

March 14, 2025

Maria D. Bebenek, P.E.
Program Manager
Department of Environmental Protection – Clean Water Program
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110

Re: TMI-1 (PA0009920) Chemical Additives

Dear Ms. Bebenek:

Constellation Energy Generation, LLC (Constellation) Three Mile Island Nuclear Station, Unit 1 (TMI-1) is submitting herewith six New Chemical Request Forms and three Notification Forms.

Note that many of these chemicals were already approved for use at TMI-1 in 2010 or earlier, before PADEP instituted the new chemical approval system.

All these chemicals, along with the WQBEL-based maximum allowable usage rate and requested maximum usage rate, were listed in the Chemicals Additives table (starting on page 18 of 647) within the NPDES renewal application resubmittal to PADEP on 3/7/25; the safety data sheets were included (starting on page 325 of 647).

Please do not hesitate to reach out to me by email at Alyssa.Hockaday@constellation.com or telephone at (267) 533-5679, or Debra Musser at Debra.Musser@constellation.com or (267) 533-7308 with any questions.

Sincerely yours,



Alyssa Hockaday
Environmental Specialist
Constellation Energy Generation, LLC

Enclosures:

New Chemical Request Form for Hydrazine
New Chemical Request Form for TRASAR TRAC 103
New Chemical Request Form for Aluminum Sulfate
New Chemical Request Form for Potassium Sulfite

New Chemical Request Form for Boric Acid
New Chemical Request Form for Lithium Hydroxide
Notification Form for Sulfuric Acid
Notification Form for Ammonium Hydroxide
Notification Form for Sodium Hypochlorite

CC:

Debra Musser, Debra.Musser@constellation.com

Craig Smith, Craig.Smith3@constellation.com

Bonnie Pugh, Bonnie.Pugh@constellation.com

NEW CHEMICAL ADDITIVES REQUEST FORM

Use this form to request approval of new chemical additives that are not identified on DEP's Approved List (see www.dep.pa.gov/chemicaladditives). One form should be used for each proposed chemical additive. Upon approval, DEP will add the chemical to the Approved List. **The Material Safety Data Sheet (MSDS) must be attached**

Indicate who is submitting this form: ☒ Permittee ☐ Manufacturer

Permittee Name:	Constellation Energy Generation LLC	Facility Name:	TMI Unit 1
Permit No.:	PA0009920	Municipality:	Londonderry Twp
Permit Effective Date:	Nov 1, 2007	County:	Dauphin County
Permit Expiration Date:	Administratively extended		

Trade Name of Chemical Additive:	Hydrazine 35%
Manufacturer Name:	Arch Chemicals Inc.
Intended Use(s):	Corrosion inhibitor
48-Hour LC₅₀ or EC₅₀ (for whole product):	0.46 mg/L

Species Tested: ☐ Ceriodaphnia sp. ☒ Daphnia sp. ☐ Simocephalus sp.

List All Product Ingredients:

Constituent Name:	CAS #	Percent (%)	By Weight or Volume
Hydrazine, monohydrate	7803-57-8	55	
	Total:	100	

Analytical Method(s) That May be Used to Determine Effluent Concentration:

Concentration:	EPA 8270
Method Detection Limit (mg/L):	0.01

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel 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. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Name/Title Principal Executive Officer

Trevor L Orth / Plant Manager

Signature of Principal Executive Officer or
Authorized Agent

Authorized Agent
Tina L. O'Neil

Date _____

03/11/25

Phone: 267-533-5559

Email: Trevor.Orth@Constellation.com



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

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Indicate who is submitting this form: ☒ Permittee ☐ Manufacturer

Permittee Name: Constellation Energy
Generation LLC
Permit No.: PA0009920
Permit Effective Date: Nov 1, 2007
Permit Expiration Date: Administratively extended
Facility Name: TMI Unit 1
Municipality: Londonderry Twp
County: Dauphin County

Trade Name of Chemical Additive: TRASAR TRAC103
Manufacturer Name: Nalco Company
Intended Use(s): Corrosion Inhibitor
48-Hour LC₅₀ or EC₅₀
(for whole product): 3,026 mg/L

Species Tested: ☒ Ceriodaphnia sp. ☐ Daphnia sp. ☐ Simocephalus sp.

List All Product Ingredients:

Constituent Name:	CAS #	Percent (%)	By Weight or Volume
Sodium Molybdate	7631-95-0	35	by weight
Total:		100	

Analytical Method(s) That May be Used to Determine Effluent Concentration:

Ion Chromatography (IC) , Spectrophotometer

Method Detection Limit (mg/L):

IC- 0.3 , Spectrophotometer- 0.2

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Name/Title Principal Executive Officer

Trevor L Orth / Plant Manager

Signature of Principal Executive Officer or
Authorized Agent

Trevor L Orth

Date

03/11/25

Phone: 267-533-5559

Email: Trevor.Orth@Constellation.com

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Permit No.:	PA0009920	Municipality:	Londonderry Twp
Permit Effective Date:	Nov 1, 2007	County:	Dauphin County
Permit Expiration Date:	Administratively extended		

Trade Name of Chemical Additive:	Aluminum Sulfate
Manufacturer Name:	Univar
Intended Use(s):	Water Treatment
48-Hour LC ₅₀ or EC ₅₀ (for whole product):	100 mg/L (Carassius auratus) 96 hr

Species Tested: ☐ Ceriodaphnia sp. ☐ Daphnia sp. ☐ Simocephalus sp.

