UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
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MEMORANDUM

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SUBJECT: Initial Findings Regarding Ocean Disposal of Montrose Chemical's Acid Waste

The purpose of this Memorandum is to summarize initial research findings into the disposal of DDT-contaminated waste acid produced by Montrose Chemical Corporation of California into the ocean waters off Santa Catalina Island.

Montrose Chemical Corporation of California, Inc. ("Montrose") operated a DDT manufacturing plant at 20201 Normandie Avenue, Torrance, CA from 1947 until 1982.

Background

Region 9 Superfund Division management requested an initial assessment of information maintained by EPA Region 9 regarding the operational history of the Montrose Torrance plant to see if there was readily available information about Montrose's generation, management and disposal of acid waste from the DDT production process at the Montrose Plant.

In the mid to late 1990s, several former employees of Montrose's Torrance plant were deposed as part of the United States v. Montrose Chemical Corporation of California litigation.

EPA reviewed certain of these depositions for relevant information related to ocean disposal of Montrose's DDT-contaminated waste acid. EPA also reviewed the May 18, 1998 Final Remedial Investigation Report for the Montrose Superfund Site ("1998 RI"), a March 1985 Ocean Dumping

Report by the Los Angeles Regional Water Quality Control Board (Chartrand et al., March 1985), and a summary of an interview that EPA conducted in 1992 with John Kallok, a former Montrose employee, for relevant information. This memorandum summarizes our initial findings.

Methodology

EPA's focus in conducting this initial research was limited to evidence of ocean disposal of Montrose's waste acid by Montrose or its contractors. Montrose's more general waste disposal practices were beyond the scope of this initial effort. Because the depositions and other records amount to several thousands of pages, the records to be reviewed (as described above) were uploaded into a Concordance database, which was used to efficiently search the records by keyword. The keyword search terms used (including various permutations thereof) were: salvage, sea, ocean, barge, acid, Catalina, barrel, drum, shore, and Stringfellow. The related pages of text both before and after the keyword hits were also reviewed for context, and to make sure any potential relevant additional information near the search term hits was captured.

Summary of Findings

The depositions reviewed were those of the following four individuals who were former employees at Montrose's Torrance DTT manufacturing plant[1]:

- Bernard Bratter: Production Shift Supervisor (1948-1950); Project Engineer (1950-1965); Plant Superintendent (1965-1983).
- Guy DiMichele: Shift Superintendent (1950-1955); Project Engineer (1955-1960); Design Engineer (1960-1965); Superintendent, Formulation and Grinding Plant (1965-1970); Superintendent of Maintenance and Engineer (1970-1983).
- John Kallok: Former employee (1947-unknown). Exact role at Torrance plant unknown as the copy of the deposition reviewed begins on p. 44.
- Ferdinand Suhrer: Production Supervisor at Torrance plant (1951-1961); Plant Engineer at Henderson, Nevada plant (1961-1968).

The deponents describe a process where, beginning around 1948, Montrose would contract with California Salvage Company ("California Salvage") to bring a tanker truck to the Torrance facility, which would pump about 3,000 gallons of spent filtrate acid (aka, oleum, or "SOO") sludge per trip from the facility's waste storage tank into the tanker truck. This acid waste contained some DDT. California Salvage would then drive the trucks to the harbor and unload the waste onto a barge. The barges would be towed to an "approved" location offshore and dispose of the acid waste directly into the ocean waters (though one deponent heard rumors that California Salvage would sometimes dump the waste closer to shore). This process continued until the early 1960's, at which point depositions indicate that Montrose built an acid recovery plant at the Torrance facility, and the company appears to have stopped using a contractor to arrange for the ocean dumping of Montrose's waste acid from its DDT Plant.

A summary of an interview that EPA's Steven Simanonok conducted with John Kallok in 1992 also discusses Montrose's ocean disposal practices, and describes essentially the same process:

[1] Note: some of the depositions reviewed were missing pages. For instance, the Kallok deposition begins on page 44.

