

**RFI 152
Pebble Project EIS**

Request for Information

Title/Subject:	Update to Table K2-5 Mine Site Supplies and Quantities
Requestor:	AECOM
Date Transmitted:	10/21/2019
Recipient:	Pebble Limited Partnership (PLP)
Response Requested by:	11/01/2019
Rationale:	Public comments on the Draft EIS request that the Mine Site Supplies and Quantities table in Appendix K2 (Table K2-5, provided by PLP) be updated to include chemicals required for water treatment. This information would help provide a more complete understanding of mine site supplies and quantities that would be transported and stored at the Mine Site and would help inform the impact analysis in the EIS.
Describe the Information Requested and Level of Detail:	<p>Please update Table K2-5 with current supplies and quantity estimates, and the add chemicals and quantity estimates required for water treatment.</p> <p>In addition, please confirm that traffic estimates for materials being brought to the site and onsite storage requirements during operations and closure include the chemicals needed for ongoing water treatment.</p>

Recipient Response Form

Date Received from USACE:	Click here to enter text.
Response from Recipient (Describe Information Requested to the Level of Detail Requested; Provide Attachments as Needed):	The attached table has been updated to include the reagents required for water treatment. Project traffic estimates do include transportation of the reagents required for the water treatment and do not require updating.
List Number and Type of Response Attachments:	Reagent Table - Updated to Include WTP Requirements 10302019.doc
Date Returned to USACE:	Click here to enter text.

AECOM Intake Form

Date Response was Received:	10/30/2019
Received by:	AECOM
Describe any Follow-up Related to this RFI:	Click here to enter text.

Material/Supply/Reagent	Use	Shipping/Preparation	Annual Consumption ¹
Diesel fuel	Vehicles and blasting	Shipped in bulk to the port and transferred to storage tank. Transferred to 6,350-gallon ISO tank-containers to ship to the minesite and there transferred to storage tanks.	16 million gallons
Lubricants	Vehicles and equipment	Drums and totes in containers	1000 tons
Ammonium nitrate prill	Blasting	Bulk container	17,500 tons
Primers, detonators, and detonating cord	Blasting	Specialized packaging as required, shipped in containers	112,000 Units
Blasting emulsion ingredients	Blasting	Specialized packaging as required, shipped in containers	8,000 tons
Packaged explosives	Blasting	Specialized packaging as required, shipped in containers.	Included in miscellaneous supplies.
Haulage truck and other tires	Vehicles	Bulk containers/break bulk	1000 tons
Ground-engaging tools	Drilling and loading	Bulk containers	Included in miscellaneous supplies.
Calcium Oxide (quick lime)	pH modifier; depresses pyrite in the copper-molybdenum flotation process. pH modifier for water treatment	Calcium oxide pebbles (80 percent) shipped in specially adapted shipping containers. Pebbles would be crushed and mixed with water to form lime slurry at the lime plant.	135,000 tons
Sodium Ethyl Xanthate	Copper collector; used in the rougher flotation circuit.	Pelletized reagent packaged in 1-ton bags and shipped in containers. Mixed with process water to form 20 percent solution and stored in collector storage tank. Mix and storage tanks vented externally with fans.	8000 tons
Fuel Oil (Diesel)	Used in the flotation process.	Shipped in tanker trucks and stored in the main head tank in the copper-molybdenum concentrator area.	Included in diesel fuel total.
Sodium Hydrogen Sulfide (NaHS)	Copper depressant used in the copper-molybdenum separation processes.	Pelletized reagent packaged in 1-ton bags and shipped in containers. Mixed with process water to form 20 percent solution and stored in the NaHS storage tank.	4000 tons
Carboxy Methyl Cellulose	Depressant; anionic polymer used to depress clay and related gangue material in the bulk	Pelletized reagent packaged in 1-ton bags and shipped in containers. Mixed with process water in the agitated dispersant tank to form 20	1000 tons

¹ Numbers as presented are approximate and have been averaged and rounded as appropriate for ease of reference.

