STATE OF NEW MEXICO
BEFORE THE WATER QUALITY CONTROL COMMISSION

NEW MEXICO ENVIRONMENT DEPARTMENT
WATER PROTECTION DIVISION,
SURFACE WATER QUALITY BUREAU,

Complainant,

No. WQCC 20-16 (CO)

v.

MATADOR PRODUCTION COMPANY and
SAN MATEO MIDSTREAM, LLC,

Respondents.

SUPPLEMENT TO MOTION TO AMEND REMEDIATION DEADLINES AND STAY ACCRUAL OF STATUTORY PENALTIES

Matador Production Company ("Matador") and San Mateo Midstream, LLC ("San Mateo") (collectively, "Respondents") submit this Supplement to their Motion to Amend Remediation Deadlines and Stay Accrual of Statutory Penalties after obtaining additional information that was not available when the Motion was filed on July 2, 2020. The additional information provides substantial material support in favor of granting the relief requested.

San Mateo conducted an analysis of core samples collected in the vicinity of the alleged release. This process utilized recognized and reliable analytical methods that can discern the presence or absence of bentonite—one of the substances in the boring fluid—based on mineralogy and chemical composition. The analysis revealed an absence of bentonite in the sedimentary core samples. In other words, the analysis shows that there is no bentonite where it would be expected to exist had it been released into the Black River. This confirms the basis for Respondents' objections to the Bureau's approved remediation plan and the deadlines to start and complete remediation before a hearing. In short, this additional information underscores that it makes no sense, and would be arbitrary, capricious, and an abuse of discretion, to require Respondents to commence an extensive remediation program to remove a material that is not present and likely never was released into the river, and to impose hefty daily financial penalties for failing to comply, all before the opportunity for a hearing on liability and the proper scope of remediation, if any.

In their Motion, filed on July 2, 2020, Respondents demonstrated that the requirement in the First Amendment to the Administrative Compliance Order ("FAACO") to start and finish remediation before an evidentiary hearing can be held—or face substantial daily fines for non-compliance—would be arbitrary, capricious, and an abuse of discretion. The FAACO requires Respondents to start remediation of an alleged release of bentonite in the Black River "in accordance with the remediation plan approved by the Department" by July 9, 2020, and to "complete remediation of the Site" by August 20, 2020. *See* FAACO ¶ 25. Respondents' Motion asks the Hearing Officer for an order extending the deadline for remediation until after a hearing in this matter is held on September 8, 2020. In the alternative, Respondents ask the Hearing Officer to stay assessment and accrual of any potential fines for non-compliance that may be issued under NMSA 1978, Section 74-6-10, until the Commission has entered a final decision. The additional information Respondents obtained validates the grounds for the Motion and the relief requested.

During the week of June 29, 2020, San Mateo engaged its environmental consultant, Vertex Resource Group Ltd., to collect five sedimentary core samples from within and along the banks of the Black River within the vicinity of the alleged release. The core samples ranged in depth from approximately 21 inches to approximately 25 inches deep. The location of the core samples relative to the pipeline easement and alleged release are depicted on the second page of an aerial map, attached as **Exhibit D**. The map also references the locations of San Mateo's boring operation as well as physical features along the river and riverbank that Respondents noted in their Motion have contributed substantial erosion and runoff into the river.

Three core samples serve as controls and represent areas that are known to have had no exposure to any alleged release of bentonite from San Mateo's boring operations. One of the control core samples, C1, was collected from a location approximately 60 feet upstream from the alleged bentonite release, where Vertex had installed a sandbag mitigation structure during completion of the boring operation at the direction and approval of the Division. One of the control core samples, C5, was collected approximately 900 feet upstream from the location of the alleged release. The third control core sample, C4, was collected approximately 8 feet up-bank from the river level at a downstream location.

