EXHIBIT G

MINING AND MINERALS DIVISION
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
DIRECTOR'S ORDER WITH FINDINGS OF FACT, CONCLUSIONS OF LAW AND PERMIT CONDITIONS

RENEWAL OF PERMIT NO. 2005-01 FOR THE EL SEGUNDO SURFACE COAL MINE

THIS MATTER having come before the Director of the Mining and Minerals Division (Director), of the Energy, Minerals and Natural Resources Department, of the State of New Mexico, upon the application of Peabody Natural Resources Company (PNRC or Permittee), to renew Permit No._2005-01, for the El Segundo Surface Coal Mine, located approximately 35 miles north of Milan, New Mexico, along State Road 509, McKinley County (T16N R10W, T17N R10W, T16N R9W, and T17N R9W) and access road corridor 300 feet wide and approximately 6 miles long beginning in T16N 9W Sections 33 and extending through T16N 9W sections 32, 29, 28, 30, 19, 18 and 8.

The Director, having considered both the permit renewal application package (PRAP 2010-01) and all other associated documentation, having reviewed the Division's files and being otherwise fully advised in the premises now enters the following Findings of Fact and Conclusions of Law:

FINDINGS OF FACT

1. The Director has jurisdiction over the **El Segundo Surface Coal Mine** located in McKinley County, New Mexico.

2. The permit renewal is issued pursuant to the New Mexico Surface Mining Act, §69-25A-1 et seq. NMSA (1978) (Act) and the Coal Surface Mining Commission's Rules (19.8 NMAC) (Rules), and is subject to the Act, the Rules, and all laws and regulations that are now or hereafter in force.

3. PRAP 2010-01, submitted to the Director on May 12, 2010, is administratively complete and all procedures required under Rules 19.8.13.1303 and 1304 have been completed.

4. No evidence has been submitted to the Director that establishes that (i) the terms and conditions of the Permittee's current permit (No. 2005-01) are not being satisfactorily met,(ii) present surface coal mining and reclamation operations are not in compliance with the environmental standards under the Act and Rules 19.8.19 through 19.8.28, or (iii) this renewal substantially jeopardizes the Permittee's continuing responsibility to comply with the Act and 19.8 NMAC on existing permit areas.

5. Public Notice of the submittal of PRAP 2010-01 was published for four consecutive weeks in a newspaper serving McKinley County describing the proposed

mine and soliciting public comments. The following is a list of the newspaper and notice publication dates:

The Independent (Gallup)	June 30, July 7, July 14, and July 21, 2010
Cibola County Beacon (Grants)	June 29, July 6, July 13 and July 20, 2010

A thirty-day public comment period after the last publication ran through August 23, 2010. No public comments were received.

6. On July 8, 2010, the Mining and Minerals Division (MMD) sent written notifications to federal, tribal, state and local government agencies notifying them about the PRAP 2010-01. Comments were received from the New Mexico Department of Game & Fish (August 2, 2010) and the New Mexico Environment Department - Groundwater Quality Bureau (August 12, 2010).

7. The Director has reviewed the July 2005 Cumulative Hydrological Impact Analysis (CHIA) of all anticipated coal mining in the cumulative impact area. The current CHIA adequately describes the hydrologic consequences of continued surface mining The Director determined the operations as described in the PRAP 2010-01 have been designed to prevent damage to the hydrologic balance outside the proposed permit area pursuant to 19.8.9.907.C NMAC.

8. The proposed operations will not adversely affect any publicly owned parks or places included in the National Register of Historic Places. The Archaeological Management Plan required by 19.8.9.912 NMAC was provided to the New Mexico Historic Preservation Division and various Native American Tribes for their review and comment. MMD will ensure the Permittee implements all provisions of the plan.

9. The Permittee has a performance bond approved by the Director currently in the amount of sixty-four million four hundred twenty thousand three hundred seventy dollars ($64,420,370.00) which will continue in full force and effect for the period of this renewal. Subject to Special Condition No. 1, the Director is not requiring additional bond as part of this action pursuant to Rule 19.8.14. This finding does not preclude the Director from adjusting the bond amount pursuant to the Rules, including without limitation pursuant to Rule 19.8.14

10. The Permittee has demonstrated that it has not controlled and does not control a mining operation with a pattern of willful violations of such nature, duration and with such irreparable damage to the environment as to show a noncompliance with the Act and with 19.8 NMAC. On **September 14, 2010**, the Director accessed OSM's AVS to obtain a compliance history report for outstanding violations, failure to abate cessation orders, violations of other applicable federal or state laws or rules pertaining to air and water environmental protection and to determine if any persons who own or controls the Permittee is in good standing with OSM.

CONDITIONS

1. All cultural resources determined eligible to the National Register of Historic Places shall be protected consistent with an approved plan and shall not be disturbed or mined without prior written approval from the Director.

2. In the event previously unknown cultural or historic properties are encountered during mine-related activities, the Permittee shall immediately protect the properties from further mining disturbance. The Permittee shall notify the Director immediately. The Permittee shall protect the properties from any disturbance until the Director has properly evaluated them. If appropriate, the Permittee shall at the direction of the Director, prepare and implement a treatment plan designed to mitigate the effects mining or reclamation operations conducted under this permit may have on properties eligible to the National Register of Historic Places. The Director prior to its implementation shall approve this treatment plan. If necessary, the treatment plan shall be conducted at the expense of the Permittee.

3. In the event undocumented human remains are located or exposed during mining activities in the permit area, the Permittee shall immediately notify the Director. Should a burial be exposed during earthmoving activities, the burial shall be protected from further disturbance until disposition of the burial has been resolved. The final disposition of human burials will be carried out in accordance with all applicable guidelines, regulations and laws.

SPECIAL CONDITIONS

1. Within 90 days from the date of this Order, PNRC will provide MMD with a complete and updated bond calculation for reclamation at the El Segundo Surface Coal Mine. The new calculation will take into consideration the current status of back filling and grading, topsoil replacement and reseeding and adjust costs as appropriate due to inflation or other market changes since the last bond calculation. Based on the new calculation the Director may require an adjustment in the amount of the bond pursuant to 19.8.14.1406 NMAC.

2. Within 30 days from the date of this Order, PNRC will provide MMD with a response to technical issues listed in Attachment A. These responses may result in the need to modify or revise Permit 2005-01, as renewed by this Renewal Permit 2010-01.

CONCLUSIONS OF LAW

1. The Director has jurisdiction over the Permittee and the subject matter of this proceeding.

2. All procedures required under 19.8.13.1303 NMAC have been satisfied.

3. The Permittee is entitled to conduct coal mining and reclamation operations at the El Segundo Surface Coal Mine in McKinley County, New Mexico, upon the conditions that the Permittee complies with the requirements of this Order, the Act, 19.8 NMAC, PRAP 2010-01, all Permit Conditions and any Special Conditions imposed by this Order, and upon the submission of such annual reports and fees as may be required under 19.8 NMAC.

ORDER

NOW THEREFORE, IT IS HEREBY ORDERED that Permit 2010-01 is approved for a term of five years, ending on September 15, 2015. The renewal is subject to all conditions set out in this Director's Order with Findings of Fact, Conclusions of Law and Permit Conditions. Unless specifically modified by this renewal, the terms and conditions of Permit 2005-01 remain in full force and effect and are incorporated herein.

By Order of the Director, Mining and Minerals Division, Energy, Minerals and Natural Resources Department, of the State of New Mexico.

Dated this 15th day of September, 2010

Bill Brancard
Director
Mining and Minerals Division
Energy, Minerals and Natural Resources Department

Bill Richardson
Governor

Jon Goldstein
Cabinet Secretary

Jim Noel
Deputy Cabinet Secretary

Bill Brancard
Division Director
Mining and Minerals Division

El Segundo Mine Renewal Permit No. 2010-01
Attachment A to Director's Order With Findings of Fact, Conclusions of Law and
Permit Conditions Renewing Permit No. 2005-01
Outstanding Technical Issues

19.8.7.701.B NMAC
Exhibit 701-1 contains the Certificate of Insurance. It should be the Certificate of Incumbency. Are there any changes to the list of Corporate Officers in Exhibit 701-2? (JMO)

19.8.7.701.E
Plate 700-1 needs to include surface ownership associated with the equipment access road to Lee Ranch. (JMO)

19.8.7.702.C
Please update the listing of each violation notice received by the applicant in connection with any surface coal mining operation during the 3-year period before the application date. (JMO)

19.8.7.706.E
An electronic copy of the Insurance Certificate needs to be provided for the electronic permit. (JMO)

19.8.7.709
The Public Notice needs to be updated. (JMO)

19.8.804
A review of monitoring data indicates potential impacts to ground water quality in wells located within the permitted area, including elevated levels of sulfate and total dissolved solids. However, very limited water quality results are presented, and data from wells KPL-4 and KPL-5 is presented from 2002 only (Table 804-1). Table 804-2 lists 34 wells within the permit area that may be suitable for water quality monitoring; however, Table 804-3 provides a very general summary of chemical analysis performed at only 15 wells. No well identifications or sampling dates are provided for these data. (ED-GWQB)

Table 804-1 should be updated to include the quarterly data from wells Kpl-4 and Kpl-5 to date, and any trends in the Point Lookout water quality should be identified and discussed by the operator.

After looking at the potentiometric surface map, it appears that it would be difficult to sample the Point Lookout potentiometrically above the mine (to the south-southwest), as those parts of the formation are reportedly unsaturated, but it should be possible to sample the Point Lookout potentiometrically below the mine (to the north). The Orphan Annie Well is being monitored and may serve that purpose, if it is completed in the Point Lookout, as is speculated in the permit (and seems likely). It would be good to verify that the Orphan Annie Well is completed in the Point Lookout, and if so, to add data from that well to Table 804-1 from over the first permit term. Jerry Elkins recently drilled a new well just north of the

permit boundary, 2-3 miles east of the highway. If that well is completed in the Point Lookout, it should be added to the GW monitoring scheme.

