

**RAILROAD COMMISSION OF TEXAS
HEARINGS DIVISION**

**SURFACE MINING DOCKET No. C15-0010-SC-01-F
Application by Alcoa USA Corp. for Release of Phase III
Reclamation Obligations, Permit No. 1G
Sandow Mine, Lee and Milam Counties, Texas**

**ORDER APPROVING PHASE III RELEASE
OF RECLAMATION OBLIGATIONS FOR 648.7 ACRES
PERMIT NO. 1G**

STATEMENT OF THE CASE

Alcoa Inc., former permittee for the Sandow Mine, P.O. Box 1491, Rockdale, Texas 76567 applied to the Railroad Commission of Texas (Commission), Surface Mining and Reclamation Division, for Phase III release of reclamation obligations on 648.7 acres within the Sandow Mine located in Milam and Lee Counties, Texas. The application is made pursuant to the Texas Surface Coal Mining and Reclamation Act, TEX. NAT. RES. CODE ANN. Ch. 134 (Vernon Supp. 2016), and "Coal Mining Regulations" Tex. R.R. Comm'n, 16 TEX. ADMIN. CODE Ch. 12 (Thomson West 2016). Alcoa, Inc. was replaced as the permittee by Commission Order dated August 1, 2017 that approved Alcoa USA Corp. as the permittee as part of Alcoa Inc.'s application for transfer of the permit. Alcoa USA Corp. replaced Alcoa Inc. as the permittee for this application and will be referred to as "Alcoa" in this Order.

Permit No. 1G currently authorizes surface coal mining operations at Alcoa's Sandow Mine within its 8,079.7-acre permit area. Copies of the application were filed in required County and Commission offices and distributed to applicable agencies for review and comment. No requests for hearing were filed following public notice. The only parties to the proceeding are Alcoa and the Commission's Surface Mining and Reclamation Division (Staff). There remain no outstanding issues between the parties. Based on the information provided by the application, Staff analyses, and the inspection of the area, the administrative law judge recommends Phase III release of reclamation obligations for the requested 648.7 acres. The parties have filed waivers of the preparation and circulation of a proposal for decision.

After consideration of the application and the Findings of Fact and Conclusions of Law, the Commission approves the release of reclamation obligations as reviewed and recommended. Alcoa does not request adjustment to the approved reclamation bond. The Commission determines an eligible bond reduction amount of \$770,655.60.

Findings of Fact

Based on the evidence in the record the following Findings of Fact are made:

1. By letter dated April 10, 2015, Alcoa filed its application for Phase III release on 648.7 acres. The proposed release areas are located in Milam and Lee Counties, Texas, within the permit area of Permit No. 1G, Sandow Mine, in Areas A, C, F, F/G, G, and H. The Mine encompasses 8,079.7 acres in Milam and Lee Counties.

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2. The application is made pursuant to the Texas Surface Coal Mining and Reclamation Act, TEX. NAT. RES CODE ANN. CH. 134 (Vernon Supp. 2016) (Act), and the Coal Mining Regulations, Tex. R.R. Comm'n, 16 TEX. ADMIN. CODE CH. 12 (Thomson West 2016). No filing fee is required. The application was properly certified in accordance with §12.312(a)(3). The administrative law judge (ALJ) reviewed the draft notice by letter dated April 28, 2015. Alcoa submitted a revised draft notice by letter dated May 15, 2015 that was approved for publication May 19, 2015. From this date until November 19, 2015, the ALJ received no correspondence and by letter dated November 19, 2015 inquired regarding the status of the docket. By letter dated December 9, 2015, Alcoa filed proof of publication of notice. Staff declared the application administratively complete December 14, 2015.
3. Notice of application was published once a week for four consecutive weeks (November 12, 19 and 26, 2015 and December 3, 2015) in the *Rockdale Reporter*. The newspaper is a newspaper of general circulation in both Milam and Lee Counties, which are the locality of the proposed 648.7-acre release areas of the permitted mine. The notice of application contains all information required by the Act and Regulations for notice of application for bond release applications. Alcoa submitted an affidavit of publication with clippings. The published notice is adequate notification of the request for release. The notice included the elements required by §134.129 of the Act and §12.312(a)(2) of the Regulations: the name of the permittee, the precise location of the land affected, the total number of acres, permit number at the time of application and date approved, the amount of bond filed, the type and appropriate dates reclamation work was performed, and a description of the results achieved as they relate to the approved reclamation plan. The notice contained information concerning the applicant, the location and boundaries of the permit area, the availability of the application for inspection, and the address where comments should be sent.
4. Alcoa does not request a reduction in the amount of the approved reclamation bond. The surety bond for reclamation approved by Commission Order dated August 1, 2017 will remain in place with no changes.
5. Copies of the application were filed for public review at the main office of the Railroad Commission of Texas at 1701 North Congress, William B. Travis Building, Austin, Texas 78701, the office of the Milam County Clerk, 100 South Fannin, Cameron, Texas 75840 and the office of the Lee County Clerk, 151 East Hempstead Street, Giddings, Texas 78942. By letters dated November 11, 2015, Alcoa sent notice to owners of interests in the areas requested for release and adjacent lands.
6. Alcoa sent notification letters to local governmental bodies and other agencies and authorities as required by §12.312(a)(2). Notice was sent to the Milam County Judge and Commissioners Court, Lee County Judge and Commissioners Court, Brazos River Authority, Texas General Land Office, Texas Commission on Environmental Quality, Natural Resources Conservation Service, Environmental Protection Agency, Texas State Soil and Water Conservation Board, Texas Department of Transportation, U.S. Army Corps of Engineers, Taylor Soil and Water Conservation District, and Burleson-Lee Soil and Water Conservation District.

