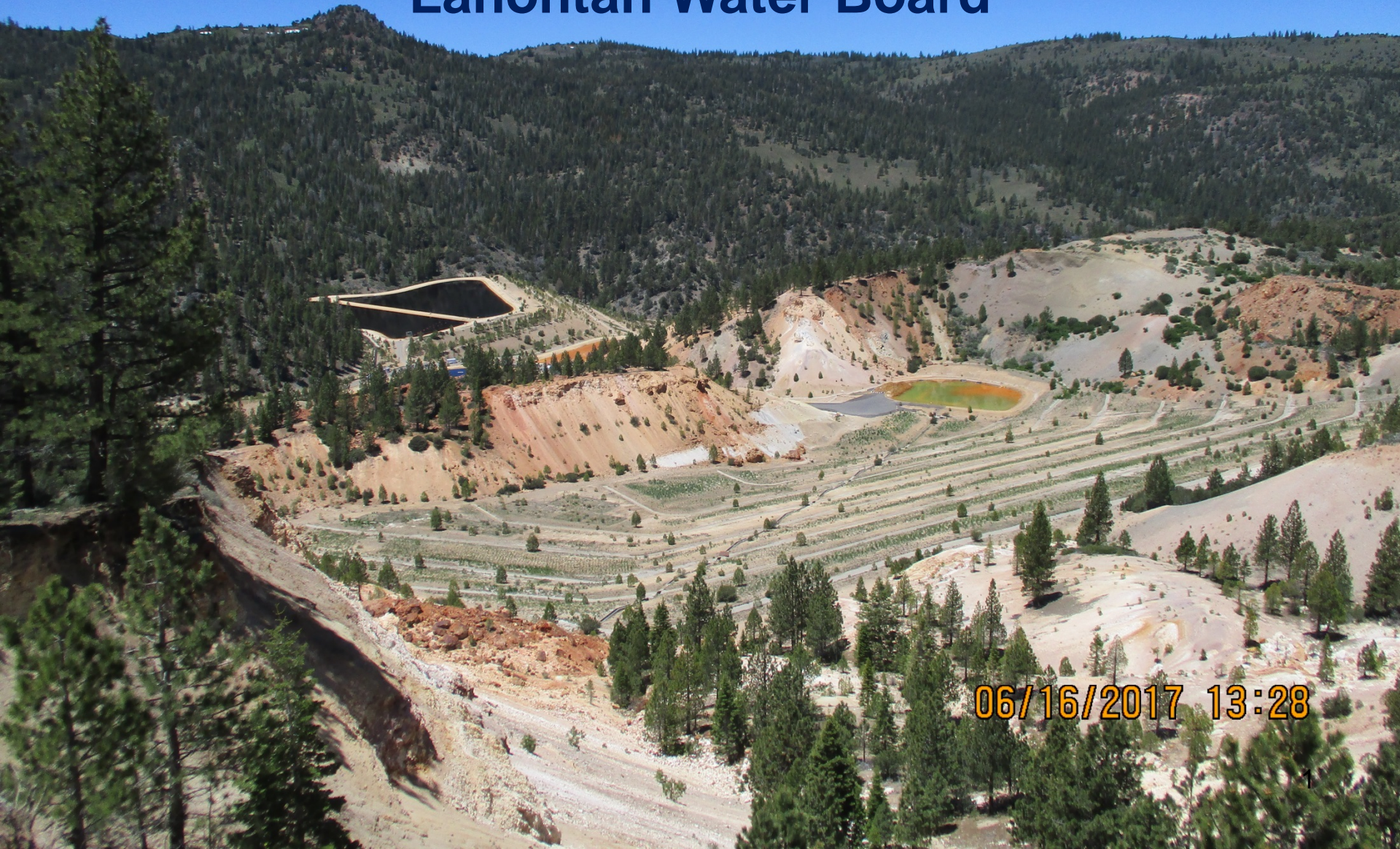


# Leviathan Mine February 2018 Annual Site Update Meeting Lahontan Water Board



06/16/2017 13:28



## Tasks in 2017:

- Spring Pond Water Treatment
- Summer Pond Water Treatment
- Flow and Stage Monitoring
- Maintenance

## 2017 Spring Pond Water Treatment Startup



- Snow removal February 25-26, 2017
- Mobilization of equipment and supplies February 27- March 1, 2017

02/26/2017 10:57

## 2017 Spring Pond Water Treatment

- 42.5 tons high calcium lime
- 17.8 tons type S bagged lime
- 5,183 gallons of diesel
- 432 gallons of gasoline

- AMD treatment in Pond 3 March 2 – June 1, 2017
- Approximately 14.9 million gallons of AMD neutralized
- Field and lab data show USEPA discharge criteria met with two exceptions.