19.8.8.812.C
Plate 900-1 (Disturbance Sequence) does not include the Equipment Access Road to Lee Ranch. (JTG)

19.8.8.812.L
Both the Annual Report maps and the Mine Plan maps should indicate Pit numbers or designations. (JTG)

19.8.9.903.B
There is not enough detail on the Facilities Map (Plate 903-1) to indicate petroleum and industrial chemical storage areas, or surface and underground storage tanks. Perhaps a map of the Office/Shop Facilities Area should be provided at a 1"=100' scale. (JTG)

19.8.9.906.B(5)(b) Reclamation Plan: General Requirements
The operator currently has different seed mixtures approved for Lee Ranch Mine and El Segundo Mine. It is recommended that the same seed mixture be used at both mines to avoid confusion and a potential violation if an unapproved seed mixture is used on one of the operations. Either the Lee Ranch or the El Segundo seed mixture would be appropriate, or the seed mixture that Vern Pfannenstiel formulated for Lee Ranch in 2009, which includes a list of acceptable substitute species. If Mr. Pfannenstiel's mixture was selected, the alfalfa should be omitted. Alfalfa is very competitive with the native species during establishment, but then fades away through the bond liability period. This may impede the operator's ability to meet the production performance standard. (DC)

On page 906-14 the remediated BTEX level is listed as 50 ppm. At NMAC 20.9.8.15(C)(1&2) of the Solid Waste Regulations, Petroleum Contaminated Soils, it says "Remediation shall be complete when the following conditions are met in a soil sample; (1) the sum of benzene, toluene, ethylbenzene, and xylene isomer concentrations is less than 500 mg/Kg, with benzene individually less than 10 mg/Kg; and (2) the TPH concentration is less than 1,000 mg/Kg. These numbers are less stringent than the present numbers in the permit and should be changed. (MBA)

19.8.9.906.B(13)
SWM-5 needs to be moved from its present location to a spot upstream and on the permit that wouldn't be in standing water for long periods. This will give a more representative sample and be easier to access. (MBA)

19.8.9.907
Page 906-2 of the permit states that, "Ultimate post mining topography will be designed using the "Natural Regrade" software. This will ensure stable slopes with adequate drainage densities and channel sinuosity to protect the hydrologic balance. Estimated post mining topography is presented on Plate 903-2 (PLATE903-2.dwg). This topography is based primarily on a material balance, with adjustments to maintain pre mine drainage patterns, densities, and sinuosity." Reclamation has already started without much drainage density or channel sinuosity. Provide a detailed plan describing how you intend to reconstruct the topography, including drainage density and drainage designs. Your plan should follow the MMD AOC guidelines. (MBA)

19.8.9.907.B.3
The Dalton Well needs to be sampled and analyzed on the quarterly schedule for the same chemical parameters as the Point Lookout Wells, KPL-4 and KPL-5. (MBA)

19.8.9.907.B.4
Section 19.8.20.2009.C. NMAC states "In no case shall federal and state water quality statutes, regulations, standards, or effluent limitations be violated." NMED has concluded that insufficient data have been provided to make this determination.

Based on the information provided in the renewal application, it is unclear if a coherent ground water monitoring plan has been in place since the inception of mining. Typically mine sites have ground water monitoring on a quarterly basis at down gradient and up gradient locations. If this information is available it should be presented as part of the permit renewal application in a format that can be easily evaluated to determine if impacts, if any, have occurred.

In order to ensure that water quality is being properly protected in the areas surrounding the El Segundo Coal Mine, PNRC should conduct a thorough hydrological investigation of ground water and surface water resources within the area. The study should incorporate all previously collected water data and include water quality trend analysis for all sampling locations. As stated above, if this information is available it should be presented as part of the renewal application. (ED-GWQB)

19.8.9.916
Plate 903-1 (Facilities Map) needs to indicate and label the Equipment Access Road to Lee Ranch. (JTG)

19.8.14.1405.A
The current bond amount is not calculated to cover the maximum disturbance for the new permit term. Recalculate the bond amount to cover the worst case disturbance for the new permit term. Use the latest MMD guidelines for determining the bond amount. (JTG)

19.8.20.2050.C Air Resources Protection: Additional Measures
The operator appears to be in compliance with the NMED air quality regulations for coal mines and preparation plants at 20.2.42 NMAC, which cover the crushing and load-out facilities and haul roads. However, dumping of coal and overburden material from loaders into haul trucks, dumping from the haul trucks, wind blowing across disturbed areas, and blasting appear to create the most fugitive dust at the mine. The operator has voluntarily shut down coal-loading operations on at least one occasion due to high winds. Under the CSMC regulation cited above, the Director is authorized to require additional measures or practices as necessary to control fugitive dust.

Considering the proximity of public traffic on Highway 509, a dust storm detection and management system should be included in the operations plan. The NMDOT has systems such as this in place at areas commonly subject to dust storms (for example,
http://www.nmshtd.state.nm.us/upload/images/Intelligent_Transportation_Systems/La%20Playa%20Storm%20Management%20ConOps%20FINAL.pdf)
and those systems could be used as a guide by the operator. Management practices, including suspending loading and dumping operations or closing the highway during periods of obscured visibility, should be included. Compliance with a dust storm detection and management plan would help to prevent traffic accidents on and off the mine, and reduce the liability of the operator in the event of a traffic accident in the vicinity of El Segundo Mine. (DC)

Photo 1: Dust Storm along I-10 at Mile Mark 25.4

19.8.20.2055(A): Pre-Mining Topography map, Plate 813-1, shows drainages indicated by small blue lines. Based on these blue lines, pre-mining drainage densities for 11 watersheds in and adjacent to the proposed disturbed areas of the mine, average approximately 12.3 miles of drainage per square mile, or 101 feet of defined drainage per acre. To approximate original contour, control erosion, and provide for stable reclamation, post-mining reclamation should also contain at least this drainage density. The permit needs to contain the commitment language and plans for replacing the drainage density per acre value as it existed in the pre-mining topography. (MBA)

19.8.20.2011: Lidar data acquisition shows the presence of extensive sinuosity in premining drainages. Post-mining Plate 903-2 shows no indication of planning for restoring sinuosity to the post mining channel profiles. Pre-mining drainages should be studied for concave longitudinal stream profiles, noting locations, lengths, orientations of channels and respective watershed areas, sideslopes and channel sinuosity. A generic channel design should then be placed into the permit, based on predicted channel flow and showing how approximate pre-mining drainages will be restored with minimal use of rip rap or other hard engineered structures. (MBA)

BEFORE THE DIRECTOR OF THE MINING AND MINERALS DIVISION
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

IN THE MATTER OF PEABODY NATURAL RESOURCES COMPANY'S APPLICATION FOR PERMIT REVISION 2013-01 FOR EL SEGUNDO COAL MINE

Permit No. 2010-01

Allowing Potential Mining of Federal Coal within the Permit Area and Changing the Method of Mining to Include Use of a Dragline

DIRECTOR'S ORDER WITH FINDINGS OF FACT, CONDITIONS AND CONCLUSIONS OF LAW

THIS MATTER having come before the Director of the Mining and Minerals Division ("Director"), of the Energy, Minerals and Natural Resources Department, of the State of New Mexico, upon submittal by Peabody Natural Resources Company ("PNRC") of Permit Revision Application 2013-01 ("Application") to revise El Segundo Mine Permit 2010-01 to allow (i) the mining of federal coal within the permit area, upon approval by the Bureau of Land Management, and (ii) the use of a dragline in the mining operation.

The Director, having considered the Application and all other associated documentation, having reviewed the Mining and Minerals Division ("MMD") files and being otherwise fully advised in the premises now enters the following Findings of Fact, Conditions, Conclusions of Law and Order:

FINDINGS OF FACT

1. El Segundo Mine is located in McKinley County, New Mexico, approximately 22 miles north of Milan on Highway 509.

2. The Application was submitted to the Director on March 27, 2013.

3. The Application was deemed administratively complete on June 3, 2013 and addresses all of the applicable requirements of the Surface Mining Act and 19.8 NMAC.

4. Public notice of the Application was published for four consecutive weeks in the *Cibola Beacon*, a newspaper of general circulation serving the mine area, on June 25, July 2, July 9 and July 16, 2013, and in the *Gallup Independent*, a newspaper of general circulation in McKinley County, on June 24, July 1, July 8, and July 15, 2013, describing the Application and soliciting public comments, pursuant to 19.8.11.1100.A NMAC.

5. Pursuant to 19.8.11.1100.B NMAC, in addition to newspaper notifications, PNRC mailed letters to permit area landowners and landowners with residences within one-half mine of the permit area; that is, Fernandez Company, Ltd., Jerry and Luann Elkins, Gallo Finance Company, the Bureau of Land

Management, and the State Land Office. PNRC posted public notices at Mother Whiteside Library in Grants, the McKinley County Courthouse in Gallup, the Borrego Pass School Community Bulletin Board in Borrego Pass, the White Horse Chapter House in Hospah and the entrance to El Segundo Mine; and provided multiple notices per day over six days (July 8 through 13, 2013) by radio station KYAT in Gallup in the Navajo language.

6. Pursuant to 19.8.11.1100.C and D NMAC, the Director sent written notifications on June 21, 2013 to the Bureau of Land Management, the Fish and Wildlife Service, the Office of Surface Mining Reclamation and Enforcement, the Hopi Tribe, the Navajo Tribe, the Bureau of Mines and Geology, the Environment Department Air Quality Bureau, Ground Water Protection Bureau and Surface Water Bureau, the Historic Preservation Division, the State Forestry Division, the Department of Game and Fish, the State Land Office, the Office of the State Engineer ("OSE"), and McKinley County, notifying them of the Application. The comment period for the agency review ran through August 16, 2013. The only response received was from the OSE. While specifically stating that they had no comments pertaining to the subject matter of the Application, the OSE requested clarification of the identification and purpose of certain wells within El Segundo Mine permit area. The OSE comments were adequately addressed by information submitted to the Director by PNRC, and forwarded to OSE, on July 26, 2013.

7. Pursuant to 19.8.11.1100.E NMAC, PNRC made copies of the Application available for public review at the McKinley County Courthouse in Gallup and the Mother Whiteside Library in Grants.

8. Pursuant to 19.8.11.1100.F NMAC, the Director held a public meeting on the Application on July 26, 2013 in Grants. The public meeting was noticed in the *Cibola Beacon* on July 4, 2013 and in the *Gallup Independent* on July 6, 2013. The public meeting was also noticed on radio station KGLP in Gallup and Crownpoint.

9. Pursuant to 19.8.11.1100.E(3) NMAC, the public meeting was noticed on the MMD website.

10. No members of the public attended the public meeting.

11. A public comment period was provided from the last newspaper publication date through August 16, 2013 pursuant to 19.8.11.1101.B NMAC. No public comments were received. No written objections, nor requests for an informal conference, were received.

12. Pursuant to 19.8.11.1106.A NMAC, the Application is accurate and complete and complies with all requirements of the Surface Mining Act and 19.8 NMAC.

13. Pursuant to 19.8.11.1106.B NMAC, PNRC has demonstrated that surface coal mining and reclamation operations required by the Surface Mining Act and 19.8 NMAC can be feasibly accomplished under the mining and reclamation operations plan contained in the Application.

