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MORRISON KNUDSEN CORPORATION
VASQUEZ BLVD/I-70 FIELD OFFICE
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ADMINISTRATIVE RECORD

Fax

To: Bonnie Cavelle

Fax: 303-312-6897

From: Brian Meyers

Date: 10/20/00

Subject: VB/I-70 Sample Results

Pages: 7 including Cover Page

Comments: Fine & Bulk Results for West Sample

If you have any questions please call the trailer

3-15628-F1-F9
-B1-B9
(Weet)

10-12-00
KEW
Bio-Study
5

EDXRF ANALYSIS
SPECTRACE INSTRUMENTS

PROCEDURE : LOW Z UNKNOWNS
FILTER USED : ALUMINUM
ATMOSPHERE : AIR
COUNT RATE RANGE : MED
ANALYSIS METHOD : NO ANALYSIS

TUBE VOLTAGE : 10 KV
TUBE CURRENT : 1.10 MA
LIVETIME : 60 SEC
PRESET COUNT : 0 K

TIME : 6:51 pm
DATE : 10/19/2000

EDXRF ANALYSIS
SPECTRACE INSTRUMENTS

PROCEDURE : MID Z UNKNOWNS
FILTER USED : PD THICK
ATMOSPHERE : AIR
COUNT RATE RANGE : MED
ANALYSIS METHOD : NO ANALYSIS

TUBE VOLTAGE : 30 KV
TUBE CURRENT : 0.38 MA
LIVETIME : 200 SEC
PRESET COUNT : 0 K

TIME : 6:51 pm
DATE : 10/19/2000

EDXRF ANALYSIS
SPECTRACE INSTRUMENTS

PROCEDURE : UNKNOWNS SOILS 2+3
FILTER USED : PD MEDIUM
ATMOSPHERE : AIR
COUNT RATE RANGE : MED
ANALYSIS METHOD : FUN. PARAMS.

TUBE VOLTAGE : 30 KV
TUBE CURRENT : 0.02 MA
LIVETIME : 100 SEC
PRESET COUNT : 0 K

TIME : 6:51 pm
DATE : 10/19/2000

SAMPLE	ELEMENT	CONCENTRATION			ERROR
3-15628-F1					
	K	2.7656	%	+/-	0.0276
	CA	1.6560	%	+/-	0.0159
	TI	0.3464	%	+/-	0.0046
	CR	51.8931	PPM	+/-	9.9428
	MN	722.0264	PPM	+/-	15.6761
	FE	2.4205	%	+/-	0.0056
	NI	30.0995	PPM	+/-	6.4807
	CU	73.2054	PPM	+/-	5.0350
	ZN	798.9920	PPM	+/-	7.8913
	AS	35.3908	PPM	+/-	5.5845
	PB	1061.9159	PPM	+/-	6.7540
	HG	N D			
	SIO5	92.534	DIFF		

3-15628-F2

CR	37.7369	PPM	+/-	10.1805
MN	651.1830	PPM	+/-	15.1373
FE	2.3328	%	+/-	0.0055
NI	25.5497	PPM	+/-	6.6141
CU	65.9538	PPM	+/-	4.7405
ZN	702.8752	PPM	+/-	7.4842
AS	27.0954	PPM	+/-	5.3830
PB	1008.4290	PPM	+/-	6.5475
HG	N D			
SIO5	92.606	DIFF		

3-15628-F3

K	2.8329	%	+/-	0.0281
CA	1.6443	%	+/-	0.0158
TI	0.3563	%	+/-	0.0046
CR	40.8353	PPM	+/-	10.0019
MN	681.0461	PPM	+/-	15.4177
FE	2.4395	%	+/-	0.0057
NI	17.2331	PPM	+/-	6.6033
CU	73.6450	PPM	+/-	4.9443
ZN	748.2694	PPM	+/-	7.8014
AS	27.0442	PPM	+/-	5.5922
PB	1059.4604	PPM	+/-	6.6770
HG	N D			
SIO5	92.462	DIFF		

3-15628-F4

K	2.8441	%	+/-	0.0280
CA	1.6843	%	+/-	0.0159
TI	0.3452	%	+/-	0.0047
CR	30.6913	PPM	+/-	10.3597
MN	687.1141	PPM	+/-	15.3202
FE	2.3891	%	+/-	0.0056
NI	11.4174	PPM	+/-	6.5840
CU	66.3035	PPM	+/-	4.9519
ZN	753.4192	PPM	+/-	7.7485
AS	19.0132	PPM	+/-	5.5332
PB	1051.9364	PPM	+/-	6.7285
HG	N D			
SIO5	92.475	DIFF		

