164452

FINAL REPORT

UNILATERAL ORDER

NVF COMPANY
KENNETT SQUARE, PENNSYLVANIA

RECEIVED
CERCLA REMOVAL ENFORCEMENT SECTION
SEP 01 1988
EPA-Region III

"REALISTIC SOLUTIONS FOR HAZARDOUS WASTE PROBLEMS"

REMCOR

FINAL REPORT

UNILATERAL ORDER

NVF COMPANY
KENNETT SQUARE, PENNSYLVANIA

PREPARED FOR

NVF COMPANY
YORKLYN, DELAWARE

SEPTEMBER 1, 1988

PROJECT NO. 87465

REMCOR, INC.
PITTSBURGH, PENNSYLVANIA

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1.0 INTRODUCTION

This report is submitted to the U.S. Environmental Protection Agency (EPA) pursuant to Paragraph 38 of the Unilateral Order at Docket No. III-88-15-DC (Order) issued to the NVF Company (NVF) dated March 31, 1988. A copy of the Order is included as Appendix A. Paragraph 38 provides:

> "Within 30 days of the completion of the actions called for in the Work Plan and of the sampling called for in Paragraph 36 above, Respondent shall submit to EPA a report stating that the actions set forth in the Work Plan have been completed and describing how the actions were carried out."

The detailed work plan required by Paragraph 34 of the Order (Work Plan) was submitted to EPA on May 6, 1988. The Work Plan contained provisions to meet the requirements in the Scope of Work, Attachment A to the Order, which included provisions for the removal of polychlorinated biphenyl (PCB) contaminated sediments from the drainage swale and sampling to determine PCB concentrations in the unnamed tributary and drainage ditch.

Pursuant to the EPA's written comments dated May 18, 1988 (Appendix B), Remcor, Inc. (Remcor) submitted a Work Plan Addendum on May 23, 1988 that modified certain sections of the Work Plan. In response to EPA's conditional approval received June 8, 1988 (Appendix C), Remcor submitted Addendum 2 on June 13, 1988.

EPA's May 18, 1988 letter, Appendix B, also required the preparation and implementation of an Erosion and Sedimentation Control Plan (E&SC Plan) consistent with regulationd of the Pennsylvania Department of Environmental Resources (PADER). Pursuant to 25 PA Code, Chapter 105, Remcor submitted the E&SC Plan to the Chester County Conservation District (CCCD)

for review. The E&SC Plan was also included in a permit waiver request submitted to the PADER Bureau of Dams and Waterways Management. A letter from CCCD approving the E&SC Plan is included as Appendix D; PADER's letter granting the waiver of permit requirements is included as Appendix E.

With the approval of Mr. Harry T. Daw, EPA's Project Coordinator, Remcor subsequently revised the E&SC Plan to provide for direct discharge of water to the unnamed tributary. A third and final addendum, which incorporated the Revised E&SC Plan into the Work Plan, was submitted to EPA on July 28, 1988. The Work Plan, as revised by the three addenda, constitutes the Approved Work Plan as defined under the Order. This report details Remcor's implementation of the Approved Work Plan.

2.0 IMPLEMENTATION OF THE APPROVED WORK PLAN

The Approved Work Plan provided for remedial activities at the following locations:

- Unnamed tributary
- Drainage ditch
- Drainage swale.

The following sections detail the implementation of these activities.

2.1 UNNAMED TRIBUTARY

On May 16, 1988, Remcor personnel collected five sediment samples from the unnamed tributary. The entire length of the unnamed tributary was measured and staked at 100-foot intervals beginning at the confluence with the drainage swale and ending at the West Branch of the Red Clay Creek. The locations of stakes and samples are depicted in Figure 1.

Remcor personnel then collected samples from the locations specified in the Unilateral Order. Samples were collected in accordance with the procedures contained in the Approved Work Plan. Table 1 summarizes the analytical results provided by Antech Ltd. (Antech); the laboratory reports issued by Antech were submitted to the EPA on June 3, 1988. As shown in Table 1, all samples collected from the unnamed tributary in accordance with the Approved Work Plan exhibited PCB concentrations lower than 50 micrograms per gram (µg/g or parts per million [ppm]), and therefore further removal actions were not required by the Order.

2.2 DRAINAGE DITCH

Samples from the drainage ditch were collected concurrently with those from the unnamed tributary. Remcor personnel measured and staked the drainage ditch at 50-foot intervals beginning at the Old Outfall 001. The locations of these samples are provided in Figure 1 and the results are summarized in Table 2; the laboratory reports issued by Antech were submitted to EPA on June 3, 1988. As shown in Table 2, all but one of

the samples obtained from the drainage ditch contained PCBs at concentrations in excess of 50 µg/g.

Excavation activities in the drainage ditch began on July 6, 1988. Remcor personnel removed the NVF fence and isolated the ditch by placing sandbags to the east of Old Outfall 001 and by installing silt fences (later replaced by a riprap check dam) at Outfall 001. The excavation was completed on July 9, 1988. A depth of 6 to 10 inches of soil was removed from the length of the drainage ditch. Approximately 78 tons of soil were removed from the drainage ditch and transported to the Chemical Waste Management facility in Emelle, Alabama for disposal.

As the excavation proceeded, surface samples were obtained from excavated areas at 25-foot intervals and from other randomly selected locations. These samples were analyzed using the Kwik-Skrene® procedure described in the Approved Work Plan. Of the 28 samples collected from July 7 to July 9, 1988, 19 samples showed positive Kwik-Skrene® results, which indicated PCB concentrations of greater than 20 ppm. Four of the samples that exhibited positive results were submitted to Antech for confirmation of PCB concentrations. The laboratory report for these samples was submitted to EPA on July 21, 1988; these results confirmed the presence of PCBs at concentrations above 20 ppm. In order to investigate the extent of contamination, 13 samples were obtained from shallow depths and analyzed using the Kwik-Skrene® procedure. Nine of 13 samples showed positive results at a PCB detection level of 20 ppm. At this point, excavation activities in the drainage ditch were suspended.

A further sampling program was initiated to investigate the drainage ditch on August 10, 1988. Soil samples were obtained from 11 different locations at depths up to 48 inches and were analyzed using the Kwik-Skrene® procedure. The August 1988 Kwik-Skrene® results for the drainage ditch are summarized in Table 3. The majority of samples showed positive results at a PCB detection level of 50 ppm. These data indicate that PCB concentrations in the drainage ditch are substantially

different than originally envisioned. Three of the samples were submitted for PCB analyses; the laboratory report issued by Antech was received on September 1, 1988 and is included as Appendix F. These data confirm that PCBs are present at significant depth.

Prior sampling by EPA in the drainage ditch indicated surface concentrations from 30.4 to 59.3 ppm. Waterborne PCBs emanating from Old Outfall 001 would not be expected to result in contamination at the depth encountered. Based on the actions to date, including removal of surficial sediments and construction of a check dam at present Outfall 001, and the immobility of PCBs in soil, there is no apparent imminent and substantial endangerment to the public health, welfare, or the environment as a result of this newly discovered contamination zone.

2.3 DRAINAGE SWALE

Removal actions for the drainage swale were delayed until PADER permit requirements were satisfied. The waiver of permit requirements under 25 PA Code, Chapter 105 is discussed in Chapter 1.0.

Removal actions began by emplacing surface water control structures. A sediment trap and silt fence were constructed at the confluence with the unnamed tributary, and the bypass pumping system was installed. During a site visit by EPA and Remcor personnel, it was observed that a significant quantity of water was being impounded at the sediment trap. EPA subsequently approved the direct discharge of water to the unnamed tributary.

