7/12/84

TES

Site: Syntex-Verona
ID #: MOD007452154
Break: 11.9
Other:
7-12-84
0751

JUL 12 1984

MEMORANDUM

Subject: NEPACCO Documents Review

From: Kenneth S. Ritchey, EPA

To: Addresses

Enclosed for your reference is the "Enforcement Sensitive" document produced by Dr. Harry E. Ensley during his visit to Kansas City. Dr. Ensley reviewed the NEPACCO process records obtained from Mr. Bill Ray's barn in Verona, Missouri by Don Harris. If you have questions or comments, please contact me at FTS 758-6864.

Addresses: Jim Kohanek-EPA
Cheryl Peterson-EPA
Cheryl Micinski-EPA
Dan Shiel-EPA

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SUPERFUND RECORDS

ARWM:WMBR:SPFD:SRITCHEY:pc:x6864:7-11-84:Disk 4-42

SPFD
RITCHEY
7/11/84

SPFD
BIGGS
7/12/84

WMBR
MORBY
7/12/84

255-5/
255-24/

7057131

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
324 EAST ELEVENTH STREET
KANSAS CITY, MISSOURI - 64106

JUL 12 1984

Enforcement Sensitive

MEMORANDUM

Subject: NEPACCO Documents Review

From: Kenneth S. Ritchey, EPA

To: Addresses

Site: Lyons-Verona
ID #: MOD007452154
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Addresses: Jim Kohanek-EPA
Cheryl Peterson-EPA
Cheryl Micinski-EPA
Dan Shiel-EPA

255/-24/
255/5/

7057128

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"ENFORCEMENT SENSITIVE"

July 5,1984

Mr. K. S. Ritchey
Waste Management Branch
Environmental Protection Agency
324 East 11th Street
Kansas City, Missouri 64106

Dear Scott:

Enclosed is the report which covers the data gathered during my recent trip to Kansas City. I have not sent a copy to Mr. Kohanek since he said to route it through your office. If there are any questions, give me a call.

I have received the documents which I ask for on the day I left Kansas City but I have not yet taken a look at them. I wanted to get a copy of this report to you in case it was of help. I will look over the documents you sent and update this report if I find any additional information.

Sincerely,

Harry E. Ensley

RECEIVED
JUL 09 1984
SUPERFUND SECTION

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Report On Documents Concerning Nepacco Daily Operations

In this report I will attempt to cover the items of interest uncovered during my review of the documents found at the Denny Farm Site which concern the Nepacco operation.

1. The documents provide a good idea of the daily operating procedures of the Nepacco plant. They are, by and large, complete and are consistent with one another except for the period from March 19, 1971 to April 16, 1971. The records for this period are misleading, incomplete, inconsistent and generally questionable. (See note #5*).

2. The records give the impression of a generally sloppy operation. There are numerous cases of foul-ups, accidents, and mistakes. Some, but not all, are noted here:

a. Doc.#2053-2070 - the toluene sometimes had to be redistilled since it did not meet the specs after the first distillation.
b. Doc.#2124 - In the addition of ammonia to the hex batch, the vessel H-9 was too full and when the ammonia was added, the material splashed out of the vessel.(Date 2/3/71)
c. Doc.#2356 - H-9 boiled over again.(See 2b.) (Date 3/4/71)
d. Doc.#2410 - "A lot of TCP spilled on the floor." (Date 1/11/71)
e. Doc.#2610 - The transfer line from F2 to F3 was plugged.
f. Doc.#2747 - Acid leak on the waste acid tank."Acid running down the side".(Date 5/21/71)
g. Doc.#2961 - During a hex batch the F5 drain stopped up. "We took it outside and cleaned".(Date 2/4/71)
h. Doc.#2884-3010 - Hex batch sheets show many mechanical breakdowns and delays.
i. Doc.#3103 - Temperature gauge on the TCP still D3 broken.(Date 1/21/71)
j. Doc.#1611 - Note by Ron L. "I don't think B-1-TC meter is showing the right temp." This is the temperature controller for the TCP reaction.

3. There are also indications that the process itself was not without mishap. Several batches were discarded or rejected because of poor quality.

a. Doc.#2479 - Note that a "lot of carbon material" is in the F1 acid split. This could have been caused by excessive heating (carbonization of the organics in the reaction vessel) or by too rapid addition of the acid.(Date 12/17/70)
b. Doc.#2631 - Several batches were rejected because of rust. The shift supervisors evidently had been failing to check the toluene filter but were signing off that they checked anyway. A very threating note about what would happen if this reoccurs.(Date 4/26/71. Evidently the fire caused some rust damage.)
c. Doc.#2934 - Hex batch sheet marked "Batch Discarded." No mention of how or where.(Date 12/8/71).
d. Doc.#1749 - Nepacco Test Request. Test performed by Hoffman-Taff. Hex batch #10501 failed analysis. (Date 5/3/71)
e. Doc.#943 - Nitine rejected a batch of Hex. (There was little documentation on how many batches were rejected by Nitine but evidently there were many-see note 3b. However I only saw one or two test requests where the Nepacco Hex failed the Hoffman-Taff analysis.)