04/09/2017 07:35

# Sludge Generated During 2017 Spring Pond Water Treatment



06/27/2017 15:02

# 2017 Spring Pond Water Treatment Sludge Disposal



09/27/2017 13:11

# 2017 Spring Pond Water Treatment Sludge Disposal



- 277 tons of sludge hauled off-site
- A portion of the sludge generated remains in Pond 3 due to high water content and will be hauled off-site for disposal during the 2018 treatment season

10/17/2017 08:20

## 2017 Pit Clarifier Sludge Stockpile and Disposal



- Sludge generated during the treatment of 5.7 million gallons of AMD in 2016 was stockpiled in late May/early June 2017.
- Approximately 475 tons of sludge were hauled off-site for disposal in August 2017.



## 2017 Summer Pond Water Treatment

- Assembly of Pond Water Treatment Plant late May 2017
- AMD treatment during June 2017
- Pond Water Treatment Plant shutdown July through early August 2017
- AMD treatment early August through mid-October 2017

10/12/2017 09:13

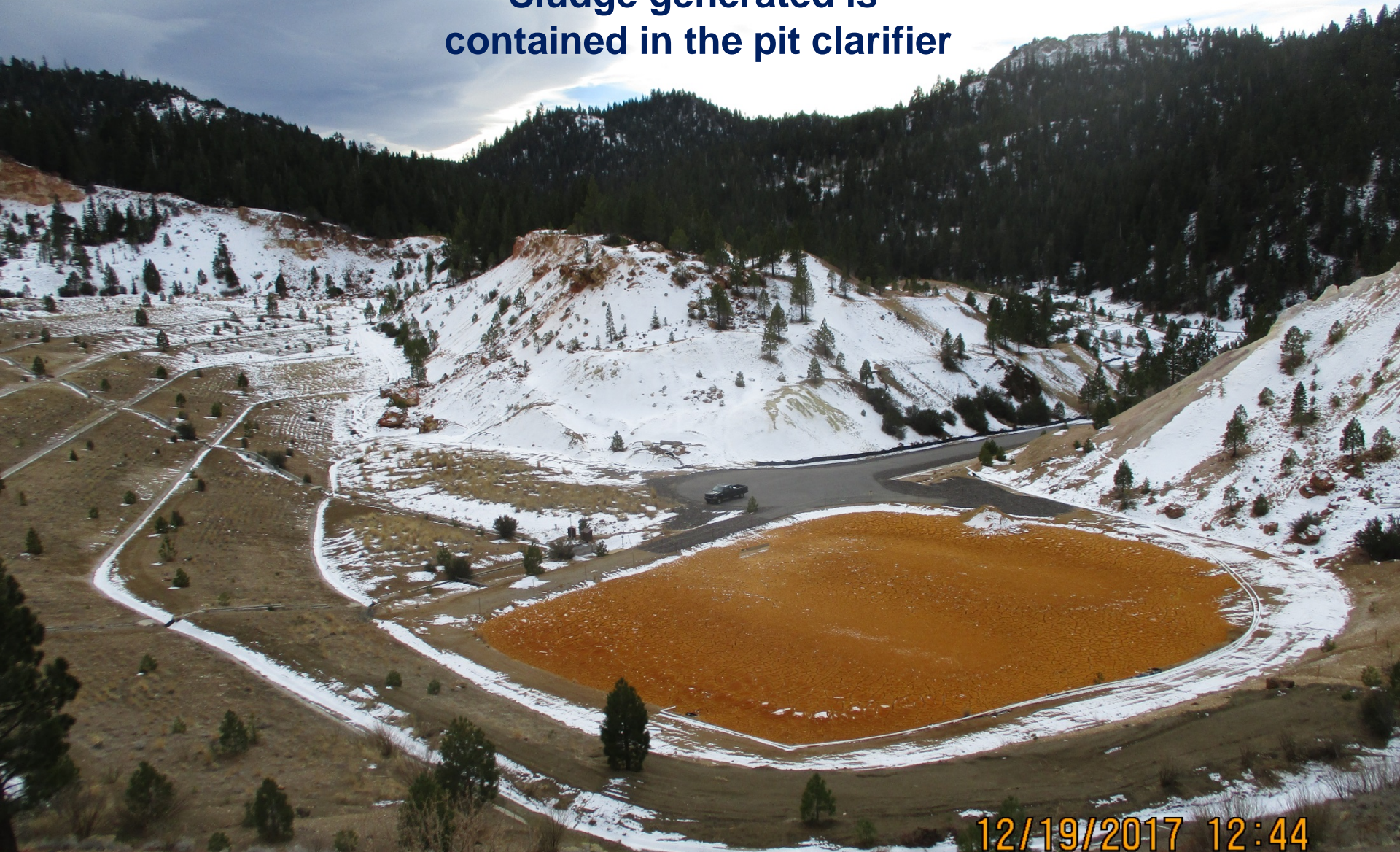
## 2017 Summer Pond Water Treatment

- 11 million gallons of AMD treated and discharged
- Influent pH range 2.05 to 3.87 SU
- Influent average TDS 9,092 mg/L
- Field and lab data show USEPA discharge criteria met with one exception.

