Arkansas Department of Environmental Quality (ADEQ)
5301 Northshore Drive
North Little Rock, AR 72118-5317

Industrial Stormwater General Permit (ARR000000) Annual Report Form

Permit No. ARR-00 955
Permittee Name: Arkansas Electric Coop Corp
Facility Name: Magnet Cove Generating Station
Facility Physical Address (not mailing address): 410 Henderson Road
Facility City: Malvern · Zip Code: 72104

Facility Contact Name: John Morgan	Title: Plant Manager
Facility Contact Phone Number 501.467.3232	Facility Contact Email: john.morgan@aecc.com
Reporting Period: January 1st to December 31st 2012 (Year)	

This Form may be used to submit your annual report to ADEQ. All facilities must submit a signed annual report each year on or before **January 31st**. DMRs for each monitored outfall must be submitted with the annual report**.** Retain a copy of your submitted report onsite.

1. Benchmarks Exceeded

Did the facility exceed the benchmark for any parameter during the previous calendar year (Jan 1st – Dec 31st)? **Note**: If a parameter was sampled at a discharge point more than once then all the samples needs to be reported and evaluated individually:

Yes ☒ **- Complete Sections 2, 3, 4, 5 and 6.**

No ☐ **- Complete Section 2, 3, 5 and 6.**

Arkansas Electric Cooperative Corporation (AECC) purchased this plant on September 10, 2012. Although AECC did not own or operate the plant until that date, AECC is submitting this annual report for the full year.

The iron result from the 2nd sampling period (1.12 mg/l) was above the benchmark parameter (1.0 mg/l). Although AECC could not pinpoint a reason for the benchmark exceedance, AECC believes that the iron benchmark exceedance may be due to the natural presence of iron. (See attachment for more information.)

2. Evaluations and Inspections

Facilities are required to complete a minimum of 4 visual site inspections and 1 comprehensive site compliance evaluation per year. Please include the dates of these inspections below. If more than the minimum number of inspections and evaluations were completed, please just include dates for 4 visual site inspections and 1 comprehensive site compliance evaluation.

Visual Site Inspection #1 Date	3/1/2012
Visual Site Inspection #2 Date	4/24/2012
Visual Site Inspection #3 Date	7/25/2012
Visual Site Inspection #4 Date	10/26/2012
Comprehensive Site Compliance Evaluation Date	12/3/2012

3. Stormwater Problems Identified At the Facility

Instructions: Based on the best available information, briefly describe any potential or actual stormwater pollution problem(s) you identified during the previous calendar year (Jan 1st – Dec 31st) comprehensive site evaluation and quarterly visual site inspections. • Sources of available information may also include (but may not be limited to): SWPPP reviews, audits made by consultants or providers of technical assistance, inspection reports or other notification made by federal/state/local authorities, visual observations, and/or your facility's monthly site inspections (self-inspections). • For each problem identified, provide the date you discovered the problem (estimate if necessary). • Do not include problems discovered through stormwater sampling. This information is covered in Section 4. • **If no problems were identified, put N/A for Not Applicable.**
Date Problem Discovered: n/a **Describe the Problem:**
Date Problem Discovered: **Describe the Problem:**
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4. Corrective Actions Planned or Taken

Instructions: Complete this section for each pollutant parameter (e.g., turbidity, copper) that exceeded a benchmark during the previous calendar year (Jan – Dec). If the parameter benchmark value is exceeded, the facility must investigate the cause of each parameter exceedance and determine a corrective action plan. To do this, indicate below in which sampling period an exceedance occurred. If more than one sample was taken at a sample location, indicate all sample results that exceeded the benchmark. Note: If the facility exceeded the benchmark for more than one parameter (e.g., turbidity & zinc), make additional copies of Section 4 and complete one for each parameter.

Pollutant Parameter: The iron benchmark was exceeded during the following sampling period (check all that apply):

☐ 1st Sampling period (January-June) ☒ 2nd Sampling Period (July-December)

For the each pollutant parameter exceeding the benchmark_summarize below any corrective actions plan **completed** during the previous calendar year and include the dates you completed the corrective actions.

The facility was not covered by the Stormwater Industrial General Permit until May 21, 2012. The plant staff was diligent in taking a first half sample prior to the end of the first sampling period.

Plant staff routinely performs housekeeping duties throughout the year. These duties – such as general open area cleaning and trash pickup – assist in storm water pollution prevention.