> I [Steven Simanonok] questioned John about Montrose's acid waste from DDT production. John said that at the beginning, in 1947, their waste acid was picked up by California Salvage trucks at the Montrose plant. From 1947 to around 1960, most of this acid waste was dumped at sea by California Salvage. However, some waste acid was occasionally sold to other companies as a byproduct material. Around 1960, Montrose constructed an acid recovery plant and created a saleable product... (pdf p. 9.)

No evidence that California Salvage dumped *barrels* of Montrose's waste was found in the depositions reviewed or the Kallok interview summary. One of the deponents, Bernard Bratter, was specifically asked if the acid waste was hauled off in barrels by California Salvage, and he responded no (see Bratter Vol. 3, pdf p. 77). See the table in Attachment A for relevant excerpts regarding Montrose's ocean dumping practices as described in the depositions reviewed.

EPA also reviewed the four depositions and other records described above for information regarding the use of the Stringfellow hazardous waste disposal site for Montrose's acid waste. None of the depositions reviewed addressed the use of the Stringfellow Site. The Stringfellow site is only referenced in the 1998 RI and the 1992 Kallok interview. The 1998 RI states that Montrose completed its acid recovery plant in March of 1960 (deponents said it was closer to 1965). The 1998 RI states:

> Montrose shipped its first load of recovered acid to the Stringfellow Acid Pits, a disposal site located near Glen Avon, California, on January 3, 1968. * * * Based on Stringfellow Site records, Montrose shipped 6,485,200 gallons of waste acid to the Stringfellow Site. Montrose ceased shipping recovered acid to the Stringfellow Site in November 1972, thereafter, disposing its recovered acid at approved waste disposal sites, including the Palos Verdes Landfill and the BKK Landfill in West Covina, California. (pdf p. 50.)

Former employee John Kallok also confirmed during his 1992 interview with EPA that Montrose sent acid sludge to the Stringfellow Site from 1968 to 1972.

The 1998 RI contains an extensive operational history of the Montrose Torrance plant, including the generation and on-property management of waste acid resulting from the production of technical grade DDT (i.e., "close to pure, not intentionally diluted or mixed") (pdf. pp. 33-40 and pp. 49-50). The 1998 RI contains the following summary of Montrose's management of waste acid:

> While Montrose would recycle and reuse the acid when possible, after a while acid could no longer be fortified cost-effectively. Thus, throughout plant history, the Montrose operations routinely generated waste acid (Figures I.SA and 1.8B show these waste acid streams and some of their disposal locations.) This acid contained a certain amount of DDT. (Id. at 50).

This section of the 1998 RI continues:

> After 1953, when the separation step was first accomplished by "oliver" filter, melter, and static separators (see Separation in section on Technical Grade DDT Manufacturing Process, above), but before 1960 when the acid recovery plant was built, acid was filtered from the acid/DDT slurry and returned to the spent acid holding tank for reuse in the manufacturing process. Acid from the static acid separator was held temporarily in storage tanks and either sold, fortified

and reused, or shipped to approved ocean disposal areas by California Salvage Company (see section on Waste Products above). (Id.).

Conclusion

To conclude, EPA's initial research found that acid waste from the Montrose Torrance plant was transported by tanker trucks, transferred into barges, and disposed of in bulk directly into ocean waters by California Salvage. Our research did not find any evidence in the records reviewed (as described above) of Montrose using California Salvage to dump *barrels* of acid waste in the ocean.

Independent of the work discussed in this Memorandum, EPA Superfund and Emergency Management Division ("SEMD") conducted an interview with EPA former civil investigator, Steve Simanonok, on April 5, 2021. The summary of that interview is attached to this Memorandum as Attachment B. The information contained in that interview summary is generally consistent with the information and conclusions set forth in this Memorandum.

Recommendations for additional document research by SEMD civil investigator(s) and contractors will be discussed with SEMD staff and management in the coming weeks.