Two core samples, C2 and C3, were collected downstream of the alleged release in sedimentary deposits where, if bentonite had been released during San Mateo's boring operation, concentrations of bentonite would have accumulated. Core sample C2 was collected just downstream from the approximate location where the release is alleged to have occurred. Core sample C3 was collected approximately 80 feet downstream from the location where the release is alleged to have occurred.

The core samples collected were analyzed by a mud logger geologist who reviewed the cores based on rock type, looking for clay-like or bentonite-like layers within the cores that could potentially reflect an accumulation of bentonite from the alleged release. The core samples were transported by car to Houston where they were delivered to Impac Labs, a commercial laboratory that specializes in geoscience analyses for oil field operations.

The laboratory conducted X-Ray Diffraction, or XRD, and X-Ray Fluorescence, or XRF, analyses on samples from each rock type identified by the mud logger within the cores. XRD evaluates a material's crystalline structure. Bentonite has a known crystalline structure or signal that can be identified using XRD. XRF evaluates a material's chemical structure and can determine what elements comprise the material. Bentonite has a known chemical makeup comprised of sodium (Na), calcium (Ca), aluminum (Al), magnesium (Mg), and silicon (Si). Using these two laboratory techniques in combination, it is possible to check for the presence or absence of bentonite in a material. The analytical results for both methods are provided in a spreadsheet, attached as **Exhibit E**.[1]

Impac Labs compared the core samples collected in the field to a known bentonite crystalline diffraction signal in the XRD test and a known chemical composition for bentonite in the XRF test. *See* Quantification of Bentonite, attached as **Exhibit F**. The Impac Labs XRD analysis confirms that none of the clays in the core samples show any presence of bentonite, because the diffraction pattern is missing the tell-tale peaks of its crystalline diffraction. *See* Exhibit F.

Similarly, Impac Labs compared the chemical composition of the core samples to the known bentonite chemistry. The analysis confirms that the chemical composition of the materials and clays present in the core samples do not match those of bentonite. *See* Exhibit F. The core samples are rich in calcite, which is the mineralogy that is expected for clays from this area, instead of sodium (Na), which is the chemical signature consistent with bentonite. The materials present in the core samples collected from the Black River are instead consistent with halite and limestone, which is expected because that matches the geology of the area.

This additional information and analysis confirm the absence of bentonite in sedimentary deposits where it would be most expected and with the highest concentrations within the downstream vicinity of the alleged release. Considering this additional material information and analysis, it would be improper under any standard to enforce the FAACO's requirement to start

[1] The legend along the bottom row of XRF data is intended to reference any data that the laboratory identified as "Cautionary Data (possible rerun)," which would be indicated by yellow highlighting; "Sample is contaminated with Ba," which would be indicated by orange highlighting; and "Sample is contaminated with LCM [lost construction material]," which would be indicated by blue highlighting. None of the XRF data are flagged for any of these conditions.

and finish remediation before a hearing on liability and the appropriateness of remediation. Similarly, it would be unjust and an abuse of discretion to assess any statutory penalties, or to permit them to accrue, for failing to comply with any deadlines or requirements before a hearing on the matter.

CONCLUSION

For the reasons stated, Respondents respectfully request that the Hearing Officer grant Respondents' Motion and enter an order amending the ACO's deadlines to provide that the start and completion of remediation shall be required only after the Commission has entered a decision in this case so Respondents can challenge liability for river sedimentation and conditions in the approved remediation plan without the risk of being in non-compliance with the ACO before a hearing. In the alternative, Respondents move to stay assessment and accrual of any potential fines for non-compliance until a final decision by the Commission has been entered.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on July 13, 2020, I filed the foregoing document with the New Mexico Environment Department Office of Public Facilitation via Electronic Mail to public.facilitation@state.nm.us, and further certify that I served it on the following also via Electronic Mail:

