From:	Yu, Olivia, EMNRD
To:	k.freeman@aspengrow.us; rmann@slo.state.nm.us; Tom Whitmer; Bill Nesgood; Don Holt; Billings, Bradford, EMNRD
Cc:	Tony Tucker; Mann, Ryan
Subject:	RE: Aspen Grow / Chloride Breakdown
Date:	Thursday, July 19, 2018 9:22:00 AM

Good morning Mr. Freeman:

There will be no further discussion regarding remediation until release characterization/delineation is completed for 1RP-4859. NMOCD has not received any delineation information or data, since the proposed delineation plan was approved on December 20, 2017 by NMOCD and December 22, 2017 by NMSLO.

Thanks,
Olivia

From: k.freeman@aspengrow.us <k.freeman@aspengrow.us>
Sent: Thursday, July 19, 2018 9:09 AM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>; rmann@slo.state.nm.us; Tom Whitmer <twhitmer@cottonwoodaz.gov>; Bill Nesgood <nesg@cox.net>; Don Holt <d.holt@aspengrow.us>; Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Tony Tucker <tonyt@t5energy.com>
Subject: RE: Aspen Grow / Chloride Breakdown

Hello Ms. Yu,

I wanted to know if you have any additional questions or concerns in regard to approving the remediation of the Tandem T5 Energy Pure State Release with the Aspen Grow product and application methods. Please let me know what actions are need to be done to move forward to the remediation process and return the area to a more natural state. Aspen Grow is looking to re-mediate several release sites for Tandem T5 Energy based on your approval of each site. Please let me know if Aspen Grow Remediation can proceed with this process.

thanks,

Kevin Freeman
Business Development
210-213-0397 (c)

> -------- Original Message --------
> Subject: RE: Aspen Grow / Chloride Breakdown
> From: <k.freeman@aspengrow.us>
> Date: Mon, July 02, 2018 4:35 pm
> To: "Yu, Olivia, EMNRD" <Olivia.Yu@state.nm.us>, "rmann@slo.state.nm.us" <rmann@slo.state.nm.us>, "Tom Whitmer" <twhitmer@cottonwoodaz.gov>, "Bill Nesgood" <nesg@cox.net>, "Don

Holt"
<d.holt@aspengrow.us>, "Billings, Bradford, EMNRD"
<Bradford.Billings@state.nm.us>
Cc: "Tony Tucker" <tonyt@t5energy.com>

Ms. Yu,

Mr. Billings is correct that the primary objective was more about understanding the chemical and physical processes involved in our treatment process rather than the obtainment of an approval from NMOCD for our treatment program. During the course of the discussion, however, there was a great deal of discussion related to the acceptance or our treatment process and what we would be required to do from a testing standpoint, in conjunction with our treatments, in order to obtain approval. At no time was there any expression of opposition to our treatment process and as to the required testing the only metrics mentioned by NMOCD as an indication of the effectiveness of our treatments were the levels of chloride and Total Petroleum Hydrocarbons (TPH) at varying depths down to ten feet below land surface.
If there are other metrics other than levels of chlorides and TPH that are required, we are more than happy to comply with the requirements. We are also in agreement with your statement about the need to have the release characterization/delineation completed pre and post treatment. We typically have relied on the oil company to conduct the pre-treatment release characterization/delineation of the spill site. Our contract with the oil company includes post-treatment soil testing for any required qualitative soil metrics established by NMOCD and takes into consideration the pre-treatment release characterization/delineation of the spill site. We have offered this service to the oil companies, but thus far the oil companies have elected to complete this evaluation internally rather than contract with our company to do the work for them.

thanks,

Kevin Freeman

Business Development

210-213-0397 (c)

-------- Original Message --------
Subject: RE: Aspen Grow / Chloride Breakdown
From: "Yu, Olivia, EMNRD" <Olivia.Yu@state.nm.us>
Date: Thu, June 28, 2018 5:05 pm
To: "k.freeman@aspengrow.us" <k.freeman@aspengrow.us>, "rmann@slo.state.nm.us" <rmann@slo.state.nm.us>, Tom Whitmer
<twhitmer@cottonwoodaz.gov>, "Bill Nesgood" <nesg@cox.net>, Don Holt
<d.holt@aspengrow.us>, "Billings, Bradford, EMNRD"
<Bradford.Billings@state.nm.us>

