

DUNN CORPORATION

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February 5, 1993



Mr. Barney M. Chan
Hazardous Materials Specialist
Alameda County Health Care Services Agency
Department of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

#1453

Dear Mr. Chan:

Subject: American National Can Company
3801 E. 8th Street, Oakland, California

In August, 1992, Dunn Corporation (DUNN) submitted to you on behalf of the American National Can Company (ANC) a proposed ground water remedial plan for the subject site. As part of that remedial plan, DUNN proposed a recovery system in Area 2 of the site which called for ground water recovery and treatment for well TW-1 with simultaneous product recovery from well GW-6.

On December 8 and 9, 1992, DUNN personnel performed two pump tests in Area 2. The objective of the pump tests was to provide additional data to finalize the design of the recovery system. A submersible pump was used to pump water from well TW-1 while the water level drawdown in each of the Area 2 wells, and the product thickness in well GW-6, were monitored. DUNN had intended to conduct a product recovery test on well GW-6, by bailing, as the well began to produce product. However, we were not able to complete the product recovery test. Based on this additional data, DUNN feels that the recovery and treatment proposed in the remedial plan will not provide for effective or complete remediation of Area 2.

Table 1 provides the results of the pump test conducted on December 8, 1992. Due to the low hydraulic conductivity of the aquifer in Area 2, the submersible pump was run in cycles to maintain a drawdown in TW-1. The average pumping cycles consisted of running the pump for approximately 14 seconds and stopping the pump for approximately 9 minutes. On the average, approximately 1-gallon of water was pumped from well TW-1 during each pumping cycle. This translates into an average well yield of only 0.11 gallons per minute.

During the December 8 pumping test, well GW-6 began to produce product after its water level was drawn down to 1.61 feet. As the water level in GW-6 continued to draw down, the floating product layer continued to thicken to 0.21 feet at which time some of the product was removed with a bailer. Due to logistical problems, the December 8 pump test could not be extended beyond 8-hours in length and as a result, a product recovery test could not be performed on well GW-6.

DUNN ran a slightly longer duration pump test on December 9, 1992. During this test, the submersible pump set at the bottom of well TW-1 and water was periodically bailed from well GW-6. This was done in an attempt to produce a more pronounced drawdown

in well GW-6 enabling a product recovery test to be performed. However, during the 24-hour period beginning at approximately noontime on December 8, the site received a substantial rainstorm providing significant recharge to the aquifer. As a result, the December 9 pump test could not draw the water levels down as far as they were during the December 8 pump test. It should be noted, however, that product was not produced even though drawdown was more than 1.61 feet (depth at which product was produced on December 8). Table 2 provides the results of the December 9 pump test.

The continued lack of product in well TW-1 indicates that the product is not very widespread. The pump test results indicate that the product is most likely trapped in small permeable seams and partings within the impermeable clay deposit in the immediate vicinity of well GW-6. Therefore, we feel that the recovery system proposed in our August, 1992 Groundwater Remedial Plan would most likely not be capable of recovering any significant quantities of product. As a result, DUNN feels that further expenditures necessary to construct and operate the proposed recovery system are not warranted.

DUNN feels that other technologies typically used for in-situ remediation (i.e., soil vapor extraction and biodegradation) would not be feasible remedial solutions for Area 2 soils. Soil venting would not be effective because the heating oil product is a heavy phase of hydrocarbon with low volatility. Bioremediation would be significantly inhibited by the clay deposits' low permeability. The only remedial option that would be effective in cleaning up the Area 2 soils, excavation, is not possible due to the facility infrastructure. The data that has been obtained to date from investigations conducted in Area 2 demonstrate that the magnitude of impact is not significant. Ground water analytical results show that contaminants are not dissolving to any significant degree into the ground water. Downgradient monitoring of well MW-21 shows that contaminants are not migrating from Area 2.

Alter note potential of completion?

At this time, ANC has made significant expenditures to investigate the nature and extent of impact in Area 2 and to evaluate possible remedial options for the area. Considering that there are no readily feasible means by which to remediate the soils in Area 2 and that the impact is confined to the immediate area, ANC does not feel that further efforts in this area of the site are warranted. DUNN therefore requests that the Alameda County Department of Health Care Services Agency approve closure of this area of the site and require no further remedial action on behalf of ANC.