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7. The Surface Mining and Reclamation Division mailed letters pursuant to §12.312(b) dated April 13, 2015, to owners of the surface and leaseholders of the area requested for release and to the Office of Surface Mining Reclamation and Enforcement, Tulsa Field Office (OSM). The notification stated that a release had been requested and, pursuant to §12.312(b)(1), advised the recipients of the opportunity to participate in the on-site inspection scheduled for April 27, 2015. In addition, the Commission sent notice by certified mail to the Milam County Judge and Lee County Judge on May 21, 2015 as required by §12.313(d).
8. No adverse comments or written objections were filed regarding the request for release. No requests for hearing or informal conference were filed pursuant to §12.313(d).
9. On April 27, 2015, SMRD Inspection and Enforcement staff, accompanied by representatives of Alcoa, conducted its inspection of the area requested for release. The field report found that the proposed release areas were eligible for the requested release, pending Staff review. No concerns with erosion were noted by Staff and no rills or gullies were observed or noted in Staff's inspection (§12.389). Minor mapping discrepancies, status of an abandoned water well and the location of two drop structures were noted during the inspection. Alcoa corrected these issues in the supplement provided to Staff and through email correspondence.
10. The 648.7 acres proposed for Phase III release were granted Phase I and II Release by various orders as set out in Finding of Fact No. 13. Since the last renewal of the permit by Order dated August 18, 2009 (renewal is no longer necessary for reclamation only), postmine land use changes to industrial/commercial have been approved for a large portion of the permit area renewed as Permit No. 1E, approximately 37% of the permit area. The changes were all approved administratively by the Director, SMRD, and consisted of changes generally from pastureland, grazingland, and undeveloped land to industrial/commercial. The approvals were based on staff memoranda based, in large part, on the desire of the landowner, Alcoa Inc. For the instant application, Alcoa USA Corp., transferee of the permit by Commission Order dated August 1, 2017, has submitted a certification of the instant application.

At the time of approval of the last renewal (Supplement 4 of that application), 11,153 acres of disturbed lands had the following approved postmine land uses: pastureland, 8,560 acres (76.7%), fish and wildlife, 789 acres (7.1%), industrial/commercial, 707 acres (6.3%) [rerouted FM Road 112 and CR 314, municipal water wells, and the ash disposal facility], and developed water resources, 1,097 acres (9.8%). From 707 acres of industrial/commercial land use at that time, administrative approvals have resulted in approximately 2,410 acres of industrial/commercial land use, even considering that there has been a permit area reduction from over 17,000 acres to over 8,000 acres. Approval of those postmine land uses resulted in decreases in pastureland, grazingland, and undeveloped land uses and increases in industrial/commercial land use. An additional application is pending within the Surface Mining and Reclamation Division that requests a change in land use for 561 additional acres. Excluding the instant application, 702.9 acres for which land uses were changed to industrial/commercial are being processed in the Hearings Division as of August 21, 2017 for which Phase I-III or Phase III release has been requested.

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The 648.7 acres proposed for Phase III release in this application have a postmine land use comprised of industrial/commercial land use; a land use change was approved administratively, as in the other postmine land use changes to industrial/commercial, for this acreage by letter dated September 26, 2014 from SMRD Director at that time, John Caudle. Industrial/commercial land-use is not required to go through the extended responsibility period (ERP) or soil resampling requirements. Lands contained within the release areas in this application formerly were approved as pastureland for which completion of the ERP and ground cover and productivity standards was required. Even though the area proposed for release now is not required to complete the ERP process, ERP was initiated on January 10, 2013. A ground-cover evaluation for the area was submitted by letter dated January 7, 2015 and approved by the Commission by letter dated April 16, 2015. Staff has indicated that the areas approved as industrial/commercial land use have sufficient vegetation to control erosion (Inspection photographs) required for industrial/commercial land use.

11. No portions of the areas proposed for Phase III release of reclamation liability were reclaimed as prime farmland (§§12.201 and 12.620-12.625). The requirements for soil productivity for prime farmlands pursuant to §134.052(a)(16) of the Act and §§12.620-12.625 of Chapter 12 of the Regulations (relating to Special Permanent Program Performance Standards--Operations on Prime Farmland) are not applicable.
12. Staff's technical analysis (TA) was filed May 20, 2016. By letter dated June 10, 2016, Alcoa submitted Supplement No. 1, containing additional information to address Staff's concerns raised in its TA; the TA had not recommended Phase III release on the requested 648.7 acres. By letter dated June 17, 2016, Staff requested that processing of the application be suspended to allow for clarification of the status of wells, transfer of wells, deficiencies in the watershed map for the south area of the mine, and lack of monitoring data for Monitor Station 4. Staff reviewed and approved Alcoa's Revision 61 (revision to the long-term groundwater monitoring (LTGM) plan to plug all remaining piezometer LTGM wells and wells no longer needed to support remaining Phase III bond-release applications). By letter dated August 18, 2016, Staff requested that review of the application continue after approval of Revision 61. Following Alcoa's submittal of Supplement No. 1 and Staff's administrative approval of Revision 61, and the filing of an additional supplement to address certification issues filed by letter dated September 1, 2016, Staff filed its TA addendum by letter dated September 2, 2016. Alcoa submitted a certification of the entire application, as supplemented, by letter dated August 8, 2017. The Phase III proposed release on 648.7 acres is detailed in the application, as supplemented, Staff Evaluation and attachments, and in Staff's Addendum No. 1. Staff recommended Phase III release of reclamation obligations on all 648.7 acres in its Addendum No. 1.
13. The 648.7 acres requested for Phase III release of reclamation liability contain 29 permanent structures, consisting primarily of five large endlakes and surrounding areas (Application, Exhibit 142-LU, Sheets 1 and 2), and nine drop structures, twelve roads, two pond outlets and one diversion. These structures are listed in the following table, with their approval dates and Phase I and II release dates:

