

**RAILROAD COMMISSION OF TEXAS**  
**OFFICE OF GENERAL COUNSEL**  
**HEARINGS SECTION**

**SMRD DOCKET NO. C14-0009-SC-54-C**  
**LUMINANT MINING COMPANY LLC**  
**APPLICATION FOR RENEWAL/REVISION OF PERMIT NO. 54, TURLINGTON MINE**  
**FREESTONE COUNTY, TEXAS**

**ORDER OF APPROVAL OF APPLICATION FOR RENEWAL/REVISION/EXPANSION  
OF PERMIT NO. 54**

**Statement of the Case**

Luminant Mining Company LLC (Luminant), 1601 Bryan Street, Dallas, Texas 75201, applied to the Railroad Commission of Texas (Commission), Surface Mining and Reclamation Division, for renewal/revision of its Permit No. 54 for its Turlington Mine in Freestone County, Texas. The application was filed pursuant to the Texas Surface Coal Mining and Reclamation Act, TEX. NAT. RES. CODE CH.134 (Vernon Supp. 2014) (Act) and the Commission's "Coal Mining Regulations," Tex. R.R. Comm'n, 16 TEX. ADMIN. CODE CH. 12 (Thomson West 2014)(Regulations). Permit No. 54 was issued on June 6, 2010 and contained approximately 10,397 acres. This application proposes to renew the permit for an additional five-year term denoted as 2014-2018 and to expand the permit boundary by an additional 53 acres for a total of approximately 10,450 acres.

The proposed permit area is located adjacent to the existing Big Brown Mine, Permit 3F and shares a common boundary to the north. Copies of the application were filed in required county and Commission offices and distributed to required local, state, and federal agencies for review and comment. Notice of the application was published in newspapers of general circulation in Freestone County. Written comments were made on the application following public notice and notice to agencies and landowners. These comments are addressed in the findings of fact contained in this Order. No hearing was requested. Luminant has addressed all issues relating to the application in accordance with the Act and Regulations, with the permit provisions as included in this Order. The parties to the proceeding are the applicant, Luminant Mining Company LLC, and the Commission's Surface Mining and Reclamation Division (Staff).

Luminant has accepted the Staff's Technical Analysis. Based upon the application, as supplemented, evidence presented, and the Staff Technical Analysis, and considering the comments filed by concerned agencies, all factual issues have been addressed as required by the Act and Regulations that are within the jurisdiction of the Commission. The Commission approves the application, as supplemented, as set out in the Findings of Fact, and with the permit provisions included as Appendix I to this Order (Appendix V in Staff's TA), and the Soil Testing Plan included as Appendix II to this Order (Appendix VII, Staff TA).

Luminant is currently bonded by Order dated June 17, 2014 with a blanket collateral bond for Luminant's statewide mining operations in Texas in the amount of \$1.1 billion. The Commission also determines that the approved reclamation performance bond remains sufficient and determines that Permit No. 54A may be issued.

**FINDINGS OF FACT**

1. By letter dated December 9, 2013, Luminant Mining Company LLC (Luminant) filed its application for renewal/revision of the Turlington Mine permit, Permit No. 54, consisting of six volumes, with the Railroad Commission of Texas (Commission). The application was filed pursuant to the Texas Surface Coal Mining and Reclamation Act, of TEX. NAT. RES. CODE CH.134 (Vernon Supp. 2014) (Act) and the

Commission's "Coal Mining Regulations," Tex. R.R. Comm'n 16 TEX. ADMIN. CODE CH. 12 (Thomson West 2014) (Regulations). A five-year permit term is proposed by this application. The proposed permit area, consisting of approximately 10,450 acres, is located adjacent to the existing Big Brown Mine, Permit 3F, and shares a common boundary on the northern side of Permit No. 54. The extreme northwest permit boundary contains a narrow strip of land that ties into an existing industrial complex facility associated with the Big Brown Power Plant. The Turlington Mine is located approximately seven miles east/northeast of Fairfield, Texas. The proposed permit area is generally described as follows: the northern boundary is adjacent to the existing Permit 3F boundary and also formed by Freestone County Road (FCR) 235. The eastern boundary is also formed by FCR 235 and various property boundaries, and is located approximately four miles due west of the Trinity River. The southern boundary is formed by various property boundaries, and is located approximately three miles north of Highway 84 near the community of Antioch. The western boundary is located immediately due east of Lake Fairfield and along various property boundaries. Surface mining activities at the Turlington Mine are expected to continue for approximately ten years, subject to Commission approval of permit renewal(s).

2. Staff declared the application administratively complete on December 20, 2013 and filed the application with the Hearings Division. By letter dated April 24, 2013, Staff also filed a letter that included deficiencies noted by Staff in its review, and indicated that it did not recommend approval of the application at that time. Staff included approximately 85 deficiencies, some with multiple deficiencies and 27 non-substantive comments. Luminant filed Supplemental Document No. 1 (SD1) by letter dated December 19, 2013, consisting of material for Section .147 of the application that Staff incorporated into the application, and Supplement No. 2, made up of two volumes, by letter dated October 21, 2014. Staff noted that deficiencies remained, and Luminant filed Supplement No. 3 by letter dated February 18, 2015, and Supplement No. 4 by letter dated March 6, 2015. Staff filed its Technical Analysis document (TA), reviewing the application and Supplemental Documents Nos. 1-4 ("SD1," "SD2," "SD3, and SD4") by letter dated March 12, 2015. Staff's reclamation cost estimate was included in the TA Appendix II. The application, as supplemented, consists of a total of 9 volumes and an additional folder. Staff recommends 16 permit provisions.
3. All information contained in the supplements was for the purpose of supplementation, clarification, limitation, or correction of data and information addressed in sections of the administratively complete application. The application and all supplements were appropriately placed on file for public inspection. The information contained in the supplemental documents does not constitute a material change to an application for which additional notice must be provided pursuant to §12.212(d) of the Regulations. The required public notice was published after the filing of the application. The notice indicated that the application might be further supplemented. The supplementary documents were filed to address Staff exceptions to compliance and proposed permit provisions presented in the Technical Analysis document. The supplementary information does not result in any material effects on landowners or the environment greater than those initially proposed or a need for additional notice.
4. Luminant proposes to mine approximately 956 acres (Table 119-1, SD2) during the five-year renewal term. During the renewal term, the mining operation will continue in the DI-Area for approximately one to two years. Then mining operations will commence in the F-Area (subject to the permit provisions contained in Appendix I to this Order), and will continue through the permit renewal term. Several sedimentation ponds, diversions and roads will be constructed in support of the mining operation. During construction of the sedimentation ponds, and/or diversions, lignite coal may be encountered and if so, will be salvaged and stockpiled at an approved location.
5. The application, as supplemented, has met the requirements of §12.107 for format and content, with



adoption of the Findings of Fact and permit provisions in Appendix I and the Soil Testing Plan in Appendix II. Form SMRD-1C was filed for the application and each supplement. In the application, as supplemented, the information is current, presented clearly and concisely, and is supported by appropriate references [§12.107(b)]. Technical data has been submitted as required [§12.107(c) and (e)]; the data were prepared by or under the direction of professionals in the subjects analyzed [§12.107(d)]. A responsible official of the applicant verified the application as supplemented under oath, stating that the information is true and correct to the best of the official's information and belief [§12.107(g)].

6. The application was filed at least 180 days prior to the projected commencement of operations as set out in §12.106(b)(2) of the Regulations. The required filing fee of \$3,000 has been paid.
7. Notice of application was published once each week for four consecutive weeks in a newspaper of general circulation in the locality of the surface mining and reclamation operations in *The Fairfield Recorder* on February 13, 20, 27, and March 6, 2014 and in *The Freestone County Times* on February 12, 19, 26, and on March 9, 2014 in the locality of the proposed operations. Luminant identified the location of the public offices where the application, as supplemented, was filed in accordance with §12.122 of the Regulations, in the offices of the Freestone County Clerk and the Railroad Commission of Texas in Austin, Texas, and submitted an original affidavit and news clippings proving required publication (§12.123 of the Regulations). The notice of application as published contains all information required by the Act and the Regulations (Finding of Fact No. 3).
8. In accordance with its policy, the Commission placed notices of application in first-class mail on February 12, 2014 to owners of interests in lands within the permit boundary and tracts adjacent to the permit boundary. Returned notices of this mailing for which updated or corrected addresses were available were re-mailed. Luminant was advised of notices that were returned with insufficient addresses, and Luminant updated addresses as available.
9. Also on February 12, 2014, the Commission placed notices of application and cover letters as first-class mail or interagency mail, as appropriate, to the required divisions of the Texas Commission on Environmental Quality (TCEQ); Texas Historical Commission (THC); University of Texas, Bureau of Economic Geology; Texas State Soil and Water Conservation Board; Texas Parks and Wildlife Department (TPWD); General Land Office; USDA, Natural Resources Conservation Service (NRCS); USDI Fish and Wildlife Service (USFWS), and USDI Office of Surface Mining Reclamation and Enforcement (OSM), to the U.S. Department of the Army Corps of Engineers (USACE), and to the Freestone County Clerk and County Judge.
10. After public notice, no individuals submitted comments or requests for hearing. Three agencies filed written comments that have been reviewed by Staff and the examiner. The comments have been adequately addressed by the applicant and by the permit provisions contained in Appendix I to this Order.
  - (a). The NRCS, U.S. Department of Agriculture, filed a letter dated February 26, 2014 indicating that it had reviewed the notice of application and that all environmental and natural resources issues were adequately addressed in the reclamation plan. The NRCS indicated that the project should have no significant adverse impact on the environment or natural resources of the area, and that the agency does not require any permits, easements, or approvals for the activities proposed.
  - (b). The USFWS filed a comment letter dated April 8, 2014. The comments have been satisfactorily addressed as set out in the application, supplements, and these Findings of Fact.

- (1) The USFWS commented that it is concerned regarding rare wetland plant communities such as pitcher plant bogs, peat bogs and several wetland dependent species of concern that occur in the post oak savannah regions of Texas such as the permit area and impacts to these areas and species. Luminant has successfully transplanted a bog that was located within the permit area and plans additional mitigation. The Commission adopted a Staff-recommended permit provision (No. 6) in the initial permit that required that Luminant conduct pre-disturbance surveys for bogs and related species Yellow-Eyed Grass and the Rough-Stem Aster and report its findings to the Commission at least 30 days prior to impacting any bogs and wet areas. Bogs had been identified as areas of unusually high value habitat required to be identified [§12.133(a)(2)(B2)], although they may not be wetlands subject to identification, inventory, and mitigation. Bog habitat and Yellow-Eyed Grass are addressed in Finding of Fact No. 24(f). Permit Provision No. 6 is no longer needed.
- (2). The USFWS expressed concern that stream and wetland impacts might not be offset by reclamation and that attenuation of peak flows could affect the hydrology of the streams and that the potential lack of long-term protection on leased properties may not ensure mitigation success of streams and forested wetlands. Because of these concerns, the USFWS made specific recommendations that have been addressed by Luminant.
  - (i). The USFWS recommended that stream and wetland impacts should be avoided and minimized to the maximum extent practicable and that mitigation should be in-kind for stream and wetland resources, that Luminant should use natural minimally impacted wetland and stream reference sites to design mitigation, that Luminant should work with resource agencies to track the success of mitigation, and that the Commission should clearly identify the party responsible for the implementation, performance, and long-term management of mitigation. Commission regulations do not require reference areas for stream and wetland reclamation sites. Luminant's baseline surveys provide information appropriate for use in reclaiming and mitigating these areas, as supplemented in the application and in accordance with the permit provisions contained in Appendix I to this Order. Luminant has addressed mitigation ratios in its approved USACE permit (Finding of Fact No. 11). In-kind mitigation will occur; approval of the USACE Fort Worth District office is required for any out-of-kind mitigation. Luminant has clearly indicated that it is the responsible party for the implementation, performance and long-term management of mitigation.
  - (ii). The USFWS recommended that Luminant provide additional compensatory mitigation and suggested that Luminant place stream and wetland reclamation sites under its ownership into a conservation easement with a qualified third-party land trust and third-party monitoring, with funding by an endowment with an accounting. The USFWS stated its opinion that deed restrictions are not adequate for perpetual conservation and are not acceptable to the USFWS. Deed restrictions for this purpose are not required by the regulations. Stream and wetland impacts have been addressed by Luminant (Finding of Fact No. 11). Luminant indicates that it will pursue conservation easements where appropriate. Endowments for reclamation mitigation are not required by the Commission's regulations.



- (3). The USFWS commented that the permit area is within the "central flyway," a major bird migration corridor, including wintering and breeding birds. With regard to threatened and endangered species, the agency indicated that it would communicate with Luminant regarding protection of the endangered interior least tern (*Sterna antillarum*) and that Luminant should evaluate potential effects on the endangered whooping crane (*Grus Americana*). For the interior least tern and whooping crane, Luminant has evaluated potential effects on these two birds and has a plan for compliance with the Migratory Bird Treaty Act; Staff indicated that Luminant had not updated this plan nor documented updated coordination with the USFWS to ensure that the plan is based on current conservation science and the best technology available to protect migratory birds. Both birds are state and federally-listed endangered species. Whooping cranes are possible migrants through the permit area, but they have not been observed within the permit area. These birds and the threatened wood stork are also addressed in Finding of Fact No. 34, subparagraphs (a) and (e) (updated fish and wildlife resource protection and enhancement plan).
- (4). USFWS recommended that Luminant should evaluate the effect of the proposed permit term activities on the Navasota ladies' tresses orchid (*Spiranthes parksii*), and that if habitat is identified, Luminant should conduct surveys at appropriate times with photographic records. The USFWS indicated that surveys more than five years old may not be accurate. The agency recommended that Luminant should evaluate the proposed permit area for the presence of the large-fruited sand verbena (*Abronia Macrocarpa*) and the Houston toad (*Bufo houstonensis*) (USFWS indication that suitable habitat/soils appear to exist within the proposed permit area), and should also survey any undisturbed areas of the mine not previously surveyed or proposed for impact. The agency also commented that Luminant should survey for various mussel species; these included some species that are unlisted at this time. Luminant has responded to these comments as set out in Findings of Fact Nos. 24 and 25 (Navasota ladies' tresses [Finding of Fact No. 24(c)], large-fruited sand verbena [Finding of Fact No. 24(d) and (e)], Houston Toad, [Finding of Fact No. 25(c)] and mussel species [Finding of Fact No. 25(b)]).
- (c). The Texas Parks and Wildlife Department (TPWD) commented on the application by letter to the Commission dated May 1, 2014. The measures proposed by Luminant are sufficient measures in response to TPWD comments and are sufficient in response to Staff comments.
- (1). The TPWD indicated that while Luminant holds a scientific research permit for handling of terrestrial state-listed species, TPWD also requires a permit for sand, marl and gravel disturbances, and aquatic resource relocation and protection for impacted perennial streams or streams more than 30 feet wide between the banks. TPWD recommended that Luminant identify whether mine-related activities to any state-navigable streambeds would require a marl, sand, gravel, shell, or mudshell permit. In addition, TPWD indicated that state law requires a Permit to Introduce Fish, Shellfish or Aquatic Plants into Public Waters. The TPWD also indicates that Luminant is required to coordinate with the TPWD Kills and Spills Team for appropriate authorization to protect and relocate aquatic species. Luminant indicated that it does not propose such impacts to perennial streams or streams more than 30 feet wide and that it will impact only intermittent or ephemeral streams when no water is present. Luminant stated that if plans change so that such streams would be impacted, it will obtain the required permits (Appendix A to Errata Section, SD2).

- (2). TPWD indicated that five dead Timber rattlesnakes were reported within the permit area in 2012. The agency recommended additional protection measures including the use of barrier fencing (silt fencing) to reduce road mortality, warning that the location of the fencing should be carefully planned so that snakes are not unintentionally directed toward areas of greater harm. TPWD stated that TPWD recommends that Luminant work with TPWD staff in identifying areas of potential snake concentration (hot spots) within the permit area that may benefit from installation of barrier fencing. TPWD also recommended using seed/mulch erosion stabilization materials instead of mesh erosion control blankets that pose an entanglement hazard to snakes, or that if they must be used, that Luminant use biodegradable, non-petroleum based, loosely woven, natural fiber matting rather than mesh matting. TPWD also recommends that Luminant, when relocating Timber rattlesnakes, relocate adults within one mile of their capture location in suitable habitat, where feasible. TPWD also recommends that Luminant initiate a research project in coordination with TPWD to determine the existing distribution and home range and to determine potential areas for relocation and barrier fencing, and first attempt to dispose of rattlesnake carcasses to a scientific collection rather than disposing of them.
- (3). Luminant acknowledged the snakes have been located as road mortality within the permit area. No facts at this time indicate that any particular area has a greater concentration of the species. The snakes are very mobile, and the permit area has much suitable habitat, so dispersal is broad. Luminant has provided maps to the TPWD showing the locations where Timber or Canebrake Rattlesnakes (similar in appearance) have been encountered during 2012-2014 at the mine and requested that the TPWD assist in evaluating barrier fencing as an effective protective measure for directing the movement of snakes. TPWD has indicated that they will be in touch with Luminant regarding the next steps to take. Luminant has undertaken that, when coordination with TPWD is complete, Luminant will submit an updated Fish and Wildlife Plan to document the coordination with TPWD and to include any new guidance or protective measures that have resulted (pp. 144-9-11, SD2 and SD3).
- (4). Staff commented that Luminant should conduct a survey to obtain additional information to plan mitigation measures to reduce takings of the species on roadways and in active mine disturbance areas. Staff also commented that Luminant should indicate that it will consult closely with TPWD to ensure that its activities are in accordance with TPWD regulations. Staff recommended the adoption of a permit provision requiring that within 30 days of permit issuance Luminant must provide a plan for exclusion barrier fencing for Timber/Canebrake rattlesnakes and that within 60 days of permit issuance, Luminant shall submit a plan containing a detailed process and implementation schedule to determine the existing distribution and home range of the Timber/Canebrake rattlesnake at the mine, to determine potential refuge areas appropriate for relocation and to identify hot spots. The Regulations address barriers and fencing regarding wildlife at §12.380(e), requiring that an operator "fence roadways where specified by the Commission to guide locally important wildlife to roadway underpasses..." "Locally important wildlife is not defined" but it is reasonable to assume that an endangered species is locally important. There is no evidence in the record, other than the TPWD recommendation that barriers would be useful. The Commission determines that barriers have not been shown by evidence in the record to be effective in directing Timber



rattlesnakes, although the Commission acknowledges TPWD expertise. While identifying habitat is required by the Regulations, identifying existing distribution and home range are not specifically required by the Regulations, nor is identifying hot spots. Staff indicated that increased encounters with the snake have affirmed the need for expediency in providing a barrier fencing plan. The record shows that approximately 11 deceased snakes have been encountered in the last two to three years. The specific cause of death is not known to be traffic for all of the snakes. The Commission does not believe that this number necessarily indicates that expediency to the extent of 30 days from permit issuance proposed by Staff is needed; however, the Commission encourages cooperation with TPWD in research. As set out in subparagraph (i), Luminant has contacted TPWD and is in the process of investigating steps to take in coordination with TPWD. The Commission finds that these steps are sufficient at this time, and that a permit provision is premature.

- (5). With reference to TPWD's recommendation regarding the type of erosion control materials that Luminant will use within the permit to avoid entanglement hazards to snakes and the use of barrier fencing for Timber rattlesnake "hot spots" (undefined by either party), Luminant indicates that no mortality has been observed or reported within the permit area involved with entanglement, that Luminant will investigate using biodegradable, non-petroleum based, loosely woven, natural fiber matting. Luminant also updated its protection plan to specify that adult timber rattlesnakes will be relocated to suitable habitat to within one mile of their capture location. Luminant has added language to the permit to specify relocation within one mile of the capture location in suitable habitat, making carcasses first available to research facilities or scientific collections. Luminant's on-site environmental specialist at the mine will preserve by freezing any timber rattlesnake carcasses found at the time with appropriate documentation attached to the carcass and/or freezer container to document the date of collection and GPS coordinates for the collection location. At the end of the fall season, Luminant will arrange to transfer the specimens to Dr. Toby Hibbitts, Curator of Amphibians and Reptiles at the Biodiversity Research and Teaching Collections, Texas A&M University. Documentation of the donation of the timber rattlesnake specimens will be maintained by Luminant and Dr. Hibbitts (p. 144-10, SD3). Luminant indicates on pp. 144-9 of SD3 that it is working with Dr. Hibbitts and TPWD regarding the timber rattlesnake at the mine to determine what actions would benefit the species.
- (6). TPWD recommends, with regard to revegetation species in fish and wildlife areas to allow for greater diversity in fish and wildlife areas, that Luminant include native species and species commonly naturalized to the area included in Table 145-B-1 (SD3) and native species from Table 132-A (baseline) in Table 144-D (SD3), Revegetation Species for Fish and Wildlife, to provide a more comprehensive list of approved species for fish and wildlife areas. Luminant made revisions to the table in S2 to add 238 species and additional changes to Table 144-D (SD3) for seeding rates and other changes for a representative planting list (revised the list to include Chapman's yellow-eyed grass and to appropriately classify certain species). Luminant has sufficiently responded to these comments.

- 11. Luminant satisfactorily responded to the USFWS's comments in SD2 and SD3 and, with the adoption of the permit provisions contained in Appendix I to this Order, Luminant meets the provisions of the Regulations with adoption of the permit provisions contained in Appendix I to this Order.

- (a). Luminant indicated that it has obtained the USACE permit required and that unavoidable impacts to wetlands and waters of the U.S. will be compensated and mitigated in accordance with the federal permit and will be in-kind unless specifically approved otherwise.
- (b). Natural minimally impacted wetland and stream reference areas, recommended for inclusion in the permit by USFWS, are not required by the Commission's Regulations or the USACE permit.
- (c). With regard to the TPWD recommendation that Luminant work with resource agencies for measurable performance standards, USACE performance standards will be used. Measurable mitigation ratios for compensation are established in the USACE Section 404 permit.
- (d). Luminant indicates that it will use conservation easements when possible. The USFWS suggestion that Luminant place stream and wetland reclamation sites under its ownership into a conservation easement with a qualified third-party land trust and third-party monitoring, with funding by an endowment with an accounting, are not required by the USACE or by the Act or Regulations.
- (e). Through the RRC permit, cumulative impacts have been and will continue to be considered in the permit approval process. Luminant indicated in SD2 that it was in the process of preparing a biological assessment regarding threatened and endangered species that will include the two permits issued by USFWS and copies of all reports for species studies, habitat evaluations and species surveyed. In SD3, Luminant updated the application with the *Biological Resources Report*, Section .133, Appendix B. Mitigation specifications required for wetlands will be met. By the Commission monitoring of reclamation, mitigation will be tracked through the bond release process. The Commission is not required to clearly identify the party responsible for the implementation, performance, and *long-term* management of mitigation *following* full bond release; with regard to the Commission's jurisdiction, Luminant is the responsible party answerable to the Commission up to bond release. Luminant indicates that it is responsible for long-term management.
- (f). The USFWS' opinion that deed restrictions are not adequate for perpetual conservation and are not acceptable to the USFWS are not required to be dealt with in the Commission's processing of an application for a surface mining permit in that no regulation or law places this requirement upon the Commission's jurisdiction.
- (g). The USFWS expressed concern regarding protection of the interior least tern. The application contains a biological report (SD3/SD4) with a section that states that sightings of the interior least tern were reported to the Commission in 2012 [(p. 144-11(b), SD3 and 4)]. Luminant has provided copies of two permits from the USFWS, a Fish and Wildlife Permit No. TE840214-0 (Appendix 121-A), for disposal, transplant, or release of wildlife (and plants) in accordance with the permit and requires an annual report on where activities took place, the number and location of species collected or captured and field data forms submitted to the Ecological Services Field Office of USFWS, among other data. The permit expires 12/1/2015. For the interior least tern, this permit provided specific information on surveying. The permit indicates that it is valid for "Big Brown Mine, Freestone County, Texas;" however, this is in the heading of the permit and a specific provision (*infra*) indicates it is valid in Texas. This permit also states that it is valid only in conjunction with a state permit. Luminant holds State TPWD scientific permit SPR-1006-760, that lists the sites for which it is valid which, in paragraph 10 of the permit includes the various



locations for capture or taking, including subparagraph (c), specifying Big Brown/Turlington Mines (Freestone County). Staff recommended a permit provision requiring that Luminant, within 45 days of permit issuance provide a copy of a letter requesting that the U.S. Fish and Wildlife Service amend the USFWS Interior Least Tern permit and the USFWS response when available to include the Turlington Mine, or a copy of a USFWS Interior Least Tern permit that includes the Turlington Mine Area. Although Luminant may wish to clarify with the USFWS that the Turlington permit area is included in Permit No. TE840214-0 and provide any response to the Commission, the Commission does not control actions by the USFWS. The suggested 45-day period may be too short or too long. The permit appears to cover the State of Texas; text in the specific provision authorizing individuals states that persons may survey for the interior least tern in Texas may be viewed to control general text (heading). The Commission declines to adopt the Staff-recommended permit provision. The USFWS permit expires 12/1/2015.