3-15628-F5

K	2.8584	%	+/-	0.0277
CA	1.6756	%	+/-	0.0160
TI	0.3618	%	+/-	0.0047
CR	30.1269	PPM	+/-	10.2880
MN	677.5441	PPM	+/-	15.3823
FE	2.4093	%	+/-	0.0057
NI	16.9529	PPM	+/-	6.6317
CU	71.0520	PPM	+/-	4.9266
ZN	743.2415	PPM	+/-	7.7368
AS	32.2695	PPM	+/-	5.6077
PB	1077.7515	PPM	+/-	6.7846
HG	3.0667	PPM	+/-	3.3304
SIO5	92.430	DIFF		

3-15628-F6

K	2.8155	%	+/-	0.0279
CA	1.8379	%	+/-	0.0164
TI	0.3553	%	+/-	0.0047
CR	33.1945	PPM	+/-	10.3054
MN	683.0574	PPM	+/-	15.7890
FE	2.4030	%	+/-	0.0057
NI	[illegible]	PPM		

AS	40.6077	PPM	+/-	5.7066
PB	1095.2980	PPM	+/-	6.8494
HG	0.0082	PPM	+/-	3.4482
SIO5	92.316	DIFF		

3-15628-F7

K	2.8042	%	+/-	0.0277
CA	1.5951	%	+/-	0.0158
TI	0.3635	%	+/-	0.0047
CR	57.8141	PPM	+/-	9.8682
MN	661.8467	PPM	+/-	15.2650
FE	2.3604	%	+/-	0.0056
NI	22.7081	PPM	+/-	6.4699
CU	71.3691	PPM	+/-	4.7941
ZN	690.5496	PPM	+/-	7.4538
AS	22.4498	PPM	+/-	5.3856
PB	1008.4946	PPM	+/-	6.5741
HG	N D			
SIO5	92.623	DIFF		

3-15628-F8

K	2.8057	%	+/-	0.0277
CA	1.7004	%	+/-	0.0159
TI	0.3582	%	+/-	0.0047
CR	42.4389	PPM	+/-	10.0542
MN	695.7799	PPM	+/-	15.2923
FE	2.3779	%	+/-	0.0056
NI	13.9031	PPM	+/-	6.7061
CU	64.0672	PPM	+/-	4.8254
ZN	692.8533	PPM	+/-	7.4732
AS	16.6215	PPM	+/-	5.4104
PB	1022.5720	PPM	+/-	6.5660
HG	N D			
SIO5	92.503	DIFF		

3-15628-F9

K	2.8102	%	+/-	0.0280
CA	1.7521	%	+/-	0.0162
TI	0.3571	%	+/-	0.0047
CR	38.5448	PPM	+/-	10.3313
MN	695.3833	PPM	+/-	15.3592
FE	2.3541	%	+/-	0.0056
NI	26.1949	PPM	+/-	6.4477
CU	83.8333	PPM	+/-	4.9244
ZN	752.7900	PPM	+/-	7.7870
AS	23.0835	PPM	+/-	5.5426
PB	1062.3934	PPM	+/-	6.7134
HG	N D			
SIO5	92.458	DIFF		

3-15628-B1

K	2.7769	%	+/-	0.0278
CA	1.7582	%	+/-	0.0162
TI	0.3350	%	+/-	0.0046
CR	48.0543	PPM	+/-	9.9038
MN	729.3181	PPM	+/-	15.6739
FE	2.2951	%	+/-	0.0055
NI	28.1091	PPM	+/-	6.7785
CU	72.0609	PPM	+/-	4.8631
ZN	725.4164	PPM	+/-	7.6738
AS	30.4234	PPM	+/-	5.3639
PB	982.8223	PPM	+/-	6.3701
HG	N D			

K	2.9372	%	+/-	0.0285
CA	1.8400	%	+/-	0.0166
TI	0.3383	%	+/-	0.0046
CR	59.4677	PPM	+/-	10.2321
MN	731.8647	PPM	+/-	16.0790
FE	2.3863	%	+/-	0.0056
NI	30.3254	PPM	+/-	6.5652
CU	72.4334	PPM	+/-	4.9050
ZN	748.6126	PPM	+/-	7.8148
AS	22.2697	PPM	+/-	5.4603
PB	1001.1334	PPM	+/-	6.5652
HG	N D			
SIO5	92.232	DIFF		

