring to the department unless requested to do so.

If the permittee has two or more outfalls that, based on a consideration of industrial activity, significant materials, and management practices and activities within the area drained by the outfall, the permittee reasonably believes discharge substantially identical effluents, the permittee may monitor the effluent from one of such outfalls and report that the results also apply to the substantially identical outfall(s). The permittee must then include in the storm water pollution prevention plan a description of the location of the outfalls and explain in detail why the outfalls are expected to discharge substantially identical effluents. In addition, for each outfall that the permittee believes is representative, an estimate of the size of the drainage area (in square feet) and an estimate of the runoff coefficient of the drainage area [e.g., low (under 40 percent), medium (40 to 65 percent), or high (above 65 percent)] shall be provided in the plan.

Samples from outfalls 001, 002, 003, 004, 005, 006 and 008 are not required to be collected and analyzed if flood conditions on the Mississippi River prevent collection of a representative sample during an entire quarter. Visual examinations must still be conducted each quarter unless doing so would be a safety hazard for personnel performing the examination. If evidence of contamination is noted during a visual examination, the permittee must attempt to determine if the contamination is due to its discharge(s), notify the department's field office immediately (within 6 hours), take steps to control and clean up the contamination and document findings and responses in the storm water pollution prevention plan.

STANDARD CONDITIONS

1. ADMINISTRATIVE RULES

Rules of this Department that govern the operation of your facility in connection with this permit are published in Part 567 of the Iowa Administrative Code (IAC) in Chapters 60-65, 67 and 121. Reference to the term "rule" in this permit means the designated provision of Part 567 of the IAC.

2. DEFINITIONS{PRIVATE }

(a) 7 day average means the sum of the total daily discharges by mass, volume or concentration during a 7 consecutive day period, divided by the total number of days during the period that measurements were made. Four 7 consecutive day periods shall be used each month to calculate the 7-day average. The first 7-day period shall begin with the first day of the month.

(b) 30 day average means the sum of the total daily discharges by mass, volume or concentration during a calendar month, divided by the total number of days during the month that measurements were made.

(c) daily maximum means the total discharge by mass, volume or concentration during a twenty-four hour period.

3. DUTY TO COMPLY

You must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. Issuance of this permit does not relieve you of the responsibility to comply with all local, state and federal laws, ordinances, regulations or other legal requirements applying to the operation of your facility.
{See 40 CFR 122.41(a) and 567 IAC 64.7(4)"e"}

4. DUTY TO REAPPLY

If you wish to continue to discharge after the expiration date of this permit, you must file a complete application for reissuance at least 180 days prior to the expiration date of this permit.
{See 567 IAC 64.8(1)}

5. NEED TO HALT OR REDUCE ACTIVITY

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 this permit.
{See 40 CFR 122.41(c) and 567 IAC 64.7(5)"j"}

6. DUTY TO MITIGATE

You shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
{See 40 CFR 122.41(d) and 567 IAC 64.7(5)"i"}

7. PROPERTY RIGHTS

This permit does not convey any property rights of any sort or any exclusive privilege. ***{See 567 IAC 64.4(3)"b"}***

8. TRANSFER OF TITLE OR OWNER ADDRESS CHANGE

If title to your facility, or any part of it, is transferred the new owner shall be subject to this permit. You are required to notify the new owner of the requirements of this permit in writing prior to any transfer of title. The Director shall be notified in writing within 30 days of the transfer. No transfer of the authorization to discharge from the facility represented by the permit shall take place prior to notifying the department of the transfer of title. Whenever the address of the owner is changed, the department shall be notified in writing within 30 days of the address change. Electronic notification is not sufficient; all title transfers or address changes must be reported to the department by mail.
{See 567 IAC 64.14}

9. PROPER OPERATION AND MAINTENANCE

All facilities and control systems shall be operated as efficiently as possible and maintained in good working order. A sufficient number of staff, adequately trained and knowledgeable in the operation of your facility shall be retained at all times and adequate laboratory controls and appropriate quality assurance procedures shall be provided to maintain compliance with the conditions of this permit.
{See 40 CFR 122.41(e) and 567 IAC 64.7(5)"f"}

10. DUTY TO PROVIDE INFORMATION

You must furnish to the Director, within a reasonable time, any information the Director may request to determine compliance with this permit or determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, in accordance with 567 IAC 64.3(11)(c). You must also furnish to the Director, upon request, copies of any records required to be kept by this permit.