14. Pursuant to 19.8.11.1106.C NMAC, the assessment of the probable cumulative hydrological impacts ("CHIA") of all anticipated coal mining in the cumulative impact area on the hydrologic balance, as described in 19.8.9.907.C NMAC, has been made by the Director, and the operations proposed under the

application have been designed to prevent damage to the hydrologic balance outside the proposed permit area.

15. Pursuant to 19.8.11.1106.D NMAC, the proposed permit area is: (1) not included within an area designated unsuitable for surface coal mining operations under 19.8.3 and 4 NMAC; or (2) not within an area under study for designation as unsuitable for surface coal mining operations in an administrative proceeding begun under 19.8.4 NMAC; or (3) not within an area subject to the prohibitions of 19.8.2.201 NMAC.

16. Pursuant to 19.8.11.1106.E NMAC, the proposed operations will not adversely affect any publicly-owned parks or places included in the national register of historic places.

17. Pursuant to 19.8.11.1106.F NMAC, PNRC has submitted to the Director the documentation required under 19.8.7.703.B NMAC for operations involving the surface mining of coal where the private mineral estate to be mined has been severed from the private surface estate.

18. Pursuant to 19.8.11.1106.G NMAC, the Director accessed the Office of Surface Mining ("OSM") Applicant/Violator System database on September 4, 2013 to check for outstanding violations, failure to abate cessation orders, violations of other applicable federal or state laws or rules pertaining to air and water environmental protection, and to determine if all persons who own or control PNRC are in good standing with OSM. The check resulted in no negative information. Therefore, the proof required by 19.8.11.1105.C(1) or (2) NMAC is not required.

19. Pursuant to 19.8.11.1106.H NMAC, PNRC, via the Applicant/Violator System database, has submitted proof that all reclamation fees required for abandoned mine land reclamation under Section 402 of Public Law 95-87 have been paid.

20. Pursuant to 19.8.11.1106.I NMAC, PNRC does not control and has not controlled mining operations with a demonstrated pattern of willful violations of the act of such nature, duration, and with such resulting irreparable damage to the environment as to indicate an intent not to comply with the provisions of the Surface Mining Act.

21. Pursuant to 19.8.11.1106.J NMAC, surface coal mining and reclamation operations to be performed under the Application will not be inconsistent with other such operations anticipated to be performed in areas adjacent to the proposed permit area.

22. Pursuant to 19.8.11.1106.K NMAC, PNRC submitted bond calculations on April 18, 2013 that demonstrate the current performance bond remains adequate under the mining and reclamation plans presented in the Application.

23. Pursuant to 19.8.11.1106.L NMAC, PNRC has, with respect to both prime farmland and alluvial valley floors, obtained either a negative determination or satisfied the requirements of 19.8.10.1004 and 1006 NMAC.

24. Pursuant to 19.8.11.1106.M NMAC, the proposed postmining land use of the permit area has been approved by the Director in accordance with the requirements of 19.8.20.2073 NMAC.

25. Pursuant to 19.8.11.1106.N NMAC, the Director has made all specific approvals required under 19.8.19 through 19.8.28 NMAC.

26. Pursuant to 19.8.11.1106.O NMAC, the Director has found that the Application would not affect the continued existence of endangered or threatened species, indigenous to the state, or any other species protected under the Endangered Species Act of 1973, or result in the destruction or adverse modification of their critical habitats contrary to state or federal law.

27. Pursuant to 19.8.11.1106.P NMAC, the Director has taken into account the effect of the Application on properties listed on and eligible for listing on the national register of historic places; this finding is supported by inclusion of appropriate permit conditions that protect historic resources until a documented decision is made by the Director that no additional protection measures are necessary.

28. No changes are proposed in the Application that would require a new or updated determination of the probable hydrologic consequences or a new or updated assessment of the probable cumulative hydrologic impacts, pursuant to 19.8.13.1301.F NMAC.

CONDITIONS

1. Within 30 days of the execution of the BLM lease allowing the mining of coal within Section 34, T17N, R9W, Permit 2010-01 Section 703 shall be updated to include a description of said BLM lease and a copy of said BLM lease as an exhibit.

2. Within 30 days of the execution of the BLM lease allowing the mining of coal within Section 34, T17N, R9W, Permit 2010-01 Table 707-1 shall be updated to include listing of said BLM lease.

CONCLUSIONS OF LAW

1. The Director has jurisdiction over El Segundo Coal Mine located in McKinley County, New Mexico, and over PNRC and the subject matter of the Application.

2. The Application is technically complete and adequately addresses all requirements in the Surface Mining Act and 19.8 NMAC and all terms and conditions contained in the Surface Mining Act and 19.8 NMAC that are necessary for approval of the Application have been met.

3. Unless specifically revised by the Application and approved herein, all terms, conditions and requirements of El Segundo Mine Permit 2010-01 remain in effect.

ORDER

NOW THEREFORE, IT IS HEREBY ORDERED that:

1. The Application, El Segundo Mine Permit Revision 2013-01, is approved and PNRC is permitted to (i) mine federal coal within the permit area, upon approval by the Bureau of Land Management, and (ii) use a dragline in the El Segundo mining operation.

2. This Order and the approval hereunder shall not take effect unless and until PNRC complies with Conditions 1 and 2, above.

By Order of the Director
Mining and Minerals Division
Energy, Minerals and Natural Resources Department
State of New Mexico

Fernando Martinez, Director

September 4, 2013
Date

EL SEGUNDO MINE
MINE PLAN AND PERMIT APPLICATION - 2004
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TEXT

Section/ Subpart	Title	File
Subpart 907	Reclamation Plan: Protection of Hydrologic Balance	SUBPART 907.doc
Subpart 908	Reclamation Plan: Postmining Land Uses	SUBPART 908.doc
Subpart 909	Reclamation Plan: Ponds, Impoundments, Banks, Dams, and Embankments	SUBPART 909.doc
Subpart 910	Reclamation Plan: Surface Mining Near Underground Mining	SUBPART 910.doc
Subpart 911	Diversions	SUBPART 911.doc
Subpart 912	Protection of Public Parks and Historic Places	SUBPART 912.doc
Subpart 913	Relocation or Use of Public Roads	SUBPART 913.doc
Subpart 914	Disposal of Excess Spoil from Surface Mining Activities	SUBPART 914.doc
Subpart 915	Disposal of Underground Development Waste	SUBPART 915.doc
Subpart 916	Transportation Facilities	SUBPART 916.doc
Subpart 917	Return of Coal Processing Waste to Abandoned Underground Workings	SUBPART 917.doc
Subpart 918	Subsidence Information and Control Plan	SUBPART 918.doc
Subpart 919	Support facilities	SUBPART 919.doc

EL SEGUNDO MINE
MINE PLAN AND PERMIT RENEWAL-2010
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SECTION 700

Exhibit No.	Title	File
701-5	Warranty Deed of Surface Ownership for Gallo Finance Company	EXHIBIT 701-5 WARRANTY DEED OF SURFACE OWNERSHIP FOR GALLO FINANCE COMPANY.pdf
701-6	New Mexico Highway Warranty Deed SHD NM40-623	EXHIBIT 701-6 NEW MEXICO HIGHWAY WARRANTY DEED SHD NM40-623.pdf
701-7	New Mexico Highway Warranty Deed SHD NM41-779	EXHIBIT 701-7 NEW MEXICO HIGHWAY WARRANTY DEED SHD NM41-779.pdf
701-8	BNSF Warranty Deed BNSF 13-9158	EXHIBIT 701-8 BNSF WARRANTY DEED BNSF 13-9158.pdf
701-9	LRCC Certificate of Insurance	EXHIBIT 701-9 LRCC CERTIFICATE OF INSURANCE.pdf
703-1	Notice of Memorandum and Surface Use Agreement with Fernandez Company LTD. and SFPRC	EXHIBIT 703-1 NOTICE OF MEMORANDUM AND SURFACE USE AGREEMENT WITH FERNANDEZ COMPANY, LTD AND SFPRC.pdf
703-2	Assignment and Assumption of Surface Use Agreement with SFPM and HNRC	EXHIBIT 703-2 ASSIGNMENT AND ASSUMPTION OF SURFACE USE AGREEMENT WITH SFPM AND HNRC.pdf
703-3	Notice of Memorandum and Surface Use Agreement with Jerry and Luann Elkins	EXHIBIT 703-3 NOTICE OF MEMORANDUM AND SURFACE USE AGREEMENT WITH JERRY AND LUANN ELKINS.pdf
703-4	Assignment and Assumption of Coal Mining for Private Coal Chaco Energy to Gallo Finance Co.	EXHIBIT 703-4 ASSIGNMENT AND ASSUMPTION OF COAL MINING FOR PRIVATE COAL CHACO ENERGY TO

		GALLO FINANCE CO.pdf

Exhibit No.	Title	File
703-5	Business Lease BL-1021; Railroad Right of Way T16N-R10W Sec. 2	EXHIBIT 703-5 BUSINESS LEASE BL-1021;RAILROAD RIGHTOF WAY T16N-R10W SEC2.pdf
703-6	Lee Ranch Coal Company Letter of Consent with Gallo Finance Company	EXHIBIT 703-6 LRCCLETTEROFCONSENTWGALLO.pdf
703-7	Lease of State Lands	EXHIBIT 703-7 LEASEOFSTATELANDS.pdf
703-8	Right of Entry on State Lands	EXHIBIT 703-8 RIGHT OF ENTRY ON STATE LANDS.pdf
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INTRODUCTION

Peabody Natural Resources Company (PNRC), a Delaware general partnership dba Lee Ranch Coal Company (LRCC), proposes to open and operate a coal mine to be known as El Segundo Mine. A permit to mine coal at El Segundo Mine is sought by PNRC-ES in accordance with the New Mexico Surface Mining Act, NMSA, 1978. Coal extracted from the mine is to be marketed under negotiated spot and contract sales. The mine is located approximately 35 miles north of Milan, New Mexico, along State Road 509, as delineated on the following location map (Location Map.dwg).

El Segundo Mine permit area comprises a mix of State and private surface ownership [PLATE 700-1 (PLATE 700-1.dwg)]. The underlying coal that will be mined is in State or private ownership [PLATE 700-2 (PLATE 700-2.dwg)]. The blocks of Federal coal occurring within the permit area are beneath private surface ownership and are planned to be mined pending a successful Lease By Application sale conducted by the BLM at the BLM New Mexico State office in Santa Fe. PNRC and Gallo Finance Company own the non-State coal. A lease auction, was conducted by the State Land Office, leased State owned coal within the permit area. PNRC mines State owned coal because it acquired the mining rights through a successful lease auction. Except for the State sections, the PNRC, Gallo Finance Company, Jerry and Luann Elkins, and the Fernandez Company, Ltd., own the surface to all land within the permit area. The Elkins family and the Fernandez Company, Ltd. have granted PNRC use of the surface for surface coal mining operations. Gallo Finance Company has agreed to assign its rights for mining to PNRC.