ED_006389_00004547-00004

References

Date	Title	SEMS Doc ID
3/1985	Ocean Dumping Under Los Regional Water Quality Control Board Permit: A Review of Past Practices, Potential Adverse Impacts, and Recommendations for Future Action	88038943
8/10/1992	Letter: Report of Interview of John Kallok	88042276
7/31/1996-8/1/1996	Deposition of Ferdinand Suhrer, Volumes 1-3, U.S. v. Montrose Chemical Corp.	88046520, 88042642, 88042643
6/2/1997-6/4/1997	Deposition of Bernard Bratter, Volumes 1-3, U.S. v. Montrose Chemical Corp.	88039330, 88039331, 88039332
5/18/1998	Final Remedial Investigation Report for the Montrose Superfund Site, Volumes 1-2	88043311, 88043312
9/14/1998-1/14/1999	Deposition of John Kallok, Volumes 1-10, U.S. v. Montrose Chemical Corp.	88046185, 88046493 – 88046497
4/19/1999-4/20/1999	Deposition of Guy DiMichele, Volumes 1-2, U.S. v. Montrose Chemical Corp.	88046518, 88046186

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Attachment A:
Excerpts from Former Montrose Employee Depositions

File	DEPO Page No.	PDF Page No.	Text
Bratter Vol. 1	DEP00002531	131	Q: Do you know who did the hauling? A: It was an outfit called California Salvage. They would bring in a truck, we would load the truck with spent acid -- spent oleum. They had barges down at the harbor and you'd take the truck down to the harbor and pump it into a barge. They received acid from many, many companies. When the barge got full enough, it was hauled out to sea and it was dumped in an area where it was licensed by the United States Coast Guard for dumping these acids.
Bratter Vol. 1	DEP00002583	183	Q: Was any of that [spent oleum] ever shipped to the sea for ocean dumping? A: Well, the system had to be kept in balance, and when we removed the filtrate acid from the filter, put it back in the filtrate acid storage tank, we'd then make up additional SOO [spent oleum, aka, spent acid] that -- now, if we would have a real dry cake, where we got more filtrate acid back than we needed to make up SOO, our filtrate acid storage tank would get full and something had to be done with it. Either it would be sold to the customer or maybe shipped up to our Henderson plant or if there was too much excess, and we were hauling out to sea, that could be hauled out to sea. Q: And that was true in the early period, '48 to '51, with the spent oleum? A: In -- in the -- yeah. In the '48 to '50 period, before we started the filter, we used a weaker oleum and when we used a weaker oleum, we made a lot of -- larger quantity of filtrate acid; so there was always a large excess of filtrate acid, which was hauled out to sea by California Salvage.
Bratter Vol. 1	DEP00002590	190	A: When we first put the separator acid storage tank in, that was the material that was hauled out to sea by California Salvage. And then after 1960, it was pumped to the acid recovery plant for reprocessing. Q: Uh-huh. Was there any DDT in the separator acid? A: There were small amounts in it. Q: What do you mean by "small amounts"? Can you tell me a percentage or anything? A: I don't remember checking it, but we're probably talking about, I don't know, 50, 100 parts per million or something like that there. I -- I don't know for sure.
Bratter Vol. 1	DEP00002605-6	205-206	A: In this in this case it was -- this was 1965; so none of it went to sea, it would all go to the acid recovery plant. MR. SIMSHAUSER: Mr. Bratter, you said acid was pumped to sea. I believe that's a misstatement, isn't it, sir? THE WITNESS: Okay. Before the acid recovery plant was built, our separator acid was sent via Cal Salvage out to the ocean to be dumped. MR. SIMSHAUSER: Thank you. Just so the record is clear on that. THE WITNESS: We used to use the term "dumped at sea" interchangeably with that.

