FACT SHEET
(Pursuant to Nevada Administrative Code (NAC) 445A.401)

Permittee Name: **Goldcorp Daisy LLC**

Project Name: **Daisy Mine**

Permit Number: **NEV0096100 (Renewal 2015; Post-Closure)**

A. Location and General Description

Location: The facility is located in Nye County, Township 12 South, Range 47 East, Sections 11, 12, 13, 14, 15, 22 and 23; and Township 12 South, Range 48 East, Sections 7, 8 and 18, Mount Diablo Baseline and Meridian. The project is located approximately 5 miles east of the town of Beatty, Nevada.

General Description: The **Daisy Mine** consisted of two open pits; two waste rock disposal areas; one conventional cyanide heap leach pad; one pregnant and one barren solution pond; one surplus solution pond; a plant utilizing carbon columns for gold recovery, and ancillary support facilities. The **Motherlode Mine** (NEV0088041 – incorporated into the Daisy Mine Water Pollution Control Permit in 1997) consisted of one open pit; one waste rock disposal area; two conventional cyanide heap leach pads; one pregnant solution pond; one barren solution pond; one storage pond; a processing building; and ancillary support facilities. The total disturbance combined for both mines was 311 acres. Both mines are located on lands administered by the Bureau of Land Management, Battle Mountain District Office/Tonopah Field Office.

B. Synopsis

General: The Water Pollution Control Permit (WPCP) NEV0088041 was first issued in 1990 to U.S. Nevada Gold Search. The mine was in operation until 1992. In 1995, Rayrock Resources Inc. (Rayrock) purchased the Motherlode Mine.

Rayrock was first issued Water Pollution Control Permit (WPCP) NEV0096100 for the Daisy Mine in June of 1996. Rayrock commenced mining and processing operations in December 1996. The project operated continuously until January 2000.

The Daisy Mine is located on land contiguous with the Motherlode Mine. Due to site proximity, the Motherlode Mine WPCP was incorporated into the Daisy Mine WPCP in 1997. Glamis Gold Inc. acquired both the Daisy and Motherlode properties in 1999 as part of its Rayrock acquisition. Glamis Gold was acquired by Goldcorp Inc. with the transaction formalized on November 6, 2006. Marigold Mining Company (Marigold) was a wholly owned subsidiary of Goldcorp Inc. Goldcorp Inc. transferred ownership of the Daisy Mine and the WPCP to Goldcorp Daisy LLC, the new Permittee; a subsidiary

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of Goldcorp Inc. Marigold Mining Company was acquired as part of the purchase agreement with Goldcorp Inc. of the Marigold Mine by Silver Standard Inc. in April of 2014.

Geology: The Daisy and Motherlode Mines are located within the Great Basin region of the Basin and Range physiographic province, which is characterized by elongated north-trending, fault-bounded mountain ranges separated by alluvial valleys. The project site is bounded to the south-southwest by Bare Mountain, which is composed of late Precambrian to late Paleozoic sedimentary rocks subjected to repeated episodes of folding and faulting. Bare Mountain is surrounded to the east and southeast by Quaternary and upper Tertiary sediments and volcanics of Crater Flat. To the east and north are the upper Tertiary sediments and volcanics that form Yucca Mountain. North and northwest of Bare Mountain, intensely deformed volcanic rock and sediments of Tertiary age form the Bullfrog Hills, which continue west of Beatty. Quaternary alluvium fills the Amargosa Desert, bounding Bare Mountain to the southwest.

Bedrock within the project area consists of limestone, dolomite, quartzite, shale, and sandstone of late Precambrian to late Paleozoic age and igneous rock of Tertiary age. The igneous rocks include Tertiary age porphyry dikes that intrude the older rocks along with rhyolite flows, andesitic lavas, and welded tuff of the Timber Mountain, Paintbrush, and Crater Flat Formations. The northern portion of the project area consists of rhyolite and welded tuff and the southern portions consist of limestone with porphyritic dikes.

Open Pits: Three open pits were mined. Groundwater was not encountered in any of the pits and all three pits have remained dry.