Excavation activities commenced on August 10, 1988. The first-pass excavation of six to eight inches was completed in three sections. As sediments were removed, samples were obtained and analyzed using the Kwik-Skrene® procedure. After the first-pass excavation, the following areas (measured from the present Outfall 001) showed positive Kwik-Skrene® results at a PCB control level of 20 ppm:

- From 50 to 125 feet
- From 340 to 375 feet
- At 425 feet
- At 475 feet
- At 625 feet.

Kwik-Skrene® analyses were then used to delineate areas of elevated PCB concentrations at these locations. Additional excavation was performed as follows:

- 12 inches of sediments were removed from 40 to 60 feet
- 6 inches of sediments were removed from 60 to 135 feet
- 6 inches of sediments were removed from 330 to 385 feet
- 6 inches of sediments were removed from 415 to 435 feet
- 6 inches of sediments were removed from 465 to 485 feet
- 6 inches of sediments were removed from 615 to 635 feet.

Approximately 230 tons of sediments were removed from the drainage swale and transported to the Chemical Waste Management facility in Emelle, Alabama for disposal.

Confirmatory sampling was conducted on August 17 and 18, 1988. Surface soil samples were collected from excavated areas and analyzed using the Kwik-Skrene® procedure. Sample locations are shown in Figure 2. All samples showed negative results at a PCB control level of 20 ppm. These samples were submitted to Antech for PCB analyses on August 22, 1988.

On August 26, 1988, NVF advised Mr. Daw that it believed all field work had been completed, subject to the results of laboratory analyses. Mr. Daw indicated that he would inspect the site.

Orally reported preliminary results indicated that five samples contained PCB concentrations greater than 25 μg/g. The sample locations are as follows:

- 200 feet from present Outfall 001
- 250 feet from present Outfall 001
- 300 feet from present Outfall 001
- 350 feet from present Outfall 001
- 500 feet from present Outfall 001.

The laboratory report issued by Antech was received on September 1, 1988 and is included as Appendix F; the sample results are summarized in Table 4.

After giving notice to Mr. Daw of the preliminary results, Remcor personnel remobilized to the site on August 29, 1988. An additional three to six inches of soil were removed from affected areas. After excavation was complete, confirmatory samples were obtained and analyzed using the Kwik-Skrene® procedure. These samples exhibited negative results and were submitted to Antech for PCB analyses. The confirmatory samples obtained on August 31 and September 1, 1988 are summarized in Table 5. The laboratory reports for these samples will be submitted to EPA upon receipt. At the request of EPA, samples were obtained at 50-foot intervals for a distance of 150 feet below the bridge. These samples were requested by EPA to ensure that areas downstream of the excavation zone were not recontaminated. The samples were analyzed using the Kwik-Skrene® procedure at a detection level of 10 ppm. The samples taken at 375 and 400 feet show negative results; PCBs were detected in the sample collected at 450 feet. As a precautionary measure, additional soil was removed from the 450-foot location and the area was resampled. The Kwik-Skrene® results for these samples are contained in Table 5; these samples were not submitted to Antech for PCB analyses.

Following removal actions, the drainage swale was regraded as necessary to establish a stable, non-eroding channel. Appendix G contains velocity calculations for the drainage swale; these calculations show that permissible velocities will not be exceeded. The bottom and side slopes

were lined with jute matting and the side slopes were seeded with a mixture of rapid-emergent and perennial grasses. In accordance with the E&SC Plan, more extensive permanent control measures were not necessary.

TABLES

TABLE 1

SAMPLE RESULTS
UNNAMED TRIBUTARY
MAY 16, 1988

SAMPLE NO.	LOCATION	POLYCHLORINATED BIPHENYL (PCB) CONCENTRATION[1]
UT-20+00	2,000 feet from the confluence with the drainage swale	2/4 µg/g[2,3]
UT-16+00	1,600 feet from the confluence with the drainage swale	4 µg/g
UT-10+00	1,000 feet from the confluence with the drainage swale	28 µg/g
UT-07+00	700 feet from the confluence with the drainage swale	25 µg/g
UT-01+50	150 feet from the confluence with the drainage swale	2 µg/g

(1) PCBs were characterized as Aroclor 1242 or 1248.

(2) "#/#" indicates sample was analyzed in duplicate.

(3) "µg/g" indicates micrograms per grams or parts per million (ppm).

TABLE 2

SAMPLE RESULTS
DRAINAGE DITCH
MAY 16, 1988

SAMPLE NO.	LOCATION	POLYCHLORINATED BIPHENYL (PCB) CONCENTRATION[1]
DD-000	At Old Outfall 001	18 µg/g[2]
DD-050	50 feet from Old Outfall 001	240 µg/g
DD-100	100 feet from Old Outfall 001	180 µg/g
DD-150	150 feet from Old Outfall 001	96 µg/g
DD-201	200 feet from Old Outfall 001	130 µg/g
DD-202	Field replicate of DD-201	130 µg/g
DD-250	250 feet from Old Outfall 001	320 µg/g
DD-300	300 feet from Old Outfall 001	440 µg/g
DD-350	350 feet from Old Outfall 001	320/390 µg/g[3]

[1] PCBs were characterized as Aroclor 1248.

[2] "µg/g" indicates micrograms per grams or parts per million (ppm).

[3] "#/#" indicates sample was analyzed in duplicate.

TABLE 3

KWIK-SKRENE® RESULTS
DRAINAGE DITCH
AUGUST 1988

SAMPLE NO.	FEET FROM OLD OUTFALL 001 (depth)	KWIK-SKRENE RESULT(1)
41	0, 6" deep	-(2)
49	25, 6" deep	-
42	50, 6" deep	Positive
50	50, 12" deep	Positive
57	50, 18" deep	Positive
76	50, 24" deep	Positive
123	50, 30" deep	Positive
129	50, 36" deep	Positive
130	50, 48" deep 2500 ppm	Positive(3)
43	100, 6" deep	Positive
51	100, 12" deep	-
52	125, 6" deep	Positive
58	125, 12" deep	Positive
77	125, 18" deep	Positive
124	125, 24" deep	Positive
131	125, 36" deep	Positive
132	125, 42" deep	-
44	150, 6" deep	-
45	200, 6" deep	-
53	225, 6" deep	Positive
59	225, 12" deep	Positive
78	225, 18" deep	Positive
125	225, 24" deep	Positive
133	225, 36" deep	Positive

See footnotes at end of table.

TABLE 3
(Continued)

SAMPLE NO.	FEET FROM OLD OUTFALL 001 (depth)	KWIK-SKRENE RESULT[1]
46	250, 6" deep	Positive
54	250, 12" deep	Positive
60	250, 18" deep	Positive
79	250, 24" deep	Positive
82	250, 30" deep	Positive
126	250, 36" deep	Positive
134	250, 48" deep 1500 ppm	Positive[3]
47	300, 6" deep	Positive
55	300, 12" deep	Positive
61	300, 18" deep	Positive
80	300, 24" deep	Positive
127	300, 30" deep	Positive
135	300, 42" deep	Positive
48	350, 6" deep	Positive
56	350, 12" deep	Positive
62	350, 18" deep	Positive
81	350, 24" deep	Positive
83	350, 36" deep	Positive
128	350, 42" deep	Positive
136	350, 48" deep 9000 ppm	Positive[3]

[1] Samples were analyzed using a Kwik-Skrene® control of 50 parts per million (ppm).