El Segundo Mine is a multiple seam surface coal mining operation. Annual coal production is expected to be no greater than 10 million tons, depending on coal sales.

Information compiled for this permit application addresses the requirements of the State of New Mexico Surface Coal Mining Regulations, 19 NMAC 8.2, as adopted by the New Mexico Coal Surface Mining Commission. Subsequent sections of this mine plan and

permit application address all requirements of Subparts 700 (legal financial, compliance, and related information), 800 (information on environmental resources), and 900 (reclamation and operations plan). The mine plan and permit application is presented in electronic format, as required by the Director of the Mining and Minerals Division in compliance with Subpart 505. All plates and figures cited in the document are provided in AutoCAD format. For each plate and figure, the AutoCAD file has provision for plotting the drawings at the scale required by Subpart 505.

In accordance with Subpart 508, this permit application is verified under oath by a responsible official of PNRC, the applicant, that the information contained in the application is true and correct to the best of the official's information and belief. Additionally, as required under Subpart 506.A., an original permit filing fee has been calculated and submitted by check to the Director. The application verification and the original permit filing fee are submitted separate from this mine plan and permit application document.

TITLE 19 NATURAL RESOURCES AND WILDLIFE
PART 9 PERMIT APPLICATIONS – MINIMUM REQUIREMENTS FOR RECLAMATION AND OPERATIONS PLAN

900. OPERATION PLAN: GENERAL REQUIREMENTS

900.A. Description of Mining Procedures

El Segundo Mine is a multiple seam surface coal mining operation located in McKinley County, New Mexico. Mining activities will be conducted in multiple pit areas at a given time, as shown on PLATE 900-1 (PLATE 900-1.dwg). Mining rates and sequencing are dependent upon many variables. The most significant being coal quality and customer demand. Coal shipments will vary monthly and are totally controlled by customers. The possibility of spot sales could increase demand and production at unanticipated times, intervals or durations. These factors will influence the anticipated production and reclamation schedules. The mining sequence consists of topdressing removal, drilling and blasting of overburden/interburden, excavation of overburden/interburden, and coal recovery. Topdressing will be removed from designated areas using the shovel/truck and loader/truck methods, and scrapers. Overburden/interburden materials may be drilled and blasted to facilitate stripping operations. A combination of the shovel/truck, loader/truck, and dozer push mining methods will be utilized for overburden and interburden removal.

The shovel/truck operation is a terraced, advancing open-pit system. Terraces or benches approximately 15' to 60' in height and 125' to 500' in width are excavated by electric-powered shovels. Bench heights are dependent upon the thickness of the overburden and interburden. The bench widths are designed to provide sufficient operating room for the equipment used in overburden, interburden, and coal removal. Advancement of the mine cuts will typically occur in a direction parallel to the previous benches. The shovels and haul trucks will operate on the same bench during loading operations. Haul trucks and auxiliary equipment will use the benches as roads within the pits. Auxiliary equipment used in support of the shovel/truck operation includes

front-end loaders, motor graders, bulldozers, scrapers, and water trucks. The typical pit layout for the shovel/truck operation is shown in cross section on FIGURE 900-1 (FIGURE 900-1.dwg).

Dragline stripping of overburden/interburden will be accomplished using the simple sidecast, extended bench, and spoil-side handling methods. The simple sidecast method involves preparing a bench for the dragline on the highwall-side of the pit. Operating from this bench, the dragline is able to excavate overburden/interburden and spoil the materials into a previously mined-out cut. Extended bench operations consist of using fill materials to extend the dragline bench toward the spoils. Utilization of an extended bench is designed to enable placement of spoils further away from the dragline in a mined-out pit, which provides additional spoil room in subsequent cuts. Spoil-side handling involves creating a dragline bench in the spoils from the previous cut. Removing overburden from the spoil-side of the pit is most commonly used in deeper cover areas. These three dragline mining methods will be utilized interchangeably, as geologic conditions dictate. The number of dragline benches developed in a particular cut will be dependent upon the number of minable coal seams and interburden thickness. Individual dragline pits will range from approximately 125' to 175' in width. The dragline pits will be designed to provide adequate operating room for the equipment used in interburden and coal removal and to maintain spoil and highwall stability.

A typical range diagram showing the simple sidecast method with the normal high ridge placement of materials is presented on FIGURE 900-2. Typical range diagrams showing the extended bench and spoil-side handling methods are presented on FIGURE 900-3 and FIGURE 900-4, respectively.

The configuration of the mining pits will be adjusted as needed to accommodate the geologic conditions encountered in a particular area and coal demand by customers.

Coal will be recovered from 1 to 9 seams. The minable coal seams range from 1 foot to 17 feet in thickness. Equipment used for coal removal, and haulage includes front-end loaders, scrapers, bulldozers, motor graders, haul trucks, and water trucks. Anticipated peak annual coal production is expected to be about 8.6 million tons, depending upon coal sales. The estimated total coal production for the life of the mine is 128.91 million tons. Estimated annual and total coal production over the life-of-mine are presented in TABLE 900-1 (TABLE 900-1.doc).

Standard engineering techniques have been utilized in development of the operation and reclamation plans for El Segundo Mine. The operation plan is designed to maximize recovery of the coal resource, provide safe and healthy working conditions, and minimize potential negative environmental impacts. Information derived from exploratory drilling was utilized to define the recoverable coal seams. Additional drilling will be performed ahead of the operation to refine the mining limits. The mining sequence developed for the mine was based upon optimization of several factors, including the economics of stripping ratio, coal haulage distances, coal quality, and backfilling requirements. Anticipated production and reclamation schedules were considered in the development of the mining sequence, selection of equipment and the design of the facilities. A list of the major equipment being used at the mine is presented in TABLE 900-2 (TABLE 900-2.doc).

900.B. Facilities Description

900.B.(1). Dams, Embankments and Impoundments

Impoundments will be constructed and certified by a PE as being constructed as designed prior to mining disturbances. Temporary impoundments and sediment ponds with less than 10 acre feet capacity will have spillways capable of passing the 25-year 6-hour event or contain the runoff from a 100-year, 6-hour precipitation event. A combination of excavated sediment ponds and embankment type temporary impoundments may be constructed in future mine areas to receive water that accumulates in the pits to and contain runoff from disturbed areas. The typical design

of the temporary excavated impoundments is shown on FIGURE 909-1 (FIGURE 909-1.dwg).

No permanent impoundments at the mine are contemplated in this plan. However, spillways of any future permanent impoundments, which may be constructed, will meet the 50-year, 6-hour event for the spillway. A description of the 5-year surface water control system is presented in Subpart 907. Detailed design plans and locations for possible future impoundments will be submitted to the Director for review and approval prior to construction. Additionally, permanent livestock watering ponds which may be planned in the future for final reclamation, will be designed in accordance with Subpart 19.8.20.2017.

All sediment ponds will be capable of safely containing or treating a 10-year/24 hr event as required by Subparts 2009.D(1), 2010.A(1), 2010.B(1), 2014.C. The ponds will be designed and constructed in accordance with Subparts 2015 and 2017.

The temporary impoundments will be removed in accordance with Subpart 2014.K.

Diversion channels and dikes will be used to direct overland flow and runoff in ephemeral arroyos from undisturbed areas around or through disturbed areas. Temporary diversions/dikes which keep undisturbed area water from going into the pit will be designed, constructed and maintained to safely pass the peak runoff from a 2-year 24-hour precipitation event. Any future permanent diversions/dikes will be designed, constructed, and maintained to safely pass the peak runoff from the 10-year, 24-hour precipitation events. A typical design for the channel type diversions is presented on FIGURE 911-1 (FIGURE 911-1.dwg). The typical design of a dike is shown on FIGURE 911-2 (FIGURE 911-2.dwg). Detailed design plans and locations for future diversions and dikes will be submitted to the Director for review and approval prior to construction.

PLATE 903-2 (PLATE 903-2.dwg), Post Mining Topography, shows the approximate location of the final drainage systems.

Ditches and berms will be utilized to convey runoff from disturbed areas into impoundments and for sediment control. The ditches and berms used to transport water into impoundments will be capable of safely passing the peak runoff from the 10-year, 24-hour precipitation event. A combination of ditches, berms, riprap, contour furrows, straw dikes, dugout ponds, earthfill or rock check dams and other effective methods will be used to reduce overland flow velocities, decrease runoff volume, or retain sediment within disturbed areas. These sediment control measures will be installed in appropriate locations using standard accepted methods.

No coal processing waste banks, dams, or embankments are planned to be constructed within the permit area.

900.B.(2). Overburden and Topdressing Handling and Storage

A combination of the shovel/truck, loader/truck, dragline and dozer push mining methods will be used to handle overburden and interburden materials. Overburden and interburden are usually blasted to facilitate the stripping operation. The majority of the overburden/interburden removed during mining will be utilized to backfill the pits. The overburden handling and storage an area for materials that will be used as backfill correspond to the mine cuts shown on PLATE 900-1(PLATE 900-1.dwg). Overburden/interburden materials removed from the initial cuts will be placed in initial overburden stockpiles. These stockpiles will be blended into the backfill spoil to create the post-mining topography. The locations of the initial overburden stockpiles planned within the permit area are shown on PLATE 903-1 (PLATE 903-1.dwg).

900.B.(3). Coal Removal, Handling, Storage, Cleaning and Transportation

Coal will be recovered from 1 to 9 seams using front-end loaders, hydraulic shovels, and scrapers. Bulldozers, motor graders, front-end loaders and scrapers will be utilized for cleaning and ripping coal prior to removal, as needed. Blasting of the coal seams

may be performed to facilitate removal. The coal removal areas correspond to the mine cuts shown on PLATE 900-1(PLATE 900-1.dwg). Coal will be loaded into haul trucks and transported to the truck dump or coal stockpile area shown on PLATE 903-1 (PLATE 903-1.dwg). The truck dump consists of a hopper and feeder/breaker system and a secondary crusher. A conveyor system moves the crushed coal to one of three stacking tubes. Stacking tubes are connected to the train loadout with a conveyor. Enclosures, water sprays, and/or atomizers are used to control fugitive dust emissions from the coal handling facilities. Unit trains are used for coal shipments to customers, and will utilize the existing rail loop for coal loading. All of the planned coal handling, storage, and transportation facilities are shown on PLATE 903-1 (PLATE 903-1.dwg). These facilities will be routinely maintained to ensure proper functioning and safe and healthy working conditions. The coal handling and storage facilities will be removed at the conclusion of mining. Coal remaining on the surface will either be covered with an adequate thickness of suitable materials or removed to the depth where suitable materials are encountered. The disturbance will then be graded, topdressed, and revegetated in accordance with the reclamation plan.