Cc: Tony Tucker <tonyt@t5energy.com>

#wmMessage #wmQuoteWrapper #wmQuoteWrapper /* Font Definitions */ @font-face {font-family:"Cambria Math"; panose-1:2 4 5 3 5 4 6 3 2 4;} #wmMessage #wmQuoteWrapper #wmQuoteWrapper @font-face {font-family:Calibri; panose-1:2 15 5 2 2 2 4 3 2 4;} #wmMessage #wmQuoteWrapper #wmQuoteWrapper @font-face {font-family:Verdana; panose-1:2 11 6 4 3 5 4 4 2 4;} #wmMessage #wmQuoteWrapper #wmQuoteWrapper @font-face {font-family:"Book Antiqua"; panose-1:2 4 6 2 5 3 5 3 3 4;} #wmMessage #wmQuoteWrapper #wmQuoteWrapper /* Style Definitions */ p.MsoNormal, #wmMessage #wmQuoteWrapper #wmQuoteWrapper li.MsoNormal, #wmMessage #wmQuoteWrapper #wmQuoteWrapper div.MsoNormal {margin:0cm; margin-bottom:.0001pt; font-size:11.0pt; font-family:"Calibri",sans-serif;} #wmMessage #wmQuoteWrapper #wmQuoteWrapper p.msonormal0, #wmMessage #wmQuoteWrapper #wmQuoteWrapper li.msonormal0, #wmMessage #wmQuoteWrapper #wmQuoteWrapper div.msonormal0 {mso-style-name:msonormal; mso-margin-top-alt:auto; margin-right:0cm; mso-margin-bottom-alt:auto; margin-left:0cm; font-size:10.0pt; font-family:"Calibri",sans-serif;} #wmMessage #wmQuoteWrapper #wmQuoteWrapper p.msonormal00, #wmMessage #wmQuoteWrapper #wmQuoteWrapper li.msonormal00, #wmMessage #wmQuoteWrapper #wmQuoteWrapper div.msonormal00 {mso-style-name:msonormal0; mso-margin-top-alt:auto; margin-right:0cm; mso-margin-bottom-alt:auto; margin-left:0cm; font-size:11.0pt; font-family:"Calibri",sans-serif;} #wmMessage #wmQuoteWrapper #wmQuoteWrapper p.msochpdefault, #wmMessage #wmQuoteWrapper #wmQuoteWrapper li.msochpdefault, #wmMessage #wmQuoteWrapper #wmQuoteWrapper div.msochpdefault {mso-style-name:msochpdefault; mso-margin-top-alt:auto; margin-right:0cm; mso-margin-bottom-alt:auto; margin-left:0cm; font-size:11.0pt; font-family:"Calibri",sans-serif;} #wmMessage #wmQuoteWrapper #wmQuoteWrapper span.mceitemhidden {mso-style-name:mceitemhidden;} #wmMessage #wmQuoteWrapper #wmQuoteWrapper span.apple-style-span {mso-style-name:apple-style-span;} #wmMessage #wmQuoteWrapper #wmQuoteWrapper span.emailstyle20 {mso-style-name:emailstyle20;} #wmMessage #wmQuoteWrapper #wmQuoteWrapper span.EmailStyle25 {mso-style-type:personal; font-family:"Calibri",sans-serif; color:windowtext;} #wmMessage #wmQuoteWrapper #wmQuoteWrapper span.EmailStyle27 {mso-style-type:personal-reply; font-family:"Calibri",sans-serif; color:windowtext;} #wmMessage #wmQuoteWrapper #wmQuoteWrapper .MsoChpDefault {mso-style-type:export-only; font-size:10.0pt;} #wmMessage #wmQuoteWrapper #wmQuoteWrapper @page WordSection1 {size:612.0pt 792.0pt; margin:72.0pt 72.0pt 72.0pt 72.0pt;} #wmMessage #wmQuoteWrapper #wmQuoteWrapper div.WordSection1 {page:WordSection1;}

Mr. Freeman:

Mr. Billings informed me that the discussion in August 2017 was not necessarily about the approval of your product, but the chemical processes involved.

While future restoration potential or the arability of the soil, where the release occurred, are important considerations, NMOCD does not necessarily evaluate remediation proposals with these as assessment criteria. If the product has the aforementioned effects on chloride and hydrocarbon-impacted soil, and the requested soil parameters are deemed not worth the

time and expense; what other metrics do you proposed to use for evaluation of effectiveness?

To reiterate, without evidence of release characterization/delineation being completed; at this time, any proposed remediation discussion will remain as such.