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Structure	Approval Date	Phase I and II Releases (Docket No.)	Structure	Approval Date	Phase I and II Releases (Docket No.)
North F Endlake	08/18/2009	I: C12-0028-SC-01-F II: C14-0017-SC-01-F	F Endlake	08/18/2009	I: C12-0028-SC-01-F II: C14-0017-SC-01-F
FG-1 Endlake	08/18/2009	I: C12-0028-SC-01-F II: C14-0017-SC-01-F	FG-2 Endlake	08/18/2009	I: C12-0028-SC-01-F II: C14-0017-SC-01-F
G Endlake	04/26/2001	I: C11-0005-SC-01-F II: C14-0017-SC-01-F	South Drop 1	08/18/2009	I: C12-0028-SC-01-F II: C14-0017-SC-01-F
South Drop 2	08/18/2009	I: C12-0028-SC-01-F II: C14-0017-SC-01-F	South Drop 3	08/18/2009	I: C12-0028-SC-01-F II: C14-0017-SC-01-F
South Drop 4	08/18/2009	I: C12-0028-SC-01-F II: C14-0017-SC-01-F	South Drop 5	08/18/2009	I: C12-0028-SC-01-F II: C14-0017-SC-01-F
South Drop 6	08/18/2009	I and II: C14-0017-SC-01-F	South Drop 8	08/18/2009	I and II: C14-0017-SC-01-F
North Drop 2	08/18/2009	I: C12-0028-SC-01-F II: C14-0017-SC-01-F	North Drop 3	08/18/2009	I: C12-0028-SC-01-F II: C14-0017-SC-01-F
North F Service Road	08/18/2009	I: Included in C11-0005-SC-01-E and C12-0028-SC-01-F II: C12-0028-SC-01-F	RR-C3 Road	08/18/2009	I: C11-0005-SC-01-F II: C14-0017-SC-01-F
RR-F3 Road	08/18/2009	I: C12-0028-SC-01-F II: C14-0017-SC-01-F	RR-G1 Road	08/18/2009	I: C12-0028-SC-01-F II: C14-0017-SC-01-F
C2G3 Road	10/08/2009	I: C12-0028-SC-01-F II: C14-0017-SC-01-F	SRH1 Road	10/08/2009	I: C12-0028-SC-01-F II: C14-0017-SC-01-F
SRH7A Road	10/08/2009	I: C12-0028-SC-01-F II: C14-0017-SC-01-F	RR020 Road	10/08/2009	I: C12-0028-SC-01-F II: C14-0017-SC-01-F
C2G2 Road	10/08/2009	I: C12-0028-	SRH5 Road	10/08/2009	I: C12-0028-

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		SC-01-F II: C14-0017- SC-01-F			SC-01-F II: C14-0017- SC-01-F
SRH7 Road	10/08/2009	I: C12-0028- SC-01-F II: C14-0017- SC-01-F	ACE-1 Road	08/18/2009	I: C11-0005- SC-01-F II C14-0017- SC-01-F
G-Area Endlake Spillway	07/12/2004	I: C11-0005- SC-01-F II C14-0017- SC-01-F	E-Area Endlake Spillway	08/18/2009	I: C12-0028- SC-01-F II: C14-0017- SC-01-F

All structures are stable.

14. The groundwater hydrologic balance has been protected as required by §12.348 and the re-established postmine groundwater system is adequate for the proposed postmine use of industrial/commercial for the 648.7 acres requested for Phase III release.
- (a). In addressing requirements of §12.348, Alcoa has submitted groundwater monitoring data for the overburden, spoil and underburden aquifers within and adjacent to the Sandow Mine.
 - (b). Groundwater monitoring for the area proposed for Phase III release has been performed in accordance with the provisions of the approved permit. Long-term groundwater monitoring records have been reviewed by Staff on a quarterly basis.
 - (c). The pre-mine overburden aquifers in the reclaimed area have been destroyed; however, they constituted only minor aquifers. The underburden aquifers in the Sandow Mine area are sands of the Simsboro Formation, underlying the lignite bearing Calvert Bluff Formation. These underburden aquifers are separated from the underburden by clays five feet or more in thickness. The shallowest aquifers underlying these clays are thin, silty lenses interbedded with clays and lignite stringers that are limited laterally. The sandier unit (Simsboro) is separated from the mined and affected area by an underclay of several tens of feet to hundreds of feet in thickness and is fairly well developed in this region in the lower Wilcox Group outcrop.
 - (d). Alcoa provided an analysis of the groundwater data from pertinent wells along with its application filed by letter dated April 10, 2015. From this analysis, Alcoa indicates that the water levels in the spoil monitoring wells adjacent or within the area proposed for Phase III release show measurable increases in water levels since the time of mining, for those wells possessing long-term records. The water levels in the spoil monitoring wells appear to be stable or are approaching the post-recovery stage. Seasonal rises and drops in water levels appear to be occurring, indicating that the groundwater system within the spoil has stabilized or is approaching stability. Data provided by Alcoa and reviewed by Staff include data for seven spoil LTGM wells in the vicinity of the areas proposed for release: well SP-36 (A Area), wells SP-17 and SP-47 (C Area), wells SP-21 and SP-22 (F

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Area), well SP-34 (G Area), and well SP-42 (H Area); data for eight overburden long-term monitoring wells: well AX2077 (AX area), wells C-1RR-OB and C-3-OB, (C Area), wells F-2-OB and PZ-F70-26 (F Area), well OB-32 (G Area), wells H4159A and OB-42R (H Area); and data for eight underburden wells: AX2077A (AX Area), wells SW-2-UB and P3-R (C Area), wells F74-5 and SW-1 (F Area), wells G38-20(S) and UB-H2-93R (G Area), and well H51-14 SIMS (H Area).

- (e). Staff reviewed the analysis and data and determined that long-term quarterly monitoring data for most of the overburden and underburden hydrologic units within and adjacent to the proposed Phase III release area and spoil monitoring wells do not indicate that any significant impacts have occurred to water quantity or quality. Water levels in most spoil monitoring wells with long-term records show measurable increases since mining. Staff analysis agrees that the levels are stable or are approaching the post-recovery stage, with seasonal rises and drops. Staff also reviewed pH and TDS concentrations for spoil wells. Median pH ranges from 6.22 – 6.94 standard units (s.u.). Median TDS for spoil monitoring wells range 983 – 4270 mg/L. No concerns exist regarding chloride and sulfate concentrations in spoil monitoring wells. For overburden wells, median pH ranges from 6.04 – 7.76 s.u. Median TDS concentrations for overburden monitoring wells range from 417 – 2,420 mg/L; TDS concentrations range from 130 – 3,190 mg/L. For underburden wells, water levels have risen since mining, or in some cases, have risen, then declined, followed by rising levels and/or stability. No concerns exist with regard to pH, TDS, chlorides, or sulfates.
- (f). In the initial TA, Staff noted a concern regarding overburden well AX2077 due to increasing TDS, chloride and sulfate concentrations, noting that no parcels were proposed for release in this application that might be affected and requesting analysis of the data in future submittals. Staff also noted concerns with LTGM well H4159A in the H-Area due to rapidly increasing TDS, chloride and sulfate concentrations and in spoil well SP-21 in the F-Area because of increasing TDS and chloride concentrations. Staff noted further concerns regarding LTGM wells SP-21, SP-22, SP-34, SP-36 and SP-42 being located within the proposed Phase III release area and recommended that these wells remain bonded until surrounding areas could be released. Based on these noted concerns, Staff also noted that Well SS-15 was noted as a monitor well, although no data was provided for the well. Staff in its initial TA did not recommend release of 637.0 acres of the proposed release areas due to the noted concerns.
- (g). In application Supplement No. 1, filed by letter dated June 10, 2016, Alcoa provided responses to the noted groundwater concerns. In response to the issue regarding well SS-15, Alcoa explained that this well should have been identified as a production well that is part of Alcoa's permitted well system and is not a monitor well subject to proper disposition prior to release. Alcoa responded to the issue regarding proper well disposition by indicating that it filed an application to revise its LTGM plan to remove unneeded wells and of a request to transfer ownership of retained wells to the landowner, both by letters dated June 3, 2016 [subsequently modified by letters dated July 26, 2016], both of which were approved by the Division Director by letters dated August 17, 2016). By

