ADEQ
ARKANSAS
Department of Environmental Quality

March 24, 2009

Mr. James Scroggins, EHSS Manager
Great Lakes Chemical Corporation, A Chemtura Company
P.O. Box 7020
El Dorado, AR 71759

RE: AFIN: 70-00037 Permit No.: No Permit-South Plant
Great Lakes South Plant Brine Management and Disposal System

Dear Mr. Scroggins:

On January 30, 2009, I performed an inspection of the Great Lakes South Plant Brine Management and Disposal System in accordance with the provisions of the Arkansas Water and Air Pollution Control Act and the regulations promulgated thereunder. This inspection revealed the following:

1. Great Lakes Chemical Corporation (GLCC) does not have a current permit that grants GLCC the "authority to operate and maintain" the South Plant Brine Management and Disposal System" located at the South Plant. GLCC does hold three current brine management and disposal system permits. They are: 3883-WR-3-Central Plant; 1755-WR-5-West Plant; 0655-WR-2-Newell Plant. None of these three current permits grants "authority to operate and maintain" the South Plant Brine Management and Disposal System.

2. The South Plant's Tail Brine Tank which is part of the South Plant's Brine Management and Disposal System had developed a leak. When GLCC discovered the leak it was reported to the ADEQ but under permit 0655-WR-2. Permit 0655-WR-2 is only for the Newell Plant Brine Disposal System.

The above items require your immediate attention. Please submit a written response to these findings to the Cindy Garner, Technical Assistance Manager, Water Division Enforcement Branch of this Department at the following address:

Cindy Garner, Technical Assistance Manager
Water Division Enforcement Branch
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317

This response should contain detailed documentation describing the course of action taken to correct the item noted. This corrective action should be completed as soon as possible, and the written response is due by April 17, 2009.

For additional information you may contact the enforcement branch by telephone at 501-682-0639 or by fax at 501-682-0910.

During the inspection, Mr. Hammons indicated that a plan of action was being developed for repair and remediation of the leaking tail brine tank. As part of the response requested above, you should submit a corrective action plan detailing the actions taken and to be taken regarding this matter.

If I can be of any assistance, please contact me at 870-862-0680

Sincerely,

John W. Hunt

District 8 Field Inspector
Water Division

cc: Water Division Enforcement Branch
Water Division Permits Branch

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

NO DISCHARGE INDUSTRIAL PERMIT INSPECTION FORM

AFIN: **70-00037** Log No.: _____

Permit No.: **No permit number** Inspection Date: **30 January 2009**

Media: **Water** Inspector: **John Lamb**

Compliance Status: ☐ **IN** / ☑ **OUT**

1A. Name of Facility: **Great Lakes Chemical Corporation, Chemtura Corporation; South Plant**
Address: **324 Southfield Cut-off, El Dorado**
County: **Union**

2A. Name of On-Site Representative: **Tom Hammons**

3A. Name of Responsible Official: **James Scroggins, EHHS Manager**
Address: **P.O. Box 7020, El Dorado 71730** Telephone: **870-862-5141**

4A. Parent Company: **N/A**
Address: _____ Telephone: _____

5A. Description of Process (including type of industry, materials produced, and major by-products): **Tail brine disposal system**

6A. Any complaints registered against this permitted facility? ☐Yes ☑No
If yes, give date and description of complaint: _____

7A. Are there any additions, modifications, or corrections to the facility since the last inspection? ☐ Yes ☐No ☑N/A
If yes, explain: _____

1B. Furnish a simplified flow diagram of the treatment system and include main components, flow sequence through plant, and calculated or estimated flows.

Bromine towers→ tail brine tank→ pumps→ disposal wells

2B. Nearest Stream: **De Loutre Creek**

3B. Does wastewater from this facility cause adverse effect on the waters of the State:
☐ Yes ☐No ☑ **UNKNOWN**
If yes, describe: **See below**

4B. Are operating records kept as required by permit? ☐ Yes ☐No ☑N/A
If no, explain: _____

5B. Are maintenance records kept as required by permit? ☐ Yes ☐No ☑N/A
If no, explain: _____

6B. Are Samples routinely taken? ☐ Yes ☐No ☑N/A

7B. Does the sampling program meet the requirements of the permit?
☐ Yes ☐No ☑N/A
If no, explain: _____

8B. What laboratory does the facility use? **N/A**
Address: _____ Telephone: _____

1C. Do laboratory procedures and records meet the requirements of the permit?
☐ Yes ☐No ☑N/A
If no, explain: _____