Thanks,
Olivia

From: k.freeman@aspengrow.us <k.freeman@aspengrow.us>
Sent: Wednesday, June 27, 2018 1:00 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>; rmann@slo.state.nm.us; bradford.billlings@state.nm.us; Tom Whitmer <twhitmer@cottonwoodaz.gov>; Bill Nesgood <nesg@cox.net>; Don Holt <d.holt@aspengrow.us>
Cc: Tony Tucker <tonyt@t5energy.com>
Subject: RE: Aspen Grow / Chloride Breakdown

Ms. Yu,

The last meeting with Mr. Billings and his staff occurred on August 23, 2017 in Artesia, New Mexico. The release for discussion that day was in regard to a spill on State Lands and the plan to re mediate in a manner that would have a minimal effect to the surface and environment.
I understand that all remediation plans are on an individual basis for approval, but the goal is to correct the soil back to a pre-spill condition. Being these spills are in un-farmed areas and are more isolated, I feel additional testing only slows the process to reach the goal of addressing as many spills as possible. Along with the added cost and time, this promotes less disclosure. Ultimately, you have the final say and will be your decision. Please let us know if this spill can be approved to be re-mediated by Aspen Grow as approved by NMOCD in other areas.

thanks,

Kevin Freeman
Business Development
210-213-0397 (c)

-------- Original Message --------

Subject: RE: Aspen Grow / Chloride Breakdown
From: "Yu, Olivia, EMNRD" <Olivia.Yu@state.nm.us>
Date: Wed, June 27, 2018 8:57 am
To: "k.freeman@aspengrow.us" <k.freeman@aspengrow.us>, "rmann@slo.state.nm.us" <rmann@slo.state.nm.us>, "bradford.billlings@state.nm.us" <bradford.billlings@state.nm.us>, Tom Whitmer <twhitmer@cottonwoodaz.gov>, Bill Nesgood <nesg@cox.net>, Don Holt <d.holt@aspengrow.us>
Cc: Tony Tucker <tonyt@t5energy.com>

Good morning Mr. Freeman:

When did this meeting occur? Please keep in mind that each release is evaluated independently, depending on several criteria. Furthermore, this release occurred on State surface, which would perhaps necessitate a more stringent set of standards than previously approved remediation projects in other areas.

Thanks,
Olivia

From: k.freeman@aspengrow.us <k.freeman@aspengrow.us>
Sent: Monday, June 25, 2018 7:30 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>; rmann@slo.state.nm.us; bradford.billlings@state.nm.us; Tom Whitmer <twhitmer@cottonwoodaz.gov>; Bill Nesgood <nesg@cox.net>; Don Holt <d.holt@aspengrow.us>
Cc: Tony Tucker <tonyt@t5energy.com>
Subject: Aspen Grow / Chloride Breakdown

Ms. Yu,

In response to your e-mail, our chemist, Tom Whitmer responded as follows:

The enhancement of the “soil ecological process” is the primary mode of effect. There are, however, other processes associated with the products we apply that are occurring and that enhance the deep percolation of chloride as well as buffer the remaining salts in order to produce a soil that is conducive for restoring and maintaining plant life.

In regards to your statement about these tests being

required by the NMOCD, we have spoken directly with Mr. Billings, Ms. Weaver and other staff members from the Santa Fe Office of NMOCD multiple times and none of these soil tests were ever identified as being required or even being considered as a testing requirement in the future. They didn't even mention a requirement to conduct any of these soil tests during our lengthy meeting in the NMOCD office in Artesia when we discussed our treatment protocols, the physical and chemical effects of our treatment program on contaminated spill areas and the comprehensive testing requirements. There was ample opportunity during the discussion encompassing the comprehensive testing requirements and yet these tests were not included in the list of tests that NMOCD said were required.

If perhaps the spill site we were requested to re mediate happened to be on an actively farmed area, I could potentially see the interest in having these tests conducted. In the isolated areas where we have been applying the products, however, a comprehensive qualitative soil analysis that includes these soil tests is somewhat of an overkill. From a curiosity standpoint it would be an interesting exercise, but in our meetings with the Santa Fe NMOCD as stated previously, none of these soil tests were ever mentioned as being required. I might also add that NMOCD was fully supportive of our remediation program.

thanks,

Kevin Freeman

Business Development

210-213-0397 (c)

Aspen Grow

3001 W. LOOP 250 N., Ste. C 105-166
Midland, Texas 79705


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Midland, Texas 79705

From: Yu, Olivia, EMNRD
To: "k.freeman@aspengrow.us"; Billings, Bradford, EMNRD
Cc: Mann, Ryan; Tom Whitmer; Bill Nesgood; Don Holt
Subject: RE: Remediation Plan- Tandem Energy -Pure State
Date: Friday, June 22, 2018 7:23:00 AM

Good morning Mr. Freeman:

Thank you for the below soil information. If enhancement of soil ecological processes is the mode of effect, then NMOCD requests key soil parameters be tested pre- and post-application of the product, such as percent SOM, SOC, pH, SAR, CEC among other soil metrics, to evaluate soil health.