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transferring all remaining LTGM wells from Alcoa (as permittee) to Alcoa (as landowner), proper disposition has been effected. The application remained pending for approximately an additional year due to an application for transfer from Alcoa Inc. to Alcoa USA Corp. This application was approved, and a bond accepted by Commission Order dated August 1, 2017. Processing resumed on August 1, 2017. Alcoa also had indicated in Supplement No. 1 that it acknowledged Staff's concerns associated with LTGM Well AX2077 and LTGM Well H4159A and would address these trends in future submittals. Alcoa did not provide additional information in the instant application regarding these wells. Additional supplementation of the application by letter dated September 1, 2016 addressed exhibit certification. Alcoa USA Corp. submitted a certification of the application, as supplemented, by letter dated August 8, 2017. Alcoa has adequately addressed all remaining concerns noted in Staff's initial TA.

- (h). With regard to LTGM Wells AX2077 and H4159A, as set out in Docket No. C15-0001-SC-01-F, with respect to the increasing sulfate trend in overburden LTGM well H4159A, as the result of discussions with Alcoa personnel, Staff re-evaluated the trend based on the predictions in the approved probable hydrologic consequences (PHC) determination, wherein Alcoa indicated the following:
 - (i). The quality of water in the spoil is of little concern with respect to impacts to the groundwater system, groundwater resources in the area and postmine land use for the following reasons:
 - (A). The overburden was not a significant or important groundwater resource prior to mining operations and the spoil material will also not yield any significant quantity of water.
 - (B). The spoil water has similar total dissolved solids concentration as premine groundwater in the lower permeability overburden materials.
 - (C). The endlakes act as sinks and all overburden groundwater in the spoil will move towards the endlakes rather than migrate outside of the permit boundary,
 - (D). Significant groundwater resources are available from the underburden and will support all local postmine land uses and regional water needs.
 - (ii). It is probable that once resaturated, higher mineralized water will be flushed out and the spoil groundwater quality should slowly improve and then stabilize. This flushing and stabilization of spoil groundwater quality may take many tens of years or more and has no impact on the ability of local groundwater systems to meet groundwater demands in the area.
- (i) Staff then revised its position and concluded there was no impediment to release of the parcels in H-Area. The revised position is set forth in Staff's August 26,

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2016, TA addendum in Docket No. C15-0001-SC-01-F and as indicated in Staff's TA and Addendum No. 1 filed in the instant docket.

- (i). Staff believes that the trend in well H4159A is following the expected trend as predicted in the approved PHC determination, as the well is located immediately adjacent to and downgradient from the H Area mine block. Staff also finds no evidence in the approved permit that the small overburden groundwater resources have been used in this area because of the presence of the prolific Simsboro Formation in the immediate underburden. Staff no longer believes that the increasing sulfate trend in well H4159A presents an impediment to Phase III release from reclamation obligations. (Docket No. C15-0001-SC-01-F)
 - (ii). Regarding the increasing TDS and chloride concentrations in spoil LTGM Well SP-21, Staff's evaluation of the data as described in the initial TA supports a conclusion that the increase in chloride in this well is the cause of the increase in TDS concentration, and that no viable mechanism for chloride increase resulting from mining activities is known in the Gulf Coast province. (Docket No. C15-0001-SC-01-F)
 - (iii). In the instant docket, Staff indicated that although LTGM Well AX2077 in the AX Area and LTGM Well H4159A in the H Area show apparent adverse trends, the trends do not preclude release of the roadway parcels proposed in the AX and H Areas because the parcels proposed for release in these mine areas in this docket only incurred surface disturbance.
 - (j). Staff concluded that all concerns noted in the initial TA have been adequately addressed and no remaining issues exist with respect to protection of the groundwater hydrologic balance that would preclude Phase III release.
15. Alcoa has conducted surface mining activities in accordance with §12.313(a)(3) and §12.349 to protect surface water quality and quantity for the acreage proposed for Phase III release. Surface water quality and quantity have been protected.
- (a). The areas proposed for release from reclamation liability are located in both the north and south areas of the Sandow Mine. The parcels proposed for release of reclamation in the north mine area drain to East Yegua Creek. The parcels proposed for release of reclamation in the south mine are drained by Walleye Creek, thence to Middle Yegua Creek. All discharge from the mine flows to Somerville Lake on Yegua Creek, TCEQ Stream Segment No. 1212, and ultimately to the Brazos River.
 - (b). TCEQ issued TPDES Permit No. 00395 to Alcoa for wastewater discharges from the Sandow Mine. During the period of record, runoff from the area proposed for release from reclamation obligations was controlled by several ponds. Based upon monthly long-term and quarterly monitoring data, Alcoa established that wastewater discharges do not exceed the Texas Pollutant Discharge Elimination System (TPDES) water quality effluent standards and are within limitations

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established for TPDES Permit No. 00395 for pH and iron (Fe) as determined in Phase II releases approved for the acreage requested for release.