List All Product Ingredients:

Constituent Name:	CAS #	Percent (%)	By Weight or Volume
Sulfuric acid, aluminum salt	10043-01-3	29-50	by weight
Water	7732-18-5	Balance	by weight
	Total:	100	

Analytical Method(s) That May be Used to Determine Effluent Concentration:

EPA-NERL 375.2

Method Detection Limit (mg/L): 3-300

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Trevor L Orth / Plant Manager

Signature of Principal Executive Officer or
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Travis L. Pitt

Date _____

03/11/25



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

Phone: 717-497-5357

Email: Trevor.Orth@Constellation.com



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DEPARTMENT OF ENVIRONMENTAL PROTECTION
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NEW CHEMICAL ADDITIVES REQUEST FORM

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Indicate who is submitting this form: ☒ Permittee ☐ Manufacturer

Permittee Name: Constellation Energy
Generation LLC
Permit No.: PA0009920
Permit Effective Date: Nov 1, 2007
Permit Expiration Date: Administratively extended
Facility Name: TMI Unit 1
Municipality: Londonderry Twp
County: Dauphin County

Trade Name of Chemical Additive: Potassium Sulfite 45% TECH
Manufacturer Name: Hydrite Chemical Co
Intended Use(s): Neutralizing Agent
48-Hour LC₅₀ or EC₅₀
(for whole product): 1548.93 mg/L fathead minnow

Species Tested: ☐ Ceriodaphnia sp. ☐ Daphnia sp. ☐ Simocephalus sp.

List All Product Ingredients:

Constituent Name:	CAS #	Percent (%)	By Weight or Volume
Potassium Sulfite	10117-38-1	~45	By Weight
Total:		100	

Analytical Method(s) That May be Used to Determine Effluent Concentration:

EPA Method 4500-SO32-B

Method Detection Limit (mg/L):

2

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Name/Title Principal Executive Officer

Trevor L Orth / Plant Manager

Signature of Principal Executive Officer or
Authorized Agent

Trevor L. Orth

Date

03/11/25

Phone: 267-533-5559

Email: Trevor.Orth@Constellation.com



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Indicate who is submitting this form: ☒ Permittee ☐ Manufacturer

Permittee Name: Constellation Energy
Permit No.: Generation LLC
Permit Effective Date: PA0009920
Permit Expiration Date: Nov 1, 2007
Facility Name: TMI Unit 1
Municipality: Londonderry Twp
County: Dauphin County
Permit Expiration Date: Administratively extended

Trade Name of Chemical Additive: Boric Acid (Borax Decahydrate)
Manufacturer Name: U.S. Borax Inc.
Intended Use(s): Pressurized Water Reactor Treatment
48-Hour LC₅₀ or EC₅₀
(for whole product): 5.7 mg/L - EC10

Species Tested: ☐ Ceriodaphnia sp. ☒ Daphnia sp. ☐ Simocephalus sp.

List All Product Ingredients:

Constituent Name:	CAS #	Percent (%)	By Weight or Volume
Sodium tetraborate decahydrate	1303-96-4	100	>99.4
Total:		100	

**Analytical Method(s) That May
be Used to Determine Effluent
Concentration:**

EPA Method 6020B

Method Detection Limit (mg/L):

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Name/Title Principal Executive Officer

Trevor L Orth / Plant Manager

Signature of Principal Executive Officer or
Authorized Agent

Trevor L Orth

Date

03/11/25

Phone: 267-533-5559

Email: Trevor.Orth@Constellation.com



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Indicate who is submitting this form: ☒ Permittee ☐ Manufacturer

Permittee Name:	<u>Constellation Energy Generation LLC</u>	Facility Name:	<u>TMI Unit 1</u>
Permit No.:	<u>PA0009920</u>	Municipality:	<u>Londonderry Twp</u>
Permit Effective Date:	<u>Nov 1, 2007</u>	County:	<u>Dauphin County</u>
Permit Expiration Date:	<u>Administratively extended</u>		

Trade Name of Chemical Additive:	Li-7 Lithium Hydroxide Monohydrate (7LiOH*H2O)
Manufacturer Name:	NUKEM Isotopes GmbH
Intended Use(s):	pH control
48-Hour LC ₅₀ or EC ₅₀ (for whole product):	62.2 mg/L Zebrafish (Danio rerio) 96hr

Species Tested: ☐ Ceriodaphnia sp. ☐ Daphnia sp. ☐ Simocephalus sp.

