

**From:** [Yu, Olivia, EMNRD](#)  
**To:** [Mark Larson](#)  
**Cc:** "[Nick@pogoresources.com](mailto:Nick@pogoresources.com)"; [Billings, Bradford, EMNRD](#)  
**Subject:** RE: 1RP-4723, Amended Delineation Report, East Caprock SWD #5 Produced Water Spill, August 23, 2017  
**Date:** Tuesday, October 31, 2017 2:18:00 PM

---

Mr. Larson:

Please address these concerns regarding 1RP-4723:

- Please clarify the statement about Dockum Group encountered at 17-20 ft. bgs. Is the implication that chloride movement is impeded by physical or geochemical properties of the shale layer?
- Vertical delineation is not completed to 600 mg/kg chlorides for the areas represented by the below sample locations. Is another stage of delineation proposed?
  - S-1/SB-1;
  - S-6/SB-2/SB-12;
  - S-10/SB-5/SB13;
  - SB-10.
- NMOCD does not agree with the proposed remediation plan. Chloride levels still exceed permissible limits of 600 mg/kg at the depths proposed for excavation. Please modify or indicate specifically that confirmation bottom and sidewall samples will be taken for each of the areas with varying excavation depths. Please be advised that a scaled map with confirmation sample locations marked and depths of excavation will be required.

Thanks,  
Olivia

---

**From:** Mark Larson [mailto:Mark@laenvironmental.com]  
**Sent:** Tuesday, October 17, 2017 6:13 AM  
**To:** Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>  
**Cc:** 'Nick@pogoresources.com' <Nick@pogoresources.com>  
**Subject:** FW: 1RP-4723, Amended Delineation Report, East Caprock SWD #5 Produced Water Spill, August 23, 2017

Olivia

I am following up on the amended delineation report for the East Caprock SWD #5 produced water spill (1RP-4723) that was submitted to the OCD on August 23, 2017. Would you please provide me a status report or if Pogo Resources, LLC (Pogo), as operator of record, is approved to begin remediation of the spill as presented in section 3.0 of the report. Please use the link below to download the report. Please contact Nick Holbrook with Pogo at (806) 790-5547 or [nick@pogoresources.com](mailto:nick@pogoresources.com) or me if you have questions.

Link: <https://files.acrobat.com/a/preview/e4c3e5ce-b3bb-4837-81fc-af00a9926e60>

Respectfully,

Mark J. Larson, P.G.  
President/Sr. Project Manager  
507 N. Marienfeld St., Suite 205  
Midland, Texas 79701  
Office – 432-687-0901  
Cell – 432- 556-8656  
Fax – 432-687-0456  
[mark@laenvironmental.com](mailto:mark@laenvironmental.com)



“Serving the Permian Basin Since 2000”

---

**From:** Mark Larson  
**Sent:** Friday, September 01, 2017 8:57 AM  
**To:** 'Yu, Olivia, EMNRD'  
**Cc:** 'Thomas J. Ervin'; 'ggfenton@aol.com'; 'David Plaisance'; 'paladinmid@suddenlink.net'  
**Subject:** RE: 1RP-4723, Amended Delineation Report, East Caprock SWD #5 Produced Water Spill, August 23, 2017

Olivia,

Larson & Associates, Inc. (LAI), on behalf of Paladin Energy Corporation (Paladin), submits the above captioned report for final delineation of a produced water spill at the East Caprock SWD #5 in Le County, New Mexico. Please use the link below to download the report. The amended delineation is based on the meeting with Paladin, yourself and me on July 25, 2017 and included collection of additional soil samples for chloride delineation at three (3) locations: S-3 (SB-11), S-6/SB-2 (SB-12) and S-10/SB-5 (SB-13). The delineation soil samples were collected on August 9, 2017. Additional background soil samples were collected for vertical chloride delineation. Dockum Group (Chinle formation) shale was encountered at each location at about 20 feet (SB-10), 17 feet (SB-11), 23.5 feet (SB-12) and 21.0 feet (SB-13) bgs. Groundwater was not observed above the shale. Your approval to implement the remediation plan is requested. Please contact Thomas Ervin (214) 363-2401 or [tervin@eetradeco.com](mailto:tervin@eetradeco.com) or me if you have questions.

Link: <https://files.acrobat.com/a/preview/e4c3e5ce-b3bb-4837-81fc-af00a9926e60>

Respectfully,

Mark J. Larson, P.G.  
President/Sr. Project Manager  
507 N. Marienfeld St., Suite 205  
Midland, Texas 79701  
Office – 432-687-0901  
Cell – 432- 556-8656  
Fax – 432-687-0456

[mark@laenvironmental.com](mailto:mark@laenvironmental.com)



“Serving the Permian Basin Since 2000”

---

**From:** Yu, Olivia, EMNRD [<mailto:Olivia.Yu@state.nm.us>]  
**Sent:** Thursday, August 10, 2017 4:52 PM  
**To:** Mark Larson; Billings, Bradford, EMNRD  
**Cc:** 'ggfenton@aol.com'; 'David Plaisance'; 'paladinmid@suddenlink.net'  
**Subject:** RE: 1RP-4723, Delineation Report, East Caprock SWD #5 Produced Water Spill, July 20, 2017

Dear Mr. Larson:

Please address these concerns regarding 1RP-4723.