- (c). The proposed 648.7-acre Phase III release area includes 11.7 acres in the north area of Sandow Mine and 637.0 acres in the south portion of the mine. Alcoa provides in the application stream monitoring data for LTSM Station Nos. 6, 7, and WQMPI located in the north mine area. Monitoring data are also provided for LTSM Station Nos. 1, 2, and I6 located in the south area of the mine. Staff analysis focused on Stations 1 and 2 in that they are located closer to the 637 acres proposed for release. (LTSM Station No. I6 located downstream of the confluence of Walleye Creek and Cross Creek is the only monitoring station that receives runoff from areas affected by mining activities in the Three Oaks Mine.) Alcoa indicates that data collected at these monitoring stations is composite data for the entire drainage basin that includes areas that have not been disturbed by mining, areas that have received Phase III release and areas that continue to have active mining activities associated with the Three Oaks Mine permitted to Luminant Mining Company LLC.
- (d). In the initial TA, Staff recommended Phase III release from reclamation obligations for the proposed 11.7 acres in the north area of the Sandow Mine, but Staff concluded that it could not recommend Phase III release from reclamation obligations for the proposed 637.0 acres in the south area of Sandow Mine. Staff noted errors and omissions in the watershed map for the south area, the lack of monitoring data and evaluation for LTSM Station No. 4 to which 6.7 acres located east of the North F Area End Lake drain, and deficient certifications. In response to Staff's concerns, Alcoa submitted Supplement No. 1 to the application by letter dated June 10, 2016. Supplement No. 1 included revised Exhibit 142-WS, and analyses of long-term monitoring data for LTSM Station Nos. 4 and I6. A certification for the surface-water analysis in Supplement No. 1 was submitted by letter dated September 1, 2016. The certification was signed and sealed by Mr. Dennis W. Hill, P.E, a licensed professional engineer in the State of Texas. The certification includes a firm registration number and indicates that the application was prepared in accordance with the requirements described in §12.313(a)(3) and §12.349. Revised Exhibit 142-WS provided by Alcoa with Supplement No. 1 consists of two watershed maps for the north and south portions of the mine. Areas previously submitted for Phase II release from reclamation obligations (Application for Release from Reclamation Obligations, 7,916.7 Acres, Docket No. C14-0017-SC-01-F) were removed from the watershed maps and the color scheme has been improved. The LTSM stations are depicted on the watershed maps and the labels are legible. Areas proposed for Phase III release in the south portion of the mine are depicted on the maps and the permit boundary and watershed delineations are identifiable. The watershed maps also have north arrows so the four cardinal directions can be determined on the maps.
- (e). Staff reviewed and analyzed data for the LTSM Station Nos. 6, 7, and WQMPI located in the north mine area. Staff based its analysis on baseline data and long-term monitoring data for these stations supplemented by Staff with recent data available in the Commission's files.

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- (i). Data from the periods of record 06/91 - 01/16, 01/01 - 01/16, and 06/91 - 1/16 (Stations 6, WQMP1, and 7, respectively) were analyzed. According to the available data, the range for pH levels at LTSM Station Nos. 6 (upstream), WQMPI (upstream) and 7 (downstream) fall within the TCEQ stream segment criteria, except for one occasion on November 24, 2014, at LTSM No. 6 (6.06 s.u.). A comparison of the average chloride concentrations for the three monitoring stations indicates that the average concentration at LTSM Station No. 7 (downstream) is higher than the average concentration at LTSM Station No. 6 (upstream) but lower than the average concentration at LTSM Station No. WQMPI (upstream). When compared to the criteria for Stream Segment No. 1212 (100 mg/L), the average concentration for downstream LTSM Station No. 7 is lower. An upward trend in chloride concentration at LTSM Station No. 7 can be determined from Alcoa's graphs of Chloride vs. Flow. Alcoa indicates the increasing trend in chloride concentration at LTSM Station No. 7 is a result of the application of fertilizer to reclaimed areas. Although Alcoa does not explain or document the correlation between the chloride concentration at LTSM Station No. 7 and the application of fertilizer to reclaimed areas, Staff believes that the 11.7 acres proposed for Phase III release will not have a negative impact on the environment because the acreage consists of permanent roads and well pads as depicted on Exhibit 142-A. The average for chloride for Station No. 7 is lower than the stream segment standard.
- (ii). The average sulfate concentration at downstream LTSM Station No. 7 is higher than the average concentration at LTSM Station No. 6 but lower than the average concentration at LTSM Station No. WQMPI. The average sulfate concentration at LTSM Station No. 7 (209.6 mg/L) is higher than the criteria for Stream Segment 1212 (100 mg/L). Alcoa's graph of Sulfate vs. Flow depicts an increasing trend in sulfate concentration at LTSM Station No. 7. The average sulfate concentration for the station exceeds the stream segment standard. Alcoa indicates that the increase in sulfate level at this LTSM station is likely related to the application of agricultural fertilizer to the reclaimed areas and expects concentrations to return to levels near those of LTSM Station No. 6 over time. In a similar fashion to its evaluation of chloride, Alcoa does not provide an explanation or document the correlation between sulfate concentrations and the application of fertilizer to reclaimed lands. The 11.7 acres proposed for Phase III release consist of permanent roads and well pads.
- (iii). Total Fe (iron) concentrations appear to remain consistent at LTSM Station Nos. 6, 7 and WQMPI. The average Fe concentrations at LTSM Station Nos. 6, 7 and WQMPI are 0.8 mg/L, 0.7 mg/L and 0.5 mg/L, respectively. The average concentration at downstream LTSM Station No. 7 for the period of record is lower than the average concentration of 1.0 mg/L for the baseline period. Additionally, Alcoa's graph of Total Iron vs. Flow depicts a decreasing trend at LTSM Station No. 7. Therefore, a negative impact on downstream water quality is not anticipated. There is no stream segment standard for Segments 1212 and 1211 for total Fe.