900.B.(4). Spoil, Coal Processing Waste, and Non-Coal Waste Facilities

The removal and handling of overburden/interburden materials will be accomplished using the shovel/truck, loader/truck, dragline and dozer push mining methods. Spoils will be transported to designated fill areas by haul trucks or directly sidecast into a previous pit by the dragline. The mine cuts shown on PLATE 900-1(PLATE 900-1.dwg) represent the removal, handling, transportation and storage areas for the majority of the spoil materials.

Excavated overburden/interburden materials from the initial cut areas will be stockpiled adjacent to the initial pits. The location of the initial overburden stockpiles planned to be developed within the permit area is shown on PLATE 903-1 (PLATE 903-1.dwg). Site preparation will involve removing soil and vegetation from the fill area. Temporary overburden stockpiles will be constructed and maintained to maximize stability of the fill. The fill materials will be hauled and placed in horizontal lifts in a controlled manner that

encourages compaction, and graded along the contour. Berms will be installed around the base and top of the stockpiles to minimize erosion. The stockpiles will be blended into the spoil that is backfilled into the initial pits to become part of the permanent post mining topography.

A refuse disposal plan will be implemented for non-coal waste generated at the mine. The non-coal waste materials will be collected and stored in appropriate containers prior to disposal. Covered dumpsters located at the mine office, coal lab, and near the shop/warehouse complex are to be used to temporarily hold non-coal wastes such as glass, wood, paper, boxes, metal, plastic, rubber, etc. These non-coal waste materials are to be disposed in the backfill of the pits at least twenty feet below the final surface. The relatively small quantity of this material, combined with the advancing nature of the backfill, minimizes the amount in a particular area. Used lubrication and cleaning fluids will be collected in drums or in above-ground, steel storage tanks with impermeable secondary containments located at the shop/warehouse complex. Additionally, non-coal waste such as shop rags, paint, oil filters, gasoline filters, fluorescent light tubes, and pressurized paint cans, will be containerized. The contents of the drums and containers will be periodically removed by a transporter and delivered to a recycling company or permitted waste disposal site.

Soil or overburden contaminated with petroleum products caused by spills or leaks will be land farmed on site. The land farm area will be bermed and capable of containing the precipitation from a 100 yr/24 hr event. No run-on or runoff water will be allowed. Contaminated soils will be spread within the landfarm in approximately 6 inch lifts. Soils will be disked and watered as necessary to enhance biodegradation and control blowing dust. The land farm site is shown on PLATE 903-1 (PLATE 903-1.dwg).

Land farmed material will be considered remediated and ready to be disposed of in the backfill when total petroleum hydrocarbons (TPH) are below 1000 mg/kg, BTEX is below 50 ppm, and benzene is less than 10 ppm. A field soil vapor headspace measurement of 100 ppm (highest peak reading) may be substituted for a laboratory

analysis of the benzene and BTEX concentration limits when a PID or FID organic vapor meter (OVM) is used. The OVM will be calibrated to assume a benzene response factor. TPH levels, and a copy of the results will be sent to the Director. The land farm is located on the facilities map, PLATE 903-1 (PLATE 903-1.dwg).

Hazardous waste (paints, cleaning solvents, etc.) will be recycled or disposed of off-site in compliance with EPA's hazardous waste regulations.

900.B.(5). Mine Facilities

All of the mine facilities planned within the permit area are shown on PLATE 903-1 (PLATE 903-1.dwg). The mine facilities are designed and constructed to accommodate the anticipated production schedule and minimize potential negative environmental impacts. Routine maintenance activities are conducted to provide safe and healthy working conditions. At the conclusion of mining, the facilities will be removed and the associated disturbance graded, topdressed and revegetated in accordance with the reclamation plan.

The haul roads are designed and will be constructed in accordance with Subpart 916. Ramps into the pits will be advanced as mining progresses. Water trucks and motor graders will be used to maintain the primary and ancillary roads within the permit area. Locations for the entrance road and haul road are shown on PLATE 903-1 (PLATE 903-1.dwg). Roads not retained for use under the approved post-mining land use will be reclaimed when no longer needed for mining and reclamation.

A 115 KV transmission line will be installed within the permit area to provide power to the dragline. The planned transmission line will originate at the substation in the SE4 of Section 5, T16N, R9W and travel in a northeasterly direction to a substation in the dragline mining area. The transmission lines and substations for the electric shovels and dragline will be relocated as the pits advance. The electrical distribution system for the mine is periodically inspected and maintenance activities performed as required. Transmission lines and substations will be removed following mining and the

disturbance reclaimed.

900.B.(6). Water and Air Pollution Control Facilities

Impoundments, diversions, dikes, and sediment control measures are utilized at the mine for water pollution control. The locations for impoundments, diversions, and sediment ponds are presented on; PLATE 903-1 (PLATE 903-1.dwg) EXHIBIT 911-1 (EXHIBIT 911-1.dwg) and EXHIBIT 909-1 (EXHIBIT 909-1.dwg). Sediment control measures are used within the permit area to reduce overland flow velocities, decrease runoff volume, or trap sediment. Ditches and berms will be installed as needed in graded spoils to maintain suitable pit conditions and retain sediment within disturbed areas. A combination of ditches, berms, riprap, earthfill or rock check dams, straw dikes, erosion-control fabric, dugout ponds and other effective methods will be used in areas that have been topdressed to minimize erosion and reduce overland flow velocities until seeding and mulching have been completed.

Topdressed areas will be seeded with the permanent seed mixture and mulched during the first normal period for favorable planting conditions after final preparation. Interseeding may be conducted without mulch depending upon conditions. Any permanent impoundments which may be installed in reclaimed areas as a source of water for livestock would provide an added measure of sediment control following reclamation.

Air pollution control will be accomplished at the coal handling facilities through the use of enclosures, water sprays, and/or atomizers. Water trucks and routine maintenance activities will be used to control dust emissions from the haul roads and active mine areas. Dust control devices are installed on the drills utilized for preparing blast holes. Revegetation of disturbed areas that have been topdressed will stabilize the soil surface and reduce dust emission.

900. BIBLIOGRAPHY

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907. RECLAMATION PLAN: PROTECTION OF HYDROLOGIC BALANCE

907.A.

907.A.(1). Surface Water and Groundwater Quality

Surface water quality will be protected by a surface water control system consisting of diversions, dikes, impoundments, sediment control measures and mining and reclamation practices capable of minimizing adverse impacts. Temporary diversions and dikes will be used to direct overland flow and runoff in ephemeral arroyos from undisturbed areas around or through disturbed areas. The diversions and dikes will be designed, constructed and maintained to prevent additional contributions of suspended solids to stream flow and runoff outside the permit area, to the extent possible. Typical diversion and dike cross sections are shown on FIGURES 911-1 and 911-2 (FIGURE 911-1.dwg; FIGURE 911-2.dwg), respectively. Temporary diversions and dikes removed during mining will be graded, topdressed, and revegetated in accordance with the reclamation plan.

Initial sediment control for the mine area consists of 73 pit protection ponds (PPP) and mine sediment ponds (MSP) as shown on EXHIBIT 909-1 (EXHIBIT 909-1.dwg). Collectively these ponds will prevent runoff resulting from the 10-year, 24-hour storm from leaving the mine area. These 73 ponds are all of similar size and shape. Design hydrology runs are presented in EXHIBITS 909-2A through 909-2V (EXHIBIT 909-2A.doc, EXHIBIT 909-2B.doc, EXHIBIT 909-2C.doc, EXHIBIT 909-2D.doc, EXHIBIT 909-2E.doc, EXHIBIT 909-2F.doc, EXHIBIT 909-2G.doc, EXHIBIT 909-2H.doc, , , EXHIBIT 909-2K.doc, EXHIBIT 909-2L.doc, EXHIBIT 909-2M.doc, EXHIBIT 909-2N.doc, EXHIBIT 909-2O.doc, EXHIBIT 909-2P.doc, EXHIBIT 909-2Q.doc, EXHIBIT 909-2R.doc, EXHIBIT 909-2S.doc, EXHIBIT 909-2T.doc, EXHIBIT 909-2U.doc, EXHIBIT 909-2V.doc.

As the mine pits are opened, some of the pit protection ponds will be mined through, and surface runoff which was initially captured by those ponds will be captured by the mine pits.

Subsequent to regrading of the mine pits, sediment ponds will be established on the regraded area to provide sediment control until the Director authorizes removal, at which time all sediment ponds will be removed.

Sediment control for the facilities area consists of four sediment ponds (SP) as shown on EXHIBIT 909-1 (EXHIBIT 909-1.dwg). Collectively, these ponds will prevent runoff resulting from the 10-year, 24-hour storm from leaving the facilities area. The general plans and design hydrology for the facilities area sediment ponds (SP) are presented in EXHIBIT 909-2D and 909-2I.

The mining and reclamation operations will minimize adverse impacts by isolating unsuitable overburden/interburden materials from the potential root zone and contact with surface water, redistributing suitable topdressing materials, and implementing revegetation practices capable of stabilizing the soil surface. The development of rolling terrain with an increased drainage density during backfilling and grading will conserve soil moisture, promote revegetation success, and minimize erosion. Anticipated final surface contours for the areas to be disturbed by mining are shown on PLATE 903-2 (PLATE 903-2.dwg).

Additional protection of the surface water system will be provided through conducting reclamation activities as contemporaneously as practicable with the mining operations. Collectively, the use of diversions, dikes, impoundments, sediment control measures and appropriate mining and reclamation practices will contribute to protection of surface water quality.

Groundwater quality is not expected to be significantly impacted by the mining operations. The principal measures used to protect groundwater quality during mining

include backfilling and grading of the mining cuts as contemporaneously as practicable with the mining operations, pumping water that accumulates in the pits, and minimizing the area of disturbance. These practices, combined with the surface water protection measures, will minimize the exposure of spoil materials to contact with surface water and leachate. This will effectively protect the quality of the groundwater within and adjacent to the permit area.

907.A.(2). Surface Water and Groundwater Users and Rights

Surface water within the permit area is primarily restricted to ephemeral arroyos that flow only in direct response to storm events or snow melt and have channel bottoms that are above the local water table. The only use made of surface water within the permit area is occasional use by livestock and wildlife when the arroyos are flowing. Permanent livestock watering ponds may be included in the reclamation areas. If so, they will be designed in accordance with Subpart 19.8.20.2017.

