

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

Permittee Name: **Atna Resources, Inc.**

Project Name: **Pinson Mine**

Permit Number: **NEV0089002**

Review Type/Year/Revision: **Renewal 2016, Fact Sheet Revision 00**

**A. Location and General Description**

Location: The Pinson Mine is located in Humboldt County, Township 38 North, Range 42 East, all or portions of Sections 28, 29, 32, and 33; Mount Diablo Baseline and Meridian (MDB & M). The facility is located 19 miles northeast of Golconda, Nevada.

General Description: The Pinson Mine was an open pit facility permitted to process ore by both milling and cyanide heap leaching. The mine sites are on property owned by Atna Resources, Inc. (Permittee), other private landowners, and public land administered by the Bureau of Land Management (BLM). The private land associated with this Permit is approximately 449 acres and the public land totals approximately 490 acres. Approximately 308 acres remain under reclamation bond associated with Reclamation Permit 0047/BLM Casefile NVN-064101. The mine consisted of 10 open pits, two of which do or will contain persistent pit lakes, 13 waste rock dumps, two tailings impoundments, two heap leach pads, two water supply wells operational when surface mining ceased in 1999 and heap leach processing ceased in 2000, two water storage tanks, and a trailer which was used for operations/storage for monitoring and new exploration activities. This facility is in post-closure monitoring.

**B. Synopsis**

The Potosi Mining District (also referred to as the Crystal, Osgood Range, Getchell, Kelly Creek, and Preble Mining Districts) was first discovered and organized around 1866. Deposits of gold, silver, tungsten, and manganese were identified within the district, and by the early 1900s the district had become a minor producer of gold. During World War II, the district became a significant producer of tungsten and manganese. The elimination of government contracts and falling metal prices after the war resulted in the cessation of most mining activity within the district. Renewed interest in gold and silver exploration within the district during the 1960s and 1970s led to the discovery of several disseminated gold deposits, including the Pinson, Preble and Getchell Deposits.

The Pinson Mine was in operation from 1980 to 2000. Milling commenced in January 1981 and ceased in February 1998. The mining operations were suspended on January 28, 1999. Heap leaching operations commenced in 1982 and ceased in May 2000. Most of the site has since been reclaimed (242 acres reclaimed) and is in post-closure monitoring.

### **Permitting History:**

The Nevada Division of Environmental Protection (Division) first issued Water Pollution Control Permit (WPCP) NEV00004 for the mill and tailings impoundment on May 29, 1980. The Division approval for construction of the heap leach pads and process ponds was authorized on July 20, 1982. The Division renewed the WPCP on December 12, 1991 as WPCP NEV0089002. The Division renewed the WPCP NEV0089002 on July 24, 1997, on October 11, 2002, and again on November 19, 2010.

Current activities at the Pinson Mine site are covered under three separate WPCPs: WPCP NEV0089002 (Post-Closure, Pinson Mine), WPCP NEV2005102 (Pinson Rapid Infiltration Basins), and WPCP NEV2005103 (Pinson Mining Project).

WPCP NEV2005102 permits the design, construction, operation and closure of Rapid Infiltration Basins (RIBs), which are currently utilized for the re-infiltration of CX Pit dewatering activities as authorized under the Pinson Mining Project NEV2005103 WPCP. Re-infiltration of Mag open pit dewatering operations is also authorized; however, no active dewatering operations occur in the Mag open pit at the present time. (Refer to WPCPs NEV2005102 and NEV2005103 Fact Sheets for additional information.)

WPCP NEV2005103 (Pinson Mining Project) incorporates portions of the monitoring requirements previously contained within WPCP NEV0089002. Those monitoring requirements now contained within NEV2005013 include Granite Creek, the CX Pit, Mag Pit Lake and all monitoring wells and piezometers associated with all open pits.

In conjunction with an Asset Sale and Purchase Agreement between Pinson Mining Company (PMC) and the Permittee effective September 2, 2011; WPCPs NEV2005102 and NEV2005103 were transferred to the Permittee effective September 19, 2011. WPCP NEV0089002 (Post-Closure, Pinson Mine) was transferred to the Permittee effective April 7, 2015. This Fact Sheet pertains to the renewal of WPCP NEV0089002 (Post-Closure) for the five-year period 2015-2020.