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- (iv). The average total Mn (manganese) concentration at LTSM Station No. 7 (0.7 mg/L) is higher than the average concentration at LTSM Station No. 6 (0.3 mg/L) and lower than the concentration at LTSM Station No. WQPMI (1.1 mg/L). Total Mn concentrations are expected to be higher at LTSM Station No. 7 because the station is located downstream of areas previously disturbed by mining activities. However, Alcoa's graph of Total Manganese vs. Flow for LTSM Station No. 7 depicts a single concentration significantly higher than all other concentrations. This high total Mn concentration (41.1 mg/L collected on April 13, 2004) can be considered an outlying data point. When this outlying data point is removed from the data set, the average total Mn concentration at LTSM Station No. 7 is reduced to 0.1 mg/L. This revised average concentration for LTSM Station No. 7 is not only lower than the average concentrations at LTSM Station Nos. 6 and WQPMI, but also lower than the average concentration for the baseline data (0.5 mg/L). There is no stream segment standard for Segments 1212 and 1211 for total Mn.
- (v). The average TSS concentration at LTSM Station No. 7 (18.4 mg/L) is higher than the average concentration at LTSM Station No. 6 (13.4 mg/L) and lower than the average concentration at LTSM Station No. WQPMI (22.0 mg/L). Alcoa's graph of TSS vs. Flow depicts a steady trend in TSS concentrations at downstream LTSM Station No. 7. The average concentration at LTSM Station No. 7 is also lower than the baseline average (67.6 mg/L) for the station. The TSS data support Alcoa's conclusion regarding the improvement in TSS concentration due to the construction of sedimentation ponds during mining and the establishment of vegetation during reclamation.
- (vi). The flow-weighted average TDS concentration calculated for downstream LTSM Station No. 7 (506.7 mg/L) is greater than the flow-weighted average TDS concentration for upstream LTSM Station No. 6 (304.2 mg/L) and lower than the flow-weighted average for LTSM Station No. WQPMI (551.3 mg/L). A comparison of the average flow-weighted TDS concentration to stream segment criteria indicates that the TDS concentration at LTSM Station No. 7 exceeds the average annual maximum TDS concentration for Stream Segment No. 1212 (400 mg/L, Somerville Lake). In its analysis of the cumulative hydrologic impacts (section 6.0 of the CHIA), Staff indicates that the effects of mining on the TDS concentrations measured at mass-balance location No. 2 (East Yegua Creek) could be as high as 223 mg/L, and anticipates an increase in the TDS concentration at Somerville Lake up to a maximum level of 230 mg/L, which is less than the maximum annual average concentration for Stream Segment No. 1212. The flow-weighted TDS concentration at downstream LTSM Station No. 7 exceeds the TDS concentration predicted in the CHIA at Somerville Lake.
- (vii). Alcoa's graph of TDS vs. Flow shows an upward trend at downstream LTSM Station No. 7. In the application, Alcoa provides an explanation for the upward trend in TDS concentrations at downstream LTSM Station No.

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7 and indicates that since May 22, 2012, TDS concentrations have remained near the baseline average of 791 mg/L with a range between 750 mg/L and 834 mg/L. Alcoa also indicates that water quality in the C-Area End Lake will influence TDS concentrations in East Yegua Creek (LTSM Station No. 7 is located at East Yegua Creek at Hwy 77 prior to flowing to Somerville Lake) and provides a graph depicting daily TDS concentrations in the lake. The average TDS concentration in the C-Area End Lake is 768 mg/L which is consistent with the baseline average. The 11.7 acres proposed for Phase III release consist of permanent roads and well pads should not have an impact on the TDS concentration at LTSM Station No. 7.

- (viii). Based upon the findings of fact contained in this subparagraph (e) of this Finding of Fact for LTSM Station No. 7, no material effects on water quality will result.

- (f). Approximately 6.7 acres east of the North F End Lake drain to LTSM Station No. 4. Alcoa provided data for Station No. 4 in Supplement No. 1. This station is located on Allen Creek downstream of the permit boundary; Allen Creek drains to East Yegua Creek, thence to Somerville Lake and Yegua Creek. There is no upstream monitoring station to compare to monitoring data from LTSM No. 4. Copies of data for this station were included with a previous release application for 7,916.7 acres. Staff supplemented this data with recent data from the Commission's files. Staff evaluated the data in a table included in its TA No. 1 dated September 2, 2016, comparing the data for the period of record 06/91 – 05/16 with baseline data from the period of record 10/79 – 10/80 (excluding data for chloride and sulfate that were not acquired for the baseline period) and with stream segment standards, as applicable (maximum average annual concentrations) for Stream Segment No. 1212.
 - (i). Based on the available data, the pH levels at LTSM Station No. 4 have been consistently within the range (6.5 - 9.0 s.u.) for the TCEQ stream-segment except for one occasion on December 24, 1997 (5.75 s.u.). Alcoa's graph of pH versus flow also shows that pH levels at this monitoring station have remained steady and are not influenced by flow.
 - (ii). Chloride baseline data were not collected at LTSM Station No. 4 during the baseline period; therefore, Staff compared the average chloride concentration at LTSM Station No. 4 to the stream segment standard. The average chloride concentration of 56.3 mg/L is lower than the stream segment standard of 100 mg/L. The available long-term data for the monitoring station also indicate that chloride concentrations have remained below the stream segment standard of 100 mg/L since March 20, 2002. In a similar fashion, the average sulfate concentration (45.7 mg/L) at LTSM Station No. 4 is lower than the stream segment standard of 100 mg/L and sulfate concentrations have remained below the stream segment standard since March 20, 2002.
 - (iii). The average total Fe concentration (2.2 mg/L) for LTSM Station No. 4 for the period of record is higher than the average concentration for the

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baseline monitoring period (1.7 mg/L). Although the average total Fe concentration at LTSM Station No. 4 is higher than EPA drinking-water standard for human consumption (0.3 mg/L), recommended levels have not been formally established for livestock watering. Additionally, Alcoa's graph of the data shows a decreasing trend in total Fe concentration at LTSM Station No. 4. Staff agrees with Alcoa's assessment and does not anticipate total Fe concentrations to have a negative impact on downstream water quality.