For the each pollutant parameter exceeding the benchmark summarize any corrective actions plan **initiated** during the previous calendar year, but have **not yet been completed**. Identify the date you expect to complete corrective actions.

We plan to perform additional storm water pollution prevention training before April 30, 2013. This training will notify all personnel of any benchmark exceedances and discuss pollution prevention techniques to make the employees more aware of the situation. The thought is that if the employees are more aware of the problem, then it's more likely that they will take special care to prevent reoccurring benchmark exceedances.

5. Are the DMRs included with this report? **Yes** ☒ **No** ☐

6. Certification by Permittee

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

John Morgan	Asst. Plant Manager	January 11, 2013
Printed Name	**Title**	**Date**

Signature*______________________________

*** Federal regulations require this report to be signed by the following person, or a duly authorized representative:**

A. In the case of corporations, by a principal executive officer of at least the level of vice president.
B. In the case of a partnership, by a general partner of a partnership.
C. In the case of sole proprietorship, by the proprietor.
D. In the case of a municipality, state, federal, or other public facility: by either a principal executive officer or ranking elected official.

A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to ADEQ.
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

Please return the signed document to the address below. Make sure you retain a copy for your records.

Arkansas Department of Environmental Quality
Water Division, General Permits Section
5301 Northshore Dr.
North Little Rock, AR 72118
Water.Permit.Application@adeq.state.ar.us

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY
STORMWATER DISCHARGE MONITORING REPORT
(DMR)

PERMIT NUMBER: ARR00955

PERMITTEE NAME: Magnet Cove Generating Station

FACILITY NAME: Magnet Cove Generating Station

FACILITY PHYSICAL ADDRESS: 410 Henderson Road
Malvern, AR 72104

INDUSTRIAL SECTOR: SE

OUTFALL NO: 001

REPORTING YEAR: 2012

PARAMETER	Benchmark Value	QUALITY OR CONCENTRATION		UNITS
		JANUARY-JUNE	JULY-DECEMBER	
Chemical Oxygen Demand (COD)	120	27.0	<10.0	mg/L
Total Suspended Solids (TSS)	100	21.0	4.8	mg/L
Oil and Grease (O&G)	15	<2.6	<2.6	mg/L
pH	6.0-9.0	6.77	6.81	S.U.
Total Iron	1.0		1.12	mg/L

Sampling Period:	JANUARY-JUNE	JULY-DECEMBER	
Date of Storm Event Sampled:	06/12/12	12/04/12	
Duration of Event:	6.22	2.97	hours
Estimate of Rainfall Event:	2.26	0.75	inches
Time Since Last Measurable Event:	10	19	days
Estimate of Total Discharged Volume:	736,373	244,372	gallons

Comments:_

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

02 JAN 2013
Signature & Date

JOHN M MORGAN ASST PLANT MGR.
Printed Name & Title of Official

5301 Northshore Drive, North Little Rock, AR 72118
501-682-0623 Fax 501-682-0880
Version 08/30/2010

Iron Benchmark Exceedance

This facility exceeded the storm water benchmark value for iron (which is 1.0 mg/l); however, AECC believes that the natural background concentration for iron may be causing the exceedance. Section 3.11.3 of the general permit provides an exception to performing corrective actions or additional monitoring; however, the requirements to demonstrate the natural background concentration of iron can be very costly. Due to that cost, AECC is simply submitting this information to demonstrate that iron is naturally abundant and therefore can be expected to exceed the 1.0 mg/l benchmark value just about anywhere.

In *Quality Criteria for Water*, EPA states, "Iron is the fourth most abundant, by weight, of the elements that make up the earth's crust. Common in many rocks it is an important component of many soils, especially the clay soils where usually it is a major constituent."[1]

In a USGS report detailing soil sample results from around the contiguous United States, iron results are in percentages whereas most element results are in parts per million. The average iron concentration is 1.8% for over 1,300 soil samples taken analyzing iron content.[2] In other words, in a random scoop of soil in the U.S., 1.8% of the soil is iron. Based on this information, AECC believes that storm water is likely to pick up more than 1.0 mg/l of iron.

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[1] *Quality Criteria for Water*, U.S. Environmental Protection Agency, 1976, p. 152.
[2] *Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States*, U.S. Geological Survey, 1984, p. 6.

IRON

CRITERIA:

0.3 mg/l for domestic water supplies (welfare).

1.0 mg/l for freshwater aquatic life.

INTRODUCTION:

Iron is the fourth most abundant, by weight, of the elements that make up the earth's crust. Common in many rocks it is an important component of many soils, especially the clay soils where usually it is a major constituent. Iron in water may be present in varying quantities dependent upon the geology of the area and other chemical components of the waterway.