12. Staff reviewed TPWD and USFWS comments and recommendations in the context of the Commission's responsibilities pursuant to the Act and Regulations. Commission Regulations pertinent to the recommendations made by TPWD and USFWS and reviewed by Staff and the examiner include: §12.132, premine vegetation, §12.133, fish and wildlife resources, §12.144, identification of fish and wildlife, habitat and related environmental values, §12.145 (b)(5), revegetation plan, §12.146, protection of surface water and groundwater, §12.339 – 12.355, protection of the hydrologic balance, §12.380, protection of fish and wildlife, habitat, and related environmental values, and §12.390 - §12.395 postmine revegetation and standards for revegetation. All have been considered in reviewing the comments filed by the agencies and in reviewing Staff's proposed permit provisions. A summary of the Commission's determinations on existing and recommended permit provisions follows:
- (a). Permit Provision No. 1 has been revised (Finding of Fact No. 29) (protection of tracts for which there is no right-of-entry).
  - (b). Permit Provision No. 2 is no longer needed in that the substance that it addressed has been incorporated into the application, as supplemented [Finding of Fact No. 17(c)] (fencing cultural resource sites).
  - (c). Permit Provision No. 3 from the approved permit is retained as Permit Provision No. 2 [Finding of Fact No. 30(h)] (stream buffer zones).
  - (d). Permit Provision No. 4 from the approved permit is still needed and is retained and renumbered as Permit Provision No. 3. [Finding of Fact No. 30(k)] (well completion information)
  - (e). Permit Provision No. 5 in the existing permit is deleted. [Finding of Fact No. 25(a)] (certain mussel surveys that have been accomplished or are no longer needed)
  - (f). Permit Provision No. 6 in the existing permit is deleted. [Finding of Fact No. 10(b)(1)] (certain plant surveys that have been accomplished)
  - (g). Desirable invader plants, under the revegetation plan contained in the application, as supplemented, will only constitute up to 25% of species in fish and wildlife and habitat compensatory areas. The Commission approved Permit Provision No. 7 in the initial permit that limited certain plants from being planted, but allowed them as desirable invaders. In the application for renewal/revision/expansion, Luminant revised its vegetation lists, and this permit provision is no longer needed. It is deleted.

- (h). A permit provision was incorporated into the approved permit as Permit Provision No. 8 that specified that King Ranch and T-587 Bluestems and Weeping Lovegrass were not approved for planting. Staff recommended that this permit provision be revised to eliminate T-587 Bluestem, but initially recommended to continue to prohibit the planting of King Ranch Bluestem and Weeping Lovegrass. After review of the fact that these two plants are not included in the list of species to be planted within the permit area, and Luminant does not state that it intends to plant them, Staff withdrew this recommendation. The permit provision is not needed and is deleted.
- (i). Staff-recommended Permit Provision No. 9 is adopted and is renumbered as Permit Provision No. 4. [Finding of Fact No. 17(c)] (cultural resource site protection)
- (j). Staff-recommended Permit Provision No. 10 is adopted and is renumbered as Permit Provision No. 5. (Finding of Fact No. 30, general paragraph) (prohibition of mining in F Area until surveys are completed, approved by Director, and implemented)
- (k). Staff-recommended Permit Provision No. 11 is not adopted. [Finding of Fact No. 25(b)(ii)] (impacts on aquatic life)
- (l). Staff-recommended Permit Provision No. 12 is not adopted. [Finding of Fact No. 24(d)] (Navasota ladies' tresses habitat map and table)
- (m). Staff-recommended Permit Provision No. 13A is adopted and is numbered as Permit Provision No. 6 in Appendix I to this Order. Permit Provision No. 13B is not adopted. [Finding of Fact No. 24(d) and (e)] (A: survey plans, B: curriculum vitae)
- (n). Staff-recommended Permit Provision No. 14 is adopted as Permit Provision No. 7 in Appendix No. I to this Order. [Finding of Fact No. 34(g)] (providing of copies of correspondence with TPWD and USFWS)
- (o). Staff-recommended Permit Provision No. 15 is adopted and is numbered as Permit Provision No. 8 in Appendix I to this Order. [Finding of Fact No. 27(d)] (omitted text and repagination errors for clarity)
- (p). Staff-recommended Permit Provision No. 16 is not adopted. [Finding of Fact No. 10(c)(2)] (timber/canebrake rattlesnakes)
- (q). Staff-recommended Permit Provision No. 17 is not adopted. [Finding of Fact No. 34(a)] (interior least tern correspondence)
- (r). Staff-recommended Permit Provision No. 18 is not adopted. [Finding of Fact No. 30(d)] (backfilling and grading)
- (s). Staff-recommended Permit Provision No. 19 is adopted and is renumbered as Permit Provision No. 9 in Appendix I to this Order. [Finding of Fact No. 37(a)] (site specific erosion control plan, F-1 Sedimentation Pond)
- (t). Staff-recommended Permit Provision No. 20 is adopted and is renumbered as Permit Provision No. 10 in Appendix I to this Order. [Finding of Fact No. 37(b)] (revised sheet for F-2)



Sedimentation Pond Site Specific Erosion Control Plan)

13. In its approved permit, Luminant included a description of ecologically significant streams in that tributaries of Big Brown Creek primarily drain the northern two-thirds of the proposed permit area, and Cold Springs Branch, Willow Creek, and Batsmith Creek drain the southern third. All of these drain to the Trinity River. Staff also provided information from Luminant's probable hydrologic consequences determination (PHC) that postmine runoff volumes are expected to be slightly greater than premine runoff volumes with some attenuation of peak storm events, but with longer sustained flows postmine. In processing that permit, Staff analysis indicated that Luminant's surface water control plan and wetland mitigation plan would protect the quantity of water. No changes have been made in the renewal/revision/expansion application that result in a change to this conclusion. (Finding of Fact No. 41, Cumulative Hydrologic Impact Assessment).
14. Luminant has provided the information required by §12.116 of the Regulations, as supplemented.
  - (a). Luminant has provided an update of existing permit information and, in regard to the Applicant Violator System, Luminant has undertaken that it will update, correct, or indicate that no change has occurred in the previously submitted information required to update violation history and identifying information regarding officers and directors and ownership [§12.116(a)].
  - (b). The permit application contains a statement indicating that the applicant is a limited liability company, a statement of the taxpayer identification number of the applicant/operator, the name, address, and telephone numbers for the applicant, resident agent for service of process (CT Corporation), and each business entity in the applicant/operator's organizational structure, up to and including the ultimate parent entity of the applicant and operator; for every such business entity, the applicant has provided information for every president, chief executive officer, and director (or persons in similar positions), and every person who owns, of record, 10 percent or more of the entity. Luminant is the payer of the abandoned mine reclamation fee. Luminant has undertaken to update this information prior to issuance of the renewed permit (SD3). The following is the current ownership and control of Luminant Mining Company LLC. Energy Future Holdings Corp. is the parent corporation of Energy Future Competitive Holdings Company. Energy Future Competitive Holdings Company is the parent corporation of Texas Competitive Electric Holdings Company LLC ("TCEH"). Texas Competitive Electric Holdings Company LLC is the corporate parent of Luminant Holding Company LLC, the corporate parent of Luminant Mining Company LLC. Luminant Mining Company LLC is a Delaware limited liability company. All officers and directors of these entities have been identified in the application, as supplemented, including those of Luminant Big Brown Mining Company LLC and Big Brown Power Company LLC, the owners of certain tracts within the permit area, and Big Brown Lignite Company LLC, the owner of certain severed coal and lignite mineral interests and the lessee to certain coal and lignite leases. [§12.116(b)(1)-(4)].
  - (c). Luminant has also provided permit history information in accordance with §12.116(c) of the Regulations and property interest information in accordance with §12.116(d)(1)-(4), including the name and address of each legal or equitable owner of record of the surface and mineral estate, holder of record of any leasehold interest, purchaser of record under a real estate contract, the name and address of each owner of record, as reflected in the tax records of the county where the land is located, of all property (surface and subsurface) contiguous to any part of the proposed permit area, a statement of all interests, options, or pending bids held by the applicant or that the

applicant has made for lands contiguous to the proposed permit area, and the federal Mine Safety and Health Administration (MSHA) numbers for all structures that require MSHA approval.

- (d). In accordance with §12.116(e) of the Regulations, Luminant has submitted violation information required. Luminant provided information that neither it, nor an operator, any subsidiary, affiliate, or entity which it or an operator owns or controls or which is under common control with it or an operator, had a Federal or State permit for surface coal mining operations suspended or revoked or had a bond forfeited in connection with surface coal mining operations during the five-year period preceding the date of submission of the application.
- (e). Luminant provided a list of all names under which it, its operator, partners or principal shareholders, and the operator's partners or principal shareholders operates or previously operated a surface coal mining operation in the United States within the five-year period preceding the date of submission of the application. Luminant also provided permit history information for pending permit applications for surface coal mining operations filed in the United States, with identification of application or permit number, jurisdiction, or other identifying number, and the federal MSHA identification numbers for the mines. The list identified each application by its application number and jurisdiction, or by other identifying information when necessary. Luminant holds coal mining permits in Texas only.
- (f). In Appendix 116-D, Luminant provided a list of all violation notices that it received for any surface coal mining and reclamation operation during the three-year period preceding the date of submission of the application, and a list of all unabated or uncorrected violation notices incurred in connection with any surface coal mining and reclamation operation that it or its operator owns or controls on the date of application. For each violation, Luminant provided required identifying numbers, issue dates, status, name of person to whom violation notice was issued, issuing agency, description of violation alleged, and current status, certification that the violation, if not resolved, is being abated or corrected to the satisfaction of the agency with jurisdiction over the violation, and actions taken to abate or correct the violation.

15. Section .116, Appendices B, C, E, and F of the application contain right-of-entry documentation.

- (a). Section .116 of the application, as supplemented, includes identification of all tracts within and adjacent to the permit area and owners of all interests in those tracts [Appendices B and C, Section .116, as supplemented (SD2), and Plates 116-1 and 116-2, Property Ownership Map]. Luminant proposes to conduct mining operations on property owned by Luminant Big Brown Mining Company LLC and Big Brown Power Company LLC, or other affiliates and on property where a valid coal and lignite lease exists. Information on the right-of-entry and property ownership is detailed in Appendices B and C of the permit application, as supplemented.
- (b). Section 116, Appendix F, of the application contains all oil/gas leasehold and right-of-entry information for those property tracts proposed to be disturbed and/or mined during the permit term. Luminant does not have accommodation agreements with any of the oil and gas lessees within the proposed permit area, with the exception of agreements with Anadarko Petroleum Corporation (Anadarko). Luminant and Anadarko have an agreement that Luminant will purchase, plug, or abandon the Bonner "H" gas well located on Tract 613, as well as a separate agreement to abandon and /or relocate all Anadarko gas pipelines that will be impacted by mining operations. Luminant indicates that oil and gas wells shall not be disturbed by surface mining and reclamation operations until documentation of right-of-entry to mineral estate leasehold



interests has been approved by the Commission. There are six other entities with oil and gas interests on tracts within the permit area (Table 116-F-1).

- (c). Section .116, Appendix E, contains required information regarding lignite interests that have been severed from the surface estate.
  - (d). The application contains a sample lease and amendment to lease. Luminant proposes to conduct mining operations on property it owns, property owned by Big Brown Mining Company LLC, property owned by Big Brown Power Company LLC, and on leased property. Luminant will not conduct any surface mining operations on any property for which Luminant has not secured the right-of-entry from the landowner. No tracts for which Luminant has right-of-entry are the subjects of pending litigation, and there are no interests in lands, options, or pending bids on interests held by Luminant on lands contiguous to the permit.
16. The requirements of §12.118(a), (b), and (c) of the Regulations have been met as follows: (a) The permit area is not within an area designated as unsuitable for surface mining activities under §§12.75 - 12.85 of the Regulations, and not within any area under study for designation in an administrative proceeding; (b) Luminant does not claim an exemption under §12.118(b) provided for applicants having made substantial financial commitments prior to January 4, 1977; (c) Luminant will not conduct mining activities within 300 feet of an occupied dwelling unless owned by Luminant.
17. Luminant has included information in the application, as supplemented (S2), in compliance with §§12.119 for permit term and life of mine, for §12.125(1) and for size, sequence, and timing of mining, with Life of Mine maps, Plates 125-1 and 125-2 (S2).
- (a). Areas proposed for mining during the proposed permit term and for the life-of-mine have been included, including the acreage within the 53-acre area proposed for addition to the permit area. The information complies with the requirements of §12.119 of the Regulations for the anticipated starting and termination dates of each phase of mining and the anticipated number of acres of land to be affected for each phase of mining and for the total life of the permit. Luminant indicates that an average of three million tons will be mined annually during the proposed permit term. Total mine production for mine years 2014-2018 is estimated to be 15 million tons.

Year	Mined Acres (ac)	Affected Acres (ac)
Year 2014	284	327
2014-2017	73	84
2015	167	192
2016	138	159
2017	124	143
2018	170	196
2019-2023*	314	361

\*Denotes out years (not within the five-year permit term requested).

- (b). The application includes information for the size, sequence, and timing of subareas of the requested permit term (Years 2014-2018) and the life-of-mine anticipated permit terms required by §12.125(1) of the Regulations and a Life-of-Mine Map, Plates 125-1 and 125-2. At least one subsequent permit renewal term is planned during which mining is proposed subject to Commission approval. At least two additional permit terms may be required for completion of

reclamation subject to Commission approval (Table 125(a)-1; Mine Block Acreage for the Life of Mine (SD2).

Mining Area	Year	Mined Acres
DI AUXILIARY NO. 2	2014-2017	54
DI AUXILIARY NO. 3	2014-2017	19
DI	2014	183
F	2014	101
F	2015	167
F	2016	138
F	2017	124
F	2018	170
F	2019-2023*	314

\*out-years

- (c). Luminant has met requirements for §12.125(2) for identification of cultural resource sites and information regarding eligibility for listing in the National Register of Historic Places, and for §12.151 for protection of public parks and historic places. In the application, Section .125, Luminant identified a total of 57 cultural resource sites identified through September 2008. Locations of these sites are set out on Figures 125(2)-I and 125(2)-II (SD2). Luminant has not yet surveyed the 53 acres proposed for addition to the permit area. This area must be surveyed prior to disturbance. Staff recommends a permit provision (Staff-numbered Permit Provision No. 9) requiring that mining and mining-related disturbance is not approved in areas not yet surveyed for cultural resources until such survey is conducted and accepted by the Texas Historical Commission and the Director of the Surface Mining and Reclamation Division. The recommended provision also includes a requirement that Luminant submit a larger scale map (minimum 1 in. = 2,000 feet) of the areas not yet surveyed for cultural resources within 60 days of permit issuance. Luminant is in agreement with the recommended permit provision. The permit provision is adopted and is numbered as Permit Provision No. 4 as set out in Appendix I to this Order. A previous pedestrian survey was conducted in 2007 that identified all sites except for two identified by an avocational archaeologist. One of these two sites has been recommended for avoidance or NRHP testing, a rock shelter containing petroglyphs (Site 41FT23). The other has been determined ineligible for listing. Two professional cultural resource surveys were performed, one in 1977 by Southern Methodist University and one in 2007 by consultants. Neither of these surveys identified any sites. One of the sites identified by the pedestrian survey is eligible for listing in the National Register of Historic Places (NRHP), a protected historic cemetery, Hill Cemetery (Site 41FT602). Another site (Site 41FT578), described as a campsite and/or resource procurement location requires avoidance or testing. All other identified sites have been determined ineligible for listing, except that site 41FT23 (rock shelter) requires avoidance or further testing/mitigation. The sites are listed in Table 125(2)-I of the initial submittal (all sites) with their eligibility status and a very short description. The sites that must be protected or still have an unknown NRHP eligibility status are also listed in Table 125(2)-II, *Sites to Avoid and/or Assess/Mitigate Prior to Impact*. In Section .151 of the application, Luminant included its Protection, Testing, Treatment, and Mitigation Plan, including compliance with the



1991 Memorandum of Agreement between the Commission and the Texas Historical Commission (or, if conflict exists with other agencies, in accordance with the lead agency), for treatment, avoidance, testing, or mitigation by category (NRHP-listed, sites eligible for such listing, sites requiring additional evaluation, and sites that are ineligible), and a treatment plan for newly discovered sites. An existing permit provision, Permit Provision No. 2 provides, "Prior to conducting surface mining and/or reclamation operations within 300 feet of a newly discovered cultural resource site, a site determined eligible for listing in the NRHP, or a site for which eligibility status for listing in the NRHP has not been determined, Luminant must place a fence around the site extent." The provision was adopted because the initial application was unclear as to the intended protection of newly discovered sites and as to whether "protected sites" as used in the provision include all sites for which eligibility for listing in the NRHP has not been determined. Luminant has now incorporated this protective measure for fencing around a site when warranted by mine related activities occurring near the site. Existing Permit Provision No. 2 is no longer needed and is deleted.

18. Luminant has submitted proof of liability insurance as required by §12.120 and §12.311 of the Regulations. The Commission approves continued compliance with §12.311 for minimum liability insurance coverage [§12.311(b)]. By letter dated August 26, 2014, the Commission approved public liability insurance for all of Luminant's permits with policy terms of August 1, 2014-August 1, 2015 (Appendix VIII, TA). Luminant meets the requirement for minimum insurance coverage for bodily injury in the amount of \$500,000 for each occurrence and \$1,500,000 aggregate, and minimum insurance coverage or property damage in the amount of \$500,000 for each occurrence and \$1,000,000 aggregate.
19. The application includes identification of other licenses and permits required in accordance with §12.121 to address all areas proposed for inclusion in the proposed permit area. This listing includes TCEQ Texas Pollutant Discharge Elimination System (TPDES) Wastewater Permit No. 02700 (Appendix 121-A), also numbered within the water quality permit document as 026990. Staff noted the discrepancy, and Luminant indicated that it had also noted the discrepancy and is in the process of renewal of the water quality permit. Luminant indicated that, despite the discrepancy, is operating under the permit. Luminant has undertaken to provide a copy of the renewed permit documentation upon issuance by the TCEQ. Luminant also included information for its Solid Waste Registration 34681, information that permits to appropriate and use state water will be obtained prior to the use of State water for mining related purposes, a Notice of Intent (NOI) for TPDES Multi-Sector General Storm Water permit with a copy of the approval certification TXR05AM71 (Appendix 121-A), a Notice of Intent for TPDES Construction General Storm Water Permit, with a copy of approval certification TXR15XC75 (Appendix 121-A), TCEQ Permit By Rule Registration Nos. 77485, 77926, 77937, and 77938, authorizing operation of four portable lignite screens (Appendix 121-A), U.S. Environmental Protection Agency Hazardous Waste Identification Number TX00821280 issued June 24, 1997 (as corrected in SD2), copy of the U.S. Army Corps of Engineers (USACE), Permit No. SWF 2008-00353, with approval letter dated August 26, 2010 (Appendix 121-A, S2), MSHA identification number for the mine, TPWD scientific permit SPR-1006-760, USFWS Federal Fish and Wildlife Permit No. TE840214-0 (Appendix 121-A) for scientific and recovery purposes to survey for interior least terns, and Federal Fish and Wildlife Permit No MB8947A-0 (Appendix 121-A) for removal of one bald eagle nest at the Turlington Mine. By letter dated December 20, 2013, Luminant copied the Surface Mining and Reclamation Division on a new application to the USACE under IP Project No. SWF-2013-00498 in which Luminant incorporates the USACE permit expansion area acreage, which includes areas in the western part of both the DI and F Areas.
20. The application, as supplemented, provides an adequate description of the general hydrology and geology of the proposed permit area and adjacent areas as required by §§12.126 - 12.127 of the Regulations by

reference to sections contained within the approved permit, and as supplemented in SD2 of the application (to provide data for two new continuous cores drilled in 2012, CC-007C-12 and CC-2055-12). Appendix 127-A of the application contains continuous core descriptions and geophysical logs of the two new cores. Appendix 127-B of the application contains continuous core analytical reports for the two new cores. Appendices 127-C, D, and E have been updated in SD2 of the application to provide supplementary information for stratigraphic unit descriptions and statistics, continuous core summary diagrams, continuous core oxidized zone statistics, and thickness-weighted average calculations.

- (a). The following generally describes the hydrology and geology of the approved permit and adjacent areas. References included in this subsection (a) and in subsection (b), *infra*, are to the original permit application, as supplemented unless otherwise indicated. A general description of hydrology and geology, and a geology description, are included in the original permit application, as supplemented, Sections .126-127. Groundwater within the study area (permit area), an area of rolling hills and drainages in the Trinity River Basin, occurs in the Simsboro and Calvert Bluff Formations. Sediments within the proposed permit area were deposited into a basin with the Mexia-Talco Fault System to the west, the Tyler Basin to the northeast, and the Elkhart-Jarvis-Mt. Enterprise Fault System to the east (Figure 126-1). Surface geology is set out on Figure 126-2, and Figure 126-3 depicts a generalized stratigraphic column. Most of the surface and subsurface sediments are sediments of the Wilcox Group and Carrizo Sand Formation that contain the principal sources of groundwater (Carrizo-Wilcox aquifer). Other water-bearing units in the general area are found in the Queen City Sand and Trinity River Alluvium.
- (b). Geological information provided in the original permit, as supplemented, includes a description of the thickness and extent of the lignite seams and physical and chemical characteristics of the overburden, interburden, and underburden, locations of geologic data points and cross sections from 23 continuous cores within the permit area and adjacent areas. Plate 127-1 was revised in SD2 of the application for renewal/revision/expansion to be consistent with revised mine blocks (Sections .125 and .139). Luminant has drilled more than 700 boreholes within the proposed permit area and adjacent areas to 10 to 20 feet below the lowest mineable seam, mapping the geology of the overburden stratigraphic units (Figure 127-1). Of 11 lignite seams that occur within the proposed permit area, four (L5B, L6A, L6B, and L8A) are the primary seams. The seams range in thickness from 0.5 to 10 feet in thickness. Overburden thickness within the permit area ranges from 15 feet to greater than 180 feet. Luminant identified thickness of the units, percent sand, silt, and clay, along with percent pyritic sulphur (S), pH and acid-base accounting (ABA) values, along with other parameters.

21. Luminant described the groundwater hydrology of the permit area and adjacent areas required by §12.128 of the Regulations in the approved permit application, as supplemented, and for the surface water hydrology as required by §12.129 of the Regulations. References in this Finding of Fact are to the currently approved permit document unless otherwise stated.

- (a). The information included in the permit adequately characterizes the groundwater hydrology. Field surveys conducted by Luminant's consultant taking place in 2002 and 2007 were used to characterize groundwater within and adjacent to the proposed permit area. Plate 128-1 depicts well locations; Table 128-1 provided well completion information. The only wells installed within the permit area not listed are dewatering wells; the dewatering well information is due for updating in Luminant's annual dewatering report to be provided within 60 days following the calendar year (Luminant response, Errata, p. 3-4, in SD2 to application for renewal/revision/expansion). Table 128-4 contained eight quarters of water level data for the



third quarter of 2002 through the second quarter of 2003 and the second quarter of 2007 through the first quarter of 2008.

- (1). The evaluation utilized information from exploration, drilling, well construction, monitoring of water levels and water quality from 28 wells, and testing aquifer characteristics. The hydraulic conductivity of the Carrizo-Wilcox aquifer system was determined to vary considerably vertically and horizontally; water available to wells across the permit area cannot, therefore, be generalized.
- (2). Monitoring results were obtained from five overburden wells to monitor the Carrizo Formation, four overburden wells to monitor the Wilcox sediments below the Carrizo, four wells to monitor strata in non-lignite ("void") areas, eight wells to monitor the interburden units, and seven wells to monitor the underburden Wilcox units. Tables 128-2 and 128-3 contain a summary of the results of water quality sampling of baseline wells.
  - (i). From the Wilcox Group overburden data, Luminant created an overburden potentiometric surface map (Plate 128-5); this overburden is typically made of unconfined sediments, and the potentiometric surface (Plate 128-5) mimics the topography. Plate 128-4 depicts Carrizo Saturated Sand Thickness. From the plates, discharge from overburden strata is controlled by permit area topography and discharges from springs in lower topography areas. Annual overburden recharge water levels can be 2-5 feet. The Wilcox Group overburden is much less sandy, and has lower hydraulic conductivities.
  - (ii). The interburden potentiometric surface is depicted on Plate 128-6. The general groundwater flow is eastward, with no discernible discharge.
  - (iii). The underburden potentiometric surface is depicted on Plate 128-7 and includes slightly sandier Simsboro formation Sands as part of the Wilcox sediments. Hydraulic conductivity is slightly higher than the interburden, and groundwater flow in the underburden is to the east.
- (b). In the renewal/revision application, Luminant updated Section 128, Table 128-6 to amend its list of water wells within one mile of the permit boundary by adding 13 newly identified water wells and to add their locations on updated Plate 128-2. The table and plate supersede the table and plate in the currently approved permit. In addition, Appendix A, containing additional information for approximately ten wells (well reports) has been added to supplement approved Appendix 128-D. Of the 125 wells now included in the water well inventory, approximately 50 wells are used for domestic purposes, two are used for domestic irrigation, 46 are used for industrial purposes, 10 are used for municipal purposes, four have public uses, and 21 are shown as not used.
- (c). Approximately 28 oil and gas wells within and adjacent to the proposed permit area were identified on Plate 128-3 and in Appendix 128-E, in the approved permit as supplemented in that permit's SD1. Two of the listed wells were not drilled. In the application for renewal/revision/expansion, no new wells were added.
- (d). The surface water hydrology for the permit area is adequately described in the approved

permit, Section .129, as supplemented. The description included general information and baseline hydrologic conditions for primary creeks, tributaries, impoundments, ponds, and springs. Luminant's consultants performed studies in June of 2002 that were revised in the consultants' March 2007 baseline surface water investigation based on revised permit boundaries. In the application for renewal/revision/expansion, Luminant includes a section numbered .129 that included references to the study by Luminant's consultant included in the approved permit, as supplemented. References contained in this Finding of Fact are to the approved permit and the supplements to the application for Permit No. 54. The information contained in the permit was certified by professional geoscientist Keith A Wheeler and the information is re-certified by Mr. Wheeler for the proposed permit renewal/revision/expansion.