[2] "_" indicates negative results.

[3] Sample submitted to Antech Ltd. for PCB analysis.

TABLE 4

SAMPLE RESULTS
DRAINAGE SWALE
AUGUST 17 AND 18, 1988

SAMPLE NO.	FEET FROM PRESENT OUTFALL 001	POLYCHLORINATED BIPHENYL CONCENTRATIONS[1]
137	60	2/3 μg/g[2,3]
138	100	4
139	150	2
147	150, west side	3
140	200	65
141	250	24
144	250, east side	27
142	300	150
146	300, east side	69
148	300, west side	24
143	350	110
149	390	<1[4]
145	425, east side	<1
150	450	2
151	500	31
152	550	6
153	600	8
155	600, west side	<1
156	625, east side	<1/<1
154	650	3

(1) Samples were analyzed using a Kwik-Skrene® detection level of 20 parts per million (ppm). All samples showed negative results and were submitted to Antech Ltd. for analyses.

(2) "#/#" indicates sample analyzed in duplicate.

(3) "μg/g" indicates micrograms per gram.

(4) "<1" indicates less than method detection limit.

TABLE 5

KWIK-SKRENE® RESULTS
DRAINAGE SWALE
AUGUST 31 AND SEPTEMBER 1, 1988

SAMPLE NO.	DATE	FEET FROM PRESENT OUTFALL 001	KWIK-SKRENE RESULTS[1]
165	September 1	200	_[2,3]
166	September 1	250	_[3]
157	August 31	300	_[3]
159	August 31	300, east side	_[3]
160	August 31	300, west side	_[3]
158	August 31	350	_[3]
164	September 1	500	_[3]
161	August 31	375	_[4]
162	August 31	400	_[4]
163	August 31	450	Positive[4]
167	September 1	450	-

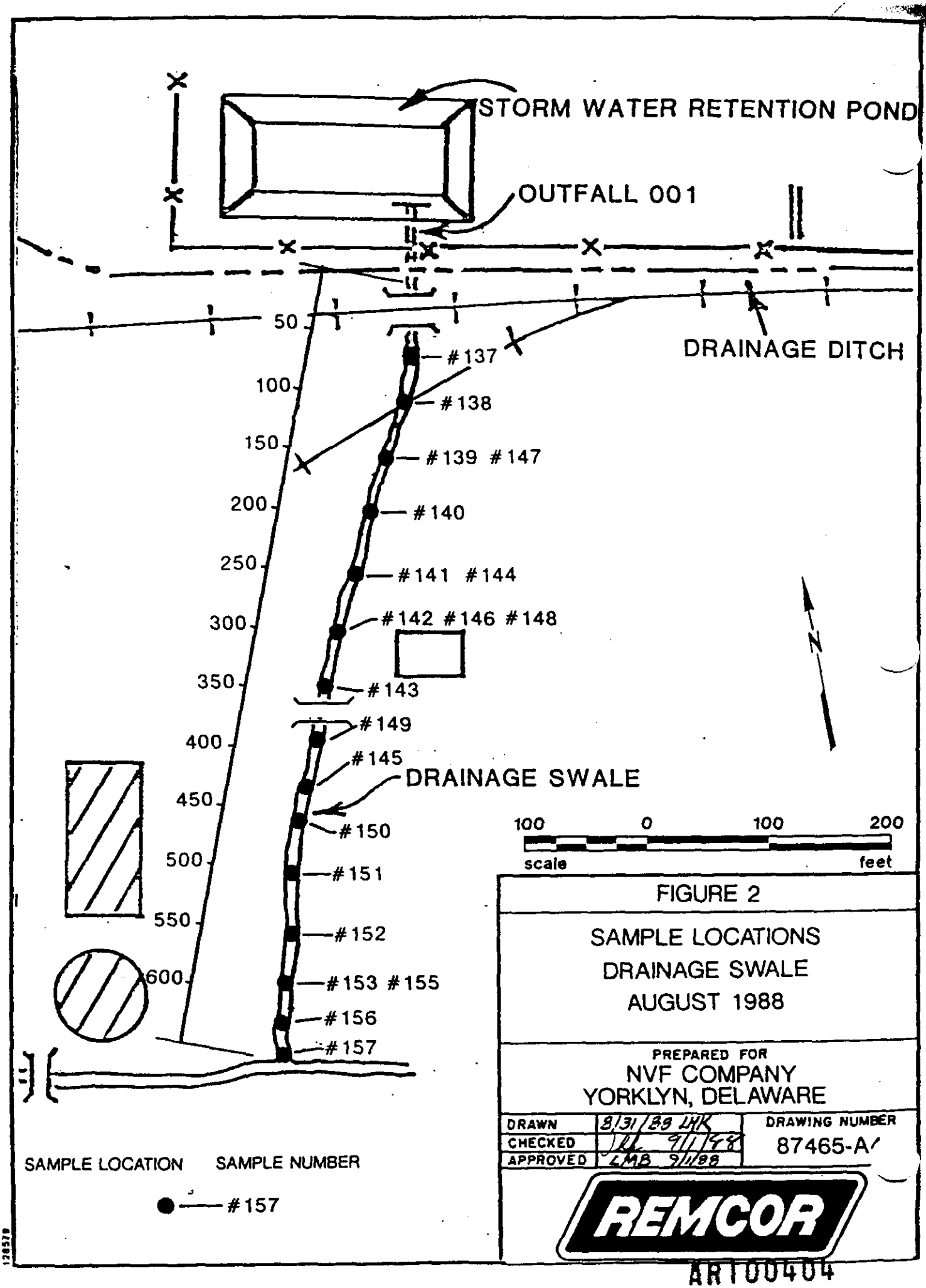
[1] Samples were analyzed using a Kwik-Skrene® detection level of 10 parts per million (ppm).

[2] "_" indicates negative Kwik-Skrene® result.

[3] Sample submitted to Antech Ltd. for analyses.

[4] Sample requested by EPA.

FIGURES


STORM WATER RETENTION POND
OUTFALL 001
DRAINAGE DITCH
50
100
150
200
250
300
350
400
450
500
550
600
#137
#138
#139 #147
#140
#141 #144
#142 #146 #148
#143
#149
#145
DRAINAGE SWALE
#150
#151
#152
#153 #155
#156
#157
N
100 0 100 200
scale feet
SAMPLE LOCATION
SAMPLE NUMBER
#157
FIGURE 2
SAMPLE LOCATIONS
DRAINAGE SWALE
AUGUST 1988
PREPARED FOR
NVF COMPANY
YORKLYN, DELAWARE
DRAWN 8/31/88 LHK
CHECKED 9/1/88
APPROVED LMB 9/1/88
DRAWING NUMBER
87465-A
REMCOR

APPENDIX A

UNILATERAL ORDER

REMCOR-L. Brausch, P'burgh; cc: NVF-RSDavis, AJGreen, WJCampbell, SWKovach, WMBair, RHMuncey. 4/4/88

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

MAR 3 1 1988

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APR 04 1988
ENGINEERING

In Reply Refer To: 3HW14

Mr. William Witt, P.E.
Director of Engineering
NVF Company
Operating Headquarters
P.O. Box 68
Yorklyn, DE 19736

Re: NVF Site; Unilateral Order

Dear Mr. Witt:

Enclosed is a copy of a unilateral order executed by the Regional Administrator, Region III, United States Environmental Protection Agency (EPA) directing NVF's removal of contaminated soils at the above-referenced site. The order is issued pursuant to the authority of Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. Section 9606(a), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). The order concerns removal of contaminated soils in the swale and the unnamed tributary to the West Branch of the Red Clay Creek in Kennett Square, Pennsylvania.