### **Geology:**

The Pinson Mine is located within a Carlin-type gold system, composed of micron-sized gold hosted in altered fine-grained sedimentary rocks. Mineralization at the Pinson and nearby Getchell and Twin Creeks Mine sites is controlled and locally hosted by the Getchell Fault zone, which defines the eastern margin of the Osgood Mountains. Fine grained calcareous siltstone and shale of the Cambrian–Age Comus and Preble Formations host micron-sized gold mineralization at Pinson. Gold occurs in de-calcified and locally silicified zones along high-angle fault zones and as stratigraphic controlled replacement bodies within receptive host rocks adjacent to feeder faults. Potential for acid generation throughout Pinson, historically and currently, is very low. Although acid-generating material was encountered in the Mag pit, the high abundance of oxidized material throughout the mined areas in the form of limestone (calcium carbonate) should prevent acid rock

generation in pit wall rock and non-ore rock in waste rock dumps.

**Pits: (10)**

Of the ten open pits, only two (Mag and CX) have penetrated the groundwater table and will contain persistent post-mining pit lakes. For additional information on these pits see WPCP NEV2005102 (Pinson Rapid Infiltration Basins), and WPCP NEV2005103 (Pinson Mining Project). The Pacific pit has been completely backfilled, regraded, and seeded; monitoring of this pit is no longer required. See Table 1 - SUMMARY OF OPEN PIT PHYSICAL DATA below for details. Monitoring of the five dry pits remaining under this Permit will consist of designating pit surfaces as dry, damp, or wet (visible flow or ponding). If a large amount of persistent ponded water is present, the Permittee is required to collect a representative sample and analyze for Profile I constituents. A field pH and field Specific Conductance (SC) reported as Total Dissolved Solids (TDS), together with photos of the ponded area, shall also be taken.

The Bluebell West pit and Bluebell East pit were excluded from the 2015 transferred WPCP and are removed from any further monitoring. Mining operations in the two pits were completed in the early 1990's and a safety berm was constructed around the pits in 1999. No persistent ponded water or damp or wet conditions has been observed in the two closed pits. All reclamation bonding for these two pits has been released.

Monitoring requirements for the CX pit and Mag pit were removed from WPCP NEV0089002 and are now contained within WPCP NEV2005103.

**Waste Rock Dumps: (13)**

There are thirteen waste rock dumps onsite:

Pacific Dump - 10 acres	C and CX Dump - 88 acres
Mag Dump - 153 acres	C and CX Extension Dump - 8 acres
Mag Extension Dump - 6 acres	A, B and CX Dump - 76 acres
CX and CX West Dump - 6 acres	CX and Mag Dump - 72 acres
CX West Dump - 3 acres	Blue Bell Dump - 11 acres
A, B & CX West Dump - 8 acres	Felix Dump - 17 acres
A and B Dump - 26 acres	

(All acreages are approximate)

As noted above, minimal sulfides may be present in multiple waste rock dumps; however, acid rock generation is not anticipated nor has any been observed. The waste rock dumps have all been re-contoured and seeded. The operator will be required to annually inspect all waste rock dumps for mass and physical stability and designate surfaces as dry, damp, or wet (visible flow or ponding). Should a discharge be present from any portion of the dump, the operator shall collect a representative sample and analyze for Profile I constituents. A field pH and field Specific Conductance (SC), reported as Total Dissolved Solids (TDS), together with photos of the discharge area, shall also be taken.

## **Tailings Impoundments (2):**

Tailings Impoundment #1 was constructed in 1980; closure began in 1987 after five phases of embankment heightening. It lies about 1500 feet to the northeast of the Mag Pit and encompasses approximately 60 acres. The bottom of the tailings impoundment was constructed with 12" of engineered clay based soil upon which a surfactant sealer was applied. Non-ore waste rock, supplied from the Mag Dump has been placed on top of the first impoundment in a planned sequence with benching in a closure plan approved by the Division. This impoundment was closed prior to promulgation of the Mining regulations in 1989.

Construction of Tailings Impoundment #2 started in 1984. It was decommissioned in February 1998. It is located approximately  $\frac{3}{4}$  mile east of the Mag Pit and covers an area of approximately 186 acres with a maximum height of 70 feet. Tails were placed over a compacted soil liner consisting of native materials with some imported clay as necessary.

As part of permanent closure, a minimum two-foot thick soil evapotranspiration cover was placed over the entire impoundment. This soil cover was then graded to preclude ponding and to promote a successful vegetative community. A downgradient monitoring well (W7A) was monitored for many years but never indicated any escaping process solution. Well W7A has been abandoned according to State regulations. Tailings Impoundment #2 is closed and further monitoring is no longer required.

All reclamation bonds held on the Tailings Impoundment #2 and associated facilities area were released in 2006.

Tailings Impoundment #2 was excluded from the 2015 transferred WPCP, along with all other areas in Section 27, Township 38 North, Range 42 East, MDB&M previously permitted under WPCP NEV0089002. PMC retained fee ownership of Section 27, Township 38 North, Range 42 East, MDB&M and the Permittee has no authorization for future disturbance on PMC's fee land in Section 27.