- (i). Plate 129-1 (SD1, approved permit), Surface Water Data Location Map, depicts watershed boundaries, streams, surface water monitoring stations, and ponds for the proposed permit area. Ball Branch, Myrtal Branch, Rock Springs Branch, Rocky Branch; Dry Branch, Cold Springs Branch, BatSmith Creek and Willow Creek, as well as unnamed tributaries, drain the proposed permit area. A morphometric study of the creek basins is included in the application, Table 129-1, approved permit. No lakes are located within the proposed permit boundaries; Fairfield Lake is west of the permit boundary. Over 100 premine impoundments identified on Plate 129-2, approved permit, are located within the proposed permit area. Most are constructed earthen impoundments or occur naturally in low-lying areas along streams or are natural depressions.
- (ii). Surface water quantity and quality data are presented in the application from seven baseline monitoring stations (Plate 129-1, SD1, approved permit) from 12 months of sampling. Flow at Stations TSW-1 through TSW-3 and TSW-5 through TSW-8 was measured. Water quality data is included in Table 129-6 (general chemistry) and Table 129-7 (metals) (SD1, approved permit). Staff summarized minimum, maximum, and average annual values for parameters required in §12.129 of the Regulations (TA for approved permit, pp. 33-34), pH, TDS, TSS, acidity, flow, alkalinity, total iron, dissolved iron, and total manganese.
- (iii). Streamflows were estimated using long-term historical records from the nearby USGS stream station 08064700, 15 miles northwest of proposed permit area, that was determined to be similar in size, relief, climate, and vegetation as the watershed receiving drainage from the proposed permit area. Streamflow conditions were measured based on five storm events occurring on May 1-2, May 2-4, May 24-25, June 26-27, and July 5-6, 2007. Streamflow runoff and volume of discharge from these events were used to estimate predicted runoff and volume of discharge for the Myrtal Branch Watershed within the permit area. (approved permit)
- (iv). The surface water report included information for nine springs sampled in 2003 and 2008, as well as ten man-made ponds (approved permit). Additional information for other springs that exist within the proposed permit area was included in SD1, approved permit. Locations of sampling and water quality data are included on Plate 129-1 (SD1, approved permit) and in Tables 129-8



(SD1, approved permit) and 129-9 (SD1, approved permit). Ranges of values/concentrations for springs and ponds are summarized and included in Staff's TA for the approved permit, p. 35 for the following parameters: pH, TDS, TSS, acidity, alkalinity, total iron, dissolved iron, total manganese, and dissolved manganese.

- (v). The approved permit includes information from eleven wastewater permits issued by the TCEQ as listed in Table 129-11.

- 22. Alternative water supplies were identified in the approved permit to replace water supplies that may be affected and may require replacement as set out in §12.130 of the Regulations in Section .130 of the application for the approved permit. No changes are necessary. The information was certified by professional geoscientist Keith A. Wheeler. Potential sources for replacement water include public water systems, deep wells into the Carrizo- Wilcox, and dewatering wells. Luminant described 27 active water rights that might be affected; there are only two downstream of the proposed permit area; these two are owned by Luminant or an affiliated entity. There are non-permitted diversions of less than 200 acre-feet of water that might be affected. Private water wells may be affected by dewatering activities; these potentially affected wells are identified in the application. Luminant has acknowledged its responsibility to replace water sources used for domestic, agricultural, industrial, or other legitimate use if contamination, diminution, or interruption occurs as a proximate result of mining activities in accordance with the requirements of §12.130 of the Regulations.
- 23. All required climatological information has been provided for the permit area in the approved permit document, Section .131, as certified by professional geoscientist Keith A. Wheeler in compliance with §12.131 of the Regulations. No changes are required. Information was presented for average seasonal precipitation (Tables 131-1), average direction and velocity of prevailing winds (Figures 131-2 through 131-5), and long-term climatic averages (temperature) (Table 131-1). Data are included for precipitation near the permit area, and wind information. The permit area lies within the Subtropical Humid climatic region of Texas. Monthly precipitation data from the National Oceanic and Atmospheric Administration (NOAA) National Weather Service (NWS) station at Fairfield, Texas, approximately 8 miles west of the proposed permit area, were provided for the period of record, 1971 – 2000. The mean annual rainfall based on this data is 42.31 inches. A similar amount resulted from data collected from one rain gauge located near the central portion of the proposed permit area and supplemented with data from the Big Brown Mine adjacent to the proposed permit area after the gauge was damaged. Data from the NWS station at Fairfield for temperatures was used to calculate regional long-term temperature averages provided in the application as mean annual low, high, and average temperatures of approximately 55°, 66.3 and 77.6° F. The most frequent annual wind direction is south, based on weather observations for the period 1971-2000 at the NWS Waco station. Gross monthly lake evaporation data from the Texas Water Development Board for four quadrangles based on USGS gauging stations for the period 1954-2002 reflects gross annual lake evaporation of 55.26 inches.
- 24. All required vegetative resource information for the proposed permit area is included in Section .132 of the application, as supplemented in SD2 and SD3, with references to the approved permit, and is sufficient to describe premine vegetation important for fish and wildlife habitat, and sufficient to predict the potential for the re-establishment of vegetation during reclamation for the renewal/expansion area. Luminant updated the application to reference appropriate sections in the approved permit addressing §12.132.
  - (a). Information contained in the application includes a report prepared by Luminant's consultant in

Section 132 of the application. The proposed permit area is located within the Post Oak Savannah vegetation area of Texas (Figure 132-2). Table 132-1 (SD2) lists the nine types of vegetative communities within the 10,450.2-acre Study Area including the 53-acre expansion area: upland hardwood forest, 53.6%; grasslands, 33%; regenerative/cutover areas, 7.3%; bottomland/riparian forest, 3%; disturbed land, 1.1%; hydric habitat, 0.9%; aquatic habitat, 0.8%, sand savannah, 0.2%, and pine forest, 0.1%. Each type is described in the baseline report. Luminant includes Plate 132-1 in the application that depicts vegetation and habitat types by color aerial imagery. Plate 132-2, provides the locations of sampling sites and elevations.

- (b). Wetlands and other waters of the U.S. are described in Section .133 of the application as supplemented (SD2). Based on field surveys in 2002, 2007, and 2013 jurisdictional waters of the U.S. include emergent wetlands (27.3 acres), forested wetlands (59.5 acres), scrub-shrub wetlands (4.6 acres), open water, (70.1 acres), and stream channels (33.0 acres). These lands are delineated on Plates 133-1-A and 133-1-B of the application.
- (c). Additional information provided includes Appendix 132-A, SD3 [a representative listing of plant species observed in the study area (SD2)], and "Agency Information," an annotated county list of rare species for Freestone County (SD2). The approved permit includes Appendix 132-B, quantitative sampling, Appendix 132-C, USFWS and TPWD 2008 threatened and endangered species with potential to occur within Freestone County, that has been updated in Section .133 of the application, as supplemented, Table 133-2 (TPWD and USFWS, 2013) (S2).
- (d). The initial application for permit in Appendix 132-D contained a 2004 report on a 2002 survey for Navasota Ladies'-Tresses (*Spiranthes parksii*) and Large-Fruited Sand Verbena (*Abronia macrocarpa*) within the proposed permit area. The materials in Appendix 132-D indicated that these two endangered plants have the potential to occur within the proposed permit area; the report noted potential sites for the Navasota Ladies' Tresses orchid and two potential sites for the Large-Fruited Sand Verbena; however, these sites were indicated to be of low potential, and none of the plants were located. This information was updated in SD1 of that permit application with a consolidated report with additional 2007 and 2008 results of surveys for these plants. This report noted 19 potential sites (15.6 acres) for the Navasota Ladies' Tresses orchid and two suitable sites for the verbena; however, they also were of low potential as habitat. The expansion area was again visited on February 26, 2013 and consultants determined that current conditions within the expansion area did not warrant any need for new studies or quantitative data collection. Staff noted that the surveys did not contain an assessment of the entire DI permit area and that accepted protocol for surveying for the species is to survey during the flowering period for several years when in the period of two to three months immediately preceding the flowering period, the area received normal rainfall. Staff also noted that 2008 was a dry year. Staff indicated that Luminant must survey remaining undisturbed areas for suitable habitat and, if habitat is present, survey for the species, also indicating that a written survey plan consistent with current USFWS protocols and detailing the methodology, providing a map of potential habitat, and describing the experience of the senior botanists conducting the surveys should be provided. Luminant contracted with a consultant to conduct a survey for the species in the F Area and expansion area, Appendix 133-B, Attachment 1. A desktop survey was conducted, and potential suitable habitat sites were then visited and surveyed. No specimens were observed during the survey (B&A, 2015); however, Luminant did locate similar species. Luminant does not object to submitting a survey plan as recommended in Staff-recommended permit provision (part of Staff-recommended Permit Provision No. 13) providing for submittal of the survey, and Luminant has indicated that it recognizes that it is not authorized to conduct mining activities in the F Area



until a survey plan for the Navasota ladies' tresses in the F Area has been prepared and approved by the Director or Commission, until a presence/absence survey has been conducted according to the approved survey plan, the survey report has been submitted to the Commission and determined to be sufficient, protective measures are determined, and other species and/or habitat survey requirements documented in the application have been met. (Section 144, p. 144-8c, SD4, and Section 133, Appendix 133B, Attachment 1, SD4). This permit provision is part of Permit Provision No. 6 in Appendix I to this Order, as renumbered. Staff-recommended Permit Provision No. 12 is not adopted. This Staff-recommended permit provision would require that within 30 days of permit issuance Luminant submit a map depicting the location of suitable habitat for Navasota ladies' tresses and a table containing matching acreage determined during the 2014 survey. The application as supplemented, Supplement No. 3, contains a sufficient map depicting locations of suitable habitat as well as photographs of the locations and a soils map; no specimens were located during the survey. It is unnecessary at this time that Luminant provide a table of acreages for suitable locations at which no specimens were located. The maps submitted adequately depict the areas of concern. Staff appears to recommend that suitable locations with no Navasota ladies' tresses plants present should be protected. No critical habitat has been designated within the proposed permit area; there is no evidence that the habitat is unusually high value, and no evidence has been submitted to indicate that the proposed surface mining and reclamation operations proposed in the application as supplemented will jeopardize the continued existence of the species; these are the performance requirements for protection of threatened or endangered species as set out in §12.380. This recommended permit provision (numbered in Staff's TA as Permit Provision No. 12) is unnecessary.

- (e). In a separate recommended permit provision (second portion of Staff-recommended Permit Provision No. 13 related to the Navasota Ladies' Tresses, the Houston Toad, and the Large-Fruited Sand Verbena), Staff recommended a requirement that Luminant submit curriculum vitae or descriptions of the senior botanist/biologists' experience related to endangered species surveys as a part of the plan. There is no requirement that curriculum vitae or descriptions of experience be included in an application for renewal. Regulation §12.107 requires that application information be supported by appropriate references and that it be accompanied by names of persons or organizations which collected and analyzed data, and the name, address and position of officials of each research organization consulted by the applicant, with descriptions of methodologies used, and that such information is planned by *or under the direction of a professional qualified in the subject to be analyzed*. Staff has not indicated that the information has not been planned under the direction of a qualified professional or that any maps required to be certified by a professional have not been so certified. This information has been sufficiently provided. This second portion of the recommended permit provision is not adopted.
- (f). Because of the potential occurrence within the permit area of two rare plants, Chapman's Yellow-Eyed Grass (*Xyris champanii*) and Rough-Stem aster (*aster puniceus* var. *scabriceaulis*) listed as rare species that potentially occur in Freestone County, the Commission approved Permit Provision No. 6 in the approved permit. The permit provision addressed the need for surveys for these two rare plants. TPWD had identified bogs as habitats of unusually high value. Luminant's consultant's ecologists in 2008 identified a hillside seepage bog community along an intermittent headwater of Myrtle Branch within a scrub-shrub wetland. A bog survey was conducted in 2009. The bog community consisted of two separate aggregations of bog plant species located approximately 200 feet apart and .15 to .43-acres in size. Plant communities adjacent to these areas were emergent wetland, forested wetland, and riparian woodlands. Chapman's yellow-eyed grass in bloom was observed in both aggregations of plants. In addition, Chapman's yellow-eyed

grass colonies in bloom were located within emergent wetland communities approximately 500 feet north of the bog community (one colony) and 1,200 feet south (ten colonies). As a condition of the USACE mitigation, living plants and intact bog soil from the bog were relocated to an existing bog community at the Girl Scouts of America Camp Bette Perot, between Athens and Palestine, Texas to preserve elements of the anticipated impact area. Luminant's ecologists and the TPWD oversaw the removal and transplantation. In SD3, Luminant indicated that the transplanted bog is thriving and camp staff members use it for outdoor education. Existing Permit Provision No. 6 is no longer needed. In SD3, Luminant added the plants located in the bog area to Appendix 132-A. The narrative portion of Section .133 in the renewal/revision/expansion application includes "Habitats of Unusually High Value for Wildlife," that contains the information regarding the seepage bog habitats and rare plant surveys, as supplemented in SD2. Staff review indicated that it was unclear the exact areas that had been surveyed for bogs and rare plants. Luminant indicated in SD3 that the D Area had been surveyed and that Luminant recognizes that it cannot conduct mining activities in the F Area until: a bog survey plan for the F Area has been prepared and approved by the Director or the Commission, a bog survey has been conducted according to the survey plan, the bog survey report has been submitted to the Commission and determined sufficient.

- (g). Staff review indicated that soils Luminant referenced as surveyed for the Large-Fruited Sand Verbena were actually surveyed for the Navasota Ladies' Tresses and that a rare plant survey plan for the Large-Fruited Sand Verbena had not yet been provided. In SD3, Luminant indicated that the permit area had been surveyed and that only two areas of potentially suitable habitat for the Large-Fruited Sand Verbena were identified within the study area based on the overlap of suitable soil types and plant communities/habitat requirements (dunes and barren wind-eroded topographic features known as blowouts). One of the two areas was surveyed after the 2002 investigations in the spring and fall of 2008 (the other one was located outside the study area due to a boundary revision). Luminant also indicated that it plans to submit a biological assessment for the Large-Fruited Sand Verbena in the F Area. Luminant also stated that it recognizes that it cannot conduct mining activities in the F Area until a survey plan for the large-fruited sand verbena has been prepared and approved by the Director or the Commission, a survey for the plant has been conducted according to the survey plan, the report has been submitted to the Commission and determined sufficient, and other species and/or habitat survey requirements documented in the application have been met. If located within the renewal area, Luminant has undertaken to work with the USFWS and the Commission to determine appropriate protective measures. (Section 144, p. 144-8b, SD4, and Appendix 133-B of the application, as supplemented). Staff recommended a permit provision to require that Luminant submit a proposed survey plan for the large-fruited sand verbena within 90 days of permit issuance and that it include curriculum vitae or descriptions of the senior botanist/biologists' experience related to endangered species surveys as a part of the plan. The application already contains Luminant's undertaking to submit the survey plan and obtain approval prior to conducting activities within the expansion area. Luminant does not object to the first portion of the permit provision. As set out in subsection (c), curriculum vitae and descriptions of experience are not required. The permit provision, excluding the providing of curriculum vitae, is adopted as part of Permit Provision No. 6 in Appendix I to this Order.
- (h). Staff noted that the application, as supplemented, did not include a discussion of beaver dams within a portion of the permit area. In SD3, Luminant added a discussion of beaver dams, indicating that beavers' ability to modify the landscape has led to beavers being designated as a keystone species as simultaneously creating habitat for other species, contributing to the



stabilization of water tables, helping reduce rapid runoff, lengthening the availability of spring rainfall to wildlife and creating aquatic/wetland habitat for other wildlife species. Because unmanaged beaver populations can also damage the landscape, local and regional beaver management should ensure that relevant factors are integrated into management plans. One beaver dam observed within Wetland Complex 3, described in the 2010 USACE permit application, associated with a perennial reach of Myrtle Branch, associated with the hillside seepage bog, was removed during the land clearing process in accordance with the terms of the 2010 USACE permit.

25. Adequate fish and wildlife resource information is included, with the adoption of fish and wildlife related permit provisions set out in Appendix I to this Order. The current status of state and federal threatened and endangered species (Appendix 133-A, Section .133) is included, as well as information to provide an accounting of premine wetlands and waters of the U.S. pursuant to §404 of the Clean Water Act (Plates 133-1-A and 133-1-B). Luminant includes a report, as supplemented (text for Section .133, pages 133-5 – 133-30A) (SD2 and SD3). The information provided includes appropriate scope and level of detail for the design of a protection and enhancement plan for fish and wildlife required by §12.144 of the Regulations, including site-specific resource information addressing listed or proposed endangered or threatened species or their critical habitats or other habitats of unusually high value for fish and wildlife in accordance with the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq*). The information meets the requirements of §12.133. Threatened and endangered species with potential to occur in/near the proposed permit area are set out in the following table along with additional information:

Species	Protected Status (S: State) (F: Federal)	Record of Occurrence within Proposed Permit Area
<b>Plants</b>		
Navasota Ladies'-Tresses Orchid	Endangered (S and F)	Suitable habitat; no specimens found.
Large-Fruited Sand Verbena	Endangered (S and F)	Suitable habitat; no specimens found.
<b>Mollusks</b>		
Louisiana Pigtoe Mussel	Threatened (S)	Not Likely; none located*
Sandbank Pocketbook Mussel	Threatened (S)	Not Likely; none located*
Texas Heelsplitter Mussel	Threatened (S)	Not Likely; none located*
Texas Pigtoe Mussel	Threatened (S)	Not Likely; none located*
<b>Amphibians and Reptiles</b>		
Alligator Snapping Turtle	Threatened (S)	Possible; not observed
Houston Toad	Endangered (S and F)	None observed/ heard during baseline surveys; suitable habitat within renewal area; presence/absence survey ongoing.
Texas Horned Lizard	Threatened (S)	Not Likely
Timber/Canebrake Rattlesnake	Threatened (S)	One sighted, Malone Branch; three dead snakes observed 2003, three reported 2012 (dead), five in 2012, six in 2014 (three dead)
<b>Birds</b>		
Interior Least Tern	Endangered (S and F)	Nests, birds 2011-2014
American Peregrine Falcon	Endangered (S)	Possible Migrant
Arctic Peregrine Falcon	Threatened (S)	Possible Migrant
Bachman's Sparrow	Threatened (S)	Not likely, lack of optimum habitat; observed 25 miles from permit area (SD2); Freestone County is outside current known range
Bald Eagle	Threatened (S)	Nests observed; two nests successfully avoided; one removed
Piping Plover	Threatened (S and F)	Possible Migrant; not observed
Whooping Cranes	Endangered (S and F)	Possible Migrant; not observed
Wood Stork	Threatened (S)	One sighted in 2003 over adjacent Trinity River floodplain
Sprague's Pipit	Candidate (F)	Possible migrant; not observed
<b>Mammals</b>		
Red Wolf	Endangered (S and F)	Extirpated in Texas

\*Luminant plans to survey in perennial pools of Ball Branch, Waldron Branch, and Willow Creek.

Note: Chapman's yellow-eyed grass is a rare species, not a threatened or endangered species requiring protection. Specimens and soil plugs were transplanted from a bog site to a protected site [Finding of Fact No. 24(d)].

Rough-stem aster also does not have a protected status.

- (a). Existing Permit Provision No. 5 required that Luminant conduct pre-disturbance surveys for threatened mussel species in certain areas of year-round water and report findings to the Surface Mining and Reclamation Division at least 30 days prior to impacting any of these streams. Luminant did not specifically survey for native in the baseline survey for the existing permit, and TPWD recommended a survey for these species. Luminant conducted a survey for mussels on June 22 and 23, 2010 in Big Brown Creek and tributaries Myrtal Branch and Malone Branch and located no state-listed threatened mussels, live or remains, although common mussel remains were found. Revised pages of a report from Luminant's consultant are included in the application, Section .133, as supplemented. Staff review recommends that the existing Permit Provision No. 5 is no longer needed. Existing Permit Provision No. 5 is deleted.
- (b). In its deficiency letters dated April 24, 2014 and December 19, 2014, Staff indicated that the application, as supplemented, proposes disturbances that could affect the perennial pools of Ball Branch, Waldron, and Willow Creeks and that Luminant must survey these pools before they are potentially impacted based on proposed disturbances in the application. In SD2, Luminant responded that perennial pools were the criteria used in the earlier surveys of Big Brown Creek, Myrtal Branch, and Malone Branch, and that there are no such pools within the disturbance areas proposed that encompass portions of Ball Branch, Waldron Branch and Willow Creek. Staff recommended a new permit provision, numbered in its TA as Permit Provision No. 11 that, if adopted, would require the following:

*Within 60 days of permit issuance, Luminant shall submit a revision application for administrative review and approval by the Director of the Surface Mining and Reclamation Division, containing a revised section .144 containing detailed procedures addressing the steps that will be taken to avoid or minimize impacts to existing aquatic life within the permit area in perennial surface waters, including Big Brown Creek, ponds, and seep/spring features that will be impacted within the permit area.*

No deficiencies were noted in any of Staff's deficiency letters regarding seep/springs and ponds. Luminant indicates that there are no perennial pools within the disturbance areas proposed in the requested permit term that encompass portions of Ball Branch, Waldron Branch and Willow Creek. Luminant clearly indicated in the Errata of the application as referenced supra that it will not impact perennial streams. The primary current habitats for mussel species of concern are mid-size to large rivers and lower reaches of tributaries to large rivers. Luminant has undertaken to survey the portions of Ball Branch, Waldron Branch, and Willow Creek that occur within the disturbance area of the proposed permit although they are upper headwater environments, typically swales or dry ephemeral creek channels that do not have perennial flowing water or perennial pools; therefore they are not likely to contain suitable habitat for the threatened mussel species. The remainders of the creeks are located outside of the proposed disturbance area. Because the review by Staff also indicated concerns for downstream impacts to aquatic habitats, Luminant has undertaken in the application to survey perennial segments and perennial pools (SD3) in the streams for mussels prior to disturbance in the F Area, as well as perennial reaches of BatSmith Creek prior to conducting activities that could potentially impact its flow. Luminant stated that it recognizes that it cannot conduct activities within the F Area until: a survey plan for threatened mussel species in the F Area has been prepared and approved by the Director or



Commission; a presence/absence mussel survey has been conducted according to the approved survey plan, and the mussel survey report has been submitted to the Commission and determined to be sufficient. This recommended permit provision assumes that there will be impacts to "existing aquatic life" but the "aquatic life" is not specified and is not defined in the Regulations and there is no evidence of impacts to aquatic life in the record, other than concerns regarding protected mussels. For each specific pond or seep/spring, the evidence would be site-specific, and responses to or prevention of such impacts would also be site specific. Section 12.144, Fish and Wildlife Plan, under which this permit provision is recommended, requires a description of minimization of disturbances and adverse impacts on fish and wildlife that applies at a minimum to species and habitats identified under §12.133(a) (threatened and endangered species and habitats of unusually high value), not generally to "aquatic life" (recommended permit provision text), and include protective measures such as buffer zones and the monitoring of surface water quality and quantity. No deficiencies were noted by Staff related to surface water monitoring. Luminant will be dewatering in the proposed permit term, but monitoring and reporting of the effects of dewatering is contained in the operations plans. Luminant will address stream buffer zone requirements in detailed design plans when submitted (Permit Provision No. 2). Because approved surface water monitoring is a part of the proposed operations, additional perennial stretches will be surveyed, and no evidence is presented that ponds and seep/springs are habitats of unusually high value or "will be impacted" (proposed permit provision text), the Commission determines that the requirements of the Regulations have been met, and the permit provision recommended by Staff is not necessary.

- (c). The Houston Toad, an endangered species, has the potential to occur in Freestone County; no Houston toads have been located in baseline surveys. No presence/absence surveys were required in the original permitting effort. The application for renewal/revision/expansion, in Section .133, p.133-24 (consultant's report), includes a statement that a review of current Texas Natural Diversity Database information does not show any recorded occurrences of Houston Toads within the renewal/revision/expansion area. This database does not show all potential sites. No Houston Toads were heard or observed during baseline surveys. A habitat assessment was conducted in portions of the F Area of the mine in Spring 2014 and presence/absence surveys are scheduled for Spring 2015 (SD2, SD3). Staff noted that Luminant had not provided documentation of coordination with the USFWS demonstrating that additional protection measures for the toad are not necessary. In SD2, Luminant provided copies of correspondence between Luminant's consultant and USFWS in Appendix 144-A documenting a telephone conference call with representatives of USFWS, Luminant, and its consultant prior to baseline surveys that began in 2002, indicating that a Houston Toad survey was not required. In the Errata portion of SD2, Luminant indicated that a biological assessment addressing the toad was in preparation and will be submitted to the Commission in the future. In SD3, Luminant provided the 2014 habitat assessment as Attachment 3 of Appendix 133-B and added information regarding the assessment (SD3 and SD4), indicating that Luminant and its consultant have initiated coordination with the USFWS regarding the 2015 survey plan for the Houston toad, and that Luminant recognizes that it is not authorized to conduct activities in the F Area until a survey plan for the Houston toad in the F Area has been developed and accepted by the USFWS and the Director or the Commission, a survey has been conducted according to the approved survey plan, the survey report has been submitted to the Commission and determined to be sufficient, and other species and/or habitat survey requirements documented in the application have been met. Staff recommended a permit provision to require that Luminant submit a proposed survey plan for the Houston Toad within 90 days of permit issuance and that it include curriculum vitae or descriptions of the senior botanist/biologists' experience related to endangered species surveys as

a part of the plan. The application already contains Luminant's written undertaking to submit the survey plan and obtain approval prior to conducting activities within the expansion area. As set out in subsection (c), curriculum vitae and descriptions of experience are not required. In the examiner's opinion, this information has been sufficiently provided. The permit provision recommended is not adopted.