As you know, EPA issued the NVF Company a similar unilateral administrative order on December 1, 1987. The purpose of that order was to schedule removal activities to be performed by NVF in the swale and unnamed tributary adjacent to the NVF property in Kennett Square. Pursuant to that Order, NVF was required to begin removal actions at the site within specified time periods. These time periods have long since passed.

In response to that order, NVF requested a meeting with EPA. That meeting took place on December 23, 1987, to discuss the work requirements and to submit a proposal to EPA regarding the offsite work.

As a result of that meeting, Mary Letzkus wrote you a letter on January 14, 1988 which stated, among other things, that the proposal, submitted by NVF for offsite work, was acceptable as far as it went, but fell far short of the goals that EPA had for remediation of this site. EPA said it would accept NVF's proposal if NVF agreed to conduct appropriate sampling in the unnamed tributary to accurately characterize its contamination, and to remove all soils and sediments found in excess of 50 ppm for PCBs.

On January 28, 1988, Mr. McIlvain wrote EPA stating that EPA's counter-proposal was under consideration, and a final determination would be made once NVF received the information it had requested in its FOIA request dated 12/8/87. Making a FOIA request in no way postponed NVF's responsibility to carry out EPA's order. Nonetheless, the FOIA process did go forward, and on January 29, 1988, some 1200 pages of materials were sent to Mr. McIlvain, pursuant to the FOIA. Approximately 12 pages of handwritten notes and drafts were determined to be exempt from disclosure; Mr. McIlvain has EPA's letter denying those materials.

On March 2, 1988, Mr. McIlvain called Cynthia Nadolski to say NVF's proposal was on its way to EPA. Ms. Nadolski called Mr. McIlvain on March 15, 1988 to say EPA had received nothing. Mr. McIlvain stated EPA would receive the proposal on March 18, 1988.

NVF's proposal for offsite work was received on March 18 as promised by Mr. McIlvain. In the letter transmitting the proposal, Mr. McIlvain again agreed that NVF was not responsible for the offsite contamination and included a number of conditions on NVF's performance of the work. These conditions are unacceptable to EPA. Mr. McIlvain's other statements have been previously addressed.

The enclosed order supersedes EPA's unilateral order of 1987. You will note that the only differences between this order and that of December 1 are as follows: 1) EPA has incorporated NVF's proposal for offsite work; and 2) NVF is ordered to sample the unnamed tributary, the area between old and new outfall 001, and to remove all soil and sediments found in excess of 50 ppm PCB.

The first step in this process is the preparation of a Work Plan for EPA approval. EPA has received the proposal submitted on March 18, 1988, and will send comments to the proposal by separate letter. If NVF fails to comply with

the enclosed order, EPA will take appropriate enforcement measures. If you have any questions concerning this order, please contact Harry Daw, Environmental Engineer, at (215) 597-6680, or Cynthia Nadolski, Office of Regional Counsel, at (215) 597-9912.

Sincerely,

Stephen R. Wassersug, Director
Hazardous Waste Management Division

Enclosure

United States Environmental Protection Agency

Region III

In the Matter Of: NVF Company Kennett Square, Pennsylvania Respondent Proceeding under Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. § 9606(a)), as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, 100 Stat. 1613(1986).	)	Docket No: III-88-25-DC

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ENGINEERING

ORDER

The following Order by the United States Environmental Protection Agency ("EPA") is issued to the NVF Company ("NVF") pursuant to the authority vested in the President of the United States of America by Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("CERCLA"), 42 U.S.C. §9606(a), as amended by the Superfund Amendments and Reauthorization Act of 1986 ("SARA"), Pub. L No. 99-499, 100 Stat. 1613, and delegated to the Regional Administrators of EPA. This Order pertains to property located in the borough of Kennett Square, Chester County, Pennsylvania. The property will hereinafter be referred to as the "NVF site" or "the site."

The actions taken pursuant to this Order shall be consistent with the National Oil and Hazardous Substances Contingency Plan, 40 C.F.R.

§300.65 ("NCP"). Notice of the issuance of this Order has been given to the Commonwealth of Pennsylvania. This Order shall become effective upon receipt by Respondent.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

EPA has concluded that all determinations necessary for the issuance of this Order, pursuant to Section 106(a) of CERCLA, 42 U.S.C. §9606(a), have been made. EPA finds the following:

1. The Respondent, NVF Company, is a corporation organized and existing under the laws of the State of Delaware.

2. The NVF site is located at the corner of Mulberry and Lafayette Street Kennett Square, Pennsylvania and encompasses an area of 26.13 acres.

3. The site has been owned and operated by NVF from the early 1920's to the present for the manufacture of composite materials and industrial laminates.

4. The site is situated in a moderately populated rural area. An adjacent mushroom farm is bisected by the southwesterly flow of the unnamed tributary. This unnamed tributary flows into the West Branch of the Red Clay Creek.

5. This Order pertains to three areas: the NVF facility, the swale leading from the Site, and the unnamed tributary to the West Branch of the Red Clay Creek.

6. Analysis of fish collected from the Red Clay Creek by the U.S. Fish and Wildlife Service on August 16, 1982 revealed the presence of Poly-chlorinated Biphenyls ("PCBs") in excess of the Food and Drug Administration's Action Level for this substance in fish flesh.

7. On January 27, 1983 and subsequent dates, the Pennsylvania Department of Environmental Resources ("PA DER") collected sediment and water samples from the stream at selected intervals from downstream to upstream. Analysis of these samples indicated that NVF's Kennett Square facility was a source of the PCB contamination in the West Branch of the Red Clay Creek.

8. On May 9, 1983 PA DER inspected NVF and found PCBs in the non-contact cooling water of outfall 001 and in the sediment of the swale which extends in a southerly direction into the unnamed tributary of the West Branch of the Red Clay Creek. Based upon analyses performed by E.H. Richardson Associates, Inc., NVF determined that the source of the PCB contamination in outfall 001 was residue in the number seven press pit. For several years during the 1960's a heat transfer fluid containing PCBs was used in press number seven.

9. In December of 1983, surface residues including sludges and debris were removed from the pit. Although some surface cleaning had been performed, PCB contamination in the swale and unnamed tributary to the West Branch of the Red Clay Creek remained.

10. A site assessment was performed by the EPA Region III Field Investigation Team ("FIT") on February 12, 1986 in accordance with the NCP 40 C.F.R. §300.64. Sampling conducted since that time has documented the presence of PCBs in the

swale sediment offsite in concentrations ranging from 44 ppm to 11,000 ppm

11. On June 12, 1987, EPA entered into a Consent Order and Agreement ("CO&A") with the NVF Company for the performance of sampling in the number seven press pit, the storm water control basin, the electrical substations, and various offsite locations in the area.

12. A report detailing the actions taken at the Site in compliance with the CO&A was submitted to EPA on August 30, 1987. The submittal of this report established full compliance with the terms and stipulations of the June 12, 1987 CO&A.

13. Review of this report revealed levels of PCBs of up to 1,900 ppm imbedded in the concrete of the press pit. A level of 6800 ppm was found in a scrape sample of a pipe leading from the press pit into an adjacent sump.

14. Levels of PCBs ranging from 4 ppm to 590 ppm were found at, or around, the thirteen (13) electrical substations at the plant.