Again, the proposed remediation would consider after completion of release characterization/delineation. Please inform of the status of this stage for 1RP-4859.

Thanks,
Olivia

From: k.freeman@aspengrow.us <k.freeman@aspengrow.us>
Sent: Thursday, June 21, 2018 8:32 AM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: Mann, Ryan <rmann@slo.state.nm.us>; Tom Whitmer <twhitmer@cottonwoodaz.gov>; Bill Nesgood <nesg@cox.net>; Don Holt <d.holt@aspengrow.us>
Subject: RE: Remediation Plan- Tandem Energy -Pure State

Ms. Yu,

I talked to my chemist partner, and told him the questions you had and he responded with the following.

There are basically three processes that are responsible for aggregating particles in soils. The first process is physical and is the result of wet/dry cycles, which induce shrinking/swelling processes in clays. As the clays dry they crack along defined zones of weakness over time, resulting in the formation of distinct aggregates. This process is highly dependent upon the presence of clays in the soil makeup and if the soils are highly dispersed as a result of Na+ from a spill, no amount of wet/dry cycle is going to restore that soil to a healthy aggregated soil structure.

The second process is chemical flocculation and results when poly valent cations that have small ionic radii and high surface charges act to pull clay particles together through electrostatic attraction, which leads to aggregation. Poly valent cations in soil are generally Ca2+, Mg2+, and Al3+. The H+ cation can also play a role in this effort.

The third process is the result of earthworms, fungal hyphae and microbes that produce exudates, which glue soil particles together. Chemical products from the decomposition of organic matter also coat soil particles forming chemical bonds with mineral surfaces that act to pull particles together in water.

Our products contain a proprietary blend of organic acids, enzymes, biostimulants, wetting agents and beneficial microbes that work synergistically to restore and enhance the aggregation of the soil chemically and biologically. The chemical process for aggregating soils is very rapid, but its benefits tend to not to be long lasting. The biological process for aggregating soils is slower, but has the capability to enhance and maintain healthy aggregated soils much longer. By applying our products, which chemically and biologically promotes the rapid aggregation of soil, we are able to drive chlorides through the soil profile to depths of up to 10 feet within a very short period of time.

In addition to the enhanced aggregation of the soil, the organic acids and enzymes in our products aid in buffering the effects of chloride and other toxic inorganic constituents that may be present as a result of a fracking spill. Restoring the soil tilth and buffering the excessive chloride is the first step in stimulating and restoring the natural biological systems that will maintain a healthy aggregated soil environment for the microbial systems, which are essential for restoring and maintaining the plant life of the area. Restoring the biological systems will also aid in restricting the upward transport of chlorides over time, which often occurs under arid and semiarid conditions.

As for the water, we attempt to apply a minimum of one inch of water per application, but how it is applied is just as important as how much. Water is applied at a rate that minimizes or prevents puddling and runoff, which is highly prone to happen; especially for the first application because of the highly dispersed condition of the soils. Depending on the spatial extent, the topography and the volume of process water spilled, treatment of most spills generally only requires a maximum of eight applications, with each application occurring weekly.
Please let me know if you have any additional questions.

thanks,

Kevin Freeman

Business Development

210-213-0397 (c)

> -------- Original Message --------
> Subject: RE: Remediation Plan- Tandem Energy -Pure State

From: "Yu, Olivia, EMNRD" <Olivia.Yu@state.nm.us>
Date: Tue, June 19, 2018 8:48 am
To: "k.freeman@aspengrow.us" <k.freeman@aspengrow.us>
Cc: "Mann, Ryan" <rmann@slo.state.nm.us>

Good morning Mr. Freeman:

Thank you for the attachment and the update regarding the other Tandem releases. However, the document does not address the main concern of the proposed remediation process. How does the product affect chloride bonding or absorption as mentioned during the meeting? Chloride is an anion that is highly mobile in the soil profile. As alluded to in the provided document, if the main issue with chloride-impacted soil is the salts in produced water, primarily sodium, not necessarily the chloride ion, then how will the remediation product work as a topical application? Is the driver actually the freshwater application to desorb chlorides and salts rather than the activity of microbes in the nutrient solution itself? If so, how much water is estimated to be used?