- (d). Staff indicated that inadequate information had been included to describe use of premine disturbed areas by wildlife. In SD2, Luminant indicated that this type of area is only 1.1% of the proposed permit area and that it does not constitute important wildlife habitat. Such areas are often restricted because of operational activity and offer little habitat or resources for wildlife. Some wildlife may be observed along roads during surveys and in evening spotlight surveys and that all such observed species were included in the species lists contained in the application.
- (e). Staff review indicated that a discussion of the relevance of the various habitat types to animal groups and/or select non-game species had not been provided. Luminant revised its introduction to its report *Habitats and Wildlife Species* in Section .133 of the application, SD2, to address the comment, and in SD3, Luminant provided additional information to provide dominant plant communities for upland hardwood forests, the importance of this habitat to animal groups, and additional information regarding upland hardwood forests, grasslands and regenerative/cutover areas. This information is sufficient.
- (f). Alligator snapping turtles may occur within the permit area in perennial water bodies; none of the turtles were located in premine surveys. Luminant will survey for the alligator snapping turtle; however, because of the short time available in the acceptable survey season, Luminant plans to undertake a species-specific survey in the spring of 2015, with a report subsequently provided to the Commission. In SD3 (p. 144-8), Luminant recognizes that it is not authorized to conduct mining activities in the F Area until a survey plan for the alligator snapping turtle in the F Area has been prepared and approved by the Director or Commission, a survey has been conducted according to the approved survey plan, the survey report has been submitted to the Commission and determined to be sufficient, and other species and/or habitat survey requirements documented in the application have been met.
- (g). Prior to 2002 investigations, soil maps were reviewed for the presence of the Large-Fruited Sand Verbena. All soils within the permit area were evaluated. In April and October 2002 two areas of potentially suitable habitat for the Large-Fruited Sand Verbena were identified based on suitable soil types and plant communities/habitat requirements. The two areas were examined and demonstrated potentially suitable soil characteristics; however, the two areas lacked specific plant community/habitat features required to consider them as potentially suitable habitat for the species. One of the areas was again surveyed in 2008; the other was outside of the study area due to a boundary revision. Luminant indicated in SD3 (p. 132-17) that it plans to submit a biological assessment for the endangered plant in the F Area. Luminant recognizes that it is not authorized to conduct mining activities in the F Area until a survey plan for the Large-Fruited Sand Verbena in the F Area has been prepared and approved by the Director or Commission, a survey has been conducted according to the approved survey plan, the survey report has been submitted to the Commission and determined to be sufficient, and other species and/or habitat survey requirements documented in the application have been met.
- (h). Luminant included a Biological Resources Report, Appendix 133-B, in the application in SD3, as supplemented in SD4, as additional information pertaining to federally listed endangered species.



This report, dated February 15, 2015, includes background information on the following species: Large-Fruited Sand Verbena, Navasota Ladies' Tresses, interior least tern, whooping crane, Houston Toad, and freshwater mussels. The report discusses potentially suitable habitat, existing and proposed conservation measures for these species, potential for impacts to these species, and whether there is any designated critical habitat.

- (i). Luminant's protection and enhancement plan for fish and wildlife is set out in Finding of Fact No. 34.
26. The information required by §12.134 of the Regulations for soil resources information is included in the application. The report included is updated from the initial application and now includes soil resources information from 2003, 2007 and 2013 data collections. Luminant included a soils map (Plate 134-1), *Distribution of Soils*, depicting 25 native soil mapping units of 19 soil series, including three prime farmland soil units, making up 3.1% of the permit area approximately 322.2 acres) and two soil complex units. Sample locations are also shown on Plate 134-1. Table 134-1 contains permit acreage and proportionate extent of soils, and Table 134-2 contains the same information for prime farmland soils. Detailed information is included in Appendix 134-A, NRCS Official Series Descriptions, and Appendix 134-B includes NRCS Soil Interpretation Tables, including properties and land uses. Appendix 134-C contains laboratory source data by genetic horizon, Appendix 134-D contains depth-weighted analytical data from analysis of the top four feet of native soils of the F Area by 0-12 inches and 12-48 inches and for the permit area excluding the F Area by the 0-12 inch interval and the 12-48 inch interval, and Appendix 134-E contains this information by topsoil (A and E genetic horizons) and subsoil (B and C genetic horizons) for the F Area and for the permit area excluding the F Area. Soil baseline information was prepared for the separate areas because of excessively sandy soils within the F Area. The information presented for the native soil baselines is sufficient to determine the suitability of topsoil and subsoil substitution proposed by Luminant.
27. Luminant has described premine land use in the application in accordance with the requirements of §12.135 of the Regulations for the proposed permit area. Luminant included an updated report to include the additional 53 acres proposed for addition to the permit area.
- (a). The initial report (2008) was prepared using historical land-use data (USDA 2002 Census of Agriculture for Freestone County) and information from the Natural Resources Conservation Service. Luminant's consultants made an additional site visit to the expansion area on February 26, 2013 and determined that no new studies or quantitate data were needed and considered the land use categories set out in the existing report as representative of the entire renewal/expansion area. The report was revised after Staff comments were made to include a revised Figure 135-1 (SD2) updated September 2014 to clearly depict the location area of the premine land uses and to explain the qualitative methodology followed in its assessment of the 53-acre expansion area.
  - (b). A preliminary land use characterization was developed using desktop aerial photo and topographic map interpretation, a comparison of current and historic land use data, a comparison of landscape level differences with inference of land use composition, verified in the field by ecologists and biologists thoroughly walking the area. The approved permit included information for premine soil yields for crops and pasture, the average hay yield within Freestone County under high and moderate levels of management (Table 134-5), premine soil information, forestry productivity, rangeland productivity, and limitations on uses based on soil limitations. As set out in the application for renewal/revision/expansion, Luminant identified the acreages and percentages of premine land uses for the permit area as follows: undeveloped land, 59.7%

(6,243.9 acres); pastureland, 32.6% (3,405.6 acres); forestry, 5.7% (596.9 acres); industrial/commercial, 1.0% (100.3 acres); developed water resources, 0.8% (84.8 acres); and residential, 0.2% (18.6 acres).

- (c). The application also includes data for land productivity and capability for pastureland. There is only a limited amount of timber management in Freestone County. No records were found of previous mining. Public roads within the proposed permit area are county roads. Oil and gas production sites occur within the proposed permit area.
- (d). In SD3, Luminant provided information regarding the Texas Conservation Action Plan developed in 2012 to replace the 2005-2010 Texas Wildlife Action Plan (TWAP). The TWAP provided a statewide roadmap for research, restoration, management and recovery projects addressing Species of Greatest Conservation Need and important habitats in order to conserve and improve the status of these species. The TCAP is a series of 11 regionally specific ecoregion handbooks and a statewide multi-region handbook intended as a conservation guide for all natural resources. Freestone County is located in TPWD District 5, the Post Oak Wildlife District and mostly in the TCAP East Central Texas Plains Ecoregion. Mining activities will not conflict with the TCAP. Some text regarding Fairfield State Park was inadvertently omitted from Section .135 in changes made to SD3. Staff recommended a permit provision to require the filing of a revised section .135 to address this omitted text and the need for re-pagination. Staff recommended permit Provision No. 15 is adopted as Permit Provision No. 8 in Appendix I to this Order is adopted.

28. All requirements have been met for the submittal of maps, cross-sections, and plans for the application, as supplemented (SD 1 through SD2) in accordance with §§12.136-.137 and §12.142 as supplemented (SD1-SD3). Some of the maps, cross-sections, and plans as well as general requirements maps are located in the approved permit document and are noted as such. Section .136 of the application, as supplemented in SD1 and SD2, includes a table entitled "Rule 12.136 Maps: General Requirements" that includes the locations within the application of certain information, including tract boundaries and ownership, right of entry, lands to be disturbed by mining or otherwise and the timing of mining, the locations and identification of all buildings within the proposed permit area and within 1,000 feet of the proposed permit area, location of structures, including pipelines, water lines, electric lines, water supply intakes, surface waters receiving discharges from areas proposed to be disturbed or affected, each public road located within the proposed permit boundary or within 100 feet of the proposed permit boundary (Plate 136-3, SD2, revised to include the expansion area), and the location of all cultural resource sites [Plates 125(2)-I and 125(2)-II, SD2]. Utilities are depicted on Plates 136-1 and 136-2 (SD2). There are no vegetative reference areas proposed for use in determining the success of revegetation, or lands in the National System of Trails, or the Wild and Scenic River System. Table 137, entitled "Rule 12.137 Cross Sections, Maps and Plans," lists the locations of plates and tables for the following: elevations and locations of borings and core samples, monitoring stations, coal seam information, crop lines and the strike and dip of the coal to be mined, location and extent of subsurface water within the proposed permit area and adjacent areas, location of surface water bodies, springs, drains, and irrigation ditches, location and dimensions of dams, embankments, impoundments, water treatment facilities, air pollution control facilities, if any, location and depth of oil and gas wells within the proposed permit area, water wells within the proposed permit area and adjacent areas, slope measurements to represent the existing land surface (application) including the 53-acre area, and location of certifications. There are no active, inactive, or abandoned underground mines or mine openings. Plate 125-1 depicts one cemetery (Hill Cemetery). In accordance with §12.142, Luminant has provided references to plates and tables included within the application that show lands affected and changed by proposed operations, buildings, utility



corridors, and facilities, land to be affected by mining and reclamation, land to be bonded (SD2, Section .142), coal storage, cleaning, and loading areas, locations in the application related to topsoil, spoil, coal waste, and non-coal waste storage, location of water diversion, collection, conveyance, treatment, storage, and discharge facilities, source of waste and waste disposal facilities relating to coal processing or pollution control, fish and wildlife enhancement and protection, locations of each sediment pond and permanent impoundment, plate certifications by registered professional engineers or geologists, and the location of descriptions, plans, and drawings for support facilities.

29. Luminant requests a negative determination for certain land tracts containing prime farmland soil units (for which special requirements for reconstruction of soils exist) as identified in the application, as supplemented in SD2, and that are the subject of an Affidavit of Use (application and SD2). Based on the affidavits submitted, a negative prime farmland determination is made as set out in this Finding of Fact. Luminant has submitted adequate documentation to meet the requirements of §12.138 for the tracts as set forth in this finding.
- (a). The soils and tracts are depicted on Plates 138-1 and 138-2, Prime Farmland Assessment Map. These plates identify prime farmland soil series, tracts on which the soils occur, and include markings showing tracts for which Luminant has not documented right-of-entry. Tracts identified as prime farmland tracts include tracts for which Luminant claims no right-of-entry, tracts for which Luminant has documented right-of-entry, and also tracts that are not proposed for disturbance in the five-year permit term.
  - (b). Luminant has provided two Affidavits of Use from one individual signed and dated on September 11, 2008 and June 24, 2009 stating that he has lived in Freestone County for 35-36 years, has owned land since 1988 in the area under consideration, and is familiar with the lands for which Luminant requests a negative determination. The affidavit contains a statement that to the landowner's knowledge, none of the tracts have been used as cropland for any five years or more out of the ten years prior to acquisition or lease by Luminant or its affiliated companies, or trustees and that the lands' primary use during such period was pasture or timberland. In addition, another person signed and dated an Affidavit of Use signed and dated on October 3, 2014 (SD2) stating familiarity with Tract 643 for the requisite period of time and that this tract has not been used for cropland for any five years or more out of the ten years prior to acquisition by him in 2001 and that its primary use was pasture and timberland. The documentation provided provides sufficient information to show that the lands meet one of the methods of proving that lands containing prime farmland soils are not prime farmland: that they have not been used for cropland for the requisite period of time. An affidavit was submitted in SD2 for Tract 643. A negative determination of prime farmland is found for the following tracts for which Luminant has right-of-entry: Tracts 48, 225, 225C, 606, 606B, 611A, 613, 661D, 662B, 665A, and 643.
  - (c). Luminant has not provided the requisite information for the remainder of the tracts requested that contain prime farmland soils. Staff recommends a permit provision to ensure protection of tracts containing prime farmland soils for which Luminant has not documented right-of-entry and/or for which no affidavits have been submitted that will clearly state the tracts omitted from the negative determination. All other tracts with prime farmland soils that are the subject of Luminant's request in the application are excluded from the Commission's determination and Luminant may not undertake any mining or mining-related disturbances on them. Luminant is in agreement with the permit provision. The Commission approves revised Permit Provision No. 1 in Appendix I to this Order to specify tracts that may not be disturbed: Tracts No. 605, 620, 641,

659, 661, 665, 667, 700, 702, 706, 707, 709, 709A, 710, 711, 715, 716, 717, 717A, and 827. Luminant must obtain right-of-entry for activities proposed and provide a reclamation plan for reclaiming the tracts as prime farmland in accordance with §12.201 or request a negative determination providing the appropriate supporting documentation and obtain approval for disturbance by the Director of the Surface Mining and Reclamation Division or the Commission prior to any surface mining and reclamation operations on these tracts.

30. Luminant has submitted all required materials to document its proposed operations plan for the proposed permit term, as revised in the application and supplements, in accordance with §12.139 of the Regulations, and as set out in the permit provisions contained in Appendix I. Luminant proposes to conduct mining in the DI Area and in the F Area within the proposed permit area. Mining will also occur in auxiliary mining areas where overburden is relatively shallow. Luminant proposes to mine a total of 956 acres during the 5-year permit term [Table 125(a)-1, SD2]. Lignite production is estimated to be approximately 3 million tons each year for a total of 15 million tons during the proposed permit term. Luminant indicates that it intends to accomplish this using draglines and auxiliary equipment including hydraulic excavators, hydraulic backhoes, front-end loaders, end-dump trucks, haulers, scrapers, dozers and motor graders. Luminant will transport lignite recovered from the Turlington operation by haulers to the Big Brown Steam Electric Station. The operations plan includes required information. Staff recommended a general permit provision that it numbered as its recommended Permit Provision No. 10 to prohibit operations in the F Area until requirements for certain endangered species surveys in the F Area are satisfied and protection plans approved. Luminant has no objection to this permit provision. The permit provision is adopted as set out in Appendix I to this Order as Permit Provision No. 5.
- (a). The general location of the permit area is shown on Figure 139(F)-1. Mining and reclamation disturbances will be kept within the mining limits line (MLL) depicted on the life of mine map and the mining operations maps. Luminant proposes mining by dragline and, in areas where the overburden is generally less than 50 feet deep, with mobile equipment. The pit progressions and areas to be mined appear on Plates 139-1-1 through 139-1-9, as supplemented [Plates 139-1-6, 139-1-7, and 139-1-8 (SD2)], and Plates 125-1 and 125-2, Life of Mine (SD2). Typical overburden removal methods are depicted on figures contained in the application.
- (b). Luminant proposes selective placement of suitable overburden materials in the top four feet of reclaimed soils. Auxiliary equipment is proposed for use to selectively handle suitable overburden materials. The operations maps contain depictions of overburden storage areas. There will be sufficient oxidized material suitable for use in the top four feet of reclaimed soils. The oxidized interval extends from the natural ground surface to the shallowest of the base of the oxidized zone or five feet above the uppermost lignite seam, excluding rider seams. Using the overburden suitability study, Appendix 145-A (SD2), cross-sections were developed that identified the location and thicknesses of the overburden stratigraphic units. Luminant developed data to evaluate the desirability of the materials as a plant growth medium. A geometric analysis shown in Figures 139(F)-29 (D1 Area) and 139(F)-30 (F Area) depicts suitable available material for selective handling with the dragline. There is a sufficient volume of materials available; however, the texture will not be suitable if handled by the dragline; therefore, the dragline will not be used in selective handling. Mobile equipment must be used in order to selectively handle enough suitable material to place in the top four feet of reclamation. Luminant will verify placement of four feet of suitable material by field survey or by using a GPS system on dozers or other heavy equipment. Luminant has also provided for suitable material stockpiles when there is not an opportunity for direct haulback and redistribution. The suitability of the overburden for



use in the top four feet as compared to native soils is addressed in Finding of Fact No. 35(d).

- (c). Luminant will recover four lignite seams and a rider seam that may occur in limited areas. Luminant includes mining methods that will maximize recovery of all economically mineable seams, normally greater than 0.5 feet thick. Mining and reclamation disturbances will be kept within the mining limits line (MLL) depicted on the life-of-mine map and the mining operations map. Luminant proposes mining by dragline and with mobile auxiliary equipment. Luminant has indicated that at mine block pit ends or final pits it may use methods such as offset pits or angling the pit ends to follow the economic limit of the lignite deposit. Luminant will obtain Commission approval prior to the use of offset pits or angling if the postmine slopes will change. The depth from the surface to lignite varies. Mining in shallower areas will progress more quickly, and clearing distances will vary ahead of mining based on field conditions, equipment and/or operational needs. With reference to clearing distances, Luminant has established the need for the distances based upon specific conditions including clearing distances needed for construction of support structures and establishment of auxiliary work areas. Luminant will require 1,500 feet in the D1 Area, and will mine 10 pits based on a pit width of 150 feet. The clearing distance is needed due to the rapid pit advancement of the dragline and for removal of suitable materials to reconstruct the top four feet of reclaimed soils. In the F Area, Luminant will require 1,725 feet (SD2) for the mining of 11.5 pits based on a pit width of 150 feet. The maximum clearing distance during Year 5 of the proposed permit term will be the width of the Year 5 mine block. Mine areas with a width (the distance parallel to the progression of mining) less than the distances of 1,500 feet or 1,725 feet will have the lesser parallel distance as the maximum distance.
- (d). Backfilling and grading variances approved for the D1North, D1 North Auxiliary Area and D1 Area (5.7 acres) will expire on June 22, 2015, and Luminant does not request extensions of these variances beyond that date. Luminant requests a schedule beyond 180 days and distance beyond four pit lengths (or approximately 1,000 feet) to conduct backfilling and grading in the portions of the D1 and F Areas mined by dragline [Tables 139(T)-3 and 139(T)-4]. Luminant requests 14 months and 1,200 feet. Staff did not note any objection to the time and distance requested by Luminant in any of its deficiency letters until it filed its TA on March 12, 2015. Staff stated in the TA that Luminant historically has had no difficulty in complying with the regulatory time frame (six months) for completion of rough backfilling and grading operations at this mine and stated that Inspection and Enforcement Staff verified that the rough backfilling and grading is being completed within the approved time frame at the Turlington Mine. Staff stated that Luminant's justification for the proposed additional time and distance to complete rough backfilling and grading is inadequate and does not recommend approval of the proposed time and distance to complete rough backfilling and grading and suitable material placement in the dragline areas. Staff recommends a proposed permit provision, as follows: "Luminant shall complete rough backfilling and grading in accordance with the time frame and distance requirements at §12.384(a)(3), and shall complete suitable material placement within six months following the completion of rough backfilling and grading in areas mined by a dragline." Suitable material placement will occur contemporaneously with the progression of the active pit in mined and auxiliary areas. Luminant responded in comments to the TA stating that although it does not wish for its comments to be considered as exceptions, it notes that Luminant is currently operating under two variances that were granted by the Commission and an additional variance is pending for the mine. Staff indicates that the two variances were granted for different reasons. Luminant also notes that it has had no opportunity during the processing of the application to address a deficiency in that none was noted in Staff deficiency letters. Staff indicates that

Luminant currently has a request for backfilling and grading variances in Revision No. 34 submitted by letter dated October 29, 2014 that is the same as the request in this renewal/revision/expansion application. In addition, backfilling and grading variances were approved in the approved permit. In its review, Staff does not explain why the requested variances are not needed. Based on all of the above information, the Commission declines to adopt the permit provision and approves the backfilling and grading variances proposed in the renewal/revision/expansion application. In that approval of the variances in time and distance requirements will do no harm in the short period of time that it will take for Staff to continue processing the request for backfilling and grading variance, should Staff determine that changes are required to this approved timeframe, changes can be processed in the pending revision application in which Luminant will have sufficient time to respond to Staff concerns.

- (e). Other operations are detailed in the application, including the locations and types of sedimentation ponds and other structures in its surface water control plan, description of proposed dewatering activities, typical locations of lignite stockpiles, description of overburden and topsoil handling, methods of identification of suitable overburden material for placement in the top four feet of postmine surface as a topsoil and subsoil substitute, regrading, stabilization of reclaimed areas, other structures used in the mining operations, waste handling, mine facilities, and measures Luminant will use to control dust and other emissions of particulate matter from non-stationary sources. Any excess excavated material will occur within surface water control and will be regraded as a part of postmine topography or used in construction. Luminant proposes to construct a lignite cleaning facility during the proposed permit term utilizing the density separation clean coal technology. The clean coal will be hauled to the power plant utilizing mine haulage equipment and the mine dilution material from this process will be temporarily stockpiled then hauled back to the open pit as part of the reclamation process.
- (f). One dragline relocation is proposed from the D1 Area to the F Area.
- (g). Luminant has included information in the application, as supplemented, to demonstrate that it will meet the requirements of §§ 12.382 and 12.402 of the Regulations for activities related to oil and gas wells and pipelines. In the approved application for permit, Luminant demonstrated a right by agreement to conduct activities that will affect pipelines or oil and gas wells within the proposed permit area by mining through or otherwise affecting oil and gas wells and pipelines as set out in its operations plan for the D1 Dragline Walkway and for the D1 Haul Road (pipelines owned by Energy Transfer Fuels LP and Anadarko Petroleum Corporation). Several pipelines exist within the permit area owned by Devon Energy Production Company LP, Anadarko Petroleum Corporation, Kinder Morgan Tejas Pipeline LLC, Exxon Mobil Pipeline Corporation, Pinnacle Gas Resources, Inc., Enbridge Pipeline (East Texas) LP, and LDH Energy Pipeline L.P. Luminant identified the tracts proposed for disturbance during the requested permit term on which pipelines exist that are owned by these companies in Table 116-F-2. In this table, Luminant indicated that there are no accommodation agreements that have been executed with these companies but that Luminant has an agreement regarding one well with Anadarko and a separate agreement with Anadarko to abandon and/or relocate all Anadarko gas pipelines that will be impacted by mining operations. None are specifically proposed in this application. Luminant's proposed pipeline relocations are shown on Plates 136-1 and 136-2, *Utilities*, in Section .136 of the application (Volume 2 of the application). Regulation §12.382 requires that the applicant identify and describe pipelines located within the permit area and within 100 feet of the permit area and that the applicant visibly mark them at 200-foot intervals throughout the permit area. Luminant requests a variance from the marking requirement and requests that when



pipelines are located within 500 feet of surface mining activity that it will mark them at 200-foot intervals, and that petroleum pipelines or natural gas pipelines within 200 feet of mining related disturbances will be marked using high visibility markers every 25 feet for the entire length of the activity. The marking interval will extend 200 feet in both directions beyond the location of the limits of the mining related disturbances. This variance is approved. In accordance with §12.382, a minimum of six feet of compacted material must exist between the pipeline and any haul road or access road or other mining related structure that crosses the pipeline; Luminant has undertaken to ensure that the minimum compacted material exists. In accordance with Regulations, the permittee must not create a cut within 100 feet or one times the depth of the cut (whichever is greater) or conduct blasting within 500 feet of a pipeline, and the permittee must comply with the Commission's Pipeline Safety Rules. No blasting is proposed in the application. Any proposal related to variances must be reviewed by the Commission for compliance with §12.382, as well as with §12.402's requirements that all surface coal mining operations be conducted in a manner which minimizes damage, destruction, or disruption of services provided by oil, gas, and water wells, oil, gas, and coal-slurry pipelines, and other facilities mentioned in the regulation, that pass over, under, or through the permit area, unless otherwise approved by the owner of those facilities and the Commission. No variances for pipelines, other than the marking variance are approved in this Order unless set forth in the Order.