15. Sediment samples taken from the storm water control basin show levels of PCBs ranging from 7 ppm to 28 ppm.

16. Sampling performed by EPA's Field Investigation Team on May 26, 1987 revealed levels of PCBs ranging from 30.4 ppm to 59.3 ppm at NVF's former outfall 001.

17. Additional sediment samples taken upgradient of the NVF plant near a Philadelphia Electric Company substation found levels of 0.11 ppm to 0.43 ppm for PCBs.

18. On October 19, 1987, the EPA On-Scene Coordinator ("OSC") met with representatives of NVF onsite. Based upon the report submitted by NVF and other sampling analysis, the OSC gave the NVF representatives notice to clean-up contaminated soils and sediments along the railroad tracks between old and new outfalls 001, the swale, and the unnamed tributary. They were given until close of business ("COB") October 20, 1987 to respond to the OSC's request.

19. NVF did not respond to the OSC's request by COB October 20, 1987.

20. Poly-chlorinated Biphenyls ("PCBs") found at the NVF site are hazardous substances as defined in Section 101(14) of CERCLA, 42 U.S.C. §9601(14).

21. PCBs have been found to be carcinogenic in experimental studies with test animals and are a suspected carcinogen in humans.

22. The actual release of PCBs from the NVF facility into the swale has created a significant health threat due to the actual or potential release of PCBs from the swale into the unnamed tributary to the West Branch of the Red Clay Creek.

23. The site is a facility as defined in Section 101(9) of CERCLA, 42 U.S.C. §9601(9).

24. The Respondent is a "person" within the meaning of Section 101(21) of CERCLA, 42 U.S.C. §9601(21).

25. The past, present, and continued migration of hazardous substances from the facility into the swale and from the swale into the unnamed tributary constitutes an actual or threatened "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. §9601(22).

26. Respondent is a responsible party pursuant to Section 107(a) of CERCLA, 42 U.S.C. §9607(a).

27. In order to protect the public health, welfare, or the environment, it is necessary that certain actions be taken to abate the release and threatened release of hazardous substances from the site.

DETERMINATION

28. EPA has determined that there may be an imminent and substantial endangerment to the public health, welfare, or the environment as a result of the release or threat of release of hazardous substances from the facility into the swale and from the swale into the unnamed tributary.

29. EPA has determined that the actions set forth below must be taken to protect public health, welfare, or the environment.

WORK TO BE PERFORMED

30. This Order shall apply to and be binding upon the Respondent, its agents, successors, and assigns and upon all persons carrying out the terms of this Order.

31. Pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a), the Respondent shall commence performance of the following measures within the time periods specified. All measures described below shall be completed within 150 calendar days of the effective date of this Order.

32. All actions taken under this Order shall be accomplished in a manner which complies with the requirements of all applicable local, state, and federal laws and regulations.

33. Within fourteen (14) days of the effective date of this Order, Respondent shall retain a qualified contractor to perform the sampling and removal actions described in the attached Scope of Work ("Attachment A") which is hereby incorporated by reference, and shall notify EPA in writing of the identity of the person or persons who will be primarily responsible for, and any contractor and/or subcontractor to be used in carrying out, the terms of this Order. EPA may disapprove the use of any supervisory personnel, contractor, or subcontractor within seven (7) days of notification, if EPA believes they are not qualified to perform the response work. In the event of a disapproval, Respondent shall notify EPA within fifteen (15) days of the person, contractor or subcontractor who will replace the one whom EPA disapproved.

34. Within ten (10) days of approval of the contractor by EPA, Respondent shall submit to EPA for approval a detailed Work Plan that complies with the requirements of the aforementioned Scope of Work.

35. In the event of any disapproval of, or modifications to the Work Plan, the EPA PC shall specify the Work Plan's deficiencies in writing. Within five days of its receipt of EPA notification, Respondent shall amend and submit to EPA a revised plan that responds to the specified deficiencies. In the event of disapproval of the revised plan, EPA retains the right to submit its own plan to the Respondent for implementation. Within seventy-two (72) hours of submittal of an approved Work Plan, the Respondent shall begin to implement the Work Plan.

36. Within 90 days of approval of the Work Plan by EPA, Respondent shall perform the sampling and removal actions required by the approved Work Plan and submit the results to EPA.

37. Upon completion of the actions required by the Work Plan, Respondent shall perform additional sampling under direction of EPA to confirm the effectiveness of the removal action.

38. Within 30 days of the completion of the actions called for in the Work Pl and of the sampling called for in Paragraph 36 above, Respondent shall submit to EPA a report stating that the actions set forth in the Work Plan have been completed and describing how the actions were carried out.

39. Upon receipt of the report, EPA shall perform a final inspection to determine whether the Respondent has complied with the terms of this Order and shall advise Respondent as to whether the provisions of this Order have been satisfied.

40. Respondent shall advise EPA's PC of any sampling analysis or monitoring results within forty-eight (48) hours of receiving the results.

41. In the event that Respondent fails or refuses to comply with the requirements of Paragraphs 33 through 37, EPA may undertake such measures in lieu of Respondent, and take any other measures which the EPA determines may be necessary to protect public health, welfare, or the environment.

42. During the course of the Respondent's actions taken pursuant to this Order, EPA may halt site activity if there is a threat to public health, welfare, or the environment as described in 40 C.F.R. §300.65 due to unsafe working conditions or improper work practices, or unanticipated problems, conditions, or events.

43. Documents, including reports and other correspondence, required to be submitted pursuant to this Order shall be sent certified or express mail to the following:

Harry T. Daw (3HW14)
CERCLA Removal Enforcement Section
U.S. EPA, Region III
841 Chestnut Building
Philadelphia, PA 19107
(215) 597-6680

44. Notwithstanding any other provisions set forth herein, EPA reserves the right to take any appropriate action relating to the site, including the right to seek monetary penalties for any violation of law or this Order, to issue additional Orders under Section 106(a) of CERCLA, 42 U.S.C. § 9606(a), and/or to institute suit for recovery of response costs pursuant to Section 107 of CERCLA, 42 U.S.C. § 9607.

are the subject of this Order, the EPA PC may make modifications to the Work Plan. Such modifications will be made by letter from the PC to the Respondent.

49. The Respondent shall provide a copy of this Order to all contractors, subcontractors, laboratories, and consultants retained to conduct any portion of the work performed pursuant to this Order within two (2) days of the effective date of such retention.

50. Any reports, plans, specifications, schedules, and attachments required by this Order and approved by EPA are incorporated into this Order. Any non-compliance with such EPA approved reports, plans, specifications, schedules, and attachments shall be considered a failure to achieve the requirements of this Order. Determinations of non-compliance shall be made by EPA.

51. To the extent that portions of the site are presently owned by parties other than those bound by this Order, the Respondent will use its best efforts to obtain site access agreements from the present owners within 5 calendar days of the effective date of this Order. Such agreements shall include provisions for reasonable access by EPA and its authorized representatives.

QUALITY ASSURANCE

52. The Respondent shall use quality assurance/quality control practices and procedures, including chain-of-custody procedures, in accordance with guidance provided in the "EPA NEIC Policies and Procedures Manual," May

1978, revised June 1985, EPA-330-9/78-001-R, and "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans," December 1980, QAMS-005/80, while conducting all sample collection and analysis activities required by this Order. The Respondent shall consult with the EPA PC in planning for, and prior to, all sampling and analysis required by this Order.