Please inform of the delineation process for 1RP-4859.

Thanks,
Olivia

From: k.freeman@aspengrow.us <k.freeman@aspengrow.us>
Sent: Friday, June 15, 2018 12:24 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: Mann, Ryan <rmann@slo.state.nm.us>
Subject: RE: Remediation Plan- Tandem Energy -Pure State

Ms. Yu,
I have attached the document that was sent to me in regard to the reactions of salts and chlorides with products that break the ion bonds. I am not a chemist, so I only understand some of the process. I hope this helps in

understanding of the process by which the application of our product effects the chlorides in the soil.
I am working with T5 Energy to address the spills that you sent and are still outstanding and need to be addressed. Hopefully we can treat the contaminated areas and return the soil to a more natural state. Please call me if you have any additional questions.

thanks,

Kevin Freeman
Business Development
210-213-0397 (c)

-------- Original Message --------
Subject: RE: Remediation Plan- Tandem Energy -Pure State
From: "Yu, Olivia, EMNRD" <Olivia.Yu@state.nm.us>
Date: Fri, May 11, 2018 1:13 pm
To: "k.freeman@aspengrow.us" <k.freeman@aspengrow.us>
Cc: "Mann, Ryan" <rmann@slo.state.nm.us>

Mr. Freeman:

To follow-up on our meeting on May 10, 2018 at 10 am, please inform NMOCD and NMSLO after you have corresponded with Tandem in regards to the addressal of just 1RP-4859 or will include the older releases. NMOCD database indicates these unresolved 1RPs: 3397, 3525, 3768. As mentioned, if all 4 releases will be addressed in one proposed delineation workplan, NMOCD recommends the mobilization of

a drilling rig. Also, as a clarification, the individual conducting the soil boreholes should be knowledgeable and typically will assess the lithology of the soil bore cores.

Thanks,
Olivia

From: k.freeman@aspengrow.us <k.freeman@aspengrow.us>
Sent: Monday, May 7, 2018 7:00 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: Mann, Ryan <rmann@slo.state.nm.us>
Subject: RE: Remediation Plan- Tandem Energy -Pure State

Ms. Yu,
Yes I can meet at your office, 1625 N. French Drive, Hobbs NM at 10:00 am on Thursday May 10th.

thanks,

Kevin Freeman
Business Development
210-213-0397 (c)

-------- Original Message --------
Subject: RE: Remediation Plan- Tandem Energy -Pure State
From: "Yu, Olivia, EMNRD" <Olivia.Yu@state.nm.us>
Date: Mon, May 07, 2018 5:27 pm
To: "k.freeman@aspengrow.us" <k.freeman@aspengrow.us>
Cc: "Mann, Ryan" <rmann@slo.state.nm.us>

Mr. Freeman:

Are you available to meet at the NMOCD Hobbs's office at 10 am MST on Thursday, May 10?

Thanks,
Olivia

From: k.freeman@aspengrow.us <k.freeman@aspengrow.us>
Sent: Monday, May 7, 2018 2:25 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>

Subject: Remediation Plan- Tandem Energy -Pure State

Ms. Yu,
I have attached the proposed remediation plan for the Tandem Energy Pure State Release. Please review the attached proposal and let me know if you have any questions or when would be a good time to meet at your office. I have two meetings scheduled tomorrow, but Wednesday or Thursday would work if your schedule allows.

thanks,

Kevin Freeman
Business Development
210-213-0397 (c)

Aspen Grow

3001 W. LOOP 250 N., Ste. C 105-166
Midland, Texas 79705

From: Yu, Olivia, EMNRD
To: "k.freeman@aspengrow.us"
Cc: Mann, Ryan
Subject: RE: Remediation Plan- Tandem Energy -Pure State
Date: Tuesday, June 19, 2018 7:48:00 AM

Good morning Mr. Freeman:

Thank you for the attachment and the update regarding the other Tandem releases. However, the document does not address the main concern of the proposed remediation process. How does the product affect chloride bonding or absorption as mentioned during the meeting? Chloride is an anion that is highly mobile in the soil profile. As alluded to in the provided document, if the main issue with chloride-impacted soil is the salts in produced water, primarily sodium, not necessarily the chloride ion, then how will the remediation product work as a topical application? Is the driver actually the freshwater application to desorb chlorides and salts rather than the activity of microbes in the nutrient solution itself? If so, how much water is estimated to be used?

Please inform of the delineation process for 1RP-4859.