- 279 tons lime (dry weight)
- 10,007 gallons diesel
- 283 gallons gasoline
- 356 gallons of polymer
- 6099 mg lime / liter AMD

10/05/2017 09:53

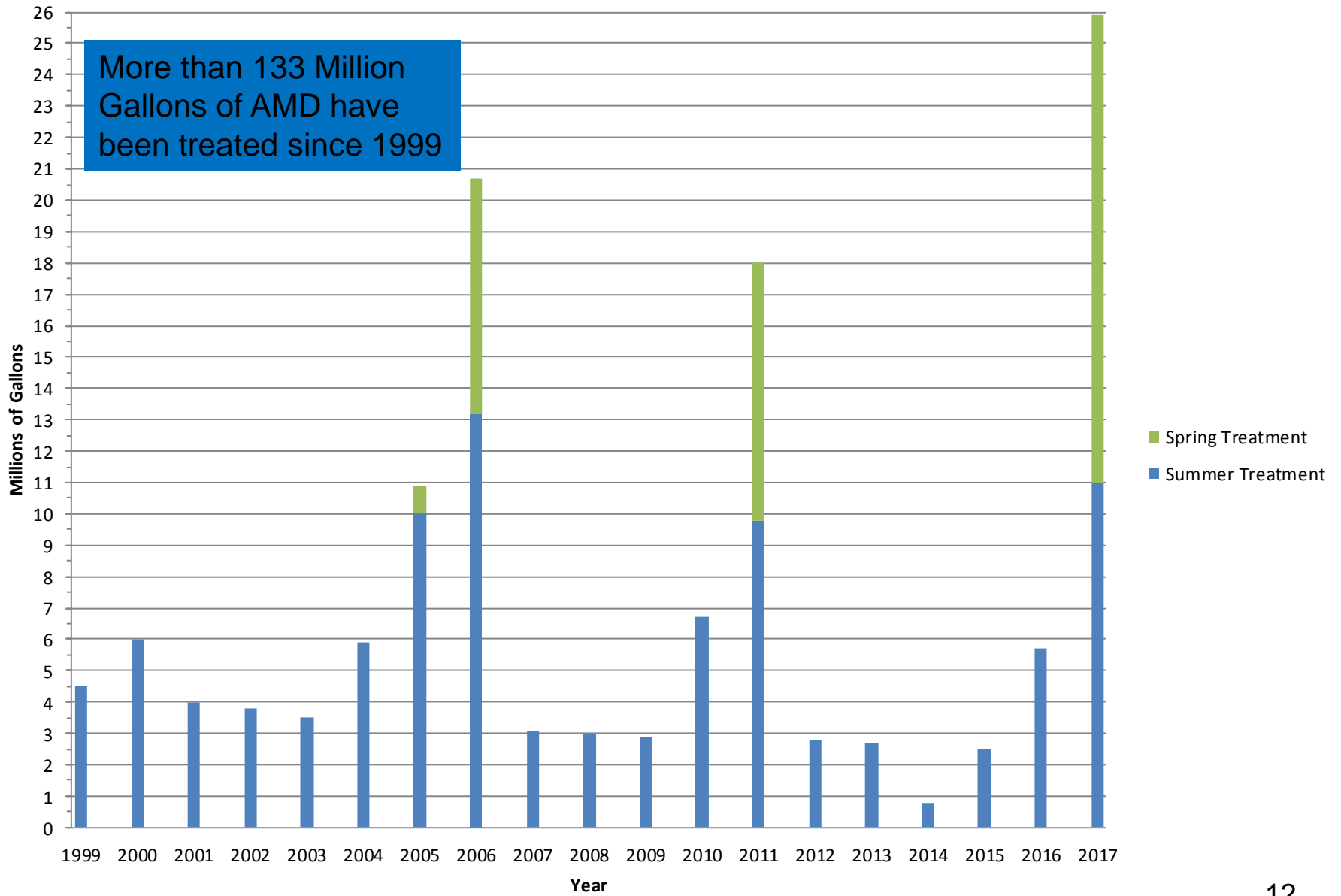
## Sludge generated is contained in the pit clarifier



12/19/2017 12:44

Approximately 935 – 1,100 tons of sludge generated during the 2017 season will be hauled off-site for disposal in 2018.