11. PERMIT MODIFICATION, SUSPENSION OR REVOCATION

(a) This permit may be modified, suspended, or revoked and reissued for cause including but not limited to those specified in 567 IAC 64.3(11).

(b) This permit may be modified due to conditions or information on which this permit is based, including any new standard the department may adopt that would change the required effluent limits.
{See 567 IAC 64.3(11)}

(c) If a toxic pollutant is present in your discharge and more stringent standards for toxic pollutants are established under Section 307(a) of the Clean Water Act, this permit will be modified in accordance with the new standards.
{See 40 CFR 122.62(a)(6) and 567 IAC 64.7(5)"g"}

The filing of a request for a permit modification, revocation or suspension, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

12. SIGNATORY REQUIREMENTS

Applications, reports or other information submitted to the Department in connection with this permit must be signed and certified as required by 567 IAC 64.3(8).

STANDARD CONDITIONS

13. TWENTY-FOUR HOUR REPORTING

You shall report any noncompliance that may endanger human health or the environment, including, but not limited to, violations of maximum daily limits for any toxic pollutant (listed as toxic under 307(a)(1) of the Clean Water Act) or hazardous substance (as designated in 40 CFR Part 116 pursuant to 311 of the Clean Water Act). Information shall be provided orally within 24 hours from the time you become aware of the circumstances. A written submission that includes a description of noncompliance and its cause; the period of noncompliance including exact dates and times, whether the noncompliance has been corrected or the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent a reoccurrence of the noncompliance must be provided within 5 days of the occurrence. ***{See 567 IAC 63.12}***

14. OTHER NONCOMPLIANCE

You shall report all instances of noncompliance not reported under Condition #13 at the time monitoring reports are submitted. You shall give advance notice to the appropriate regional field office of the department of any planned activity which may result in noncompliance with permit requirements.
{See 567 IAC 63.14}

15. PLANNED CHANGES

The permittee shall give notice to the appropriate regional field office of the department 30 days prior to any planned physical alterations or additions to the permitted facility. Notice is required only when:

(a) Notice has not been given to any other section of the department: (Note: Facility expansions, production increases or process modifications which may result in new or increased discharges of pollutants must be reported to the Director in advance. If such discharges will exceed effluent limitations, your report must include an application for a new permit. If any modification of, addition to, or construction of a disposal system is to be made, you must first obtain a written permit from this Department.) ***{See 567 IAC 64.7(5)"a" and 64.2}***

(b) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source as defined in 567—60.2(455B);

(c) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices; or

(d) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in the permit.

{See 567 IAC 63.13 and 63.14}

16. EFFECT OF A PERMIT

Compliance with a permit during its term constitutes compliance, for purposes of enforcement, with Sections 301, 302, 306, 307, 318, 403 and 405(a)-(b) of the Clean Water Act, and equivalent limitations and standards set out in 567 IAC Chapters 61 and 62. ***{See 567 IAC 64.4(3)"a"}***

17. MONITORING AND RECORDS OF OPERATION

(a) Maintenance of records. You shall retain for a minimum of three years all paper and electronic records of monitoring activities and results including all original strip chart recordings for continuous monitoring instrumentation and calibration and maintenance records. ***{See 567 IAC 63.2(3)}***

(b) Any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two years, or both. ***{See 40 CFR 122.41(j)(5)}***

18. USE OF CERTIFIED LABORATORIES

Effective October 1, 1996, analyses of wastewater, groundwater or sewage sludge that are required to be submitted to the department as a result of this permit must be performed by a laboratory certified by the State of Iowa. Routine, on-site monitoring for pH, temperature, dissolved oxygen, total residual chlorine and other pollutants that must be analyzed immediately upon sample collection, settleable solids, physical measurements, and operational monitoring tests specified in 567 IAC 63.3(4) are excluded from this requirement.

19. INSPECTION OF PREMISES, RECORDS, EQUIPMENT, METHODS AND DISCHARGES

You are required to permit authorized personnel to:

(a) Enter upon the premises where a regulated facility or activity is located or conducted or where records are kept under conditions of this permit.

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit.

(c) Inspect, at reasonable times, any facilities, equipment, practices or operations regulated or required under this permit.

(d) Sample or monitor, at reasonable times, to assure compliance or as otherwise authorized by the Clean Water Act.