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f. Doc.#484 - On Hex crystallization sheet the note "Part of this batch was lost." (Date 10/29/71)

g. Doc.#193 - On Hex batch sheet the note "Batch discarded."(Date 2/8/71)

4. Notes dealing with residues. Not much documentation on the TCP distillation residues. They were sometimes dumped after every three batches, sometimes after only one and sometimes after four. The average seems to be after three runs. Doc.#2071 shows that 150 gallons of residue was obtained after the distillation of 14,400 gallons (16 batches of ca 900 gallons) of recovered toluene.(Date 12/9/70). Doc.#613 shows batch #1 of recovered toluene as being distilled on 4/13/71. The acceptable pot residue has increased dramatically to 30 gallons of residue for every 600 gallons of toluene charged to the still.

5. Notes dealing with the time period around the fire (ca 3/1/71 to 5/1/71).

a*. Doc.#1741 - "TCP still in D5" (Date 3/21/71).

b*. Doc.#604 - TCP batch #T10313 records incomplete.

c*. Doc.#1531 - TCP batch #T10403 started on 4/12/71.

d*. Doc.#1555 - TCP batch #T10401 started on 4/6/71.

e*. Doc.#1548 - TCP batch #T10402 started on 4/7/71. Marked "batch in fire". The batch number was T10315 but sometime later was changed to batch #T10402.

f. Doc.#328 - Hex Production Batch Sheet for batch #H10428 refers to a Hex batch #H10355. No other records show when this batch was made. (Date 4/29/71).

g*. Doc.#205 - Hex batch #H10341 started 4/14/71. Hex batch #H10338 started 3/21/71.

h. Doc.#41-42 - Temperature charts for hex batches #H10401 and #H10402 shows they were done on 4/16/71.

i. Doc.#26-27 - TCP Distillation log shows TCP batches #T10314, 315, 316 were distilled before the fire. TCP batch #T10401 distilled on 4/12/71. TCP batch #T10402 distilled on 4/13/71.

j. Doc.#19 - Shows TCP batches #T10314, 315,316 were in stream on 3/22/71. Hex batches #H10336, 339, 340 were also in stream on 3/22/71.

k. Doc.#1-18 - Contain several references to moving material destroyed by the fire to various places around the plant.

l*. Doc.#952 - This is an unsigned sheet which shows that several of the daily performance sheets were removed at one time. Since the sheets mentioned are currently in the files they were evidently returned at a later time.

* Several of the documents which are starred appear very suspicious. By careful inspection of the Daily Inventory Production Control Sheets it can be shown that several batches of TCP and Hex were destroyed in the fire which are not recorded in the company's books. (This will be done in several ways in the following pages.) The only possible explanation is that the records for reactions started after 3/18/71 have been altered and/or removed.

(3)

"ENFORCEMENT SENSITIVE"

SUMMARY OF HEX PRODUCTION ORDERS

batch	date started	date to Cryst.	date to Centrif.	date to dryer	date packed	Notes
H10310	3/4/71	-----	3/7/71	3/8/71	3/9/71	
H10311	3/5/71	3/8/71	3/9/71	3/9/71	3/9/71	
H10312	3/8/71	3/8/71	3/9/71	3/10/71	3/10/71	
H10312A	-----	-----	-----	3/6/71	3/7/71	Dryer Rework
H10314	3/8/71	3/9/71	3/10/71	------	3/11/71	
H10315A	------	-----	------	?	3/9/71	Dryer Rework
H10316A	------	-----	------	?	?	Dryer Rework
H10317	3/9/71	3/10/71	3/10/71	3/11/71	3/12/71	
H10318	3/9/71	3/10/71	3/10/71	?	3/12/71	
H10319	3/10/71	3/11/71	3/12/71	?	3/13/71	
H10320	3/10/71	3/12/71	3/12/71	3/13/71	3/13/71	
H10321	3/11/71	3/13/71	3/13/71	3/14/71	3/14/71	
H10322	3/12/71	3/13/71	3/14/71	3/15/71	3/16/71	
H10323A	------	-------	--------	?	3/12/71	Dryer Rework
H10324	3/13/71	3/15/71	3/15/71	3/16/71	3/16/71	
H10325	3/14/71	3/15/71	3/16/71	3/17/71	3/17/71	
H10326A	------	------	-------	3/14/71	3/15/71	Dryer Rework
H10327	3/15/71	3/16/71	3/17/71	3/17/71	3/18/71	
H10328	3/15/71	3/17/71	3/17/71	3/18/71	3/18/71	
H10329	3/16/71	3/17/71	3/18/71	3/18/71	3/19/71	
H10330A	------	------	------	3/16/71	3/17/71	Dryer Rework
H10331	3/17/71	3/18/71	3/19/71	3/19/71	3/20/71	
H10332	3/18/71	3/19/71	3/19/71	3/20/71	3/20/71	
H10333	3/18/71	?	3/20/71	3/20/71	3/21/71	
H10334	3/19/71	3/20/71	3/21/71	3/21/71	3/22/71	
H10335A	------	------	------	3/19/71	3/19/71	Dryer Rework
H10338A	------	------	------	3/21/71	3/21/71	Dryer Rework
H10339*	---------- 4/13/71--- Doc#189 - Incomplete, probably falsified					
H10340*	---------- 4/13/71--- Doc#189 - Incomplete, probably falsified					
H10341*	?	4/14/71	4/15/71	?	?	probably falsified
H10401	4/14/71	?	4/16/71	4/17/71	?	
H10402	4/15/71	4/16/71	4/17/71	4/17/71	4/18/71	
H10403	4/16/71	4/17/71	4/18/71	4/18/71	4/19/71	
H10404	4/16/71	4/18/71	4/19/71	?	4/19/71	
H10405	4/17/71	4/19/71	4/20/71	4/20/71	4/21/71	
H10406	4/18/71	4/20/71	4/21/71	?	4/24/71	

