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May 15, 2008

**VIA FEDERAL EXPRESS**

Patrick A. Moulding, Esq.  
U.S. Nuclear Regulatory Commission  
Office of the General Counsel  
1155 Rockville Pike, Stop O-15 D21  
Washington, D.C. 20852-0001

**Re: Production of Southern Nuclear's Eighth Supplemental Disclosures  
Docket No. 52-011-ESP**

Dear Mr. Moulding:

As you requested during our telephone conversation, enclosed is a CD containing the documents disclosed in Southern Nuclear's Eighth Supplemental Disclosures of May 5, 2008. Also enclosed is an attachment that includes the beginning and ending bates number references of the documents being provided.

As previously discussed, we have redacted out certain portions of some of the attached documents that we deemed either not relevant to the admitted contentions or subject to attorney-client/work product protections. To the extent any of the documents produced herein relate to attorney-client communications or related work product, the production of the attached documents shall not be deemed a waiver of any attorney-client/work product protections or the stipulations agreed to in the ASLB's April 3, 2007 order.

If you have any questions regarding the enclosed documents, please contact me.

Sincerely,

K.C. Hairston

KCH/dkf

Attachments

Document No.	Beginning Bates	Ending Bates	Document Name	Document Date	Source	Document Type
SNC550	VESP_D0000177	VESP_D0000182	E-mail from Matthew Montz to D'Andre Manigo containing Vogtle Trip Report on Impingement/Entrainment Study	4/10/2008	Southern Nuclear	E-mail
SNC551	VESP_D0000183	VESP_D0000197	E-mail from Anthony Dodd to Matthew Montz, et al. containing Trip Report and associated Field Data Sheets on Vogtle Impingement/Entrainment Study	4/30/2008	Southern Nuclear	E-mail
SNC552	VESP_D0000198	VESP_D0000212	E-mail from Anthony Dodd to Matthew Montz, et al. containing associated Field Data Sheets on Vogtle Impingement/Entrainment Study	4/16/2008	Southern Nuclear	E-mail
SNC553	VESP_D0000213	VESP_D0000234	E-mail from Anthony Dodd to Matthew Montz, et al. containing associated Field Data Sheets on Vogtle Impingement/Entrainment Study	4/3/2008	Southern Nuclear	E-mail
SNC554	VESP_D0000235	VESP_D0000235	E-mail from Matthew Montz to D'Andre Manigo, et al. relating to I & E Study Supplies	4/9/2008	Southern Nuclear	E-mail
SNC555	VESP_D0000236	VESP_D0000241	E-mail from Anthony Dodd to Matthew Montz regarding Chemical Material Safety Data Sheets	4/15/2008	Southern Nuclear	E-mail
SNC556	VESP_D0000242	VESP_D0000273	E-mail from Anthony Dodd to Matthew Montz, et al. regarding Chemical Material Safety Data Sheets	2/21/2008	Southern Nuclear	E-mail
SNC557	VESP_D0000274	VESP_D0000277	E-mail from Matthew Montz to Jonathan Ponstein, et al. regarding Vogtle Hydraulic Zone Influence	4/3/2008	Southern Nuclear	E-mail
SNC558	VESP_D0000278	VESP_D0000281	E-mail from Matthew Montz to Kevin Walden regarding Vogtle Trip Report	4/24/2008	Southern Nuclear	E-mail
SNC559	VESP_D0000282	VESP_D0000283	E-mail from Matthew Montz to Jonathan Ponstein, et al. regarding Vogtle Hydraulic Zone Influence	4/24/2008	Southern Nuclear	E-mail
SNC560	VESP_D0000284	VESP_D0000284	E-mail from Anthony Dodd to Kenneth Middlebrooks, et al. regarding Plant Vogtle River and Intake Studies	4/17/2008	Southern Nuclear	E-mail
SNC561	VESP_D0000285	VESP_D0000286	E-mail from Ken Dyar to Anthony Dodd, et al. regarding work at River Intake	4/3/2008	Southern Nuclear	E-mail

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**From:** Montz, Matthew Thomas [MTMONTZ@SOUTHERNCO.COM]  
**Sent:** Thursday, April 10, 2008 8:59 AM  
**To:** Manigo, D'Andre  
**Subject:** FW: Trip Report 2.doc

**Attachments:** Trip Report 2.doc

Trip report # 2

**Matthew T. Montz**  
Office 205-992-5629

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**From:** Dodd, Anthony Ray  
**Sent:** Monday, March 31, 2008 12:27 PM  
**To:** Montz, Matthew Thomas  
**Cc:** Coutant, Chuck/Nancy; Blanton, Stan (Balch)  
**Subject:** Trip Report 2.doc

Draft Document

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Trip Report 2.doc  
(401 KB)

To:

**Plant Vogtle Impingement/Entrainment Assessment team members**

This message conveys summary information from the second of 24 planned sampling events for aquatic impingement and/or entrainment assessment at the Plant Vogtle make-up water intake structure.

This summary provides observations and comments regarding the 25 - 27 March 2008 impingement and entrainment sampling event. The sampling event was conducted by Tony Dodd and Bob Brinkman of GPC's Environmental Field Services Group, Smyrna, GA.

**Operation** – three of the four vertical traveling screens were in service and two of five circulator pumps were operating during the sampling event.

**Impingement Sampling**

Impingement sampling was conducted at the Plant Vogtle intake structure screen wash water pit during 26 - 27 March 2008. Prior to setting the sample net, the traveling screens were purged of impinged debris by rotating the traveling screens in manual mode. The traveling screen system apparently operated normally during this period as it is set to randomly rotate and wash each active screen at 8-hour intervals then manually operated at the end of each approximate 12-hour day and night period to capture representative samples during a single 24-hour period. The first sample, constituting an 11 ½ HRS daytime impingement sample was collected at 2000 HRS on 11 March, and the night sample which lasted 13 hours was collected at 0900 HRS on 27 March 2008. Neither day nor night time samples yielded any fish. Organic debris associated with each sample consisted of leaves, twigs, and seeds or chaff from various trees or shrubs. The total volume of debris amounted only to a few hands full of material for each sample period.

**Entrainment Sampling**

Entrainment sampling was conducted during 26 – 27 March 2008. Following the prior unsuccessful experience during the first sampling event on 10 March using a dual ichthyoplankton net rigged in the canal in front of the trash racks, an alternative method of using a gasoline powered centrifugal pump was attempted from the top of the canal at a location positioned about one half the distance between the canal and the pump house on 25 March. The pump system, with maximum flow capacity rated at 425 gpm (~3 in. hose), is powered by an 8 Hp engine and a 600 rpm pump. Beginning on the afternoon of 3/25/08, the pump and associated fittings was set up at the top of the intake canal bulkhead for a pilot pumping test. The distance from the top of the canal bulkhead to the water surface at the current river stage (approximately 6,170 cfs and 8.61 ft on the Waynesboro gage) was approximately 21 ft. 1917 HRS on 10 March 2008. The pilot test was unsuccessful because the pump is unable to create enough vacuum to overcome the 21 ft vertical head.

As an alternative, the pump system was mounted on the GPC boat and deployed at the most downstream opening of the intake canal at its confluence with the Savannah River. The pump inlet hose was deployed at 0.5 m deep and positioned just inside the downstream stop-log bulkhead. Sheet piling prevents boats from entering the canal at the flows experienced during this sampling event (see photo below).



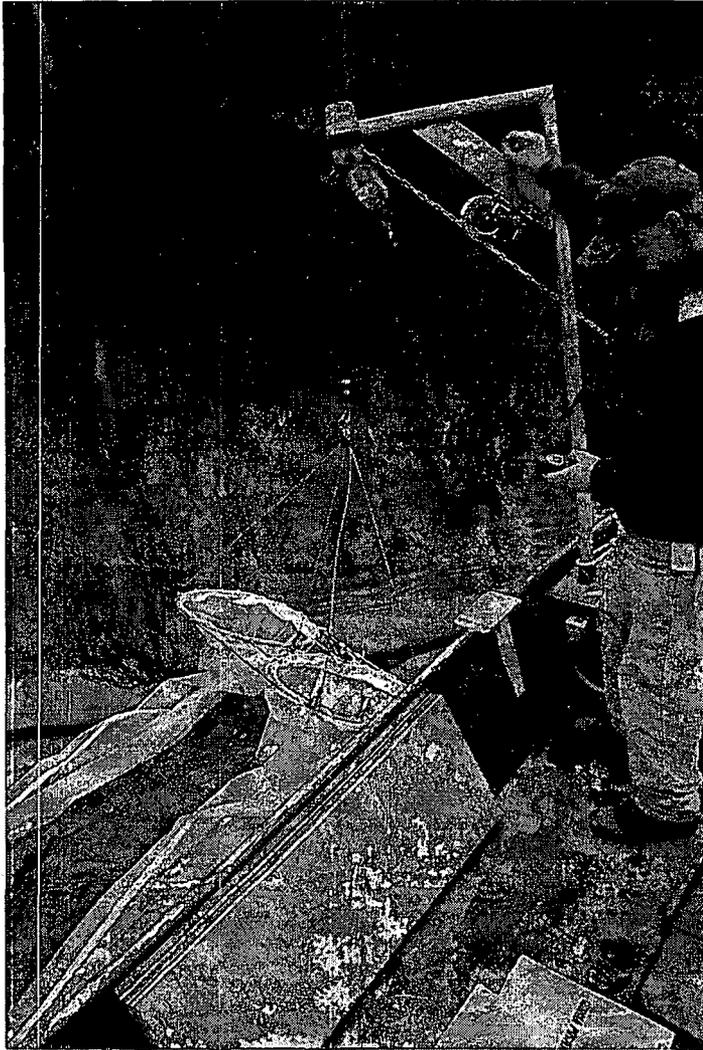
Even at higher river stage, boat entry has not been authorized for this study. Assuming the pump operated at capacity at nearly level head, the pump was allowed to run for approximately 90 minutes to provide approximately 150 m<sup>3</sup> of water – the volume of which was split into and sieved through dual 500 micron size mesh ichthyoplankton nets (same type nets used for source water ichthyoplankton sampling) suspended at the water's surface at the side of the boat (see photo below). The pump sampling effort at the end of the canal produced approximately 75 m<sup>3</sup> of water per sample that was successfully preserved as individual samples at 6 hour intervals during 26 – 27 March 2008. Just as with the source water ichthyoplankton samples, the 6-HR samples are archived and composited 12-HR day and 12-HR night samples are separately preserved available for shipment to the biological laboratory for processing. Samples are being temporarily held at GPC's Smyrna Lab.



#### **Source-Water Ichthyoplankton Community Sampling**

The source water ichthyoplankton community was successfully conducted sampled at three previously established methods and sampling stations positioned along a cross-sectional transect of the Savannah River located approximately 250 feet upstream of the mouth of the intake canal during 25 – 26 March 2008. Samples were collected at approximately 6-hour intervals, two samples each during day- and night-time periods to represent a 24-hr period (See photo below). Samples were preserved and are being temporarily held at GPC's Smyrna Lab for laboratory processing for enumeration and species identification by a selected contract laboratory.

DRAFT



### Other Observations

Surface water temperature during the 24-hr event was approximately 14.5° C compared to 12 to 13° C during the prior sampling event. Flow in the Savannah River ranged from approximately 6,170 cfs down to 3,950 cfs and averaged 4,717 cfs during the sampling period as compared to 10,300 cfs (cubic feet per second) down to 6,200 cfs during the first sampling event (USGS Waynesboro Gage No. 021973269).

Our primary observations from this second sampling event include:

- no fish were detected in the 24 hour impingement sample compared to 12 fish collected during the first sampling event. Apparent recent declining river stage, following the severe storms and related rising river two weeks ago, may have displaced fish which possibly resulted in higher impingement rates observed during the first sampling event.
- one gizzard shad was observed in the trash pit prior to deployment of the impingement sampling net during this 2<sup>nd</sup> event.

- canal entrainment sampling via pumping from a boat at the water surface was successful albeit at the mouth of the canal. At least one live fish larvae was directly observed in the entrainment samples. Sampling at the edge of the outer canal mouth should raise discussion as to the representativeness of these samples as "entrainment" owing to location.
- Performing entrainment sampling/pumping by boat extends the original intended per-event field-sampling schedule, budgeted lodging and other direct costs, and labor expectation for the two-member crew.
- Based on observation, the field sampling leader recommends that an alternate pumping method based at the top of the canal near the intake structure (perhaps a larger capacity, suspended submersible pump system), should be considered and an alternative on-the-bank entrainment sampling method.
- Based on the observation of apparently low entrainment approach velocities, it may be appropriate to measure approach velocities and discuss feasibility of continued entrainment sampling effort and/or method for continued effort.
- It is still our intent to submit a revised, intended sampling schedule to team personnel in the near future. Further, our recommendation at this point is that impingement samples (12-hour screen wash samples) be collected at 0800 and 2200 HRS during each 24-HR event.

Please contact me if you have any questions.

*Tony Dodd, CFP  
Environmental Specialist  
GPC Environmental Field Services  
404-799-2142 (Main)  
8-530-2142 (Internal Direct)  
ardodd@southernco.com*

**DRAFT DOCUMENT**

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**From:** Dodd, Anthony Ray [ARDODD@southernco.com]  
**Sent:** Wednesday, April 30, 2008 2:30 PM  
**To:** Montz, Matthew Thomas; 'Coutant, Chuck/Nancy'  
**Cc:** Blanton, Stan; Nichols, Michael C. (Env. Lab GPC); Walden, Kevin C.  
**Subject:** Trip Report 4.doc

**Attachments:** Trip Report 4.doc; 2nd April Event.pdf

Vogle Impingement/Entrainment Study Team,

Please find electronic copies of the current Vogle I& E sampling trip report and associated field data sheets.  
Please contact me if you have any questions.



Trip Report 4.doc (46 KB)



2nd April Event.pdf (373 KB)

To:

**Plant Vogtle Impingement/Entrainment Assessment team members**

This message conveys summary information from the fourth of 24 planned sampling events for aquatic impingement and entrainment assessment at the Plant Vogtle make-up water intake structure. This sampling event was conducted during 22-24 April 2008. The event was conducted by Tony Dodd and Joey Slaughter of GPC's Environmental Field Services Group, Smyrna, GA.

**Operation**

Three of the four vertical traveling screens were in service and two circulator pumps were operating during the sampling event. It's our understanding that the maintenance outage on Unit 1 was nearly finished at that time.

**Impingement Sampling**

Impingement sampling was conducted at the Plant Vogtle intake structure screen wash outfall/pit during the 24-hr period beginning near 0900 on 23 April to 0900 on 24 April 2008. Prior to setting the sample net for daytime sample collection, three of the four operative traveling screens were rotated and purged of impinged debris in manual mode. No fish or other aquatic organisms were observed in either the day or night sample. About five double handfuls of leaves and debris were present in the night sample and much less in the day sample.

**Entrainment Sampling**

Entrainment sampling was conducted during 23-24 April 2008. Using the submersible pump system described in the previous report, at six hour intervals, the contents of each entrainment sampling net were retrieved and preserved in 5% formalin. Six-hour samples from one drum have been retained at the GPC lab as archive samples and samples collected from the other drum were composited in the field by 12-HR day and 12-HR night periods. The average volume of pumped canal water per sample was approximately 73.8 m<sup>3</sup> on this trip. Samples will be submitted to the laboratory for enumeration and taxonomic processing. The contract laboratory has been selected (Normandeau Associates, Inc.)

**Source-Water Ichthyoplankton Community Sampling**

The source water ichthyoplankton community was 22-23 April 2008. Samples were collected at approximately 6-hour intervals, two samples each during day- and night-time periods to represent a 24-hr period. During prior sampling events, the field crew has routinely observed heavy detritus loads and net clogging at depths below three 3 meters and had opted to sample depths at 3 m or less depending on river stage in order to reduce net clogging. River discharge and stage has exhibited a general pattern of decline during sampling events since the initial sampling event in early March. Each of the three sampling stations was sampled at 1-m intervals to a maximum depth of 2 meters for a total of 9 minutes of sampling time at each depth. The mean volume of river water sampled at each was approximately 108.3 m<sup>3</sup>. All source water samples have been preserved and the composited 12-HR day and night samples are being temporarily held at GPC's Smyrna Lab for future laboratory processing for enumeration and species identification by the contract laboratory.

### Other Observations

- Surface water temperature during the 24-hr event was approximately 18.4° C compared to 17° C two weeks prior. Flow in the Savannah River ranged between 3,910 and 4,110 cfs during this event (USGS Waynesboro Gage No. 021973269) as compared to approximately 6,500 cfs two weeks prior.
- A single live, juvenile Eastern spiny softshell turtle (*Apalone spinifera spinifera*) was caught in the day and night impingement samples and released back to the river in each case.
- We understand that the Unit 3 traveling screen might be under re-assembly and returning to service during the next scheduled sampling event during 6-8 May 2008.
- To date, 21 individual organisms including one shrimp representing 12 species and 8 taxonomic families have been represented in the impingement sampling component of this study.

The next sampling event is scheduled for 6-8 May 2008.

Please contact me if you have any questions.

Tony Dodd, CFP  
Environmental Specialist  
GPC Environmental Field Services  
404-799-2142 (Main)  
770-550-2502 (LINC Cell)  
8-530-2142 (Internal Direct)  
ardodd@southernco.com

DRAFT DOCUMENT



**PLANT VOGTLE IMPINGEMENT MONITORING DATA FORM**

Sample Information

Page: 1 of 1

Collector(s): JES, ARD

Remarks: \_\_\_\_\_

12-hour Period (circle) 4/20/08 TD

Start Date 4/20/08  
End Date \_\_\_\_\_

	DAY	NIGHT
Time	<u>0856</u>	<u>2020</u>
Time	<u>2020</u>	<u>0900</u>
Elapsed Time		

**Plant and CWIS Operating Conditions**

	No. Pumps	Pump Flow (gpm)	No. of VTS Operating
Start	<u>RD</u>		
Finish	<u>3</u>		<u>3 of 4</u>

	River Stage (ft.)	
Start	<u>6.48</u>	<u>3,090 cfs</u>
Finish	<u>6.68</u>	<u>4,110 cfs</u>

**Physicochemical parameters:**

D.O.	<u>9.03</u>	mg/L
pH	<u>7.08</u>	SU
Cond.	<u>113.4</u>	uS/cm
Turbidity	<u>0.0</u>	NTU

Water Temperature (°C)	
Start	<u>18.4</u>
Finish	

Location of Measurement:

Hargrove's ramp

**Field Conditions/Other Observations**

- Hydrolab S/N 071000045840
- clear sunny weather,
- winds N/NW - 0-6 Knots
- Air Temp 15.3°C
- Depth from top rail to canal 20.3'

Event #

Entered by:  
Date: / /





# Vogle I & E Study - Source Water Community / Entrainment Sampling\*

Collected by: JES/ARD

Date: 4/22/08

River/Water Conditions:

Circle One: Source Water Sampling or Entrainment Sampling

DAY 1     DAY 2     NIGHT 1     NIGHT 2    WP 33° 9.093'  
81° 45.297

Location: Circle one    Left Bank    Mid-Channel    Right Bank (facing upstream)

Nets or Pump

	Depth (m)	Time at Depth (mins)
Time start (HRS)	1	6
Current meter start count	2	6
Current meter stop count	3	6
Time stop (HRS)	4	X
Total time for retrieval (mins)	5	X
Calculated sample flow volume (m <sup>3</sup> /s)	6	X

0911
421622
<del>442998</del> 442998
0929
19
112.7

Left Bank     Mid-Channel     Right Bank facing upstream    WP 33° 9.086'  
81° 45.308

Location: Circle one    Left Bank    Mid-Channel    Right Bank facing upstream

Nets or Pump

	Depth (m)	Time at Depth (mins)
Time start (HRS)	1	6
Current meter start count	2	6
Current meter stop count	3	6
Time stop (HRS)	4	X
Total time for retrieval (mins)	5	X
Calculated sample flow volume (m <sup>3</sup> /s)	6	X

0944
442600
442845
1003
19
<del>1003</del> 126.8

Left Bank     Mid-Channel     Right Bank facing upstream    WP 33° 9.083'  
81° 45.316

Location: Circle one    Left Bank    Mid-Channel    Right Bank facing upstream

Nets or Pump

	Depth (m)	Time at Depth (mins)
Time start (HRS)	1	6
Current meter start count	2	6
Current meter stop count	3	6
Time stop (HRS)	4	X
Total time for retrieval (mins)	5	X
Calculated sample flow volume (m <sup>3</sup> /s)	6	X

