

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

**Table 1. Reclamation Status at Logan Wash Mine, March 2022**

Area Number (Exhibit E & F)	Name	Approved Area	Actual Disturbed Area	Acres Reclaimed (acres/year)	Acres Released (acres/year)
1	Mine Dump <sup>a</sup>	30.00	13.36	13.36/2004	NR
2	Upper Mine Bench	3.00	0.74	0.74/2005	NR
3	Lower Mine Bench	3.80	2.10	2.10/2003 <sup>b</sup>	NR
4	Research Mine Bench and	5.00	4.26	4.26/2004	NR
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/-	NR <sup>c</sup>
11	Guard Gate Area	5.00	8.30	Not to be reclaimed	Transferred/1983 <sup>d</sup>
12	Met Tower	1.00	0.80	0.80/<1982	0.80/2006
13	Misc. Access Roads <sup>e</sup>	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 <sup>f</sup>	---
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
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	59.84	29.41

Table 1 Notes: <sup>a</sup>The Mine Dump area is to be reclaimed by establishing “vegetated islands”; the entire acreage will not be vegetated. <sup>b</sup>Conducted hydromulch test on Lower Bench; <sup>c</sup>Area 10 was excavated for a pond for the landowner and is under reclamation; <sup>d</sup>Area 11 transferred to Chevron, not to be reclaimed; <sup>e</sup> See Table 2 for description of access roads, release is assumed; <sup>f</sup> 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

**Table 2. Reclamation Status of Miscellaneous Access Roads, March 2022**

<b>Area</b>	<b>Estimated Disturbed Area</b>	<b>Acres Reclaimed (as of March 2015)</b>	<b>Acres Remaining to be Reclaimed</b>
Mine Bench and Portal <sup>a</sup>	7.46	3.66	3.8
Old Surface Process	1.51	1.51	0.0
New Surface Process	2.17	2.17	0.0
Heater/Treater <sup>b</sup>	1.36	1.36	1.36
Beyond Microwave	2.33	2.33	0.0
Vicinity of the Microwave	0.75	0.75	0.0
<b>Total</b>	<b>15.58</b>	<b>11.78</b>	<b>5.16<sup>a</sup></b>

<sup>a</sup> Based on Upper Access Road and Lower Bench Road, and Upper Bench Road map measurements

<sup>b</sup> 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 2022**

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

Notes: TBD: to be determined

**Table 4. Summary of Unreclaimed Acreage at Logan Wash Mine, March 2022**

Area	Acreage	Area to be Requested for Release in 2022
1 – Mine Dump	13.4	Yes
2 – Upper Mine Bench	0.7	Yes
3 – Lower Mine Bench	2.1	No
4 – Research Mine Bench	4.3	Yes
10 – Helo Pad	0.2	Yes
Portions of Area 13*	10.9	Portions
Soil Barrow Area	0.7	Yes
Evaporation Pond	10.2	No
Total	42.5	

\*See Section 2.2

**Table 5. Summary of Areas Under Reclamation at Logan Wash Mine, March 2022**

Area	Name	Estimated Acres	Revegetation Date
1*	Upper & Lower Mine Dump Faces	13.4	2003-2005
2*	Upper Mine Bench	0.7	2004-2005
3	Lower Mine Bench	2.1	Natural revegetation
4*	Research Mine Bench & Dump	4.3	2003-2004
10*	Helo Pad	0.2	Pre-2000
---*	Soil Barrow Area	0.7	2004
Total		21.4	

\* = Area anticipated for request for release in 2020

**Table 6. Summary of Areas Not Under Reclamation at Logan Wash Mine, March 2022**

Area	Name	Estimated Acres
3	Lower Bench	2.1
13	Lower Bench Road	1.5
13	Upper Access Road	4.8
13	Evap. Pond Access Road	1.3
23	Evaporation Pond & Pipeline	10.2
13	Lower Access Road	1.8
Total		21.7

**Table 7. Summary of Reclamation Status at Logan Wash Mine, March 2022**

<b>Acreage Status Category</b>	<b>Estimated Acreage</b>
Total original disturbed/used acres	135.2
Acres not to be reclaimed (Logan Wash Road, Chevron land)	61.7
Total acres requiring reclamation	73.5
Total acres released to date	31.3
Total new disturbed acres this reporting period	0.0
Total new acreage under reclamation this reporting period	0.0
Total acres under reclamation to date	21.4
Total estimated acres not currently under reclamation	21.7
Total estimated reclaimed acres needing release	43.1

**Table 8. Logan Wash Mine Site Monitoring Results, January 2021 to March 2022**

Date	LW-002 <sup>1</sup> Manometer (inches)	LW-001 <sup>2</sup> (L-1 Portal) (gpm)	Upper Manhole <sup>3</sup> (gpm)	Lower Manhole <sup>4</sup> (gpm)	Other
1/22/21	0.0	0.51	1.99	2.44	Conduct pond monitoring. Unable to access mine bench by vehicle. Hike to mine from Lower Access Road
3/3/21	0.0	0.49	1.85	2.65	Conduct mine and pond monitoring. Ran diagnostics on Krohne flow meter (LW-001)
3/18/21					Monitoring of accessible low elevation facilities.
4/28/21	0.0	0.57	1.89	2.52	Conduct mine and pond monitoring. Settling Pond sump dry.
5/5/21	NM	0.66	NM	2.18	Semi-annual sampling event.
5/6/21		0.65			Krohne flow meter diagnostics.
5/10/21	0.0		2.38	2.39	Pond Leak Detection Vault is dry. Evap and Settling Pond sumps dry.
5/24/21	NM	0.77			Dismantle, clean Krohne flowmeter.
6/28/21	0.0	0.59	2.35	2.19	<i>P. debilis</i> status survey with CNAP and BLM. Leak Detection Vault is dry.
7/21/21	“0.0”	0.60	2.31	2.07	Evap. Pond sumps dry. Vac out Upper, Lower Manholes, plus others.
8/30/21	NM	0.56	2.11	2.25	Conduct mine and pond monitoring.
9/30/21	NM	0.62	2.05	2.33	Conduct mine and pond monitoring. Mine clean up irrigation pipe.
10/20-21/21		0.65		2.10	Semi-annual sampling event.
10/25/21	NM	0.61	1.94	2.49	Mine clean-up irrigation pipe, etc. 1.69 ft water in Settling Pond sump.
11/22/21	0.0	0.84	2.22	2.33	Conduct mine and pond monitoring. Pump Settling Pond sump.
12/6/21		0.88			High wall inspection. Vault & weather station footprints.
12/21/21	0.0	0.63	2.04	2.27	Conduct mine and pond monitoring. Pump Settling Pond sump, approx. 4 gal.
1/20/22	NM	NM	NM	2.59	Conduct pond monitoring.
3/3/22	NM	NM	NM	2.40	Conduct pond monitoring.

Table 4 Notes: LW-002 discharge originates at the Research Mine portal, the manometer measures head behind a concrete dam inside the sealed adit.

<sup>2</sup> 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.

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

<sup>4</sup> Lower Manhole is located on Retort Water Pipeline immediately north of Evaporation Pond.

NM = not measured