List All Product Ingredients:

Constituent Name:	CAS #	Percent (%)	By Weight or Volume
Li-7 enriched	76576-68-6		
Natural enrichment	1310-66-3		
	Total:	100	

Analytical Method(s) That May be Used to Determine Effluent Concentration:

Concentration:	EPA Method 200.7
Method Detection Limit (mg/L):	1

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Trevor L Orth / Plant Manager

Signature of Principal Executive Officer or
Authorized Agent

Authorized Agent
Theresa R. O'Neil

Date _____

03/11/25

3800-FM-BCW0486 Rev. 12/2019



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CHEMICAL ADDITIVES NOTIFICATION FORM

Use this form to notify the DEP regional office that issued the NPDES permit of the new or increased use of chemical additives that were not reported in the NPDES permit application and are on DEP's Approved List (see www.dep.pa.gov/chemicaladditives). Use one form per chemical additive and discharge point.

Permittee Name: Constellation Energy Generation LLC
Permit No.: PA0009920
Permit Effective Date: Nov 1, 2007
Permit Expiration Date: Administratively extended
Facility Name: TMI Unit 1
Municipality: Londonderry Twp
County: Dauphin County

Trade Name of Chemical Additive: SULPHURIC ACID
Manufacturer Name: NorFalco LLC
Intended Use(s): Neutralization Agent / pH Control
Location(s) of Use: Circulating Water
PreTreatment System (RO / UF / DI trailers)
Sulfuric Acid (93 - 95%) - Circulating Water - Continuous
Sulfuric Acid (1 - 50%)- Pre Treatment System - Continuous
Frequency of Use:
Method of Introduction: Pumped
Treatment Following Introduction: N/A
Discharge Point (Outfall No.): Sulfuric Acid (93 - 95%) - Outfall 001 , Sulfuric Acid (1 - 50%) - Outfall 001 and 701
Design Flow of Discharge (MGD): 25.3
Receiving Water Body Name: Susquehanna River
Q₇₋₁₀ Flow of Stream (cfs): 2,640 (USGS StreamStats- <https://streamstats.usgs.gov/ss/> , Workspace ID PA20241107193706422000)
Calculated WQBEL (mg/L): 0.25
Maximum Usage Rate: 126 Units: gallons per day

Will Other Chemical Additives Be Introduced at the Same Time? ☒ YES ☐ NO If YES, Number: Varies; as-needed

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Name/Title Principal Executive Officer

Phone: 267-533-5559

Signature of Principal Executive
Officer or Authorized Agent

Trevor L Orth / Plant Manager

Date:

03/11/25

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Permit Effective Date: Nov 1, 2007
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Facility Name: TMI Unit 1
Municipality: Londonderry Twp
County: Dauphin County

Trade Name of Chemical Additive: Ammonium Hydroxide
Manufacturer Name: Thermo Fisher Scientific
Intended Use(s): pH Control
Location(s) of Use: Reactor System
Frequency of Use: 1 application / 2yr
Method of Introduction: Manual
Treatment Following Introduction: N/A
Discharge Point (Outfall No.): 001
Design Flow of Discharge (MGD): 25.3
Receiving Water Body Name: Susquehanna River
Q₇₋₁₀ Flow of Stream (cfs): 2,640 (USGS StreamStats- <https://streamstats.usgs.gov/ss/> , Workspace ID PA20241107193706422000)
Calculated WQBEL (mg/L): 0.0028
Maximum Usage Rate: 1.4 Units: gallons per day

Will Other Chemical Additives Be Introduced at the Same Time? ☒ YES ☐ NO If YES, Number: Varies; as-needed

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Facility Name: TMI Unit 1
Permit No.: PA0009920
Municipality: Londonderry Twp
Permit Effective Date: Nov 1, 2007
County: Dauphin County
Permit Expiration Date: Administratively extended

Trade Name of Chemical Additive: Sodium hypochlorite
Manufacturer Name: Kuehne Chemical Company, Inc.
Intended Use(s): Biocide
Location(s) of Use: Circulating Water (001), Service Water (001 / 006) and Filtration/PreTreatment systems (001 / 701)
Frequency of Use: Outfall 001- 2hrs application/day, 001 / 006- 2hrs application/day and 001/701 - As needed
Method of Introduction: Pumped
Treatment Following Introduction: N/A
Discharge Point (Outfall No.): 001, 001 / 006 and 001 / 701
Design Flow of Discharge (MGD): 25.3
Receiving Water Body Name: Susquehanna River
Q₇₋₁₀ Flow of Stream (cfs): 2,640 (USGS StreamStats- <https://streamstats.usgs.gov/ss/> , Workspace ID PA20241107193706422000)
Calculated WQBEL (mg/L): 0.0011
Maximum Usage Rate: 0.6 Units: gallons per day

Will Other Chemical Additives Be Introduced at the Same Time? ☒ YES ☐ NO If YES, Number: Varies; as-needed

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