1015
446654
449449
1034
19
<del>1034</del> 675

**Comments/Observations:**

- \* 6 hour samples are archived (type A samples)
- \* day and night sample components are composited for laboratory analysis (type C samples)

- Sunny / light winds C-S N/NE

# Vogle I & E Study - Source Water Community / Entrainment Sampling\*

Collected by: JES, TD

Date: 4/22/08

River/Water Conditions: \_\_\_\_\_

Circle One:  Source Water Sampling or  Entrainment Sampling

DAY 1  DAY 2 NIGHT 1 NIGHT 2

Location: Circle one Left Bank Mid-Channel  Right Bank (facing upstream)

Nets or Pump \_\_\_\_\_

	Depth (m)	Time at Depth (mins)
Time start (HRS)	1452	<del>6</del> 9
Current meter start count	479452	<del>6</del> 9
Current meter stop count	476849	<del>6</del> - shallow?
Time stop (HRS)	1511	4
Total time for retrieval (mins)	19	5
Calculated sample flow volume (m <sup>3</sup> /s)	91.7	6

Location: Circle one Left Bank  Mid-Channel Right Bank facing upstream

Nets or Pump \_\_\_\_\_

	Depth (m)	Time at Depth (mins)
Time start (HRS)	1520	<del>6</del> 9
Current meter start count	492849	<del>6</del> 9
Current meter stop count	520924	<del>6</del> - shallow/ low flow
Time stop (HRS)	1539	4
Total time for retrieval (mins)	19	5
Calculated sample flow volume (m <sup>3</sup> /s)	124.3	6

Location: Circle one  Left Bank Mid-Channel Right Bank facing upstream

Nets or Pump \_\_\_\_\_

	Depth (m)	Time at Depth (mins)
Time start (HRS)	1548	9
Current meter start count	520425	9
Current meter stop count	536023	-
Time stop (HRS)	1607	4
Total time for retrieval (mins)	19	5
Calculated sample flow volume (m <sup>3</sup> /s)	82.3	6

**Comments/Observations:**

\* 6 hour samples are archived (type A samples)

\* day and night sample components are composited for laboratory analysis (type C samples)

- mostly cloudy; moderate wind

# Vogle I & E Study - Source Water Community / Entrainment Sampling\*

Collected by: JES/JP

Date: 11/2/06

River/Water Conditions: \_\_\_\_\_

Circle One: Source Water Sampling or Entrainment Sampling

DAY 1	DAY 2	<u>NIGHT 1</u>	NIGHT 2	Depth (m)	Time at Depth (mins)
Location: Circle one Left Bank Mid-Channel <u>Right Bank</u> (facing upstream)					
Nets or Pump					
Time start (HRS)				1	9
Current meter start count				2	9
Current meter stop count				3	<del>X</del>
Time stop (HRS)				4	<del>X</del>
Total time for retrieval (mins)				5	<del>X</del>
Calculated sample flow volume (m <sup>3</sup> /s)				6	<del>X</del>

Location: Circle one Left Bank <u>Mid-Channel</u> Right Bank facing upstream					
Nets or Pump					
Time start (HRS)				1	9
Current meter start count				2	9
Current meter stop count				3	<del>X</del>
Time stop (HRS)				4	<del>X</del>
Total time for retrieval (mins)				5	<del>X</del>
Calculated sample flow volume (m <sup>3</sup> /s)				6	<del>X</del>

Location: Circle one <u>Left Bank</u> Mid-Channel Right Bank facing upstream					
Nets or Pump					
Time start (HRS)				1	9
Current meter start count				2	9
Current meter stop count				3	<del>X</del>
Time stop (HRS)				4	<del>X</del>
Total time for retrieval (mins)				5	<del>X</del>
Calculated sample flow volume (m <sup>3</sup> /s)				6	<del>X</del>

**Comments/Observations:**

\* 6 hour samples are archived (type A samples)

\* day and night sample components are composited for laboratory analysis (type C samples)

- still / overcast

# Vogle I & E Study - Source Water Community / Entrainment Sampling\*

Collected by: ARD/JES

Date: 4/29/08

River/Water Conditions:

Circle One: Source Water Sampling or Entrainment Sampling

DAY 1	DAY 2	NIGHT 1	NIGHT 2	Depth (m)	Time at Depth (mins)
Location: Circle one Left Bank Mid-Channel <u>Right Bank</u> (facing upstream)					
Nets or Pump					
Time start (HRS)				1	9
Current meter start count				2	9
Current meter stop count				3	<del>X</del>
Time stop (HRS)				4	<del>X</del>
Total time for retrieval (mins)				5	<del>X</del>
Calculated sample flow volume (m <sup>3</sup> /s)				6	<del>X</del>

*2m max depth*

Location: Circle one Left Bank <u>Mid-Channel</u> Right Bank facing upstream					
Nets or Pump					
Time start (HRS)				1	9
Current meter start count				2	9
Current meter stop count				3	<del>X</del>
Time stop (HRS)				4	<del>X</del>
Total time for retrieval (mins)				5	<del>X</del>
Calculated sample flow volume (m <sup>3</sup> /s)				6	<del>X</del>

Location: Circle one <u>Left Bank</u> Mid-Channel Right Bank facing upstream					
Nets or Pump					
Time start (HRS)				1	9
Current meter start count				2	9
Current meter stop count				3	<del>X</del>
Time stop (HRS)				4	<del>X</del>
Total time for retrieval (mins)				5	<del>X</del>
Calculated sample flow volume (m <sup>3</sup> /s)				6	<del>X</del>

**Comments/Observations:**

- \* 6 hour samples are archived (type A samples)
- \* day and night sample components are composited for laboratory analysis (type C samples)

*- clear / cool*  
*- H<sub>2</sub>O was dropped ~ 2' since Night 1 samples*

# Vogle I & E Study - Source Water Community / Entrainment Sampling\*

Collected by: JD, JES

Date: 4/22/08

River/Water Conditions: \_\_\_\_\_

Circle One : Source Water Sampling or Entrainment Sampling

	DAY 1	DAY 2	NIGHT 1	NIGHT 2	Depth (m)	Time at Depth (mins)
Location: Circle one			<u>Left Bank</u>	Mid-Channel	Right Bank (facing upstream)	
Nets or Pump						
Time start (HRS)				<u>0856</u>	1	
Current meter start count					2	
Current meter stop count					3	
Time stop (HRS)				<u>1430 (Archive)</u>	4	
Total time for retrieval (mins)				<u>322.5 mins</u>	5	
Calculated sample flow volume (m <sup>3</sup> /s)				<u>18,704 g / 70.8 m<sup>3</sup></u>	6	

*Archive 1, Composite the other*

Location: Circle one	Left Bank	Mid-Channel	Right Bank facing upstream
Nets or Pump			
Time start (HRS)			
Current meter start count			
Current meter stop count			
Time stop (HRS)			
Total time for retrieval (mins)			
Calculated sample flow volume (m <sup>3</sup> /s)			

Location: Circle one	Left Bank	Mid-Channel	Right Bank facing upstream
Nets or Pump			
Time start (HRS)			
Current meter start count			
Current meter stop count			
Time stop (HRS)			
Total time for retrieval (mins)			
Calculated sample flow volume (m <sup>3</sup> /s)			

Comments/Observations:

\* 6 hour samples are archived (type A samples)

\* day and night sample components are composited for laboratory analysis (type C samples)

23.1' from top rail to canal water surface.

4.0 deployment. 58 g/mi avg.

# Vogle I & E Study - Source Water Community / Entrainment Sampling\*

Collected by: JES / AD

Date: 4/23/08

River/Water Conditions: \_\_\_\_\_

Circle One: Source Water Sampling or Entrainment Sampling

	DAY 1	DAY 2	NIGHT 1	NIGHT 2	Depth (m)	Time at Depth (mins)
Location: Circle one		<u>Left Bank</u>		Mid-Channel		Right Bank (facing upstream)
Nets or <u>Pump</u>						
Time start (HRS)				<u>0237</u>	1	
Current meter start count					2	
Current meter stop count					3	
Time stop (HRS)				<u>3080</u>	4	
Total time for retrieval (mins)				<u>20:20 / 353 min</u>	5	
Calculated sample flow volume (m <sup>3</sup> /s)				<u>20,474 g / 77.5 m<sup>3</sup></u>	6	
		<u>6 DE Arch.</u>				

Location: Circle one	Left Bank	Mid-Channel	Right Bank facing upstream
Nets or Pump			
Time start (HRS)			
Current meter start count			
Current meter stop count			
Time stop (HRS)			
Total time for retrieval (mins)			
Calculated sample flow volume (m <sup>3</sup> /s)			

Location: Circle one	Left Bank	Mid-Channel	Right Bank facing upstream
Nets or Pump			
Time start (HRS)			
Current meter start count			
Current meter stop count			
Time stop (HRS)			
Total time for retrieval (mins)			
Calculated sample flow volume (m <sup>3</sup> /s)			

Comments/Observations:  
 \* 6 hour samples are archived (type A samples)  
 \* day and night sample components are composited for laboratory analysis (type C samples)

Day 1 & 2 composite - 1-liter jar.

# Vogle I & E Study - Source Water Community / Entrainment Sampling\*

Collected by: JES (TD)

Date: 4/29/08

River/Water Conditions: \_\_\_\_\_

Circle One:  Source Water Sampling or  Entrainment Sampling

	DAY 1	DAY 2	<u>NIGHT 1</u>	NIGHT 2	Depth (m)	Time at Depth (mins)
Location: Circle one			<u>Left Bank</u>	Mid-Channel	Right Bank (facing upstream)	
Nets or Pump						
Time start (HRS)				<u>0239</u>	1	
Current meter start count				<u>2039 HR</u>	2	
Current meter stop count					3	
Time stop (HRS)				<u>0253</u>	4	
Total time for retrieval (mins)				<u>356</u>	5	
Calculated sample flow volume (m <sup>3</sup> /s)				<u>20648 g / 70.2 m<sup>3</sup></u>	6	

*Achieve*

Location: Circle one	Left Bank	Mid-Channel	Right Bank facing upstream
Nets or Pump			
Time start (HRS)			
Current meter start count			
Current meter stop count			
Time stop (HRS)			
Total time for retrieval (mins)			
Calculated sample flow volume (m <sup>3</sup> /s)			

Location: Circle one	Left Bank	Mid-Channel	Right Bank facing upstream
Nets or Pump			
Time start (HRS)			
Current meter start count			
Current meter stop count			
Time stop (HRS)			
Total time for retrieval (mins)			
Calculated sample flow volume (m <sup>3</sup> /s)			

**Comments/Observations:**

\* 6 hour samples are archived (type A samples)

\* day and night sample components are composited for laboratory analysis (type C samples)

*29.3' handrail to canal surface*

# Vogle I & E Study - Source Water Community / Entrainment Sampling\*

Collected by: RES, TD  
 Date: 4/24/08  
 River/Water Conditions: \_\_\_\_\_

Circle One:  Source Water Sampling or  Entrainment Sampling

DAY 1	DAY 2	NIGHT 1	NIGHT 2	Depth (m)	Time at Depth (mins)
Location: Circle one <input checked="" type="checkbox"/> Left Bank <input type="checkbox"/> Mid-Channel <input type="checkbox"/> Right Bank (facing upstream)					
Nets or Pump					
Time start (HRS)				1	
Current meter start count				2	
Current meter stop count				3	
Time stop (HRS)				4	
Total time for retrieval (mins)				5	
Calculated sample flow volume (m <sup>3</sup> /s)				6	

0240

---

0830

---

350

---

20,300 g / 76.8 m<sup>3</sup>

1	
2	
3	
4	
5	
6	

Location: Circle one  Left Bank  Mid-Channel  Right Bank facing upstream

Nets or Pump

Time start (HRS)

Current meter start count

Current meter stop count

Time stop (HRS)

Total time for retrieval (mins)

Calculated sample flow volume (m<sup>3</sup>/s)


1	
2	
3	
4	
5	
6	

Location: Circle one  Left Bank  Mid-Channel  Right Bank facing upstream

Nets or Pump

Time start (HRS)

Current meter start count

Current meter stop count

Time stop (HRS)

Total time for retrieval (mins)

Calculated sample flow volume (m<sup>3</sup>/s)


1	
2	
3	
4	
5	
6	

**Comments/Observations:**

- \* 6 hour samples are archived (type A samples)
- \* day and night sample components are composited for laboratory analysis (type C samples)

---

**From:** Dodd, Anthony Ray [ARDODD@southernco.com]  
**Sent:** Wednesday, April 16, 2008 1:34 PM  
**To:** Montz, Matthew Thomas; 'Coutant, Chuck/Nancy'  
**Cc:** Blanton, Stan

**Follow Up Flag:** Follow up  
**Flag Status:** Yellow

**Attachments:** 1st April Event.pdf



1st April Event.pdf  
(503 KB)

Please find the attached copy of field data sheets from the 8-10 April impingement and entrainment sampling event at Plant Vogtle.  
A trip report will follow soon.

Tony Dodd, CFP  
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Georgia Power Environmental Lab  
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## Vogle I & E Study - Sample Chain Of Custody

Collected by: T.D., TLB

Sample No.	Integrated Sample ID and Collection Date	Time of Collection	Preservative	Shipped to taxonomy lab	Archived at GPC Smyrna
	Example I.D. SWLD1A-031108	~0000 HRs	5% formalin or 10% formalin Wet Ice	√	√
1	ENL D1A 040908	0920	5%		√
2	ENL D2A 040908	1150			√
3	ENL D COMP 040908	0920			
4	ENL N1A 040908 (2)	2050			√
5	ENL N2A 040808 (1)	0253			√
6	ENL N COMP 040908	0253			
7	IM D A 040908	2055	10%		√
8	IM N A 041008	1000	10%		√
9	SWL D1A 041608	0958	5%		√
10	SWL D2A 040908	1700			√
11	SWL D COMP 041008	1700			
12	SW M D1A 041008	0936			√
13	SW M D2A 040908	1631			√
14	SW M COMP 041008	1631			
15	SW R D1A 041008	0911			√
16	SW R D2A 040908	1605			√
17	SW R COMP 041008	1605			
18	SWL N1A 040908	2243			√
19	SWL N2A 041008	0356			√
20	SWL N COMP 041008	0356			
21	SW M N1A 040908	2218			√
22	SW M N2A 041008	0351			√
23	SW M N COMP 041008	0351			
24	SW R N1A 040908	2154			√
25	SW R N2A 041008	0256		√	√

Note: ~~TD 4/14/08~~ TD 4/14/08  
 SWLD1A-031108 = source water/bank Day time 1st sample 3 March 2008 IM C Injunctant  
12-NR Samples

EN = entrainment      A = Archive  
 D2 = day #2            COMP-N = composite of 1&2 night sample for processing  
 N1 = Night #1            N2 = Night #2 sample            D = Day  
 A = Archive                R = Rt  
 L = L&H                    M = mid-channel

Relinquished by: Jay Doherty Date: 4/10/08 Time: 1902  
 Received by: TL Broadwell Date: 4/10/08 Time: 1902

~~TD 4/14/08~~ TD 4/14/08

## Vogle I & E Study - Sample Chain Of Custody

Collected by: TD, TLB

Sample No.	Integrated Sample ID and Collection Date	Time of Collection	Preservative	Shipped to taxonomy lab	Archived at GPC Smyrna
	Example I.D. SWLD1A-031108	~0000 HRs	5% formalin or 10% formalin Wet Ice	√	√
1	<u>SWRNcomp 04/1008</u>	<u>0256</u>	<u>5%</u>		
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Note:  
 SWLD1A-031108 = source waterbank Day time 1st sample 3 March 2008  
 EN = entrainment                      A = Archive  
 D2 = day #2                              COMP-N = composite of 1&2 night sample for processing  
 N1 = Night #1                            N2 = Night #2 sample  
 A = Archive

Relinquished by: Lyn Dobb                      Date: 4/10/08                      Time: 1902  
 Received by: M Broadwell                      Date: 4/10/08                      Time: 1902

**PLANT VOGTLE IMPINGEMENT MONITORING DATA FORM**

Sample Information

Page: 1 of 4

Collector(s): TD, JLB

Remarks: \_\_\_\_\_

12-hour Period (circle)

DAY

~~NIGHT~~

Start Date 4-9-08  
End Date 4-10-08

Time 0830 2055  
Time 2055 1000  
Elapsed Time 12:25 13:05

**Plant and CWIS Operating Conditions**

	No. Pumps	Pump Flow (gpm)	No. of VTS Operating
Start	<u>2</u>		<u>3</u>
Finish	<u>2</u>		<u>3</u>

	River Stage (ft.)	
Start	<u>9.84</u>	= 7130 cfs
Finish	<u>8.54</u>	= 6090 cfs

Water Temperature (°C)	
Start	<u>17°</u>
Finish	<u>17°</u>

*on 4/15/08 post sunny*  
**Physicochemical parameters:**

D.O.	<u>8.2</u>	mg/L
pH	<u>6.7</u>	SU
Cond.	<u>178.0</u>	uS/cm
Turbidity	<u>0.8</u>	NTU

*Temp 16.6 \* See*  
Location of Measurement: *accompanying data sheet*

**Field Conditions/Other Observations**

*\* light overcast, warming trend*

Event #

Entered by:  
Date: / /

**WATER QUALITY SURVEY  
ENVIRONMENTAL LABORATORY**

**SURVEYOR4a**

VEEP I+E

SITE CODE	STATION	DATE	MM/DD/YY	AIR TEMP
		4-15-08		17.3C

TIME ON	TIME OFF	SECCHI
0938	0942	___ FT

VEEP Boat Ramp

WEATHER	TEAM
clear/cold	CB

WATER SAMPLES COLLECTED
___ YES <input checked="" type="checkbox"/> NO

DEPTH (METERS)	DO (ppm)	TEMP (C)	COND (umho/cm)	pH (UNITS)	TURB NTU
0.8	8.1	16.6	118.0	6.7	0.8
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

DEPTH (METERS)	DO (ppm)	TEMP (C)	COND (umho/cm)	pH (UNITS)	TURB NTU
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					

Remarks: \_\_\_\_\_

**Site Codes:**

- |                     |                      |                     |
|---------------------|----------------------|---------------------|
| BU - BURTON         | JA - JACKSON         | BS - Bull Sluice    |
| SE - SEED           | JU - Juliette        | OC - Oconee         |
| RA - RABUN          | HA - HARDING         | SI - SINCLAIR LAKE  |
| TA - TALLULAH FALLS | GR - GOAT ROCK       | SC - SINCLAIR COVES |
| TU - TUGALO         | OL - OLIVER          | WO - WORTH          |
| YO - YONAH          | NH - NORTH HIGHLANDS |                     |

Meter ID # 71541840

Calibration Date

4/1/08

Signature

G. B. S.

Added to Database

Initials:

Verified On:





# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: ED / +LB

Date: 4/10/00

River/Water Conditions: \_\_\_\_\_

Circle One : Source Water Sampling  Entrainment Sampling

	DAY 1	DAY 2	NIGHT 1	NIGHT 2		Depth (m)	Time at Depth (mins)
Location:	Circle one <u>Left Bank</u> Mid-Channel Right Bank (facing upstream)						
Time start (HRS)	0920						
Current meter start count							
Current meter stop count							
Time stop (HRS)	1500						
Total time for retrieval (mins)	5.7 HRS						
Calculated sample flow volume (m <sup>3</sup> /s)							
	Archive 26.1 m <sup>3</sup> Sample 52.3 m <sup>3</sup>						

~~Location: Circle one Left Bank Mid-Channel Right Bank facing upstream~~

~~Time start (HRS)~~

~~Current meter start count~~

~~Current meter stop count~~

~~Time stop (HRS)~~

~~Total time for retrieval (mins)~~

~~Calculated sample flow volume (m<sup>3</sup>/s)~~

~~Location: Circle one Left Bank Mid-Channel Right Bank facing upstream~~

~~Time start (HRS)~~

~~Current meter start count~~

~~Current meter stop count~~

~~Time stop (HRS)~~

~~Total time for retrieval (mins)~~

~~Calculated sample flow volume (m<sup>3</sup>/s)~~

Comments/Observations:

- water stage / temp gage (tag line at canal = 20.3 ft - 4-10m lower than last night)

- Net 1 archive / Net 2 sample composite

Generator = Multiquip 6000 watt - gas powered  
Model GA-6HA 20 A / 120V Honda 11.0 Hp Prod. GX340



# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: TD, ALB

Date: 4-9-08

River/Water Conditions: \_\_\_\_\_

Circle One : Source Water Sampling  Entrainment Sampling

DAY 1 DAY 2 NIGHT NIGHT 2  
 Location: Circle one  Left Bank  Mid-Channel  Right Bank (facing upstream)

	Depth (m)	Time at Depth (mins)
Time start (HRS)		
Current meter start count		
Current meter stop count		
Time stop (HRS)		
Total time for retrieval (mins)		
Calculated sample flow volume (m <sup>3</sup> /s)		

2050 HRS  
 \_\_\_\_\_  
 \_\_\_\_\_  
 0245 HRS  
 5 HR 55 mins (5.92 HRS)

*Archive 270.0 m<sup>3</sup> Sample 54.1 m<sup>3</sup>*

Location: Circle one  Left Bank  Mid-Channel  Right Bank facing upstream

Time start (HRS)		
Current meter start count		
Current meter stop count		
Time stop (HRS)		
Total time for retrieval (mins)		
Calculated sample flow volume (m <sup>3</sup> /s)		

Location: Circle one  Left Bank  Mid-Channel  Right Bank facing upstream

Time start (HRS)		
Current meter start count		
Current meter stop count		
Time stop (HRS)		
Total time for retrieval (mins)		
Calculated sample flow volume (m <sup>3</sup> /s)		

Comments/Observations:

*Net 1 archive  
 Net 2 comp. sample*

# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: TD/HLB

Date: 4/8/08

River/Water Conditions: \_\_\_\_\_

Circle One : Source Water Sampling  **Entrainment Sampling**

DAY 1	DAY 2	NIGHT 1	<b>NIGHT 2</b>		
				Depth (m)	Time at Depth (mins)

Location: Circle one  Left Bank  Mid-Channel  Right Bank (facing upstream)

Time start (HRS)  
Current meter start count  
Current meter stop count  
Time stop (HRS)  
Total time for retrieval (mins)  
Calculated sample flow volume (m<sup>3</sup>/s)

0253
0845
5.87 HRS


*Archim 25.2 m<sup>3</sup>      Sample 50.4 m<sup>3</sup>*

Location: Circle one  Left Bank  Mid-Channel  Right Bank facing upstream

Time start (HRS)  
Current meter start count  
Current meter stop count  
Time stop (HRS)  
Total time for retrieval (mins)  
Calculated sample flow volume (m<sup>3</sup>/s)



Location: Circle one  Left Bank  Mid-Channel  Right Bank facing upstream

Time start (HRS)  
Current meter start count  
Current meter stop count  
Time stop (HRS)  
Total time for retrieval (mins)  
Calculated sample flow volume (m<sup>3</sup>/s)



Comments/Observations: *Not active / No sample composite*  
*- weather is calm, clear*  
*- temp ~ is ~ 58°F*  
*- water stage 26.2' water surface to top rail not changed*

*- 600 watt generator*  
*- 2- 73 gpm submersible pumps each deployed to ~ 4' deep at canal edge*  
*- pump 1 = 60' high variety / pump 2 = 37' ft high standard variety*

# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: TD HCB  
 Date: 4/10/08  
 River/Water Conditions: mod. turbidity  
 Circle One : Source Water Sampling    Entrainment Sampling

DAY-1	DAY 2	NIGHT 1	NIGHT 2			Depth (m)	Time at Depth (mins)
Location: Circle one Left Bank    Mid-Channel <u>Right Bank</u> (facing upstream)							
Time start (HRS)				0911			
Current meter start count				367784		1    4	
Current meter stop count				383821		2    4	
Time stop (HRS)				0923		3    4	
Total time for retrieval (mins)				13		X	
Calculated sample flow volume (m <sup>3</sup> /s)				84.6		X	
Vel = 1.8 ft/s							

Location: Circle one Left Bank <u>Mid-Channel</u> Right Bank facing upstream							
Time start (HRS)				0936			
Current meter start count				383820		1    4	
Current meter stop count				401882		2    4	
Time stop (HRS)				0948		3    4	
Total time for retrieval (mins)				13		X	
Calculated sample flow volume (m <sup>3</sup> /s)				95.3		X	
2.0 ft/s							

Location: Circle one <u>Left Bank</u> Mid-Channel <del>Right Bank</del> facing upstream							
Time start (HRS)				0958			
Current meter start count				401879		1    4	
Current meter stop count				421586		2    4	
Time stop (HRS)				1000		3    4	
Total time for retrieval (mins)				13		X	
Calculated sample flow volume (m <sup>3</sup> /s)				103.9		X	
(22 ft/s)							

Comments/Observations:  
 weather - fog, partly cloudy, air temp = 13.0 °C  
 river = mod. turbidity & current velocity  
 H<sub>2</sub>O temp = 17 °C

# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: JD/TLO

Date: 4/9/08

River/Water Conditions: turbid, moderate current

Circle One: Source Water Sampling / Entrainment Sampling

		Depth (m)	Time at Depth (mins)
<b>DAY 1</b> <b>DAY 2</b> <b>NIGHT 1</b> <b>NIGHT 2</b> Location: Circle one Left Bank <u>Mid-Channel</u> <u>Right Bank</u> (facing upstream)			
Time start (HRS)	1605	1	3
Current meter start count	194464	2	3
Current meter stop count	208795	3	3
Time stop (HRS)	1617	<del>3.5</del>	3
Total time for retrieval (mins)	1618 13   1.6 ft/sec		
Calculated sample flow volume (m <sup>3</sup> /s)	75.6		

Location: Circle one Left Bank <u>Mid-Channel</u> Right Bank facing upstream			
Time start (HRS)	1631	1	5
Current meter start count	208798	2	3
Current meter stop count	229423	3	3
Time stop (HRS)	1643	4	3
Total time for retrieval (mins)	1644 13 (2.3 ft/s)		
Calculated sample flow volume (m <sup>3</sup> /s)	102.8		

Location: Circle one <u>Left Bank</u> Mid-Channel   Right Bank facing upstream			
Time start (HRS)	1700	1	4
Current meter start count	229486	2	4
Current meter stop count	248548	3	4
Time stop (HRS)	1712		
Total time for retrieval (mins)	1713 13 (2.2 ft/s)		
Calculated sample flow volume (m <sup>3</sup> /s)	100.5		

Comments/Observations:

- water temp surf 18°C / sunny / partly cloudy
- light winds. Air temp ~ 76°F
- Sampling to 3 m / 4 per depth - much detritus / net clogging at 3.5 to 2 meter depths

# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: JD / JCB

Date: 4/8/08

River/Water Conditions: turbid / mod. current

Circle One : Source Water Sampling    Entrainment Sampling

	DAY 1	DAY 2	<u>NIGHT 1</u>	NIGHT 2		Depth (m)	Time at Depth (mins)
Location:	Circle one	Left Bank	Mid-Channel	<u>Right Bank</u>	(facing upstream)		
Time start (HRS)			2154			1	4
Current meter start count			248462			2	4
Current meter stop count			264156			3	4
Time stop (HRS)			2206				
Total time for retrieval (mins)			2257	(13)	1.8 ft/s		
Calculated sample flow volume (m <sup>3</sup> /s)			82.8				

Location:	Circle one	Left Bank	<u>Mid-Channel</u>	Right Bank	facing upstream		
Time start (HRS)			2218			1	4
Current meter start count			268145			2	4
Current meter stop count			284313			3	4
Time stop (HRS)			2230				
Total time for retrieval (mins)			13		2.3 ft/s		
Calculated sample flow volume (m <sup>3</sup> /s)			106.4				

Location:	Circle one	<u>Left Bank</u>	Mid-Channel	Right Bank	facing upstream		
Time start (HRS)			2243			1	4
Current meter start count			284282			2	4
Current meter stop count			304256			3	4
Time stop (HRS)			2255				
Total time for retrieval (mins)			13		2.3 ft/s		
Calculated sample flow volume (m <sup>3</sup> /s)			105.3				

Comments/Observations:

- water temp = 16.9 °C
- clear night - temp falling to 60 °F
- limited the sampling depth to 3 m owing to heavy detrital mass deeper than 3 m.

# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: JD / TLB

Date: 4/10/08

River/Water Conditions: trivial/moderate

Circle One: Source Water Sampling    Entrainment Sampling

	DAY 1	DAY 2	NIGHT 1	NIGHT 2		Depth (m)	Time at Depth (mins)
Location:	Circle one <u>Left Bank</u> Mid-Channel    Right Bank (facing upstream)						
Time start (HRS)	0346					1	4
Current meter start count	345705					2	4
Current meter stop count	367584					<u>2.5</u>	Y
Time stop (HRS)	0358					<u>shallower</u>	
Total time for retrieval (mins)	13				2.5	<u>ft/s</u>	
Calculated sample flow volume (m <sup>3</sup> /s)	115.4						

Location:	Circle one Left Bank <u>Mid-Channel</u> Right Bank facing upstream						
Time start (HRS)	0321					1	4
Current meter start count	323460					2	4
Current meter stop count	345694					3	4
Time stop (HRS)	<del>0333</del>					<u>X</u>	
Total time for retrieval (mins)	13				2.5	<u>ft/s</u>	
Calculated sample flow volume (m <sup>3</sup> /s)	117.3						

Location:	Circle one Left Bank    Mid-Channel <u>Right Bank</u> facing upstream						
Time start (HRS)	0256					1	4
Current meter start count	304243					2	4
Current meter stop count	323452					3	4
Time stop (HRS)	<del>0300</del>					<u>X</u>	
Total time for retrieval (mins)	<del>0309</del>				2.2	<u>ft/s</u>	
Calculated sample flow volume (m <sup>3</sup> /s)	101.3						

Comments/Observations:  
*As with all ichthyoplankton samples collected before this date on this study, an archive sample is collected and preserved every 6 HRS. Day & Night sample component samples have each been composited, respectively.*

---

**From:** Dodd, Anthony Ray [ARDODD@southernco.com]  
**Sent:** Thursday, April 03, 2008 2:07 PM  
**To:** Montz, Matthew Thomas  
**Subject:** Field data sheets collected to date

**Attachments:** 1st March Event.pdf; 2nd March Event.pdf

Draft Documents

Matt,

Per your request. Please find available electronically scanned field data sheets attached.



1st March  
Event.pdf (270 KB)



2nd March  
Event.pdf (432 KB)

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# Vogle I & E Study - Sample Chain Of Custody

Collected by: TD/TB

Sample No.	Integrated Sample ID and Collection Date	Time of Collection	Preservative	Shipped to taxonomy lab	Archived at GPC Smyrna
	Example I.D. SL3A-031008	-0000 HRs	5% formalin or 10% formalin Wet Ice	✓	✓
1	SWLD1A-031108	1135	5% ↓		✓
2	SWLD2A-031108	1847	↓		✓
3	SWLcomp-D-031108	1847	↓		
4	SWMD1A-031108	1213	↓		✓
5	SWMD2A-031108	1917	↓		✓
6	SWMcomp-D-031108	1917	↓		
7	SWRD1A-031108	1238	↓		✓
8	SWRD2A-031108	1948	↓		✓
9	SWRcomp-D-031108	1948	↓		
10	SWLN1A-031108	2057	↓		✓
11	SWLN2A-031208	0238	↓		✓
12	SWLcomp-N-031208	0238	↓		
13	SWMN1A-031108	2128	↓		✓
14	SWMN2A-031208	0307	↓		✓
15	SWMcomp-N-031208	0307	↓		
16	SWRN1A-031008	2145	↓		✓
17	SWRN2A-031208	0334	↓		✓
18	SWRcomp-N-031208	0334	↓		
19					
20					
21					
22					
23					
24					
25					

\*Sample Type  
 \*L,M,R = location leftbank, mid-channel, or right bank facing upstream or to intake structure  
 SL3A-031008 \*Digits 1,2,3,4 represent sample period day1 vs day2 vs night 1 vs night 2  
 \*Nets 1 and 2 composited (A) or Net 2 individual sample to be archived (A)  
 \*Two digit month day year

Relinquished by: TD Date: 3/13/08 Time: 0845  
 Received by: Tom Roelwell Date: 3/13/08 Time: 0845

# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: TP, TUS  
 Date: 3/11/08  
 River/Water Conditions: river stage down ~ 3', / turbid conditions  
 Circle One : Source Water Sampling    Entrainment Sampling

DAY #1

Location: Circle one Left Bank    Mid-Channel    Right Bank (facing upstream)

Time start (HRS)	1139
Current meter start count	19425
Current meter stop count	31672
Time stop (HRS)	1155
Total time for retrieval (mins)	16
Calculated sample flow volume (m <sup>3</sup> /s)	

Depth (m)	Time at Depth (mins)
1	3
2	3
3	3
3.5	3

Location: Circle one Left Bank    Mid-Channel    Right Bank facing upstream

Time start (HRS)	1213
Current meter start count	31657
Current meter stop count	44315
Time stop (HRS)	1228 - TP / 3/11/08
Total time for retrieval (mins)	13
Calculated sample flow volume (m <sup>3</sup> /s)	

1	3
2	3
3	3
4	3
4.5	3.5

Location: Circle one Left Bank    Mid-Channel    Right Bank facing upstream

Time start (HRS)	1238
Current meter start count	44313
Current meter stop count	62276
Time stop (HRS)	1252
Total time for retrieval (mins)	13
Calculated sample flow volume (m <sup>3</sup> /s)	

1	3
2	3
3	3
4	3

Comments/Observations:

# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: TD / TLB  
 Date: 2/11/08  
 River/Water Conditions: not ft below previous night's stage / banked  
 Circle One : Source Water Sampling    Entrainment Sampling

DAY 2

Location: Circle one Left Bank    Mid-Channel    Right Bank (facing upstream)

Time start (HRS)	1847
Current meter start count	62268
Current meter stop count	85573
Time stop (HRS)	1904
Total time for retrieval (mins)	17
Calculated sample flow volume (m <sup>3</sup> /s)	

Depth (m)	Time at Depth (mins)
1	3
2	3
2.5	3
2.0	3
1.5	3
<i>Shallow / difficulty w/ anchoring</i>	

Location: Circle one Left Bank    Mid-Channel    Right Bank facing upstream

Time start (HRS)	1917
Current meter start count	85257
Current meter stop count	103980
Time stop (HRS)	1932
Total time for retrieval (mins)	15
Calculated sample flow volume (m <sup>3</sup> /s)	

Depth (m)	Time at Depth (mins)
1	3
2	3
3	3
4	3
<i>+ retrieval</i>	

Location: Circle one Left Bank    Mid-Channel    Right Bank facing upstream

Time start (HRS)	1948
Current meter start count	104002
Current meter stop count	110454
Time stop (HRS)	2012
Total time for retrieval (mins)	24
Calculated sample flow volume (m <sup>3</sup> /s)	

Depth (m)	Time at Depth (mins)
1	6
2	6
3	6
4	6
<i>Eddy effect / sluggish velocity</i>	

Comments/Observations:  
 H<sub>2</sub>O Temp = 13°C } MIG Thermometer  
 Air Temp = 17°C }  
 Light precipitation / overcast

# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: JD, JCB

Date: 3/10/08

River/Water Conditions: retrograde, high stage, swift current/turbid

Circle One : Source Water Sampling    Entrainment Sampling

Night 1

Location: Circle one Left Bank    Mid-Channel    Right Bank (facing upstream)

Time start (HRS)	<u>2148</u>
Current meter start count	<u>000000</u>
Current meter stop count	<u>019,815</u>
Time stop (HRS)	<u>2157</u>
Total time for retrieval (mins)	<u>15</u>
Calculated sample flow volume (m <sup>3</sup> /s)	<u>104.4 m<sup>3</sup></u>

Depth (m)	Time at Depth (mins)
1	3
2	3
3	3
4	3
5	3

Location: Circle one Left Bank    Mid-Channel    Right Bank facing upstream

Time start (HRS)	
Current meter start count	
Current meter stop count	
Time stop (HRS)	
Total time for retrieval (mins)	
Calculated sample flow volume (m <sup>3</sup> /s)	


Location: Circle one Left Bank    Mid-Channel    Right Bank facing upstream

Time start (HRS)	
Current meter start count	
Current meter stop count	
Time stop (HRS)	
Total time for retrieval (mins)	
Calculated sample flow volume (m <sup>3</sup> /s)	


Comments/Observations:

First sample attempt, first trip

# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: JD / HLB  
 Date: 3/12/08  
 River/Water Conditions: reduced stage 2 ft lower tonight  
 Circle One:  Source Water Sampling     Entrainment Sampling

Night 2

Location: Circle one  Left Bank     Mid-Channel     Right Bank (facing upstream)

	Depth (m)	Time at Depth (mins)
Time start (HRS)	1	3
Current meter start count	2	3
Current meter stop count	2.5	3
Time stop (HRS)	2	3
Total time for retrieval (mins)	1	3
Calculated sample flow volume (m <sup>3</sup> /s)		

Location: Circle one  Left Bank     Mid-Channel     Right Bank facing upstream

Time start (HRS)	1	3
Current meter start count	2	3
Current meter stop count	3	3
Time stop (HRS)	4	3
Total time for retrieval (mins)		
Calculated sample flow volume (m <sup>3</sup> /s)		

Location: Circle one  Left Bank     Mid-Channel     Right Bank facing upstream

Time start (HRS)	1	3
Current meter start count	2	3
Current meter stop count	3	3
Time stop (HRS)	4	3
Total time for retrieval (mins)		
Calculated sample flow volume (m <sup>3</sup> /s)		

Comments/Observations:  
Air Temp down to 10°C  
Water Temp @ 12°C  
Weather, clearing & cooler, falling river stage.