Thanks,
Olivia

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Sent: Friday, June 15, 2018 12:24 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: Mann, Ryan <rmann@slo.state.nm.us>
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thanks,

Kevin Freeman
Business Development
210-213-0397 (c)

> -------- Original Message --------
> Subject: RE: Remediation Plan- Tandem Energy -Pure State
> From: "Yu, Olivia, EMNRD" <Olivia.Yu@state.nm.us>
> Date: Fri, May 11, 2018 1:13 pm
> To: "k.freeman@aspengrow.us" <k.freeman@aspengrow.us>
> Cc: "Mann, Ryan" <rmann@slo.state.nm.us>
>
> Mr. Freeman:
>
> To follow-up on our meeting on May 10, 2018 at 10 am, please inform NMOCD and NMSLO after you have corresponded with Tandem in regards to the addressal of just 1RP-4859 or will include the older releases. NMOCD database indicates these unresolved 1RPs: 3397, 3525, 3768. As mentioned, if all 4 releases will be addressed in one proposed delineation workplan, NMOCD recommends the mobilization of a drilling rig. Also, as a clarification, the individual conducting the soil boreholes should be knowledgeable and typically will assess the lithology of the soil bore cores.
>
> Thanks,

Olivia

From: k.freeman@aspengrow.us <k.freeman@aspengrow.us>
Sent: Monday, May 7, 2018 7:00 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: Mann, Ryan <rmann@slo.state.nm.us>
Subject: RE: Remediation Plan- Tandem Energy -Pure State

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thanks,

Kevin Freeman
Business Development
210-213-0397 (c)

-------- Original Message --------
Subject: RE: Remediation Plan- Tandem Energy -Pure State
From: "Yu, Olivia, EMNRD" <Olivia.Yu@state.nm.us>
Date: Mon, May 07, 2018 5:27 pm
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<k.freeman@aspengrow.us>
Cc: "Mann, Ryan" <rmann@slo.state.nm.us>

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<k.freeman@aspengrow.us>
Sent: Monday, May 7, 2018 2:25 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Subject: Remediation Plan- Tandem Energy -Pure State

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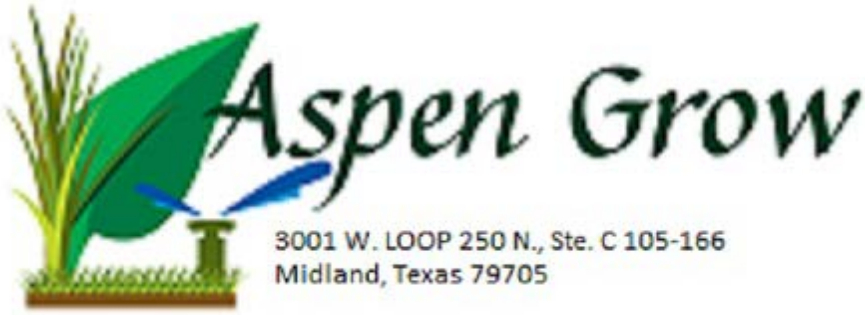
Kevin Freeman
Business Development
210-213-0397 (c)



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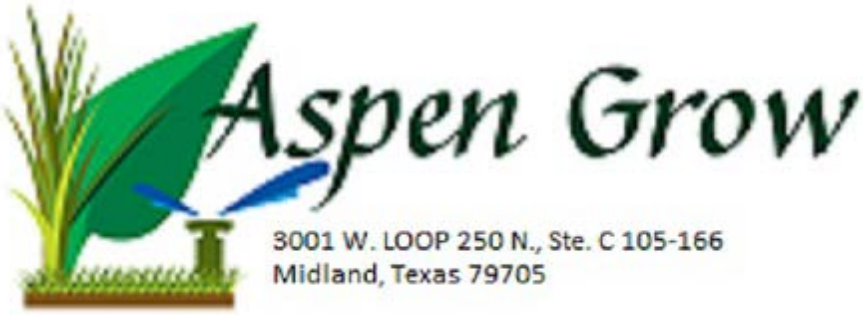
Midland, Texas 79705



3001 W. LOOP 250 N., Ste. C 105-166
Midland, Texas 79705

3001 W. LOOP 250 N., Ste. C 105-166
Midland, Texas 79705

From: Yu, Olivia, EMNRD
To: k.freeman@aspengrow.us
Cc: Mann, Ryan
Subject: RE: Remediation Plan- Tandem Energy -Pure State
Date: Friday, May 11, 2018 12:13:00 PM

Mr. Freeman:

