Van Waters & Rogers Inc.
A ROYAL PAKHOED COMPANY

32131 Steven Way
Conifer, Co. 80433
Phone: (303) 838-5898
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Environmental Affairs Department

FAX COVER SHEET

DATE: 12/4/97

TO: Rob Pike

COMPANY:

FAX#:

FROM:

PHONE: George Sylvester

NUMBER OF PAGES, INCLUDING LEAD SHEET:

Rob,

Susan Morris has a copy of the Annual & Semi-annual reports for the facility. In those reports are GW Elevation maps which show an increase in gradient under & adjacent to the gallery. May be of some use to you.

TABLE 2

SCOUR CALCULATIONS INFILTRATION GALLERY AT Sta. 68+00 (Upstream from Blacks Arroyo) (Reach 7, θ = 0°)

Design Storm	10-yr	100-yr
Peak Flow (Existing conditions) (CFS)	4,210	10,340
Velocity (V) (FPS)	10.0	13.2
Hydraulic Depth (D) (FT)	3.1	5.4
$Fr = v/\sqrt{gD}$	1.00	1.00
Max. Degradation (After 10 yr, Exist. Cond.) (FT)	8.1	8.1
Degradation @ Sta. 68+00 (3/17 x 8.1) (FT)	1.4	1.4
Antidune Scour Y_1 $(0.14\pi Fr^2) \cos\theta$ (FT)	1.4	2.4
Total Scour (FT)	2.8	3.8

Van Waters & Rogers Inc.
subsidiary of **Univar**

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CONIFER, CO 80433
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December 4, 1997

Rob Pine, Geologist III
Groundwater Quality Bureau
New Mexico Environmental Department
P. O. Box 26110
Santa Fe, New Mexico 87052

Dear Mr. Pine:

I have compiled information regarding performance of the groundwater treatment system currently in operation at the Van Waters & Rogers (VW&R) Albuquerque facility as you requested. As you are aware the treatment system consists of four groundwater extraction wells, a packed tower air stripper, and an infiltration gallery. The system is designed to extract 150-gallons of water per minute and is currently operating at an average rate of 123-gallons per minute. Approximately 53.572,500 gallons of groundwater were processed through the system from May 1. 1996 through April 30, 1997. Since that time the system has processed an additional 27,698,020 gallons through October 31, 1997. From start-up of the remedial system on June 4, 1990 through October 31, 1997, a total of 388,768,327 gallons of groundwater has been recovered and returned to the subsurface via the infiltration gallery. The November 1997 production figures are not yet available, I will forward this information to you upon receipt however, I do not anticipate that the total volume of groundwater treated and returned to the subsurface will vary significantly for prior monthly averages.

VW&R has experienced problems with the infiltration gallery on four separate occasions: October 1991, November 1992, and November 1993. On each of the four occasions precipitated calcium carbonate filled the void spaces of the infiltration bed and prevented treated groundwater from percolating downward. As a result the water levels in the gallery were raised and surface moisture was noted over the surface area of the gallery. In October 1991 and again in November 1992 the calcium carbonate was dissolved by flushing with dilute HCL. Following the November 1993 incident, VW&R doubled the infiltration capacity of the gallery and pretreated the groundwater with AquaMag, a liquid phosphate, which is designed to hold the calcium carbonate in solution. Since that time VW&R has not experienced any problems with the infiltration gallery. VW&R attributes most of the success to the addition of the AquaMag. The packing material of the air stripping tower has not been changed since June 1994 when VW&R began adding the

product to the pretreated groundwater. Prior to its use, the packing material had to be changed every 8 to 9 months due to calcium carbonate precipitation.

I have enclosed the October 1997 productions report for your review. Should you need any additional information, please do not hesitate to contact me at the above address.

Sincerely,

George H. Sylvester
Senior Project Manager
Environmental Affairs

cc: S. Smelser - VW&R/Albuquerque
W. Grotheer - VW&R/Kirkland

SITE: ALBUQUERQUE NEW MEXICO.