**PLANT VOGTLE IMPINGEMENT MONITORING DATA FORM**

Sample Information

Page: 1 of 3

Collector(s): TD HLB

12-hour Period (circle)

DAY NIGHT

Start Date 2/11/08  
End Date 3/12/08

Time 2030  
Time 0915  
Elapsed Time

Remarks:

**Plant and CWIS Operating Conditions**

	% Load	Pump Flow (gpm)	No. of VTS Operating
Start			
Finish		<u>2 pumps</u>	<u>3 of 4 units in service</u>

*at Waynesboro*

	River Stage (ft.)	
Start	<u>~11.5</u>	<u>~10,000 cfs</u>
Finish	<u>~8.3</u>	<u>~6,400 cfs</u>

Water Temperature (°C)	
Start	<u>12</u>
Finish	<u>13</u>

**Field Conditions/Other Observations**

*Clear weather, 40° F. light winds w/pow ~ 0-7 kt*

Event #

Entered by:  
Date: / /





# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: T.D. / T.D.B.  
 Date: 3/10/08 - 3/11/08  
 River/Water Conditions: High ~ 10kt cfs

Circle One : Source Water Sampling    Entrainment Sampling

	Depth (m)	Time at Depth (mins)
Location: Circle one Left Bank    Mid-Channel    Right Bank (facing upstream)		
Time start (HRS)		
Current meter start count		
Current meter stop count		
Time stop (HRS)		
Total time for retrieval (mins)		
Calculated sample flow volume (m <sup>3</sup> /s)		

Location: Circle one Left Bank    Mid-Channel    Right Bank facing upstream		
Time start (HRS)		
Current meter start count		
Current meter stop count		
Time stop (HRS)		
Total time for retrieval (mins)		
Calculated sample flow volume (m <sup>3</sup> /s)		

Location: Circle one Left Bank    Mid-Channel    Right Bank facing upstream		
Time start (HRS)		
Current meter start count		
Current meter stop count		
Time stop (HRS)		
Total time for retrieval (mins)		
Calculated sample flow volume (m <sup>3</sup> /s)		

Comments/Observations:  
*\* Ichthyoplankton net sampling in canal unsuccessful. Even w/ adjustment closer to the trash rack, velocity is not sufficient enough to provide sampling conditions for this gear type. T.D.*

**PLANT VOGTLE IMPINGEMENT MONITORING DATA FORM**

Sample Information

Page: 1 of 1

Collector(s): TD, BB

12-hour Period (circle)

Remarks: NO TD  
 DAY  
 NIGHT

Start Date 3-25-08  
 End Date 3-26-08

Time 0830 2000  
 Time  
 Elapsed Time

**Plant and CWIS Operating Conditions**

	No. Pumps	Pump Flow (gpm)	No. of VTS Operating
Start			
Finish			2

	River Stage (ft.)
Start	
Finish	

-5500  
 cfs  
 @ 1030  
 falling  
 stage

**Physicochemical parameters:**

D.O.	8.8	mg/L
pH	7.0	SU
Cond.	103.4	uS/cm
Turbidity	0.8	NTU

} collected  
 on 3/25/08  
 ~ 2030

	Water Temperature (°C)
Start	15.5
Finish	15.1

Location of Measurement:  
 in-situ left bank, surface

**Field Conditions/Other Observations**

Left Bank = Waypoint 59      Air Temp 12.95  
 N 33°09'04.6"  
 W 81°45'18.3"

\* called Unit 2 operator ~ 0813 HRS  
 Success notified ~ 0825 HRS

\* Impingement Period for Daytime started ~ 0830

\* Water temp fell to ~ 14.5°C in pm of 3/25/08

Event #

Entered by:  
 Date: / /



**PLANT VOGTLE IMPINGEMENT MONITORING DATA FORM**

Sample Information

Page: 1 of 7

Collector(s): TD/BB

Remarks: \_\_\_\_\_

12-hour Period (circle)

DAY

NIGHT

Start Date 3/26/08

Time 2000

End Date 3/27/08

Time 0900

Elapsed Time \_\_\_\_\_

**Plant and CWIS Operating Conditions**

	No. Pumps	Pump Flow (gpm)	No. of VTS Operating
Start			
Finish			<u>2</u>

	River Stage (ft.)
Start	
Finish	

*falling*

**Physicochemical parameters:**

	mg/L
D.O.	
pH	su
Cond.	uS/cm
Turbidity	NTU

Water Temperature (°C)	
Start	<u>15.5</u>
Finish	<u>15.5</u>

Location of Measurement: \_\_\_\_\_

**Field Conditions/Other Observations**

*River stage falling.*

Event #

Entered by:  
Date: / /



# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: TD, RB

Date: 3/26/00

River/Water Conditions: see below

Circle One : Source Water Sampling    Entrainment Sampling

Day 1

Location: Circle one Left Bank    Mid-Channel    Right Bank (facing upstream)

Time start (HRS)	1536
Current meter start count	097103
Current meter stop count	114434
Time stop (HRS)	1549
Total time for retrieval (mins)	13
Calculated sample flow volume (m <sup>3</sup> /s)	

Depth (m)	Time at Depth (mins)
1	3
2	3
3	3
4	3

Location: Circle one Left Bank    Mid-Channel    Right Bank facing upstream

Time start (HRS)	1604
Current meter start count	115757
Current meter stop count	129796
Time stop (HRS)	1617
Total time for retrieval (mins)	
Calculated sample flow volume (m <sup>3</sup> /s)	

1	3
2	3
3	3
4	3

Location: Circle one Left Bank    Mid-Channel    Right Bank facing upstream

Time start (HRS)	1629
Current meter start count	129810
Current meter stop count	145760
Time stop (HRS)	1641
Total time for retrieval (mins)	
Calculated sample flow volume (m <sup>3</sup> /s)	

1	3
2	3
3	3
4	3

Comments/Observations:

Weather - sunny, warm to ~ 70 °F, wind southerly 5-10 Kts.  
Water - slightly turbid @ surface

# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: TD / BZ

Date: 3/26/08

River/Water Conditions: calm surface / moderate / swift current

Circle One : Source Water Sampling Entrainment Sampling

*Day 2*

Location: Circle one Left Bank Mid-Channel Right Bank (facing upstream)

Time start (HRS)	1915
Current meter start count	145463
Current meter stop count	163999
Time stop (HRS)	1928
Total time for retrieval (mins)	1928
Calculated sample flow volume (m <sup>3</sup> /s)	

Depth (m)	Time at Depth (mins)
1	3
2	3
3	3
4	3

Location: Circle one Left Bank Mid-Channel Right Bank facing upstream

Time start (HRS)	1939
Current meter start count	164062
Current meter stop count	178853
Time stop (HRS)	1952
Total time for retrieval (mins)	1952
Calculated sample flow volume (m <sup>3</sup> /s)	

Depth (m)	Time at Depth (mins)
1	3
2	3
3	3
4	3

Location: Circle one Left Bank Mid-Channel Right Bank facing upstream

Time start (HRS)	2004 HRS
Current meter start count	178389
Current meter stop count	194502
Time stop (HRS)	2017
Total time for retrieval (mins)	2017
Calculated sample flow volume (m <sup>3</sup> /s)	

Depth (m)	Time at Depth (mins)
1	3
2	3
3	3
4	3

Comments/Observations:

*clear skies, cooling*  
*- River stage dropped ~ 1/2 - 3/4 foot since midday*  
*- Transect for ichthyoplankton sampling near*  
*Rm 72 ~ 20' upstream - drop anchor at next upstream weir*

# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: J.D. BB

Date: 3-27-08

River/Water Conditions: lightly turbid on surface / swift current

Circle One: Source Water Sampling Entrainment Sampling

*Night #1*

Location: Circle one Left Bank Mid-Channel Right Bank (facing upstream)

Time start (HRS)	2035
Current meter start count	000200
Current meter stop count	016510
Time stop (HRS)	2049
Total time for retrieval (mins)	14
Calculated sample flow volume (m <sup>3</sup> /s)	

Depth (m)	Time at Depth (mins)
1	3
2	3
3	3
4	3
	3.6 m max

Location: Circle one Left Bank Mid-Channel Right Bank facing upstream

Time start (HRS)	2122
Current meter start count	016200
Current meter stop count	027493
Time stop (HRS)	2135
Total time for retrieval (mins)	
Calculated sample flow volume (m <sup>3</sup> /s)	

Depth (m)	Time at Depth (mins)
1	3
2	3
3	3
4	3
	4.5 m (max)

Location: Circle one Left Bank Mid-Channel Right Bank facing upstream

Time start (HRS)	2154
Current meter start count	028320
Current meter stop count	040013
Time stop (HRS)	2207
Total time for retrieval (mins)	13
Calculated sample flow volume (m <sup>3</sup> /s)	

Depth (m)	Time at Depth (mins)
1	3
2	3
3	3
4	3
	4.1 max

Comments/Observations:

- mid channel WP = N 33° 09' 04.2"  
W 81° 45' 17.6"  
- Heavy detritus load at 3.5 to 4.5 meters

Right bank WP = #60  
N 33° 09' 05.0"  
W 081° 45' 17.7"

# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: JD / RB  
 Date: 3/28/08  
 River/Water Conditions: Low turbid / small current  
 Circle One : Source Water Sampling    Entrainment Sampling

Night 2

Location: Circle one Left Bank    Mid-Channel    Right Bank (facing upstream)

		Depth (m)	Time at Depth (mins)
Time start (HRS)	0229	1	3
Current meter start count	041300	2	3
Current meter stop count	057596	3	3
Time stop (HRS)	0244	4	3
Total time for retrieval (mins)			
Calculated sample flow volume (m <sup>3</sup> /s)			

Location: Circle one Left Bank    Mid-Channel    Right Bank facing upstream

Time start (HRS)	0306	1	3
Current meter start count	059700	2	3
Current meter stop count	073487	3	3
Time stop (HRS)	0319	4	3
Total time for retrieval (mins)			
Calculated sample flow volume (m <sup>3</sup> /s)			

Location: Circle one Left Bank    Mid-Channel    Right Bank facing upstream

Time start (HRS)	0403	1	3
Current meter start count	076070	2	3
Current meter stop count	095911	3	3
Time stop (HRS)	0416	4	3
Total time for retrieval (mins)			
Calculated sample flow volume (m <sup>3</sup> /s)			

Comments/Observations:  
 Clear skies, ~42° F, winds 0-5 k, 3/4 moon  
 Heavy detritus - all main channel locations

# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: JD/BSB      wa Params ~1454 HRS  
 Date: 3/26/08      Hydro labs #N 45840      Turb: 0 NTU  
 River/Water Conditions: moderate current, clear      surface  
 Circle One : Source Water Sampling      Entrainment Sampling      w Temp 15.6      D.O. 9.0      pH 6.9      Cond. 87.6

\* Pilot Test works good - assume 425 gpm

CANAL ENTRANCE

Location: Circle one Left Bank      Mid-Channel      Right Bank (facing upstream)

DAY 1

Time at  
Depth (m)      Depth (mins)

Time start (HRS)  
 Current meter start count  
 Current meter stop count  
 Time stop (HRS)  
 Total time for retrieval (mins)  
 Calculated sample flow volume (m<sup>3</sup>/s)

1348
1514
90

SURFACE	was a deep

Location: Circle one Left Bank      Mid-Channel      Right Bank facing upstream

Time start (HRS)  
 Current meter start count  
 Current meter stop count  
 Time stop (HRS)  
 Total time for retrieval (mins)  
 Calculated sample flow volume (m<sup>3</sup>/s)



Location: Circle one Left Bank      Mid-Channel      Right Bank facing upstream

Time start (HRS)  
 Current meter start count  
 Current meter stop count  
 Time stop (HRS)  
 Total time for retrieval (mins)  
 Calculated sample flow volume (m<sup>3</sup>/s)



Comments/Observations:

425 gpm pump / Honda 8 Hp GX240  
 3600 RPM WACKER PF3 pump.  
 ~ 87 minutes = 150 m<sup>3</sup> / split into 2 500 m / Nitex mesh  
 \* located at most downstream corner of canal mouth

# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: TD/BB

Date: 3/2/08

River/Water Conditions: light turbid flow ~ 5,000 cfs

Circle One : Source Water Sampling  Entrainment Sampling

**DA 2**      Pump

Location: Circle one  Left Bank    Mid-Channel    Right Bank (facing upstream)

	Depth (m)	Time at Depth (mins)
Time start (HRS)	0.5	5 min.
Current meter start count		
Current meter stop count		
Time stop (HRS)		
Total time for retrieval (mins)		
Calculated sample flow volume (m <sup>3</sup> /s)		

Location: Circle one  Left Bank    Mid-Channel    Right Bank facing upstream

Time start (HRS)		
Current meter start count		
Current meter stop count		
Time stop (HRS)		
Total time for retrieval (mins)		
Calculated sample flow volume (m <sup>3</sup> /s)		

Location: Circle one  Left Bank    Mid-Channel    Right Bank facing upstream

Time start (HRS)		
Current meter start count		
Current meter stop count		
Time stop (HRS)		
Total time for retrieval (mins)		
Calculated sample flow volume (m <sup>3</sup> /s)		

**Comments/Observations:**

\* southernmost / downstream corner of canal mouth.  
depth @ 0.5 m.

\* Called Unit 2 operator @ ~ 1900 hrs for a 2000 hrs rotation.

# Vogle I & E Study - Source Water Community / Entrainment Sampling

Collected by: JD/BB  
 Date: 3/26/09  
 River/Water Conditions: moderate current/falling stage  
 Circle One : Source Water Sampling    Entrainment Sampling

**Night 1**                      **Pump**

Location: Circle one Left Bank    Mid-Channel    Right Bank (facing upstream)

	Depth (m)	Time at Depth (mins)
Time start (HRS)		
Current meter start count		
Current meter stop count		
Time stop (HRS)		
Total time for retrieval (mins)		
Calculated sample flow volume (m <sup>3</sup> /s)		

2112

2235

0.5

5 min

**Night 2**

Location: Circle one Left Bank    Mid-Channel    Right Bank facing upstream

	Depth (m)	Time at Depth (mins)
Time start (HRS)		
Current meter start count		
Current meter stop count		
Time stop (HRS)		
Total time for retrieval (mins)		
Calculated sample flow volume (m <sup>3</sup> /s)		

0419

0539

0.5

5 min

*River stage falling*

Location: Circle one Left Bank    Mid-Channel    Right Bank facing upstream

	Depth (m)	Time at Depth (mins)
Time start (HRS)		
Current meter start count		
Current meter stop count		
Time stop (HRS)		
Total time for retrieval (mins)		
Calculated sample flow volume (m <sup>3</sup> /s)		

Comments/Observations:

*\* falling river stage / ~ 4" or more of Mack sheet falling  
 heads visible @ 2128 HRS.  
 \* clear, cool night - falling temps,*

# Vogle I & E Study - Sample Chain Of Custody

Collected by: TD/BB

Sample No.	Integrated Sample ID and Collection Date	Time of Collection	Preservative	Shipped to taxonomy lab	Archived at GPC Smyrna
	Example I.D. SL3A-031008	~0000 HRs	5% formalin or 10% formalin Wet Ice	✓	✓
1	SWLDIA-032608	1510	5% ↓		✓
2	SWLD2A-032608	1900			✓
3	SWL Comp-032608-D	1900			
4	SWMDIA-032608	1535			✓
5	SWMD2A-032608	1930			✓
6	SWM Comp-032608-D	1930			
7	SWRDIA-032608	1555			✓
8	SWRD2A-032608	1955			✓
9	SWR Comp-032608-D	1955			
10	SWL N1A-032508	0200			✓
11	SWL N2A-032608	0230			✓
12	SWL Comp-032608-N	0230			
13	SWM N1A-032508	2145			✓
14	SWM N2A-032608	0300			✓
15	SWM Comp-032608-N	0300			
16	SWR N1A-032508	2215			✓
17	SWR N2A-032608	0330			✓
18	SWR Comp-032608-N	0330			
19	ENLDIA-032608	1345			✓
20	ENLD2A-032608	1730			✓
21	ENL Comp-032608-D	1730			NO-TD/3/26/08
22	ENLNIA-032608	1912			✓
23	ENLN2A-032708	~0400			✓
24	ENL Comp 032708-N	0400		✓	NO-TD-3/26/08
25					

Sample Type  
 L,M,R = location leftbank, mid-channel, or right bank facing upstream or to intake structure  
 SL3A-031008 Digits 1,2,3,4 represent sample period day1 vs day2 vs night 1 vs night 2  
 Nets 1 and 2 composited (A) or Net 2 individual sample to be archived (A)  
 Two digit month day year

Relinquished by: [Signature] Date: 3/31/08 Time: 0936  
 Received by: [Signature] Date: 3/31/08 Time: 0936

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**From:** Montz, Matthew Thomas [MTMONTZ@SOUTHERNCO.COM]  
**Sent:** Wednesday, April 09, 2008 2:52 PM  
**To:** Manigo, D'Andre; Walden, Kevin C.  
**Subject:** I&E study supplies.

Gentlemen, hope you are doing well! I've got a request from my sampling guys to leave the equipment used for entrainment sampling staged at the intake canal. They are using two plastic drums (with hole drilled in the sides) a couple of pumps and a generator to conduct the sampling. It's heavy and difficult to move in and out of the area and they are asking to leave it there. No chemical will be stored there and everything can be labeled similar to how their gear is labeled up at the intake. They are onsite today and tomorrow so please let me know what to tell them as soon as possible. If needed, please head on down there to talk with them. Or, give me a call.

Thanks!

P.S. Guess you all have seen the news regarding GPC signing the contract to build Unit 3&4. Looks like those hats I gave you are worth something after all.

**Matthew T. Montz**  
Environmental Specialist  
Southern Nuclear Operating Company  
Office 205-992-5629

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**From:** Dodd, Anthony Ray [ARDODD@southernco.com]  
**Sent:** Tuesday, April 15, 2008 7:46 AM  
**To:** Montz, Matthew Thomas  
**Subject:** RE: MSDS for isopropanol

**Attachments:** isopropanol.pdf



isopropanol.pdf  
(135 KB)

Matt,

Please find, and forward as needed, the attached MSDS for the isopropanol we are currently using for the Vogtle I&E study.

Tony Dodd, CFP  
Environmental Specialist  
Georgia Power Environmental Lab  
5131 Maner Rd.  
Smyrna Ga 30080  
Ph: 404-799-2142  
Fax: 404-799-2141  
Cell: 770-550-2502  
Email: ardodd@southernco.com

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-----Original Message-----

**From:** Montz, Matthew Thomas  
**Sent:** Monday, April 14, 2008 5:41 PM  
**To:** Dodd, Anthony Ray  
**Subject:** Fw: MSDS for isopropanol

Tony, would you please take a second to confirm which product we are using (see email below). If we are, please forward a copy of the MSDS.

Thanks,  
Matt

Matthew T. Montz  
(205) 992-5629

----- Original Message -----

**From:** Harrison, Teresa J.  
**To:** Montz, Matthew Thomas; Lee, Greg  
**Sent:** Sat Apr 12 11:24:58 2008  
**Subject:** MSDS for isopropanol

Note that the 3E company has notified us that ACROS is no longer a distributor for the isopropanol that you requested be added to the Vogtle inventory in Feb 2008. Please

verify the manufacturer, product name and product number. We do have the msds you provided and a msds is available in 3E. We just need to verify we have the msds for the product you are using.

Teresa, beeper 184, phone 706.826.3658  
Vogtle Safety & Health



MSDS

For RICCA, SpectroPure, Red Bird, and Solutions Plus Brands
Emergency Contact(24 hr) -- CHEMTREC®
Domestic: 800-424-9300
International: 703-527-3887

ISOPROPANOL, >= 70% (v/v) Solutions

Material Safety Data Sheet

Section 1: Chemical Product and Company Identification

Table with 2 columns and 5 rows containing product identification details such as Catalog Number, Product Identity, Manufacturer's Name, CAGE Code, Address, Date Prepared, and Emergency Contact information.

Section 2. Composition/Information on Ingredients

Table with 5 columns: Component, CAS Registry #, Concentration, ACGIH TLV, and OSHA PEL. Rows include Isopropyl Alcohol (Isopropanol, 2-Propanol) and Water, Deionized.

Section 3: Hazard Identification

Emergency Overview: Flammable liquid. Contact may cause dryness and cracking of the skin. May cause irritation of the respiratory system. Causes irritation to the eyes. If ingested, give large quantity of water and induce vomiting. Call a physician. Wash areas of contact with water.

Target Organs: eyes, skin, respiratory system, central nervous system.

Eye Contact: May cause irritation with burning and stinging with possible damage to the cornea and conjunctiva.

Inhalation: May cause irritation of the eyes, nose, throat, upper respiratory tract and associated mucosa. Exposure to high concentrations has a narcotic effect.

Skin Contact: Results in drying and cracking which can lead to secondary infections and dermatitis.

Ingestion: May cause nausea, vomiting, diarrhea and cramps. The single lethal dose for a human of Isopropanol is about 250 mL (8 oz.).

Chronic Effects/Carcinogenicity: None

IARC - Isopropyl Alcohol (Isopropanol, 2-Propanol) is unclassifiable as to carcinogenicity to humans.

NTP - No.

OSHA - No.

Reproductive Information: Reproductive effects cited in 'Registry of Toxic Effects of Chemical Substances' for Isopropyl Alcohol (Isopropanol, 2-Propanol).

Teratology (Birth Defect) Information: Mutation data cited in 'Registry of Toxic Effects of Chemical Substances' for Isopropyl Alcohol (Isopropanol, 2-Propanol).



## MSDS

For RICCA, SpectroPure, Red Bird, and Solutions Plus Brands

Emergency Contact(24 hr) -- CHEMTREC®

Domestic: 800-424-9300

International: 703-527-3887

ISOPROPANOL, >= 70% (v/v) Solutions

### Section 4: First Aid Measures - In all cases, seek qualified evaluation.

**Eye Contact:** Irrigate immediately with large quantity of water for at least 15 minutes. Call a physician if irritation develops.

**Inhalation:** Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen.

**Skin Contact:** Wash areas of contact with soap and water for at least 15 minutes. Call a physician if irritation develops.

**Ingestion:** Dilute immediately with water or milk. Induce vomiting. Call a physician.

### Section 5: Fire Fighting Measures

**Flash Point:** App. 13°C (100%) - 18°C (70%)

**Method Used:** CC (IPA)

**LFL:** 2.0% (100% IPA)

**UFL:** 12.7% (100% IPA)

**Extinguishing Media:** Use water spray, dry chemical, alcohol foam, or carbon dioxide for extinguishing the surrounding fire. Water spray can be used to dilute spills to non-flammable mixtures.

**Fire & Explosion Hazards:** Vapors may explode if ignited in an enclosed area.

**Fire Fighting Instructions:** Vapors can flow along surfaces to distant ignition source and flash back. Use water spray to blanket fire, cool fire exposed containers, and to flush non-ignited spills or vapors away from fire.

**Fire Fighting Equipment:** Wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

### Section 6: Accidental Release Measures

Remove all sources of ignition. Contain spill. Do not flush to sewer. Absorb with suitable inert material (vermiculite, dry sand, etc) and place in a chemical waste container for proper disposal in an approved waste disposal facility. Ventilate area of spill. Have extinguishing agent available in case of fire. Use non-sparking tools and equipment. Dispose of in accordance with local regulations.