Motherlode Pit – Previously mined by U.S. Nevada Gold Search through 1992. Rayrock reopened the pit in 1998 and mined a small area through 1999. The pit encompasses approximately 15 acres and is approximately 200 feet deep. Once mining was completed, the pit floor was ripped along with the haulage access ramp. The pit entrance was barricaded with an earthen berm, which is continuous around the entire pit perimeter. Seeding was completed in early 2001.

West Zone Pit (Daisy Mine) - Encompasses approximately 10 acres of disturbance and is a side cut with a maximum depth of approximately 640 feet. Once mining was completed, the pit floor and the haulage access ramp were ripped. The pit entrance was barricaded with waste material. To the extent practicable, a berm was constructed around the perimeter of the pit to impede access. Broadcast seeding was completed in January 2000.

Secret Pass Pit (Daisy Mine) – Encompasses approximately 42 acres and is approximately 450 feet deep. Once mining was completed, the pit floor was ripped along with the

haulage access ramp. The pit entrance was barricaded with waste rock and a perimeter berm was placed around the pit with the exception of the south high wall in which a four-strand barbed wire fence was installed. Broadcast seeding was completed in early 2001.

Waste Rock Disposal Area (WRDA): Two WRDAs are located at the Daisy Mine with one WRDA located at the Motherlode Mine.

The 28-acre Motherlode WRDA received waste rock from the Motherlode Pit. Approximately 10% of this WRDA is sulphidic material. A combination of encapsulation and blending of these sulfides was used to reduce the potential for acid generation.

The 38-acre West Zone WRDA received waste rock from the West Zone Pit.

The 85-acre Secret Pass WRDA received waste rock from the Secret Pass Pit.

All three WRDAs have been regraded and seeded. There has been no observed discharge from any of the three WRDAs.

Heap Leach Pads: Previous Permittee's operated two conventional heap leach pads at the Motherlode Mine (Pads #1 and #2) and operated one conventional heap leach pad at the Daisy Mine (aka Secret Pass Heap Leach Pad). All ore mined from the Motherlode Pit when Rayrock was the Permittee was placed on the Daisy Mine heap. All ore mined by U.S. Nevada Gold Search, as the Permittee was placed on the two Motherlode Mine heap leach pads. All three pads contain only oxide ore.

Both Motherlode Pads #1 and #2 are constructed with a 30-mil Very Low Density Polyethylene (VLDPE) secondary liner overlain by a 60-mil High Density Polyethylene (HDPE) primary liner. Leak detection systems were incorporated between the two synthetic liners. Approximately 850,000 tons of ore, crushed to a nominal minus ¾ inch and agglomerated with cement, was placed on the two pads. The addition of cyanide to both pads ceased in 1991. Freshwater rinsing of the pads occurred in 1992. The pads were covered with a minimum six inches of growth medium (December 2000) and seeded (February 2001). The final slopes are flatter than 3H: 1V.

Pad #1 (aka lower pad) encompasses approximately eleven acres with a maximum height of forty feet. This pad contains approximately 610,000 tons of ore.

Pad #2 (aka upper pad) encompassed, initially, approximately eleven acres. The majority (approximately 160,000 tons of the 240,000 total tons) of Pad #2 spent ore was removed and utilized as overliner during the construction of the Daisy Mine heap leach pad. The remaining 80,000 tons of spent ore was left in place. In 2000, the pad liners were cut and

a new berm welded to eliminate excess meteoric collection. This reduced the pad footprint to approximately 3 acres.

The Daisy Mine heap leach pad encompasses 42 acres. Approximately 5.7 million tons of run-of-mine ore from the West Zone and Secret Pass pits were placed on this pad. It was constructed with one foot of compacted clay overlain by a 60-mil HDPE synthetic liner and having a maximum height of 120 feet. No leak detection/collection system for monitoring the performance of the leach pad liner system was installed. The heap leaching operation continued through September 30, 2000 when the addition of cyanide ceased. This heap was then rinsed beginning in October 2000 through December 2000 by recirculating barren solution supplemented with fresh water make-up.

The Daisy Mine heap was re-sloped to a 3H: 1V slope in 2001 with all pad material retained on the pad liner. Low permeability material, ranging from twelve to twenty-four inches, was placed over the heap followed by three to six inches of growth media. Drainage channels were spiraled around the heap to limit erosion on the heap from meteoric events. Seeding was completed in early 2002. The reclaimed heap leach pad supports a vegetative community.