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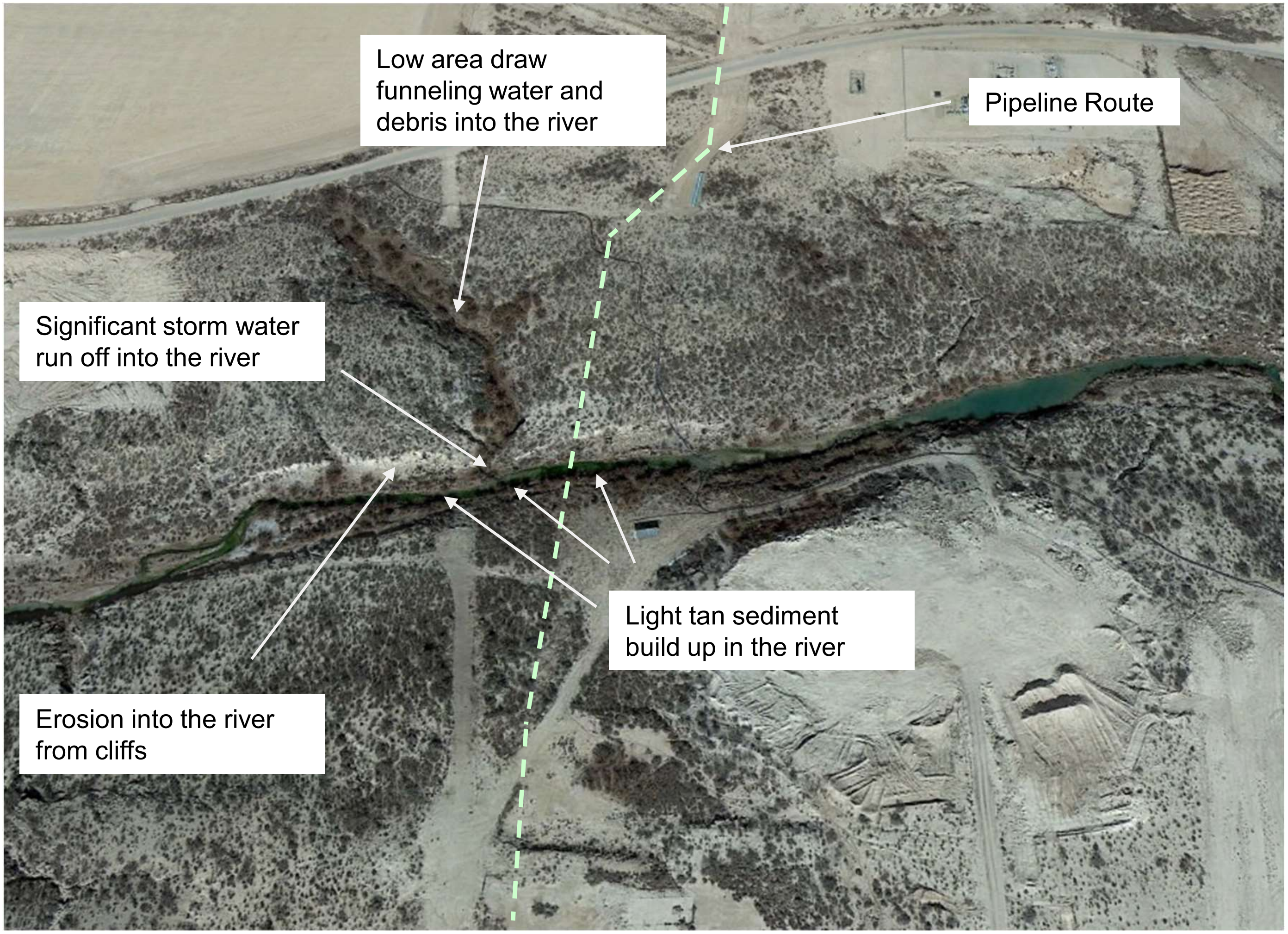
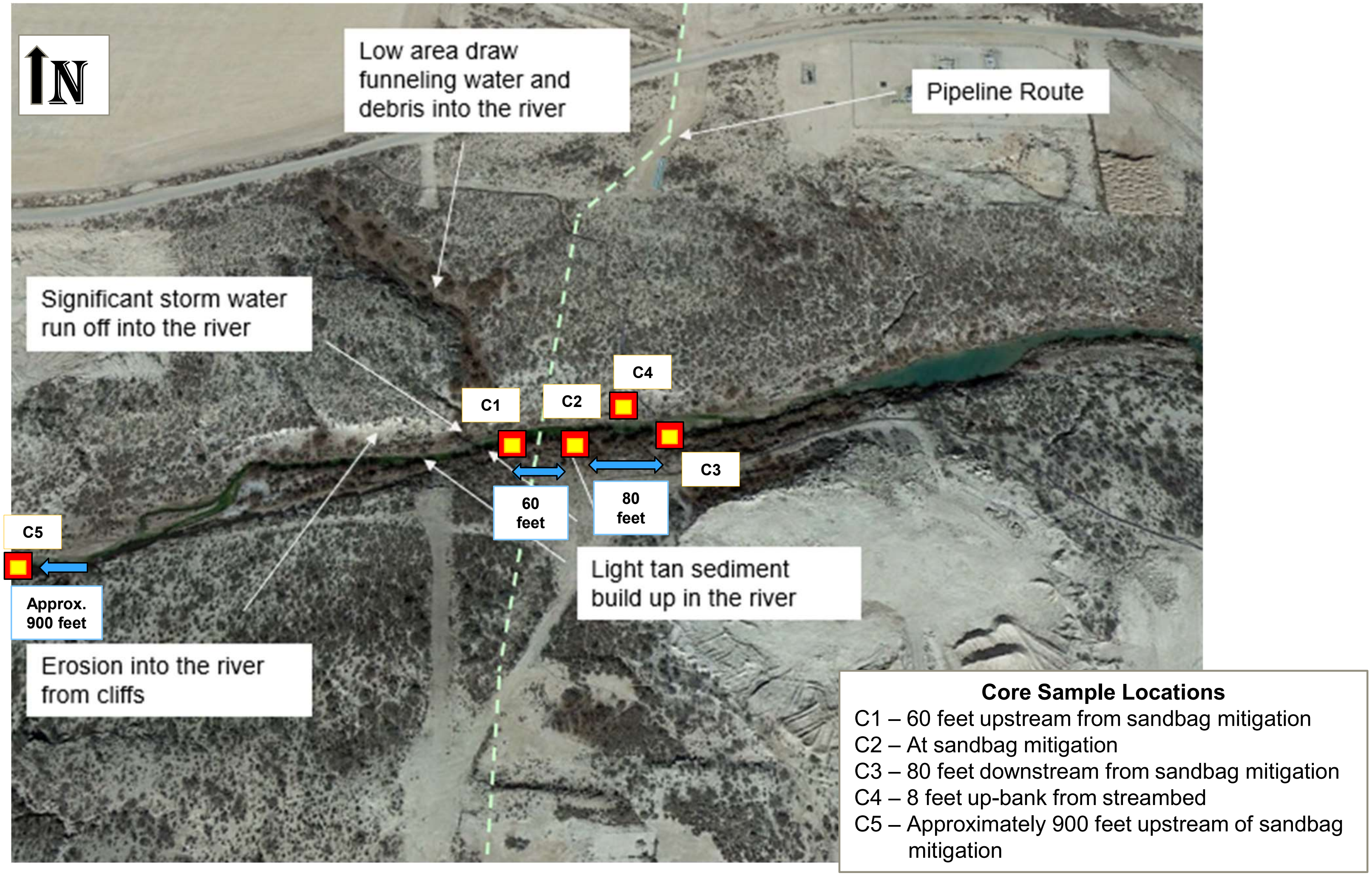