- (h). Luminant has indicated that it anticipates final pits to occur in the DI Area (Year 2014) and in the F Area in Year 2018 (SD2, p. 139-11) within the permit term, if approved by the Commission. General design plans for final pit permanent impoundments are shown on Plates 139-2-1 and 139-2-1 and listed in Table 139(T)-8. Luminant may in the future request temporary cessation of operations (TCOs) in certain areas when pit progression is expected to cease on a pit, or portion of a pit, for more than 30 days before resumption of activities, but does not request TCOs in this application. Luminant must provide information sufficient for compliance with §12.397 prior to Commission approval of TCOs. Luminant also requests a Suitable Material Placement Variance for the D1 North Area for 88 acres that was approved May 15, 2013 to the end of the requested permit term.
- (i). Luminant included requests that variances from the stream channel buffer zone restrictions for activities continue as approved for areas within the buffer zones of Big Brown Creek, Myrtal Branch, and Malone Branch, Myrtle Branch Permanent Relocation No. 1, Willow Branch, and Cold Spring Branch for the requested permit term. The variances for the first four creeks listed are existing approved variances and they are approved for extension through the requested permit term. The Cold Spring Branch and Willow Branch variances requested are associated with proposed Ponds F-1 and F-2, respectively. [See Findings of Fact No. 37(a) and 37(b).] The requested areas are depicted on Plates 139-4-1 and 139-4-2 (SD2). Staff indicated in its technical review that the description provided for the proposed activities was overbroad in that all of the activities included as a description of buffer zone variance activity would not apply to each buffer zone area. Luminant replies in its Errata SD2 that the intent of the variance request is to allow Luminant the ability to conduct maintenance activities on the structures with watersheds that are greater than 640 acres and for which detailed plans are approved by the Commission. The description provided by Luminant is adequate. These maintenance activities are the only activities within the zones depicted on the Stream Buffer Zone Map that may be approved. Staff recommends the retention of the existing permit provision providing that no mining-related activities are approved in stream-buffer zones other than those described in detailed design plans contained in the application, as supplemented, or that may subsequently be approved. Luminant is in agreement with this permit provision. Permit Provision No. 3 approved in the existing

permit is retained in Appendix I renumbered as Permit Provision No. 2. The Commission may approve disturbances within 100 feet of perennial or intermittent streams: (1) if proposed activities will not cause or contribute to the violation of applicable State or federal water quality standards and will not adversely affect the water quantity and quality or other environmental resources of the stream [§12.355(a)(1)], and (2) in cases of temporary or permanent stream-channel diversions, they will comply with §12.341 of the Regulations related to the requirements for approval of diversions [§12.355(a)(2)]. In compliance with the requirements of §12.355, Luminant has presented information sufficient to meet the requirements of §12.355(a)(1) and (2) as set out in this finding of fact. Luminant indicates (p. 139-12) that the proposed activities will not cause or contribute to the violation of applicable State or Federal water quality standards and will not adversely affect the water quantity or quality or other environmental resources of the stream. Luminant indicates that it will mark the upstream and downstream extent of disturbance in accordance with §12.355(b) to meet the requirements of §12.330, and indicates that it will protect the environmental resources of the creeks both upstream and downstream by ensuring compliance with applicable State or Federal water quality standards. Luminant will utilize erosion control measures including but not limited to hay check dams, silt fencing, revegetation and erosion control matting. Luminant will not mine in the buffer zone unless surface water control has been established, and any temporary or permanent diversions of the stream channels will only be conducted after Commission approval. All temporary and permanent stream channel diversions will comply with §12.341 in that the design capacities and construction will be at least equal to the capacity of the unmodified stream channel immediately upstream and downstream of the diversions; that is, the combination of channel, bank, and floodplain configuration will be adequate to safely pass at a minimum the peak runoff from a 10-yr/6-hr design storm event for temporary diversions, or, for permanent diversions, the peak runoff, at a minimum, from a 100-yr/6-hr design storm event. Registered professional engineers must certify designs as meeting the performance standards and design criteria. In areas where the stream channel is impacted by construction activities, a storm-water pollution prevention plan will be followed. Detailed design projects must include such protection plans.

- (j). In SD2, Luminant includes a Slope Comparison Table, Table 139(T)-1, for the permit area. Premine slopes are as follows: 0-5% slope, 44.9% of the permit area; 5-10% slope, 38.3%; 10-15% slope, 10.8%, and >15% slope, 6.1% slope. Premine slopes categories and percentages are set out in Table 137-1; premine contours are set out on Plates 137-1-1 and 137-1-2, and premine slopes are depicted on Plates 137-2-1 and 137-2-2. Postmine slopes proposed are 0-5% slope, 43.1%, 5-10% slope, 35.1 %, 10-15% slope, 15.5% slope; and >15% slope, 6.3%. Postmine contours are depicted on Plate 139-2-1 and 2, and Postmine slopes are shown on Plate 139-2-1 and 139-2-2. Staff compared slopes in it table on p. 71 of the TA. The comparison indicates that slopes will increase slightly in the 10-15% slope and in the greater than 15% slope categories; however, postmine slopes will approximate premine slopes.
- (k). The application includes a general narrative of the use of dams, embankments, and other impoundments and generally applicable design, construction, and maintenance of the structures (application, p. 139-13 through 139-15). The application includes depictions of existing and proposed permanent impoundments on Plates 139-1-1 through 139-1-9, and they are listed in Table 139(T)-8. Table 139(T)-6 lists *Primary Sediment Control Structures and Impoundment Schedule*. There are three existing sedimentation ponds, D-1, D-2, D-3. The D-2 Sedimentation Pond Modification, as well as the F-1, F-2, and F-3 Sedimentation Ponds, are proposed for the requested permit term. In addition, there are three existing temporary impoundments, D-8, D-9, and D-10. Diversions are also depicted on Plate 139-1-1 through 139-1-9 and are listed in Table



139(T)-7, *Diversion Schedule*. Eight are listed as existing diversions (D-1A, D1-B, D-1B Terrace, D-1C, D-1C Protection Berm, D-1E, D-2A, and D-2B). Another four have been approved (D-1F, D-3A, D-3B, and Myrtal Branch Permanent Relocation Modification No. 1). All proposed and existing diversions are temporary with the exception of the approved permanent diversion, Myrtal Branch Permanent Relocation Modification No. 1. Luminant proposes four temporary diversions for the requested permit term: D-2C, F-2A, F-2B, and F-3A. Compliance with regulatory requirements for the proposed structures is addressed in Findings of Fact Nos. 37 and 38.

- (l). Luminant proposes exploration activities within the proposed permit area in its application, as needed. Activities will include subcrop definition, lignite and overburden coring, lignite test pit excavation as detailed on pp. 139-18 – 139-20 of the application, aquifer identification, and activities needed for obtaining geological and geotechnical data needed for deposit development. Luminant will submit a notification prior to conducting exploration activities. No drilling will exceed 300 feet in depth without prior approval by the Commission. In addition, an annual map, identifying boreholes that are cased as wells will be submitted to the Commission by March 1 of the year after the well is installed. Luminant did not state in the application, as supplemented, that it would submit completion information for the wells. In the approved permit, this was also the case and Staff recommended a permit provision to ensure submittal of this documentation. Luminant concurs with the permit provision. Existing Permit Provision No. 4 is renumbered as Permit Provision No. 3 and is retained as set out in Appendix I to ensure that the documentation is submitted within 60 days of installation. Luminant intends the use of limited vehicular pathways addressed in the Division's Advisory Notice IN-EN-3(149). Luminant will obtain Commission approval of transportation facilities requiring compliance with §§12.400, 12.402, and 12.403. Disturbed areas will be reclaimed in accordance with the Regulations. Luminant undertakes that it will minimize environmental damage and will not disturb habitats of unique or unusually high value for fish, wildlife, and other related environmental values and critical habitats of threatened or endangered species. All specific requirements of the Regulations will be met, including the casing and sealing of drilled holes in compliance with §§12.331-12.333. No streams will be diverted due to exploration activities. Luminant intends only small temporary diversions of overland flow, and these activities will be conducted to prevent erosion and additional contribution of suspended solids to streamflow or runoff outside the permit boundary. Sediment control measures will be used to minimize disturbances of the hydrologic balance.
31. No existing structures as defined by §12.3(63) of the Regulations (structures or facilities for which construction began prior to approval of the State program) will be used to facilitate surface mining and reclamation operations (§12.140, Regulations). No blasting is proposed (§12.141, Regulations).
32. Luminant will meet requirements for air pollution control. No air quality monitoring plan must be filed in that the permit area is not located west of the 100<sup>th</sup> meridian west longitude and no other factors exist which result in the need for monitoring. A plan for fugitive dust control practices is included in the application that will adequately control fugitive dust resulting from mining and reclamation operations as required by §12.143(b)(2) of the Regulations, including temporary closure of roads when not in use, grading and shaping road surfaces, the use of water trucks for reduction of dust from traveled surfaces, the application of emulsions or chemical preparations, minimizing disturbed areas, and prompt revegetation with temporary and permanent vegetation. In addition, in high-wind situations as defined in the application, Luminant will cease all potentially dusty operations such as hay baling, hay mulching, plowing, and reclamation leveling that are not related specifically to the mining operations or construction of structures required for mining. Luminant has committed in the application to having required permits

and filing copies with the Commission prior to construction and operation of the Coal Cleaning Facility that will use a combination of air tables and air jigs in a dry cleaning process utilizing air and vibratory beds to achieve separation of lignite from mine dilution to clean the lignite to improve heating value and to result in lower emissions.

34. The application, as supplemented in SD2 and SD3, includes a protection and enhancement plan in accordance with §12.144 of the Regulations to minimize disturbances and adverse effects on fish and wildlife and related environmental values during the proposed operations and reclamation.
- (a). In SD3, Luminant supplemented the application to include a map, Plates 144-1 and 2, *Conceptual Wildlife Enhancement*, that depicts facilities to be used to protect and enhance fish and wildlife and related environmental values. The protection and enhancement plan includes a description of minimization and protective measures for threatened and endangered species, migratory birds, and other species in accordance with TPWD and USFWS requirements and consultation. Steps will be taken to protect bald eagles and to relocate timber rattlesnakes in accordance with TPWD Scientific Permit No. SPR-1006-760, if encountered within the proposed permit area, and Luminant will notify the Commission if they are encountered. Luminant's permits include, in addition to TPWD scientific permit SPR-1006-760, the USFWS Federal Fish and Wildlife Permit No. TE840214-0 (Appendix 121-A) for scientific and recovery purposes to survey for interior least terns, and Federal Fish and Wildlife Permit No. MB8947A-0 (Appendix 121-A) for removal of one bald eagle nest at the Turlington Mine. Luminant will avoid rookeries and raptor nest sites. The approved permit includes a protection plan for the threatened wood stork (SD1 of that permit). The wood stork has been reported in Freestone County including the adjacent Trinity River floodplain (2003). The wood stork's habitat includes shallow water bodies present in the proposed permit area; although they do not have breeding colonies in Texas, they migrate into Texas from Mexico during late summer and early fall along river systems, including the Trinity. Luminant's plan to protect wood storks that may migrate into the proposed permit area includes educating mine personnel regarding the birds, reporting sightings to the Commission within 48 hours with a brief description and map showing the location of the sighting and minimizing mining-related activities to essential environmental protection and compliance during the presence of the wood storks. Appendix A of Section .144 of SD2, p. 3, indicated that Luminant was in the process of preparing a biological assessment to be submitted to the Commission to address USFWS's concerns regarding all threatened and endangered species about which concerns were expressed in the April 8, 2014 letter submitted to the Commission. Luminant submitted the document in SD3, as supplemented in SD4. It included a copy of the two permits issued to Luminant by USFWS and copies of reports regarding prior threatened and endangered species studies, habitat evaluation, and species surveys associated with the Turlington Mine. These include the following species: interior least tern, whooping crane, Navasota Ladies' Tresses, Large-Fruited Sand Verbena, Houston Toad, and several mussel species. With reference to migratory birds, in SD3, Luminant provided information that it had contacted the USFWS Migratory Bird Treaty Act office in Albuquerque, New Mexico by phone and by letter dated February 4, 2015 to solicit input and to follow up on the 2003 consultation letter (letters, Appendix 144-A). After receipt of a response from the USFWS, Luminant has undertaken to prepare and submit an updated Fish and Wildlife Plan to document coordination with the USFWS and to reflect any new guidance or protective measures resulting from the coordination (p. 144-5, SD3). Staff recommended a permit provision numbered in its TA as Permit Provision No. 17 that would require that Luminant provide a copy of a letter requesting that USFWS amend the Big Brown Interior Least Tern permit to include the Turlington Mine and USFWS' approval/response letter or to submit a copy of the USFWS



Interior Least Tern permit including the Turlington permit area. Staff requested that the permit provision specify the providing of these documents by Luminant within 45 days of permit issuance. This permit provision is unnecessary as the undertaking to provide the information is contained in the application, as supplemented, and in that the Commission has no control over the USFWS timeline for approval. The Commission declines to adopt this permit provision.

- (b). Measures to be used are included related to the removal of surface features, construction of roads and other facilities, limitation of speed on roads, proper design of diversions and stream channel restoration, proper design and construction of power lines and transmission facilities to protect against contacts by eagles or other large birds, and proper roadway stream crossings. Vegetation species intended for use for wildlife habitat will also be planted (Table 144-D contained in Appendix A, Section .144 of the application, SD3). No land within 100 feet of perennial or intermittent streams will be disturbed by surface mining activities unless approved by the Commission.
- (c). The mitigation plan, as supplemented, meets the requirements of §§ 12.144 and 12.380 of the Regulations. The plan includes protective measures during and before active mining, including minimization of the time of clearing to the time of mining, removal of the most marketable timber when possible and the use of best management practices for timber thinning and in streamside management zones, mining in narrow bands to lessen impacts, and minimization and enhancement measures including restoration of streams and other wetlands, construction of ponds, impoundments, and relocation of streams to reduce sediment and to provide additional habitat. Luminant included a copy of the U.S. Army Corps of Engineers (USACE), Permit No. SWF 2008-00353, with approval letter dated August 26, 2010 (Appendix 121-A, S2). Should this permit differ from the proposed wetlands impact plan contained in the application, as supplemented, Luminant must file an application for revision with the Commission. Wetlands and other waters of the U.S. are described in Section .133 of the application as supplemented (SD2). As indicated in Finding of Fact No. 24, based on field surveys in 2002, 2007, and 2013 jurisdictional waters of the U.S. include non-forested (emergent) wetlands (27.3 acres), forested wetlands (59.5 acres), scrub-shrub wetlands (4.6 acres), open water, (70.1 acres, and stream channels (33.0 acres). These lands are delineated on Plates 133-1-A and 133-1-B of the application. Luminant has undertaken to mitigate wetlands in the appropriate ratios. Luminant proposes mitigation in the following ratios on 272.3 total acres: forested and scrub/shrub wetlands, 64.1 acres at a 2:1 ratio for a total of 128.2 acres; non-forested wetlands, 27.3 acres at a 1.5:1 ratio for a total of 41.0 acres; ponds, 70.1 acres at a 1:1 ratio for a total of 70.1 acres; and stream channels, 33 acres at a 1:1 ratio for a total of 33 acres. As a mitigation condition of the USACE Section 404 permit, portions of the seepage bog were subsequently relocated by Luminant [Finding of Fact No. 24(e)]. In SD3, Luminant provided additional information that Luminant's July 22, 2010 supplemental mitigation plan submitted to the USACE that contained a plan separate from the plan to transplant portions of the bog off-site to salvage additional bog species for on-site use, was undertaken. Luminant evaluated areas indicated as seeps but was not able to identify a conducive environment and appropriate site conditions. Luminant has undertaken to coordinate with the USACE to determine whether alternative measures for fulfilling this element of the Supplemental Mitigation Plan are required (SD3, Errata, p. 22). Luminant has also undertaken (Errata portion of SD2, pp. 24-25) to provide copies to the Commission of the annual report to the USACE of the acres impacted and mitigation site status and will also provide Commission approved changes to the USACE.
- (d). Luminant includes vegetation lists for species for wildlife habitat and compensatory mitigation

areas (Appendix 144-D, SD2) and will use appropriate species with proven nutritional value for fish and wildlife for planting and distribution that are appropriate to lands reclaimed to fish and wildlife habitat. Species planted will be diverse and a variety of habitat types will be developed, with travel lanes if needed to connect habitat areas. Stream channels will be reestablished in accordance with Regulation §§12.380(e)(6) and 12.355(a).

- (e). All birds, except rock doves, European starlings, and house sparrows are protected by the Migratory Bird Treaty Act. Hunting within the permit area is prohibited. Luminant has included its plan for the protection of migratory birds in its Fish and Wildlife Plan included in Appendix A, Section .144 of the application for renewal/revision/expansion, as supplemented. The plan focuses on minimization of impacts and reclamation. Nesting areas will be avoided during active periods. Luminant plans to reclaim disturbed areas so that 67% of reclaimed areas are fish and wildlife habitat. Luminant provided information regarding bald eagle nest monitoring and reporting efforts and will provide the Commission with up-to-date correspondence associated with the USFWS permit (concurrently with submittals to, and within 30 days of receipt from USFWS). The permit also required deposit of \$25,000 into an escrow account for the direct benefit of bald eagles and annual monitoring of the area where a nest occurred to evaluate new nesting activities. In SD3, Luminant provided page 144-11a that includes information regarding the selection of a site in coordination with TPWD, USFWS, and USACE, for the development of a 32-acre wetland habitat to increase foraging habitat for bald eagles in the south unit of TPWD's Richland Creek Wildlife Management Area located approximately ten miles from the mine. Construction work is scheduled for May 2015.
- (f). In SD3 Luminant committed to provide supplemental data on non-listed species encountered during subsequent surveys (rare and listed plant/plant community surveys, protected mussel and herpetofauna surveys, and annual eagle and tern surveys) and monitoring events conducted prior to or during the proposed permit term. Luminant will update cumulative species lists included in Sections .132 and .133 of the permit to identify newly observed species and specify when they were observed, and Luminant will include these updated lists with future permit renewals (p. 144-13, SD3).
- (g). Staff recommends a permit provision requiring that Luminant shall concurrently provide to the Director of the Surface Mining and Reclamation Division copies of all correspondence sent to USFWS or the TPWD associated with or stemming from any fish and wildlife concerns within and adjacent to the permit area and copies of correspondence received from these agencies within 30 days of receipt. Because some pieces of correspondence appear to have been filed with the Commission late, this permit provision is reasonable and is adopted as Permit Provision No. 7 in Appendix I to this Order.

35. The application, as revised and supplemented in SD2 contains a reclamation plan for the permit area that includes all required information in accordance with §12.145 of the Regulations, including a detailed reclamation timetable, a detailed estimate of the costs of reclamation, a plan showing the final surface configuration of the permit area, a topsoil redistribution plan, and a plan for revegetation.

- (a). A detailed timetable for the completion of each major step remaining in the reclamation plan for the permit area is included in the application, as supplemented, in accordance with §12.145(b)(1). This timetable is contained in Figure 145-1, *Reclamation Timetable*, and includes the following:  
Coal removal – The timeline for reclamation is initiated by final coal removal from the pit.



Backfilling and grading – Following coal removal, backfilling and grading and placement of suitable material will be completed within the timeframes and distances described in Section .139 of the application.

Placement of suitable material – Following backfilling and grading, placement of suitable materials will be completed within the time and/or distance requirements as established in Section .139 of the application.

Temporary vegetation - May be planted when seasonal conditions prevent planting permanent cover. Temporary cover is typically planted from September through November.

Permanent vegetation - Warm-season grasses are typically planted during March through June. Trees and shrubs are typically planted from January through April into established ground cover.

Extended responsibility period - Will be initiated when augmentation of the permanent vegetation has ceased and management units have been established.

Phase I bond release - Application for Phase I bond release will be submitted within one year of the initiation of the ERP, with the exception of approved temporary structures that are needed for drainage control and facilities that support mine operations.

Phase II bond release - A combined Phase II and III bond release application will be submitted within one year of the end of the ERP.

Phase III bond release - A combined Phase II and III bond release application will be submitted within one year of the end of the ERP.

- (b). A detailed estimate of the cost of reclamation required to be covered by the performance bond is contained in the application, as supplemented (SD2), in accordance with §12.145(b)(2).
- (1). Luminant revised its reclamation cost estimate included in the application and SD1 and SD 2, Section .145, Appendix H. The revised estimate is \$54,309,455.86 and is calculated based on the area cost method of estimating reclamation costs. Areas to be bonded are shown on Plates 142-1-1 and 142-1-2, Bond Map (SD2), and Table 142-1, Bond Map Summary (SD2). The reclamation cost estimate includes costs for 2,131.64 mined acres (at \$17,836 per acre), 1,916.37 disturbed acres (at \$5,813 per acre) and facilities removal costs for 117 acres (\$212,442.75) for a total, with 10% administrative costs (\$4,937,223.26) for a total of \$54,309,455.86. Staff's reclamation cost estimate is in an amount less than Luminant's primarily due to dozer push distances and unit costs. Staff's estimate is \$50,705,045 (Appendix II, TA).
  - (2). The Commission approves the Luminant estimate as the amount required to reclaim the mined, disturbed, and ancillary areas and facility removal within the permit area should reclamation be performed by a third-party at the direction of the Commission because it will result in a more conservative cost that is more appropriate for third-party reclamation. Mined areas included any area where spoil is deposited, and the active pit and highwall reduction areas. Disturbed areas included construction activities at sediment ponds, diversions, access roads, haul roads, and facilities where topsoil is removed, but the area is not mined. Ancillary areas included disturbance areas where topsoil is not removed on which soil preparation and seeding are the only reclamation activities. Maintenance costs are also included. The reclamation cost estimate equipment and productivity costs. Seven work categories were used: overburden spoil leveling, haulback operations, disturbed area leveling, final grading, soil preparation, revegetation, and maintenance. Per-acre costs associated with each work category are detailed.

- (3). By Order dated June 17, 2014, the Commission accepted a blanket collateral bond for all of Luminant's mining operations in Texas. The collateral bond is in the amount of \$1.1 billion. The estimate of reclamation costs used for Permit 54 will be revised in accordance with this finding to \$54,309,456 for Permit No. 54. Using Luminant's estimate of reclamation costs, the total costs for reclamation of Luminant mining operations in Texas will be \$967,167,774. The accepted \$1.1 billion will remain excess of the estimated costs of reclamation by \$132,832,226, and will be sufficient for reclamation of Luminant's mining operations in Texas, and will remain in place. No additional bond is required. The table below reflects the current reclamation cost estimates approved for Luminant mining operations, with the increased Turlington estimate, subtracted from the approved bond amount, to reflect the excess bond amount.

Permit No.	Mine Name	Bond Amount
3F	Big Brown Mine	\$ 69,792,530
4K	Martin Lake Mine	\$ 135,503,972
5G	Monticello-Thermo Mine	\$ 40,945,674
34F	Monticello-Winfield Mine	\$ 129,529,692
46C	Oak Hill Mine	\$ 218,309,341
48B	Three Oaks Mine	\$ 72,945,999
49A	Bremond Mine	\$ 3,494,680
50A	Kosse Mine	\$ 149,529,445
51	Leesburg Mine	\$ 10,959,640
53	Martin Lake AIV South Mine	\$ 40,448,786
54	Turlington Mine	\$ 54,309,456
56	Thermo A-1 Mine	\$ 3,255,671
58	Martin Lake Liberty Mine	\$ 38,142,888
All Permits	Total Aggregate Reclamation Cost (including 10% administrative costs):	\$ 967,167,774
	Approved Collateral Bond:	\$ 1,100,000,000
	Excess Bond Amount:	\$ 132,832,226

- (c). The application, as supplemented, in accordance with §12.145(b)(3) includes a plan that shows the final surface configuration of the permit area (SD2). The application, as supplemented, includes descriptions of backfilling and regrading and sets out time and distance schedules for backfilling and regrading. Luminant has provided information for the placement of suitable material in the top four feet of reclaimed soils. A postmine contour map and postmine slope map have been provided [Finding of Fact No. 30(i)]. The Commission finds, based on the information contained in the application, as supplemented, and this Order, that the postmine contour will meet approximate original contour.
- (d). Luminant has included information to meet the requirement of §12.145(b)(4) for a plan for the selective placement of overburden to meet the requirements of §§12.334-12.338 of the Regulations as required by §12.145(b)(4). Luminant has provided a soil-handling plan that is acceptable as a method to prevent the presence of acid- and/or toxic-forming materials in the top four feet of reclaimed soils. The use of topsoil substitute material is approved, based on the availability of sufficient suitable materials [Finding of Fact No. 30(b)], the determination that the resulting soil medium is equal to or more suitable for sustaining revegetation than is the available topsoil, and that the substitute is the best available to support revegetation.