Current Daisy Mine heap leach pad monitoring consists of quarterly measurements of draindown flow rates in gallons per minute (gpm) and solution grab samples analyzed for Nevada Division of Environmental Protection (NDEP) Profile II parameters as collected at the heap access port located between the pregnant pond and the heap.

Ponds: A total of six ponds, three at each mine, were associated with the two sites. The 1.5 million gallon each Motherlode pregnant and barren ponds were constructed utilizing a 40-mil HDPE primary liner overlying a 30-mil VLDPE secondary liner. Both ponds also had leak detection systems installed between the liners.

Sludge from the Motherlode barren pond was removed, covered with HDPE liner material, and buried a minimum of 5 feet deep within the Daisy Mine heap leach pad. The pond liner was then cut into strips and pulled into the bottom of the pond and backfilled with the pond embankment material. Additional fill was hauled from the Motherlode WRDA. A minimum of 5 feet of cover was placed over the barren pond location and regraded to prevent ponding on top. Final placement of growth media and seeding was completed in December 2001.

An Evapo-Transpiration (ET) basin designed to manage long-term draindown from both Pads #1 and #2 was constructed within the Motherlode Mine pregnant pond in 2001.

The 1,500,000-gallon storage pond was constructed with a single 40-mil HDPE liner and a four to six-inch compacted base. From the pond, the water was pumped to the various

areas of use on the project site. The liner was cut and folded in with a minimum of 5 feet of material placed over the top, graded, and seeded.

The 2 million-gallon each Daisy Mine pregnant and barren solution ponds were constructed with primary (60-mil) and secondary (40-mil) HDPE liners and a leak detection/collection system. A layer of HDPE geonet placed between the synthetic liners directs solution passing the primary liner to a 4-inch perforated pipe within a trench. The pipe transports any solution passing the primary liner to a sump located at one end of the pond. Process solution discovered in the sump was pumped to either the pregnant pond or barren pond.

The Daisy Mine 5.9 million gallon surplus solution pond was designed to retain the combination of a minimum volume of solution, a working volume of solution, and 110 percent of the pregnant tank capacity (carbon columns), accumulations from the pad and pond that resulted from the 25-year, 24-hour storm event, and solution accumulations from the pad that would result from a 12-hour power outage. This pond was never utilized other than the collection of meteoric waters. The liner bottom was perforated and the liner cut and folded into the pond and covered with a minimum of 5 feet of cover material.

The Barren Pond was closed in-place with the liner folded over and buried with a minimum of 5 feet of material. In 2001, the Daisy Mine pregnant pond was converted into an ET basin to manage fluid from the single Daisy Mine heap leach pad.

Current Heap Leach Pad Long-Term Draindown Management: As noted above, both the Daisy and Motherlode pregnant ponds were converted into ET basins in order to manage long-term heap leach pad solution draindown from the three heap leach pads.

Both ET basins retain their original primary and secondary liners and were backfilled with suitable material. Both ET basins were constructed with vertical piezometer monitoring ports designed to provide access for observing basin saturation levels and collecting basin solution quality samples.

The Daisy Mine ET basin has a surface area of approximately 1 acre and is well vegetated. This basin had been able to manage - evapotranspire - all heap draindown solution on a seasonal basis.

Flows from the Daisy Mine heap leach pad have been declining annually. Currently, no draindown flow has been detected since July of 2011. The reduction in flow is consistent with historic data (see Table 1).

Table 1. Daisy Heap Leach Pad Yearly Average Draindown Rate (gpm)

Year	Rate
2002	8.06
2003	4.25
2004	5.19
2005	5.25
2006	3.01
2007	1.34
2008	0.68
2009	0.33
2010	0.18
2011	0.07
2012	0.00
2013	0.00

Table 2 below provides long-term water quality for parameters elevated or relevant to this discussion, together with an average of water quality data collected from 2004 through 2011 (approximately 25 samples). Average concentrations are approximate values.

Table 2 – Daisy Mine Heap Leach Pad Draindown Parameters of Interest.