San Mateo

EXHIBIT D



San Mateo

EXHIBIT D

XRD RESULTS

Company:	Contact:	Well Name:
Matador Resources	Clark Collier	

XRD Results

Sample Description				Carbonates			Minerals						Clays					Group			
Measured Depth	Sample Type	Hole Section	Brittleness	Calcite	Dolomite	Siderite	Quartz	K-Spar	Plag.	Pyrite	Gypsum	Halite	Total Clay	Chlorite	Kaolinite	I/M	I/S	Q+F	Carbonates	Others	Clays
Feet			BIDX	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
1	Core	Top Core 1	96.7	92	1	Tr	4	1	Tr	Tr	0	0	2					5	93	0	2
2	Core	Bottom Core 1	87.6	49	Tr	Tr	39	3	1	Tr	0	0	8					43	49	0	8
3	Core	Core 2	95.8	92	Tr	Tr	3	1	Tr	Tr	0	3	1					4	92	3	1
4	Core	Bottom Core 2	96.7	90	2	Tr	5	1	Tr	Tr	0	0	2					6	92	0	2
5	Core	Top Core 3	77.6	52	Tr	Tr	29	3	1	Tr	0	0	15					33	52	0	15
6	Core	Bottom Core 3	96.7	91	2	Tr	4	1	Tr	Tr	0	0	2					5	93	0	2
7	Core	Core 4	81.1	36	4	Tr	41	5	1	Tr	1	0	12					47	40	1	12
8	Core	Core 5	96.7	87	2	Tr	8	1	Tr	Tr	0	0	2					9	89	0	2

EXHIBIT E

XRF RESULTS

Impac LABS

Company:	Contact:	Well Name:
Matador Resources	Clark Collier	

Elemental Results

Sample Description		Geology	Major Elements												
Measured Depth	Sample Type	Hole Selection	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	Cl	Total
Feet			%	%	%	%	%	%	%	%	%	%	%	%	%
1	Core	Top Core 1	16.8	0.148	0.546	1.041	0.00	0.944	76.57	0.279	0.744	0.43352	0.221	0.1849	97.91
2	Core	Bottom Core 1	43.97	0.453	8.005	2.293	0.00	1.704	36.46	0.574	1.739	0.2539	0.229	0.1983	95.88
3	Core	Core 2	14.86	0.132	0.368	0.932	0.00	0.439	89.27	4.657	0.735	0.40045	1.078	4.8996	117.78
4	Core	Bottom Core 2	19.31	0.174	1.186	1.12	0.00	1.49	74.97	0.402	0.758	0.46259	0.267	0.2505	100.40
5	Core	Top Core 3	41.25	0.444	7.832	2.855	0.00	1.913	43.84	0.819	1.484	0.26031	0.23	0.2363	101.16
6	Core	Bottom Core 3	17.4	0.142	0.634	1.086	0.00	1.176	74.84	0.459	0.72	0.43351	0.256	0.2357	97.38
7	Core	Core 4	40.36	0.518	7.953	2.861	0.00	3.238	37.73	0.723	1.758	0.2923	1.838	1.3214	98.59
8	Core	Core 5	18.42	0.138	0.571	0.997	0.00	1.085	75.49	0.273	0.71	0.4198	0.266	0.173	98.54