PENALTIES FOR NON-COMPLIANCE

53. Respondent is advised that willful violation or failure or refusal to comply with this Order or any provision thereof, without sufficient cause, may subject the Respondent, pursuant to Section 106(b) of CERCLA, 42 U.S.C. § 9606(b), to a civil penalty of not more than $25,000 for each day in which such violation occurs or such failure to comply continues. Failure to comply with this Order, or any portion thereof, without sufficient cause, may subject Respondent, pursuant to Section 107(c)(3) of CERCLA, 42 U.S.C. §9607(c)(3), to liability for punitive damages in an amount up to three times the amount of any costs incurred by the government as a result of failure by Respondent to take proper action.

FORCE MAJEURE

54. The Respondent shall notify EPA of any delay or anticipated delay in achieving compliance with any requirement of this Order. Such notification shall be made verbally as soon as possible but no later than two (2) business days after such delay or anticipated delay and in writing no later than seven (7) calendar days after Respondent becomes aware

of such delay or anticipated delay. The written notification shall describe fully the nature of the delay, the reasons the delay is beyond the control of Respondent, the actions that will be taken to mitigate, prevent and/or minimize further delay, the anticipated length of the delay and the timetable according to which the actions to mitigate, prevent and/or minimize the delay will be taken. The Respondent shall adopt all reasonable measures to avoid or minimize any such delay.

Any such delay that results from circumstances beyond the control of the Respondent and that cannot be overcome by due diligence on the Respondent's part, shall not be deemed to be a violation of its obligation(s) under this Order, and shall not make the Respondent liable for the penalties contained in Paragraph 53, "Penalties for Non-Compliance", above. To the extent a delay is caused by circumstances beyond the control of the Respondent, the schedule affected by the delay shall be extended for a period equal to the delay directly resulting from such circumstances. Increased costs of performance of the terms of this Order or changed economic circumstances shall not be considered circumstances beyond the control of the Respondent.

Failure of the Respondent to comply with the notice requirements of this paragraph shall constitute a waiver of the Respondent's right to invoke the benefits of this paragraph with respect to that event.

The Respondent shall have the burden of proving that the delay was caused by circumstances beyond its control which could not have been overcome by the exercise of due diligence, the necessity of the proposed length of the delay, and that the Respondent took all reasonable measures to avoid or minimize delay.

TERMINATION AND SATISFACTION

The provisions of this Order shall be deemed satisfied upon Respondent's receipt of written notice from EPA that it has demonstrated, to the satisfacti of EPA, that all of the terms of this Order have been completed.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: 3/31/88

BY: _____
JAMES M. SEIF
REGIONAL ADMINISTRATOR
EPA, REGION III

SCOPE OF WORK

NVF SITE, KENNETT SQUARE, PENNSYLVANIA

The objectives of the sampling and removal actions required by this Order are to quantify all areas of contamination, in excess of EPA PCB Spill Clean Up Policy levels, as they pertain to soils in places of unrestricted access, that exist in the swale and the unnamed tributary, and to effectively stop the migration of these contaminants downstream. Surface water, sediment, and fish tissue analyses performed by the Pennsylvania Department of Environmental Resources and the U.S. Environmental Protection Agency have shown that waterways adjacent to, and downstream from, the NVF property have significant levels of, among other substances, poly-chlorinated biphenyls. Subsequent sampling by the NVF Company and EPA has shown that PCB contamination still exists in the surrounding waterways and that the NVF property still exhibits significant levels of uncontrolled PCBs.

In compliance with this Order, NVF shall:

1. Implement the work plan submitted to EPA on December 23, 1987, with the following modifications:

a. provide effective erosion control in the tributary prior to the installation of the sediment trap;

b. disperse pumped water from the swale such that it does not cause additional erosion in the unnamed tributary;

c. conduct sediment/soil sampling in the unnamed tributary at 150, 700, 1000, 1600 and 2000 feet from the confluence of the swale and the unnamed tributary;

d. if samples show concentrations of PCBs in excess of 50 ppm, additional sampling is to be conducted in the swale. Sampling shall occur at ten foot intervals on either side of the originating point of where 50 ppm or greater was found. This shall continue until results show 10 ppm or less for PCBs. This search pattern is intended to define the soil removal area. Respondent must consult with EPA prior to initiation;

e. conduct soil sampling between old and new outfall 001, if concentrations in excess of 50 ppm are found, see part d for removal rationale;

f. initial sample collection and analyses of the tributary must be of the method indicated in the work plan submitted to EPA on 12/23/87;

g. soils found in excess of 50 ppm will be removed from the tributary as cited in the above-referenced proposal, taking into consideration the streambed variances when planning erosion control in the streambed.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

RECEIVED MAY 0 3 1988
MAY 0 5 1988
ENGINEERING

Mr. William Witt, P.E.
Director of Engineering
NVF Company
Operating of Headquarters
P.O. Box 68
Yorklyn, DE 19736

Re: Unilateral Order; NVF Site, Kennett Square, Pennsylvania.

Dear Mr. Witt:

This will confirm our conversation of April 29 advising you that Remcor, Inc. is approved as contractor under the terms of the Order.

Additionally, I am in receipt of Harley Trice's April 25, 1988 letter which states that paragraph 1(d) of the scope of work attached to the Order inadvertently refers to the swale instead of the unnamed tributary. This will serve to amend the scope of work to read "unnamed tributary" instead of "swale." A revised scope of work is enclosed which supersedes the one issued as an attachment to the March 31, 1988 Order.

I am also in receipt of Remcor's Work Plan Addendum to the detailed Work Plan submitted pursuant to the Consent Order. The Addendum is approved as submitted.

Sincerely,

Harry T. Daw

Harry T. Daw, Environmental Engineer
CERCLA Removal Enforcement Section

Enclosure

cc: Cynthia Steele
Cynthia Nadolski

SCOPE OF WORK
NVF SITE, KENNETT SQUARE, PENNSYLVANIA

The objectives of the sampling and removal actions required by this Order are to quantify all areas of contamination, in excess of EPA PCB Spill Clean Up Policy levels, as they pertain to soils in places of unrestricted access, that exist in the swale and the unnamed tributary, and to effectively stop the migration of these contaminants downstream. Surface water, sediment, and fish tissue analyses performed by the Pennsylvania Department of Environmental Resources and the U.S. Environmental Protection Agency have shown that waterways adjacent to, and downstream from, the NVF property have significant levels of, among other substances, poly-chlorinated biphenyls. Subsequent sampling by the NVF Company and EPA has shown that PCB contamination still exists in the surrounding waterways and that the NVF property still exhibits significant levels of uncontrolled PCBs.

In compliance with this Order, NVF shall:

1. Implement the work plan submitted to EPA on December 23, 1987, with the following modifications:

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c. conduct sediment/soil sampling in the unnamed tributary at 150, 700, 1000, 1600 and 2000 feet from the confluence of the swale and the unnamed tributary;

d. if samples show concentrations of PCBs in excess of 50 ppm, additional sampling is to be conducted in the swale. Sampling shall occur at ten foot intervals on either side of the originating point of where 50 ppm or greater was found. This shall continue until results show 10 ppm or less for PCBs. This search pattern is intended to define the soil removal area. Respondent must consult with EPA prior to initiation;

e. conduct soil sampling between old and new outfall 001, if concentrations in excess of 50 ppm are found, see part d for removal rationale;

f. initial sample collection and analyses of the tributary must be of the method indicated in the work plan submitted to EPA on 12/23/87;

g. soils found in excess of 50 ppm will be removed from the tributary as cited in the above-referenced proposal, taking into consideration the streambed variances when planning erosion control in the streambed.