Parameter	NDEP Reference Values (mg/l)	Heap Leach Pad Average Concentration & (Range) (mg/L)	Parameter Concentration Trends
Alkalinity Total	---	153 (95 – 160)	Variable concentrations; Slightly increasing over time

Arsenic	0.01	0.52 (0.27 – 0.613)	Variable concentrations; Slightly decreasing.
Iron	0.6	0.19 (0.05-1.0)	Increasing variability and concentration.
Manganese	0.10	0.09 (0.0023 – 0.23)	Very variable with decreasing concentrations.
Mercury	0.002	0.008 (0.002 – 0.020)	Variable concentrations; Slightly increasing.
Nitrate + Nitrite, (as N)	10	165 (48 – 230)	Stable concentrations.
pH (in Standard Units)	6.5 – 8.5	7.6 (6.9 – 8.0)	Stable concentrations.
Selenium	0.05	0.05 (0.02 – 0.07)	Variable concentrations.
Sulfate	500	2438 (2200 – 3100)	Variable concentrations; slightly increasing over time.
Total Dissolved Solids	1000	4453 (3500 – 5400)	Variable concentrations; stable over time.
WAD Cyanide	0.2	0.08 (0.03 – 0.80)	Variable concentrations; stable over time.

The Motherlode ET basin has a surface area of approximately 0.75 acres. Heap draindown solution has not been observed entering this ET basin.

Future Heap Leach Pad Long-Term Draindown Management: The Permittee is proposing to bypass the ET cells at the Daisy Mine and direct any residual heap leach pad draindown into the unsaturated zone through the use of an infiltration field (similar to septic leach fields).

In order to demonstration that a long-term draindown discharge will not degrade waters of the State, the Permittee worked with the Division to establish criteria to address NAC 445.424.

1) Potential for the heap draindown to reach groundwater.

2) If heap leach pad draindown reaches groundwater, what are the potential geochemical impacts to groundwater.

Based on the above, a site conceptual model was developed. The site conceptual model was developed using site-specific information and assumptions.

--A pad draindown rate of 0.045 gpm (0.246 m^3/day) was used for the Daisy heap leach pad unsaturated zone model [0.045 gpm (0.246 m^3/day) annual average flow rate at the time of the modeling effort.]

--The regional groundwater aquifer is greater than 600 feet below ground surface (bgs) in the area of the infiltration field.

-- The regional groundwater in the area of both the Daisy and Motherlode Mines meets all primary and secondary drinking water standards with the exception of elevated arsenic, with an average concentration of 0.024 mg/L.

--The infiltration line system (ILS) will distribute the draindown to an infiltration field approximately 50-feet long. The ILS system will be constructed below the evaporative zone depth and at a depth below potential receptor (plants and trees) access.

The first step in this analysis was to establish if discharged heap leach pad draindown would reach groundwater. Evaluations of potential environmental conditions and preliminary sub-surface discharge system designs were simulated using the HYDRUS-2D Model (Hydro-Engineering, 2012). The modeling effort used a range of conservative inputs to evaluate various conditions that may exist at the site.

The HYDRUS-2D modeling results for the Daisy heap leach pad residual draindown (wetting front), when distributed into the unsaturated zone via the proposed ILS, did not reach groundwater (at 600 ft) in one hundred years. This was the worst case scenario using a loam soil (saturated hydraulic conductivity for this modeled soil was 2.9E-04cm/sec.)

Because the modeled Daisy heap leach draindown did not reach groundwater within the modeled timeframe, there is no justification for establishing potential geochemical impacts to groundwater.

C. <u>Receiving Water Characteristics</u>

This mine lies within the Death Valley Hydrographic Region 14 (Groundwater Basin 14) specifically within the Oasis Valley-Crater Flat groundwater basins at an elevation of approximately 4,225 feet above mean sea level (amsl) with an annual precipitation of 5.5 inches per year and a pan evaporation rate exceeding 60 inches per year. There are no drinking water wells within five miles downgradient of the facility.

Groundwater in the vicinity of the Daisy site is believed to occur at approximately 3,200 feet amsl, or about 1,200 feet below the natural ground surface. Areas of perched groundwater in close proximity to the site have been identified at depths from 150 feet to approximately 200. Subsurface drilling in excess of 600 feet in the areas of the open pits and heap leach pads did not encounter groundwater. Fresh water for the heap leach operation, road maintenance, and mining was provided by the Motherlode production well, located about 2.5 miles northeast of the facility. Because groundwater quality in the area of the two mines was never ascertained, the Division assumes that the regional groundwater beneath the two mines meets all Profile I reference values, with the exception of exceedances for arsenic.