Measured Depth	Trace Elements																			
	V	Cr	Co	Ni	Cu	Zn	Ga	As	Br	Rb	Sr	Y	Zr	Nb	Mo	Ba	Hf	Pb	Th	U	Elemental Gamma Ray
Feet	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	API
1	3.415	6.78	2.92	143.9	16.572	24.38	10.967	0	72.0707	8.06	782.7	15.15	122.1	3.342	0	0	0	16.85	0	1.148	19.37
2	29.15	16.92	9.889	23.2	17.301	47.01	13.207	0.196	21.7873	45.8	361.4	21.94	331.5	12.37	28.09	0	0.226	17.57	0	0.911	30.926
3	0	3.969	2.443	155	18.197	25.88	9.9108	0	43.8876	5.858	519.9	11.65	61.45	2.454	0	0	0	16.05	0	1.472	21.863
4	0	5.089	3.227	133.2	16.918	25.41	8.2619	0	84.2627	8.512	745.6	14.63	110.3	3.006	0	0	0	17.01	0	1.224	20.177
5	40.86	28.04	13.94	33.5	19.761	43.82	12.837	1.325	26.6687	31.35	362.5	19.74	253.5	10.71	3.901	0	0	18.5	0	1.229	30.046
6	0	9.01	3.076	139.3	14.03	36.46	9.4889	0	93.9132	7.871	822.7	14.68	126.2	3.463	0.922	0	0	16.86	0	1.206	19.511
7	45.1	23.62	13.92	27.38	17.049	52.14	13.812	1.783	180.951	42.36	711.1	21.73	312.1	10.42	21.77	0	0	18.86	0	0.813	30.397
8	0	5.643	2.646	135.9	15.377	24.76	8.9585	0	74.8034	7.761	810.1	15.43	122.2	4.319	0	0	0	16.81	0	1.247	19.708

Cautionary Data (Possible Rerun)	Sample is contaminated with Ba	Sample is contaminated with LCM

EXHIBIT E

Quantification of Bentonite (Montmorillonite)

The two arrows point to the primary and secondary peak of Montmorillonite. The far left peak is the primary peak. The lines that show each crystal phase are the corresponding angles of refraction of the x-rays. These lines are called Bragg lines. The image below is the full diffractogram of the sample. The large red peak that is shown below is calcite.