20. FAILURE TO SUBMIT FEES

This permit may be revoked, in whole or in part, if the appropriate permit fees are not submitted within thirty (30) days of the date of notification that such fees are due.
{See 567 IAC 64.16(1)}

21. OTHER INFORMATION

Where you become aware that you failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, you must promptly submit such facts or information. Where you become aware that you failed to submit any relevant facts in the submission of in any report to the director, including records of operation, you shall promptly submit such facts or information.
{See 567 IAC 60.4(2)"a" and 567 IAC 63.7}

STANDARD CONDITIONS

22. NOTICE OF CHANGED CONDITIONS

You are required to notify the director of any changes in existing conditions or information on which this permit is based. This includes, but is not limited to, the following:

(a) If your facility is a publicly owned treatment works (POTW) or otherwise may accept waste for treatment from an indirect discharger or industrial contributor (see 567 IAC 64.3(5) for further notice requirements).

(b) If your facility is a POTW and there is any substantial change in the volume or character of pollutants being introduced to the POTW by a source introducing pollutants into the POTW at the time of issuance of the permit. ***{See 40 CFR 122.42(b)}***

(c) As soon as you know or have reason to believe that any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in this permit. ***{See 40 CFR 122.42(a)}***

(d) If you have begun or will begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.

(e) No construction activity that will result in disturbance of one acre or more shall be initiated without first obtaining coverage under NPDES General Permit No. 2 for "Storm water discharge associated with construction activity".

23. BYPASSES

(a) Definition – "Bypass" means the diversion of waste streams from any portion of a treatment facility or collection system. A bypass does not include internal operational waste stream diversions that are part of the design of the treatment facility, maintenance diversions where redundancy is provided, diversions of wastewater from one point in a collection system to another point in a collection system, or wastewater backups into buildings that are caused in the building lateral or private sewer line.

(b) Prohibitions

i. Bypasses from any portion of a treatment facility or from a sanitary sewer collection system designed to carry only sewage are prohibited.

ii. Bypass is prohibited and the department may not assess a civil penalty against a permittee for bypass if the permittee has complied with all of the following:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and

(2) There were no feasible alternatives to the bypass such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The permittee submitted notices as required by paragraph *"d"* of this section.

(c) The Director may approve an anticipated bypass after considering its adverse effects if the Director determines that it will meet the three conditions listed above and a request for bypass has been submitted to the Department in accordance with 567 IAC 63.6(2).

(d) Reporting bypasses. Bypasses shall be reported in accordance with 567 IAC 63.6.

24. UPSET PROVISION

(a) Definition - "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

(b) Effect of an upset. An upset constitutes an affirmative defense in an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph *"c"* of this condition are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

(c) Conditions necessary for demonstration of an upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate through properly signed operating logs or other relevant evidence that;

(i) An upset occurred and that the permittee can identify the cause(s) of the upset;

(ii) The permitted facility was at the time being properly operated;

(iii) The permittee submitted notice of the upset to the Department in accordance with 567 IAC 63.6(3); and

(iv) The permittee complied with any remedial measures required in accordance with 567 IAC 63.6(6).

(d) Burden of Proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

25. SEVERABILITY

The provisions of this permit are severable and if any provision or application of any provision to any circumstance is found to be invalid by this department or a court of law, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected by such finding.

Appendix C

Proposed Effluent Limits

Attachment O Production Information and Limits

Effluent Limits Based on 40 CFR Part 467

(Based on BAT Limits unless otherwise noted)