Please contact me if you have any questions regarding our request. We appreciate your consideration and look forward to your positive response.

Very truly yours,

DUNN CORPORATION



Walter O. Howard
Senior Hydrogeologist

WOH/kws

c: J. Moran (ANC)
J. Peters (ANC)
L. Feldman (RWQBC)
E. Alusow (DUNN)

TABLE 1
AMERICAN NATIONAL CAN COMPANY
OAKLAND, CALIFORNIA PLANT

Pumping Test Results - December 8, 1992
PUMPING WELL: TW-1

Page 1 of 3

TIME		TW-1			GW-6					MW-15			MW-13		
Actual	Elapsed	DTW	ELEV	DD	DTP	DTW	ELEV	PT	DD	DTW	ELEV	DD	DTW	ELEV	DD
7:55		12.39	5.37	0.00	--	14.10	5.68	0.00	0.00	12.39	5.49	0.00	10.50	7.81	0.00
8:10	Start Pump														
8:13	0:03	16.42	1.34	4.03											
8:14	0:04				--	14.14	5.64	0.00	0.04						
8:15	0:05	18.60	-0.84	6.21											
8:16	Stop Pump	19.24	-1.48	6.85											
8:17	0:07				--	14.20	5.58	0.00	0.10						
8:18	0:08									12.39	5.49	0.00			
8:19:45	Start Pump	18.65	-0.89	6.26											
8:23	Stop Pump	19.24	-1.48	6.85	--	14.35	5.43	0.00	0.25						
8:27	0:17				--	14.46	5.32	0.00	0.36						
8:29:00 - 8:29:30	Run Pump	* 18.69 - 19.24 * -1.21 * 6.58													
8:31	0:21									12.40	5.48	0.01			
8:32	0:22				--	14.59	5.19	0.00	0.49						
8:34	0:24												10.50	7.81	0.00
8:37:35 - 8:37:55	Run Pump	18.69 - 19.24	-1.21	6.58											
8:39	0:29				--	14.76	5.02	0.00	0.66						
8:43	0:33									12.41	5.47	0.02			
8:44	0:34												10.51	7.80	0.01
8:45:31 - 8:45:45	Run Pump	18.69 - 19.24	-1.21	6.58											
8:49	0:39				--	15.01	4.77	0.00	0.91						
8:53:36 - 8:53:51	Run Pump	18.69 - 19.24	-1.21	6.58											
8:59	0:49				--	15.23	4.55	0.00	1.13						
9:01:02 - 9:01:34	Run Pump	18.69 - 19.24	-1.21	6.58											
9:07	0:57				--	15.40	4.38	0.00	1.30						
9:08	0:58														
9:09:46 - 9:09:59	Run Pump	18.69 - 19.24	-1.21	6.58											
9:15	1:05				--	15.55	4.23	0.00	1.45						
9:18:22 - 9:18:35	Run Pump	18.69 - 19.24	-1.21	6.58											
9:20	1:10									12.41	5.47	0.02			
9:21	1:11														
9:25	1:15				15.71	15.72	4.07	0.01	1.61				10.51	7.80	0.01
9:26:57 - 9:27:11	Run Pump	18.69 - 19.24	-1.21	6.58											
9:35	1:25				15.85	15.86	3.93	0.01	1.75						
9:35:46 - 9:35:59	Run Pump	18.69 - 19.24	-1.21	6.58											
9:44:34 - 9:44:46	Run Pump	18.69 - 19.24	-1.21	6.58											
9:45	1:35				--	15.99	3.79	0.00	1.89						
9:50	1:40									12.42	5.46	0.03			
9:53:30 - 9:53:45	Run Pump	18.69 - 19.24	-1.21	6.58											
9:55	1:45				--	16.10	3.68	0.00	2.00						
10:02:24 - 10:02:36	Run Pump	18.69 - 19.24	-1.21	6.58											
10:04	1:54												10.50	7.81	0.00
10:05	1:55				16.20	16.21	3.58	0.01	2.10						
10:11:43 - 10:11:56	Run Pump	18.69 - 19.24	-1.21	6.58											
10:15	2:05				16.31	16.33	3.47	0.02	2.21						