- (iv). The average concentration for total Mn at LTSM Station No. 4 (1.5 mg/L) is slightly higher than the average concentration for the baseline monitoring period (1.1 mg/L). However, Alcoa's graph of total manganese versus flow for LTSM Station No. 4 depicts a decreasing trend in total Mn. Staff concurs with Alcoa's finding that no negative impacts are expected to occur related to total Mn.
- (v). The average TSS concentration at LTSM Station No. 4 (44.9 mg/L) is lower than the average concentration for the baseline monitoring period (78.8 mg/L). Alcoa's graph of TSS versus flow also shows a decreasing trend in TSS at LTSM Station No. 4. The TSS data support Alcoa's conclusion that no negative impacts have occurred or are expected to occur related to TSS.
- (vi). The flow-weighted average TDS concentration calculated for TSM Station No. 4 (336.0 mg/L) is lower than the flow-weighted average TDS concentration for the baseline monitoring period (1,097.9 mg/L). A comparison of the average flow-weighted TDS concentration to stream segment criteria indicates that the TDS concentration at LTSM Station No. 4 is within the criteria specified for Stream Segment No. 1212 (400 mg/L, at Somerville Lake). In its analysis of the cumulative hydrologic impacts (Section 6.0 of the CHIA), Staff indicates that the effects of mining on TDS concentrations measured at Mass-Balance Location No. 2 (East Yegua Creek) could be as high as 223 mg/L, and anticipates an increase in the TDS concentration at Somerville Lake to a maximum of 230 mg/L, which is less than the maximum annual average concentration for Stream Segment No. 1212 (400 mg/L). The flow-weighted TDS concentration at LTSM Station No. 4 exceeds the TDS concentration predicted in the CHIA at Somerville Lake but Alcoa's graph of TDS versus flow for the monitoring station depicts a downward trend. Based on the available data for the monitoring station, TDS concentrations are not expected to have a negative impact downstream on East Yegua Creek.
- (vii). Runoff from the 6.7 acres proposed for Phase III release from reclamation obligations drains to Allen Creek. Alcoa did not provide a surface-water quantity analysis to support Phase III release for the proposed parcels. However, Staff evaluated the flow measurements taken as part of the long-term monitoring plan. A comparison of the long-term flow data for LTSM Station No. 4 to the baseline data indicates that the range and average flow for the long-term monitoring period are higher than the range and average flow for the baseline period. Staff believes that Phase

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III release of the proposed 6.7 acres will not have a negative impact on water quantity outside the permit boundary. Runoff from 11.7 acres proposed for Phase III release from reclamation obligations in the north area of the Sandow Mine drains to the C and E-Area End Lakes. These two end lakes are covered under Water Rights Permit Nos. 5540 and 5803, respectively. In the south area of the Sandow Mine, runoff from the 637.0 acres proposed for Phase III release drains to the North F, F, FG-1, FG-2, G and H-Area End Lakes. The North F, F, FG-1, FG-2 and G-Area End Lakes are covered under Water Rights Permit No. 5816. The H-Area End Lake is covered under Water Rights Permit No. 12190. Alcoa provides an analysis of surface-water quantity in comparison to the PHC determination in Permit No. IF. In the analysis Alcoa indicates that increases in surface-water runoff will mitigate increases in evaporative losses. Based on the premine and postmine conditions considered in Table 146-25, Alcoa estimates the increase in annual evaporation losses (1,817 ac-ft/yr) for all permanent impoundments to be approximately 2% in comparison to the combined average flows of USGS Stations 08109700 and 08109800 on East and Middle Yegua Creeks (84,000 ac-ft/yr). In its CHIA, Staff anticipated slight changes in the quantity of surface water available to downstream water users. Staff also determined that the amount of water stored in the impoundments and lost to evaporation is negligible (3.7% on Yegua Creek) when compared to the aggregate amounts of water originating from the drainage basins upstream of the Cumulative Impact Area (CIA).

- (g). Staff reviewed and analyzed data for the LTSM Station Nos. 1 (upstream of disturbances) and 2 (downstream) located in the south mine area. Staff also based its analysis of these stations on baseline data and long-term monitoring data for these stations supplemented by Staff with recent data available in the Commission's files.
- (i). According to the available data, the range of pH at LTSM Station Nos. 1 and 2 falls within the TCEQ stream segment standard. Chloride concentrations at LTSM Station No. 1 are lower than the concentrations at LTSM No. 2 and recent stream-monitoring data indicate an increasing trend in chloride concentration at both LTSM stations. Baseline data were not recorded at LTSM Station Nos. 1 and 2 for chloride during the monitoring period so a comparison between baseline data and LTSM data cannot be made. However, the average annual chloride concentration at downstream LTSM Station No. 2 (75.1 mg/L) is below the criterion for Stream Segment No. 1212 (100 mg/L).
- (ii). Sulfate concentrations at downstream LTSM Station No. 2 are higher than concentrations at LTSM Station No. 1. Stream-monitoring data indicate an increasing trend in sulfate at LTSM Station No. 2 starting in January 2015 and a consistent sulfate concentration of approximately 3 mg/L at LTSM Station No. 1 since January 2013. Baseline data were not recorded for sulfate at the LTSM stations during the monitoring period.

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The average sulfate concentration at downstream LTSM Station No. 2 (104.7 mg/L) is slightly higher than the criterion for Stream Segment No. 1212 (100 mg/L).