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Thanks,
Olivia

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Sent: Monday, May 7, 2018 7:00 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: Mann, Ryan <rmann@slo.state.nm.us>
Subject: RE: Remediation Plan- Tandem Energy -Pure State

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thanks,

Kevin Freeman

Business Development

210-213-0397 (c)

> -------- Original Message --------
> Subject: RE: Remediation Plan- Tandem Energy -Pure State
> From: "Yu, Olivia, EMNRD" <Olivia.Yu@state.nm.us>
> Date: Mon, May 07, 2018 5:27 pm
> To: "k.freeman@aspengrow.us" <k.freeman@aspengrow.us>
> Cc: "Mann, Ryan" <rmann@slo.state.nm.us>
>
> Mr. Freeman:
>
> Are you available to meet at the NMOCD Hobbs's office at 10 am MST on Thursday, May 10?
>
> Thanks,

Olivia

From: k.freeman@aspengrow.us <k.freeman@aspengrow.us>
Sent: Monday, May 7, 2018 2:25 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Subject: Remediation Plan- Tandem Energy -Pure State

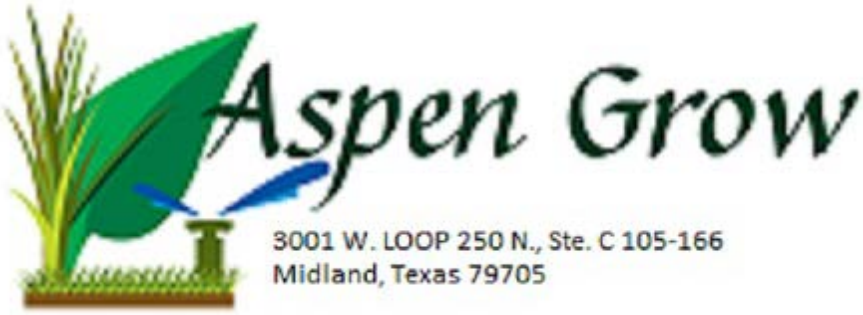
Ms. Yu,
I have attached the proposed remediation plan for the Tandem Energy Pure State Release. Please review the attached proposal and let me know if you have any questions or when would be a good time to meet at your office. I have two meetings scheduled tomorrow, but Wednesday or Thursday would work if your schedule allows.

thanks,

Kevin Freeman

Business Development

210-213-0397 (c)



Salts and Chlorides Remediation

The remediation of salts and chlorides is not a process of consumption but rather a process of binding, buffering, immobilization, detoxification, filtering, or conversion into a non-toxic soil mineral. This is accomplished in a variety of both cationic and anionic processes and reactions. The following information will provide some additional information that will assist in how some of these processes occur and a foundation on what these potential contaminants do in soil. Impact of Salt/Chloride on Soil There are three major impacts on soil and plants when salt water spills occur.

- Soil particles are dispersed which destroys aggregation
- Osmotic potential reduces the plants ability to up take water
- Ionic balance of the soil solution is impacted reducing nutrient absorption

1. Impact of sodium on soil and plants.
    a. The Na+ ion of sodium chloride causes the dispersion of the soil. Due to the large number of Na+ ions available, the Na+ ions are able to exchange with a sufficient number of the Ca++ and Mg++ ions. The Na+ ion is a large ion therefore weakening the normal soil aggregate stability. The major impact of a salt water spill is the destruction of the soil aggregates by dispersion. Dispersion will occur when more than 15% of the cation exchange capacity sites on clays are occupied by sodium ions and when the total EC in the soil solution is low. The potential dispersion of a soil can be determined by the exchangeable sodium percentage (ESP). Soil dispersion results in:
    b. • Loss of soil structure • Loss of pore structure • Reduced air and water movement • Reduced bioactivity • Reduced nutrient transfer • Increased water run-off and erosion of soil due to the major impact of the Na+ ion in the soil root zone, the remediation process is focused on restoring the soil aggregation. When the soil aggregation is restored the secondary impact due to osmotic pressure will also be reduced. In the remediation process it is very important to treat the soil as soon as possible. Rain on the spill site before gypsum is added will increase the rate of soil dispersion. As the salt (NaCl) concentration in the water solution increases, the change in osmotic potential makes the roots work harder to take in water. The amount of water intake by a plant will directly affect plant growth. As rain fall events occur salt in the water solution will be diluted. In most cases the first year rain fall (12-14 inches of rain) will significantly reduce the salt concentration in the soil solution.
2. Impact of chloride on soil and plants Depending on the chloride concentration in the spill event, direct chloride toxicity can occur at high levels of Cl- ions. Sensitivity to the Cl– ion will depend on the plant species. The Cl– ion in the soil water solution is usually flushed below the root zone by the first year of rain fall. The Cl– ion, due to its negative charge, moves rapidly out of the root zone through the negatively charged soil aggregates. Chloride concentration does not have a direct impact on soil structure except for being one of the ions which increases the osmotic potential in the soil solution. The term “chloride” does not refer to any specific compound but is a category of substances that are either present in the soil or groundwater or are added to drilling muds or hydro-fracturing fluids to facilitate development of a gas/oil well. The most common chlorides of interest include sodium chloride, calcium chloride, magnesium chloride, ammonium chloride, potassium chloride, and barium chloride. Therefore, the remediation of “Chlorides” may encompass a variety