File	DEPO Page No.	PDF Page No.	Text
Bratter Vol. 3	DEP00003128-9	76-77	Q: We discussed I think two days ago that the spent oleum in the early years was dumped at sea, at least some of it. A: Right. Q: Some of it was used for SOO? A: Pardon? Q: Some of it was used for SOO, to make SOO? A: That's right. Q: How was this spent oleum transported when it was dumped at sea? A: We contracted with a company called California Salvage. They had their own trucks, and we would call them and let them know how many truckloads, if any, we wanted that day. The trucks would come in, we'd load the trucks, they would then haul them down to the harbor where they had their barges, and the truck would unload into the barge, and when there was enough liquid in the barge, they'd haul the barge out to the specified area in the ocean and release the acid. Q: Was the acid shipped in bulk or in drums or -- A: It was shipped in bulk in a truck.
DiMichele Vol. 2	DEP00005830	91	Q: During your employment at Montrose, was any of Montrose's waste dumped at sea? A: Yes. Q: And do you know who arranged to have it dumped at sea? A: Plant manager at the time was Wilcox. Q: And do you know what company picked up the waste? A: It was a Cal -- California Salvage Company. Q: Do you know what kind of waste California Salvage Company dumped? A: It was a -- a spent acid. That was only dumped before when we finally got the acid recovery plant, we didn't have to dump it at sea. But before that, we had to get rid of it and it was dumped, I think, I don't know, 40 miles out, by Cal Salvage .
Kallok Interview	n/a	7	I questioned John about Montrose's acid waste from DDT production. John said that at the beginning, in 1947, their waste acid was picked up by California Salvage trucks at the Montrose plant. From 1947 to around 1960, most of this acid waste was dumped at sea by California Salvage. However, some waste acid was occasionally sold to other companies as a byproduct material.
Kallok Vol. 2	156	10	Q: And at this stage during the standard batch process, where was it disposed of? A: Where was it disposed of? Q: Disposed of, yes, sir. MR . DAHLQUIST: Objection. Vague and ambiguous as to the time period. Go ahead, if you're able to answer. THE WITNESS: At that period, we used a contract hauler. I think the name of the outfit was California Salvage. They would come in with a tank truck and we would load up the tank truck and he would transfer it to a barge. I'm not clear from this point on just exactly what he did with it. BY MR. ISRAEL: Q: Do you have any idea what happened after the acid was transferred to a barge? MR . DAHLQUIST: Objection. No foundation. MS . DOLMAT-CONNELL: Calls for speculation. THE WITNESS: I was told that it was transferred to a barge, and as the barge received or became full, it was transported about 60 miles out - past a certain point on the ocean, I don't recall just where, but and it was

File	DEPO Page No.	PDF Page No.	Text
			released into the ocean under permission by the Fish & Game Commission. They designated where and everything, so I - - as I said, I heard this; it's hearsay.
Suhrer Vol. 1	DEP00001961-2	151-2	A: The Montrose Henderson, California plant It would have to be fortified with oleum to -- up around 90-something percent, before it could be used. But we fortified it and shipped some of it up there. Most of it got shipped out to sea. Q: Do you know who shipped it out to sea? A: We had contracted with California Salvage Company to take care of it. Q: Were they the only company that Montrose used during the time you worked there? A: Only company I'm aware of, yes. Q: How did the separator acid get from the melter to the ocean? A: It went -- from the melter it went to separator acid storage. And when the storage tank got, oh, dangerously high, maybe three quarters full, we would call California Salvage and tell them we needed some trucks.
Suhrer Vol. 1	DEP00001964-6	154-6	Q: How often did the California Salvage people come to empty the separator acid tank? A: They probably would average in a week, there would probably be a matter of ten loads a week. Q: What was a load, one truckload? A: Yes, about 3,000 gallons. Q: What kind of truck was this? A: Tank truck. Q: Do you know where California Salvage brought the separator acid? A: California Salvage took it down to their docks in the harbor, and put it on barges, and towed the barges out to sea... Q: Did the separator acid contain any DDT A: Minor amounts probably, yes... Q: And do you know where California Salvage took the separator acid? A. They were supposed to take it out to sea, I think beyond the Continental Shelf. But there was a common joke among people that they only took it as far as they needed to, just out of sight, and started dumping right there. This I couldn't say.... Q: When was that? A: I don't remember. California Salvage liked to keep us happy, particularly the foremen. Because we could make things difficult for them if we wanted to. But they would -- every summer we would have a fishing trip on a California Salvage tug. Q: And where did they take you? A: I don't know. Q: Out to the ocean somewhere? A: No idea. Out in the ocean. Q: Now, you said it was a common joke that California Salvage dumped closer to shore. Do you know how that joke started? A: No, I don't know how it started.
Suhrer Vol. 3	DEP00002273	57	Henderson stopped using this acid some time, oh, in the mid 60s. But always there was need to send this acid out to sea by California Salvage. Q: By "always," you mean throughout the periods that you were at the Torrance plant? A: Throughout the period when we were making separator acid Q: Do you recall when you stopped making separator acid? A: They didn't stop, while I was there