TABLE 1
AMERICAN NATIONAL CAN COMPANY
OAKLAND, CALIFORNIA PLANT

Pumping Test Results - December 8, 1992
PUMPING WELL: TW-1

Page 2 of 3

TIME		TW-1			GW-6					MW-15			MW-13		
Actual	Elapsed	DTW	ELEV	DD	DTP	DTW	ELEV	PT	DD	DTW	ELEV	DD	DTW	ELEV	DD
10:20	2:10									12.42	5.46	0.03			
10:20:36 - 10:20:50	Run Pump	18.69 - 19.24	-1.21	6.58											
10:25	2:15				16.40	16.43	3.38	0.03	2.30						
10:29:48 - 10:30:00	Run Pump	18.69 - 19.24	-1.21	6.58											
10:35	2:25				16.47	16.50	3.31	0.03	2.37						
10:38:47 - 10:39:00	Run Pump	18.69 - 19.24	-1.21	6.58											
10:45	2:35				16.55	16.57	3.23	0.02	2.45						
10:48:13 - 10:48:25	Run Pump	18.69 - 19.24	-1.21	6.58						12.43	5.45	0.04			
10:50	2:40														
10:55	2:45				16.61	16.63	3.17	0.02	2.51						
10:57:30 - 10:57:42	Run Pump	18.69 - 19.24	-1.21	6.58											
11:04	2:54												10.50	7.81	0.00
11:05	2:55				16.67	16.70	3.11	0.03	2.57						
11:07:33 - 11:07:47	Run Pump	18.69 - 19.24	-1.21	6.58											
11:16:49 - 11:17:02	Run Pump	18.69 - 19.24	-1.21	6.58											
11:20	3:10									12.43	5.45	0.04			
11:25	3:15				16.73	16.75	3.05	0.02	2.63						
11:25:20 - 11:25:34	Run Pump	18.69 - 19.24	-1.21	6.58											
11:35:38 - 11:35:53	Run Pump	18.69 - 19.24	-1.21	6.58											
11:44:34 - 11:44:47	Run Pump	18.69 - 19.24	-1.21	6.58											
11:45	3:35				16.80	16.82	2.98	0.02	2.70						
11:50	3:40									12.43	5.45	0.04			
11:53:42 - 11:53:54	Run Pump	18.69 - 19.24	-1.21	6.58											
12:02:39 - 12:02:52	Run Pump	18.69 - 19.24	-1.21	6.58											
12:04	3:54												10.50	7.81	0.00
12:05	3:55				16.85	16.88	2.93	0.03	2.75						
12:11:50 - 12:12:04	Run Pump	18.69 - 19.24	-1.21	6.58											
12:20	4:10									12.44	5.44	0.05			
12:21:11 - 12:21:25	Run Pump	18.69 - 19.24	-1.21	6.58											
12:25	4:15				16.89	16.94	2.89	0.05	2.79						
12:31:13 - 12:31:36	Run Pump	18.69 - 19.24	-1.21	6.58											
12:41:00 - 12:41:15	Run Pump	18.69 - 19.24	-1.21	6.58											
12:45	4:35				16.93	16.99	2.85	0.06	2.83						
12:50	4:40									12.45	5.43	0.06			
12:51:19 - 12:51:31	Run Pump	18.69 - 19.24	-1.21	6.58											
13:01:45 - 13:01:57	Run Pump	18.69 - 19.24	-1.21	6.58											
13:04	4:54												10.49	7.82	-0.01
13:05	4:55				16.95	17.04	2.83	0.09	2.85						
13:11:53 - 13:12:06	Run Pump	18.69 - 19.24	-1.21	6.58											
13:20	5:10									12.45	5.43	0.06			
13:22:54 - 13:23:07	Run Pump	18.69 - 19.24	-1.21	6.58											
13:25					16.97	17.07	2.81	0.10	2.87						
13:32:32 - 13:32:44	Run Pump	18.69 - 19.24	-1.21	6.58											
13:42:52 - 13:43:05	Run Pump	18.69 - 19.24	-1.21	6.58											
13:45	5:35				16.99	17.11	2.79	0.12	2.89						