OCTOBER YEAR 97 PROJECT MANAGER G SYLVESTER

DAY	TOTAL	SYSTEM RUN TIME	PUMP 1 RUN TIME	PUMP 1 FLOW RATE	PUMP 1 DAILY TOTAL	PUMP 2 RUN TIME	PUMP 2 FLOW RATE	PUMP 2 DAILY TOTAL	PUMP 3 RUN TIME	PUMP 3 FLOW RATE	PUMP 3 DAILY TOTAL	PUMP 4 RUN TIME	PUMP 4 FLOW RATE	PUMP 4 DAILY TOTAL	TOTAL FLOW RATE	DAILY VOC'S
1	178,441	23.98	23.98	31.68	45,536	23.98	31.17	44,767	23.98	30.35	43,557	23.98	30.98	44,561	124.18	0.14891
2	178,463	23.98	23.98	31.56	45,518	23.98	31.14	44,816	23.98	30.25	43,579	23.98	30.95	44,549	123.89	0.14857
3	179,368	23.98	23.98	32.43	46,449	23.98	31.22	44,808	23.98	30.45	43,570	23.98	31.03	44,541	125.13	0.15005
4	179,562	23.98	23.98	32.35	46,534	23.98	31.16	44,826	23.98	30.35	43,623	23.98	31.07	44,579	124.93	0.14981
5	179,251	23.98	23.98	32.21	46,413	23.98	31.10	44,770	23.98	30.26	43,527	23.98	30.98	44,542	124.54	0.14934
6	179,450	23.98	23.98	32.14	46,419	23.98	31.13	44,818	23.98	30.18	43,620	23.98	30.94	44,592	124.40	0.14915
7	179,283	23.98	23.98	32.25	46,314	23.98	31.20	44,852	23.98	30.33	43,537	23.98	31.03	44,581	124.81	0.14967
8	179,132	23.98	23.98	32.05	46,232	23.98	31.23	44,859	23.98	30.28	43,482	23.98	30.99	44,559	124.56	0.14937
9	178,695	23.98	23.98	31.85	46,061	23.98	31.11	44,859	23.98	30.00	43,286	23.98	30.88	44,489	123.94	0.14862
10	178,683	23.98	23.98	32.00	46,008	23.98	31.18	44,848	23.98	30.22	43,354	23.98	30.92	44,473	124.31	0.14907
11	178,745	23.98	23.98	32.06	45,960	23.98	31.30	44,866	23.98	30.37	43,419	23.98	31.08	44,500	124.81	0.14967
12	178,925	23.98	23.98	31.84	45,871	23.98	31.27	44,943	23.98	30.23	43,507	23.98	31.04	44,604	124.39	0.14916
13	178,466	23.98	23.98	31.76	45,658	23.98	31.19	44,852	23.98	30.19	43,418	23.98	30.95	44,539	124.09	0.14881
14	178,226	23.98	23.98	31.76	45,613	23.98	31.18	44,811	23.98	30.19	43,300	23.98	31.03	44,502	124.16	0.14889
15	178,079	23.98	23.98	31.61	45,556	23.98	31.15	44,771	23.98	30.11	43,270	23.98	30.92	44,482	123.78	0.14844
16	178,134	23.98	23.98	31.56	45,550	23.98	31.11	44,791	23.98	29.92	43,287	23.98	30.86	44,506	123.45	0.14804
17	178,257	23.98	23.98	31.71	45,542	23.98	31.21	44,836	23.98	30.30	43,372	23.98	30.98	44,507	124.20	0.14894
18	176,152	23.98	23.45	32.00	44,279	23.98	31.16	44,866	23.98	30.21	43,499	23.45	30.89	43,507	124.27	0.14902
19	178,941	23.98	23.98	31.82	45,915	23.98	31.16	44,879	23.98	30.28	43,607	23.98	30.97	44,543	124.23	0.14897
20	178,720	23.98	23.98	31.73	45,789	23.98	31.11	44,857	23.98	30.14	43,555	23.98	30.84	44,520	123.83	0.14849
21	178,411	23.98	23.98	31.67	45,627	23.98	31.14	44,813	23.98	30.20	43,480	23.98	30.89	44,491	123.90	0.14857
22	178,354	23.98	23.98	31.60	45,550	23.98	31.10	44,850	23.98	30.08	43,469	23.98	30.89	44,485	123.66	0.14829
23	178,294	23.98	23.98	31.53	45,505	23.98	31.12	44,871	23.98	30.08	43,413	23.98	30.84	44,505	123.57	0.14818
24	178,616	23.98	23.98	31.64	45,477	23.98	31.25	44,866	23.98	30.47	43,663	23.98	31.03	44,591	124.39	0.14916
25	178,631	23.98	23.98	31.50	45,407	23.98	31.14	44,859	23.98	30.32	43,771	23.98	30.90	44,595	123.86	0.14853
26	178,185	23.98	23.98	31.46	45,254	23.98	31.13	44,843	23.98	30.29	43,589	23.98	30.90	44,498	123.79	0.14844
27	177,903	23.98	23.98	31.25	44,975	23.98	31.19	44,823	23.98	30.35	43,605	23.98	30.96	44,500	123.78	0.14843
28	177,891	23.98	23.98	31.20	44,892	23.98	31.20	44,828	23.98	30.37	43,650	23.98	30.99	44,520	123.75	0.14840
29	177,816	23.98	23.98	31.20	44,836	23.98	31.20	44,842	23.98	30.37	43,608	23.98	30.99	44,529	123.75	0.14840
30	154,958	21.08	20.97	30.26	38,954	20.97	31.17	39,092	20.97	30.32	38,130	21.08	30.45	38,782	122.19	0.12881
31	177,664	23.98	23.98	32.31	44,991	23.98	31.29	45,002	23.98	30.38	43,806	23.98	30.49	43,864	124.47	0.14926
MIN	154,958	21.08	20.97	30.26	38,954	20.97	31.10	39,092	20.97	29.92	38,130	21.08	30.45	38,782	122.19	0.12881
AVE	177,732	23.89	23.87	31.74	45,441	23.89	31.17	44,656	23.89	30.25	43,341	23.87	30.92	44,291	124.15	0.14824
MAX	179,562	23.98	23.98	32.43	46,534	23.98	31.30	45,002	23.98	30.47	43,806	23.98	31.08	44,604	125.13	0.15005

OURS AVAILABLE	744.00			1,408,686	GALLONS		1,384,406	GALLONS		1,343,573			1,373,034		4.59549
CTUAL RUN TIME	740.58									GALLONS			GALLONS		PPM
AS A PERCENT	99.54%			TOTAL GALLONS PUMPED			5,509,699								

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