<b>TABLE 1 - SUMMARY OF OPEN PIT PHYSICAL DATA (all data approximates)</b>										
<b>Pits</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CX<sup>2</sup></b>	<b>CX West</b>	<b>Bluebell West<sup>1</sup></b>	<b>Bluebell East<sup>1</sup></b>	<b>Felix Canyon</b>	<b>Mag<sup>2</sup></b>	<b>Pacific</b>
<b>Pit Dimensions (Acres)</b>	29	28	4	55	5	4	5	7	103	10
<b>Surface Elevation - Pit Bottom (ft above mean sea level)</b>	5360 – 4980	5100- 4895	5160 – 4960	5,100 – 4,690	5,240 – 5,000	4,970 – 4,780	4,890 – 4,780	5,360 – 5,180	4,980 – 4,520	5,200 – 5,080
<b>Pit Depth (ft)</b>	380	205	200	410	240	190	110	180	460	120
<b>Water Encountered?</b>	Yes, however no water has been observed since 1998 (Granite Creek emergency overflow water)	No	No	Yes, de-watering has lowered the water level to 240 ft below the pit floor as of 3/31/ 2016.	No	No	No	No	Yes	No
<b>Potential Acid Generation</b>	No	No	No	No	No	No	No	No	Yes	No
<b>Pit Wall Slope Angle<sup>3</sup></b>	38° – 50°	45° – 55°	45°	45° – 55°	40° – 50°	45°	45°	40° – 50°	33° – 47°	45°
<b>Mining Dates</b>	1980 - 1985	1982- 1988	1994 – 1999	1990 – 1999	1994 - 1999	1993 - 1994	1993 - 1994	1989 - 1990	1985 - 1999	1992 - 1993

1. Bluebell West & Bluebell East pits are excluded from Permit NEV0089002 (2015 Permit Transfer and Minor Modification, Post-Closure) and have no further monitoring or reporting requirements by either the current Permittee or the previous Permittee PMC.

2. CX & Mag pits are excluded from Permit NEV0089002. Monitoring requirements are now contained within WPCP NEV2005103.

3. ° = degrees from horizontal.

## **Heap Leach Pads (2):**

There is one heap leach pad (51 acres) constructed over a clay layer and one PVC-lined heap leach pad (45 acres). The pad with the clay layer base was constructed in 1982 and contains approximately 4.5 million tons of ore stacked to a maximum height of 60ft. This engineered base consists of a 12-inch thick layer of clay, compacted to a permeability of  $1 \times 10^{-6}$  cm/sec, placed on a 4-inch layer of sand subgrade. Except for some minor recirculation in 1999, solution has not been applied on this pad since December 1998.

The PVC-lined pad was constructed in 1987 and contains approximately 5.5 million tons of ore stacked with a maximum height of 84 ft. The liner consists of 40 mil PVC overlying a 6-inch thick layer of compacted clay, with a permeability of  $1 \times 10^{-6}$  cm/sec, placed on a 4-inch layer of sand subgrade. The last pregnant solution was applied to this pad in late 1999. Solution continued to be re-circulated until May 2000, with no solution application since.

A drain layer of eighteen inches of drain rock and drain pipes spaced between 100 to 150 feet apart were placed on the base of the leach pads to facilitate the flow of the process fluid and minimize hydraulic head on the liner. Pregnant fluid was collected in plastic-lined ditches, which have perforated pipe covered with screened gravel.

As part of the heap leach pad permanent closure, an Evapo-Transpiration (E-T) cover was then placed on both leach pads. A minimum of three feet of cover material which included a minimum of 1.5 feet of re-worked argillic (clay) ore, one foot of argillic material, and topped off with a minimum of six inches of alluvial soil, was constructed over the period 1999 - 2000.

Meteoric water infiltration collects in the original launders, which are now fully reclaimed and buried. This meteoric water flows in the launders above the liner and collects at the low point of the pad. From there it is collected and routed by pipeline to the 2,000-gallon fluid collection tank for distribution into a two-section leachfield. Pad flows and solution samples are collected in the buried concrete draindown fluid collection tank (PNHTD).

In general, heap draindown solution chemistry has remained stable since 2002. TABLE 2 – HEAP DRAINDOWN SOLUTION CHEMISTRY below contains overall solution constituent averages, ranges, and trends for parameters of concern or those constituents currently elevated. Since 2007, WAD CN concentrations have been below 0.2 mg/l (NDEP Reference Value) with the exception of two reported values: 0.28 mg/l reported for the third quarter 2010 sample and 0.211 mg/l reported for the third quarter 2014.