Attachment B:
Summary of Interview with Steve Simanonok, April 5, 2021

Interview with Steve Simanonok, April 5, 2021

Regarding Ocean Disposal of Waste Acid from Montrose DDT Plant, Torrance, California

Responses to questions from John Lyons and Andrew Helmlinger summarized below were from memory to the best of Steve's recollection, without aid of supporting documentation or notes. Steve indicated that he would defer to any documentation or available underlying records as a better source of information, even if contrary to his recollection. This summary of the April 5th, 2021 telephone interview with Steve Simanonok was prepared by Andrew Helmlinger (ORC) and John Lyons (SEMD); and finally, edited by Steve Simanonok for clarity.

In the early 1980s, Steve was an EPA inspector performing various pesticide, PCB, and Clean Water Act inspections. Around 1982, Steve was employed by EPA working as a field investigator. Later in the 1980s, he began working under Betsy Curnow in the Superfund Division as a civil investigator. In this capacity, beginning in 1989 and continuing for several years, Steve was detailed to NOAA to work on case development for the US v. Montrose Natural Resource Damage case. Steve recalled that there was an Interagency Agreement between NOAA and EPA under which NOAA would reimburse EPA for Steve's salary. Steve retired from EPA in 2008.

During his NOAA detail, Steve reported to Mark Eames, a NOAA staff attorney, as well as regularly reporting progress on his investigation to Gerald George at the Dept. of Justice. Initially, Steve was asked to investigate discharges of DDT and PCB into the LA County Sanitation District sewers that were believed to have contaminated sediments on the Palos Verdes shelf off the Southern California coast. Later, Steve was asked by NOAA and US DOJ to investigate the historic disposal of waste acid from the Montrose Chemical Corporation of California (Montrose DDT Plant) at deep-water ocean disposal sites off the coast of Southern California.

Steve recalls previously visiting the Montrose DDT plant, as an EPA inspector in the early 1980s, while it was still in operation in Torrance, California. Montrose's DDT production process used sulfuric acid. When the sulfuric acid became saturated with DDT, it was no longer useable in the DDT production process, and waste acid was generated. This waste acid was stored in bulk tanks at the Montrose DDT plant.

Later, from his investigation with NOAA, Steve learned that Montrose waste acid was disposed at sea. Specifically, when the waste acid tanks began to reach their capacity, Montrose contracted with various liquid waste haulers to haul this waste acid directly to California Salvage Company located in the Port of Los Angeles. The liquid acid waste was then pumped into a large holding tank on a California Salvage barge. California Salvage would then combine Montrose waste acid, with other compatible acid wastes, primarily waste acid from Southern California oil refineries. At this time, other barrels of liquid and solid industrial wastes from various waste generators throughout Southern California, were also loaded aboard the California Salvage barge.