Process	Criteria	Total Suspended Solids (BPT)		Oil and Grease (BPT)		Chromium		Cyanide		Zinc		Aluminum	
		Ave	Max	Ave	Max	Ave	Max	Ave	Max	Ave	Max	Ave	Max
Rolling With Neat Oils Subcategory (40 CFR 467.12 Subpart A; 40 CFR 467.13 Subpart A)													
Core Without Annealing Furnace Scrubber	lbs/million off-lbs	1.079	2.27	0.664	1.11	0.010	0.025	0.0067	0.016	0.034	0.081	0.174	0.356
	lbs/day	**0.857**	**1.804**	**0.528**	**0.882**	**0.008**	**0.020**	**0.005**	**0.013**	**0.027**	**0.064**	**0.138**	**0.283**
Solution Heat Treatment Contact Cooling Water	lbs/million off-lbs	150.25	315.91	92.46	154.10	0.367	0.897	0.245	0.591	1.243	2.974	6.518	13.10
	lbs/day	**120.173**	**252.672**	**73.952**	**123.253**	**0.294**	**0.717**	**0.196**	**0.473**	**0.994**	**2.379**	**5.213**	**10.478**
Cleaning or Etching Bath	lbs/million off-lbs	3.49	7.34	2.15	3.58	0.032	0.079	0.022	0.052	0.109	0.262	0.573	1.151
	lbs/day	**0.961**	**2.021**	**0.592**	**0.986**	**0.009**	**0.022**	**0.006**	**0.014**	**0.030**	**0.072**	**0.158**	**0.317**
Cleaning or Etching Rinse	lbs/million off-lbs	271.29	570.39	166.95	278.24	0.251	0.612	0.167	0.404	0.849	2.031	4.45	8.944
	lbs/day	**74.700**	**157.057**	**45.970**	**76.614**	**0.069**	**0.169**	**0.046**	**0.111**	**0.234**	**0.559**	**1.225**	**2.463**
Rolling With Emulsions Subcategory (40 CFR 467.22 Subpart B; 40 CFR 467.23 Subpart B)													
Core	lbs/million off-lbs	2.53	5.33	1.56	2.60	0.024	0.057	0.016	0.038	0.079	0.19	0.42	0.84
	lbs/day	**17.535**	**36.941**	**10.812**	**18.020**	**0.166**	**0.395**	**0.111**	**0.263**	**0.548**	**1.317**	**2.911**	**5.822**
Direct Chill Casting Contact Cooling Water	lbs/million off-lbs	25.92	54.49	15.95	26.58	0.24	0.59	0.16	0.39	0.81	1.94	4.26	8.55
	lbs/day	**28.073**	**59.016**	**17.275**	**28.788**	**0.260**	**0.639**	**0.173**	**0.422**	**0.877**	**2.101**	**4.614**	**9.260**
New Sources (New Source Performance Standards)													
Solution Heat Treatment (Neat Oils - **40 CFR 467.14 Subpart A**)	lbs/million off-lbs	24.45	30.56	20.37	20.37	0.31	0.76	0.17	0.41	0.86	2.08	5.52	12.45
	lbs/day	**13.877**	**17.344**	**11.561**	**11.561**	**0.176**	**0.431**	**0.096**	**0.233**	**0.488**	**1.181**	**3.133**	**7.066**
Core Without Annealing (Neat Oils - **40 CFR 467.14 Subpart A**)	lbs/million off-lbs	0.664	0.83	0.553	0.553	0.0083	0.021	0.0044	0.011	0.023	0.057	0.15	0.338
	lbs/day	**0.853**	**1.067**	**0.711**	**0.711**	**0.011**	**0.027**	**0.006**	**0.014**	**0.030**	**0.073**	**0.193**	**0.434**
Direct Chill Casting Contact Cooling Water (Emulsions - **40 CFR 467.24**)	lbs/million off-lbs	15.950	19.940	13.290	13.290	0.200	0.490	0.110	0.270	0.560	1.360	3.600	8.120
	lbs/day	**34.415**	**43.024**	**28.675**	**28.675**	**0.432**	**1.057**	**0.237**	**0.583**	**1.208**	**2.934**	**7.768**	**17.520**
	lbs/day	**291.444**	**570.945**	**190.075**	**289.488**	**1.424**	**3.477**	**0.877**	**2.126**	**4.436**	**10.681**	**25.353**	**53.643**