2C. Is contaminated runoff a problem? ☐ Yes ☐No ☑N/A
If yes, explain: _____

3C. Is sludge disposal required? ☐ Yes ☐No ☑N/A
If yes, describe (including final destination): _____

4C. Is the treatment system being properly operated and maintained as required by permit?
☐ Yes ☐No ☑N/A
If no, explain **See additional comments attached**

SUMMARY OF FINDINGS/COMMENTS

See additional comments attached

Inspector Signature: John W. Lamb Date of Report: 16 March 2009

Signature of Reviewer: Dale D. Wareham Date of Review: March 23, 2009

ADDITIONAL COMMENTS

The facility reported to the ADEQ Little Rock office and the El Dorado office that the tail brine tank at the South Plant had a leak. The tail brine tank has a total capacity of approximately 1,000,000 gallons. The tank is made of fiberglass, sides and bottom, and has an open top. The tail brine tank receives spent brine from the bromine towers. Underneath the fiberglass bottom is a 5 foot layer of sand with a drain pipe that leads to the earthen containment around the tank. This serves as a French drain underneath the tank in case of a leak. Underneath the sand is compacted clay liner. The drain pipe has a valve on it and then it dumps into a pump basin in the containment.

The containment has a sump pump which pumps to the tail brine disposal lines and also has a pipe that drains the containment to the ditch behind it. When rainwater accumulates in the containment, it is tested. If it is not contaminated with salt water, the containment is drained. If the water has salt water in it, it is then pumped to the disposal system. The whole disposal system has been shut down since December 2008 as the facility has not been taking in bromine.

During a normal environmental round, GLCC Environmental personnel discovered that the water in the containment and in the ditch outside the containment. No rain had been recorded recently. The water was traced back to the tail brine tank and it was assumed it was leaking. The valve that drains the tail brine French drain was leaking as was the valve that drains the containment area. GLCC capped off both the pipes.

GLCC began pumping the water out of the containment back into the tank, and as they did this they calculated the amount pumped back into the tank. The volume of brine pumped back into the tank did not equal the volume calculated to have leaked from the tank. At that point, the facility notified the ADEQ. They estimated that the tank had lost some 10,000-14,000 gallons per day, but they were not pumping that much amount from the containment area.

One the date of the inspection, I met with Mr. Tom Hammons, GLCC Environmental Engineer and we went to inspect the tank. The tank had been drained into the tail brine system except for a volume of sludge in the tank, approximately 160,000 gallons. The sludge was not totally dewatered so that the sludge would not harden and could be removed easier. Mr. Hammons told me that that they did not know where the volume of missing water was. It is possible that the missing volume is in the sand layer but Mr. Hammons could not rule out the possibility that some of the brine had made it through the clay liner so they wanted to be sure we were notified.

The facility had already drilled test wells inside the containment but had not hit any water.

HISTORY: GLCC currently has **three** brine management and disposal permits but GLCC has **four** brine management and disposal units. The facility initially reported this spill under 0655-WR-2. However, this permit is only for the GLCC Newell Plant tail brine disposal system. The 0655-WR-2 permit was originally issued to the Arkansas Chemical Plant, which was later purchased by GLCC then transferred as GLCC Newell Plant, (which is currently shut down). GLCC also holds 3883-WR-3 for the "Central Plant Brine Management and Disposal System located at the **Central Plant."** The 3883-WR-3 permit states that brine "**may** be received from the Great Lakes Chemical Corporation's West Plant and South Plant,.." However this permit does not grant the South Plant the "authority to operate and maintain" the South Plant Brine

Management and Disposal System. A search of PDS revealed that apparently the South Plant once had a permit to operate this tail brine disposal system, (Permit 0863-WR-3) which was voided. PDS also states for this permit that this system is "covered under 3883-W; per Jerry Delevan" but this is not the case in the current 3883-WR-3 version of the permit.

GLCC also holds permit 1755-WR-5 for the "West Plant Brine Management and Disposal System".

Linda Hanson and I discussed this matter at length and neither of us could determine that the South Plant Brine Disposal and Management System were covered by any current permits.