	cleaner flotation circuit.	percent solution and stored in dispersant storage tank.	
Methyl Isobutyl Carbinol	Frother; maintains air bubbles in the flotation circuits.	Shipped in 20-foot specialized ISO containers and stored in the frother storage tank.	4000 tons
Depressant (sodium silicate)	Clay or silica gangue mineral depressant used in the copper-molybdenum separation process.	Pelletized reagent packaged in 1-ton bags and shipped in containers. Mixed with process water to form 20 percent solution and stored in the sodium silicate storage tank.	3000 tons
Anionic polyacrylamide	Thickener aid.	Pelletized reagent packaged in 1-ton bags and shipped in containers. Vendor package preparation system comprised of a bag breaking enclosure to contain dust, dry flocculent metering, and a wet jet system to combine treated water with the powdered flocculent in an agitated tank for maturation. Prepared in small batches and transferred to a flocculent storage tank.	Included in miscellaneous supplies.
Polyacrylic acid	Anti-scalant for the lime production process.	Liquid shipped in 35-cubic-foot specialized container tanks in protected rectangular framework.	Included in miscellaneous supplies.
Nitrogen	Nitrogen used in the molybdenum flotation circuit to depress copper sulfides.	Provided by a vendor-supplied pressure swing adsorption nitrogen plant. This equipment separates nitrogen from air for use in the mineral-process plant.	15,000 tons
Grinding Media	Steel balls for use in grinding mills	Bulk containers	55,000 tons
Miscellaneous Supplies	N/A	Bulk containers/break bulk	30,000 tons
Hydrochloric Acid (HCl, 35% Liquid Solution)	pH modifier used in water treatment for co-precipitation, metal oxidation and post-neutralization if needed.	Bulk liquid shipped in specialized container tanks. Transferred to on-site storage tanks. Dosed with metering pumps.	17,500 tons
Ferric Chloride (FeCl ₃ , Dry Solid or 35% Liquid Solution)	Introduces ferric iron into solution for metals co-precipitation in water treatment.	Dry solid shipped in bulk dry chemical tanks, dissolved in water and dosed with metering pumps. Also available as a 35% liquid solution.	15,000 tons
Ferrous Chloride (FeCl ₂ , 30% Liquid Solution)	Acts as reducing agent and provides iron for co-precipitation of metals and	Bulk liquid shipped in specialized container tanks. Transferred to on-site storage tanks and dosed with metering pumps.	125 tons

	metalloids in water treatment.		
Potassium Permanganate (KMnO ₄ , Dry Solid)	Oxidation of metals in water treatment.	Dry solid packaged in 1.5-ton supersacks and shipped in containers. Dissolved in water and dosed with metering pumps.	100 tons
Polymer (Dry Solid)	Enhances coagulation and settling of precipitated solids in water treatment	Dry solid packaged in 1.5-ton supersacks and shipped in containers. Dissolved in water and dosed with metering pumps.	100 tons
Sodium Hydrogen Sulfide (NaSH, Dry Solid)	Reducing agent used for precipitation of metal sulfides.	Dry solid packaged in 1.5-ton supersacks and shipped in containers. Dissolved in water and dosed with metering pumps.	300 tons
Antiscalant (Liquid)	Disperses scale forming precipitates in RO systems.	Shipped in totes and dosed with metering pumps.	50 tons
Membrane Clean-In-Place Acid Solution (Liquid)	Acid cleaning solution for ultrafiltration and RO membranes. Typically a proprietary mixture of citric acid and chelating agents.	Small quantities packaged in totes or drums and shipped in containers. Diluted in CIP tanks, and pumped through membranes.	Included in miscellaneous supplies.
Membrane Clean-In-Place Alkaline Solution (Liquid)	Alkaline cleaning solution for ultrafiltration and RO membranes. Typically a proprietary mixture of 50% sodium hydroxide, detergents, and additives.	Small quantities packaged in totes or drums and shipped in containers. Diluted in CIP tanks, and pumped through membranes.	Included in miscellaneous supplies.
Soda Ash (Na ₂ CO ₃ , Dry Solid)	Adds alkalinity to treated water as needed prior to discharge.	Dry solid packaged in bulk dry chemical tanks or 1.5-ton supersacks and shipped in containers. Dissolved in water and dosed with metering pumps.	450 tons