

Annapurna 20 1H
Chronology of Events

6/15/17	<p>Release of 100 bbl of produced water and oil was released onto the location from dump valve wash out</p> <ul style="list-style-type: none"> • Well was immediately shut-in • Vacuum truck recovered 100 bbls of fluid • No notable rain events between time of release excavation • Contaminated soil was removed to an average depth of 1ft (to a point of no more stained soil)
6/16/17	Kane visited site
6/23/17	C-141 Submitted to OCD
6/28/17	Kane collected samples at 1ft bgs
7/24/17	Kane submits July SIR & CAP
7/28/17	Photographs taken of site
8/3/17	<p>Alan (Kane) responds to Olivia Yu's August 2 request Please address these concerns regarding 1RP-4737:</p> <ol style="list-style-type: none"> 1. When were the photos taken? The photographs were taken on 7/28. 2. Provide a rationale for the pools of water. Was there a recent precipitation event? There were several rain events prior to our arrival. The water was a result of those events. 3. A scaled map is required with the release point and dimensions of the impacted area demarcated. We will prepare a scaled maps with the release point depicted along with the impacted area. 4. Due to the volume of release, additional soil sample locations are required for release characterization. <ul style="list-style-type: none"> · As the release point was at one of the separators, several (2-3) representative sample points are required in proximity. The release point is located at the separator and is on the compacted caliche pad. The Sample Point S1-A was collected at the lowest point near the release point where liquids would have collected. Please confirm that additional samples are required. · Establish sample locations as practicable in the spots where there are still apparent oil staining around the separator infrastructure, as shown in the photos in Appendix A- Part 7. 5. Permissible chloride levels must be obtained and maintained for a minimum of 5 ft. in depth. Laboratory analyses are required for a minimum of 2 depths for each sample location: the first depth obtained and 5 ft. further in depth. The provided data indicate that vertical delineation is not complete at S1A. For S2A, permissible chloride levels of ≤ 600 mg/kg must be demonstrated at 7 ft. bgs. The chloride results for S2-A collected at 2 ft. bgs is 281 mg/Kg. Please confirm that an additional sample collect at 7 ft bgs is required. and at 5 ft. bgs for S3A, 4A, and S6A. The chloride results for S3A collected at 1 ft bgs. is 47.7 (mg/Kg) and for 2 ft bgs it is 53.1 mg/Kg. Also, the chloride results for S4A collected at 1 ft. bgs is 82.4 (mg/Kg) and 59.1 mg/Kg for the sample collected at 2 ft bgs. These results are well below the most restrictive standard of 250 mg/Kg. Please confirm that additional samples collected at 5 ft. bgs are required for these sample locations. An additional sample will be collected from SA6 at a depth of 5 ft bgs. as requested. At any depth permissible chloride levels are exceeded, the 5 ft. additional recommences. 6. Use Method 8015, extended for TPH analyses (GRO, DRO, MRO). The revised analytical results including the MRO results are attached. 7. PID for field evaluation is applicable only to BTEX and not functional for TPH. Provide all field chloride tests if available. The EC measurements are provided in Table 1. <p>Please be advised that NMOCD does not permit soil washing currently. Please revise the proposed remedial activities. We will revise</p> <p>Alan (Kane) sends site diagram that is to scale and has sample pts depicted.</p>

8/3/17-8/7/17	Hauled 305 cubic yards of soil to Gandy Marley for disposal.
8/4/17	<p>Olivia Yu responds: Thank you for your prompt response regarding the questions about the corrective action plan for 1RP-4737. Given the information provided and based on the rapid timeline on implementation of corrective actions, NMOCD has revised the delineation conditions.</p> <ol style="list-style-type: none"> 1. Deeper sample depths are not necessary at S3A, S4A, and S5A. 2. Vertical delineation must still be completed for S1A. 3. S2A and S6A must show that permissible chloride levels are maintained at 5 ft. bgs. 4. To complete horizontal characterization, given the release area on the sample map, please establish a minimum of 4 sample locations (2 between S3A and S2A; 1 near S1A; 1 near S6A). Distance interval should be < 50 ft. apart. 5. Please be advised that bottom and sidewall confirmatory lab analyses will be required after remedial activities for closure. <p>Alan (Kane) Responds Olivia, we will collect samples from 5 ft bgs. at S2A and S6A. We will collect bottom and sidewall samples from the areas that have been excavated. We will collect 2 additional samples between S2A and S3A at 50 ft intervals at depths of 1 ft. bgs and 5ft bgs. We will collect an additional sample near S1A at a depth of 1 ft bgs and 5 ft bgs. We will collect an additional sample near S6A at a depth of 1 ft bgs and 5 ft bgs.</p> <p>Olivia YU (NMOCD) Responds NMOCD concurs with one clarification. Proposed sampling depths at 1 and 5 ft. for the additional 4 sample locations and at the 3 original locations (S1A, S2A, and S6A) are fine, but laboratory analyses must indicate a minimum of 2 ft. of permissible chloride levels maintained. Use field tests for guidance on which depths to send in for laboratory confirmation. For example, the original sample location S1A is above permissible chloride levels at 2 ft. If chloride levels <= 600 mg/kg at 3 ft. bgs, laboratory results for 3 ft. bgs and 5 ft. bgs are required.</p> <p>Your compliance with NMAC 19.5.29 is sincerely appreciated.</p>
8/8/17	Kane collected samples at 0-1ft and 5 ft
8/23/17	Kane submits Amended August SIR & CAP
9/19/17	Olivia Yu responds to Mr. Kane "As state in the email dated August 4, 2017, bottom and sidewall confirmation samples were to be taken of the excavated area. Were these samples taken?"
9/19/17	Kevin Elrod (Kane) responds "The excavated area was approximately 1 foot deep, making it impractical to take sidewall samples. The samples that were taken were bottom hole samples of the excavated area"
9/20/17	Olivia Yu responds "Does this mean that the edges of the release were not sampled? If so, then horizontal delineation was not conducted and thus, release characterization is not completed for 1RP-4737"
10/10/17	Kevin Elrod (Kane) provided summary of the Annapurna spill, clean-up and sample event to Olivia Yu. Attached you will find a map depicting the location and sample sites. Spill/Cleanup: <ul style="list-style-type: none"> • On June 15th, 2017 approximately 100 barrels leaked out from a dump valve in the production separator.