- (1). Luminant prepared cumulative frequency distributions for parameters to be used as the postmine soil standards for the permit area excluding the F Area and standards for the F Area (Appendices 134-D and 134-E) (Finding of Fact No. 27). Luminant requests that oxidized overburden be approved for use as a topsoil and subsoil substitute to reclaim the top four feet of postmine soils. Luminant identifies the continuous cores used for each oxidized overburden suitable material analysis. Luminant included a study in Appendix 145-A of the application (SD2), *An Evaluation of Overburden for Use in Postmine Soils* to support the use of overburden materials as a topsoil and subsoil substitute (0-1 foot interval and 1-4 foot interval). The suitable material depths for the overburden materials have been identified for the two areas using 16 continuous cores out of the 23 cores located within the life-of-mine area. Of these 16 cores, six were used to define parameters for suitability for the permit area excluding the F Area, and 11 were used to define parameters for suitability for the F Area). An overburden selective handling plan was submitted in Section 139 of the application, as supplemented, that will ensure that suitable materials are placed in the top four feet of postmine soils. A sufficient volume of suitable material exists for use as topsoil and subsoil substitute material to a depth of four feet by placement by dragline [Figures 139(F)-29 (DI Area) and 139(F)-30, Finding of Fact No. 30(b)]. Methods of selective handling of the overburden are depicted in the overburden handling method drawings included in Section 139, as supplemented.
- (2). The soil suitability determination is based on comparisons to the parameter values at comparable depths to the native soil baselines and current Railroad Commission suitability guidelines. Appendix 145-A contains data showing the soil characterization of the oxidized overburden. Table 145-A-1 lists mean values for oxidized overburden and for native soils for the F Area and for the permit area excluding the F Area. Tables 145-A-2 through 145-A-4 provide cumulative frequency distributions for pH, ABA, and sand, respectively for the oxidized overburden and for native soils for the F Area and for the permit area excluding the F Area. Luminant developed statistics comparing oxidized overburden with native soils for the parameters of concern for the topsoil (0-12 inches in depth, and subsoil, 12-48 inches in depth: pH, acid-base accounting (ABA), and percent sand. The statistics were developed for (1) the mine area, excluding the F Area (proposed for mining during the proposed permit term), and (2) for the F Area. Two separate areas were used because the F Area is almost totally located within deep sand units. The cumulative frequency distributions of the oxidized overburden for pH and ABA are similar to the native soil baselines, as are clay, electrical conductivity, sodium adsorption ratio, and potentially toxic elements (all generally within acceptable limits). Because of pH values below 5.0 that may occur within the top four feet of some of the soils, calcium carbonate (lime) will be used to improve the soils if necessary and will be incorporated to the depths of one foot to four feet at appropriate rates. Luminant does not anticipate the presence of other acid-forming or toxic-forming materials within the top four feet of reclaimed soils but has provided a contingency treatment plan for correction of soils should they occur. Data shows, with isolated exceptions, that the overburden does not contain acid-forming or toxic-forming materials. Reclaiming the top four feet with selected oxidized overburden will result in a better soil texture for the topsoil. For topsoil substitute materials, sand content should be less than 80%. According to the Commission's Advisory Notice ER-BA-127(b), in areas with topsoil sand content above 80%, the textural characteristics of the proposed topsoil substitute

material must be equal to or better than the available topsoil. For the F Area, 59% of the oxidized interval exceeds 80% sand; the native topsoil sand percentage is 86%; therefore, using less than 80% as the standard, the oxidized overburden is equal to the native topsoil texture. The average sand content of the top four feet in the locations of the 6 cores were located that were used to identify suitable material for the permit area excluding the F Area is 88%. Comparing the native soil 88% sand to the oxidized overburden's 65% sand indicates that the use of the oxidized overburden should result in a soil with better texture. As to texture, these comparisons show that the resulting soil medium using selected oxidized overburden intervals will result in topsoil substitute material that is equal to or better than the premine topsoil and will result in subsoil that is equal to or better than the native soils where the cores were collected (Appendix 145-A, as supplemented in SD2, and Table 145-A-4, SD2).

- (3). Staff evaluated the characteristics of the proposed substitute material and compared them to the native soil baseline. Areal-weighted frequency distributions as evaluated by Staff indicate that the oxidized overburden will have pH and ABA values equal to or better than the native topsoil, the sand content of the overburden will also be equal to or better than the native topsoil for revegetation. Luminant has also presented sufficient information showing that the overburden selective materials will be the best available to support vegetation. In consideration of this data and the use of mobile/auxiliary equipment for removal of the oxidized overburden, the Commission determines that the proposed substitute material will result in a soil medium equal to or better than the native top four feet.
- (4). Luminant has included its undertaking to apply soil nutrients and amendments to the redistributed postmine topsoil in amounts determined by soil testing to support vegetation in compliance with requirements of the Regulations.
- (e). As set out in §12.145(b)(5), the application, as supplemented, includes a plan for revegetation as required by §§12.390-12.393 and 12.395 of the Regulations. Luminant proposes a plan for revegetation in the application addressing the elements contained in §12.145(b)(5)(A – F). These include, as set out below: (1) a schedule for revegetation, species and amounts per acre of seeds and seedlings to be used, and methods to be used in planting and seeding, mulching techniques, irrigation and pest and disease control, (2) measures to be used to determine the success of revegetation (§12.395), and (3) a soil-testing plan for evaluation of the results of topsoil handling and reclamation procedures related to revegetation.
  - (1). The schedule for revegetation includes Luminant's plan to seed and plant during the first normal period after the completion of backfilling and grading, typically March - June for permanent warm-season grasses, September - November for temporary cover, and January – April for trees. Temporary vegetation may be planted when seasonal conditions prevent planting permanent cover. The timetable for reclamation is set out in Finding of Fact No. 35(a).
  - (2). The application includes planting lists for fish and wildlife habitat (Appendix 144-C, SD3) that include native species of forbs, grasses, trees, shrubs, vines and aquatic plants. Appendix 144-C, SD3, contains seeding rates and planting dates for fish and wildlife areas for grasses, forbs, grass-like species, shrubs, trees, vines, and aquatic plants. Table 145-B-1, SD3, specifies potential species occurring in revegetated fish and wildlife



habitat. Table 144-D (SD3) includes revegetation species (for planting) for fish and wildlife habitat. Plant species for pastureland will be selected from those listed in Appendix 145-C. Appendix 145-D sets out forage production standards for various grasses. Information is also provided for planting and seeding methods, mulching techniques, and irrigation practices (as necessary for initial seed or sprig establishment in unusually dry years) and pest control measures (in accordance with the Texas Agriculture Code, Chapter 76, Texas Pesticide and Herbicide Regulations). Mulching techniques will include, as appropriate, use of cool-season vegetation as a temporary ground cover, annual or perennial species, bermudagrass sprigs, straw or hay from mid and tall grass or grains spread uniformly over the area, and mulch sodding of rills and gullies.

- (3). To determine the success of revegetation, Luminant will follow standards set out in the Commission's *Procedures and Standards for Determining Revegetation Success on Surface-Mined Lands in Texas*. Forage production standards are included in Appendix 145-D). For fish and wildlife habitat, ground cover will meet a minimum of 90% of the 78% technical standard [§12.395(a)(2)], and trees and shrubs will meet a minimum 90% [§12.395(a)(2)] of the 30 trees per acre stocking standard. For measuring success of undeveloped land, Luminant will use the vegetation parameters, ground cover and woody plant stocking rate. Ground cover will be at least 90% of a 95% ground cover standard, and woody plant stocking will be at least 90% of a 100-stem per acre stocking standard. For pastureland, ground cover will meet at least 90% of the 95% technical standard (§12.395(a)(2)). Productivity will be at least 90% of the technical standard provided in Appendix 145-D and must meet at least the approved production standard during any two years of the extended responsibility period (except the first year). At least 75% of the vegetation must be species from the approved planting list. Up to 25% may be from desirable invader species listed in the application (Table 145-B-2, Potential Species Occurring in Pastureland Areas; Table 145-B-1, SD3, Potential Species Occurring in Revegetated Fish and Wildlife Habitat). In addition, trees and shrubs must be healthy and have been in place for not less than two growing seasons, and at the time of bond release, at least 80% of the trees and shrubs used to determine success shall have been in place for 60% of the applicable minimum period of responsibility [§12.395(b)(3)(B)]. The proposed permit area receives more than 26 inches of rainfall per year; an extended responsibility period of five years is applicable to the proposed permit area.
- (4). A banking method will be used to establish soil by comparing premine and postmine acreages. Luminant will meet the postmine soil performance standards; it will ensure that the postmine area sampled to date will be compared to the native soils baseline and that no parameters will fall below the postmine soil performance standards. For parameters not listed in the soil baseline, the statewide criteria as shown in Advisory Notice ER-BA-127(b) will be used to determine postmine soil success. Table 145-5 (Permit Area Excluding F-Area) and Table 145-6 (F Area) contain the frequency distributions for native soils for regulated parameters. The frequency distributions are multiplied by the acreage within the actual disturbance area to yield the actual acreage allowed for each parameter value at each depth increment in each of the two areas. This is an ongoing process as mining progresses and the disturbance area increases, and the soil bank is updated based on the change in disturbance; the updated areas will be submitted to the Commission as part of each initial soil monitoring report. Two depth

increments (topsoil, 0-12 inches in depth, and subsoil 12-48 inches) are included in the banks. The native soil baseline frequency distributions for the topsoil (0-12 inches) and for the subsoil (12-48 inches) for the Permit Area Excluding F Area and for the F Area will be used as postmine soil performance standards and will be compared to sampling results for the corresponding two intervals within the top four feet of the two reclaimed areas. For parameters not listed in the soil baseline, the statewide criteria shown in Advisory Notice ER-BA-127(b) will be used.

- (5). Luminant includes a soil-testing plan in the application for evaluation of the results of soil handling and reclamation procedures related to revegetation. Appropriate select material placement and soil testing, in accordance with the Soil Testing Plan included as Appendix II to this Order (taken from the Staff's TA, Appendix VII), will ensure that the reclamation of the top four feet of reclaimed soils results in the required soil medium. The Commission approves the postmine soil performance standards as set out in Appendix II to this Order. Luminant's soil testing plan includes the delineation of 5.7-acre grids for monitoring postmine soil quality (Plate 145-1). Luminant includes plans for sampling the 0-1 interval for pH, potential acidity, exchangeable acidity, neutralization potential, acid-base accounting, texture (sand, silt, and clay), the agronomic parameters nitrate-nitrogen, plant available phosphorus, potassium, calcium, and magnesium, cation exchange capacity (CEC), and sulphur forms. Luminant will sample the 1-4 foot interval for pH, potential acidity, exchangeable acidity, neutralization potential, and ABA, texture, CEC, and sulphur forms. A random 10% of the 0-1 and 1-4 foot intervals will be sampled for cadmium, selenium, hot-water-extractable boron, electrical conductivity, and sodium adsorption ratio. Initial postmine samples will be submitted to the Commission within two years of backfilling and grading, prior to placement in the extended responsibility period, and prior submittal of Phase I, II, or III bond release application. Maintenance sampling will be performed. Composite soil samples will be taken at the end of the growing season from the 0-1 foot depth and analyzed for pH, nitrate-nitrogen, plant available phosphorous, potassium, calcium and magnesium. The soil samples will be obtained in the years immediately prior to and in the first and second years of vegetative assessment. A random 10% will be sampled during the fourth year of the ERP for the parameters initially sampled. Results will be provided to the Commission with a grid map of sampled grids no later than February of the fifth year of the ERP. Analysis results with a map showing the management units sampled will be submitted to the Commission during the first quarter of the year following each reporting period. If liming has occurred, these areas will be shown with liming rates applied. A contingency plan is included should AFM/TFM problems occur (Appendix II to this Order).
- (f). Measures are included to maximize the use and conservation of the coal resource as required in §12.356 [Finding of Fact No.30(c)] in accordance with §12.145(b)(6). Luminant will conduct surface mining so that the best technology currently available is used to minimize future re-disturbance and to recover all economically mineable seams.
- (g). The application, as supplemented, includes a plan to ensure that all debris is covered or adequately disposed of, and that all acid-forming and toxic-forming materials and other materials required to be covered are covered with a minimum of four feet of non-toxic and non-acid-forming materials in accordance with §12.145(b)(7).



- (h). As required by §12.145(b)(8), Luminant will seal all bore holes, abandoned water wells, monitoring wells, dewatering wells, and oil and gas wells in accordance with the following, as applicable: Coal Exploration Regulations, §12.331-333 (exploration boreholes), Texas Department of Licensing and Regulations, 16 TAC Part 4, §76.1004, *et seq.*, (abandoned monitoring/dewatering wells) TAC, Part 1, §3.14 (oil and gas wells). The plan, as supplemented (SD2), is sufficient and complies with §§12.331 – 12.333 of the Regulations.
- (i). Luminant has included in the application, as supplemented, a description of steps to be taken to comply with requirements for air quality and water quality laws in accordance with §12.145(b)(9). Luminant will monitor and report water discharges as set out in the application, as supplemented, and will meet the terms, conditions, and effluent limitations set out in the TCEQ TPDES (Texas Pollutant Discharge Elimination System) permits. Luminant will submit a copy of the USACE Nationwide Permit 21 authorization to the Commission and will comply with its terms and conditions. The information provided is sufficient to indicate that Luminant will comply with the Clean Air Act (42 U.S.A. §7401 *et seq.*) and the Clean Water Act (33 U.S.C. §1251 *et seq.*).

36. Luminant proposes alternative postmine land uses for tracts within the proposed permit area only for lands owned by Luminant. A depiction of the proposed postmine land uses is included on Plates 147-1 and 147-2, as supplemented (SD3). A summary is included in Table 147-1 of the application, as supplemented (SD3). Luminant will reclaim 3,501 acres of disturbed and mined lands to pastureland, fish and wildlife habitat, developed water resources, undeveloped, and industrial /commercial. No alternative postmine land uses are proposed for leased tracts. The application, as supplemented (SD2 and SD3), lists one leased tract located within the proposed disturbance area and its premine land use, industrial/commercial. This tract will be reclaimed to its premine land use. Luminant has met the requirements of §12.147 and §12.399 of the Regulations for the postmine land uses. Luminant describes the proposed postmine land uses in Section .147 of the application, as supplemented, and includes in its plan for reclamation in Section .145 of the application, as supplemented, the measures it will take to ensure reclamation to the proposed postmine land uses, including a timetable; information regarding bonding for performance is also included in the application, as supplemented. Mined and disturbed acreages are proposed to be reclaimed as follows: pastureland, 26% (916 acres); fish and wildlife habitat, 71% (2,476 acres); developed water resources, 3% (98 acres); and industrial/commercial, less than 1% (11 acres). The proposed developed water resources, 98 acres, do not exceed the 158 acres of permanent surface water considered in the proposed probable hydrologic consequences determination for the permit. The alternative land uses proposed will not result in undue delay in reclamation or any hazard to public health or safety or threat of water-flow diminution or pollution. Luminant plans to use grazing to achieve pastureland uses and to enhance forage-grass stands. Luminant may utilize grazing to ensure that the quantity of grass is reduced in fish and wildlife areas to promote plant diversity. Luminant states that it will rotate cattle between pastures, ensure that livestock do not overgraze, and that adequate plant residue and stubble height are maintained. Only slight changes from the percentages of previously approved postmine land uses are proposed. Luminant has demonstrated that the alternative land use is economically viable, of more beneficial use to the landowner (Luminant), and is a reasonable reclamation alternative. Analysis shows that the alternative land uses are higher or better land uses. The postmine land use plan emphasizes fish and wildlife habitat. Luminant has included measures to ensure creating structural diversity in the plant community to assist in improving nesting and brook rearing with cover for upland game and nongame bird species. Grazing animals will be excluded from reclaimed areas of fish and wildlife until the terminal bud of trees is above the reach of livestock (six to eight feet). The proposed postmine land uses are compatible with surrounding land uses, and the land will be capable of supporting

the uses that existed prior to mining or higher and better uses. No public facilities exist within the proposed permit area. No state local or federal agencies have land use policies or plans that would conflict with Luminant's proposed postmine land uses. Land use management plans encompassing the proposed permit area described in the approved permit were modified to include the development of the Texas Conservation Action Plan (TCAP) in 2012 by TPWD made up of 11 regionally specific handbooks and a statewide/multi-region handbook intended as a conservation guide for all natural resources. Freestone County, the location of the mine, is in Wildlife District 5, the Post Oak Wildlife District and primarily in the TCAP East Central Texas Plains Ecoregion. Luminant indicates that mining activities are not expected to conflict with the TCAP. (SD3, p. 135-14, Section .135).

37. The application, as supplemented, contains required information for ponds, impoundments, embankments, and dams as required by §12.148 of the Regulations. Proposed permanent impoundments for the mine are depicted on Plates 139-2-1 and 139-2-2. Luminant does not request approval and construction of any permanent impoundments at this time. The F-1, F-2, and F-3 Sedimentation Ponds, are proposed as temporary impoundments for the requested permit term. General plans have been submitted for the F-3 Sedimentation Pond. The general design plans are in accordance with the requirements of §12.148(a)(1). Typical cross sections are shown on Figures 148-1 through 148-3. Detailed design plans must be submitted prior to approval of the F-3 Sedimentation Pond. Detailed design plans have been submitted for the F-1 and F-2 Sedimentation Ponds. These two ponds and related structures are proposed as temporary structures at this time. Design plans contained in the application, as supplemented, include, with the locations of the design plans in parentheses: general plans for the F-3 Sedimentation Pond (application, Section 148, Appendix 148-B), as supplemented; detailed design plans certified by a licensed professional engineer for the F-1 Sedimentation Pond (application, Section 148, Appendix 148-C); and the F-2 Sedimentation Pond (SD2, Appendix 148-C). Drop structures will be used in areas where excessive velocities will exist to reduce the velocity and protect the drainageway by reducing the incremental grade. Material resistant to high runoff velocities will be used to protect the drop structures and may include rock riprap. The submitted detailed design plans meet the requirements of §12.148 (a)(2), (a)(3), (b), and (c). These ponds will not be located within 100 feet of a cemetery or the outside right-of-way of a public road, except as set out in this Order or within 300 feet of the proposed permit boundaries, or an occupied dwelling. They will not adversely impact any perennial or intermittent streams with the adoption of Permit Provision No. 2. All ponds approved in this Order will be appropriately bonded and are located on land owned or leased by Luminant. Sedimentation Ponds F-1, F-2, and F-3 are depicted on the Surface Water Control Plan Map, Plates 148-1 and 148-2 (SD2). The detailed design plans for the two sedimentation ponds requested for approval are designed with appropriate capacities and will safely pass the design storm events applicable to the structures. Sufficient design information is included for slope stability and energy dissipation as required to decrease chances of erosion. The detailed design plans comply with §12.344 of the Regulations for siltation structures and include descriptions, maps, cross-sections, required hydrologic and geotechnical information, operation and maintenance requirements, and a timetable for reclamation. They will prevent additional contributions of suspended solids to streamflow or runoff outside the proposed permit area to the extent possible using the best technology currently available. They will be constructed prior to surface mining activities and upon construction will again be certified. Luminant will maintain them at least two years after the last augmented seeding until the disturbed area has been stabilized and revegetated and until the Commission authorizes their removal. The F-1 Sedimentation Pond will have adequate sediment storage volume and will provide adequate detention time (a minimum of 10 hours without chemical treatment), and will contain the 10-yr/24-hr design storm event (6.9 inches). The F-2 Sedimentation Pond is a total containment pond. All detailed design plans meet the requirements of §12.148 of the Regulations. Detailed design plans for the following sedimentation ponds requested for approval are approved, and the sedimentation ponds are approved as temporary structures and may be constructed.



- (a). The F-1 Sedimentation Pond is proposed in order to control surface waters in preparation of mining in the F Area. Plans are set out in Appendix 148-C in narrative and in five drawings, as supplemented. The pond will be a primary part of water and sediment control for the F Area. Any lignite removed during construction will be stockpiled. The pond watershed is made up of watersheds 1 and 1A with areas of 705 and 39 acres, respectively. The pond watershed area is 705 acres. It will be classified as a Mine Safety and Health Administration (MSHA) pond, meeting the requirements of 30 CFR 77.216. To be an MSHA structure under 30 CFR 77.216(a), the structure must (1) Impound water, sediment, or slurry to an elevation of five feet or more above the upstream toe of the structure and can have a storage volume of 20 acre-feet or more; or (2) Impound water, sediment, or slurry to an elevation of 20 feet or more above the upstream toe of the structure; or (3) As determined by the District Manager, present a hazard to coal miners. Luminant will excavate a basin and place an embankment of 21 feet in height measured from the lowest point in the cross-section taken along the centerline of the embankment to the crest of the open channel spillway. The outlet will be a combination concrete-lined, open channel spillway and v-notch weir. A concrete drop structure will assist in carrying storm discharge away from the embankment. As an MSHA pond, the emergency spillway must safely pass the 100-yr/6-hr design storm event (7.3 inches). The pond has been designed to safely pass this storm event. The spillway downstream of the v-notch weir will safely pass this storm event as well at a maximum velocity of 4.44 fps. Luminant plans to use rock riprap downstream of the structure to prevent erosion. Adequate sediment storage volume will exist. The plans also incorporate two 118-ft 84-inch diameter corrugated metal pipe (CMP) culverts that will be constructed upstream of the F-1 Inlet. The culverts will convey runoff from Watershed 1 to the pond. The F-1 Pond Inlet will pass the peak discharge from a 10-yr/24-hr design storm event (6.9 inches) as will the culverts. In SD2, Luminant updated the plans to indicate that the culverts will be mitered on the inlet end with concrete slope protection and cutoff wall. A site-specific erosion control plan (SSECP), required for projects that define surface water control, has also been submitted, Drawing SSCEP (*sic*)-F1 Pond, as supplemented (SD2). The detailed designs also incorporate the access roads to the structure and the facility pad (Finding of Fact No. 43). MSHA requirements also specify that an embankment stability analysis be performed for the proposed embankment of the F-1 Sedimentation Pond. An analysis dated December 5, 2013 has been included in the design plans as Appendix B, and the Embankment Detail, Sheet 3 of 5, was updated in SD2 to include the specifications from the geotechnical report. The calculated stability analysis indicates the following: a safety factor of 1.9 under steady-state seepage conditions and a seismic safety factor of 1.4, meeting the required factors of 1.5 (steady-state) and 1.2 (seismic) [Regulations, §12.347(a)(4)]. The pond and related structures are intended to be reclaimed in 2024. A stream channel buffer zone variance was requested for the F Area water control projects for Cold Springs Creek. Staff in its deficiencies noted that a plan needed to be provided for the restoration of areas disturbed during the construction of F-1 Pond within the Cold Springs Creek floodplain. This portion of the watershed will be controlled by the Gibson Pond embankment immediately upstream of the proposed F-1 Sedimentation Pond. A stream channel variance is not needed. Luminant revised its plan to use temporary earthen berms to divert and retain stormwater runoff and control erosion during construction of the F-1 Pond; instead Luminant proposed that silt fence will be used during construction and will be removed from the floodplain when vegetation has been established (SD3, Sheet 1 of 1, Site Specific Erosion Control Plan, F-1 Pond designs), so that no disturbance of the floodplain will result in a need for a variance. Staff noted that the proposed use of the silt fence for sediment control was within the intermittent stream Cold Springs Creek channel downstream of the F-1 Pond spillway. Staff does not consider silt fence to be a system that can provide adequate sediment erosion

control in the Cold Springs Creek channel during a significant storm event. Staff sponsors proposed Permit Provision No. 19 to read as follows: "Sediment erosion-control structures installed within the Cold Springs Creek channel shall be designed to control the sediment load and flow velocities associated with significant storm events. A site-specific erosion-control plan for the F-1 Sedimentation Pond shall be submitted for approval by the Director of the Surface Mining and Reclamation Division prior to implementation." This permit provision is adopted and renumbered as Permit Provision No. 9 in Appendix I of this Order as a protective measure for the Cold Springs Creek channel.

- (b). Detailed design plans, certified by a licensed professional engineer, for the F-2 Sedimentation Pond are located in Section .148 of the application, SD2 and SD3. The plans also include the F-2 Pond Access Road (Finding of Fact No. 43), the F-2 Pond Inlet, the F2A Diversion, the F-2A Drop Structures Nos. 1 and 2, and the F-2B Diversion. The F-2 Sedimentation Pond is proposed as a primary sediment control structure for the F Area and is designed as a total containment pond. As such, it has been designed to contain the 100-yr/6-hr design storm event (7.3 inches) with a detention time of at least 10 hours [§12.347(c)(2)(B)]. The total watershed area is 183 acres (Errata, SD3, p. 26). The pond will have a surface area of 5.32 acres, a total capacity of 72.52 acre-feet, and sediment storage volume of 10 feet. The pond and related structures are requested as temporary. The pond has been designed with adequate freeboard (1.29 feet). The embankment height is 2.75 feet; it is not an MSHA pond, and an embankment stability analysis is not required. The pond and disturbed areas will be grass-lined and will have 4:1 side slopes. The pond is classified as an NRCS Class A (low hazard) pond. A SSECP is included for the pond that defines surface water control. The pond inlet is designed to safely pass the 10-yr/24-hr storm event. The F-2 Sedimentation Pond and related structures are intended to be reclaimed in 2024. The diversions associated with the pond are described in Finding of Fact No. 38. The pond will be constructed within the Willow Creek stream buffer zone. Staff recommends a permit provision requiring that Luminant provide a revised Sheet 1 of 1, F-2 Sedimentation pond SSECP within 30 days of permit issuance for review and approval by the Director, Surface Mining and Reclamation Division. Luminant included a proposal to extend the site-specific erosion-control system to include the F-2 Pond underdrain pipe in Supplemental Document No. 3; however, a revised site-specific erosion-control plan was not included in Supplemental Document No. 3. Staff sponsors proposed Permit Provision No. 20 to read as follows: "Luminant shall provide a revised Sheet 1 of 1, F-2 Sedimentation Pond Site Specific Erosion Control Plan, within 30 days of permit issuance for review and approval by the Director of the Surface Mining and Reclamation Division." This permit provision is adopted as Permit Provision No. 10 in Appendix I to this Order to ensure complete plans are filed with the Commission.

38. A general description of diversions proposed for use during the proposed permit term is contained in Section .150 of the application, as supplemented and as reviewed by Staff, in compliance with §12.150 of the Regulations. All of the diversions proposed for approval during the proposed permit term are temporary diversions, the F2-A and F-2B Diversions that will direct disturbed runoff into Sedimentation Pond F-2, and the D-2C Diversion and F-3A diversion, related to the F-3 Sedimentation Pond for which general plans have been submitted (Appendix B, Section 148). Detailed design plans have been submitted for the F2-A and F2-B Diversions. Table 139(T)-7 lists 8 existing diversions, one approved diversion, and four pending diversions, including D-2C, F-2A, F-2B and F-3A. Luminant proposes approval of detailed design plans for the F-2A and F-2B diversions, Section 148, Appendix C, included with the design plans for the F-2 Pond, as supplemented. Luminant has presented all required information for approval of the proposed diversions for which detailed design plans were submitted, and



these diversions are approved. The two diversions are mine water diversions, routing surface waters from disturbed areas to the ponds. These diversions will be adequately bonded and not located where prohibited or in an area used as the boundary of surface water control. None of these structures will come within 100 feet of the extent of cultural resource sites.