APPENDIX B

EPA CORRESPONDENCE: MAY 18, 1988

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

MAY 18 1988

Mr. William Witt, P.E.
Director of Engineering
NVF Company
Operating Headquarters
P.O. Box 68
Yorklyn, DE 19736

Re: NVF Site: Off-site Work Plan Review.

Dear Bill:

I have reviewed the "Detailed Work Plan for Off-Site Removal Actions and Sampling Activities" submitted on your company's behalf by Remcor, Inc. on May 9, 1988. The plan was submitted pursuant to the requirements of the EPA Order issued to NVF on March 31, 1988 (Docket No. III-88-25-DC). My comments are as follows:

1. In parts 1.d,e of the Scope of Work, attached to the March 31 Order and referenced in parts 9 and 10 of my April 12, 1988 letter to you, it is stated that soils contaminated with PCBs in excess of 50 ppm are to be excavated from the tributary and the drainage ditch. For the purpose of this Order, 50 ppm is used as an action level, not as a cleanup standard. As you are aware, we have been using the EPA PCB Spills Policy as the basis for cleanup standards at the site. The Policy states that the cleanup level for PCB contaminated soils in unrestricted access areas is 10 ppm. We are, therefore, requiring that soils be removed to the 10 ppm level in those areas which are shown to have levels of 50 ppm or greater.

2. Prior to soil excavation in the swale, the effectiveness of preventing flow from the Storm Water Retention Pond (SWRP) must be observed. If it is noted that water continues to escape the SWRP and is infiltrating into the potential excavation areas, sandbagging must be used to prevent water from entering these areas.

3. During the swale excavation, only individual sections of the swale should be excavated at any one time. At interim completion points of excavation activities in the swale, some type of temporary stream bed stabilization measures must be

installed. Acceptable options would include heavy tarp, jute netting, geotextile material, etc. The purpose of this is to prevent soil from eroding the stream bed as flow is returned to the stream.

4. Installation of the trenches for the silt fences should be 6"x6" instead of 4"x4".

5. Downstream areas should always be cleaned after upstream areas.

6. Water samples should be extracted using EPA Method 3510 or 3520. Use of any other method is discouraged. Soil/sediment samples should be extracted using method 3540 or 3550.

7. All quality control data must be submitted with analysis results. Percent recovery, accuracy and precision should be within limits of QC acceptance criteria for the method.

8. Final stream stabilization measures should be of a permanent nature and applicable to continuous flow conditions with consideration for flow rates in the swale (e.g., riprap and sodding).

9. A copy of the Final Report should be sent to the Commonwealth of Pennsylvania's Department of Environmental Resources Norristown Office c/o:

Cynthia Steele, Water Quality Specialist
PA DER
1875 New Hope Street
Norristown, PA 19401

10. An Erosion and Sedimentation Control Plan should be developed for the site as required by Pennsylvania regulations.

The Detailed Work Plan for off-site work is approved upon incorporation and final review by EPA. If further clarification or assistance is required, please feel free to contact me.

Sincerely,

Harry T. Daw

Harry T. Daw, Environmental Engineer
CERCLA Removal Enforcement Section

APPENDIX C

EPA CONDITIONAL APPROVAL: JUNE 8, 1988

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

RECEIVED
JUN 08 1988
ENGINEERING

JUN 07 1988

Mr. William Witt, P.E.
Director of Engineering
NVF Company
Operating Headquarters
#1 Yorklyn Road
Yorklyn, DE 19736

Re: NVF Site; Offsite Removal Actions and Sampling Activities Addendum

Dear Mr. Witt:

I am in receipt of the offsite Work Plan Addendum submitted by Remcor, Inc. on behalf of the NVF Company. In reviewing the addendum, I have noted several areas which need to be further modified and clarified.

The primary problem I have with the addendum is the clean-up level of 25 ppm in the swale. If you will recall, the December 23, 1988 offsite proposal submitted by NVF specified cleanup levels of 10 ppm as required by the PCB Spill Clean-up Policy.

In Mary Letzkus' letter to you on January 12, 1988, EPA accepted your proposal with modification and, therefore, accepted the cleanup levels stated therein. In a subsequent offsite proposal by NVF on March 18, 1988, NVF adjusted the cleanup levels to a 10 ppm average of all samples and a maximum of 25 ppm for any one sample.

In an attempt to be reasonable and considering NVF's current financial situation, EPA accepted this adjustment in correspondence to you dated April 12, 1988. However, it appears that EPA's acceptance of this adjustment was not sufficient for NVF, since you have now raised the cleanup level to an overall level of 25 ppm.

Please understand that the 10 ppm average and 25 ppm maximum level was accepted as a way to meet the overall goals of the PCB Spill Cleanup Policy and give NVF some latitude in controlling cleanup costs at the site. Additionally, in my

May 10, 1988 letter to you, I state that soil cleanup levels in unrestricted access areas is 10 ppm. Although it is not explicitly stated for the swale, this level must be met in order to consistently apply policy requirements in similar situations. Therefore, the approved cleanup level in the swale is 10 ppm average ± 5 ppm and 25 ppm maximum in any one sample.

In the "Contingency Sampling and Cleanup Plan" section of the addendum, it states that cleanup levels as stated in the 1988 Order will be met. Please note that in areas subject to soil removal that level will be 10 ppm. Additionally, any soil erosion sedimentation controls or flow diversion necessary must be approved prior to their implementation.

It is my understanding that final stream channel restoration has not been finalized at this time. Therefore, prior to selection and implementation of the stream channel restoration and final stabilization approval is necessary.

With these modifications the offsite Work Plan and subsequent addendum is approved. If you have any questions, please feel free to contact me.

Sincerely,

Harry L. Daw

Harry L. Daw, Environmental Engineer
CERCLA Removal Enforcement Section

cc: Cynthia Nadolski

APPENDIX D

CORRESPONDENCE APPROVING THE EROSION AND SEDIMENTATION CONTROL PLAN

CHESTER COUNTY CONSERVATION DISTRICT

235 West Market Street
WEST CHESTER, PA 19382

Marshall Haws
Executive Conservationist

Phone (215) 696-5126

DIRECTORS

Charles Harris, Chairman
G. Pownall Jones, Vice Chairman
Robert Struble Jr., Secretary-Treasurer
Robert Hodge
Harold Kulp
Robert Francis
Patricia Baldwin, Commissioner Member

June 21, 1988

received
JH 7/8/88

Joseph Hudachek
REMCOR, Inc.
P.O. Box 38310
Pittsburgh, PA 15238

Re: Kennett Square Borough
NVF Facility
off-site removal action
Your Project No. 87465

Dear Joseph

Your erosion/sediment control plan for the above referenced project is quite adequate in concept for the purpose of protecting neighboring property. While it is unlikely that unforseen events could cause off site problems, it is suggested that the following stipulation be on the plan:

ITEM. The objective of any erosion/sediment and storm water control plan is the "Protection of Private Property". To assist any damaged property owner(s) in redress of grievances, the following stipulations are made:

a) Any silt, sediment and mud leaving the site will be construed as damage to neighboring property and Prima Facie evidence of Negligence on the part of the responsible person(s), e.g., landowner, developer, contractor, inspector, etc. as listed above.

b) Any damages claimed by neighboring property owners will be rectified and/or restitution be paid by the responsible person(s).

c) Mediation/arbitration may be provided by the municipality to reconcile any differences between the parties such as cause of damage amount of damage, etc. Such mediation might also be provided by a private firm with agreement between the parties.