TABLE 1
AMERICAN NATIONAL CAN COMPANY
OAKLAND, CALIFORNIA PLANT

Pumping Test Results - December 8, 1992
PUMPING WELL: TW-1

Page 3 of 3

TIME		TW-1			GW-6					MW-15			MW-13		
Actual	Elapsed	DTW	ELEV	DD	DTP	DTW	ELEV	PT	DD	DTW	ELEV	DD	DTW	ELEV	DD
13:50	5:40									12.45	5.43	0.06			
13:52:30 - 13:52:43	Run Pump	18.69 - 19.24	-1.21	6.58											
14:02:25 - 14:02:38	Run Pump	18.69 - 19.24	-1.21	6.58											
14:04	5:54												10.49	7.82	-0.01
14:05	5:55				17.01	17.14	2.77	0.13	2.91						
14:11:30 - 14:11:42	Run Pump	18.69 - 19.24	-1.21	6.58						12.45	5.43	0.06			
14:20	6:10														
14:21:55 - 14:22:08	Run Pump	18.69 - 19.24	-1.21	6.58											
14:25	6:15				17.03	17.17	2.75	0.14	2.93						
14:34:30 - 14:35	Run Pump	18.69 - 19.24	-1.21	6.58											
14:41:57 - 14:42:08	Run Pump	18.69 - 19.24	-1.21	6.58											
14:45	6:35				17.05	17.18	2.73	0.13	2.95						
14:50	6:40									12.46	5.42	0.07			
14:54:10 - 14:54:25	Run Pump	18.69 - 19.24	-1.21	6.58											
15:02	6:52												10.48	7.83	-0.02
15:03:45 - 15:03:58	Run Pump	18.69 - 19.24	-1.21	6.58											
15:14	7:04	LOWER PUMP TO BOTTOM OF WELL													
15:14:30 - 15:17:55	Run Pump	21.14 - 21.69	-3.66	9.03											
15:19	7:09				17.06	17.22	2.72	0.16	2.96						
15:21:13 - 15:21:28	Run Pump	21.14 - 21.69	-3.66	9.03											
15:35:30 - 15:36:20	Run Pump	21.14 - 21.69	-3.66	9.03											
15:37	7:27				17.08	17.29	2.70	0.21	2.98						
15:44:50 - 15:45:10	Run Pump	21.14 - 21.69	-3.66	9.03											
15:45:10	Stop Pump Test														
16:05	0:19:50				Remove some product with bailer.										
16:10	0:24:50				17.38	17.49	2.40	0.11	3.28						
12/9/92 - 6:40	12:54:50				--	14.28	5.50	0.00	0.18	12.40	5.48	0.01			

NOTES:

DTW = Depth to water, expressed in feet below the well's measuring point.

DTP = Depth to product, expressed in feet below the well's measuring point.

ELEV = Elevation of DTW, expressed in feet above mean sea level.

DD = Drawdown of water level below starting DTW, expressed in feet.

PT = Product thickness which equals the difference between the DTW and the DTP, expressed in feet.

* = Continued DTW fluctuation between 18.69' and 19.24' during pumping translates to an average DTW of 18.97' which corresponds to an average ELEV of -1.21' and an average DD of 6.58'

Measuring point elevations: TW-1 = 17.76' GW-6 = 19.78' MW-15 = 17.88' MW-13 = 18.31'