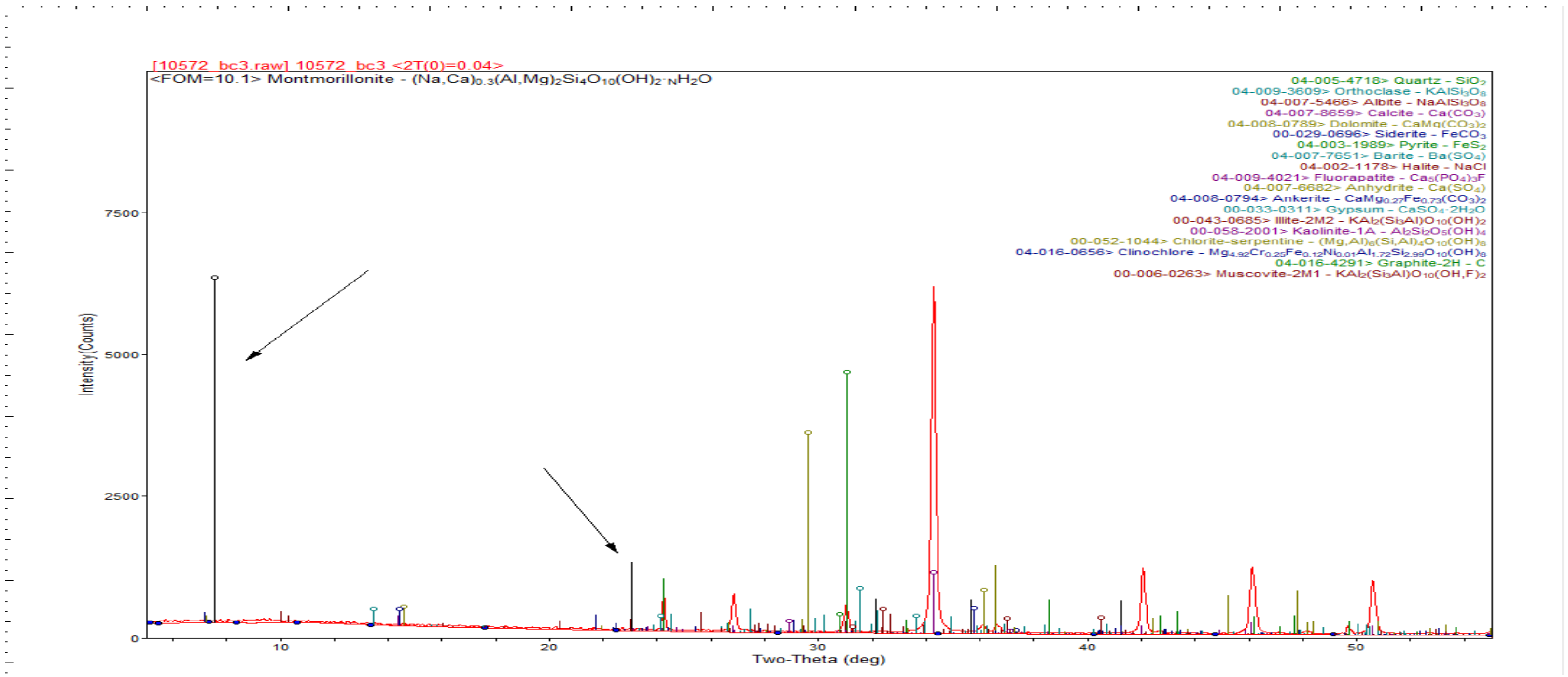
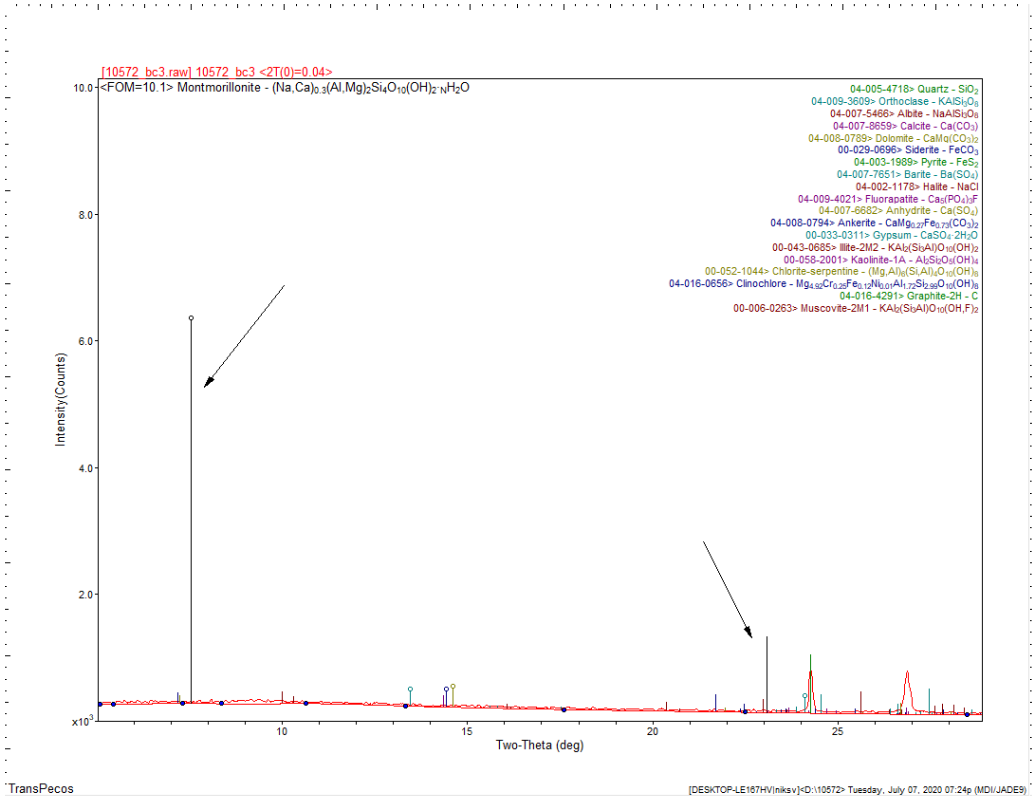


EXHIBIT F

The images below are the same image as the previous slide with the exception that we have zoomed in and focused on the primary section that has the identifying Bragg lines for Montmorillonite. In the image we can see no discernible peaks that rise above a background noise level. The image on the left is focused on the clay region of the scan. The image on the right shows that there is no defined peak above a background noise level.