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* The code numbers for batches are arrived at as follows: T for TCP and H for Hex. The first number specifies the year the batch was started (eg. 1 for 1971), the next two numbers give the month(eg. T103XX for a TCP batch started in March of 1971) and the last two numbers give the batch number for that month. So H10339 is a hex batch started in March of 1971 and was the 39th batch of the month. Unless Nepacco decided not to stick to its own guidelines then batches H10339, 340 and 341 were started in March 1971 after the 19th.

** During the period shortly before the fire, it was common to have four to six batches of Hex in stream at any one time. Unless the plant shut down production of TCP and Hex on March 19th (which some of their records indicate they did), it is a good assumption that they had four to six batches of Hex on stream the day of the fire (batches #H10336, 337, 338, 339, 340 and 341 judging from the incomplete records).

SUMMARY OF TCP PRODUCTION ORDER SHEETS

Batch	start	distill	C-2 meter at end of run	amt of ethylene glycol used	lbs.of TCP made
T10305	3/7/71	3/12/71	0261490	---------	4900
T10306	3/8/71	3/13/71	0262652	1162	4350
T10307	3/9/71	?	0263720	1078	4510
T10308	3/10/71	3/15/71	0264902	1182	4466
T10309	3/11/71	3/16/71	0266333	1431	4246
T10310	3/13/71	3/17/71	0267216	883	4050
T10311	3/15/71	3/19/71	0268605	1389	5080
T10312	3/16/71	3/19/71	0269544	939	3832
T10313	3/18/71	3/21/71	0270683	1139	4390
T10315	4/7/71	?	?	?	250**
T10401	4/6/71	?	0274844	4161*	4966
T10402	4/7/71	4/13/71	?	?	4880
T10403	4/12/71	?	?	?	4580
T10404	4/13/71	?	0278354	3510(for 3 runs)	4530
T10405	4/15/71	4/20/71	0279126	772	4320
T10406	4/16/71	4/21/71	0280374	1248	4600

* The average usage of ethylene glycol during a run is 1000 gallons. Therefore the amount of ethylene glycol used between batch T10313 and batch T10401 is enough for four TCP runs. This is good evidence for the loss of all of batches T10314, T10316, T10317 and about 4,000 pounds of batch T10315. The date give for starting production of T10315 is probably not correct since it has a March batch number. The loss of the above batches corresponds to the loss of 8-10 tons of TCP and TCB depending on what stage the batch was when it was destroyed. If the TCP reactor or the TCP still was involved in the fire, dioxin contamination could easily have exceeded the 1,000 ppm range.

A review of the Nepacco Daily Inventory Production Control Sheets shows that on March 19, 1971 they had 89,100 lbs of TCB in stock. On April 12, 1971 they had 59,020 lbs in stock. During this period they used (or burned) 40,900 lbs of TCB. At the usual scale of 5,400 lbs per batch this indicates that they ran seven batches between March 19 and April 12, 1971. This supports the contention that TCP batches T10314, 315, 316 and 317 were destroyed by the fire. (The disappearance of this material is well documented. It is only a question of whether the material burned before or after being converted to TCP, see below.)

The DIPC's also show that on March 22, 1971 Nepacco had 54,500 lbs of caustic (sodium hydroxide) in stock. On April 12, 1971 they had 38,000 lbs of caustic in stock. During the period of March 22 to April 12, 1971 they used 16,500 lbs of caustic. At the usual scale of 2,500 lbs per batch this indicates that they started 6 batches during this period. Again this supports the contention that TCP batches T10314, 315, 316 and 317 were destroyed by the fire. It also indicates that the material was converted to TCP prior to its destruction in the fire.

An attempt was made to determine how many Hex batches were destroyed in the fire by considering the amount of filter clay which was used during the

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period in question. On March 22, 1971 Nepacco had 35,850 lbs of filter clay in stock. On April 12 they show none in stock. During this period they used enough filter clay for 100 batches of Hex! Evidently they tried without success to purify the fire-damaged batches by filtration through the clay.

A best estimate of the amount of material lost in the fire is roughly 3 to 7 tons of Hex, 8 to 10 tons of TCP, 2 to 5 tons of methanol, and 2 to 5 tons of ethylene glycol. This is a total of 15 to 27 tons of organic material (minus, of course, what was actually consumed by the fire).