Notes:
Ave = Maximum for monthly average
Max = Maximum for any one day

Attachment F Production Information and Limits

Effluent Limits Based on 40 CFR Part 467 - Based on Actual 2015 Production

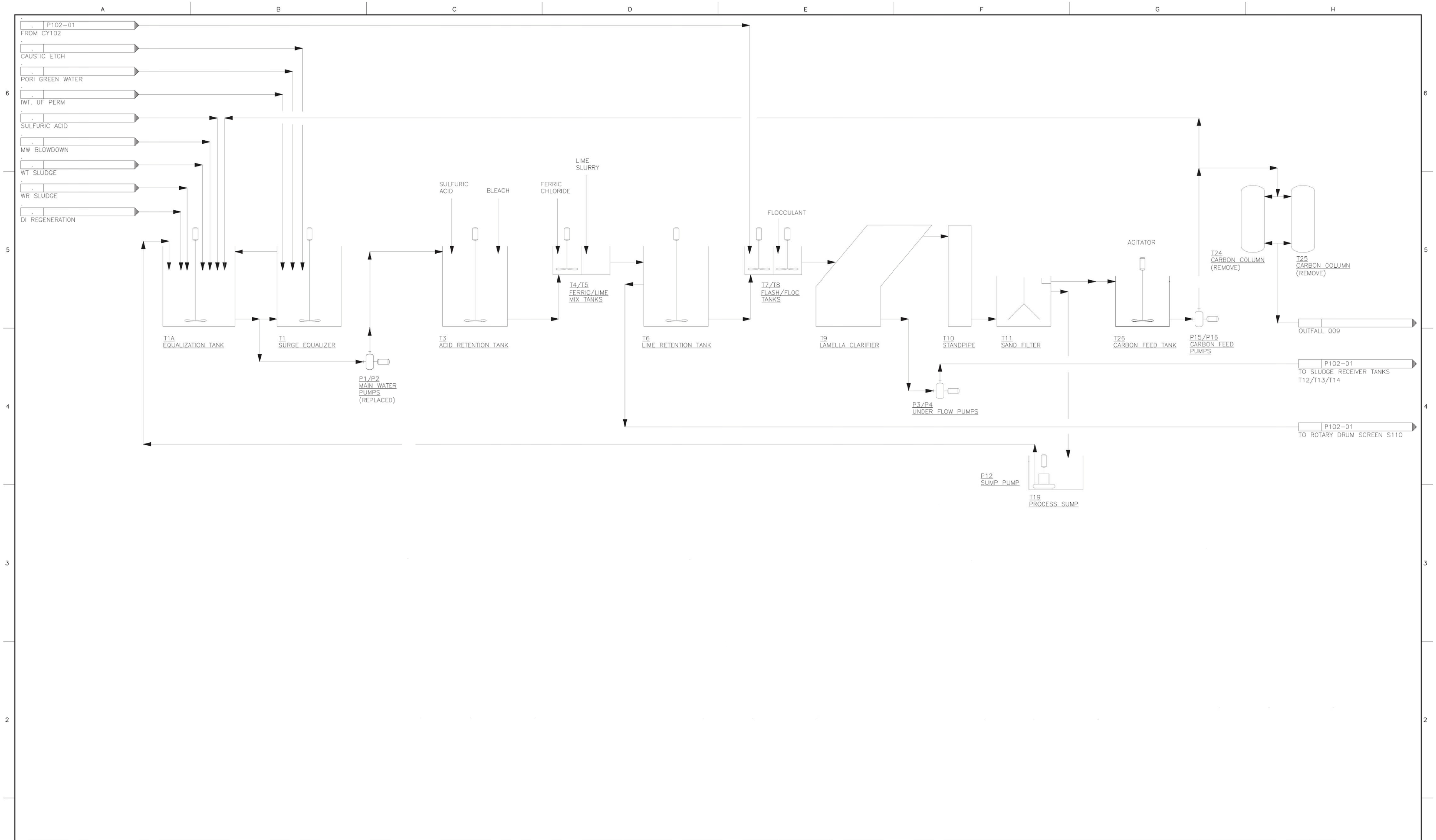
(Based on BAT Limits unless otherwise noted)