The Cleary Coal Member of the Menefee Formation is minimally saturated and is not used as a groundwater supply within the permit area. Wells completed in the Point Lookout Sandstone to the north of the permit area are primarily used for stock water. The mining operations are not anticipated to affect the Point Lookout wells.

The water supply for the mine will be drawn from the Dalton Sandstone Member of the Crevasse Canyon Formation and the Gallup Sandstone of the Morrison Formation via South Hospah No. 1 (SEO File SJ-120(formerly C. & P. No. 1). The probable hydrologic consequences associated with pumping well SJ-120 are discussed in detail in EXHIBIT 907-1 (EXHIBIT 907-1.pdf).

The potable water supply will be treated, if necessary.

South Hospah No. 1 was completed in 1975 prior to closing of the San Juan Underground Water Basin. Declaration Number SJ-120 EXHIBIT 707-1 (EXHIBIT 707-

1 DECLARATION OF UNDERGROUND WATER RIGHTS.pdf) was filed October 26, 1976, with the New Mexico State Engineer appropriating 650 acre feet per annum.

Additional Wells are listed with location coordinates and use in Table 804-2.xls

907.A.(3). Surface Water and Groundwater Quantity

The quantity of surface water available within and adjacent to the permit area will be maximized to the extent possible during mining by diverting runoff from undisturbed areas away from or through disturbed areas. Backfilling and grading of the mining pits, drainage reconstruction, redistribution of topdressing materials that have properties similar to the native soils, and revegetation with species that naturally occur in the area are expected to result in post-mining surface water quantities that approximate the pre-mine conditions.

Mining activities will be restricted to the Cleary Coal Member of the Menefee Formation. The majority of the lithologic units constituting the Menefee are in an unsaturated condition. Limited groundwater occurs in some of the sandstone units and coal seams in the Menefee Formation. Sandstone and coal within the Menefee are generally lenticular and tend to lack lateral continuity. Due to the discontinuous nature of the water-bearing units, any changes in the quantity of groundwater in this formation are expected to be very localized and relatively minor. Significant groundwater inflows have not previously been encountered in the mining pits at the Lee Ranch Mine, which has similar hydrology. The major recharge area for the Menefee Formation or the underlying Point Lookout Sandstone will not be disturbed by mining. The dominant factor controlling the quantity of water available for recharge following mining will continue to be evapotranspiration. Excavation of the overburden/interburden and removal of restrictive shale layers are expected to increase vertical permeability and porosity in the backfill areas. Spoil permeability will likely approach the pre-mining conditions as settlement occurs. Considering the size of the area to be disturbed in relation to the total recharge area, any changes in recharge associated with the mining and reclamation operations will not be significant relative to the total recharge volumes.

Minimizing the area of disturbance, and conducting backfilling and grading as contemporaneously as practicable with the mining operations are expected to adequately protect groundwater quantities.

907.A.(4). Water Quality for Underground Mines

No underground mines exist or are proposed for the permit area.

907.B.(1). Surface Water and Groundwater Control

Impoundments, diversions, dikes, and sediment control measures will be used to control drainage into, through, and out of the permit area. Runoff from disturbed areas will be controlled using impoundments or other approved methods. Overland flow and runoff in ephemeral arroyos from undisturbed areas will be directed around or through disturbed areas using diversions and dikes. Sediment control measures will be used to stabilize critical areas, reduce overland flow velocities, decrease runoff volumes and retain sediment within disturbed areas.

Backfilling and grading to a stable landscape configuration, drainage reconstruction, topdressing redistribution, and revegetation are expected to result in runoff characteristics within and adjacent to the permit area that are similar to the pre-mine conditions. As shown in TABLE 805-1, post-mining discharge rates are 5% to 27% less than the pre-mining rates. This is primarily the result of salvaging the sandier soils for reclamation which results in slightly lower runoff curve numbers. Haul roads, ramps, and final cuts are planned to be developed as drainages following mining. The design objective of the post-mining topography, top dressing placement and revegetation is to create a post-mining landscape, which exhibits erosional stability, maintains surface water runoff quality and which is compatible with the post-mining land uses.

Practices listed in NMAC 19.8.20.2009.D(2) will be emphasized in the final topography design, such as stabilizing disturbed areas through land shaping (to achieve geomorphically appropriate slopes, drainage densities, and channel profiles) and regulating the channel velocity of water (by constructing channel slopes, cross sections,

and substrate according to hydrogeomorphic principles). Requirements of NMAC 19.8.20.2012.E for stream channel restoration to *"establish or restore the stream to a longitudinal plan and profile, gradient and cross-section, including aquatic habitats (usually a pattern of riffles, pools, and drops rather than uniform depth) that approximate premining stream channel characteristics"* will be addressed using established fluvial geomorphic principles in its hydrologic restorations.

The drainage density, defined as channel length per unit of land area (e.g., mi./sq. mi. or feet/acre), was measured in undisturbed land from surrounding areas that are representative of soils and slope angles used in the reclamation. The undisturbed lands had average drainage density values ranging from less than 20 linear feet per acre to 110 linear feet per acre, with an average of around 60 linear feet of stream per acre. This range of drainage densities is applicable for the design of reclamation areas at El Segundo Mine. The soil types, slopes, etc. are considered when selecting an appropriate reclamation drainage density. This drainage density will generally be accommodated by first and second order minor channels on the valley slopes and by the major channels in the valley bottom.

Sinuosity added to the major drains will further increase the stability of the channels. Major drains are designed to accommodate the overall cut and fill balance and are shown on PLATE 903-2. The drains depicted on the contours are considered the flood plain of the drain with a smaller drain in the center designed to take smaller flows. TABLE 903-2 shows values for bottom width, sinuosity, drainage density, and side slopes for typical larger watersheds within the final planned topography of the permit area. There are three typical watershed areas (500acres, 1500acres, and 3000acres). These three typicals are meant to facilitate the design of main drainages on the post-mining topography.

Erosional stability is primarily a function of water course channel stability. In the arid environment, a channel will be stable if it transports the same amount of sediment that

is delivered to it by the watershed above it. The post-mining channels have been proportioned with slopes and cross sections similar to the pre-mining channels. Reclaimed channel slopes have been matched to both upstream and downstream slopes to maintain pre-mining sediment transport capacities. This results in channel profiles which are generally flattening (become less steep) in the downstream direction.

Maintenance of surface water runoff quality is primarily a function of hill slope sheet and rill erosional stability. Pre and post-mining erosion rates are discussed in Subpart 805.B. The post-mining erosion rate is slightly lower than the pre-mining rate (i.e. 0.39 tons/ac/yr versus 0.43 tons/ac/yr). The erosion rates are a function of the climate (rainfall), soil, erodibility, slope length (drainage density), slope, cover (vegetation), and management practices. These factors have all been considered to achieve acceptable post-mining erosion rates.

As discussed in Subpart 906.B.(4), topdressing thickness will be varied depending on soil type, topography and spoil suitability. Varying the topdressing thickness will result in micro-topography, which will further increase drainage density and result in increased landscape stability.

As discussed in Subpart 906.B.5, the revegetation plan is designed to establish a permanent vegetative cover of native plants, which will support the post-mining land use of rangeland. Plans containing channel profiles and peak flow velocity calculations for major drainages created where haul roads, ramps, and final cuts existed in the mining areas will be provided to the Director prior to final grading.

Minimizing the area of disturbance to the extent possible and conducting backfilling and grading as contemporaneously as practicable with the mining operations will control the quantity of groundwater that enters the mining pits. Ditches, berms, and sumps will be used to control surface runoff and groundwater in the pits. Water that accumulates in the pits may be used for dust suppression or pumped to temporary impoundments, which will provide a source of water for livestock or wildlife. The groundwater

monitoring data presented in TABLE 804-2 (TABLE 804-2.xls) for the Menefee Formation indicates that the water is suitable for livestock and wildlife consumption. A depressurization plan will be submitted to the Director for review and approval prior to implementation, in the event dewatering ahead of the mining operation is required to maintain suitable pit conditions. Significant groundwater inflows are not anticipated.

907.B.(2). Treatment Plan

Temporary impoundments are the only treatment facilities planned for surface and groundwater drainage from disturbed areas. The impoundments are expected to be capable of providing the treatment required to meet the effluent limitations specified under Subpart 2010 and NPDES discharge.

907.B.(3). Restoration of Recharge Capacity

Mining will not occur in the major recharge areas for the Cleary Coal Member of the Menefee Formation or the Point Lookout Sandstone. The principal recharge area for the Menefee Formation and Point Lookout Sandstone is in and around outcrops located to the south and southwest of the permit area. Recharge through the soil is limited by the high evapotranspiration rates characterizing the area. Discussion of the pre-mining recharge characteristics of the Menefee Formation and Point Lookout has been presented in Subpart 804.

The recharge capacity of the pre-mining and post-mining areas is expected to be similar. Evapotranspiration will continue to be the dominant factor controlling the quantity of water available for recharge following mining. Fracturing of the overburden/interburden and elimination of restrictive shale layers are expected to increase vertical permeability and porosity in the backfill areas. Permeability of the spoils will likely approach the pre-mining conditions as settlement occurs. The redistribution of approximately 1 foot of topdressing materials in a manner designed to minimize compaction will initially result in higher infiltration rates. The infiltration rates are expected to approach the pre-mining conditions over time. Considering the size of the area to be disturbed in relation to the total recharge area, any changes in recharge

associated with the mining and reclamation operations will not be significant relative to the total recharge volumes.

907.B.(4). Groundwater and Surface Water Monitoring Plan

This plan contains a description of the ground-water monitoring system, Monitoring procedures, and data log for El Segundo Mine. Included in the plan is a description of the wells to be monitored and the procedures to be followed in monitoring ground-water levels and quality.

907.B.(4).(a). Groundwater Monitoring Plan

Geologic Zones

There are three distinguishable geologic zones at El Segundo Mine. They are the alluvium (Qal) in Orphan Annie Wash and Inditos Draw, the Sandstones and coals in the Menefee Formation (KMf), and the Point Lookout Sandstone (KPl).

Alluvium: Three alluvial monitor wells have been installed at the mine (Qal- 1, Qal-2, and Qal-3). Saturated alluvium has not been detected in any of the three wells. They will not be monitored under this plan. The locations of Qal-l, Qal-2, and Qal-3 are shown on PLATE 804-1 (PLATE 804-1.dwg;).

Menefee Formation. Three monitor wells have been completed in the Menefee Formation (Kmf-1, Kmf-2, and Kmf-3). In general, the lower coal zones in the Menefee exhibit limited saturation. As a result, these Menefee wells will not be monitored. The locations of the Menefee wells Kmf-1, Kmf-2, and Kmf-3 are on PLATE 804-1 (PLATE 804-1.dwg; The Menefee monitor wells are completed in the lowest coal seam to be mined and will be mined through as encountered without plugging.