### Section 7: Handling and Storage

As with all chemicals, wash hands thoroughly after handling. Avoid contact with eyes and skin. Protect from freezing and physical damage. Store in secure, flammable storage area away from all sources of ignition. Empty containers may be hazardous since they retain product residues.

**Safety Storage Code:** Flammable

### Section 8: Exposure Control/Personal Protection

**Engineering Controls:** A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limit.

**Respiratory Protection:** Normal room ventilation is adequate. If the exposure limit is exceeded, a full facepiece respirator with organic vapor cartridge may be worn.

**Skin Protection:** Chemical resistant gloves.

**Eye Protection:** Safety glasses or goggles.

### Section 9: Physical and Chemical Properties

**Appearance:** Clear, Colorless Liquid

**Odor:** Characteristic Alcohol

**Solubility in Water:** Infinite

**Specific Gravity:** Approximately 0.8

**pH:** Not Available.

**Boiling Point(°C):** Approximately 82

**Melting Point(°C):** Approximately -88

**Vapor Pressure:** app. 33 at 20°C (IPA)

### Section 10: Stability and Reactivity

**Chemical Stability:** Stable under normal conditions of use and storage.

**Incompatibility:** Strong oxidizing agents such as Nitrates, Perchlorates or Sulfuric Acid, heat, sparks, open flame. Will attack some forms of plastics, rubber and coatings. May react with metallic aluminum and generate hydrogen gas.

**Hazardous Decomposition Products:** Acrid and irritating fumes, including toxic oxides of carbon, when heated to decomposition.

**Hazardous Polymerization:** Will not occur.

### Section 11. Toxicological Information

LD50, Oral, Rat: (Isopropanol) 5045 mg/kg, behavioral effects noted. LC50, Inhalation, Rat (Isopropanol) 16000 ppm/8hrs. No toxic effect noted. Investigated as a tumorigen, mutagen, and reproductive effector.

### Section 12. Ecological Information

**Ecotoxicological Information:** Acute toxic effects may include the death of animals, birds, or fish, and death or low growth rate in plants. Acute effects are seen 2 to 4 days after exposure to Isopropanol. Chronic toxic effects may include shortened life span, reproductive problems, lower fertility, and changes in appearance or behavior in exposed animals. These effects can be seen long after first exposure(s) to toxic chemicals. Insufficient data are available to evaluate or predict the short and long term effects of Isopropanol to aquatic life, plants, birds, or land animals.

**Chemical Fate Information:** Isopropanol is slightly persistent in water, with a half-life of between 2 to 20 days. This material is not expected to significantly bioaccumulate. When released into the soil or into water, this material is expected to quickly evaporate.

### Section 13. Disposal Considerations

Do not flush to sewer. Absorb with suitable inert material (vermiculite, dry sand, earth) and place in a chemical waste container for proper disposal in an approved waste disposal facility for incineration in a chemical incinerator equipped with scrubber and afterburner. Ventilate area of spill. Have extinguishing agent available in case of fire. Eliminate all sources of ignition. Use non-sparking tools and equipment. Always dispose of in accordance with local, state and federal regulations.

### Section 14. Transport Information

Part Numbers: 4210-1, 4210-16, 4210-1G, 4210-1SC, 4210-2.5, 4210-32, 4210-5, 4210-55, 4210-5HP, 4211.80-1, 4211.91-1, I-170 20-LT, I-170 200-LT, I-170 4-LT, I-170 500ML, I-170 LT, I-171 4-LT, R4211900-20F, SI050800-20E1, SI050800-20F, SI050800-4A

D.O.T. Shipping Name: Isopropanol Solution

D.O.T. Hazard Class: 3

U.N. / N.A. Number: UN1219

Packing Group: II

D.O.T. Label: 3



### Section 15. Regulatory Information (Not meant to be all inclusive - selected regulation represented)

**OSHA Status:** These items meet the OSHA Hazard Communication Standard (29 CFR 1910.1200) definition of a hazardous material.

**TSCA Status:** All components of this solution are listed on the TSCA Inventory or are mixtures (hydrates) of items listed on the TSCA Inventory.

**Sara Title III:**

**Section 302 Extremely Hazardous Substances:** Not Applicable.

**Section 311/312 Hazardous Categories:** Acute, Chronic, Fire: Yes; Pressure, Reactivity: No

**Section 313 Toxic Chemicals:** Not Applicable.

**California:** None Reported.

**Pennsylvania:** Isopropyl Alcohol (Isopropanol, 2-Propanol) is listed as an Environmental Hazard on the state's Hazardous Substances List.

**RCRA Status:** Not Applicable.

**CERCLA Reportable Quantity:** None Reported.

WHMIS: B-2: Flammable and Combustible Material. Flammable Liquid. D-2B: Poisonous and Infectious Material. Materials causing other toxic effects - Toxic Material.



**Section 16. Other Information**

**NFPA Ratings:**

Health: 1                      Flammability: 3                      Reactivity: 0                      Special Notice Key:None

**HMIS Ratings:**

Health: 1                      Flammability: 3                      Reactivity: 0                      Protective Equipment:B (Protective Eyewear, Gloves)

- Rev 1, 12-10-99: (Section 1) Revised emergency telephone number to CHEMTREC® 800-424-9300.
- Rev 2, 9-7-2000: Reformatted from WordPerfect® to Microsoft Word®; (Section 7) added storage code; (Section 15) added Florida and Pennsylvania citations.
- Rev 3, 10-09-2001: Reformatted to electronic data format.
- Rev 4, 02-06-2002: (Section 1) corrected title from <=.
- Rev 5, 03-19-2002: (Section 1) added catalog numbers 4211.80 and 4211.91.
- Rev 6, 10-01-2002: (Section 1) added Solutions Plus catalog number I050800.
- Rev 7, 01-16-2006: (Section 1) added Red Bird catalog number I-171.
- Rev 8, 03-21-2006: (Section 5) added flash point range.
- Rev 9, 05-16-2006: (Section 1) added catalog number R4211900.
- Rev 10, 11-15-2006: (Section 15) added D2B to WHMIS information.

When handled properly by qualified personnel, the product described herein does not present a significant health or safety hazard. Alteration of its characteristics by concentration, evaporation, addition of other substances, or other means may present hazards not specifically addressed herein and which must be evaluated by the user. The information furnished herein is believed to be accurate and represents the best data currently available to us. No warranty, expressed or implied, is made and RICCA CHEMICAL COMPANY assumes no legal responsibility or liability whatsoever resulting from its use.

**From:** Dodd, Anthony Ray [ARDODD@southernco.com]  
**Sent:** Thursday, February 21, 2008 12:47 PM  
**To:** Montz, Matthew Thomas  
**Cc:** Blanton, Stan  
**Subject:** RE: MSDS's

**Attachments:** unleaded gasoline.pdf; ethanol.pdf; formalin.pdf; isopropanol alcohol.pdf

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Matt,

Here are 4 \*.pdf MSDSs for chemicals that we will use while on or at Plant Vogtle during the aquatic assessment. The first three are biological preservatives and the fourth one, gasoline, would be associated with portable boat fuel tanks.



unleaded  
isoline.pdf (516 KB)



ethanol.pdf (242  
KB)



formalin.pdf (236  
KB)



isopropanol  
alcohol.pdf (262 K...

Tony Dodd, CFP  
Environmental Specialist  
Georgia Power Environmental Lab  
5131 Maner Rd.  
Smyrna Ga 30080  
Ph: 404-799-2142  
Fax: 404-799-2141  
ardodd@southernco.com

---

**From:** Montz, Matthew Thomas  
**Sent:** Thursday, February 21, 2008 12:48 PM  
**To:** Dodd, Anthony Ray  
**Cc:** Blanton, Stan (Balch)  
**Subject:** MSDS's

Tony,  
Please provide me with copies of the MSDS's on the chemical you plan on using at Plant Vogtle for the I&E study. I'll need them to get plant approval so you can bring the chemicals onsite.

Thanks,  
**Matthew T. Montz**  
Environmental Specialist

Southern Nuclear Operating Company  
Office 205-992-5629

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# Material Safety Data Sheet

## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

### CHEVRON REGULAR UNLEADED GASOLINE

**Product Number(s):** CPS201000 [See Section 16 for Additional Product Numbers]

**Synonyms:** Calco Regular Unleaded Gasoline

**Company Identification**

Chevron Products Company  
Marketing, MSDS Coordinator  
6001 Bollinger Canyon Road  
San Ramon, CA 94583  
United States of America

**Transportation Emergency Response**

CHEMTREC: (800) 424-9300 or (703) 527-3887

**Health Emergency**

ChevronTexaco Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

**Product Information**

Technical Information: (510) 242-5357

**SPECIAL NOTES:** This MSDS applies to: Federal Reformulated Gasoline, California Reformulated Gasoline, Wintertime Oxygenated Gasoline, Low RVP Gasoline and Conventional Gasoline.

## SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Gasoline	86290-81-5	100 %volume
Benzene	71-43-2	0.1 - 4.9 %volume
Ethyl benzene	100-41-4	0.1 - 3 %volume
Naphthalene	91-20-3	0.1 - 2 %volume
Ethanol	64-17-5	0 - 10 %volume
Methyl tert-butyl ether (MTBE)	1634-04-4	0 - 15 %volume
Tertiary amyl methyl ether (TAME)	994-05-8	0 - 17 %volume
Ethyl tert-butyl ether (ETBE)	637-92-3	0 - 18 %volume

Motor gasoline is considered a mixture by EPA under the Toxic Substances Control Act (TSCA). The refinery streams used to blend motor gasoline are all on the TSCA Chemical Substances Inventory. The appropriate CAS number for refinery blended motor gasoline is 86290-81-5. The product specifications of motor gasoline sold in your area will depend on applicable Federal and State regulations.

### SECTION 3 HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

- EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE
- HARMFUL OR FATAL IF SWALLOWED - MAY CAUSE LUNG DAMAGE IF SWALLOWED
- VAPOR HARMFUL
- CAUSES SKIN IRRITATION
- CAUSES EYE IRRITATION
- LONG-TERM EXPOSURE TO VAPOR HAS CAUSED CANCER IN LABORATORY ANIMALS
- KEEP OUT OF REACH OF CHILDREN
- TOXIC TO AQUATIC ORGANISMS

#### IMMEDIATE HEALTH EFFECTS

**Eye:** Contact with the eyes causes irritation. Symptoms may include pain, tearing, reddening, swelling and impaired vision.

**Skin:** Contact with the skin causes irritation. Skin contact may cause drying or defatting of the skin. Symptoms may include pain, itching, discoloration, swelling, and blistering. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

**Ingestion:** Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death.

**Inhalation:** The vapor or fumes from this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

#### DELAYED OR OTHER HEALTH EFFECTS:

**Reproduction and Birth Defects:** This material is not expected to cause birth defects or other harm to the developing fetus based on animal data.

**Cancer:** Prolonged or repeated exposure to this material may cause cancer. Gasoline has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains benzene, which has been classified as a carcinogen by the National Toxicology Program (NTP) and a Group 1 carcinogen (carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains ethylbenzene which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Whole gasoline exhaust has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Risk depends on duration and level of exposure. See Section 11 for additional information.

### SECTION 4 FIRST AID MEASURES

**Eye:** Flush eyes with water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing, and continue flushing for at least 15 minutes. Get medical attention if irritation persists.

**Skin:** Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

**Ingestion:** If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

**Inhalation:** Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.

**Note to Physicians:** Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

## SECTION 5 FIRE FIGHTING MEASURES

See Section 7 for proper handling and storage.

### FIRE CLASSIFICATION:

OSHA Classification (29 CFR 1910.1200): Flammable liquid.

**NFPA RATINGS:** Health: 1 Flammability: 3 Reactivity: 0

### FLAMMABLE PROPERTIES:

**Flashpoint:** (Tagliabue Closed Cup) < -45 °C (< -49 °F)

**Autolignition:** > 280 °C (> 536 °F)

**Flammability (Explosive) Limits (% by volume in air):** Lower: 1.4 Upper: 7.6

**EXTINGUISHING MEDIA:** Dry Chemical, CO<sub>2</sub>, AFFF Foam or alcohol resistant foam if >15% volume polar solvents (oxygenates).

### PROTECTION OF FIRE FIGHTERS:

**Fire Fighting Instructions:** Use water spray to cool fire-exposed containers and to protect personnel. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

**Combustion Products:** Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

## SECTION 6 ACCIDENTAL RELEASE MEASURES

**Protective Measures:** Eliminate all sources of ignition in the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.

**Spill Management:** Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

**Reporting:** Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required. This material is covered by EPA's Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Petroleum Exclusion. Therefore, releases to the environment may not be reportable under CERCLA.

## SECTION 7 HANDLING AND STORAGE

**Precautionary Measures:** READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL. This product presents an extreme fire hazard. Liquid very quickly evaporates, even at low temperatures, and forms vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Never siphon gasoline by mouth.

Use only as a motor fuel. Do not use for cleaning, pressure appliance fuel, or any other such use. Do not store in open or unlabeled containers. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Wash thoroughly after handling. Keep out of the reach of children.

**Unusual Handling Hazards:** WARNING! Do not use as portable heater or appliance fuel. Toxic fumes may accumulate and cause death.

**General Handling Information:** Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

**Static Hazard:** Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating an accumulation of electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'. Improper filling of portable gasoline containers creates danger of fire. Only dispense gasoline into approved and properly labeled gasoline containers. Always place portable containers on the ground. Be sure pump nozzle is in contact with the container while filling. Do not use a nozzle's lock-open device. Do not fill portable containers that are inside a vehicle or truck/trailer bed.

**General Storage Information:** DO NOT USE OR STORE near heat, sparks or open flames. USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.

**Container Warnings:** Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

## SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

### GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

### ENGINEERING CONTROLS:

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

### PERSONAL PROTECTIVE EQUIPMENT

**Eye/Face Protection:** No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

**Skin Protection:** No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber, Polyurethane, Viton.

**Respiratory Protection:** Determine if airborne concentrations are below the recommended exposure limits. If not, wear an approved respirator that provides adequate protection from measured concentrations of this

material, such as: Air-Purifying Respirator for Organic Vapors.

When used as a fuel, this material can produce carbon monoxide in the exhaust. Determine if airborne concentrations are below the occupational exposure limit for carbon monoxide. If not, wear an approved positive-pressure air-supplying respirator.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

#### Occupational Exposure Limits:

Component	Limit	TWA	STEL	Ceiling	Notation
Benzene	ACGIH_TLV	.5 ppm	2.5 ppm		Skin A1
Benzene	OSHA_PEL	1 ppm	5 ppm		
Benzene	OSHA_Z2	10 ppm		25 ppm	
Ethanol	ACGIH_TLV	1000 ppm			A4
Ethanol	OSHA_PEL	1000 ppm			
Ethyl benzene	ACGIH_TLV	100 ppm	125 ppm		A3
Ethyl benzene	OSHA_PEL	100 ppm	125 ppm		
Ethyl tert-butyl ether (ETBE)	ACGIH_TLV	5 ppm			
Gasoline	ACGIH_TLV	300 ppm	500 ppm		A3
Gasoline	OSHA_PEL	300 ppm	500 ppm		
Methyl tert-butyl ether (MTBE)	ACGIH_TLV	50 ppm			A3
Naphthalene	ACGIH_TLV	10 ppm	15 ppm		Skin A4
Naphthalene	OSHA_PEL	10 ppm	15 ppm		
Tertiary amyl methyl ether (TAME)	CHEVRON		50 ppm		

Refer to the OSHA Benzene Standard (29 CFR 1910.1028) and Table Z-2 for detailed training, exposure monitoring, respiratory protection and medical surveillance requirements before using this product.

#### SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

**Attention: the data below are typical values and do not constitute a specification.**

**Color:** Colorless to yellow  
**Physical State:** Liquid  
**Odor:** Petroleum odor  
**pH:** NA  
**Vapor Pressure:** 5 psi - 15 psi (Typical) @ 37.8°C (100°F)  
**Vapor Density (Air = 1):** 3 - 4 (Typical)  
**Boiling Point:** 37.8°C (100°F) - 204.4°C (400°F) (Typical)  
**Solubility:** Insoluble in water; miscible with most organic solvents.  
**Freezing Point:** NA  
**Melting Point:** NA  
**Specific Gravity:** 0.7 g/ml - 0.8 g/ml @ 15.6°C (60.1°F)  
**Viscosity:** <1 SUS @ 37.8°C (100°F)

## SECTION 10 STABILITY AND REACTIVITY

**Chemical Stability:** This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

**Incompatibility With Other Materials:** May react with strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

**Hazardous Decomposition Products:** None known (None expected)

**Hazardous Polymerization:** Hazardous polymerization will not occur.

## SECTION 11 TOXICOLOGICAL INFORMATION

### IMMEDIATE HEALTH EFFECTS

**Eye Irritation:** The Draize eye irritation mean score in rabbits for a 24-hour exposure was: 0/110.

**Skin Irritation:** For a 4-hour exposure, the Primary Irritation Index (PII) in rabbits is: 4.8/8.0.

**Skin Sensitization:** This material did not cause sensitization reactions in a Modified Buehler guinea pig test.

**Acute Dermal Toxicity:** 24 hour(s) LD50: >3.75g/kg (rabbit).

**Acute Oral Toxicity:** LD50: >5 ml/kg (rat)

**Acute Inhalation Toxicity:** 4 hour(s) LD50: >2000ppm (rat).

### ADDITIONAL TOXICOLOGY INFORMATION:

Gasolines are highly volatile and can produce significant concentrations of vapor at ambient temperatures. Gasoline vapor is heavier than air and at high concentrations may accumulate in confined spaces to present both safety and health hazards. When vapor exposures are low, or short duration and infrequent, such as during refuelling and tanker loading/unloading, neither total hydrocarbon nor components such as benzene are likely to result in any adverse health effects. In situations such as accidents or spills where exposure to gasoline vapor is potentially high, attention should be paid to potential toxic effects of specific components. Information about specific components in gasoline can be found in Sections 2, 8 and 15 of this MSDS. More detailed information on the health hazard of specific gasoline components can be obtained calling the Chevron Emergency Information Center (see Section 1 for phone numbers).

**NEUROTOXICITY:** Pathological misuse of solvents and gasoline, involving repeated and prolonged exposure to high concentrations of vapor is a significant exposure on which there are many reports in the medical literature. As with other solvents, persistent abuse involving repeated and prolonged exposures to high concentrations of vapor has been reported to result in central nervous system damage and eventually, death. In a study in which ten human volunteers were exposed for 30 minutes to approximately 200, 500 or 1000 ppm concentrations of gasoline vapor, irritation of the eyes was the only significant effect observed, based on both subjective and objective assessments. In an inhalation study, groups of 6 Fischer rats (3 male, 3 female) were exposed to 2056 ppm of wholly vaporized unleaded gasoline for 6 hours per day, 5 day per week for up to 18 months. Histopathology of the peripheral nervous system and spinal cord revealed no distal axonal neuropathy of the type associated with exposure to n-hexane even though gasoline contained 1.9% n-hexane. The authors concluded that gasoline treatment may have amplified the incidence and prominence of some naturally occurring age-related (subclinical) in the nervous system. **BIRTH DEFECTS AND REPRODUCTIVE TOXICITY:** An inhalation study with rats exposed to 0, 400 and 1600 ppm of wholly vaporized unleaded gasoline, 6 hours per day on day 6 through 16 of gestation, showed no teratogenic effects nor indication of toxicity to either the mother

or the fetus. Another inhalation study in rats exposed to 3000, 6000, or 9000 ppm of gasoline vapor, 6 hours per day on day 6 through 20 of gestation, also showed no teratogenic effects nor indications of toxicity to either the mother or the fetus.

**CHRONIC TOXICITY/CANCER:** Wholly vaporized unleaded gasoline was used in a 3 month inhalation study. Groups of 40 rats (20 males, 20 female) and 8 squirrel monkeys (4 male, 4 female) were exposed 6 hours per day and 5 days per week for 13 weeks to 384 or 1552 ppm gasoline. One group of each species served as unexposed controls. The initial conclusion of this study was that inhalation of gasoline at airborne concentrations of up to 1522 ppm caused no toxicity in rats or monkeys. However, further histopathological examination of male rat kidneys on the highest dose group revealed an increased incidence and severity of regenerative epithelium and dilated tubules containing proteinaceous deposits. Lifetime inhalation of wholly vaporized unleaded gasoline at 2056 ppm has caused increased liver tumors in female mice. The mechanism of this response is still being investigated but it is thought to be an epigenetic process unique to the female mouse.