	<ul style="list-style-type: none"> • Vacuum trucks were dispatched to remove any free liquids. • Kane visited the site on June 16th to discuss cleanup and recommendations • There were no notable rain events between the time of the spill and excavation. • The top foot soil was removed from all of the stained areas. Soil was sent to disposal. <p>Kane Sampling</p> <ul style="list-style-type: none"> • Sampled at the locations identified in the map on June 28th, 2017 at a depth of 1 ft. (Results were below cleanup thresholds) • Returned on August 8th, 2017 and sampled again at each area at depths of 0 – 1 ft. and 5 ft. (Results were below cleanup thresholds) <p>Water Location</p> <ul style="list-style-type: none"> • Groundwater is estimated to be at 200+ ft. below surface. • Nearest surface water is roughly 1/4 of a mile away.
10/17/17	<p>Olivia Yu responds</p> <p>There are a number of discrepancies regarding the release for 1RP-4737, necessitating clarification:</p> <ol style="list-style-type: none"> 1. The photos do not indicate that 1 foot of soil was removed from the entire impacted area and placed on a plastic liner on site. 2. If 1 ft. soil was removed, is the implication that the provided data is shifted 1 ft. lower? 3. The data presented in the July 2017 report definitively demonstrate chloride levels for S1A at 2 ft. and S2A at 1 ft. are above NMOCD permissible chloride levels of 600 mg/kg. 4. The report from August 2017 stated that samples were taken at 1 ft, not 0-1 ft. Is the inference that the a core of 1 ft. in length was homogenized and sent to the laboratory for analyses? <p>Please be advised that the conventional remedial activity is to remove impacted soil up to the depths that laboratory analyses of soil samples show within permissible levels. Since the areas represented by S1A and S2A show chloride-impacted soil at 2 ft. and 1 ft. (or 3 ft. and 2 ft. bgs), respectively, then NMOCD requires soil to be removed to this depth with confirmation bottom and sidewall samples for these areas.</p>
10/23/17	<p>Kevin Elrod (Kane) responds answering questions</p> <ol style="list-style-type: none"> 1. The photos do not indicate that 1 foot of soil was removed from the entire impacted area and placed on a plastic liner on site. It was an average of one foot removed throughout the contaminated areas. Soil was removed until the staining was gone and then samples were taken at those depths. 2. If 1 ft. soil was removed, is the implication that the provided data is shifted 1 ft. lower? In other words, samples taken at 1 ft. is actually 2 ft. bgs? It would just be at 1' bgs. 3. The data presented in the July 2017 report definitively demonstrate chloride levels for S1A at 2 ft. and S2A at 1 ft. are above NMOCD permissible chloride levels of 600 mg/kg. I will check this but I'm 99% sure these areas were resampled after the area had been re-excavated. 4. The report from August 2017 stated that samples were taken at 1 ft, not 0-1 ft. Is the inference that the a core of 1 ft. in length was homogenized and sent to the laboratory for analyses? The auger is a one foot section. The sample would be a mix of that one foot section only to the extent to have enough sample to fill the sample jars.
10/24/17	<p>Kevin sends another email to Olivia with clarification:</p> <p>The first round of samples were taken before the clean up had begun, outside of vacuum trucking the free liquids. The second round of samples were taken below the excavated depths. So S1A 1' taken in August would be at the same depth as S1A 2' in July, since the approximate 1 foot of soil was removed.</p> <p>Each sample was a discrete sample taken at the bottom of the specified depth.</p>