Point Lookout Sandstone: Two monitor wells and four piezometers have been completed in the Point Lookout Sandstone (Kpl-4, Kpl-5, P-1, P-2, P-3 and P-4) for groundwater monitoring use. Construction diagrams of the wells are shown on FIGURES 907-1 through 907-6 (FIGURE 907-1.dwg; FIGURE 907-2.dwg; FIGURE

907-3.dwg; FIGURE 907-4.dwg; FIGURE 907-5.dwg; FIGURE 907-6.dwg). Locations are shown on PLATE 804-1 and PLATE 903-1 (PLATE 804-1.dwg; PLATE 903-1.dwg). Piezometric levels and water quality samples will be collected on a quarterly basis from monitor wells Kpl 4 and Kpl-5. Only water levels will be monitored in piezometers P-1, P-2, P-3 and P-4.

All Kpl piezometers and wells will continue to be monitored and remain in place as long as possible. Wells may be sealed when the well is within one year of the pit high wall based on the approved mining sequence. PRNC will notify MMD when any monitor wells are removed. PNRC will install a replacement monitor well if MMD believes it is necessary for continued monitoring. Replacement well location will be approved by MMD.

The wells will be sealed off using a tremie pipe to pump high viscosity cement bentonite slurry to the bottom of well with sufficient volume to stabilize above the casing perforations.

The ground-water monitoring system also includes Orphan Annie Well. Although data on the well is not available, it is probably completed in the Point Lookout, based on its reported depth. Only water quality samples will be collected at Orphan Annie Well using the installed electric submersible pump.

Additional Deep Groundwater Level Monitoring

Additional groundwater level monitoring in existing wells will be conducted as outline below:

Formation	Well Location	Distance from South Hospah No. 1 (Miles)	Well Use	Existing Water Level Record (years)
Dalton	15.9.6.213	6	Stock	None
Gallup	16.11.17.432	10	Stock?	20
Gallup	17.10.34	1.5	Mon/Prod	0
Gallup	16.9.5	3	Prod	0

The Dalton Well is a stock well owned by the Fernandez Company. It will be measured annually by LRCC after a period of non-pumping when possible. The Gallup is part of an ongoing annual water level monitoring program conducted by the USGS and OSE will be monitored for the first two years to attempt to correlate water level information with the two new proposed wells. Data from the Gallup well will be obtained from the USGS and submitted to the MMD in the annual report. The two new proposed wells will be installed after approval of the permit prior to mining. The new wells will be primarily for water level monitoring and may be used for emergency backup for production water. Water Level measurements for the new Gallup and Dalton wells will be conducted quarterly and the Gallup well will be sampled in the third quarter.

Monitoring Procedures

On a quarterly basis, each of the 7 active ground-water monitoring wells (KPL-4, KPL-5, P-1, P-2, P-3, P-4, and Orphan Annie Well) at El Segundo Mine is to be visited by a technician for the purpose of data collection. Additionally, the Dalton Well (15.9.6.213) will be visited annually for the purpose of water level monitoring. Each location is accessible by existing roads and trails. Only the static water level is to be taken at the piezometers P-1, P-2, P-3 and P-4.

Prior to the sampling event and with regard for expiration dates of bottles, the laboratory will be notified and sample bottles ordered for the parameter list shown on TABLE 907-1 (TABLE 907-1.doc). Approximately one week prior to the sampling event all equipment and materials to be used will be gathered together and checked for good working order.

If defective equipment is found repairs will be performed. Materials such as filters and field note forms will be obtained at this time.

Water level measurements need to be completed in all wells on the same day to provide the highest quality data for potentiometric surface mapping. The well identification, depth to water and time of measurement will be recorded on the Monitor Well Water Level Record form [TABLE 907-2 (TABLE 907-2.doc). The previous quarter's depth to water measurements should be available for comparison purposes. This will help reduce transcription errors. Once a year, the total depth of wells not containing electric submersible pumps will also be measured. The wells will not necessarily be measured in sequential order, but will be measured in an efficient order to minimize field time. For wells equipped with electric submersible pumps the following is a list of equipment required for the field operations.

Generator
220-volt extension cord
Discharge hose
Assorted Dole valves
Graduated 5 gal bucket for discharge measurements
Field parameter meter, stand and beaker
Shade for field parameter meter
1-liter plastic beaker
Monitor Well Sampling Record forms
Previous Monitor Well Sampling Record
Monitoring Well Location Map
Tools
Sampling gloves
Sample bottles
0.45-micron filters (optional)
Filter tubing (optional)
Labels
Cooler

Ice or cool packs
Chain of custody forms
Filter Pump (optional)
Deionized Water

Prior to each day's sampling, the pH/temp/cond meter will be calibrated to fresh pH and conductivity standard solutions.

The following procedure will be used to take water samples from wells (KPL-4, KPL-5, and Orphan Annie) with pumps:

Upon arrival at the well site, open well and take static water level measurement (excluding Orphan Annie Well). Calculate required purge volume using the equation listed on the Well Sampling Record [TABLE 907-3 (TABLE 907-3.doc). Make the connections for the generator and discharge hose. Select appropriate dole valve for well (check previous quarters Monitor Well Sampling Record). Tighten discharge tube connection with wrenches to prevent leaks. Set up field parameter meter in beaker on stand in graduated bucket. Place sun shade over meter. Arrange discharge hose and meter beaker so discharge will continuously flow into meter beaker or so meter beaker is in constant contact with discharge to maintain stable temperature.

Record start time and time when water first discharges from pump. Record temperature, pH, conductivity, time and volume as soon as possible after the pump is started and at regular intervals (approx. 10% of purge vol.) thereafter until the purge volume is reached. Do not take readings closer than 5% of the total purge volume.

Determine the pump discharge rate by measuring the number of seconds required to fill a specific number of gallons into the graduated bucket (Note the

gpm in the comments column). The gallons per minute of discharge can be determined using the following equation:

Gallons / Seconds / 60 = *Gallons per Minute*

The total gallons purged (volume) at a particular time can be determined by multiplying the gallons per minute by the elapsed time since the pump was started in minutes.

When three consecutive conductivity readings are within ± 20 micro mhos and the required purge volume has been met, laboratory samples can be collected from the pump discharge tube.

Set the pump discharge to obtain a slow smooth discharge and fill all sample bottles except the bottle to be used for dissolved metals analyses. Fill a 1 liter plastic beaker approximately half full with the well water. Run this water through a 0.45 micron filter, using either a manual or electric peristaltic pump, and into the dissolved metals analysis bottle. Alternatively, the sample for dissolved metals analysis can be filtered at the lab. Label all sample bottles and place on ice in a cooler. Record the sample collection time and sampler's initials on the Monitor Well Sampling Record form. Record additional information such as weather and water clarity as listed on the Monitor Well Sampling Record. Note any problems encountered during the sampling procedures.

Low-producing wells not capable of producing the full required purge volume on the day of sampling will be purged the day before sampling. This will allow the wells time to regenerate in order to achieve the best samples possible from wells without the capacity to follow exactly the above methods. Samples will be collected immediately upon start of pumping to ensure enough water can be collected for a viable sample.

The pH/temp/conductivity meter and plastic beaker should be cleaned between uses by rinsing with de-ionized water.

Following collection, sample bottles should be immediately labeled with the following information:

Date & time of collection
Mine Name
Well Identification
Analyses
Sampler's initials

Once labeled, samples will be immediately placed in a cooler and cooled. Samples will be shipped as soon as possible to an approved lab. Include a completed chain of custody form with the shipment. The samples will be analyzed using "Standard Methods for the Examination of Water and Wastewater", 15th Edition or 40 CFR Parts 136 and 434.

Data Management

As soon as possible after the laboratory analysis package is received, the results of the analyses will be typed into the Analytical Results spread sheet [TABLE 907-4 (TABLE 907-4.xls)]. Once the data is in the spread sheet, the results will be compared to the previous sampling results to determine if the results are reasonable. If a particular parameter does not follow the previous results trend, the laboratory will be contacted to re-check the analysis. If the laboratory does not find a problem, the well will be re-sampled as soon as possible to confirm the result.

The original laboratory reports should be archived in a permanent groundwater-monitoring file.

Reporting

A quarterly Groundwater Monitoring Report will be made to the Director. The report will contain water levels and water quality results.

907.B.(4).(b). Surface Water Monitoring Plan

This surface-water monitoring plan has the capability of determining peak flow discharges and surface-water quality parameters, including total suspended solids and chemical quality, at points where surface-water enters or leaves the permit area.

In September 2001 five surface water monitoring stations were installed on or adjacent to the proposed permit boundary for El Segundo Mine. An additional station has been installed in the northeast corner of Section 33, T17N, R9W. The monitoring stations were surface water courses enter or leave the permit area. Surface water monitoring station locations are shown on PLATE 903-1 (PLATE 903-1.dwg).

Each station is located such that the assumptions of uniform flow through the station cross section are reasonably satisfied. Stage discharge curves for each of the monitoring stations were developed using Manning's Equation in conjunction with the station's surveyed cross section and channel profile. Each station consists of one or more crest stage gauges and one or more single stage sediment samplers. The number of single stage sediment samplers and crest stage gauges was determined by an analysis of the expected flow depth at each monitoring station location.
Crest stage gauges consist of a five-foot length of three-inch diameter PVC pipe fitted with a cap on each end and a wood staff inside the pipe. The PVC pipe is drilled at regular intervals along its length to allow the stream flow to contact the staff. Vegetative litter and sediment associated with the stream flow is deposited on the staff marking the highest stage during the flow. If flows in excess of five feet of depth are expected at a particular location, a series of crest stage gauges are stair-stepped up the channel bank [FIGURE 907-7 (FIGURE 907-7.dwg).

The single stage sediment samplers were developed by the U. S. Geological Survey for water quality and sediment sampling on remote ephemeral streams in New Mexico.

The sampler consists of a one-liter plastic bottle housed in a four-inch PVC pipe. FIGURE 907-8 (FIGURE 907-8.dwg) illustrates the construction of the single stage sediment samplers. When flow depths are expected to exceed three-feet in depth an additional sampler is installed at a higher elevation above the channel bottom.

The channel cross-section and slope were surveyed in the field during installation of each station. The Manning's Roughness Coefficient (Manning's n) was determined at each station using the information contained in Geological Survey Water Supply Paper, 1849, (Barnes, 1967). Stage discharge curves for each station were developed using the Manning's Friction Loss Equation. The surveyed cross-sections and respective stage-discharge curves for each of the monitoring stations are presented in EXHIBITS 805-3A through 805-3G (EXHIBIT 805-3A.xls; EXHIBIT 805-3B.dwg; EXHIBIT 805-3C.dwg; EXHIBIT 805-3D.dwg; EXHIBIT 805-3E.dwg; EXHIBIT 805-3F.dwg; EXHIBIT 805-3G.dwg).