This exposure also caused kidney damage and eventually kidney cancer in male rats. No other animal model studied has shown these adverse kidney effects and there is no physiological reason to believe that they would occur in man. EPA has concluded that mechanism by which wholly vaporized unleaded gasoline causes kidney damage is unique to the male rat. The effects in that species (kidney damage and cancer) should not be used in human risk assessment. In their 1988 review of carcinogenic risk from gasoline, The International Agency for Research on Cancer (IARC) noted that, because published epidemiology studies did not include any exposure data, only occupations where gasoline exposure may have occurred were reviewed. These included gasoline service station attendants and automobile mechanics. IARC also noted that there was no opportunity to separate effects of combustion products from those of gasoline itself. Although IARC allocated gasoline a final overall classification of Group 2B, i.e. possibly carcinogenic to humans, this was based on limited evidence in experimental animals plus supporting evidence including the presence in gasoline of benzene and 1, 3-butadiene. The actual evidence for carcinogenicity in humans was considered inadequate.

**MUTAGENICITY:** Gasoline was not mutagenic, with or without activation, in the Ames assay (*Salmonella typhimurium*), *Saccharomyces cerevisiae*, or mouse lymphoma assays. In addition, point mutations were not induced in human lymphocytes. Gasoline was not mutagenic when tested in the mouse dominant lethal assay. Administration of gasoline to rats did not cause chromosomal aberrations in their bone marrow cells. **EPIDEMIOLOGY:** To explore the health effects of workers potentially exposed to gasoline vapors in the marketing and distribution sectors of the petroleum industry, the American Petroleum Institute sponsored a cohort mortality study (Publication 4555), a nested case-control study (Publication 4551), and an exposure assessment study (Publication 4552). Histories of exposure to gasoline were reconstructed for cohort of more than 18,000 employees from four companies for the time period between 1946 and 1985. The results of the cohort mortality study indicated that there was no increased mortality from either kidney cancer or leukemia among marketing and marine distribution employees who were exposed to gasoline in the petroleum industry, when compared to the general population. More importantly, based on internal comparisons, there was no association between mortality from kidney cancer or leukemia and various indices of gasoline exposure. In particular, neither duration of employment, duration of exposure, age at first exposure, year of first exposure, job category, cumulative exposure, frequency of peak exposure, nor average intensity of exposure had any effect on kidney cancer or leukemia mortality. The results of the nested case-control study confirmed the findings of the original cohort study. That is, exposure to gasoline at the levels experienced by this cohort of distribution workers is not a significant risk factor for leukemia (all cell types), acute myeloid leukemia, kidney cancer or multiple myeloma.

## SECTION 12 ECOLOGICAL INFORMATION

### ECOTOXICITY

The 96 hour(s) LC50 for rainbow trout (*Oncorhynchus mykiss*) is 2.7 mg/l.

The 48 hour(s) LC50 for water flea (*Daphnia magna*) is 3.0 mg/l.

The 96 hour(s) LC50 for sheepshead minnow (*Cyprinodon variegatus*) is 8.3 mg/l.

The 96 hour(s) LC50 for mysid shrimp (*Mysidopsis bahia*) is 1.8 mg/l.

This material is expected to be toxic to aquatic organisms. Gasoline studies have been conducted in the laboratory under a variety of test conditions with a range of fish and invertebrate species. An even more extensive database is available on the aquatic toxicity of individual aromatic constituents. The majority of published studies do not identify the type of gasoline evaluated, or even provide distinguishing characteristics such as aromatic content or presence of lead alkyls. As a result, comparison of results among studies using open

and closed vessels, different ages and species of test animals and different gasoline types, is difficult.

The bulk of the available literature on gasoline relates to the environmental impact of monoaromatic (BTEX) and diaromatic (naphthalene, methylnaphthalenes) constituents. In general, non-oxygenated gasoline exhibits some short-term toxicity to freshwater and marine organisms, especially under closed vessel or flow-through exposure conditions in the laboratory. The components which are the most prominent in the water soluble fraction and cause aquatic toxicity, are also highly volatile and can be readily biodegraded by microorganisms.

#### ENVIRONMENTAL FATE

This material is expected to be readily biodegradable. Following spillage, the more volatile components of gasoline will be rapidly lost, with concurrent dissolution of these and other constituents into the water. Factors such as local environmental conditions (temperature, wind, mixing or wave action, soil type, etc), photo-oxidation, biodegradation and adsorption onto suspended sediments, can contribute to the weathering of spilled gasoline.

The aqueous solubility of non-oxygenated unleaded gasoline, based on analysis of benzene, toluene, ethylbenzene+xylenes and naphthalene, is reported to be 112 mg/l. Solubility data on individual gasoline constituents also available.

#### SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

#### SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Name: GASOLINE  
 DOT Hazard Class: 3 (Flammable Liquid)  
 DOT Identification Number: UN1203  
 DOT Packing Group: II

#### SECTION 15 REGULATORY INFORMATION

<b>SARA 311/312 CATEGORIES:</b>	1. Immediate (Acute) Health Effects:	YES
	2. Delayed (Chronic) Health Effects:	YES
	3. Fire Hazard:	YES
	4. Sudden Release of Pressure Hazard:	NO
	5. Reactivity Hazard:	NO

#### REGULATORY LISTS SEARCHED:

4\_11=IARC Group 1

15=SARA Section 313

4_I2A=IARC Group 2A	16=CA Proposition 65
4_I2B=IARC Group 2B	17=MA RTK
05=NTP Carcinogen	18=NJ RTK
06=OSHA Carcinogen	19=DOT Marine Pollutant
09=TSCA 12(b)	20=PA RTK

The following components of this material are found on the regulatory lists indicated.

Benzene	15, 16, 17, 18, 20, 4_I1, 5, 6
Ethanol	17, 18, 20
Ethyl benzene	15, 17, 18, 20, 4_I2B
Gasoline	17, 18, 20
Methyl tert-butyl ether (MTBE)	15, 17, 18, 20, 9
Naphthalene	15, 16, 17, 18, 20, 4_I2B
Tertiary amyl methyl ether (TAME)	9

**CERCLA REPORTABLE QUANTITIES(RQ)/SARA 302 THRESHOLD PLANNING QUANTITIES(TPQ):**

Component	Component RQ	Component TPQ	Product RQ
Benzene	10 lbs	None	186 lbs
Ethanol	100 lbs	None	1961 lbs
Ethyl benzene	1000 lbs	None	34964 lbs
Methyl tert-butyl ether (MTBE)	1000 lbs	None	7513 lbs
Naphthalene	100 lbs	None	4000 lbs

**CHEMICAL INVENTORIES:**

CANADA: All the components of this material are on the Canadian DSL or have been notified under the New Substance Notification Regulations, but have not yet been published in the Canada Gazette.

UNITED STATES: All of the components of this material are on the Toxic Substances Control Act (TSCA) Chemical Inventory.

**WHMIS CLASSIFICATION:**

Class B, Division 2: Flammable Liquids  
 Class D, Division 2, Subdivision A: Very Toxic Material -  
 Carcinogenicity  
 Class D, Division 2, Subdivision B: Toxic Material -  
 Skin or Eye Irritation

<b>SECTION 16 OTHER INFORMATION</b>
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**NFPA RATINGS:** Health: 1 Flammability: 3 Reactivity: 0

(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, \*- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

**Additional Product Number(s):** CPS201023, CPS201054, CPS201055, CPS201075, CPS201090, CPS201105, CPS201106, CPS201120, CPS201121, CPS201122, CPS201126, CPS201128, CPS201131, CPS201136, CPS201141, CPS201142, CPS201148, CPS201153, CPS201158, CPS201161, CPS201162, CPS201168, CPS201181, CPS201185, CPS201186, CPS201188, CPS201216, CPS201217, CPS201218, CPS201236, CPS201237, CPS201238, CPS201266, CPS201267, CPS201268, CPS201277, CPS201278, CPS201279, CPS201286, CPS201287, CPS201289, CPS201296, CPS201297, CPS201298, CPS201849, CPS201850, CPS201855, CPS201856, CPS201857, CPS204000, CPS204001, CPS204002, CPS204003, CPS204010, CPS204011, CPS204022, CPS204023, CPS204046, CPS204047, CPS204070, CPS204071, CPS204088, CPS204089, CPS204104, CPS204105, CPS204116, CPS204117, CPS204140, CPS204141, CPS204164, CPS204165, CPS204188, CPS204189, CPS204200, CPS204201, CPS204212, CPS204213, CPS204224, CPS204225, CPS204248, CPS204249, CPS204272, CPS204273, CPS204290, CPS204291, CPS204322, CPS204323, CPS204324, CPS204350, CPS204352, CPS204354, CPS204356, CPS204358, CPS204359, CPS204364, CPS204365, CPS204370, CPS204371, CPS204376, CPS204377, CPS204382, CPS204383, CPS204388, CPS204389, CPS204394, CPS204395, CPS204400, CPS204401, CPS204406, CPS204407, CPS204412, CPS204413, CPS204418, CPS204419, CPS204424, CPS204425, CPS204430, CPS204431, CPS204436, CPS204437, CPS204442, CPS204446, CPS204450, CPS204454, CPS204458, CPS204462, CPS204466, CPS204467, CPS204484, CPS204485, CPS204502, CPS204503, CPS204520, CPS204521, CPS204538, CPS204539, CPS204556, CPS204557, CPS204574, CPS204575, CPS204592, CPS204593, CPS204610, CPS204611, CPS204628, CPS204629, CPS204646, CPS204647, CPS204664, CPS204665, CPS204682, CPS204690, CPS204691, CPS204696, CPS204697, CPS204702, CPS204703, CPS204708, CPS204709, CPS204721, CPS204722, CPS204727, CPS204728, CPS241765

**REVISION STATEMENT:** This revision updates the following sections of this Material Safety Data Sheet: Section 1 (Product Codes). This Material Safety Data Sheet has been prepared using the ProSteward MSDS system.

**ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:**

TLV	-	Threshold Limit Value	TWA	-	Time Weighted Average
STEL	-	Short-term Exposure Limit	PEL	-	Permissible Exposure Limit
			CAS	-	Chemical Abstract Service Number
NDA	-	No Data Available	NA	-	Not Applicable
<=	-	Less Than or Equal To	>=	-	Greater Than or Equal To

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the ChevronTexaco Energy Research & Technology Company, 100 Chevron Way, Richmond, California 94802.

**The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.**

# Material Safety Data Sheet

## Ethanol, Absolute

ACC# 89308

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Ethanol, Absolute**Catalog Numbers:** NC9602322**Synonyms:** Ethyl Alcohol; Ethyl Alcohol Anhydrous; Ethyl Hydrate; Ethyl Hydroxide; Fermentation Alcohol; Grain Alcohol; Methylcarbinol; Molasses Alcohol; Spirits of Wine.**Company Identification:**

Fisher Scientific  
1 Reagent Lane  
Fair Lawn, NJ 07410

**For information, call:** 201-796-7100**Emergency Number:** 201-796-7100**For CHEMTREC assistance, call:** 800-424-9300**For International CHEMTREC assistance, call:** 703-527-3887

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
64-17-5	Ethanol	ca.100	200-578-6

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

**Appearance:** colorless clear liquid. Flash Point: 16.6 deg C.

**Warning!** Causes severe eye irritation. **Flammable liquid and vapor.** Causes respiratory tract irritation. This substance has caused adverse reproductive and fetal effects in humans. May cause central nervous system depression. May cause liver, kidney and heart damage. Causes moderate skin irritation.

**Target Organs:** Kidneys, heart, central nervous system, liver.

#### Potential Health Effects

**Eye:** Causes severe eye irritation. May cause painful sensitization to light. May cause chemical conjunctivitis and corneal damage.

**Skin:** Causes moderate skin irritation. May cause cyanosis of the extremities.

**Ingestion:** May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause systemic toxicity with acidosis. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure.

**Inhalation:** Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. Causes respiratory tract irritation. May cause narcotic effects in high concentration. Vapors may cause dizziness or suffocation.

**Chronic:** May cause reproductive and fetal effects. Laboratory experiments have resulted in

mutagenic effects. Animal studies have reported the development of tumors. Prolonged exposure may cause liver, kidney, and heart damage.

## Section 4 - First Aid Measures

**Eyes:** Get medical aid. Gently lift eyelids and flush continuously with water.

**Skin:** Get medical aid. Wash clothing before reuse. Flush skin with plenty of soap and water.

**Ingestion:** Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.

**Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation.

**Notes to Physician:** Treat symptomatically and supportively. Persons with skin or eye disorders or liver, kidney, chronic respiratory diseases, or central and peripheral nervous system diseases may be at increased risk from exposure to this substance.

**Antidote:** None reported.

## Section 5 - Fire Fighting Measures

**General Information:** Containers can build up pressure if exposed to heat and/or fire. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Flammable Liquid. Can release vapors that form explosive mixtures at temperatures above the flashpoint. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire.

**Extinguishing Media:** For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water.

**Flash Point:** 16.6 deg C ( 61.88 deg F)

**Autoignition Temperature:** 363 deg C ( 685.40 deg F)

**Explosion Limits, Lower:** 3.3 vol %

**Upper:** 19.0 vol %

**NFPA Rating:** (estimated) Health: 2; Flammability: 3; Instability: 0

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Use only in a well-ventilated area. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or

vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

**Storage:** Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area. Do not store near perchlorates, peroxides, chromic acid or nitric acid.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Ethanol	1000 ppm TWA	1000 ppm TWA; 1900 mg/m <sup>3</sup> TWA 3300 ppm IDLH	1000 ppm TWA; 1900 mg/m <sup>3</sup> TWA

**OSHA Vacated PELs:** Ethanol: 1000 ppm TWA; 1900 mg/m<sup>3</sup> TWA

### Personal Protective Equipment

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

## Section 9 - Physical and Chemical Properties

**Physical State:** Clear liquid

**Appearance:** colorless

**Odor:** Mild, rather pleasant, like wine or whis

**pH:** Not available.

**Vapor Pressure:** 59.3 mm Hg @ 20 deg C

**Vapor Density:** 1.59

**Evaporation Rate:** Not available.

**Viscosity:** 1.200 cP @ 20 deg C

**Boiling Point:** 78 deg C

**Freezing/Melting Point:** -114.1 deg C

**Decomposition Temperature:** Not available.

**Solubility:** Miscible.

**Specific Gravity/Density:** 0.790 @ 20°C

**Molecular Formula:** C<sub>2</sub>H<sub>5</sub>OH

**Molecular Weight:** 46.0414

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures.

**Conditions to Avoid:** Incompatible materials, ignition sources, excess heat, oxidizers.

**Incompatibilities with Other Materials:** Strong oxidizing agents, acids, alkali metals, ammonia, hydrazine, peroxides, sodium, acid anhydrides, calcium hypochlorite, chromyl chloride, nitrosyl perchlorate, bromine pentafluoride, perchloric acid, silver nitrate, mercuric nitrate, potassium-tert-butoxide, magnesium perchlorate, acid chlorides, platinum, uranium hexafluoride, silver oxide, iodine heptafluoride, acetyl bromide, disulfuryl difluoride, tetrachlorosilane + water, acetyl chloride, permanganic acid, ruthenium (VIII) oxide, uranyl perchlorate, potassium dioxide.

**Hazardous Decomposition Products:** Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

**Hazardous Polymerization:** Will not occur.

## Section 11 - Toxicological Information

**RTECS#:**

**CAS# 64-17-5:** KQ6300000

**LD50/LC50:**

**CAS# 64-17-5:**

- Draize test, rabbit, eye: 500 mg Severe;
- Draize test, rabbit, eye: 500 mg/24H Mild;
- Draize test, rabbit, skin: 20 mg/24H Moderate;
- Inhalation, mouse: LC50 = 39 gm/m<sup>3</sup>/4H;
- Inhalation, rat: LC50 = 20000 ppm/10H;
- Oral, mouse: LD50 = 3450 mg/kg;
- Oral, rabbit: LD50 = 6300 mg/kg;
- Oral, rat: LD50 = 7060 mg/kg;
- Oral, rat: LD50 = 9000 mg/kg;

**Carcinogenicity:**

**CAS# 64-17-5:** Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** Ethanol has been shown to produce fetotoxicity in the embryo or fetus of laboratory animals. Prenatal exposure to ethanol is associated with a distinct pattern of congenital malformations that have collectively been termed the "fetal alcohol syndrome".

**Teratogenicity:** Oral, Human - woman: TDLo = 41 gm/kg (female 41 week(s) after conception) Effects on Newborn - Apgar score (human only) and Effects on Newborn - other neonatal measures or effects and Effects on Newborn - drug dependence.

**Reproductive Effects:** Intrauterine, Human - woman: TDLo = 200 mg/kg (female 5 day(s) pre-mating) Fertility - female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated).

**Neurotoxicity:** No information available.

**Mutagenicity:** DNA Inhibition: Human, Lymphocyte = 220 mmol/L.; Cytogenetic Analysis: Human, Lymphocyte = 1160 gm/L.; Cytogenetic Analysis: Human, Fibroblast = 12000 ppm.; Cytogenetic Analysis: Human, Leukocyte = 1 pph/72H (Continuous).; Sister Chromatid Exchange: Human, Lymphocyte = 500 ppm/72H (Continuous).

**Other Studies:** Standard Draize Test(Skin, rabbit) = 20 mg/24H (Moderate) Standard Draize Test: Administration into the eye (rabbit) = 500 mg (Severe).

## Section 12 - Ecological Information

**Ecotoxicity:** Fish: Rainbow trout: LC50 = 12900-15300 mg/L; 96 Hr; Flow-through @ 24-24.3°  
 CFish: Rainbow trout: LC50 = 11200 mg/L; 24 Hr; Fingerling (Unspecified) Bacteria:  
 Phytobacterium phosphoreum: EC50 = 34900 mg/L; 5-30 min; Microtox test When spilled on land it is apt to volatilize, biodegrade, and leach into the ground water, but no data on the rates of these processes could be found. Its fate in ground water is unknown. When released into water it will volatilize and probably biodegrade. It would not be expected to adsorb to sediment or bioconcentrate in fish.

**Environmental:** When released to the atmosphere it will photodegrade in hours (polluted urban atmosphere) to an estimated range of 4 to 6 days in less polluted areas. Rainout should be significant.

**Physical:** No information available.

**Other:** No information available.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

## Section 14 - Transport Information

	US DOT	Canada TDG
<b>Shipping Name:</b>	Not reviewed.	No information available.
<b>Hazard Class:</b>		
<b>UN Number:</b>		
<b>Packing Group:</b>		

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 64-17-5 is listed on the TSCA inventory.

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

#### SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

#### SARA Codes

CAS # 64-17-5: acute, chronic, flammable.

**Section 313** No chemicals are reportable under Section 313.

**Clean Air Act:**

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

**Clean Water Act:**

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**

None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**

CAS# 64-17-5 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

**California Prop 65**

WARNING: This product contains Ethanol, a chemical known to the state of California to cause developmental reproductive toxicity.

California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:**

F

**Risk Phrases:**

R 11 Highly flammable.

**Safety Phrases:**

S 16 Keep away from sources of ignition - No smoking.

S 33 Take precautionary measures against static discharges.

S 7 Keep container tightly closed.

S 9 Keep container in a well-ventilated place.

**WGK (Water Danger/Protection)**

CAS# 64-17-5: 0

**Canada - DSL/NDSL**

CAS# 64-17-5 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of B2, D2A.

**Canadian Ingredient Disclosure List**

CAS# 64-17-5 is listed on the Canadian Ingredient Disclosure List.

**Section 16 - Additional Information**

**MSDS Creation Date:** 7/27/1999

**Revision #4 Date:** 3/18/2003

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.*

MSDS Number: F5605 \*\*\*\*\* Effective Date: 03/24/06 \*\*\*\*\* Supersedes: 02/16/06

**MSDS** Material Safety Data SheetFrom: Mallinckrodt Baker, Inc.  
222 Rad Bohool Lane  
Phillipsburg, NJ 08868Mallinckrodt  
CHEMICALS24 Hour Emergency Telephone: 800-856-2151  
CHEMTREC: 1-800-424-9300National Response to Chemical  
DISASTERS: 615-884-4399Outside U.S. and Canada  
Cheapest: 703-687-0887NOTE: CHEMICALS, CAS/RTIC and Hazardous  
Response Center emergency numbers to be  
used only in the event of chemical emergencies  
(including spills, leaks, fires, explosions or accidents  
involving chemicals).

All non-emergency questions should be directed to Customer Service (1-800-552-2527) for assistance.