of compounds that can respond differently to treatments due to a variety of variables and conditions. It is also known that within any remediation of salts and chlorides that a variety of charges and reactions are required since Cations migrate to negative charges and anions migrate to positive charges. Therefore, multiple charges of treatment products will be required to react appropriately with the different charges of the various components in the soil and water.

To: Ms. Olivia Yu, May 4, 2017

Environmental Specialist
NMOCD – Hobbs- District I
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Hobbs, NM 88240
Office: 575-370-3188 ext. 113
Office :575-393-3896

Re: **Tandem Energy Corporation**
Pure State Gathering Facility.
API No. 30-025-20098
Unit P Section 36 -T19S-R34E

PLAN TO REMEDIATE:

Aspen Grow is working with Tandem Energy Corporation regarding the spill at the Pure State Gathering Facility, (API No. 30-025-20098), Unit P Section 36 -T19S-R34E, on State Land in Lea County, New Mexico.

Aspen Grow's approach is to remediate and restore the contaminated soils to a healthy productive condition by rebuilding the biological health of the soil. This can be accomplished through the application of products that contain bio stimulants, organic acids, biologically produced enzymes and chelating agents which stimulate the natural beneficial microorganisms in the soil. By restoring the population and proper ratio of beneficial micro and macro-organisms, soils can be revitalized back to being healthy and productive. To achieve this goal, Aspen Grow will take pre-treatment soil samples in a 50-foot grid pattern to establish the contaminated surface area and the depth of the contamination inside the spill area. Aspen Grow will take soil samples outside the contaminated area (two samples on each side of the spill) to show the un-contaminated soil density and makeup. Aspen Grow will apply the product on a gradual process of application to the contaminated sites to minimize erosion and possible runoff of the product. This application process will be applied to the spill area to prevent any expansion of the spill area. The site will be treated for ten (10 +) weeks with fresh water and bio-products that will nourish the soil system by suppling special humic acids, minerals and nutrients that promote the growth of natural aerobic microbes while improving the soil's structure and natural fertility. Aspen Grow will re-test the site after the initial application period to get treated analysis of the condition of the soil and to see if any additional application is needed. Our goal is to return the soil to as near original condition as possible with minimal erosion or damage to the top soil.

Tandem Energy Corporation and Aspen Grow will forward our final lab analysis to the OCD and BLM office upon reaching our intended goal. The initial lab test results with the sketch map showing the locations of the soil samples taken will be provided to all parties.

Location: Pure State Gathering Facility, API No. 30-025-20098, Unit P Section 36 -T19S-R34E, on State Land in Lea County, New Mexico

Work Preformed:

A representative for Aspen Grow LLC and Tandem Energy Corporation met at the Pure State Gathering Facility, API No. 30-025-20098, Unit P Section 36 -T19S-R34E, on State Land in Lea County, New Mexico spill site to assess the damage and contaminated area. A review of the C-141 indicated that a possible lighting strike hit the tank battery and caused an explosion that caused the other tanks to explode. The fire that ensued appears to have consumed most of the hydrocarbons that was released from the tanks. The spill site was sketched (enclosed) to show the area of the contaminated site.

When approval of the remediation plan is approved, Aspen Grow representatives will take soil samples both inside the spill area of the contaminated site and eight samples outside the contaminated area, two on each side, North, South, East and West of the spill site (8 sample locations). The samples will be taken in Chain of Custody (COC) jars and placed on ice. The contaminated Soil Samples and outside samples will be taken to the Hall Environmental Analysis Lab in Albuquerque New Mexico. Lab results will be provided to all parties.

Aspen Grow will then proceed with the application of pro-biotics product to start the process of re-mediation. Please respond with any question, concerns or comments to either or both parties below:

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Tony Tucker
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575-703-8283 office

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