Iron is an essential trace element required by both plants and animals. In some waters it may be a limiting factor for the growth of algae and other plants; especially this is true in some marl lakes where it is precipitated by the highly alkaline conditions. It is a vital oxygen transport mechanism in the blood of all vertebrate and some invertebrate animals.

The ferrous, or bivalent (Fe^{++}), and the ferric, or trivalent (Fe^{+++}) irons, are the primary forms of concern in the aquatic environment, although other forms may be in organic and inorganic wastewater streams. The ferrous (Fe^{++}) form can persist in waters void of dissolved oxygen and originates usually from groundwaters or mines when these are pumped or drained. For practical purposes the ferric (Fe^{+++}) form is insoluble. Iron can exist in natural organometallic or humic compounds and colloidal forms. Black or brown swamp waters may contain iron concentrations of several mg/l in the presence or absence of dissolved oxygen, but this iron form has litte effect on aquatic

1, unlike the geometric means shown in table 2, are estimates of geochemical abundance (Miesch, 1967). Arithmetic means are always larger than corresponding geometric means (Miesch, 1967, p. B1) and are estimates of the fractional part of a single specimen that consists of the element of concern rather than of the typical concentration of the element in a suite of samples.

Concentrations of 46 elements in samples of this study are presented in table 2, which gives the determination ratios, geometric-mean concentrations and deviations, and observed ranges in concentrations. The analytical data for most elements as received from the laboratories were transformed into logarithms because of the tendency for elements in natural materials, particularly the trace elements, to have positively skewed

TABLE 2.—*Mean concentrations, deviations, and ranges of elements in samples of soils and other surficial materials in the conterminous United States*

[Means and ranges are reported in parts per million (μg/g), and means and deviations are geometric except as indicated. Ratio, number of samples in which the element was found in measurable concentrations to number of samples analyzed. <, less than; >, greater than]