TABLE 2
AMERICAN NATIONAL CAN COMPANY
OAKLAND, CALIFORNIA PLANT

Pumping Test Results - December 9, 1992
PUMPING WELL: TW-1

Page 1 of 2

TIME		TW-1			GW-6					MW-15			MW-13		
Actual	Elapsed	DTW	ELEV	DD	DTP	DTW	ELEV	PT	DD	DTW	ELEV	DD	DTW	ELEV	DD
6:40		12.57	5.19	0.00						12.20	5.68	0.00	NA		
6:55	Start Pump				--	14.28	5.50	0.00	0.00	12.40	5.48	0.20			
6:55 - 8:40	Pump well continuously for 30 min. and then periodically, could not monitor observation wells.														
		Peridically Pump DTW down from 21.14 to 21.69,													
7:49:00 - 7:49:15	Run Pump	* 21.14 to 21.69	*-3.66	* 8.85											
7:55:20 - 7:55:35	Run Pump	21.14 to 21.69	-3.66	8.85											
8:01:10 - 8:01:35	Run Pump	21.14 to 21.69	-3.66	8.85											
8:04:12 - 8:04:42	Run Pump	21.14 to 21.69	-3.66	8.85											
8:10:00 - 8:10:30	Run Pump	21.14 to 21.69	-3.66	8.85											
8:16:30 - 8:17:00	Run Pump	21.14 to 21.69	-3.66	8.85											
8:56:00 - 8:56:17	Run Pump	** Begin to pump DTW down from 20.14 to 20.69'													
9:05:45 - 9:05:58	Run Pump	20.14 - 20.69	-2.66	7.85											
9:07	2:12				--	15.56	4.22	0.00	1.28						
9:17:41 - 9:17:54	Run Pump	20.14 - 20.69	-2.66	7.85											
9:38:12 - 9:28:25	Run Pump	20.14 - 20.69	-2.66	7.85											
9:29	2:34				--	15.71	4.07	0.00	1.43						
9:38:40 - 9:38:53	Run Pump	20.14 - 20.69	-2.66	7.85											
9:43	2:48									12.07	5.81	-0.13			
9:49:40 - 9:50:00	Run Pump	20.14 - 20.69	-2.66	7.85											
10:03	3:08				--	15.86	3.92	0.00	1.58						
10:09:12 - 10:09:26	Run Pump	20.14 - 20.69	-2.66	7.85											
10:19:25 - 10:19:38	Run Pump	20.14 - 20.69	-2.66	7.85	Bail approx. 2.5 gals. from GW-6.										
10:29	3:34				--	20.25	-0.47	0.00	5.97						
10:30:12 - 10:30:27	Run Pump	20.14 - 20.69	-2.66	7.85											
10:33	3:38									12.04	5.84	-0.16			
10:43	3:48				--	18.71	1.07	0.00	4.43						
10:45	3:50				Bail approx. 0.5 gal. from GW-6.										
10:46:30 - 10:46:48	Run Pump	20.14 - 20.69	-2.66	7.85											
10:48	3:53				--	19.79	-0.01	0.00	5.51						
10:53	3:58				--	19.20	0.58	0.00	4.92						
10:59	4:04				--	18.80	0.98	0.00	4.52						
11:00	4:05				Bail approx. 0.5 gal. from GW-6.										
11:02:25 - 11:02:39	Run Pump	20.14 - 20.69	-2.66	7.85											
11:04	4:09				--	19.94	-0.16	0.00	5.66						
11:24:30 - 11:24:48	Run Pump	20.14 - 20.69	-2.66	7.85											
11:26	4:31				--	18.22	1.56	0.00	3.94						
11:30	4:35				Bail approx. 1.25 gals. from GW-6.										
11:31	4:36				--	20.54	-0.76	0.00	6.26						
11:41:00 - 11:41:15	Run Pump	20.14 - 20.69	-2.66	7.85											
11:43	4:48				--	19.17	0.61	0.00	4.89						
11:45	4:50				Bail approx. 1.0 gal. from GW-6.										
11:46	4:51				--	20.61	-0.83	0.00	6.33						