3-15628-B3

K	2.8289	%	+/-	0.0278
CA	1.8252	%	+/-	0.0164
TI	0.3301	%	+/-	0.0046
CR	55.7485	PPM	+/-	9.9133
MN	725.8144	PPM	+/-	15.4225
FE	2.3232	%	+/-	0.0056
NI	23.5498	PPM	+/-	6.5159
CU	72.8420	PPM	+/-	4.7115
ZN	729.5031	PPM	+/-	7.5603
AS	31.0788	PPM	+/-	5.5294
PB	1037.7262	PPM	+/-	6.6007
HG	N D			
SIO5	92.425	DIFF		

3-15628-B4

K	2.8377	%	+/-	0.0278
CA	1.7153	%	+/-	0.0160
TI	0.3166	%	+/-	0.0045
CR	44.4227	PPM	+/-	9.9557
MN	695.0284	PPM	+/-	15.3846
FE	2.2166	%	+/-	0.0054
NI	9.7556	PPM	+/-	6.5849
CU	73.2430	PPM	+/-	4.6874
ZN	683.0565	PPM	+/-	7.4590
AS	12.9221	PPM	+/-	5.3145
PB	977.8422	PPM	+/-	6.3566
HG	1.2927	PPM	+/-	3.3901
SIO5	92.664	DIFF		

3-15628-B5

K	2.8877	%	+/-	0.0280
CA	1.7732	%	+/-	0.0162
TI	0.3425	%	+/-	0.0046
CR	36.5393	PPM	+/-	10.0966
MN	763.4518	PPM	+/-	15.6956
FE	2.3521	%	+/-	0.0056
NI	11.9278	PPM	+/-	6.8659
CU	60.8800	PPM	+/-	4.8727
ZN	716.7706	PPM	+/-	7.5918
AS	45.8127	PPM	+/-	5.3657
PB	959.9730	PPM	+/-	6.4349
HG	N D			
SIO5	92.385	DIFF		

3-15628-B6

K	2.8930	%	+/-	0.0280
CA	1.7053	%	+/-	0.0161
TI	0.3478	%	+/-	0.0046
CR	[illegible]	PPM	+/-	[illegible]

NI	16.9220	PPM	+/-	6.7480
CU	63.2898	PPM	+/-	4.8905
ZN	649.1086	PPM	+/-	7.2760
AS	25.7780	PPM	+/-	5.1752
PB	898.1355	PPM	+/-	6.1658
HG	N D			
SIO5	92.503	DIFF		

3-15628-B7

K	3.0133	%	+/-	0.0285
CA	1.7530	%	+/-	0.0164
TI	0.3479	%	+/-	0.0046
CR	34.9477	PPM	+/-	10.2172
MN	702.1223	PPM	+/-	15.5482
FE	2.4043	%	+/-	0.0057
NI	1.8136	PPM	+/-	6.8367
CU	68.4127	PPM	+/-	4.9264
ZN	737.5098	PPM	+/-	7.7613
AS	22.4251	PPM	+/-	5.4497
PB	998.0234	PPM	+/-	6.5083
HG	N D			
SIO5	92.225	DIFF		

3-15628-B8

K	2.9665	%	+/-	0.0287
CA	1.7991	%	+/-	0.0164
TI	0.3396	%	+/-	0.0047
CR	46.0874	PPM	+/-	9.9862
MN	733.5474	PPM	+/-	15.6937
FE	2.3941	%	+/-	0.0057
NI	12.8238	PPM	+/-	6.6792
CU	71.3512	PPM	+/-	4.8920
ZN	697.5596	PPM	+/-	7.6329
AS	31.0849	PPM	+/-	5.4613
PB	1000.7169	PPM	+/-	6.5683
HG	N D			
SIO5	92.241	DIFF		

3-15628-B9

K	2.8852	%	+/-	0.0284
CA	1.7479	%	+/-	0.0163
TI	0.3519	%	+/-	0.0047
CR	36.6957	PPM	+/-	10.0927
MN	728.6683	PPM	+/-	15.4947
FE	2.2869	%	+/-	0.0055
NI	22.3598	PPM	+/-	6.6708
CU	60.7465	PPM	+/-	4.7891
ZN	671.9249	PPM	+/-	7.3852
AS	25.4073	PPM	+/-	5.0530
PB	857.3143	PPM	+/-	6.0851
HG	N D			
SIO5	92.488	DIFF		

NIST2711

K	2.5481	%	+/-	0.0269
CA	3.0421	%	+/-	0.0202
TI	0.3328	%	+/-	0.0046
CR	27.6217	PPM	+/-	10.5524
MN	632.4363	PPM	+/-	15.9032
FE	2.8879	%	+/-	0.0063
NI	10.4305	PPM	+/-	7.0428
CU	126.8756	PPM	+/-	5.3839
ZN	356.4365	PPM	+/-	6.1023