**Formalin, 10% v/v Solution, Neutralized****1. Product Identification**

Synonyms: None  
 CAS No.: 50-00-0  
 Molecular Weight: Not applicable to mixtures.  
 Chemical Formula: Not applicable to mixtures.  
 Product Codes:  
 J.T. Baker: M518  
 Mallinckrodt: E058

**2. Composition/Information on Ingredients**

Ingredient	CAS No	Percent	Hazardous
Formaldehyde	50-00-0	3 - 4%	Yes
Methyl Alcohol	67-56-1	1 - 1.5%	Yes
Water	7732-18-5	94 - 96%	No

**3. Hazards Identification****Emergency Overview**

**DANGER! MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. STRONG SENSITIZER. MAY CAUSE BLINDNESS. COMBUSTIBLE LIQUID AND VAPOR. SUSPECT CANCER HAZARD. CONTAINS FORMALDEHYDE WHICH MAY CAUSE CANCER.** Risk of cancer depends upon duration and level of exposure.

**SAF-T-DATA<sup>(TM)</sup> Ratings (Provided here for your convenience)**

Health Rating: 3 - Severe (Cancer Causing)  
 Flammability Rating: 2 - Moderate  
 Reactivity Rating: 2 - Moderate  
 Contact Rating: 3 - Severe (Life)  
 Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER  
 Storage Color Code: Blue (Health)

**Potential Health Effects**

The perception of formaldehyde by odor and eye irritation becomes less sensitive with time as one adapts to formaldehyde. This can lead to overexposure if a worker is relying on formaldehyde's warning properties to alert him or her to the potential for exposure.

**Inhalation:**

May cause sore throat, coughing, and shortness of breath. Causes irritation and sensitization of the respiratory tract. Concentrations of 25 to 30 ppm cause severe respiratory tract injury leading to pulmonary edema and pneumonitis. May be fatal in high concentrations.

**Ingestion:**

Can cause severe abdominal pain, violent vomiting, headache, and diarrhea. Larger doses may produce decreased body temperature, pain in the digestive tract, shallow respiration, weak irregular pulse, unconsciousness and death. Methanol component affects the optic nerve and may cause blindness.

**Skin Contact:**

Toxic. May cause irritation to skin with redness, pain, and possibly burns. Skin absorption may occur with symptoms paralleling those from ingestion. Formaldehyde is a severe skin irritant and sensitizer. Contact causes white discoloration, smarting, cracking and scaling.

**Eye Contact:**

Vapors cause irritation to the eyes with redness, pain, and blurred vision. Higher concentrations or splashes may cause irreversible eye damage.

**Chronic Exposure:**

Frequent or prolonged exposure to formaldehyde may cause hypersensitivity leading to contact dermatitis. Repeated or prolonged skin contact with formaldehyde may cause an allergic reaction in some people. Vision impairment and enlargement of liver may occur from methanol component. Formaldehyde is a suspected carcinogen (positive animal inhalation studies).

**Aggravation of Pre-existing Conditions:**

Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance. Previously exposed persons may have an allergic reaction to future exposures.

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#### 4. First Aid Measures

**Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Ingestion:**

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Skin Contact:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

---

#### 5. Fire Fighting Measures

**Fire:**

Flash point: 85C (185F) CC

Combustible liquid and vapor! Gas vaporizes from solution and is flammable in air.

**Explosion:**

Above the flash point, explosive vapor-air mixtures may be formed. Containers may explode when involved in a fire.

**Fire Extinguishing Media:**

Water spray, dry chemical, alcohol foam, or carbon dioxide.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Water spray may be used to keep fire exposed containers cool. Use water spray to blanket fire, cool fire exposed containers, and to flush non-ignited spills or vapors away from fire.

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#### 6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

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#### 7. Handling and Storage

Store in a tightly closed container. Protect against physical damage. Outside or detached storage is preferred. Inside storage should be in a standard flammable liquids storage room or cabinet. Separate from oxidizing materials. Storage and use areas should be No Smoking areas. Wear special protective equipment (Sec. 8) for maintenance break-in or where exposures may exceed established exposure levels. Wash hands, face, forearms and neck when exiting restricted areas. Shower, dispose of outer clothing, change to clean garments at the end of the day. Avoid cross-contamination of street clothes. Wash hands before eating and do not eat, drink, or smoke in workplace. Protect from freezing. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

---

#### 8. Exposure Controls/Personal Protection

**Airborne Exposure Limits:**

-OSHA Permissible Exposure Limit (PEL):

0.75 ppm (TWA), 2 ppm (STEL), 0.5 ppm (TWA) action level for formaldehyde

200 ppm (TWA) for methanol

-ACGIH Threshold Limit Value (TLV):

0.3 ppm Ceiling formaldehyde, Sensitizer, A2 Suspected Human Carcinogen

200 ppm (TWA) 250 ppm (STEL) skin for methanol

**Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

**Personal Respirators (NIOSH Approved):**

If the exposure limit is exceeded and engineering controls are not feasible, a full facepiece respirator with a formaldehyde cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in oxygen-deficient atmospheres. Irritation also provides warning. For Methanol: If the exposure limit is exceeded and engineering controls are not feasible, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus. Breathing air quality must meet the requirements of the OSHA respiratory protection standard (29CFR 1910.134). Where respirators are required, you must have a written program covering the basic requirements in the OSHA respirator standard. These include training, fit testing, medical approval, cleaning, maintenance, cartridge change schedules, etc. See

29CFR1910.134 for details.

**Skin Protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

**Eye Protection:**

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

**Other Control Measures:**

See OSHA Standard for more information on personal protective equipment, engineering and work practice controls, medical surveillance, record keeping, and reporting requirements. (29 CFR 1910.1048)

### 9. Physical and Chemical Properties

**Appearance:**

Clear, colorless liquid.

**Odor:**

Pungent odor.

**Solubility:**

Complete (100%)

**Specific Gravity:**

1.09

**pH:**

No information found.

**% Volatiles by volume @ 21C (70F):**

100

**Boiling Point:**

ca. 100C (ca. 212F)

**Melting Point:**

ca. 0C (ca. 32F)

**Vapor Density (Air=1):**

Essentially the same as water.

**Vapor Pressure (mm Hg):**

Essentially the same as water.

**Evaporation Rate (BuAc=1):**

Essentially the same as water.

### 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage.

**Hazardous Decomposition Products:**

May form carbon dioxide, carbon monoxide, and formaldehyde when heated to decomposition.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Incompatible with oxidizing agents and alkalis. Reacts explosively with nitrogen dioxide at ca. 180C (356F). Reacts violently with perchloric acid, perchloric acid-aniline mixtures, and nitromethane. Reaction with hydrochloric acid may form bis-chloromethyl ether, an OSHA regulated carcinogen.

**Conditions to Avoid:**

Heat, flames, ignition sources and incompatibles.

### 11. Toxicological Information

Formaldehyde: Oral rat LD50: 100 mg/kg; skin rabbit LD50: 270 uL/kg. Irritation data: eye, rabbit, 750ug Severe; inhalation rat LC50: 203 mg/m3; investigated as a tumorigen, mutagen, reproductive effector; Cancer Status: an OSHA regulated carcinogen. Methanol: oral rat LD50: 5628 mg/kg; inhalation rat LC50: 64000 ppm/4H; skin rabbit LD50: 15800 mg/kg; investigated as a tumorigen, mutagen, reproductive effector.

-----\Cancer Lists\-----

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Formaldehyde (50-00-0)	No	Yes	2A
Methyl Alcohol (67-56-1)	No	No	None
Water (7732-18-5)	No	No	None

### 12. Ecological Information

**Environmental Fate:**

The following statements refer to the environmental fate of formaldehyde. When released into the soil, this material is expected to leach into groundwater. When released into water, this material is expected to readily biodegrade. When released into water, this material is not expected to evaporate significantly. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to be readily degraded by photolysis. When released into the air, this material is expected to be readily removed from the atmosphere by dry and wet deposition. When released into the air, this material is expected to have a half-life of less than 1 day.

The following statements refer to the environmental fate of methanol. When released into the soil, this material is expected to readily biodegrade. When released into the soil, this material is expected to quickly evaporate. When released into water, this material is expected to readily biodegrade. When released into the water, this material is expected to have a half-life between 1 and 10 days. When

released into the air, this material is expected to exist in the aerosol phase with a short half-life. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to be readily removed from the atmosphere by wet deposition. When released into air, this material is expected to have a half-life between 10 and 30 days.

**Environmental Toxicity:**

The following toxicity information is for the formaldehyde portion. This material is expected to be slightly toxic to aquatic life. The LC50/96-hour values for fish are between 10 and 100 mg/l.

The methanol portion is expected to be slightly toxic to aquatic life. The LC50/96-hour values for fish are between 10 and 100 mg/l.

**13. Disposal Considerations**

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

**14. Transport Information**

Not regulated.

**15. Regulatory Information**

-----\Chemical Inventory Status - Part 1\-----				
Ingredient	TSCA	EC	Japan	Australia
Formaldehyde (50-00-0)	Yes	Yes	Yes	Yes
Methyl Alcohol (67-56-1)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----				
Ingredient	Korea	--Canada--		Phil.
		DSL	NDSL	
Formaldehyde (50-00-0)	Yes	Yes	No	Yes
Methyl Alcohol (67-56-1)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----				
Ingredient	-SARA 302-		-SARA 313-	
	RO	TPQ	List	Chemical Catg.
Formaldehyde (50-00-0)	100	500	Yes	No
Methyl Alcohol (67-56-1)	No	No	Yes	No
Water (7732-18-5)	No	No	No	No

-----\Federal, State & International Regulations - Part 2\-----				
Ingredient	CERCLA	-RCRA-	-TSCA-	
			261.33	8(d)
Formaldehyde (50-00-0)	100	VI22	No	
Methyl Alcohol (67-56-1)	5000	UI54	No	
Water (7732-18-5)	No	No	No	

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No  
 SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No  
 Reactivity: No (Mixture / Liquid)

**WARNING:**

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

Australian Hazchem Code: None allocated.

Poison Schedule: None allocated.

**WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

**16. Other Information**

NFPA Ratings: Health: 2 Flammability: 2 Reactivity: 0

Label Hazard Warning:

**DANGER! MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. STRONG SENSITIZER. MAY CAUSE BLINDNESS. COMBUSTIBLE LIQUID AND VAPOR. SUSPECT CANCER HAZARD. CONTAINS FORMALDEHYDE WHICH MAY CAUSE CANCER. Risk of cancer depends upon duration and level of exposure.**

Label Precautions:

Keep away from heat, sparks and flame.

Do not breathe vapor.

Keep container closed.

Use only with adequate ventilation.

Wash thoroughly after handling.

Do not get in eyes, on skin, or on clothing.

Physical and health hazard information is available from employer and from material safety data sheets.

**Label First Aid:**

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. In all cases get medical attention immediately.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

MSDS Section(s) changed since last revision of document include: 3.

**Disclaimer:**

\*\*\*\*\*  
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\*\*\*\*\*

Prepared by: Environmental Health & Safety  
Phone Number: (314) 654-1600 (U.S.A.)

## Material Data Safety Sheet (MSDS): ISOPROPYL ALCOHOL

<b>1. Product Identification</b>	<b>7. Handling and Storage</b>
<b>2. Composition</b>	<b>8. Exposure Controls/Personal Protection</b>
<b>3. Hazards Identification</b>	<b>9. Physical and Chemical Properties</b>
<b>4. First Aid Measures</b>	<b>10. Stability and Reactivity</b>
<b>5. Fire Fighting Measures</b>	<b>11. Toxicological Information</b>
<b>6. Accidental Release Measures</b>	<b>12. Ecological Information</b>
	<b>13. Disposal Considerations</b>
	<b>16. Other Information</b>

Note: This information sheet has been re-formatted for better clarity by the Department of Earth Sciences.

Some of the data such as information on shipping and weapons treaties were intentionally left out. If you want to look at the complete MSDS, you can either check one of the hardcopy versions in the Department, contact the manufacturer, or check one of the various Web-based databases such as those compiled by BU's Office of Environmental Health & Safety ([www.bu.edu/ehs/msds/index.htm](http://www.bu.edu/ehs/msds/index.htm)).  
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### 1. Product Identification

MSDS Name: **Isopropanol, anhydrous, 99.8+%**

Synonyms: **2-Propanol, Isopropyl alcohol, IPA**

Company Identification: **Acros Organics N.V.**

One Reagent Lane

Fairlawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

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### 2. Composition/Information on Ingredients

CAS#	Chemical Name	%	EINECS#

67-63-0	Isopropanol	99+%	200-661-7
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Hazard Symbols: F  
Risk Phrases: 11

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### 3. Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: clear. Flash Point: 12 deg C.

**Warning! Flammable liquid.** May cause skin irritation. Hygroscopic. May cause central nervous system depression. May cause kidney damage. May form explosive peroxides. May cause reproductive effects based upon animal studies. May cause severe eye irritation and possible injury. Causes digestive and respiratory tract irritation. Target Organs: Kidneys, central nervous system.

#### Potential Health Effects

Eye:

Produces irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury.

Skin:

May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis. May cause irritation with pain and stinging, especially if the skin is abraded.

Ingestion:

May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause kidney damage. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure.

Inhalation:

Inhalation of high concentrations may cause central nervous system effects characterized by headache, dizziness, unconsciousness and coma. Inhalation of vapor may cause respiratory tract irritation. May cause narcotic effects.

Chronic:

Prolonged or repeated skin contact may cause defatting and dermatitis. May cause allergic skin reaction in some individuals.

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### 4. First Aid Measures

Eyes:

Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid immediately.

Skin:

Get medical aid if irritation develops or persists. Flush skin with plenty of soap and water.

Ingestion:

If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately. Induce vomiting by giving one teaspoon of Syrup of Ipecac.

Inhalation:

Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician:

Urine acetone test may be helpful in diagnosis.

Antidote:

None reported

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## 5. Fire Fighting Measures

General Information:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors can travel to a source of ignition and flash back. Containers may explode in the heat of a fire. This chemical poses an explosion hazard. May form explosive peroxides. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

Extinguishing Media:

For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective.

Autoignition Temperature: 425 deg C ( 797.00 deg F)

Flash Point: 12 deg C ( 53.60 deg F)

NFPA Rating: health-1; flammability-3; reactivity-0

Explosion Limits, Lower: 2.00 vol %

Upper: 12.00 vol %

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## 6. Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Absorb spill with inert material, (e.g., dry sand or earth), then place into a chemical waste container. Remove all sources of ignition.

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## 7. Handling and Storage

### Handling:

Use only in a well ventilated area. Use spark-proof tools and explosion proof equipment. Avoid contact with skin and eyes. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

### Storage:

Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Flammables-area.

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## 8. Exposure Controls/Personal Protection

### Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Isopropanol	400 ppm ; 983 mg/m <sup>3</sup> ; 500 ppm STEL; 1230 mg/m <sup>3</sup> STEL	400 ppm TWA; 980 mg/m <sup>3</sup> TWA 2000 ppm IDLH (lower explosive limit)	400 ppm TWA; 980 mg/m <sup>3</sup> TWA

### OSHA Vacated PELs:

Isopropanol: 400 ppm TWA; 980 mg/m<sup>3</sup> TWA

## Personal Protective Equipment

Eyes:

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:

Wear appropriate gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to minimize contact with skin.

Respirators:

A respiratory protection program that meets OSHA's 29 CFR [1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

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## 9. Physical and Chemical Properties (Isopropanol)

Appearance:	Clear liquid
Odor:	Solvent odor
Solubility:	soluble in water
Density:	0.7850 g/cm <sup>3</sup>
pH:	Not available
% Volatiles by volume @ 21C (70F):	Not available
Boiling Point:	82.2 deg C @ 760.00mm Hg
Melting Point:	-88 deg C
Vapor Density (Air=1):	2.1
Vapor Pressure:	43 mbar @ 20 deg C
Evaporation Rate (n-Butyl Acetate=1):	1.5
Viscosity:	2.27 mPas 20 de

Molecular Formula: C<sub>3</sub>H<sub>8</sub>O

Molecular Weight: 60.10

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## 10. Stability and Reactivity

Chemical Stability:

Stable. This material may be sensitive to peroxide formation.

Conditions to Avoid:

Ignition sources, exposure to moist air or water.

Incompatibilities with Other Materials:

Oxidizing agents, acetaldehyde, chlorine, ethylene oxide, acids and isocyanates, hydrogen + palladium, nitroform, oleum, phosgene, potassium t-butoxide, oxygen, trinitromethane, barium perchlorate, tetrafluoroborate, chromium trioxide, sodium dichromate + sulfuric acid, aluminum, and aluminum triisopropoxide. It has also been reported to be susceptible to autoxidation and should therefore be considered peroxidizable. Refer to the NFPA manual for more specific information.

Hazardous Decomposition Products:

Carbon monoxide, carbon dioxide.

Hazardous Polymerization: Has not been reported

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## 11. Toxicological Information

RTECS#:

CAS# 67-63-0: NT8050000

LD50/LC50:

CAS# 67-63-0: Oral, mouse: LD50 = 3600 mg/kg; Oral, rabbit: LD50 = 6410 mg/kg; Oral, rat: LD50 = 5045 mg/kg; Skin, rabbit: LD50 = 12800 mg/kg.

Carcinogenicity:

Isopropanol -

IARC: Group 3 carcinogen

Epidemiology:

Early epidemiological studies suggested an association between the strong acid manufacture of isopropyl alcohol and paranasal sinus cancer in workers. The risk of laryngeal cancer may also be increased in these workers. However, it has not been tested adequately in animals to assess its carcinogenicity.

Teratogenicity:

No data available.

Reproductive Effects:

orl-rat TDLo:11340 mg/kg (45D pre) orl-rat TDLo:5040 mg/kg (1-20D preg) orl-rat TDLo:20160 mg/kg (1-20D preg) orl-rat TDLo:32400 mg/kg (26W pre) ihl-rat TDLo:3500 ppm/7H (1-19D preg) ihl-rat TDLo:10000 ppm/7H (1-19D preg) ihl-rat TDLo:7000 ppm/7H (1-19D preg) orl-man TDLo:14432 mg/kg orl-hmn TDLo:223 mg/kg orl-man LDLo:5272 mg/kg orl-hmn LDLo:3570 mg/kg

Neurotoxicity:

No data available.

Mutagenicity:

No data available.

Other Studies:

No data available.

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## 12. Ecological Information

Ecotoxicity:

Acute aquatic effects: Fathead minnow: LC50 = 1000 mg/L/96 Hr. Golden orfe: LC50 = 8970 mg/L/48 Hr. goldfish: LC50 = GT5000 mg/L/24 Hr.

Environmental Fate:

This chemical has a low potential to affect aquatic organisms, secondary waste treatment microorganisms, the germination and growth of some plants. It is readily biodegradable and is not expected to persist in an aquatic environment. It is not likely to bioconcentrate and is not expected to have any adverse environmental impact.

Physical/Chemical:

None

Other:

None

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## 13. Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

RCRA D-Series Maximum Concentration of Contaminants: None listed.

RCRA D-Series Chronic Toxicity Reference Levels: None listed.