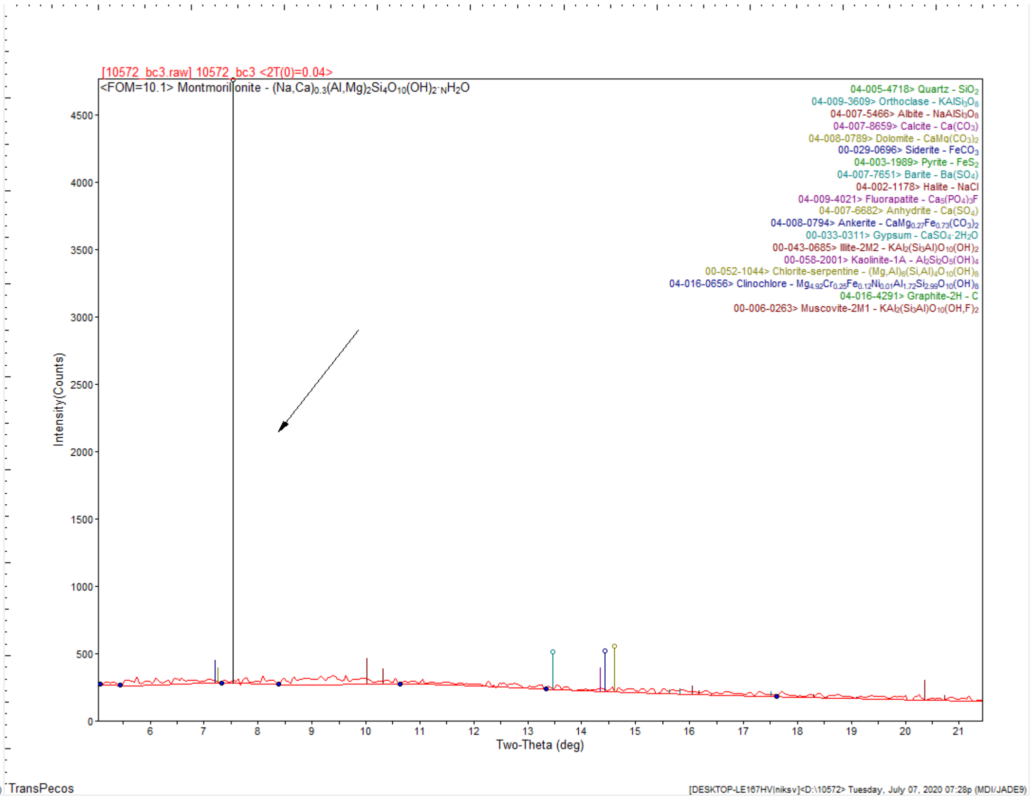


EXHIBIT F

Incorporating XRF with XRD data

- Montmorillonite chemical structure: (Na, Ca)0.3(Al,Mg)2Si4O10(OH)2 (H2O)
- After the XRD is examined, we focus on the chemical signatures of the samples. Primarily we are looking at excess of Na in a sample. The reason for Na is because we can equate the amount used in plagioclase and halite easier than trying to equate the amount of Al and Mg in clays.
- Aluminum phyllosilicates can be complicated chemical structures. Illite tends to have Fe as a major component and Chlorite with Mg.
- Looking at the XRF data, we do not see any large amounts of Na besides the one sample that has halite. The small amounts of Na in the remaining samples can be attributed to the small amounts of plagioclase that was detected in the XRD scans.

EXHIBIT F

Conclusion

- XRD scan showed no discernable peak above the baseline noise level that is normally associated with XRD diffractograms.
- When XRF is incorporated we do not have an excess of Na that would be attributed to Bentonite (Montmorillonite).
- The clays seen in the samples with higher clay amount samples were predominately illite and chlorites, to see exact percentages including kaolinite, further clay separation would be required.

EXHIBIT F