- (a). Detailed design plans, as supplemented, are approved for the F-2A Diversion and the F2-B Diversion. Reclamation is proposed for 2024.
  - (1). The F-2A Diversion will be 6,400 feet in length and will divert disturbed runoff to Sedimentation Pond F-2. It will be constructed as a trapezoidal grass-lined channel with bottom width of six feet, 4:1 side slopes and four feet minimum depth. It is designed to safely pass the peak runoff from a 10-yr/24-hr design storm event (6.9 inches) without excessive velocity maintaining adequate freeboard. The F-2A Diversion incorporates two concrete drop structures, with six-foot and five-foot drops, will be trapezoidal, with six-foot bottom widths, and 4:1 side slopes. Luminant incorporated rock riprap (9-12-inch rocks over filter fabric making the riprap a minimum of one foot thick)(SD3) to the upstream and downstream ends of the proposed drop structures and erosion control matting between the two drop structures (SD2). A culvert, F-2 Culvert No. 1, will intercept water from the diversions. The diversion will safely pass the peak flow of the 10-yr/24-hr design storm event (6.9 inches). The diversion will cross under the proposed relocation of County Road 240 through proposed F-2 Culvert No. 1 and terminate at the proposed inlet to the F-2 Sedimentation Pond. The culvert will be an HDPE pipe 156.5 feet in length with an inside diameter of 48 inches.
  - (2). The F-2B Diversion will be 514 feet in length and will divert disturbed runoff to Sedimentation Pond F-2. It will be constructed as a trapezoidal grass-lined channel with bottom width of six feet, 4:1 side slopes and four feet minimum depth. It is designed to safely pass the peak runoff from a 10-yr/24-hr design storm event (6.9 inches) without excessive velocity maintaining adequate freeboard. This diversion will also terminate at the F-2 Culvert No. 1.
- (b). The application includes required information for temporary miscellaneous flow diversions (all diversions of flow other than from intermittent or perennial streams) in areas bounded by surface water control in accordance with requirements of §12.341 and Advisory Notice EN-PS-341. They will be constructed in accordance with §12.341(a): they will minimize adverse impacts to the hydrologic balance within the permit area and adjacent areas to prevent material damage outside the permit area and to assure the safety of the public, and subsection (c) that their design, location, construction, maintenance, and removal will be sufficient to meet the performance standards of subsection (a), and will be designed so that the combination of channel, bank, and floodplain configuration is adequate to safely pass the peak runoff of a 2-yr/6-hr design storm event (temporary diversion). They will be constructed in accordance with the peak flow based on parameters provided in Table 148-A-1, Appendix A, Section .148 of the application. The temporary miscellaneous diversions will be located in areas with adequate bonding and will not be located where mining is prohibited or used as a boundary of surface water control. Luminant will provide a map with an appropriate location for the diversion within five days of initiating construction. (Application, p. 148-7, Section .148)
- (d). No diversions are located within prohibited distances from occupied dwellings or the permit

boundaries, cemeteries, cultural resource sites, or in national parks, refuges, national system of trails, wilderness preservation areas or wild and scenic rivers.

- (d). No low-water crossings are proposed.
- (e). The temporary diversions meet the requirements of §12.150 for temporary diversions related to descriptions, maps, and cross sections. The diversions will be stable, will protect against flooding, and related damage, and will prevent additional contributions of suspended solids to streamflow outside the permit area using the best technology currently available. The diversions will comply with local, state, and federal laws and regulations. Diversion designs incorporate appropriate channel linings, energy dissipators at discharge points where necessary, and other erosion protection measures. Temporary diversions will be removed when they are no longer needed.
- (f). All diversions are designed to incorporate appropriate slope of banks, use of concrete or grass linings, measures to ensure safe transition of flow and energy dissipation, use of erosion control measures, as applicable.
- (g). No permanent diversions are proposed.
- (h). Staff reviewed the locations for each of the diversions and determined that the diversions will be constructed on tracts owned or leased by Luminant.
- (i). All diversions will be appropriately bonded.

39. The approved permit includes a description as required by §12.146 of measures to be taken to protect the hydrologic balance of the surface water and groundwater systems within the permit area and adjacent areas and to prevent damage outside the permit area, to meet water quality laws and to protect groundwater and surface water users as set out below and in these Findings of Fact. This includes Luminant's determination of probable hydrologic consequences (PHC) set out in Section .146 of the approved permit, Appendix D, as supplemented in SD2 of the permit application for renewal/revision/expansion), including a long-term groundwater monitoring plan, a long-term surface water monitoring plan, alternate water supply information, and specific operational procedures. Luminant clarified in SD3 that Cold Springs Branch will continue to be monitored for flow utilizing a staff gauge at the current location in lieu of monitoring the D-7 pond, which has not been approved and is no longer proposed.

- (a). Alternative water supplies are identified (Finding of Fact No. 22) should impacts to water supplies occur as a proximate result of surface mining operations.
- (b). Selective handling of overburden and appropriate soil testing will identify acid-forming and/or toxic-forming materials (AFM/TFM), and Luminant has included an alternative testing plan including treatment or re-handling to ensure that all AFM/TFM are placed below the top four feet of reclaimed soils. In addition, low-permeability clays exist beneath the lowest lignite seam to be mined. The mixed overburden that will be used in backfilling and grading will likely be less transmissive of water than the premine overburden because of lower permeability of the mixed overburden and because of the destruction of horizontal sands. Removal of the overburden will destroy any seeps or springs in the mined areas. Because of this, baseflow will be reduced; after resaturation, baseflow should be similar to premine baseflow. Resaturation of the overburden is



estimated to be from one to several tens of years. By modeling, Luminant predicts that impacts to groundwater quality will include slight increases in TDS (total dissolved solids) concentrations. As resaturation progresses, TDS concentrations will fall. The underburden clays will restrict vertical movement of groundwater, limiting any effect on water quality, except where clays are thin or absent; however, the low transmissivity of underburden materials will also restrict water movement. Luminant does not plan to disturb these sediments. Wells located in these strata will be adequately plugged. Luminant does not anticipate the formation of acid seeps in that the area groundwater is not acidic; Luminant included an evaluation of empirical evidence identifying that acidic waters are a necessary component to the development of acid seeps. Luminant has undertaken in the application to conduct mining and reclamation using methods to eliminate acid-forming materials in reclaimed soils. Should acid seeps occur, Luminant must take necessary measures to protect the groundwater. (Order of Approval of Permit, June 22, 2010)

- (c). Impacts to groundwater levels may occur in the vicinity of mining from groundwater inflow to the pit; these impacts are likely to be limited to the areas closest to the pit, and Luminant will control this water as a part of its water control plan. Advance dewatering will also cause water level declines. Depressurization of the underburden is not anticipated to be necessary. Groundwater declines will be greater in areas of greater saturated sand thickness. Luminant has identified areas that will require dewatering, saturated sands greater than 20 feet thick. Luminant used computer modeling (USGS MODFLOW program) to predict potential impacts to water wells. Conservative factors such as boundary conditions and recharge were included in the model. Results of the modeling are included in Table 146(d)-1 (SD1 of approved permit). Areas expected to be affected, as simulated for the maximum extent of five feet of drawdown (assumed to be a material effect), are depicted on Plate 146(d)-1 in the approved permit. The locations of wells that are potentially affected are also depicted and are listed in Table 146(d)-2 (23 wells) (approved permit). Although Luminant has updated its water well inventory in the application for renewal/revision/expansion to add several new wells, none are located within the simulated five-foot drawdown contour as set out in the approved permit [Application for renewal/revision/expansion, p. 146(d)-2]. In the approved permit, Luminant indicated that impacts to underburden are expected during mining to be a temporary nominal but measurable decline in the potentiometric surface. The five-foot drawdown contour predicted from modeling from overburden dewatering is anticipated to fall within the proposed permit area except to the east where it could extend to a maximum of 2,000 feet east of the proposed permit area. Documented right-of-entry to tracts on which dewatering wells are located has been filed with the Commission (approved permit).
- (d). To assist in evaluating impacts to groundwater, Luminant included in the approved permit a plan for monitoring and reporting dewatering activities. Luminant has undertaken to submit to the Commission a report summarizing annual activities within 60 days following the end of each calendar year. Reports submitted include a potentiometric surface elevation chart that lists the long-term groundwater monitoring (LTGM) wells, the baseline water levels from the wells, the fourth quarter (or most recent) water level from the LTGM wells, and the change in water levels, along with a summary of groundwater withdrawal amounts, a map showing the approximate location of the active well field during the previous year and the change in water levels, and an evaluation, with summary, that compares the observed effects from dewatering to the effects predicted in the PHC. Luminant submitted an annual dewatering report (2012) predicting that dewatering effects for the proposed permit term should not exceed impacts for the "out-years" presented in the approved permit [application for renewal/revision/expansion, Section .146,

Appendix D, p. 146(d)-2]. Luminant will provide the Commission with a response addressing any observed or anticipated exceedance of the estimates contained in the approved permit application. Discharges of water from dewatering activities will be routed through a final discharge pond and monitored prior to release from the permit area or will be released directly to receiving streams monitored according to permit requirements. Such discharge is estimated to result in only a negligible increase in stream stage (Technical Addendum No. 3, p. 36, of record of approved permit). The Commission approves the dewatering plan for the proposed permit term.

- (e). In the approved permit, Luminant located 16 premine springs within the life-of-mine areas, two of which were to be destroyed by mining during the first permit term and two in future mine areas. There are 12 other identified springs that are not expected to be directly affected, but may be impacted by water level declines. The overall volume of postmine surface discharges, following resaturation, should approximate premine volumes. The increase in postmine impoundments near springs that will be destroyed will result in an offset to such impacts on the hydrologic balance.
- (f). Luminant has a LTGM plan that will provide sufficient information to ensure the protection of the groundwater hydrologic balance. Based upon the approved permit, Luminant monitors overburden wells, spoil wells, and underburden wells. Spoil wells will be installed within 180 days of backfilling and grading unless otherwise approved by the Commission or the Director. Quarterly samples will be taken and reported to the Commission for the following parameters: TDS, dissolved iron (Fe), dissolved manganese (Mn), sulfate (SO<sub>4</sub>), chloride (Cl), field EC (electrical conductivity), field pH, and field temperature. For spoil monitoring wells, annual samples will be taken for 12 trace elements. If a new or replacement well is installed, Luminant will conduct one-time sampling for all of the quarterly and annual parameters, as well as calcium, dissolved magnesium, carbonate, nitrate-nitrogen, potassium, bicarbonate, and sodium. (approved Permit No. 54). No changes were proposed in the application, as supplemented to this plan.
- (g). The application, as supplemented, includes appropriate surface water information (Finding of Fact No. 21), modeling of potential impacts on surface water quantity and quality, and a LTSM plan sufficient to detect concentrations of required effluent parameters, as supplemented in Revision No. 32, approved December 10, 2014.
  - (1). Luminant's modeling effort in the approved permit conservatively addressed mining proposed for the life-of-mine. Watersheds were mapped and soils and land use data, topography, cover, and other characteristics, such as rainfall rates, were assigned to the watersheds and incorporated into a hydrologic model (SEDCAD watershed model). Evaporative losses were estimated for the postmine scenario as 1.2% of the average annual discharge through USGS Station 08064700 (Tehuacana Creek) using a conservative estimate for acreage of postmine impoundments and assuming no pre-mine evaporative loss. The model incorporated a postmine land use of pastureland as a conservative factor in predicting runoff rates and sediment yields for premining, during mining, and postmining scenarios for the 10-year/24-hour, 25-year/24-hour, and 100-year/24-hour design storm events. Sediment yields are predicted to increase during mining; after mining they are predicted to return to approximate premine levels.
  - (2). Measures will be taken, during and after the proposed surface mining activities, to minimize additional contributions of sediment to surface waters, so that discharges into



receiving streams will meet applicable federal and State water quality laws and regulations in accordance with water quality permit requirements. Sediment ponds and impoundments, as supplemented in the renewal/revision/expansion application, as supplemented, will detain water and thereby decrease the contribution of TSS in discharges in accordance with the TCEQ TPDES permit requirements. Results of sampling of each final discharge pond will be reported to the Commission. Watersheds will also be monitored at stream sampling stations that will be located appropriately to compare results of sampling at an undisturbed and a disturbed watershed ("paired watersheds") upstream and downstream of proposed disturbances. The stream stages will be monitored and rainfall will be recorded. Luminant described TCEQ sampling requirements and procedures and proposed monitoring and reporting to the Commission, as supplemented. Luminant summarizes its long-term surface water monitoring (LTSM) plan in Tables 146(d)-7 (SD1) and 146(d)-8 (SD1), specifying monthly reporting per the TPDES permit, quarterly reporting of final discharge ponds to be sampled weekly until final bond release is granted, quarterly reporting in paper and electronic formats (SD1) for long-term monitoring stations for flow data (daily minimum, maximum, and average), and water quality data (TDS, TSS, pH, total and dissolved iron and manganese), with annual updates of outfall location maps (disturbed and undisturbed). Table 146(d)-8 specifies effluent parameters and parameter limits for active mining final discharge ponds and postmining final discharge ponds. Active mining final discharge ponds (ponds that contribute flow to a TPDES outfall) that receive drainage from disturbed areas and discharge during times other than precipitation events will be sampled for the following parameters (effluent limits follow each parameter): TSS, 70 mg/L; Fe, 6.0 mg/L; Mn, 4.0 mg/L; Flow (report); pH, >6 and <9 s.u., and Settleable Solids (SS), 0.5ml/L (by grab sample). In addition, flow will be reported. For active mining final discharge ponds that do not receive water from disturbed areas that discharge only during precipitation events, and for postmining final discharge ponds (ponds that receive water from a reclamation area that has been returned to contour and on which revegetation has commenced), the following parameters will be sampled for the following effluent limitations: settleable solids, 0.5 ml/L; and pH, greater than six and less than nine standard units; in addition, flow will be reported. Reports of all LTSM sampling results will be submitted in paper and electronic format no later than 30 days after the end of each annual quarter.

41. A cumulative hydrologic impact assessment (CHIA) of all anticipated life-of-mine lignite mining activities within a cumulative impact area in the Trinity River Basin has been made by Staff in its review of Luminant's application for the proposed Turlington Mine based on Luminant's original PHC. Both surface water and groundwater impacts are assessed. The CHIA, dated May 14, 2009, was set out in Staff's TA4 dated May 7, 2010 in the record of the approval of the permit. Staff's review included activities proposed for the following: life-of-mine activities for Luminant's proposed Turlington Mine, the northeastern portion of the Jewett Mine, Permit No. 32F, the Jewett E/F Mine Area, Permit No. 47A, and the Big Brown Mine, Permit No. 3E. The CHIA prepared for the application for Permit No. 54, as supplemented, served to update life-of-mine activities within the Trinity River Basin. The cumulative impact drainage area and the cumulative impact area are depicted on Figure 1 within the CHIA, TA4. Luminant provided required information and data in the application, as supplemented, in its probable hydrological consequences determination (PHC) set out in Section .146(d) in accordance with §12.146 of the Regulations. The CHIA included anticipated effects of larger mining areas than are now proposed. Staff's assessment includes the bases on which it evaluates whether there is potential for the occurrence of material damage due to aquifer drawdown and decline, the potential for material damage due to physical

changes within spoil areas, and water quality effects on spoil area groundwater, and the potential for material damage based on potential effects to water quality. However, the CHIA finds that projected drawdown and decline due to activities at the mines will be generally insignificant. The CHIA determines that although increases in TDS, as the indicator parameter, may occur, predicted values of TDS are well below applicable stream segment standards. There will be negligible or insignificant cumulative postmine effects on surface water quality and quantity from mining due primarily to the large drainage basin of the Trinity River, approximately 14,491 square miles. None of the minor changes proposed in this application alter those conclusions. For groundwater, the CHIA for this application, as supplemented, determines that projected aquifer head drawdowns and declines and changes in resaturation rates were found to be generally insignificant due primarily to the large flow rate of the Trinity River Basin, the limited extent of the sand bodies, and the unconfined conditions within isolated watershed areas including the overburden aquifers.

- (a). Surface water quality records at Mass Balance Location No. 0806500 on the Trinity River were used to establish baseline criteria. Impacts on TDS concentrations were calculated at this location; the predicted increase in TDS as an indicator parameter at this location is approximately a 0.8% increase. This negligible water quality impact will not affect the current levels of TDS to a degree that would affect compliance with stream segment standards for this reach of the Trinity River (CHIA, p. I-9, TA4).
- (b). Using the five-foot drawdown as a threshold for immaterial impacts on wells due to dewatering activities, the CHIA determined that most of the material drawdown will be limited to wells located within or adjacent to permit boundaries; affected users will require mitigation, and Luminant must mitigate such individual impacts to wells in accordance with §12.130 of the Regulations. No depressurization of the underburden is proposed in the application for renewal/revision/expansion. The underburden units are hydrologically isolated and drawdown of the underburden will not affect the overburden hydrologic units.
- (c). The CHIA indicates that lower peak flows with greater sustained flows caused by impoundments will have an insignificant effect on the hydrologic balance.
- (d). A lower soil rate loss is projected overall from premine to postmine because of managed vegetation.

42. Surface mining activities will not approach nearer than 100-feet of the outside right-of-way line of any public road except as allowed by the Regulations and approved by the Commission. Luminant requests seven public road buffer zone variances and two road closures or relocations for the proposed permit term as depicted on Figure 152-1. Luminant indicated in its application that activities within the buffer zones will include, but not be limited to, mining, pre-stripping activities, pond construction, diversion construction, road construction, dewatering activities, regrading, reseeding, erosion repair and other such activities associated with normal mining, construction and reclamation procedures. Staff's review of these requests indicated that Luminant had not stated which specific activities would apply to each buffer zone. Regulation §12.152 requires that the applicant include the measures to be used to ensure that the interests of the public and landowners are protected; however, the regulation does not specifically state that a listing of the specific activities for each buffer zone must be submitted. In SD3, however, Luminant revised page 152-2 of Section .152 of the application to include specific descriptions for each public road buffer zone variance request, thereby obviating the need to interpret §12.152 on this issue. Luminant has indicated that it will not undertake any activities within the buffer zones unless approved by the road authority, the Commission, or in the case of road relocations and closures, the Texas Department of



Transportation or the county. Hearings and/or public meetings are held prior to approvals for road closures and relocations. The public road authorities must include in orders approving such activities a determination that the interests of the public are protected. Public notice of the road buffer zones has been accomplished. No proof of approval by the county road authority or TxDOT is required for road buffer variances. The Commission approves these requests. No proof of TxDOT or county approval has been filed for the proposed road closures. They are not approved.

- (a). Luminant requests that the Commission approve the following public road buffer variances for the permit term. All distances are approximate.
1. FCR (Freestone County Road) 235 Permanent Relocation No. 1 – On both sides, from the intersection of FCR 235 and FCR 234, 2.1 miles south, continuing southwest for 0.4 miles. Activities may include road maintenance, construction, and reclamation.
  2. FCR 235 – On the east side, from the intersection of FCR 235 and FCR 234, 2.5 miles, continuing south for 0.4 miles. Activities may include maintenance, construction, reclamation, dewatering, mining, and material storage.
  3. FCR 235 Relocation No. 2 – On both sides, from the intersection of FCR 235 and FCR 234, 2.9 miles south, continuing south then east for 1.4 miles. Activities may include maintenance, construction, reclamation, dewatering, mining, and material storage.
  4. FCR 235 – Along both sides, from the intersection of FCR 235 and FCR 234, 4.3 miles, continuing south then west for 2.0 miles. Activities may include maintenance, construction, reclamation, dewatering, mining, and material storage.
  5. FCR 240 relocation – Along both sides, from the intersection of FCR 235 and FCR 240 relocation, continuing east for 2.7 miles. Activities may include maintenance, construction, reclamation, dewatering, mining, and material storage.
  6. FCR 235 – Along the south side, From the intersection of FCR 235 and FCR 234, 2.6 miles northwest, continuing east 0.05 miles. Activities may include road maintenance, construction, and reclamation.
  7. FCR 235 Relocation No. 3 – Along both sides, from the intersection of FCR 235 and FCR 234, 3.88 miles south, continuing southeast for 1.5 miles. Activities may include maintenance, construction, reclamation, dewatering, mining, and material storage.
- (b). The following road closures and relocations listed in subparagraphs (1) and (2) are proposed; requirements have not been met for approval by the appropriate road authority and these closures/relocations are not approved.
- (1). Sections of FCR 235 and FCR 240 are proposed to be relocated in the permit term. The proposed relocations were planned to occur in 2014 and are shown on Plates 139-1-7 and 8 (SD2).
  - (2). A section of the existing FCR 235 is proposed to be closed in the permit term. The proposed closure was planned to occur in 2014 and is shown on Plate 139-1-7 (SD2).

- (3). When these two roads have been closed, Luminant requests that they be approved as temporary ancillary roads. They were designed and constructed under the specifications and supervision of the Freestone County Commissioners' Court and meet the performance standards of Rule §12.400(b) of the Regulations. Through normal use, Luminant will maintain these roads to control or prevent erosion, siltation and air pollution attendant to erosion control or prevent damage to fish and wildlife resources; control or prevent contributions of suspended solids to stream flow or runoff outside the permit area; neither cause or contribute to violations of State or Federal water quality standards applicable to receiving waters; not seriously alter the normal flow of water in streambeds or drainage channels; control or prevent damage to public or private property; and non-acid or non-toxic-forming substances in road surfacing. The reclamation bond will be calculated to support the use of these abandoned public roads for surface mining related activities. Detailed design plans will be submitted and approved by the Commission prior to any road design modifications.
- (4). No relocations or closings will be undertaken until all required approvals have been obtained from the proper state and county offices and approval received from the Railroad Commission.

43. Luminant has presented required information for its transportation system within the proposed permit area for the proposed permit term. Plates 154-1 and 154-2 depict the transportation plan (SD2). The road schedule is listed in Table 154-1 (SD2). Table 154-1 includes a listing of proposed roads, in-service dates, and reclamation dates. There are 17 existing roads (15 existing primary roads and two existing ancillary roads) within the permit area; four primary roads are listed as pending approval, and this application, as supplemented, proposes 17 additional roads for the requested permit term (16 primary roads and one ancillary road). In addition, the D Area Dragline Walkway is in existence, and the D to F Area Dragline Walkway is proposed; no detailed design plans for the proposed dragline walkway have been submitted. Depictions also appear on the mine operations maps. All roads are proposed as temporary roads. The primary roads are used to transport coal or used frequently for access for a period in excess of six months. Typical cross sections for roads are included in Section 154 of the application, Figures 154-1 through 154-4. Luminant has submitted detailed design plans for the F-1 Pond Access Roads Nos. 1 and 2, related to the F-1 Sedimentation Pond, and the F-2 Pond Access Road, related to the F-2 Sedimentation Pond. Plans and drawings, and revised plans and drawings, as required, have been submitted for these access roads requested for approval. Detailed design plans not included in the application, as supplemented, will be submitted at a later date; no other roads are approved. The plans are located in Section 148, Appendix 148-C of the application, as supplemented, as part of the detailed design plans for Pond F-1 and Pond F-2. The plans meet the requirements set out in Section 12.154(a)(1) through (6). No roads are proposed for approval that are located in the channel of an intermittent or perennial stream for which requirements must be met in accordance with Section 12.400(d)(1) relating to the hydrologic balance and in Section 12.154(a)(2) to minimize downstream sedimentation and flooding. All roads requested for approval will meet the performance standards and design and construction limits appropriate for their duration and use. None are located within 100 feet of a cemetery or the outside right-of-way of a public road or within 300 feet of an occupied dwelling or the permit boundary. None will affect sites listed or eligible for listing on the NRHP. All roads were designed and certified by a registered professional engineer. All information for general and detailed design plans have been included in the application, as supplemented, including location maps, determination of runoff, watershed model information and results of modeling, road widths, gradients, surfacing materials, cuts, fill embankments, culverts, drainage ditches, low-water crossings (none), drainage structures, environmental summaries, and



erosion control measures, as applicable, as reviewed by Staff. The design plans include adequately sized culverts for all low-water crossings. All roads will have an all-weather surface. Site Specific Erosion Control Plans, intended for use to minimize additional contributions of suspended solids to streamflow are included in the detailed design plans, as well as hydraulic modeling, and methods used to divert drainage, prevent erosion, and to revegetate the areas. Drainage structures for the primary roads will safely pass at least the minimum 10-year/6-hour design storm event [§12.401(4)(A)]. No roads are proposed that would encroach stream buffer zones; measures to avoid adverse impacts on water quality and quantity or other environmental resources of the streams are not applicable (§12.355). The detailed design plans include measures to address the presence of pipelines, should any be encountered, pursuant to §12.402. The F-1 Pond Access Roads Nos. 1 and 2 and the F-2 Pond Access Road are approved for construction.