Process	Criteria	Total Suspended Solids (BPT)		Oil and Grease (BPT)		Chromium		Cyanide		Zinc		Aluminum	
		Ave	Max	Ave	Max	Ave	Max	Ave	Max	Ave	Max	Ave	Max
Rolling With Neat Oils Subcategory (40 CFR 467.12 Subpart A; 40 CFR 467.13 Subpart A)													
Core Without Annealing Furnace Scrubber	lbs/million off-lbs	1.079	2.27	0.664	1.11	0.010	0.025	0.0067	0.016	0.034	0.081	0.174	0.356
	lbs/day	**1.774**	**3.731**	**1.091**	**1.824**	**0.016**	**0.041**	**0.011**	**0.026**	**0.056**	**0.133**	**0.286**	**0.585**
Solution Heat Treatment Contact Cooling Water	lbs/million off-lbs	150.25	315.91	92.46	154.10	0.367	0.897	0.245	0.591	1.243	2.974	6.518	13.10
	lbs/day	**114.196**	**240.105**	**70.274**	**117.123**	**0.279**	**0.682**	**0.186**	**0.449**	**0.945**	**2.260**	**4.954**	**9.957**
Cleaning or Etching Bath	lbs/million off-lbs	3.49	7.34	2.15	3.58	0.032	0.079	0.022	0.052	0.109	0.262	0.573	1.151
	lbs/day	**0.896**	**1.884**	**0.552**	**0.919**	**0.008**	**0.020**	**0.006**	**0.013**	**0.028**	**0.067**	**0.147**	**0.295**
Cleaning or Etching Rinse	lbs/million off-lbs	271.29	570.39	166.95	278.24	0.251	0.612	0.167	0.404	0.849	2.031	4.45	8.944
	lbs/day	**69.634**	**146.407**	**42.852**	**71.418**	**0.064**	**0.157**	**0.043**	**0.104**	**0.218**	**0.521**	**1.142**	**2.296**
Rolling With Emulsions Subcategory (40 CFR 467.22 Subpart B; 40 CFR 467.23 Subpart B)													
Core	lbs/million off-lbs	2.53	5.33	1.56	2.60	0.024	0.057	0.016	0.038	0.079	0.19	0.42	0.84
	lbs/day	**25.237**	**53.168**	**15.561**	**25.935**	**0.239**	**0.569**	**0.160**	**0.379**	**0.788**	**1.895**	**4.190**	**8.379**
Direct Chill Casting Contact Cooling Water	lbs/million off-lbs	25.92	54.49	15.95	26.58	0.24	0.59	0.16	0.39	0.81	1.94	4.26	8.55
	lbs/day	**26.895**	**56.540**	**16.550**	**27.580**	**0.249**	**0.612**	**0.166**	**0.405**	**0.840**	**2.013**	**4.420**	**8.872**
New Sources (New Source Performance Standards)													
Solution Heat Treatment (Neat Oils - **40 CFR 467.14 Subpart A**)	lbs/million off-lbs	24.45	30.56	20.37	20.37	0.31	0.76	0.17	0.41	0.86	2.08	5.52	12.45
	lbs/day	**32.150**	**40.184**	**26.785**	**26.785**	**0.408**	**0.999**	**0.224**	**0.539**	**1.131**	**2.735**	**7.258**	**16.371**
Core Without Annealing (Neat Oils - **40 CFR 467.14 Subpart A**)	lbs/million off-lbs	0.664	0.83	0.553	0.553	0.0083	0.021	0.0044	0.011	0.023	0.057	0.15	0.338
	lbs/day	**1.044**	**1.305**	**0.869**	**0.869**	**0.013**	**0.033**	**0.007**	**0.017**	**0.036**	**0.090**	**0.236**	**0.531**
Direct Chill Casting Contact Cooling Water (Emulsions - **40 CFR 467.24**)	lbs/million off-lbs	15.950	19.940	13.290	13.290	0.200	0.490	0.110	0.270	0.560	1.360	3.600	8.120
	lbs/day	**34.647**	**43.314**	**28.869**	**28.869**	**0.434**	**1.064**	**0.239**	**0.586**	**1.216**	**2.954**	**7.820**	**17.638**
TOTAL	lbs/day	**306.472**	**586.637**	**203.403**	**301.322**	**1.712**	**4.178**	**1.041**	**2.519**	**5.258**	**12.669**	**30.453**	**64.924**

Notes:
Ave = Maximum for monthly average
Max = Maximum for any one day

Appendix D

Process Flow Diagrams



REV NO.	ISSUE DATE	DRAWN BY	CHECKED BY	REVIEWED BY	APPROVED BY	APPROVED BY (OPTIONAL)	DESCRIPTION
A	6-22-12	W. KONYHA	J. TOAL	K. BENSON			ISSUED FOR REVIEW

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TITLE:
ALUMINUM COMPANY OF AMERICA
DAVENPORT WORKS
BLOWDOWN TREATMENT FACILITY
PROCESS FLOW DIAGRAM
EXISTING BTF CONFIGURATION
FIGURE 1