Water Division No Discharge Industrial Photographic Evidence Sheet								
Location:	GLCC South Plant Tail Brine Tank							
Photographer:	Tom Hammons				**Witness:**	N/A		
Photo #	1	**Of**	4		**Date:**	3 Feb 09	**Time:**	unknown
Description:	Tail brine tank at South Plant							

Photographer:	Tom Hammons				**Witness:**	N/A		
Photo #	2	**Of**			**Date:**	3 Feb 09	**Time:**	unknown
Description:	Tail brine tank, showing discharge of tank to tail brine disposal system							

Water Division No Discharge Industrial Photographic Evidence Sheet								
Location:	GLCC South Plant, Tail Brine tank							
Photographer:	Tom Hammons				**Witness:**	N/A		
Photo #	3	**Of**	4		**Date:**	03 Feb 2009	**Time:**	unknown
Description:	Containment area, showing water leaked from tank							

Photographer:	Tom Hammons				**Witness:**	N/A		
Photo #	4	**Of**	4		**Date:**	03 Feb 09	**Time:**	unknown
Description:	Inside of tail brine tank, showing it empty with sludge remaining							

From:	Garner, Cindy
To:	Brizzi, Mary; Hurley, Greg
Subject:	FW: Emailing: South Plant Salt Water Disposal 655-WR-2. Jun_87pdf.pdf
Date:	Thursday, April 02, 2009 8:57:28 AM
Attachments:	Tail Brine Tank 7.JPG Tail Brine Tank 1.JPG Tail Brine Tank 2.JPG Tail Brine Tank 3.JPG

-----Original Message-----
From: Hammons, Tom [mailto:Tom.Hammons@chemtura.com]
Sent: Wednesday, February 04, 2009 4:03 PM
To: Garner, Cindy
Cc: Hanson, Linda; Lamb, John
Subject: RE: Emailing: South Plant Salt Water Disposal 655-WR-2. Jun_87pdf.pdf

Cindy,

After speaking with Linda on Thursday, I contacted John Lamb that afternoon and met with John, Friday morning, to discuss the tank in question. Attached are the pictures that were requested by John Lamb to show the tank and the surrounding containment.

The tank in question was temporarily taken out of service for a Br2 tower shutdown. After cooling, we noted that the secondary containment had began to fill with water (water seen inside of the dike of the attached pictures). This tank is designed to have a working capacity of
approximately 800,000 gallons. When isolated, this tank contained
approximately 360,000 gallons, minus the significant volume of solids that have accumulated in the tank over an extended period of time. We estimate the volume of solids contained in the tank to be approximately 160,000 gallons. While evaluating the tank prior to putting it back into service, we observed that the level in the tank had dropped a small amount. We estimate that this decrease may roughly equate to 10,000 to 14,000 gallons per day. The secondary containment does not appear to have this volume of water inside of it.

This observation leads us to believe that there is a possibility of water escaping the tank that is not being observed in the secondary containment. As a result, we immediately removed as much of the brine as possible from the tank by draining this brine into our disposal well pipeline.

We are currently gathering the resources required to remove all of the accumulated solids from the bottom of the tank in order to allow us to perform a thorough inspection of the bottom of the tank and to determine if the tank requires any repairs. We will promptly carry out any repairs necessary to restore the integrity of the tank prior to putting back into service.

After completion of this task, we will be able to provide more information concerning this matter. If you have any questions, feel free to contact me at 870-864-1557.

Tom Hammons

-----Original Message-----
From: Hanson, Linda [mailto:HANSON@adeq.state.ar.us]
Sent: Thursday, January 29, 2009 3:47 PM
To: Hammons, Tom
Cc: Garner, Cindy; Lamb, John
Subject: RE: Emailing: South Plant Salt Water Disposal 655-WR-2. Jun_87pdf.pdf

Good afternoon, Tom:

As per our conversation, you need to notify our inspector, John Lamb at 870-862-0680. Then send a letter to ADEQ here in NLR attention Cindy Garner (head of our enforcement section) documenting what you told me earlier today. Please list volumes stored/lost, etc. and include any pertinent information you may have pertaining to this matter. Call with any further questions.

Sincerely,

Linda Hanson, Geologist P. G.
No Discharge Permits Branch, Water Division, ADEQ
5301 Northshore Drive
North Little Rock, AR 72118-5317
telephone: 501.682.0646
email: hanson@adeq.state.ar.us

> -----Original Message-----
> From: Hammons, Tom [mailto:Tom.Hammons@chemtura.com]
> Sent: Thursday, January 29, 2009 3:37 PM
> To: Hanson, Linda

> Subject: Emailing: South Plant Salt Water Disposal 655-WR-2. Jun_87pdf.pdf
>
> <<South Plant Salt Water Disposal 655-WR-2. Jun_87pdf.pdf>> The message is ready to be sent with the following file or link attachments:
>
> South Plant Salt Water Disposal 655-WR-2. Jun_87pdf.pdf
>
>
> Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.