RCRA F-Series: None listed.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

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## 16. Other Information

MSDS Creation Date: 10/31/1995 Revision #7 Date: 10/16/1997

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of

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**From:** Montz, Matthew Thomas [MTMONTZ@SOUTHERNCO.COM]  
**Sent:** Thursday, April 03, 2008 3:47 PM  
**To:** Ponstein, Jonathan B.  
**Cc:** Garrett, William E., Jr.  
**Subject:** RE: Vogtle HZI

**Attachments:** Detail Intake.pdf; Picture (Metafile)

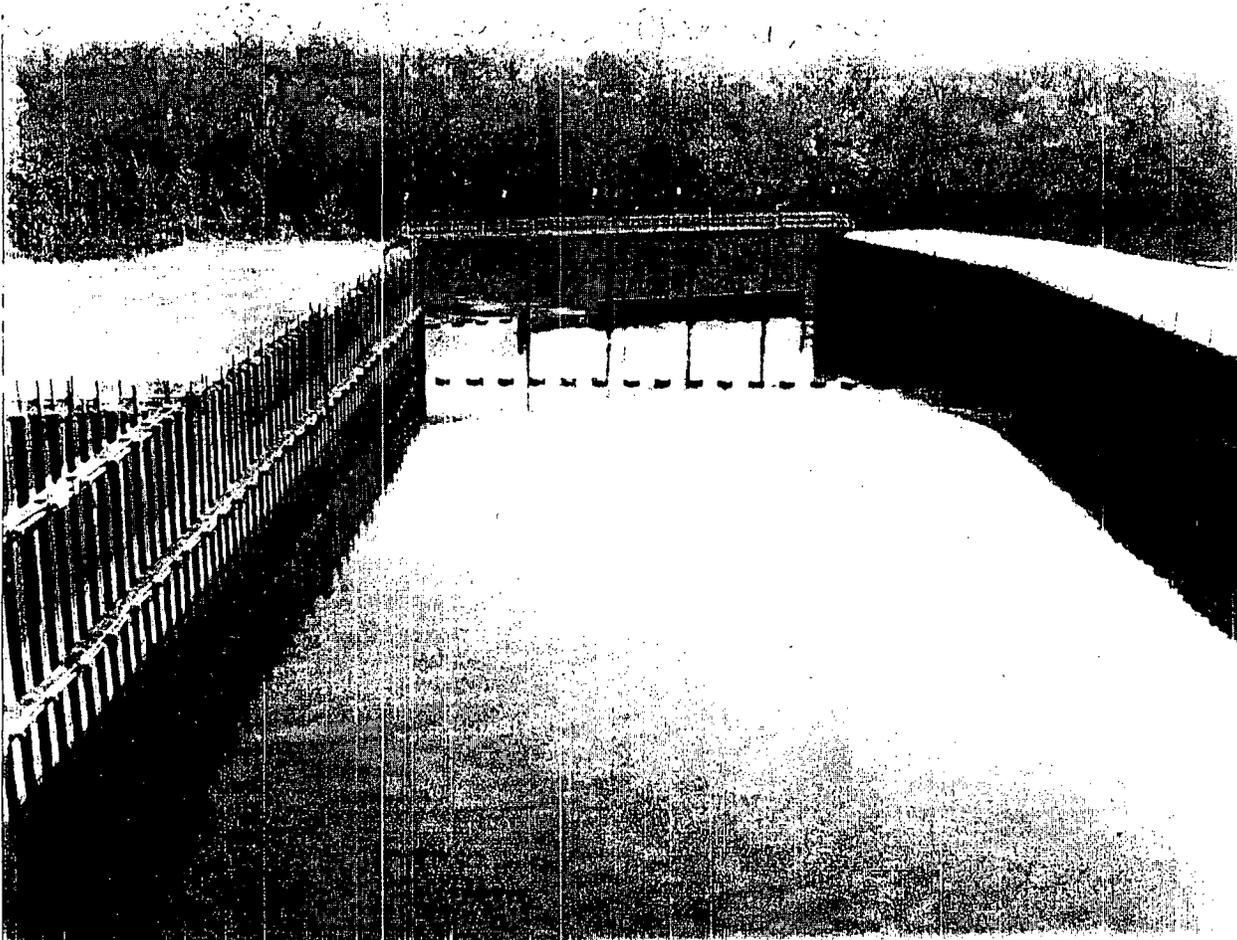
Jon,

The intake structure is approximately 140 feet wide by 310 feet long. A copy of design drawing is here:



Detail  
ake.pdf (432 K)

A link to google maps for an aerial photo of the intake is here:



There is a GPC owned boat launch just south of the site. Access to the intake canal by boat (if needed) may be difficult, but not impossible to arrange with plant so give me some time to work on if access is necessary. Also, during low water, access will be physically impossible due to submerged sheet pile wall.

Hope this helps out. Let me know if you need any more info. Thanks,

**Matthew T. Montz**  
Office 205-992-5629

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**From:** Ponstein, Jonathan B.  
**Sent:** Thursday, April 03, 2008 10:57 AM  
**To:** Montz, Matthew Thomas  
**Cc:** Garrett, William E., Jr.  
**Subject:** RE: Vogtle HZI

Matthew,  
Is it possible to get a site map (or aerial photo) showing the intake structure and surrounding waters (intake canal, river, etc.)? What is the size of the intake canal, and is it isolated enough that only the plant intake water passes through? Also, is there river access from the plant site or a nearby boat launch?

Thanks,  
Jon Ponstein, P.E.  
Alabama Power  
Environmental Affairs  
Field Services  
8-255-6459

---

**From:** Garrett, William E., Jr.  
**Sent:** Wednesday, April 02, 2008 9:28 AM  
**To:** Montz, Matthew Thomas  
**Cc:** Ponstein, Jonathan B.  
**Subject:** RE: Vogtle HZI

Now, get with Jon Ponstein. He will will out all the details with you.

---

**From:** Montz, Matthew Thomas  
**Sent:** Wednesday, April 02, 2008 9:18 AM  
**To:** Garrett, William E., Jr.  
**Cc:** Ponstein, Jonathan B.  
**Subject:** RE: Vogtle HZI

Looks fine to me Bill, thanks. Couple of questions...do you see a need for any Plant support and will you require access to the intake canal? If so, what type? Both of these will take a little time to coordinate with the plant so let me know in advance. Also, since this is nuclear space, there will be some additional prep work on my side (aka red tape). What is your availability this spring and summer?

Thanks,

**Matthew T. Montz**  
Office 205-992-5629

---

**From:** Garrett, William E., Jr.  
**Sent:** Wednesday, April 02, 2008 8:39 AM  
**To:** Montz, Matthew Thomas  
**Cc:** Ponstein, Jonathan B.  
**Subject:** RE: Vogtle HZI

If no equipment or plant issues occur.

Field Cost:

2 persons for 3 days and 2 nights: \$160 (2 persons) X 30 hr = \$4,800 (includes overhead)

Vehicles & Equipment, approximately \$400 total

Lodging & meals, approximately \$800 total

Data Processing Cost:

1 person for 5 days: \$80 X 40 hr = \$3,200 (including overhead)

Final Product: HZI isopleths map and data files

Total cost, approximately \$9,200

**Bill Garrett, Ph.D.**

**Alabama Power Company, GSC #8**

**PO Box 2641 Birmingham, AL 35291**

**(205) 664-6168 phone**

**(205) 664-6309 fax**

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**From:** Montz, Matthew Thomas  
**Sent:** Thursday, March 27, 2008 10:56 AM  
**To:** Garrett, William E., Jr.  
**Cc:** Blanton, Stan (Balch)  
**Subject:** Vogtle HZI

Bill,

When you get a chance, would you please put together a cost estimate for using APC's acoustic Doppler profiler to determine the hydraulic zone of influence of the Vogtle Unit 1 & 2 intake structure? Tom and I have discussed this further and believe that the HZI determination is an important part of the 316(b) study that we're conducting at Vogtle. You mentioned that quite a bit of work was coming up this summer so including a schedule of availability would also be helpful. My personal preference is to complete this in the next few months before the greater risk of reduced summer river flows.

Thanks again for helping out and please call me with any questions.

**Matthew T. Montz**

Environmental Specialist

Southern Nuclear Operating Company

Office 205-992-5629

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**From:** Montz, Matthew Thomas [MTMONTZ@SOUTHERNCO.COM]  
**Sent:** Thursday, April 24, 2008 10:12 AM  
**To:** Walden, Kevin C.  
**Subject:** RE: Impingement and Entrainment Monitoring

**Attachments:** Trip Report 3.doc

No problem Kevin, here is the most recent trip report describing sampling activities to date. A new trip report is generated after each sampling trip. I will forward them to you when received.



Trip Report 3.doc  
(50 KB)

**Matthew T. Montz**  
Office 205-992-5629

---

**From:** Walden, Kevin C.  
**Sent:** Tuesday, April 22, 2008 7:54 AM  
**To:** Montz, Matthew Thomas  
**Subject:** Impingement and Entrainment Monitoring

Matt,

I was wondering if it'd be possible for you to send me a summary of each sampling session from down at the River Intake Structure? I would just like to keep tabs on what you guys are catching down there.

Thanks,

**Kevin Walden**

Operations Department  
Southern Company  
Plant Vogtle  
(706) 826-4290 (Office)  
(706) 826-3025 899 (Pager)  
KCWalden@southernco.com

To:

**Plant Vogtle Impingement/Entrainment Assessment team members**

This message conveys summary information from the third of 24 planned sampling events for aquatic impingement and entrainment assessment at the Plant Vogtle make-up water intake structure. The sampling event was conducted during 8-10 April 2008. The event was conducted by Tony Dodd and Tom Broadwell of GPC's Environmental Field Services Group, Smyrna, GA.

**Operation**

Three of the four vertical traveling screens were in service and two circulator pumps were operating during the sampling event. Unit 1 was out of operation during this sampling event still due to scheduled maintenance outage.

**Impingement Sampling**

Impingement sampling was conducted at the Plant Vogtle intake structure screen wash water pit during a 24-hr period from 9 into 10 April. Prior to setting the sample net for daytime sample collection, the traveling screens were rotated and opened of impinged debris in manual mode. The first sample (daytime) constituting a 12 HRS 55 mins impingement sample was collected at 2055 HRS on 9 April. The night sample which lasted 13 HRS 5 mins was collected at 1000 HRS on 10 April 2008.

The daytime sample yielded three fish species (chain pickerel – *Esox americanus*, dollar sunfish - *Lepomis marginatus*, and bluegill - *L. macrochirus*) and one shrimp species (shore shrimp – *Palaemonetes* sp. likely *vulgaris* – still to be confirmed). The nighttime sample yielded five fish including two bluegill, one warmouth (*L. gulosus*), black crappie (*Pomoxis nigromaculatus*), and one hogchoker (*Trinectes maculatus*). The hogchoker was alive upon collection from the trash pit. All other specimens were in good to relatively good condition following apparent recent morbidity. The black crappie was of mature adult size, but was missing at least 25 percent of its body mass in the caudal to post dorsal region due to prior predation or possibly impingement in the traveling screen mechanism. Organic and other debris associated with each sample consisting of leaves, twigs, seeds or chaff from various trees or shrubs, and several aquatic insects was observed in low volume (approximately a couple of hands full of material).

**Entrainment Sampling**

Entrainment sampling was conducted during 8-9 April 2008. The two prior entrainment sampling attempts were unsuccessful due to a combination of factors including but not limited to sluggish velocities in the canal during the first event and to gear type and sample location logistics during the second event. The most recent canal/entrainment sampling event was considered successful owing to gear type change (using submersible pumps) mounted at the top of the canal, left bank facing the intake, at a point located about 85 ft in front of the trash racks. Beginning on the afternoon of 4/8/2008, each of two 73 gpm submersible pumps (Tsurumi Model LB3-750) and associated hoses were suspended from two tie-of points along the handrail system at the top of the canal. The pumps were powered by a 6,000 watt, gas-powered generator set on the ground

near the railing. Each pump was lowered five feet below the water surface in the canal. Pump discharge hoses were draped up and over the top edge of the canal wall with discharge ends affixed over two 500 micron sized mesh, Nitex plankton nets that were each mounted in the mouths of plastic 55 gallon drums. Once sieved through the nets, canal water (entrainment sample) was drained from the drums via a 2-inch diameter opening in each drum mid-section, through PVC pipe fittings at the drum opening, then into 4-inch diameter solid corrugated drain hoses that ultimately drained into the rip-rapped storm water basin adjacent (south side) of the intake canal. At six hour intervals, the contents of each net were retrieved and preserved in 5% formalin. Six-hour samples from one drum have been retained at the GPC lab as archive samples and samples collected from the other drum were composited in the field by 12-HR day and 12-HR night periods and will be submitted to the selected contract laboratory for enumeration and taxonomic processing.

### **Source-Water Ichthyoplankton Community Sampling**

The source water ichthyoplankton community was successfully conducted sampled at three previously established sampling stations positioned along a cross-sectional transect of the Savannah River located approximately 250 feet upstream of the mouth of the intake canal during 9-10 April 2008. Samples were collected at approximately 6-hour intervals, two samples each during day- and night-time periods to represent a 24-hr period. The field crew has routinely observed heavy detritus loads and net clogging at depths below three meters on each sampling event thus far. Because net clogging overloads the nets with detritus and greatly reduces the filtering efficiency of the nets, based on professional judgment, a decision was made in the field during this sampling event to limit the depth of ichthyoplankton sampling nets to 3 meters and increase the sampling time at each 1-meter depth interval to reduce net clogging, detritus loads and provide adequate sampling volume. All riverine samples have been preserved and the composited 12-HR day and night samples are being temporarily held at GPC's Smyrna Lab for future laboratory processing for enumeration and species identification by the selected contract laboratory.

### **Other Observations**

Surface water temperature during the 24-hr event was approximately 17° C compared to 12° C during the first sampling event in early March. Flow in the Savannah River ranged from approximately 7,130 cfs down to 6,090 cfs during this event (USGS Waynesboro Gage No. 021973269).

Our primary observations following this sampling event include:

- To date, the impingement collection has recorded 21 individual specimens representing 12 species, including eight taxonomic families of aquatic organisms (52 percent are members of the Centrarchidae) including:

- Centrarchidae – sunfishes
- Esocidae – pikes
- Percidae – perches and darters
- Clupeidae – herrings
- Ictaluridae – catfishes
- Cyprinidae – minnows
- Soleidae – soles
- Palaemonidae – shore shrimps

- Specimens collected in this study are potentially impinged between a few hours to 12 hours before the screens are either randomly, automatically rotated every eight hours or manually

rotated at the end of each diel cycle. Further, specimens are exposed to dry conditions in the trash pit between collections. In light of these observations, most specimens observed during this sampling event and prior events appeared to be in reasonably good body condition (i.e., without advanced necrosis, appearance of relatively clear eyes, scales attached, and gill filaments in relatively good condition) thus indicating possibly most specimens were alive or only recently deceased when first being washed into the trash pit collection net.

- canal entrainment sampling via pumping from the top of the canal via submersible pumps appears to be a viable method for this study. In the near future, a comparison/calibration exercise will be conducted in the river to compare net collected vs pump collected samples in terms of efficiency and examination of potential organism damage due to the pumping apparatus.
- one of the submersible pumps did not function as well as expected in terms of flow rate. That problem has been corrected with the introduction of a new replacement pump before the next sampling event begins.
- numerous aquatic insects, mostly larval forms, have been observed in the pumped entrainment samples and riverine samples. Very few fish larvae and no eggs have actually been observed to date by field staff when examining freshly collected and preserved samples in the field.
- a few adult fish have been observed swimming or jumping at the water's surface in mid- to outer half of the canal during day and night sampling periods.
- although Unit 2 intake operators were very short-handed during this past event owing to the ongoing maintenance outage, their efforts to meet our impingement sampling schedule need as well as possible was greatly appreciated. If possible, our recommendation is that impingement samples (12-hour screen wash samples) be collected at 0800 and 2200 HRS during each 24-HR event.
- The next sampling event is scheduled for 12-24 April 2008.

Please contact me if you have any questions.

*Tony Dodd, CFP  
Environmental Specialist  
GPC Environmental Field Services  
404-799-2142 (Main)  
770-550-2502 (INC Cell)  
8-530-2142 (Internal Direct)  
ardodd@southco.com*

---

**From:** Montz, Matthew Thomas [MTMONTZ@SOUTHERNCO.COM]  
**Sent:** Thursday, April 24, 2008 10:00 AM  
**To:** Ponstein, Jonathan B.  
**Cc:** Sieweke, John M.; Shores, Bruce Sterling, Jr.  
**Subject:** RE: Vogtle HZI

Since John and Bruce will be working on the river and won't need access to the site, they won't have to deal with Plant security. The boat launch is a public launch (owned by GPC) just downstream of the Plant site. To be on the safe side, I will notify Vogtle security that you all will be working on the Savannah River in close proximity to the intake canal entrance. If you have any problems while there, your onsite contacts are D'Andre Manigo (8-695-3778) or Kevin Walden (8-695-4290). You can also reach me at my office or cell (205-413-1615).

Thanks again for help in the project and please let me know if there is anything else I can do to support!!

**Matthew T. Montz**  
Office 205-992-5629

---

**From:** Ponstein, Jonathan B.  
**Sent:** Tuesday, April 22, 2008 10:45 AM  
**To:** Montz, Matthew Thomas  
**Cc:** Sieweke, John M.; Shores, Bruce Sterling, Jr.  
**Subject:** RE: Vogtle HZI

Matt,  
John Sieweke and Bruce Shores will be performing this work in the river near the intake structure on the morning of Wednesday May 7th. The field collection will take most of the day. Let me know if you require any additional information for security or otherwise.

Jon Ponstein, P.E.  
Alabama Power Company  
Environmental Affairs  
Laboratory and Field Services  
(office) 8-255-6459  
(cell) 205-438-3568

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**From:** Montz, Matthew Thomas  
**Sent:** Monday, April 21, 2008 10:12 AM  
**To:** Ponstein, Jonathan B.  
**Cc:** Garrett, William E., Jr.  
**Subject:** Vogtle HZI

Several weeks ago, we discussed performing the HZI determination at Vogtle during the week of May 5. Is that date still good?

**Matthew T. Montz**  
Environmental Specialist  
Southern Nuclear Operating Company  
Office 205-992-5629

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**From:** Dodd, Anthony Ray [ARDODD@southernco.com]  
**Sent:** Thursday, April 17, 2008 1:10 PM  
**To:** Middlebrooks, Kenneth D.; Montz, Matthew Thomas; Stuhaan, Chuck E.; VNP Dispatchers; Walden, Kevin C.; Williams, A. L. (Tony); Dyar, Ken C.  
**Cc:** Chambers, William Carlton; Candler, W. Jim  
**Subject:** P.O.D. – Plant Vogtle River and Intake Studies

Tony Dodd and Joey Slaughter of GPC Environmental Field Services will be performing aquatic impingement and entrainment sampling at the Plant Vogtle river water intake structure and source water plankton sampling on the Savannah River during April 22-24. We will be working in the area on a sampling schedule requiring 6-hr sampling intervals through night and day hours for approximately 48 hours and are requesting that Gate 12 and the entrance gate to the intake building remain open during that time. We will contact the on-shift Unit 2 Operator periodically during the event to ask for assistance to have the traveling screens at the intake structure rotated on three instances during the study (0830 HRS and 2030 HRS on WED and 0830 HRS on Thursday). Kevin Walden and D'Andre Manigo are the onsite contacts. Please include this activity in the POD for 22-24 April.

Thanks for your help and please contact us if you have any questions.

Tony Dodd, CFP  
Environmental Specialist  
Georgia Power Environmental Lab  
5131 Maner Rd.  
Smyrna Ga 30080  
Ph: 404-799-2142  
Fax: 404-799-2141  
Cell: 770-550-2502  
LINC Radio: 1\*20\*12502  
Email: ardodd@southernco.com

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**From:** Dyar, Ken C. [KCDYAR@southernco.com]  
**Sent:** Thursday, April 03, 2008 8:38 AM  
**To:** Dodd, Anthony Ray; Kitchens, Cohen J.; McQuillen, Thomas  
**Cc:** Blanton, Stan; Manigo, D'Andre; Walden, Kevin C.; Montz, Matthew Thomas  
**Subject:** RE: Work at the river water intake structure - Plan of the Day (POD)

We will support.

*Ken Dyar*  
**Security Manager**  
**Vogtle Electric Generating Plant**  
**706.826.3637 office**  
**334.520.1471 mobile**  
**LINC radio 1\*215\*1471**

---

**From:** Dodd, Anthony Ray  
**Sent:** Thursday, April 03, 2008 9:09 AM  
**To:** Dyar, Ken C.; Kitchens, Cohen J.; McQuillen, Thomas  
**Cc:** Blanton, Stan (Balch); Manigo, D'Andre; Walden, Kevin C.; Montz, Matthew Thomas  
**Subject:** Work at the river water intake structure - Plan of the Day (POD)

Tony Dodd and Tom Broadwell with GPC Environmental Field Services will be performing impingement and entrainment sampling at the Vogtle river water intake structure Tuesday, April 8 through Thursday, April 10. They will be working in the area through night and day hours for approximately 48 hours and are requesting Gate 12 remain open during that time. They have key to access the intake structure and boat ramp gates. They will be contacting the Unit 2 Operator periodically to ask for assistance to have the traveling screens at the intake structure rotated on three instances during the study.

Once onsite, Tony will contact Vogtle Security at the start and end of sampling. Kevin Walden and D'Andre Manigo are the onsite contacts. Please include mention of this activity in the POD for 8 – 10 April. Thanks for your help and please let me know if you have any questions.

Tony Dodd, CFP  
Environmental Specialist  
Georgia Power Environmental Lab  
5131 Maner Rd.  
Smyrna Ga 30080  
Ph: 404-799-2142  
Fax: 404-799-2141  
Cell: 770-550-2502  
Email: ardodd@southernco.com

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attachments. Thank you.