Element	Conterminous United States			Western United States (west of 96th meridian)					Eastern United States (east of 96th meridian)				
	Mean	Deviation	Estimated arithmetic mean	Ratio	Mean	Deviation	Observed range	Estimated arithmetic mean	Ratio	Mean	Deviation	Observed range	Estimated arithmetic mean
Al, percent	4.7	2.48	7.2	661:770	5.8	2.00	0.5 - >10	7.4	450:477	3.3	2.87	0.7 - >10	5.7
As	5.2	2.23	7.2	728:730	5.5	1.98	<0.10 - 97	7.0	521:527	4.8	2.56	<0.1 - 73	7.4
B	26	1.97	33	506:778	23	1.99	<20 - 300	29	425:541	31	1.88	<20 - 150	38
Ba	440	2.14	580	778:778	580	1.72	70 - 5,000	670	541:541	290	2.35	10 - 1,500	420
Be	.63	2.38	.92	310:778	.68	2.30	<1 - 15	.97	169:525	.55	2.53	<1 - 7	.85
Br	.56	2.50	.85	113:220	.52	2.74	<0.5 - 11	.86	78:128	.62	2.18	<0.5 - 5.3	.85
C, percent	1.6	2.57	2.5	250:250	1.7	2.37	0.16 - 10	2.5	162:162	1.5	2.88	0.06 - 37	2.6
Ca, percent	.92	4.00	2.4	777:777	1.8	3.05	0.06 - 32	3.3	514:514	.34	3.08	0.01 - 28	.63
Ce	63	1.78	75	81:683	65	1.71	<150 - 300	75	70:489	63	1.85	<150 - 300	76
Co	6.7	2.19	9.1	698:778	7.1	1.97	<3 - 50	9.0	403:533	5.9	2.57	<0.3 - 70	9.2
Cr	37	2.37	54	778:778	41	2.19	3 - 2,000	56	541:541	33	2.60	1 - 1,000	52
Cu	17	2.44	25	778:778	21	2.07	2 - 300	27	523:533	13	2.80	<1 - 700	22
F	210	3.34	430	598:610	280	2.52	<10 - 1,900	440	390:435	130	4.19	<10 - 3,700	360
Fe, percent	1.8	2.38	2.6	776:777	2.1	1.95	0.1 - >10	2.6	539:540	1.4	2.87	0.01 - >10	2.5
Ga	13	2.03	17	767:776	16	1.68	<5 - 70	19	431:540	9.3	2.38	<5 - 70	14
Ge	1.2	1.37	1.2	224:224	1.2	1.32	0.58 - 2.5	1.2	130:131	1.1	1.45	<0.1 - 2.0	1.2
Hg	.058	2.52	.089	729:733	.046	2.33	<0.01 - 4.6	.065	534:534	.081	2.52	0.01 - 3.4	.12
I	.75	2.63	1.2	169:246	.79	2.55	<0.5 - 9.6	1.2	90:153	.68	2.81	<0.5 - 7.0	1.2
K, percent[1]	1.5	.79	None	777:777	1.8	.71	0.19 - 6.3	None	537:537	1.2	.75	0.005 - 3.7	--
La	30	1.92	37	462:777	30	1.89	<30 - 200	37	294:516	29	1.98	<30 - 200	37
Li	20	1.85	24	731:731	22	1.58	5 - 130	25	479:527	17	2.16	<5 - 140	22
Mg, percent	.44	3.28	.90	777:778	.74	2.21	0.03 - >10	1.0	528:528	.21	3.55	0.005 - 5	.46
Mn	330	2.77	550	777:777	380	1.98	30 - 5,000	480	537:540	260	3.82	<2 - 7,000	640
Mo	.59	2.72	.97	57:774	.85	2.17	<3 - 7	1.1	32:524	.32	3.93	<3 - 15	.79
Na, percent	.59	3.27	1.2	744:744	.97	1.95	0.05 - 10	1.2	363:449	.25	4.55	<0.05 - 5	.78
Nb	9.3	1.75	11	418:771	8.7	1.82	<10 - 100	10	322:498	10	1.65	<10 - 50	12
Nd	40	1.68	46	120:538	36	1.76	<70 - 300	43	109:332	46	1.58	<70 - 300	51
Ni	13	2.31	19	747:778	15	2.10	<5 - 700	19	443:540	11	2.64	<5 - 700	18
P	260	2.67	430	524:524	120	2.33	40 - 4,500	460	380:382	200	2.95	<20 - 6,800	360
Pb	16	1.86	19	712:778	17	1.80	<10 - 700	20	422:541	14	1.95	<10 - 300	17
Rb	58	1.72	67	221:224	69	1.50	<20 - 210	74	107:131	43	1.94	<20 - 160	53
S, percent	.12	2.04	.16	34:224	.13	2.37	<0.08 - 4.8	.19	20:131	.10	1.34	<0.08 - 0.31	.11
Sb	.48	2.27	.67	35:223	.47	2.15	<1 - 2.6	.62	31:131	.52	2.38	<1 - 8.8	.76
Sc	7.5	1.82	8.9	685:778	8.2	1.74	<5 - 50	9.6	389:526	6.5	1.90	<5 - 30	8.0
Se	.26	2.46	.39	590:733	.23	2.43	<0.1 - 4.3	.34	449:534	.30	2.44	<0.1 - 3.9	.45
Si, percent[1]	31	6.48	None	250:250	30	5.70	15 - 44	None	156:156	34	6.64	1.7 - 45	--
Sn	.89	2.36	1.3	218:224	.90	2.11	<0.1 - 7.4	1.2	123:131	.86	2.81	<0.1 - 10	1.5
Sr	120	3.30	240	778:778	200	2.16	10 - 3,000	270	501:540	53	3.61	<5 - 700	120
Ti, percent	.24	1.89	.29	777:777	.22	1.78	0.05 - 2.0	.26	540:540	.28	2.00	0.007 - 1.5	.35
Th	8.6	1.53	9.4	195:195	9.1	1.49	2.4 - 31	9.8	102:102	7.7	1.58	2.2 - 23	8.6
U	2.3	1.73	2.7	224:224	2.5	1.45	0.68 - 7.9	2.7	130:130	2.1	2.12	0.29 - 11	2.7
V	58	2.25	80	778:778	70	1.95	7 - 500	88	516:541	43	2.51	<7 - 300	66
Y	21	1.78	25	759:778	22	1.66	<10 - 150	25	477:541	20	1.97	<10 - 200	25
Yb	2.6	1.79	3.1	754:764	2.6	1.63	<1 - 20	3.0	452:486	2.6	2.06	<1 - 50	3.3
Zn	48	1.95	60	766:766	55	1.79	10 - 2,100	65	473:482	40	2.11	<5 - 2,900	52
Zr	180	1.91	230	777:778	160	1.77	<20 - 1,500	190	539:541	220	2.01	<20 - 2,000	290

[1]Means are arithmetic, deviations are standard.