# AMD Neutralized by Treatment Year - Lahontan Water Board PWT



## Flow and stage monitoring

- 14 locations during the 2017 water year

02/27/2017 13:24

## 2017 Maintenance

- Removed accumulated sediment from storm water conveyance ditches and replaced BMPs
- Repaired perimeter fence
- Coordinated with El Dorado County Department of Agriculture to spray invasive Tall Whitetop and Dyer's Woad
- Pond 4 Slump stabilization
- Crusher Slump maintenance

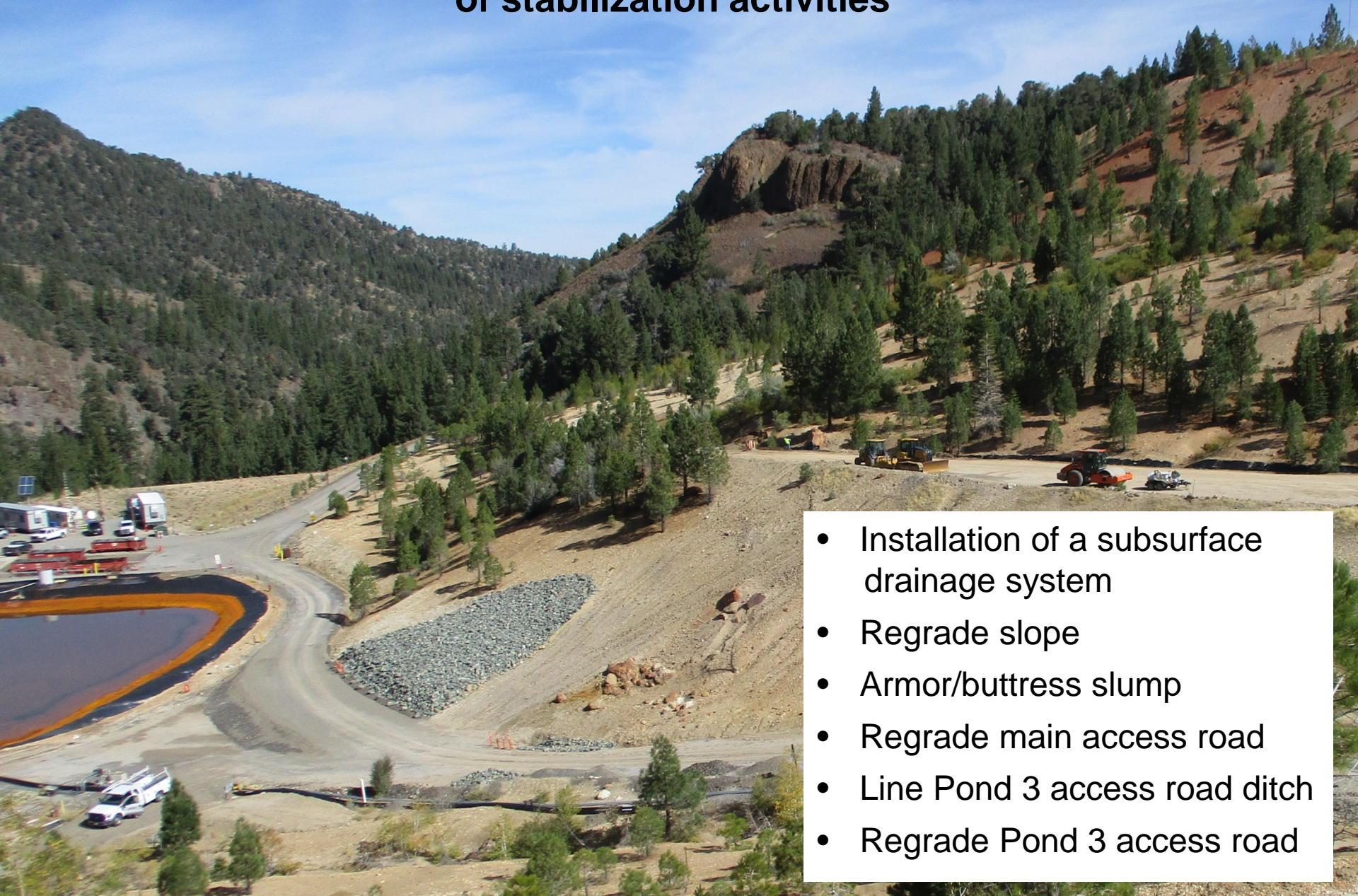
05/11/2017 10:15

# Pond 4 Slump during stabilization activities



07/25/2017 11:41

## Pond 4 Slump near the end of stabilization activities



- Installation of a subsurface drainage system
- Regrade slope
- Armor/buttress slump
- Regrade main access road
- Line Pond 3 access road ditch
- Regrade Pond 3 access road



# Crusher Slump



03/02/2017 12:44

# Crusher Slump during maintenance activities

- Remove toe material
- Install a subsurface drainage system
- Grade the upper bowl
- Line stormwater ditch
- Buttress toe area



# Crusher Slump during maintenance activities



10/12/2017 10:57



**Questions?**

10/11/2017 13:19