Regards,

Marshall Haws

C: file

APPENDIX E

CORRESPONDENCE GRANTING THE WAIVER
OF PERMIT REQUIREMENTS

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES

Bureau of Dams and Waterway Management
Division of Field Operations
3661 Skippack Pike
Harleysville, PA 19438
Phone No: 215 584-5566

June 29, 1988

Mr. John Hudachek
REMCOR Incorporated
701 Alpha Drive P.O. Box 38310
Pittsburgh, Pennsylvania 15238

RE: Encroachments
W.L.-15-88-03-03

Dear Mr. Hudachek:

This is in reference to your request to remove contaminated soil from a drainage swale situated on the NVF Company Property in the Boro of Kennett Square, Chester County. This swale is a tributary to the West Branch of the Red Clay Creek.

It is my understanding this work was ordered by the U.S. Environmental Protection Agency.

In accordance with the provisions of Section 4 of the Dam Safety and Encroachments Act, the Act of November 26, 1978, P.L. 1375, No. 325 (as amended by Act 70), the proposed structures and/or activity is regulated by this Act.

However, based on the plans and data submitted, the requirement for a permit are waived in accordance with Section 7 (a) of the Dam Safety and Encroachments Act and the provisions of the Section 105.12, paragraph (a)(2) of Chapter 105, Rules and Regulations, Dam Safety, Water Obstructions and Encroachments.

It will be required that you secure all other approvals that may be necessary under federal, state or local regulations and meet the construction, operation, maintenance or other requirements of Chapter 105 to include the following:

1. The Pennsylvania Fish Commission's Southeast Regional Office, Box 8, Elm, Pennsylvania 17521, Telephone 717/626-0228, shall be contacted and advised as to when the work will be done.

2. Proper erosion and sedimentation control measures

shall be instituted during and after construction, and approval of the adequacy of these measures shall be obtained from the Chester County Conservation District. Mr. Marshall Haws, Telephone 215/696-5126, should be contacted regarding soil erosion control work.

3. Act 14 of the Pennsylvania Legislature requires that written notice be given to each municipality and county in which the activities are proposed at least 30 days prior to starting construction. The written notice should be sent to the municipality by certified mail, return receipt requested. A copy of this notice along with the returned receipt should be kept on file along with this letter. Files shall be properly maintained and available for inspection by authorized employees of the Pennsylvania Department of Environmental Resources.

4. This waiver of permit does not give any property rights, either in real estates or material, nor any exclusive privileges, nor shall it be construed to grant or confer any right, title, easement, or interest in, to, or over any land belonging to the Commonwealth of Pennsylvania; neither does it authorize any injury to private property or invasion of private rights, nor any infringement of Federal, State, or local laws or regulation; nor does it obviate the necessity of obtaining Federal assent when necessary.

5. The cross section of the drainage swale after removal of sediments will remain greater than the cross section which currently exists.

Should you have any questions, please feel free to contact this office.

Very truly yours,

Edward L. Bender

Edward L. Bender, P.E.
Hydraulic Engineering Supervisor
Southeast Area Office

APPENDIX F

ANTECH LTD. LABORATORY REPORT

received
Apr 9/1/88

Antech Ltd.
One Triangle Drive
Export
Pennsylvania 15632
412/733-1161

General Data Table

Client: Ms. Joanne Cope
Office Manager
Remcor, Inc.
701 Alpha Drive
Pittsburgh, PA 15238

Antech Project No.: 88-1311
Receipt Date: 8/23/88
Verbal Report Date: 8/24/88
Report Date: 8/25/88
Page 1 of 1

Reference: Soil Characterization; Remcor Project No. 87465; EPA Method 8080

Sample No.	Polychlorinated Biphenyl (PCB) Concentration (µg/g)	Aroclor Source
130	2,500	1248
134	1,500(1)	1248
136	9,000	1248
137	2/3(2)	1242
138	4	1242
139	2	1248
140	65	1248
141	24	1242
142	150	1248
143	110	1242
144	27	1248
145	<1	-
146	69	1248
147	3	1248
148	24	1248
149	<1	-
150	2	1248
151	31	1242
152	6	1242
153	8	1248
154	3	1248
155	<1	-
156	<1/<1(2)	-

(1)Percent recovery for sample spiked with a known concentration of EPA hydraulic oil equals 59.

(2)Analysis was performed in duplicate.

Approved: Thomas W. Hill
Thomas W. Hill
Vice President, Technical Services

APPENDIX G

DRAINAGE SWALE - VELOCITY CALCULATIONS

REMCOR

By [illegible] Date 9/1/88 Subject DRAINAGE SWALE Sheet No. 1 of 2
Chkd. By WB Date 9/1/88 VELOCITY CALCULATIONS Proj. No. 87465

OBJECTIVE: TO DETERMINE IF ALLOWABLE VELOCITIES ARE EXCEEDED BY FLOW IN THE DRAINAGE SWALE.

REFERENCES:

(1) CHOW, V.T., "OPEN-CHANNEL HYDRAULICS," McGRAW-HILL BOOK COMPANY, 1959.

(2) ENVIRONMENTAL PROTECTION AGENCY, "EROSION AND SEDIMENTATION CONTROL - SURFACE MINING IN THE EASTERN U.S. - DESIGN," OCTOBER, 1976.

PROCEDURE: USE MANNINGS EQUATION TO DETERMINE VELOCITIES IN SWALE.

$$V = \frac{1.486}{n} R^{2/3} S^{1/2}$$

WHERE:
V = VELOCITY (fps)
n = MANNINGS n
R = HYDRAULIC RADIUS
S = SLOPE

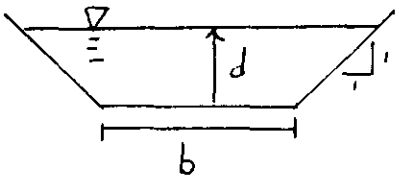
FIELD OBSERVATIONS:

- SWALE IS APPROXIMATELY 650 FEET IN LENGTH WITH AN ELEVATION DROP OF 5 FEET.
- SWALE SIDE SLOPES AND BOTTOM ARE IRREGULAR
- SWALE HAS AN AVERAGE BOTTOM WIDTH OF 5.75 FEET.
- SWALE SIDE SLOPES ARE APPROXIMATELY 1 VERTICAL TO 1 HORIZONTAL

REMCOR

By [illegible] Date 9/1/88 Subject DRAINAGE SWALE Sheet No. 2 of 7
Chkd. By MB Date 9/1/88 VELOCITY CALCULATIONS Proj. No. 87465

- SWALE HAS A MAXIMUM DEPTH OF 4 FEET.
- SIDE SLOPES ARE GRASSED
- SWALE BOTTOM CONSISTS OF PACKED CLAY



$$R = A/P$$

$$A = bd + d^2$$

$$P = b + 2\sqrt{2}\,d$$

FROM REFERENCE (1), p 121 : $n = 0.04$ FOR DITCH WITH IRREGULAR SIDE SLOPES AND BOTTOM; GRASS ON SLOPES.

Manning eqn.

$$V = \frac{1.486}{0.04}\left[\frac{5.75d + d^2}{5.75 + 2.83d}\right]^{2/3}\left[\frac{5}{650}\right]^{1/2}$$

V =

d (ft)	R	V (fps)
1	0.7867	2.78
2	1.3585	3.99
3	1.8434	4.89
4	2.2847	5.65

FROM REFERENCE (2), p 39 : MAXIMUM PERMISSIBLE VELOCITY FOR A CHANNEL LINED WITH HARD PAN IS 6.0 fps. THIS VELOCITY IS NOT EXCEEDED AT THE MAXIMUM DEPTH OF FLOW.