1. The area represented by S1 does not have vertical delineation completed. If the groundwater monitoring data from 1RP-4666 is proposed to be utilized for this release, please clearly state this application.
2. S2, S3, and S4 are not completely delineated vertically. Please provide rationale for 1 ft. excavation for the area represented by S2 - S4.
3. Delineation data indicate that the chloride and/or TPH levels at the proposed excavation depths for the specified areas exceed permissible values. In areas where the bottom of the excavation exceeds permissible chloride and TPH levels, proceed to excavation to the next foot.
4. Each separately defined areas, based on proposed excavation depths as demarcated in Figure 4, must have confirmatory bottom and sidewall samples. Mark confirmation sample locations on another scaled map.

Thanks,  
Olivia

---

**From:** Mark Larson [<mailto:Mark@laenvironmental.com>]  
**Sent:** Friday, July 21, 2017 8:40 AM  
**To:** Yu, Olivia, EMNRD <[Olivia.Yu@state.nm.us](mailto:Olivia.Yu@state.nm.us)>  
**Cc:** 'ggfenton@aol.com' <[ggfenton@aol.com](mailto:ggfenton@aol.com)>; 'David Plaisance' <[dplaisance@paladinenergy.com](mailto:dplaisance@paladinenergy.com)>; 'paladinmid@suddenlink.net' <[paladinmid@suddenlink.net](mailto:paladinmid@suddenlink.net)>  
**Subject:** FW: 1RP-4723, Delineation Report, East Caprock SWD #5 Produced Water Spill, July 20, 2017

Olivia,  
Larson & Associates, Inc. (LAI), on behalf of Paladin Energy Corporation (Paladin), submits the above captioned report for delineation of a produced water spill at the East Caprock SWD #5 in Le County, New Mexico. The delineation was performed according to the plan submitted to the OCD on June 21, 2017. Additional samples were collected to assess the vertical limits of the spill. The document

presents the proposed remediation plan for the spill. Please use the link below to download the report. Please contact Mickey Horn with Paladin at (432) 63406599 or [paladinmidland@suddenlink.net](mailto:paladinmidland@suddenlink.net) or me if you have questions.

Link: <https://files.acrobat.com/a/preview/2511c632-c03c-42ea-b4d6-ef732f7ec48c>

Respectfully,

Mark J. Larson, P.G.  
President/Sr. Project Manager  
507 N. Marienfeld St., Suite 205  
Midland, Texas 79701  
Office – 432-687-0901  
Cell – 432- 556-8656  
Fax – 432-687-0456  
[mark@laenvironmental.com](mailto:mark@laenvironmental.com)



**“Serving the Permian Basin Since 2000”**

---

**From:** Mark Larson  
**Sent:** Wednesday, June 28, 2017 7:43 AM  
**To:** 'Yu, Olivia, EMNRD'  
**Cc:** 'ggfenton@aol.com'; 'David Plaisance'; 'paladinmid@suddenlink.net'  
**Subject:** FW: 1RP-4723, Delineation Plan, East Caprock SWD Well #5 Produced Water Sill, June 21, 2017

Olivia,

This is to let you know that personnel from Larson & Associates, Inc. (LAI) will be at the location of the spill (1RP-4723) Wednesday, June 28, 2017, for the purpose of collecting soil sample to delineate the extent of the produced water release at the above-referenced location. Soil samples will be collected according to the attached delineation plan that was submitted to the OCD on behalf of Paladin Energy Corporation (Paladin) on June 22, 2017. Please contact Mickey Horn with Paladin at (432) 63406599 or [paladinmidland@suddenlink.net](mailto:paladinmidland@suddenlink.net) or me if you have questions.

Respectfully,

Mark J. Larson, P.G.  
President/Sr. Project Manager  
507 N. Marienfeld St., Suite 205  
Midland, Texas 79701  
Office – 432-687-0901  
Cell – 432- 556-8656  
Fax – 432-687-0456  
[mark@laenvironmental.com](mailto:mark@laenvironmental.com)



“Serving the Permian Basin Since 2000”

---

**From:** Mark Larson  
**Sent:** Thursday, June 22, 2017 1:26 PM  
**To:** 'Yu, Olivia, EMNRD'  
**Cc:** 'ggfenton@aol.com'; 'David Plaisance'; 'paladinmid@suddenlink.net'  
**Subject:** Re: 1RP-4723, Delineation Plan, East Caprock SWD Well #5 Produced Water Sill, June 21, 2017

Olivia,

On behalf of Paladin Energy Corporation (Paladin) please find the attached delineation plan for assessing the extent of impact from the produced water spill at the East Caprock SWD Well #5 in Lea County, New Mexico. Please contact Mickey Horn with Paladin at (432) 63406599 or [paladinmidland@suddenlink.net](mailto:paladinmidland@suddenlink.net) or me if you have questions.

Mark J. Larson, P.G.  
President/Sr. Project Manager  
507 N. Marienfeld St., Suite 205  
Midland, Texas 79701  
Office – 432-687-0901  
Cell – 432- 556-8656  
Fax – 432-687-0456  
[mark@laenvironmental.com](mailto:mark@laenvironmental.com)



“Serving the Permian Basin Since 2000”