- (iii). Total Fe concentrations are lower at LTSM Station No. 2 than at LTSM Station No. 1 with average Fe concentrations of 0.9 mg/L and 2.2 mg/L, respectively. Alcoa indicates that EPA drinking-water standards for human consumption recommend levels of Fe lower than 0.3 mg/L; however, recommended levels have not been established for livestock watering. Alcoa does not anticipate total Fe concentrations to have a negative impact on downstream water quality. Graphical analysis of Fe at downstream LTSM Station No. 2 indicates a declining trend at this station. Limited baseline data is available for LTSM Station No. 2. The baseline data have an average concentration of 1.5 mg/L which is higher than the average concentration of 0.9 mg/L for LTSM Station No. 2.
- (iv). Total Mn concentrations are higher at LTSM Station No. 2 than at LTSM Station No. 1 with average Mn concentrations of 0.3 mg/L and 0.1 mg/L, respectively. Alcoa indicates that EPA does not have a primary drinking water standard for Mn and has established a secondary standard of 0.05 mg/L. The average total Mn concentrations for LTSM Station Nos. 1 and 2 exceed EPA's secondary standard but Alcoa indicates that the receiving stream is not utilized for drinking water and therefore it does not anticipate total Mn concentrations to have a negative impact on downstream water quality. Graphical analysis of Mn at downstream LTSM Station No. 2 indicates a decreasing trend in total Mn concentration. Limited baseline data is available for LTSM Station No. 2. The baseline data have an average concentration of 0.6 mg/L, which is higher than the average concentration of 0.3 mg/L for LTSM Station No. 2.
- (v). TSS concentrations at LTSM Station No. 2 are lower than the concentrations recorded at LTSM Station No. 1. Alcoa's graph of TSS vs. Flow for downstream LTSM Station No. 2 depicts a decreasing trend in TSS concentration. The average TSS concentration at LTSM Station No. 2 (19.3 mg/L) is lower than the baseline average (120 mg/L) for Middle Yegua Creek listed in Table .146-26 of Permit No. IF. The TSS data support Alcoa's conclusion regarding the improvement in TSS concentration due to the construction of sedimentation ponds during mining and the establishment of vegetation during reclamation.
- (vi). The flow-weighted average TDS concentration calculated for downstream LTSM Station No. 2 (418.2 mg/L) is greater than the flow-weighted average TDS concentration for upstream LTSM Station No. 1 (193.9 mg/L). A comparison of the average flow-weighted TDS concentration to stream segment criteria indicates that the TDS concentration at LTSM Station No. 2 exceeds the average annual maximum TDS concentration for Stream Segment No. 1212 (400 mg/L, Somerville Lake). In its analysis of the cumulative hydrologic impact (section 6.0 of the CHIA),

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Staff indicates that the effects of mining on the TDS concentrations measured at mass-balance location No. 1 (Middle Yegua Creek) could be as high as 480 mg/L, and anticipates an increase in the TDS concentration at Somerville Lake up to a maximum level of 230 mg/L, which is less than the maximum annual average concentration for Stream Segment No. 1212 (400 mg/L). The flow-weighted TDS concentration at downstream LTSM Station No. 2 is lower than the TDS concentration predicted in the CHIA at Middle Yegua Creek. Alcoa's graph of TDS vs. Flow also shows a downward trend in TDS concentration at LTSM Station No. 2. Additionally, Table .146-26 in Permit No. IF indicates an average baseline TDS concentration for Middle Yegua Creek of 686 mg/L which is higher than the average flow-weighted TDS concentration for LTSM Station No. 2 (418.2 mg/L). Alcoa indicates that TDS concentrations at LTSM Station No. 2 have averaged 131 mg/L since 2010 and anticipates TDS concentrations along the stream to remain near this level.

- (vii). Based on the materials provided by Alcoa and Staff and Staff's analysis of results of sampling at LTSM Station No. 2 (downstream), no material effects from mining will result on water quality.
16. The 648.7 acres proposed for Phase III release are bonded at the mined rate (Phase II release) of \$1,080/acre. If the application is approved by the Commission, as proposed, Alcoa would be eligible to reduce its performance bond obligations by \$700,655.60, as shown in the following table:

Bond Reduction as Proposed

Phase Requested	Area Acres	Disturbance Category	Bonded Per Acre	Eligible Reduction Per Acre	Eligible Reduction
Phase III	648.7	Mined*	\$1,080.00	\$1,080.00	\$700,596.00
Subtotal					\$700,596.00
Admin. Costs (10%)					\$70,059.60
Total					\$770,655.60

*Phase II released

17. The eligible bond reduction amount, based upon the Findings of Fact contained in this Order and Staff Calculations, with which Alcoa agree, is \$770,655.60. No reduction of the \$14 million surety bond approved by order dated August 1, 2017 is requested in this application.
18. Open meeting notice of Commission action was accomplished.

Conclusions of Law

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

1. Proper notice was provided for this request for release of reclamation obligations.

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2. A public hearing on the request is not warranted.
3. Alcoa has complied with all applicable provisions of the Act and the Regulations for release of reclamation obligations for the areas requested for release as set out in the Findings of Fact.
4. The Commission may approve a release of reclamation obligations for Phase III reclamation obligations on 648.7 acres, as set out in the Findings of Fact.
5. An eligible bond reduction amount of \$770,655.60 for use in reclamation cost estimates may be determined.

IT IS THEREFORE ORDERED BY THE RAILROAD COMMISSION OF TEXAS that the above Findings of Fact and Conclusions of Law are adopted;

IT IS FURTHER ORDERED that a release of Phase III reclamation obligations on 648.7 acres, as set out in the Findings of Fact, is hereby approved;

IT IS FURTHER ORDERED that the current bond remains in effect according to its terms until the Commission approves a replacement bond;

IT IS FURTHER ORDERED that, as a result of the Phase III release of 648.7 acres, the Commission approves an eligible bond reduction amount of \$770,655.60;

IT IS FURTHER ORDERED that the Commission may vary the total amount of bond required from time to time as affected land acreage is increased or decreased or where the cost of reclamation changes;

IT IS FURTHER ORDERED that the areas shall continue to be marked in the field to assist in future field inspections of other areas; and

IT IS FURTHER ORDERED by the Commission that this order shall not be final and effective until 25 days after a party is notified of the Commission's order. 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. As authorized by 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

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operation of law, is hereby extended until 90 days from the date the parties are notified of the order.

SIGNED in Austin, Texas September 19, 2017.

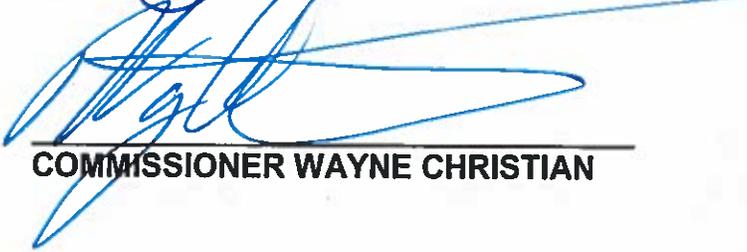
RAILROAD COMMISSION OF TEXAS



CHAIRMAN CHRISTI CRADDICK

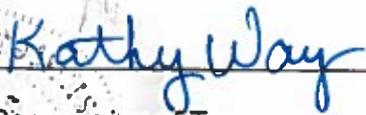


COMMISSIONER RYAN SITTON



COMMISSIONER WAYNE CHRISTIAN

ATTEST:



Secretary
Railroad Commission of Texas