Monitoring Schedule and Procedures

Each station will be monitored on a monthly basis, or as flow events occur. The surface water monitoring stations will remain in the field and will be monitored by the operator until the regulatory authority determines that the station is no longer required. When a station is no longer needed, it will be removed by the operator.

Monitoring Procedures

Following a noticeable flow event, or on a monthly basis, each of the six surface water monitoring stations at El Segundo Mine are to be visited by a technician for the purpose of data collection and servicing. Record all data in a field log book designated only for surface water monitoring. Access to each site is made on existing roads [see PLATE 903-1 (PLATE 903-1.dwg). At each site, the following procedures are followed by the technician:

> Upon arriving at a surface water monitoring station, record the date and time of the visit remove the slip cap from the crest-stage gauge and remove the wood staff to determine if a flow event has occurred. If so, litter and sediment will be

deposited on the staff at one or more points. Read and record in a field log book the maximum water level to the nearest 0.01-foot using a tape measure graduated in hundredths of a foot. Wipe the staff clean being sure to remove all traces of the previous flows. Reinsert the staff into the 3-inch plastic pipe and reinstall the cap. In a like manner, examine and service each of the crest-stage gauges if multiple gauges are present. It is only necessary to read and record the maximum depth of flow, which has occurred during the previous month. Remove the cap from each of the single-stage-sediment samplers and remove the one-liter plastic bottle. If it has captured a water sample, transfer the contents of the one-liter bottle to another plastic container, being careful to transfer all of the sediment and all of the water. Reinstall the one-liter bottle into the sampler and connect the hose and stopper to the bottle. Whether or not the sediment sampler captures a sample during the previous month, it is necessary to clean the intake and exhaust tubes. Clean the tubes by blowing through each if they are dry or washing if they are damp or wet. If a sample is collected, record the station number, the date, and whether it was recovered from the upper or lower sediment sampler, on both the bottle containing the sample and in the logbook. Periodically it will be necessary to disassemble the sediment sampler and clean sediment from inside the sampler housing.

When surface water samples are collected, they will be packed on ice and transported to an approved lab with the appropriate chain-of-custody form as soon as possible. They will be analyzed for the parameters indicated in TABLE 907-5 (TABLE 907-5.doc). The analyses will be performed utilizing "Standard Methods for the Examination of Water and Waste Water", 15th Edition (or current edition) or 40 CFR Parts 136 and 434.

On a quarterly basis, a report containing the points of sample collection, the date of collection, the field data, calculated flow discharges and the results of the laboratory analyses will be submitted to the Director.

TABLE 907-6 (TABLE 907-6.doc) is a blank report form which may be used for summarizing flow depths, discharges (determined from Stage/Discharge graphs), and water quality analyses for use in reporting the monitoring results. The laboratory reports and field data are to be archived in a permanent surface-water monitoring file reporting (see Groundwater Monitoring plan).

907.C. Probable Hydrologic Consequences

The probable hydrologic consequences associated with the surface coal mining operations proposed to be conducted at El Segundo Mine were assessed through an evaluation of relevant pre-mining environmental resources information and predicted post-mining conditions. Surface water, ground water, overburden/interburden, soils, topdressing, vegetation, and climatological data collected within and adjacent to the permit area were considered in the determination of the probable hydrologic consequences of the mining operation.

No significant adverse impacts are anticipated on the quantity or quality of surface water within the permit or adjacent areas due to the nature of the surface water system and the previously described protection measures. Surface water within the permit and adjacent areas is restricted to ephemeral arroyos that flow only in direct response to storm events or snow melt. No intermittent or perennial streams occur within the vicinity of the permit area. The water courses throughout most of the permit area are broad, flat channels. Flow depths for the 2-year, 24-hour precipitation event are generally less than two feet. A detailed description of the surface water hydrology within and adjacent to the permit area is presented in Subpart 805.

Watersheds for the major drainages that will be disturbed by mining are shown on PLATE 805-1 (PLATE 805-1.dwg). The greatest amount of runoff occurs in the summer months. This corresponds to the season of highest precipitation. Runoff in the fall exceeds that in the winter and spring, due to the higher soil moisture contents and greater thunderstorm activity. These relationships are not expected to change as a

result of mining, since the seasonal flow regimes in the ephemeral arroyos are closely related to the precipitation patterns in the area.

Soils and vegetation occurring within a watershed have a very marked effect on the amount of runoff. Redistribution of topdressing materials with properties similar to the pre-mining soils and revegetation with plant species that naturally occur in the area will minimize changes in runoff volumes within and adjacent to the permit area. Most of the reclamation areas that have been topdressed with the pre-mining topsoil will have a weighted mean texture of sandy loam. Post-mining infiltration rates are initially expected to be higher than the native soils due to the redistribution of topdressing materials in a manner designed to minimize compaction. This will result in a temporary reduction in runoff volumes. As the topdressing settles and vegetation becomes established, infiltration rates and runoff volumes are expected to approach the pre-mining conditions.

Impoundments used to contain runoff from disturbed areas are expected to result in a minor reduction in the quantity of surface water within the ephemeral arroyos during mining and reclamation. The diversion of runoff from undisturbed areas away from or through disturbed areas during mining and the reconstruction of drainages following mining are expected to minimize the potential for significantly altering the quantity of surface water within or adjacent to the permit area. Permanent livestock watering ponds are presently not planned but may be included in the reclamation areas. If so, they will be designed in accordance with Subpart 19.8.20.2017.

Surface water quality is not expected to be appreciably affected by the mining operations. Total suspended solids (TSS) contents are expected to be within the range of the pre-mining conditions. The use of impoundments, sediment control measures, topdressing materials with properties similar to the pre-mining soils, and revegetation of disturbed areas will minimize the potential for increases in TSS concentrations.

Localized increases in total dissolved solids (TDS) may occur as a result of exposing topdressing materials that have not been recently subjected to weathering. Increases in TDS contents will be minimized by using topdressing materials with properties similar to the pre-mining soils.

Trace element concentrations are typically very low in the topdressing and overburden/interburden. The alkaline or calcareous nature of these materials will further limit the potential for iron, manganese, and the other trace element constituents from exceeding the baseline conditions. Isolation of unsuitable overburden/interburden materials from the potential root zone will minimize the potential for contact with surface water. This will effectively limit changes in surface water chemistry. In summary, precipitation will be the dominant pre-mining and post-mining factor influencing the frequency, duration, and volume of runoff in the ephemeral arroyos within the permit and adjacent areas. Localized and temporary alterations in the quantity and quality of surface water are anticipated, but are not expected to persist following mining. The previously described mining and reclamation methods and protection measures will minimize the potential for significant adverse impacts on the surface water system.

Potential adverse impacts of the mining operation on the quantity and quality of ground water are expected to be relatively minor. A combination of aquifer characteristics, climatic conditions, and the planned mining, reclamation, and protection methods will be the primary factors minimizing adverse impacts.

The Cleary Coal Member of the Menefee Formation contains the minable coal seams. Groundwater occurs in some of the sandstone units and coal seams in the Menefee. Sandstone and coal within the Menefee Formation are generally lenticular and tend to lack lateral continuity. The majority of the lithologic units constituting the Menefee are in an unsaturated condition. Due to the discontinuous nature of the water-bearing units and the low transmissivities reported for the Menefee, this formation is not considered to be a significant aquifer within the permit or adjacent areas. The quality of the water in the Cleary Coal Member of the Menefee Formation limits use to a source of water for

livestock. A detailed description of the pre-mining ground water hydrology within and adjacent to the permit area is presented in Subpart 804.

Excavation of the overburden/interburden materials and disruption of restrictive shale layers during mining are expected to increase the vertical permeability and porosity of the spoils. Permeability of the spoils will likely approach pre-mining conditions as settlement occurs. The quantity of water that percolates through the backfilled materials is expected to be limited by the high evapotranspiration rates characterizing the area. Recharge capacities of the pre-mining and post-mining areas are expected to be similar. Considering the size of the area to be disturbed in relation to the total recharge area, any changes in recharge will not be significant relative to the total recharge volumes.

Fracturing of the overburden/interburden and the temporary exposure of the materials to weathering has the potential to affect ground water quality. Increased vertical permeability and porosity prior to settlement of the spoils may result in greater solute leaching and higher total dissolved solids concentrations in the ground water. The low precipitation and high evapotranspiration rates characteristic of the permit area will minimize the quantity of water that contacts the spoils and enters the ground water system. Backfilling, grading, topdressing replacement, and revegetation as contemporaneously as practicable with the mining operation will limit the time that the spoils are exposed to weathering and leaching. Trace element concentrations are not expected to increase significantly due to mining. Pre-mining overburden/interburden samples collected within the permit area indicate that trace element concentrations are typically below water quality standards for drinking water and/or livestock water. The alkaline or calcareous nature of the overburden/interburden will decrease the solubility of many trace element parameters. Minor alterations in ground water chemistry will essentially be restricted to the permit area due to the discontinuous nature of the water-bearing units and the low transmissivities reported for the Menefee Formation. The combined effects of dilution, dispersion, and adsorption will further minimize changes to ground water quality.

The Point Lookout Sandstone is unsaturated in the southern part of the permit area [PLATE 804-2 (PLATE 804-2.dwg)] partially saturated in the northeastern and west central parts of the permit area, and saturated under artesian conditions only in the northwest part of the permit area. Mining will not occur in the major recharge area for the Point Lookout Sandstone, which is south of the permit area.

The quality of the ground water in the Point Lookout Sandstone is not expected to be adversely impacted by the mining operations. This is attributable to the low vertical permeability in the Point Lookout Sandstone.

Mining is expected to result in the removal of up to 1 stock well within the permit area. That well (Orphan Annie Well) will be permanently closed. An alternative source of water supply will be provided from the mine supply well South Hospah No. 1.

The minimum dewatering of the mine pits is expected to have only local effects on the Menefee Formation in the immediate vicinity of the permit area.

Letters to the adjacent land owners can be found in Exhibits 908-1, 908-2, 908-3, 908-4, 908-5, 908-6.

907. BIBLIOGRAPHY

American Public Health Association, 1980. Standard Methods of the Examination of Water and Wastewater, Fifteenth Edition.

Barnes, Harry H., Jr. 1967. Roughness Characteristics of Natural channels, Geological Survey Water-Supply Paper 1849, U.S. Department of the Interior, Geological Survey.