**TABLE 2 – HEAP DRAINDOWN SOLUTION CHEMISTRY**  
Heap Leach Pad Draindown Chemistry 2002 through 2015 (all approximate values)

Pinson Heap Tank Discharge (PNHTD)	NDEP Reference Value	Average	Range	Trend
Alkalinity	--	264	200 - 350	Stable
Arsenic	0.010	0.047	0.031 – 0.075	Stable
Manganese	0.10	0.07	0.00 – 0.48	Slight decrease over time
Mercury	0.002	0.0056	0.0026 - 0.0130	Slight increase over time
Nitrate	10	189	110 – 223	Stable
pH	6.5 – 8.5	7.7	6.9 – 8.3	Stable
Selenium	0.05	0.29	0.21 – 0.40	Slight decrease over time
Sulfate	500	1,394	1,200 – 1,740	Stable
TDS	1000	3,525	2,860 – 4,450	Stable
Thallium	0.002	0.0048	0.0030 – 0.0080	Stable

All units are in mg/L, except pH which is in standard units (SU).

Heap leach pad downgradient monitoring well (HLMW1) will continue to be sampled semi-annually. This monitoring well has not reported any detection of process solution in groundwater.

**Ponds: (3):**

- Preg Pond: 2.2 million gallon capacity.
- Barren Pond: 1.1 million gallon capacity.
- Overflow pond: 2.1 million gallon capacity.

The Preg and Barren Ponds were constructed with a compacted sub-base, whose containment was a secondary layer of 0.4 feet of compacted clay and a liner of 60-mil High-Density Polyethylene (HDPE). A French drain system located between the synthetic liner and the clay layer of the ponds provided leak detection and recovery.

The overflow pond had a single 60-mil HDPE liner.

All three ponds were closed in place by folding the liner over, covering the area with a minimum of three feet of alluvium material and seeding. The sludge was evacuated to Tailings Impoundment #2 and buried.

## **Structures:**

All structures associated with this WPCP have been removed; with the exception of two water supply wells, two water storage tanks, and a trailer which was used for operations/storage for monitoring and new exploration activities. These structures are located on private property and are proposed to remain. Water rights are owned by the Permittee with the exception of the permitted and Certificated water right retained by PMC and associated with water supply well #7 located in Section 27 on private property, also retained by PMC. Water supply well #7, and the water storage tank associated with Well #7, are both located on PMC-owned property in Section 27 and associated PMC owned areas. Power lines and buried piping associated with Section 27 and the associated PMC owned lands were excluded from the 2015 transferred Permit.

The Permittee owns water supply well #8 and the associated water rights, power lines, buried piping and other surrounding areas which were included in the 2015 transferred Permit. Water supply well # 8 is located in the Permittee-owned Section 33. The Permittee also owns all other water rights associated with the Pinson Mine.

All other structures associated with this Permit have been removed.

### **C. Receiving Water Characteristics**

The site is located on the eastern flank of the Osgood Range. Elevation of the facility averages 4,900 feet above mean sea level. Recent average annual precipitation (2001 – 2015) is approximately 6.63 inches. The average annual pan evaporation exceeds the average annual precipitation by approximately eleven times.

Groundwater underlying the site is of good quality with natural exceedances of antimony, arsenic, beryllium, and thallium slightly above Nevada Reference values. Of all process components, Tailings Impoundment #2 is located nearest the valley floor pediment. Depth to groundwater beneath this component averages 150 feet. Groundwater depth at the heap leach pads and mill area averages about 250 feet.

An intermittent stream, Granite Creek, generally flows through the site early in the year carrying Osgood Range snowmelt.

### **D. Procedures for Public Comment**

The Notice of the Division's intent to issue a Permit authorizing the facility to close, subject to the conditions within the Permit, is being sent to the **Humboldt Sun** 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 NAC 445A.406.

**E. Proposed Determination**

The Division has made the tentative determination to issue the Permit.

**F. Proposed Limitations, Schedule of Compliance, Monitoring, Special Conditions**

See Section I of the Permit.

**G. Rationale for Permit Requirements**

There has not been any reported detection of process fluid in groundwater monitoring wells downgradient of the process components. These heap leach process components will continue to be monitored semi-annually.

Long term combined heap leach pad draindown was predicted through modeling (UNSAT2, 2000) conservatively at 0.8 gallons per minute. Current draindown is approximately 0.19 gallons per minute. With respect to the model, 10.5 inches of average annual precipitation was used in the calculation although actual recent annual precipitation (2010-2015) has averaged about 5.96 inches. Heap leach pad solution chemistry and flow volumes will continue to be monitored semi-annually as will heap leach pad downgradient monitoring well HLMW1.

No discharge has been reported from any waste rock dump. All permitted pits and waste rock dumps will continue to be monitored annually.

**H. 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. 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.

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