- (a). The F-1 Pond Access Road No. 1 will provide access to the proposed F-1 Pond and access for reclamation. The road will be constructed with a trapezoidal-shaped cross section with 4h (horizontal) :1 (vertical) side slopes, will be 15 feet wide, and constructed with at least four inches of crushed rock or other like material (Appendix 148-C, detailed design plans for Pond F-1). The F-1 Pond Access Road No. 1, plan and profile is contained on Sheet 5 of the drawings for the F-1 Pond. The F-1 Pond Access Road, 1,371 feet in length, will incorporate the F-1 Pond Access Road No. 1 Ditch, to intercept undisturbed runoff and convey it to the proposed F-1 Sedimentation Pond. It will incorporate a 36-inch dual-walled high-density polyethylene (HDPE) culvert to be installed during construction of proposed County Road 240 Re-route. The ditch will be trapezoidal-shaped, have a bottom width of six feet, 4:1 side slopes, a depth of two feet, and will be designed to carry peak runoff from the 10-yr/6-hr design storm event (4.9 inches). The peak flow velocity of 6.45 feet per second (fps) is considered erosive, and the ditch shall be lined with turf reinforcement matting (TRM) for erosion protection. Reclamation is proposed for 2024.
- (b). The F-1 Pond Access Road No. 2, 178 feet in length, will provide access to the proposed facility pad and access for reclamation. The road will safely pass the 10-yr/6-hr design storm event. The F-1 Pond Access Road No. 2 plan and profile is contained on Sheet 5 of the drawings for the F-1 Pond. Reclamation is proposed for 2024.
- (c). The F-2 Pond Access Road, 1,532.6 feet in length, will provide access to the proposed F-2 Pond and reclamation. The F-2 Pond Access Road No. 2 plan and profile are located within Section 148 of SD2 (Sheet 3 of the Maps and Drawings for the F-2 Pond). It will have a trapezoidal cross-section with 4:1 side slopes, will be 15 feet wide, and will be constructed with at least four inches of crushed rock or other like material. Reclamation is proposed for 2024.

44. The application, as supplemented, meets the requirements of §12.216.

- (a). The permit application is accurate and complete and demonstrates compliance with all requirements of the Act and 16 TEX. ADMIN. CODE CH. 12 as noted in the Findings of Fact in this Order and with the adoption of the permit provisions contained in Appendix I and the soil-testing plan contained in Appendix II of this Order.
- (b). With the adoption of the permit provisions contained in Appendix I and the soil-testing plan contained in Appendix II of this Order, Luminant has demonstrated that surface coal mining and reclamation operations, as required by the Act and this Chapter, can be feasibly accomplished under the mining and reclamation plan contained in the supplemented application.

- (c). A Cumulative Hydrologic Impact Assessment (CHIA), dated May 14, 2009, was set out in Staff's TA4 for Docket No. C9-0008-SC-00-A, the application for the initial permit. This CHIA was prepared by Staff and included activities proposed for the following: life-of-mine activities for Luminant's proposed Turlington Mine, the eastern portion of the Jewett Mine, Permit No. 32F, the Jewett E/F Mine Area, Permit No. 47A, and the Big Brown Mine, Permit No. 3E. The CHIA prepared updated life-of-mine activities within the Trinity River Basin. The cumulative impact drainage area and the cumulative impact area are depicted on Figure 1 within that CHIA. Staff indicates that the mining proposed in the permit area requested in this application for renewal/revision/expansion is included in the area reviewed in the CHIA for the initial permit. Luminant provided required information and data in that application, as supplemented, in its probable hydrological consequences determination (PHC) set out in Section .146(d) (Finding of Fact No. 39), in accordance with §12.146 of the Regulations. Only very minor changes are requested in this application for renewal/revision/expansion to the PHC. The PHC and the CHIA in Docket No. C9-0008-SC-00-A is sufficient for the renewal/revision/expansion. Staff's assessment included the bases on which it evaluated whether there is potential for the occurrence of material damage due to aquifer drawdown and decline, the potential for material damage due to physical changes within spoil areas, and water quality effects on spoil area groundwater, and the potential for material damage based on potential effects to water quality. The CHIA determined that projected drawdown and decline due to activities at the mines will be generally insignificant. The CHIA determined that although increases in TDS, as the indicator parameter, may occur, predicted values of TDS are well below applicable stream segment standards and determined that there will be negligible or insignificant cumulative postmine effects on surface water quality and quantity from mining due primarily to the large drainage basin of the Trinity River, approximately 14,491 square miles. For groundwater, the CHIA determined that projected aquifer head drawdowns and declines and changes in resaturation rates were found to be generally insignificant due primarily to the large flow rate of the Trinity River Basin, the limited extent of the sand bodies, and the unconfined conditions within isolated watershed areas including the overburden aquifers. The findings and conclusions set out in the Permit No. 54 CHIA remain applicable. Staff indicates that in accordance with its Cumulative Hydrologic Impact Assessment (CHIA), no long-term adverse impacts are anticipated to occur in the underburden aquifer systems adjacent to the mined areas, to the overburden aquifer systems adjacent to the permit area, or to streamflow outside the permit area.
- (d). The permit area is:
- (i). Not included within an area designated as unsuitable for surface coal mining operations under §§12.74 - 12.85;
  - (ii). Not within an area under study for designation as unsuitable for surface coal mining operations in an administrative proceeding begun under §§12.78 - 12.85;
  - (iii). Not on any lands subject to the prohibitions or limitations of Paragraphs 12.71(a)(1), (6), or (7);
  - (iv). Not within 100 ft of the outside right-of-way line of any public road, except as provided for in Subsection 12.72(a) and as otherwise approved by the Commission and transportation authority; and



- (v). Not within 300 ft of any occupied dwelling, except as provided for in Paragraph 12.71(a)(5) and Subsection 12.72(f).
  - (e). Luminant's proposed reclamation and monitoring operations will not adversely affect any publicly owned parks or places included in or eligible for listing on the National Register of Historic Places, except as provided for in Paragraph 12.71(a)(3) of the Regulations.
  - (f). Luminant has provided to the Commission documentation required under Regulation §12.117(b) for operations involving surface mining of coal where the private mineral estate to be mined has been severed from the private surface estate.
  - (g). The report of the Applicant/Violator System (AVS) operated by OSM is contained in Appendix VI of the Staff TA. As to the applicant or those who own or control the applicant, the AVS report indicates no pending violations which remain uncorrected; or, the violations are in the process of being corrected or are subject to a valid, good-faith appeal of the alleged violation. Luminant has demonstrated compliance with §12.215(e) and satisfied the requirements for submissions and demonstrations under this paragraph.
  - (h). If reclamation fees had not been paid by Luminant, the AVS report would so indicate. Staff found no such indication (TA, Appendix VI).
  - (i). The surface coal mining and reclamation operations to be performed in the renewal/revision/expansion of the Turlington Mine will not be inconsistent with other operations anticipated to be performed in areas adjacent to the permit area.
  - (j). The reclamation performance bond remains sufficient.
  - (k). Luminant has satisfactorily addressed the requirements of §12.201 regarding prime farmland, as described in Section 12.138 of the application, and Finding of Fact No. 29 of this Order. The permit area is located east of the 100th Meridian West Longitude and contains no alluvial valley floors; therefore, the requirements of §12.202 are not applicable.
  - (l). Proposed postmining land uses in this application, as supplemented, are in accordance with the requirements of §12.399.
  - (m). All specific performance-standard approvals required under Subchapter K of this Chapter have been met. There are no remaining deficiencies for the permit renewal/revision application.
  - (n). The proposed activities will not affect the continued existence of endangered and threatened species or result in the destruction or adverse modification of their critical habitats, as determined under the Endangered Species Act of 1973 (16 U.S.C. Sec. 1531 *et seq.*).
  - (o). Luminant has satisfied the requirements of §12.390 for approval, of a long-term, intensive agricultural postmining land use if proposed. None is proposed.
45. The application, as supplemented, meets the requirements of §12.217. Luminant has adequately addressed the requirements of §12.140 regarding the use of existing structures. No existing structures are present within the permit area. Luminant has not proposed the use of existing structures within the permit area.

46. Official notice has been taken of the current certificate of account status from the Comptroller of Public Accounts that evidences current payment of franchise taxes. Luminant has paid all franchise taxes due.
47. The required public posting of the consideration of this application by the Commission has occurred.

Based on the above Findings of Fact, the following Conclusions of Law are made:

#### CONCLUSIONS OF LAW

1. The Commission has jurisdiction pursuant to §134.065 and 134.075-076 of the Act to act on this application.
2. Proper notice of the application was provided in accordance with the requirements of the Act, §134.058 and 134.059, the Regulations, §12.207, the Commission's *Practice and Procedure*, 16 TEX. ADMIN. CODE §1.1 *et seq.* and the Administrative Procedure Act (APA), TEX. ADMIN. CODE CH. 2001 (Vernon Supp. 2014).
3. A public hearing is not warranted. All required notice has been provided.
4. Based upon the Findings of Fact, the application for permit, as supplemented, was submitted to the Commission by Luminant and was processed, circulated, and reviewed in accordance with requirements that ensure public participation and that comply with the Act, Regulations, the Commission's *Practice and Procedure*, and the APA.
5. The application, as supplemented, with the permit provisions set out in Appendix I to this Order, the soil-testing plan and postmine soil performance standards set out in Appendix II to this Order, complies with the operations and reclamation standards set out in the Act and Regulations.
6. No additional bond is needed.
7. The requested permit, as set out in this Order, may be issued for the Turlington Mine.

**IT IS THEREFORE ORDERED BY THE RAILROAD COMMISSION OF TEXAS** that the Findings of Fact and Conclusions of Law, permit provisions, and Soil Testing Plan contained in this Order are hereby adopted;



**IT IS FURTHER ORDERED** that this application for renewal/revision/expansion for surface coal mining and reclamation operations is approved as set out in this Order;

**IT IS FURTHER ORDERED** that the accepted collateral bond in the amount of \$1.1 billion remains in effect and is sufficient to cover the costs of reclamation of Permit No. 54A and all other Luminant mining and reclamation operations in Texas; and

**IT IS FURTHER ORDERED** that the permit is hereby renumbered Permit No. 54A;

**IT IS FURTHER ORDERED** by the Commission that this order shall not be final and effective until 20 days after a party is notified of the Commission's order. A party is presumed to have been notified of the Commission's order three days after the date on which the notice is mailed. If a timely motion for rehearing is filed by any party of interest, this order shall not become final and effective until such motion is overruled, or if such motion is granted, this order shall be subject to further action by the Commission. Pursuant to TEX. GOV'T CODE §2001.146(e), the time allotted for Commission action on a motion for rehearing in this case prior to its being overruled by operation of law, is hereby extended until 90 days from the date the parties are notified of the order.

**SIGNED AT AUSTIN, TEXAS** this 8th day of April, 2015.

**RAILROAD COMMISSION OF TEXAS**

  
CHAIRMAN CHRISTI CRADDICK

  
COMMISSIONER DAVID PORTER

  
COMMISSIONER RYAN SITTON

ATTEST:

Secretary

  
Kathy Way





**APPENDIX I**  
**PERMIT PROVISIONS**

1. Luminant shall not disturb Tract Nos. 605, 620, 641, 659, 661, 662, 665, 667, 700, 702, 706, 707, 709, 709A, 710, 711, 715, 716, 717, 717A, and 827 without submitting documentation of right-of-entry, requesting a negative prime farmland determination, and obtaining approval by the Director of the Surface Mining and Reclamation Division or the Commission for any surface mining operations on these tracts.
2. No mining-related activities are approved in stream-buffer zones, other than those described in detailed design plans contained in the application for approval of the permit, as supplemented, or those that may be approved administratively by the Director of the Surface Mining and Reclamation Division or approved by the Commission.
3. Well completion information, including well diameter, well depth, screened interval, top of casing, and static water level, shall be provided to the Surface Mining and Reclamation Division within 60 days following well installation.
4. Mining and mining-related disturbance is not approved in areas not yet surveyed for cultural resources until such survey is conducted and accepted by the Texas Historical Commission and the Director of the Surface Mining and Reclamation Division. A larger scale map (minimum 1 in. = 2,000 ft) of the areas not yet surveyed for cultural resources shall be submitted to the Commission within 60 days of permit issuance.
5. Mining and mining-related activities are not approved in F Area until requirements for further endangered species surveys in F Area as described in application section .144 and set forth in this Order are satisfied and necessary protection plans, if any, are approved by the Director of the Surface Mining and Reclamation Division and implemented by Luminant.
6. Within 90 days of permit issuance, Luminant shall submit a proposed survey plan for the Large-Fruited Sand Verbena, the Navasota Ladies' Tresses, and the Houston Toad.
7. Luminant shall concurrently provide to the Director of the Surface Mining and Reclamation Division copies of all correspondence sent to U.S. Fish and Wildlife Service or the Texas Parks and Wildlife Department associated with or stemming from any fish and wildlife concerns within and adjacent to the permit area. Copies of correspondence received from these agencies shall be provided to the Director within 30 days of receipt.
8. Luminant shall provide a revised section .135 to address omitted text on revised page 14 introduced in Supplemental Document No. 3.
9. Sediment erosion-control structures installed within the Cold Springs Creek channel shall be designed to control the sediment load and flow velocities associated with significant storm events. A site-specific erosion-control plan for the F-1 Sedimentation Pond shall be submitted for approval by the Director of the Surface Mining and Reclamation Division prior to implementation.
10. Luminant shall provide a revised Sheet 1 of 1, *F-2 Sedimentation Pond Site Specific Erosion Control Plan*, within 30 days of permit issuance for review and approval by the Director of the Surface Mining and Reclamation Division.

**APPENDIX II**  
**SOIL-TESTING PLAN AND POSTMINE PERFORMANCE STANDARDS**  
**(FROM APPENDIX VII – STAFF TECHNICAL ANALYSIS)**

**Postmine Soil Testing Plan [145(b)(5)(G)]**

After final grading, permanent markers will be placed on 500-ft centers in regraded areas to delineate a 5.7-acre grid system (see Plate 145-1 for minesoil monitoring grid map) for monitoring postmine soil quality and nutrient requirements. These markers will be maintained until land is released from all reclamation obligations. All disturbed areas will be subject to the postmine soil monitoring program as outlined below.

**Initial Soil Sampling**

Initial soil sampling will consist of composite samples from each 5.7-acre grid as may be delineated by the advance of spoil leveling. The samples will be collected, analyzed, and the results reported to the Commission within two years following rough backfilling and grading, prior to the placement of land into the extended responsibility period (ERP), and prior to submittal of Phase I, II, or III bond release. This period allows sufficient time for additional reclamation efforts if the soil suitability criteria are not immediately met.

Adjacent samples will be collected no less than 200 ft apart. Six (6) soil samples per grid will be mixed to make one composite sample per depth increment. If a grid is less than two acres in size, it will be combined with an adjacent grid. If a partial grid is  $\geq 0.5$  acre in size, additional sampling will be conducted on 200-ft centers. No more than two grids will be combined for initial sampling purposes. Composite samples will be made to represent the following depth increments: 0-1 ft and 1-4 ft in topsoil substitute scenarios. The samples will be collected using standard soil sampling techniques.

The composite soil samples representing the 0-1 ft increment will be analyzed for the following parameters:

1. pH
2. Potential acidity
3. Exchangeable acidity
4. Neutralization potential
5. Acid/base accounting = Neutralization potential - (Potential acidity + Exchangeable acidity)



6. Texture: sand, silt, and clay (USDA-NRCS)
7. Nitrate-nitrogen
8. Plant available phosphorus, potassium, calcium, and magnesium
9. Cation exchange capacity
10. Sulfur Forms

The composite samples representing the 1-4 ft increment will be analyzed for the following parameters:

1. pH
2. Potential acidity
3. Exchangeable acidity
4. Neutralization potential
5. Acid/base accounting = Neutralization potential - (Potential acidity + Exchangeable acidity)
6. Texture: sand, silt, and clay (USDA-NRCS)
7. Cation Exchange Capacity
8. Sulfur Forms

In addition to the above analyses, a random 10 percent of the samples (0-1' and 1'-4') will also be analyzed for cadmium, selenium, hot-water boron, electrical conductivity, and sodium adsorption ratio. Procedures for the above analyses will be as contained in RCT, Overburden Parameters and Procedures (May 16, 1989) with Soil Testing Procedures (March 1980, Texas Agricultural Extension Service) used for plant available nutrients.

Analytical procedures will be in accordance with RCT recommendations dated May 16, 1989, including Attachment A (Overburden Parameters and Procedures) and Attachment B (Soil Testing Procedures, March 1980, Texas Agricultural Extension Service for plant-available nutrients. The analytical results, an updated postmine soil bank, and a map showing all grids reported will be submitted to the Commission in both hard copy and digital formats. The map will display the grids sampled and reported plus the Texas State Plane coordinates.

Luminant will provide an updated bank with each initial report submitted, showing acres for each grid. Maps provided will clearly delineate the configuration of each grid represented by the data contained in the report.

#### **Ten Percent Random Sampling in Fourth Year of ERP**

During the fourth year of ERP, a random 10 percent of the 5.7-acre grids will be sampled and analyzed in the same manner as the initial sampling requirements. The analytical results and a map showing the grids sampled will be provided to the Commission no later than February of the fifth year of the ERP. In the event that chemical and physical properties of the postmine soils warrant further investigation, the Commission may require additional testing.

#### **Alternate Soil Testing Plan**

In the event that AFM/TFM problems are identified, an alternate soil-monitoring program will be initiated. Soil samples will be collected from the 0 to 1-ft, 1 to 2-ft, 2 to 3-ft, and 3 to 4-ft increments at a density of one sample per acre for each affected 5.7-acre grid. All samples collected will be analyzed for those parameters identified by the SMRD and/or Luminant in the postmine monitoring program as a potential problem. This intensified sampling scheme will assist in identifying the extent of the soil problem. Luminant will notify the Commission of its re-sampling schedule to allow members of the Commission staff to be present during this sampling.

The results of these analyses and a remediation plan will be submitted to the Commission. Once Luminant conducts any needed remediation, the affected area will again be sampled from the 0 to 1-ft, 1 to 2-ft, 2 to 3-ft, and 3 to 4-ft increments as in the earlier sampling effort at a density of one sample per acre for each remediated 5.7-acre grid and will be analyzed for the identified problem parameter. Luminant will submit results and a map showing the impacted areas to the Commission to verify the successful correction of any soil problems previously identified in the postmine-soil monitoring program.

#### **Sampling to the Extent of Leveling**

Grid centers will be surveyed and marked every 500 ft. The grids will serve as the basis for all initial sampling. If a grid is sampled to its full extent of 5.7 acres, it will be reported that way (e.g., grid 1234). However, if a grid is not completely leveled (5.7 acres), and the leveled portion needs to be placed into the ERP, the portion that has been leveled and will be proposed for placement into the Extended Responsibility Area (ERA) will be sampled and reported. The portion of a grid that has been sampled will be marked using the ERA line. The ERAs are marked in the field, with markers being placed so they are visible from one to the next. Markers are placed at each turn in an ERA line. So if anyone in the field needs to determine the extent



of soil sampling for a portion of a grid, it would be as simple as locating the grid (from a map and/or the grid center post) and then observing which side of the ERA they are on.

Grid identification for reporting purposes will continue to be clear so that there is no question about whether grids have been reported. Portions of grids that are sampled to facilitate placement into ERP will be labeled in such a way that it is clear there will be further sampling and reporting as the remainder of that grid is leveled and proposed for ERP. For example, a complete 5.7-acre grid will be labeled as 2345 whereas the first portion of an adjacent grid would be labeled as 2346-1 with subsequent samples being labeled as 2346-2, etc. until the entire disturbance within that grid has been sampled and reported.

Initial samples will be collected at the approved density (one per acre). There will be no combinations of grids proposed for any advancing interior grids. Any portion of a grid what will be proposed for placement into the ERA will have the appropriate number of samples collected from it based on its acreage.

The statistical soil baseline will serve as the basis for determining postmine soil quality pertaining to the presence of acid- or toxic-forming materials compared to the premine soil as discussed in Section 12.386 of the regulations. Luminant proposes to use a banking method to establish postmine soil suitability by comparison of premine and postmine acreage exceeding baseline soil quality criteria. For parameters not listed in the statistical baseline, the statewide criteria as shown in Advisory Notice ER-BA-127(b) will be used to determine postmine soil success.

The proposed substitute material in the 1-4 ft increment is of the same origin as the proposed topsoil substitute material. Therefore, it is projected to have comparable qualities for root development as the topsoil substitute material. Final demonstration of quality will be based on postmine productivity.

### **Maintenance Soil Sampling**

Composite soil samples will be taken at the end of the growing season from the 0-1 ft depth and analyzed for pH, nitrate-nitrogen, and plant-available phosphorus, potassium, calcium, and magnesium in accordance with the RCT overburden parameters and procedures list. The samples will be collected from each management unit. For sampling and reporting purposes, a management unit will not exceed 100 acres in size. Any management unit greater than 100 acres in size will be subdivided during sampling to reflect areas of approximately equal size less than 100 acres. The divisions will generally be made along existing soil grid lines using either northings or eastings; whichever is appropriate for the management unit configuration.

Each management unit will be identified by number and shown on the map accompanying the report.

Subsamples will be obtained to represent approximately ten acres per subsample. These subsamples will be composited to represent the management unit for analysis and reporting purposes. The soil samples will be obtained in the year immediately prior to the first year of productivity assessment, during the first year of productivity assessment, and during the second year of productivity assessment. In the event that years of productivity assessment are not concurrent, Luminant plans to collect maintenance samples in the year prior to the second year of productivity assessment. Analysis results and a map showing the units sampled will be submitted to the RCT during the first quarter of the year following each reporting period. In the event that maintenance liming has been conducted, the liming rates will be provided in the maintenance soil report.

### **Calculation of Disturbance Area Bank Account**

Luminant proposes to use a banking method to establish postmine soil suitability by comparison of premine and postmine acreage exceeding baseline soil quality criteria. For parameters not listed in the soil baseline, the statewide criteria as shown in Advisory Notice ER-BA-127(b). will be used to determine postmine soil success. The statistical soil baseline (Section 134) as well as Table 145-5 (Permit Area Excluding F-Area) and Table 145-6 (F-Area) provides the frequency distributions of native soils for regulated parameters. These frequency distributions are then multiplied by the acreage within the actual disturbance area to yield the actual acreage allowed for each parameter value at each depth increment. The disturbance area will increase as mining progresses to reflect additional areas of disturbance. Expansion of the disturbance boundary, reflecting newly mined and reclaimed areas, will be submitted to the RCT as part of each initial soil report.

Postmine acres sampled to date will be compared to the native soil baseline, and no parameter will fall below the postmine soil performance standards. Ultimately, the disturbance boundary will reflect the full extent of disturbance and reclamation within the mining permit.

Banked acres will be provided with each submittal of initial postmine soil data. Luminant plans to have two banks for the permit area. One bank will consist of the currently approved Permit 54 area (Permit Area - Excluding F-Area) and one bank will represent F-Area of the approved permit area (F-Area). If new areas are added to the permit, these areas will be incorporated into the soil bank for the Permit Area Excluding F-Area. Acreage released from bond liability will continue to be included in each bank. Therefore, each bank will continue from the beginning of mining to the final extent of mining disturbance in each area, irrespective of permit term or other time constraints. This approach will provide a truer means of evaluating postmine soil success throughout the entire life of a mine site than using intermediate bank areas. Luminant plans to provide each soil bank using two depth increments (0-1 ft and 1-4 ft.).



The following steps are involved in calculating the postmine bank account:

- 1) The premine standard is calculated by multiplying category baseline percentages for each soil parameter by total acres within the bank area.
- 2) The postmine values are the sums of total banked acres by category for each soil parameter represented by the initial soil sampling data.
- 3) Finally, balances are calculated as the difference between premine and postmine values to which adjustments are made. Adjustments are made by utilizing offsetting negative postmine balances in a given parameter category by amounts up to the unused sum of less desirable categories from the premine statistics.

**TABLE 145-5**  
**Turlington Mine**

Permit Area Excluding the F-Area Areally-Weighted Frequency Distributions  
Postmine Soil Performance Standards

pH			
<u>SOIL</u> <u>DEPTH</u>	<u>3.5 - 3.9</u>	<u>4.0 -</u> <u>4.4</u>	<u>4.5-</u> <u>4.9</u>
	-----% area-----		
0 - 12"	2	7	32
12" - 48"	--	4	30

ACID-BASE ACCOUNTING (ABA)					
Tons/ 1000 Tons (t/kt)					
<u>SOIL</u> <u>DEPTH</u>	<u>-5</u>	<u>-4</u>	<u>-3</u>	-2	-1
	-----% area-----				
0 - 12"	--	--	--	8	11
12" - 48"	2	--	4	13	21

SAND (%)			
<u>SOIL</u> <u>DEPTH</u>	<u>81-85</u>	<u>86-90</u>	<u>91-95</u>
	-----% area-----		
0 - 12"	21	27	3

CLAY (%)	
<u>SOIL</u> <u>DEPTH</u>	<u>41-45</u>
	-----% area-----
0 - 12"	2

100 % OF THE POSTMINE 0-12" AND 12-48" INCREMENTS  
OF THE PRE-2003 AREA  
WILL MEET THE FOLLOWING STANDARDS:

Electrical Conductivity (EC)	≤	4 mmhos/cm
Sodium Absorbtion Rate (SAR)	≤	13
Boron (B)	≤	5 ppm
Cadmium (Cd)	≤	0.7 ppm
Selenium (Se)	≤	2 ppm