

Logan Wash Mine Annual Report
Permit No. M-1977-424

Table 1. Reclamation Status at Logan Wash Mine, March 2024

Area Number (Exhibit E & F)	Name	Approved Area	Actual Disturbed Area	Acres Reclaimed (acres/year)	Acres Released (acres/year)
1	Mine Dump ^a	30.00	13.36	13.36/2004	13.36/2022
2	Upper Mine Bench	3.00	0.74	0.74/2005	0.74/2022
3	Lower Mine Bench	3.80	2.10	2.10/2003 ^b	NR
4	Research Mine Bench / Dump	5.00	4.26	4.26/2004	4.26/2022
5	Old Surface Process Facility	3.00	1.82	1.82/<1986	1.82/1986
6	Two Overflow Ponds	2.00	2.86	2.86/<1986	2.86/2006
7	Equipment & Parts Storage	2.55	0.67	0.67/<1986	0.67/1986
8	Ventilation Fan Site	1.30	0.41	0.41/1986	0.41/2006
9	Power Substation	0.75	0.75	0.75/1986	0.75/2006
10	Helo Pad	1.00	0.24	0.24/-	0.24/2022
11	Guard Gate Area	5.00	8.30	Not to be reclaimed	Transferred/1983 ^d
12	Met Tower	1.00	0.80	0.80/<1982	0.80/2006
13	Misc. Access Roads ^e	11.5	15.58	11.78/2005	8.12/1986
14	Oil Transfer Pipeline	0.5	0.5	0.5/<1998	0.5/2006
15	Heater/Treater	3.00	2.96	2.96/1986	2.96/2006
16	Microwave Tower	1.00	0.11	0.11/<1998	0.11/2006
17	Exhaust Stack	3.00	3.00	3.00	3.00/2006
18	Logan Wash Road	55.55	53.43	Not to be reclaimed ^f	---
19	Surface Process Control	1.00	1.0	1.0/<1998	1.0/2006
20	Top Soil Storage	0.5	0.25	0.25/<1998	0.5/2006
21	Berm Material	0.25	0.33	0.25/<1986	0.33/1986
22	Heater Treater Meteorological	0.18-	0.18	0.18/<1986	0.18./1986
B1-B10	Logan Wash Road Realign	6.0	6.0	6.0/<1986	~5.0/1986 & 2022
New	Soil Barrow Area (2005)	2.0	0.65	0.65/2005	0.65/2006
23	Evaporation Pond and Pipeline	14.87	14.87	5.07/<1986	NR
Total		157.75	135.17 ^g	59.84	48.26 ^g

Table 1 Notes: ^aThe Mine Dump area is to be reclaimed by establishing “vegetated islands”; the entire acreage will not be vegetated. ^bConducted hydromulch test on Lower Bench; ^cArea 10 was excavated for a pond for the landowner and is under reclamation; ^dArea 11 transferred to Chevron, not to be reclaimed; ^e See Table 2 for description of access roads, release is assumed; ^f The original reclamation plan named the Logan Wash Road as disturbed acreage, but noted that it would not be reclaimed because the road serves as a main access road to BLM and private lands; NR = Not Released. ^gThis acreage was adjusted to 108.55 acres at suggestion of DRMS during release request in fall of 2022. The October 2022 release resulted in approximately 21.65 acres being released of reclamation warranty and a total of approximately 26.0 acres remaining on the mine permit.

Table 2. Reclamation Status of Miscellaneous Access Roads, March 2024

Area	Estimated Disturbed Area	Acres Reclaimed (as of March 2024)	Acres Remaining to be Reclaimed
Mine Bench and Portal ^a	7.46	5.06	3.8
Old Surface Process	1.51	1.51	0.0
New Surface Process	2.17	2.17	0.0
Heater/Treater ^b	1.36	1.36	1.36
Beyond Microwave	2.33	2.33	0.0
Vicinity of the Microwave	0.75	0.75	0.0
Total	15.58	13.18	2.4 ^a

^a Based on Upper Access Road and Lower Bench Road, and Upper Bench Road map measurements

^b Lower Access Road was under reclamation but unsuccessful due to cattle foraging. Road is still used to access Well LWCW-1A.