TABLE 2
AMERICAN NATIONAL CAN COMPANY
OAKLAND, CALIFORNIA PLANT

Pumping Test Results - December 9, 1992

PUMPING WELL: TW-1

Page 2 of 2

TIME		TW-1			GW-6					MW-15			MW-13		
Actual	Elapsed	DTW	ELEV	DD	DTP	DTW	ELEV	PT	DD	DTW	ELEV	DD	DTW	ELEV	DD
11:57:25 - 11:57:40	Run Pump	20.14 - 20.69	-2.66	7.85	--	19.12	0.66	0.00	4.84						
11:58	5:03				--	19.12	0.66	0.00	4.84	12.00	5.88	-0.20			
12:04	5:09				--	18.23	1.55	0.00	3.95						
12:11	5:16				--	18.23	1.55	0.00	3.95						
12:11:35 - 12:11:53	Run Pump	20.14 - 20.69	-2.66	7.85											
12:16	5:21				Bail approx. 1.5 gals. from GW-6.										
12:17	5:22				--	20.60	-0.82	0.00	6.32						
12:26:40 - 12:26:55	Run Pump	20.14 - 20.69	-2.66	7.85	--	18.20	1.58	0.00	3.92						
12:42	5:47				--	18.20	1.58	0.00	3.92						
12:42:41 - 12:42:56	Run Pump	20.14 - 20.69	-2.66	7.85											
12:44:30 - 12:44:46	Run Pump	*** Begin to pump DTW down from 20.64 down to 21.19			--	17.54	2.24	0.00	3.26						
12:52	5:57				--	17.54	2.24	0.00	3.26						
13:01:40 - 13:01:52	Run Pump	20.64 - 21.19	-3.16	8.35	--	16.93	2.85	0.00	2.65						
13:07	6:12				--	16.93	2.85	0.00	2.65						
13:12:15 - 13:12:57	Run Pump	20.64 - 21.19	-3.16	8.35											
13:22	6:27				--	16.50	3.28	0.00	2.22						
13:22:40 - 13:22:54	Run Pump														
13:34:25 - 13:34:39	Run Pump	20.64 - 21.19	-3.16	8.35	--	16.08	3.70	0.00	1.80						
13:42	6:47				--	16.08	3.70	0.00	1.80						
13:45:25 - 13:45:39	Run Pump	20.64 - 21.19	-3.16	8.35											
13:59:55 - 14:00:18	Run Pump	20.64 - 21.19	-3.16	8.35	--	15.85	3.93	0.00	1.57						
14:02	7:07				--	15.85	3.93	0.00	1.57						
14:14:00 - 14:14:14	Run Pump	20.64 - 21.19	-3.16	8.35	--	15.66	4.12	0.00	1.38						
14:22	7:27				--	15.66	4.12	0.00	1.38						
14:23:15 - 14:23:29	Run Pump	20.64 - 21.19	-3.16	8.35											
14:33:39 - 14:33:53	Run Pump	20.64 - 21.19	-3.16	8.35						11.93	5.95	-0.27			
14:37	7:42									11.93	5.95	-0.27			
14:42	7:47				--	15.54	4.24	0.00	1.26						
14:45:26 - 14:45:39	Run Pump	20.64 - 21.19	-3.16	8.35											
14:57:27 - 14:57:40	Run Pump	20.64 - 21.19	-3.16	8.35											
15:09:10 - 15:09:25	Run Pump	20.92	-3.16	8.35	--	15.41	4.37	0.00	1.13						
15:12	8:17				--	15.41	4.37	0.00	1.13						
15:20:11 - 15:20:24	Run Pump	20.64 - 21.19	-3.16	8.35											
15:32:25 - 15:32:39	Run Pump	20.64 - 21.19	-3.16	8.35											
15:42		20.75	-2.99	8.18	--	15.33	4.45	0.00	1.05						

NOTES:

DTW = Depth to water, expressed in feet below the well's measuring point.

DTP = Depth to product, expressed in feet below the well's measuring point.

ELEV = Elevation of DTW, expressed in feet above mean sea level.

DD = Drawdown of water level below starting DTW, expressed in feet.

PT = Product thickness which equals the difference between the DTW and the DTP, expressed in feet.

* = Continued DTW fluctuation between 21.14' and 21.69' during pumping translates to an average DTW of 21.42' which corresponds to an average ELEV of -3.66' and an average DD of 8.85'.

** = Continued DTW fluctuation between 20.14' and 20.69' during pumping translates to an average DTW of 20.42' which corresponds to an average ELEV of -2.66' and an average DD of 7.85'.

*** = Continued DTW fluctuation between 20.64' and 21.19' during pumping translates to an average DTW of 20.92' which corresponds to an average ELEV of -3.16' and an average DD of 8.35'.

Measuring point elevations:

TW-1 = 17.76' GW-6 = 19.78' MW-15 = 17.88' MW-13 = 18.31'