The depth to groundwater in the area of the Motherlode facility is approximately 600 feet. No groundwater was encountered in the Motherlode pit which is 200 feet deep and approximately 2,000 feet northwest of the pads. Drilling efforts in the vicinity of the two heap leach pads showed inconsistencies for the location and depth to perched groundwater. The nearest perched groundwater is at 165 feet bgs. Drilling in this same area yielded no water for depths to 550 feet. Of the seven drill borings performed in the pad area there was not enough water to warrant pump tests.

D. Procedures for Public Comment

The Notice of the Division's intent to issue a Permit authorizing the facility to construct, operate, and close, subject to the conditions within the Permit, is being sent to the Pahrump Valley Times for publication. The Notice is being mailed to interested persons on the Bureau of Mining Regulation and Reclamation mailing list. Anyone wishing to comment on the proposed Permit can do so in writing within a period of 30 days following the date of public notice. The comment period can be extended at the discretion of the Administrator. All written comments received during the comment period will be retained and considered in the final determination.

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected intrastate agency, or any interested agency, person or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.403 through 445A.406.

E. Proposed Determination

The Division has made the tentative determination to re-issue the proposed post-closure permit.

F. Rationale for Permit Requirements

The Division allows for the discharge of residual long-term draindown from both process components and non-process components under the condition that waters of the State will not be degraded as defined in NAC 445A.424.

To demonstrate compliance with NAC 445A.424, the following actions are required:

--Establishment of background environmental conditions (i.e. annual precipitation, depth to groundwater, background groundwater quality, unsaturated zone conditions);

--Establishment of stable component draindown quality and quantity (stability of draindown quality may not be significant if component draindown does not reach the groundwater table);

--Modeling to determine if the draindown will reach groundwater must be run. If the modeling predicts that the draindown will not reach groundwater, then the Permittee has completed the demonstration of non-degradation. However if modeling predicts that draindown will reach groundwater then the permittee must complete additional geochemical evaluation/modeling and;

--If modeling predicts the draindown wetting front will reach groundwater, then a geochemical model must be run to evaluate the potential effects of draindown parameters on the receiving water. Either an actual or hypothetical well will be required as part of the analysis. The model will then be run to determine whether or not the groundwater impacted by the draindown parameter(s) will comply with NAC 445A.424 utilizing standard monitoring well sampling procedures. If the model indicates degradation, then a discharge will not be authorized.

Based on the information submitted in the Renewal application dated June 3, 2013 the Permittee has established background environmental conditions and component draindown quality and quantity. Additionally, the Permittee has demonstrated that Daisy and Motherlode heap leach pad draindown will not reach groundwater. As such, the Division has made the tentative determination to authorize the construction and operation of the infiltration field, as proposed in the application.

Once the Division has determined that the draindown infiltration field has been constructed and operational according to the submitted and approved designs, the Division will then terminate the WPCP.

G. Federal Migratory Bird Treaty Act

Under the Federal Migratory Bird Treaty Act, 16 U.S. Code 701-718, it is unlawful to kill migratory birds without license or permit, and no permits are issued to take migratory birds using toxic ponds. The Federal list of migratory birds (50 Code of Federal Regulations 10, 15 April 1985) includes nearly every bird species found in the State of Nevada. The U.S. Fish and Wildlife Service is authorized to enforce the prevention of migratory bird mortalities at ponds and tailings impoundments. Compliance with State permits may not be adequate to ensure protection of migratory birds for compliance with provisions of Federal statutes to protect wildlife.

Open waters attract migratory waterfowl and other avian species. High mortality rates of birds have resulted from contact with toxic ponds at operations utilizing toxic substances. The Service is aware of two approaches that are available to prevent migratory bird mortality: 1) physical isolation of toxic water bodies through barriers (e.g., by covering with netting), and 2) chemical detoxification. These approaches may be facilitated by minimizing the extent of the toxic water. Methods which attempt to make uncovered ponds unattractive to wildlife are not always effective. Contact the U.S. Fish and Wildlife Service at 1340 Financial Boulevard, Suite 234, Reno, Nevada 89502-7147, (775) 861-6300, for additional information.

Prepared by:	David Willard
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