Table 3. Well Abandonment Schedule, March 2024

Monitoring Well ID	Abandonment Date	Status
LW-22A	TBD	Monitoring Suspended
LW-32	TBD	To be abandoned
LW-45	TBD	To be abandoned
LW-102	2007	Cement plugged
LW-103	TBD	To be abandoned
LW-104	2007	Cement plugged
LW-108	2005	Cement plugged
LW-112	2005	Cement plugged
LW-116	TBD	To be abandoned
LW-242	2005	Cement plugged
LW-243	2007	Cement plugged
LWCW-1A	TBD	Monitoring

Notes: TBD: to be determined

Table 4. Logan Wash Mine Areas Requested for Release in 2022

Area	Description	Acreage
1	Mine Dump	13.36
2	Upper Mine Bench	0.74
4	Research Mine Bench	4.26
10	Helo Pad	0.24
13	Miscellaneous Access Road (Upper Bench Road)	1.4
13	Miscellaneous Access Roads (Road Realignment Areas B2, B3, B5, B5A, B7 and B8)	1.0
New	Soil Barrow Area	0.65
Total Estimated Acreage Requested for Release Reclaimed		21.65

Table 5. Logan Wash Mine Areas Not Under Reclamation

Area	Description	Acreage
13	The Upper Access Road	4.8
13	Lower Bench Road	1.5
3	Lower Bench	2.1
13	Lower Access Road	1.4
23	Evaporation Pond Access Road	1.3
23	Evaporation Pond and Pipeline	14.9
Total Estimated Acreage Not Reclaimed		26.0

Table 6. Summary of Reclamation Status at Logan Wash Mine

Acreage Status Category	Estimated Acreage
Total original disturbed/used acres	108.55
Acres released prior to 2022	60.9
Acres released from reclamation in 2022	21.65
Total acres released to date	82.55
Total new disturbed acres this reporting period	0.0
Total acres currently under reclamation	0.0
Total estimated acres not currently under reclamation	26.0
Total estimated reclaimed acres needing release	26.0

Table 7. Logan Wash Mine Site Monitoring Events, January 2023 to December 2023

Date	LW-002 ¹ Manometer (inches)	LW-001 ² (L-1 Portal) (gpm)	Upper Manhole ³ (gpm)	Lower Manhole ⁴ (gpm)	Other
1/26/23	NM	NM	2.07	2.06	Pond and site monitoring.
4/13/23	0.0	NM	2.20	No Flow	Pond and site monitoring. Indication of retort pipeline break.
4/17/23	NM	NM	2.09	1.59	Lower manhole monitoring. Water leaking around weir plates at the Lower Manhole.
4/26/23	NM	NM	2.08	1.50	Maintenance of retort pipeline. Site monitoring.
5/8/23	NM	NM	2.16	> 0.5	Site monitoring.
5/10/23	0.0	0.95	NM	NM	Site monitoring.
5/12/23	0.0	0.93-0.94	3.33	NM	Construct retort pipeline diversion valve. Site monitoring.
5/13/23	NM	NM	3.70	NM	Site monitoring.
5/23/23	0.0	1.12	2.00	NM	Supervise retort water haul. Site monitoring.
5/30/23	0.0	NM	1.26	NM	Site sampling.
6/6/23	NM	NM	1.86	NM	Maintenance of lower manhole. Site sampling.
6/23/23	0.0	0.84	2.03	2.21	Site monitoring.
6/26/23	NM	NM	NM	2.37	Pond monitoring.
7/31/23	NM	NM	NM	2.19	Lower manhole monitoring.
8/2/23	NM	NM	2.36	2.26	Stormwater monitoring.
8/23/23	0.0	0.73	2.25	2.23	Pond and site monitoring.
10/5/23	0.0	0.72	2.09	2.18	Pond and site monitoring.
10/25/23	NM	0.82	NM	2.17	Site sampling.
11/6/23	0.0	0.96	2.12	2.43	Pond and site monitoring.
12/7/23	NM	0.96	2.31	2.23	Pond and site monitoring.
1/16/24	NM	NM	NM	2.22	Site monitoring
1/18/24	NM	NM	2.15	2.27	Pond and site monitoring
2/22/24	0.0	0.77	2.30	2.34	Pond and site monitoring
3/21/24	0.0	0.72	2.00	2.13	Site monitoring

¹ LW-002 discharge originates at the Research Mine portal, the manometer measures head behind a concrete dam inside the sealed adit.

² LW-001 discharge originates at the L-1 portal of Logan Wash Mine and during the reporting period discharged into the Infiltration Trench. All measurements recorded by electronic flowmeter display.

³ Upper Manhole is located on Retort Water Pipeline in Logan Wash approximately 3000 ft down drainage of the Lower Dump.

⁴ Lower Manhole is located on Retort Water Pipeline immediately north of Evaporation Pond.

NM = not measured