FS 0003-Field

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Environmental Restoration Contractor **ERC Team**

Interoffice Memorandum

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TO:	R.L. Biggerstaff	H4-91	DATE:	Sept 26, 1995
	M.T. Stankovich	H4-90		
	R.G. Beutler	H6-03		
COPIES:	Analytical Svcs Files	X2-10	FROM:	R.G. McCain
	BHI Sample Management	~~H4-14~~		Analytical Services
	BHI Document Control	H4-79		H4-92 / 372-9593

SUBJECT: **FIELD SCREENING RESULTS: 100-HR3 PUMP & TREAT**

45100

On Friday, Sept 22, 1995, R.G. McCain conducted on-site analysis of water samples from the 100-HR3 Pump & Treat Project. 500 ml aliquots of the routine water samples collected by K.F. Trapp were provided for on-site analysis. These are designated by their HEIS numbers: BOGKW6 for the "pre-treat" sample and BOGKW7 for the "post-treat" sample. In addition, a third 500 ml sample was obtained from the effluent line by R.G. Beutler. This sample is designated "effluent". Each sample was analyzed for hexavalent chromium using the Hach DR2000 Spectrophotometer in accordance with FSP 1.17. Optically matched cuvettes were used to improve resolution at low concentrations. Results are summarized on the attached sheet.

In addition, Cr^{+6} measurements were also made using the DR2000 and Hach "Accuvac" ampuls provided by R.G. Beutler. A calibration for the Accuvac ampuls is stored in the DR2000 as method 95. These results are also included on the attached sheet/

The above data indicate a Cr^{+6} concentration of 0.81 to 0.84 ppm (810 to 840 ppb) in the "pre-treat sample (BOGKW6) and 0.33 to 0.36 ppm (330 to 360 ppb) in the "post-treat" sample (BOGKW7). The effluent stream from the downstream end of the pump and treat unit had a very low chromate concentration, probably on the order of 1 to 5 ppb. Good agreement was observed between all three methods. Part of the uncertainty associated with the effluent measurement is due to the fact that it is just below the computed detection limit for the low-range method. The chromate concentration of this sample was not detectable using the conventional Hach calibration (method 90).

An additional sampling effort should be considered at a time when higher Cr^{+6} levels are anticipated in the effluent due to saturation of the upstream resin beds. Analysis of effluent samples at regular intervals could be used to plot Cr^{+6} concentration as a function of time. Analysis of samples from other sampling points as a function of time could also be used to evaluate the

treatment efficiency of the pump and treat operation.

R.G. McCain

RGM:rgm

100 HR3 Pump & Treat
Sept 22, 1995

Hexavalent Chromium Results

sample	cuv#	dil	meth 0 abs	meth 90 ppm	Cr+6 ppm	LR Cr+6 ppm
BOGKW6	201	1	1.494	overrange		0.782
BOGKW7	501	1	0.638	0.33	0.330	0.332
BOGKW6	201	0.6		0.46	0.767	
50 ppb std	201	1	0.119	0.05	0.050	0.060
BOGKW7	501	1	0.692	0.36	0.360	0.361
BOGKW6	197	0.5	0.777	0.41	0.820	0.810
effluent	243	1	0.014	0.00	0.000	0.005
		1	0.006	0.00	0.000	0.001
blank		1	0.001	0.00	0.000	-0.002

Analysis with Accuvac Ampuls (DR2000)

sample	dil	meth 95 ppm	Cr+6 ppm
50 ppb std	1	0.05	0.050
BOGKW6	1	overrange	
BOGKW7	1	0.36	0.360
BOGKW6	0.5	0.42	0.840