CONTRACT NO. 5600212022 | DWG. NO. | REV A

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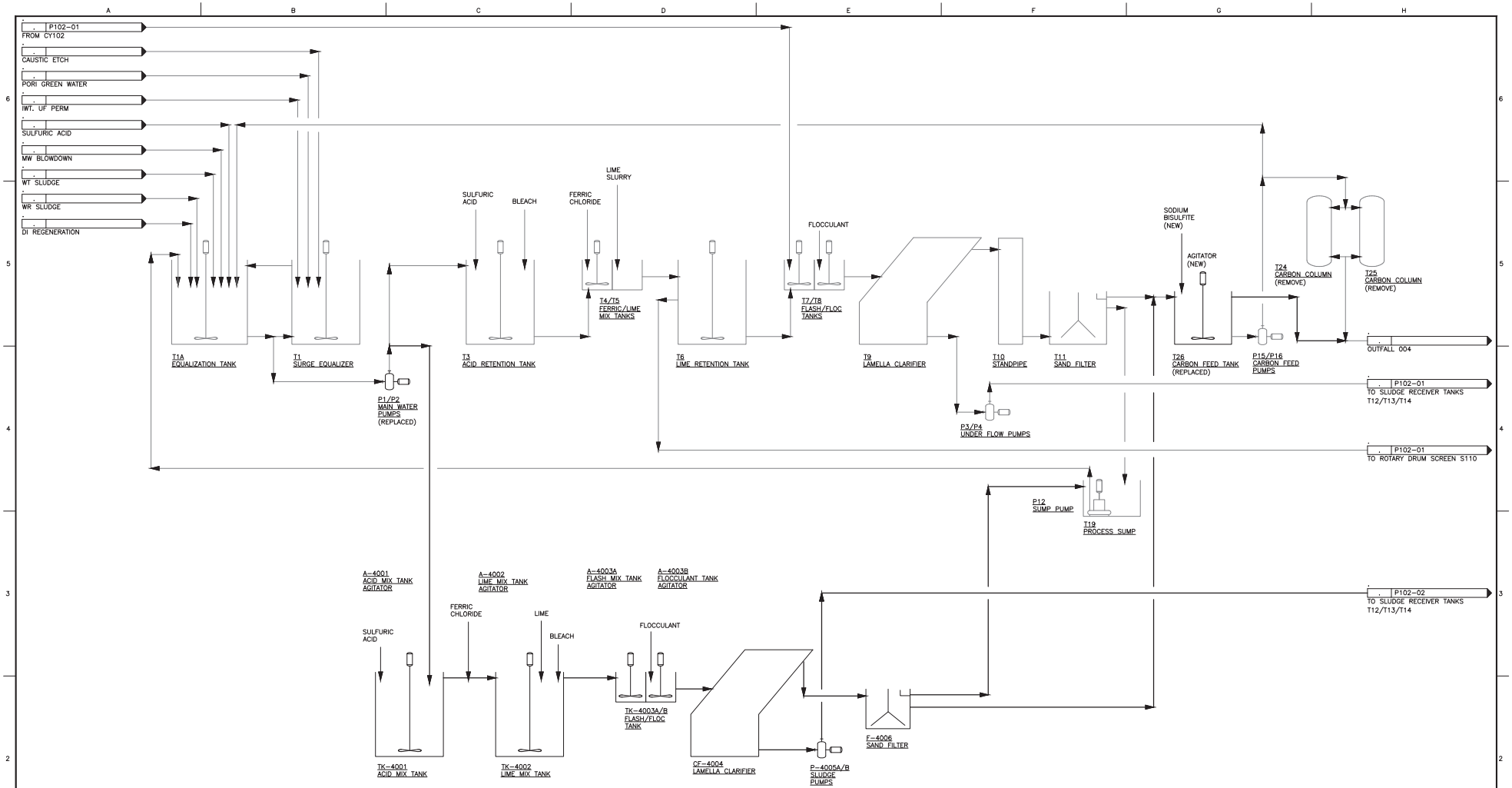

REV. NO.	ISSUE DATE	DRAWN BY	CHECKED BY	REVIEWED BY	APPROVED BY	APPROVED BY (OPTIONAL)	DESCRIPTION
A	6-22-12	W. KONYHA	J. TOAL	K. BENSON			ISSUED FOR REVIEW

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TITLE:
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DAVENPORT WORKS
BLOWDOWN TREATMENT FACILITY
PROCESS FLOW DIAGRAM
TYPICAL BTF EXPANSION CONFIGURATION

CONTRACT NO. 5600212022 | DWG. NO. P101-02 | REV. A

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