

Bureau of Land Management
HB AMAX Solution Mine Extension Project
Description of figures and maps

Figures

Figure EA-1 Proposed HB Operational Diagram

This figure is a process flow diagram. It shows the sources of water and brine that would be used as injectate into underground mine workings for solution mining. It also shows the flow of pregnant brine to the solar evaporation ponds.

Figure EA-2 Injection Well General Design

This figure presents the general design of an injection well that would be used if the proposed project were approved.

Figure EA-3 Extraction Well General Design

This figure presents the general design of an extraction well that would be used if the proposed project were approved.

Figure EA-4 General Well Pad Layout

This figure presents the dimensions (150 feet by 250 feet) and general well pad layout that would be constructed for each injection and extraction well should the proposed project be approved.

Figure EA-5 Typical Pipeline ROW Section

This figure presents the typical 50 foot right-of-way for the proposed project. This includes a 25 foot road and pipeline construction area, that would encompass a 12 foot access road and a 13 foot pipeline area.

Figure EA-6 Booster Pump System Detail

This figure presents the dimensions (100 feet by 130 feet) and layout for a booster pump station.

Figure EA-7 Delaware Basin Stratigraphic Column

This figure presents the stratigraphic column in the Delaware Basin.

Figure EA-8 Representative Cross Section

This figure presents a representative cross-section of the geologic formations in the proposed project area and their thicknesses relative to the location of the HB Solar Solution Mine and the HB AMAX extension project.

Figure EA-9 Climate Data

This figure presents climate data for Carlsbad, New Mexico including average monthly maximum temperature, average monthly minimum temperature and average monthly total precipitation.

Maps

Map EA-1 Project Location and Vicinity Map

This map shows the location of the proposed project in the northeast quadrant of Eddy County, New Mexico and about 20 miles northeast of Carlsbad, New Mexico.

Map EA-2 Mineral Lease

This map shows the federal, state, and private mineral leases held by Intrepid Potash New Mexico for the HB AMAX extension project. The proposed project infrastructure (injection and extraction wells, booster stations, injection and extraction pipeline, and the new overhead power line) are shown in relation to these mineral leases

Map EA-3 Existing and Proposed HB Solar Solution Mine Facilities

The HB Amax extension project would tie directly into Intrepid's existing HB solution mine project and would expand the size and extend the life of that mine. This figure presents all of the existing and proposed infrastructure.

Map EA-4 Disturbance Areas along Proposed and Alternative Pipeline Routes

This figure illustrates the proposed pipeline and alternative pipeline alignments and whether the pipeline alignments are located on previously disturbed ground, undisturbed ground, and/or ground that is adjacent to a previously disturbed area.

Map EA-5 Major Geologic Structural Elements

This map presents the major geologic structural elements in the southeast corner of New Mexico in relation to the proposed project area.

Map EA-6 Surficial Geology Map

This map presents the surficial geology in relation to proposed project infrastructure.

Map EA-7 Oil and Gas Wells

This map shows the location of both operating and abandoned oil and gas wells within and 0.5 miles outside of the HB AMAX project boundary.

Map EA-8 Karst Occurrence Potential

The BLM has mapped areas of high karst potential. This map shows that the majority of the proposed project area is within a high karst potential area.

Map EA-9 Paleontology Map

This BLM has mapped areas with the potential to yield fossils. The map shows the proposed project area contains areas of high, medium, and low potential to yield fossils.

Map EA-10 Structure on the Base of First Ore Zone

This map presents locations of injection and extraction wells in relation to the structure on the base of the first ore zone.

Map EA-11 Subsidence Monitoring Transects

Subsidence has been monitored during the operation of Intrepid's nearby HB solution mines through a network of subsidence monitoring monuments installed in 2009. This map presents the location of subsidence monument location transects in relation to the proposed project.

Map EA-12 Watershed Map

This map presents the subwatershed and surface water features in and near the proposed project boundary.

Map EA-13 FEMA Flood Hazard Area Map

This map shows the Federal Emergency Management Agency zones of potential flooding. The map shows Zone A, which is defined as “no base flood elevation determined”, is more than half a mile from Zone A floodplains.

Map EA-14 Surface Water Bodies

This map presents surface water bodies and wetlands in relation to the proposed project. The proposed extraction pipeline runs near a surface water feature (former tailings basin) and in 2.2 miles from the nearest wetland.

Map EA-15 Location of the Rustler Section 2 Well Field

This map shows the North Rustler Well Field is located approximately 10 miles south of the AMAX mine and the Caprock Well Field is 30 miles northeast of the proposed project.

Map EA-16 Location of the Caprock Well Field Relative to Project Area

This map shows the location of Caprock Well field relative to the proposed project area.

Map EA-17 Water Rights Within 1 Mile of HB AMAX Project Boundary

This map shows water rights by type and location in relation to the proposed project.

Map EA-18 Modeled Drawdown as Compared to Actual Observed Drawdown

This map shows the modeled, maximum drawdown for the Preferred and Enhanced Models as well as the observed drawdown from April 2014. Pumping began in August 2012 and the observed drawdown is substantially less than the modeled drawdown.

Map EA-19 Current HB Solar Solution Mine Monitoring Well Network

The current monitoring well network on this map illustrates the monitoring well network which would continue to be sampled as required by existing Discharge Permit.

Map EA-20 USDA NRCS SSURGO Soils

BLM has mapped the soils types within the proposed project area and they are presented on this map.

Map EA-21 Land Cover

BLM has mapped the vegetation types and land cover within the proposed project area. This is presented in relation to the proposed project area.

Map EA-22 Wildlife Map

The habitat types within the proposed project area are presented in relation to the proposed project. Habitat types include Shinnery Oak, Dune Sagebrush Lizard, and Special Status Species. Also presented on this map are locations where a raptor nest, a Cooper’s Hawk and Long-Eared Owls were observed by a biologist.

Map EA-23 Range Allotments

The map presents the boundaries of range allotments in and near the proposed project.

Map EA-24 Range Allotments Features

This map presents range features like barbed wire fences and water pipelines in relation to the proposed project.

Map EA-25 Surface Ownership

This map presents surface ownership (federal, state, private) in relation to the proposed project area.

Map EA-26 Oil and Gas ROWs in the HB AMAX Extension Boundary

This map presents oil and gas right-of-ways in relation to the proposed project.

Map EA-27 Electric ROWs in the HB AMAX Extension Boundary

This map presents electric utility right-of-ways in relation to the proposed project.

Map EA-28 Road ROWs in the HB AMAX Extension Boundary

This map presents roadway right-of-ways in relation to the proposed project.

Map EA-29 Telephone/Fiber Optic ROWs in the HB AMAX Extension Boundary

This map presents telephone and fiber optic right-of-ways in relation to the proposed project.

Map EA-30 Water ROWs in the HB AMAX Extension Boundary

This map presents waterline right-of-ways in relation to the proposed project.

Map EA-31 Recreation Lands

This map shows that the Hackberry Recreation area covers the eastern part of the proposed project boundary.

Map EA-32 Visual Resource Management Map

This map presents BLM's visual resource management classes in relation to the proposed project area. It shows that the proposed project boundary is within an area managed as Class IV, which provides for management activities requiring major modifications of the existing character of the landscape.

Map EA-33 Proximity of Nearby Communities, Socioeconomics and Environmental Justice

This map is an area site map that shows the location of nearby communities in relation to the proposed project.