California Salvage would tow the barge to permitted deep-water ocean disposal sites off the Southern California coast. Once there, the holding tanks in the barge were drained as the barge was towed on a circular course at the disposal site until the tanks were empty. While the holding tanks were being emptied at the disposal site, the barrels of liquid and solid waste from other generators, were dumped into the ocean for disposal. Steve also recalls learning that the US Coast Guard required that any of the barrels disposed at the deep-water ocean disposal site that did not initially sink, be shot with a rifle, so they would sink and not pose a hazard to navigation. Other versions of this story report that the barrels were breached with a fire axe before being dumped overboard. However, Steve found this version to be unlikely, as breaching the barrels on the deck of the barge would have contaminated the deck and exposed the crew to harmful substances. Furthermore, it would only be the barrels that floated that required breaching, and it difficult to imagine the boat, towing a barge, to breach barrels floating at sea with an axe.

Steve recalled that during his investigation, there were various allegations that California Salvage may have "short dumped," or otherwise, began discharging liquid wastes upon leaving the Port of Los Angeles. He interviewed personnel from several agencies, and was told that the boat towing the California Salvage barge was required to radio in to the Harbormaster when they left the port, as well as when they returned to port after disposing of their wastes at the ocean disposal sites. The Harbormaster maintained these logs to verify that the ship spent sufficient time at sea to voyage to the ocean disposal site location, conduct the dumping, and then return. However, Steve was never able to locate these logs, as they were ostensibly destroyed after they served their purpose. Finally, throughout his investigation, Steve never found any evidence that "short dumping" occurred.

When asked whether he knew of Montrose storing barrels of waste acid at their DDT plant, or whether any barrels of Montrose DDT waste were dumped at ocean disposal sites; he emphatically insisted that this was not the case. The documents that he collected all confirm that DDT waste acid was transported from the Montrose DDT plant by liquid waste haulers in bulk tanker trucks, loaded aboard California Salvage barges in bulk holding tanks, and discharged at sea as liquid waste as the barge circled the disposal site. However, he explained how this confusion regarding "barrels" has developed:

Steve stated that a handful of LA City and LA County agencies created an early system of tracking the transport and disposal of industrial wastes in the 1940s and 1950s. Steve recalls that multiple agencies coordinated this effort by requiring waste haulers to file monthly reports with these agencies. Basically, the few monthly reports from this era that he saw listed the generator of the waste, the type of waste, and the quantity of waste. However, the local agencies wanted a standard unit of measurement, so all waste haulers were required to report the quantity of waste in "barrels". It's unclear if those were 48-gallon barrels used by the oil industry, or 55-gallon barrels used by the waste industry. Regardless, any bulk liquid waste hauler knew the capacity of their tanker trucks, and had to divide that total volume by either 48

or 55 gallons to file a monthly report in "barrels". Inevitably, some liquid waste haulers probably arrived at California Salvage with partial loads, and it is unknown how those volumes were reported. Also, since the local agencies required reporting in barrels, some rounding errors were probably included in the monthly reports.
[It's interesting to note that this early tracking of industrial waste became the basis for the State of California to later require Liquid Waste Hauler reports. Ultimately, EPA would use this model to require a Uniform Hazardous Waste Manifest for each shipment of hazardous waste anywhere across the United States.

Steve's investigation focused on California Salvage disposal of Montrose DDT waste acid at the permitted deep-water ocean disposal site, Site # 1, in the Santa Cruz basin off the Southern California coast. Steve stated that this site was established by the US Navy after WWII to dispose of military munitions. In fact, the founders of California Salvage were ex-Navy personnel who were aware of the disposal site, and sought permits to expand the site for Southern California industrial waste, radioactive waste, laboratory waste, and medical waste. Steve recalls that at some point the disposal site was shifted to Site #2 in the San Pedro basin, but is unsure when this occurred.

In conducting his investigation of California Salvage, Steve reviewed documents at the IT Corporation offices in Torrance (Cal Salvage became Industrial Tank Corporation and later IT Corporation). At the IT Corp offices, Steve worked with a lawyer for IT who provided indices of California Salvage documents held in an offsite storage repository. Boxes of these records were delivered daily, and Steve reviewed the files, and requested copies of any relevant documents. At the end of each day, he would issue a Receipt for Documents, which listed the date, title, and number of pages for all the documents collected that day. The documents were given to NOAA for further review, and Steve was never asked to produce a final report.