Semiannual Progress Report Selection of Remedy – Sutherland Generating Station

Sutherland Generating Station
3001 E Main Street Road
Marshalltown, Iowa 50158

Prepared for:

Alliant Energy

SCS ENGINEERS

25222189.00 | September 12, 2022

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Table of Contents

Section Page

Tables

Figures

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1.0 INTRODUCTION AND PURPOSE

The Semiannual Progress Report for remedy selection at the Interstate Power and Light Company (IPL) former Sutherland Generating Station (SGS) was prepared to comply with U.S. Environmental Protection Agency (U.S. EPA) regulations regarding the Disposal of Coal Combustion Residuals (CCR) from Electric Utilities [40 CFR 257.50-107], or the "CCR Rule" (Rule). Specifically, the selection of remedy process was initiated to fulfill the requirements of 40 CFR 257.97.

1.1 BACKGROUND

The SGS multi-unit CCR surface impoundment system consists of four closed inactive CCR surface impoundments. The SGS multi-unit system was closed and capped in 2020. A Notification of Completion of Closure pursuant to 40 CFR 257.102(d) was issued by Alliant Energy on June 12, 2020.

Post-closure groundwater monitoring concentrations of lithium were found at a statistically significant level (SSL) above the Groundwater Protection Standard (GPS) in groundwater samples from downgradient monitoring well MW-306. In response, the Assessment of Corrective Measures (ACM) for the closed and capped SGS multi-unit system was completed on June 22, 2022.

This Semiannual Progress Report summarizes data collected and remedy evaluation progress made since the ACM was completed in June 2022, and outlines planned future activities to complete the selection of remedy process. This is the first semiannual progress report, covering the 3-month period of June 2022 through August 2022. Following the first semiannual update report, future semiannual update reports will cover the following six months of data collected and remedy evaluation progress.

1.2 SITE INFORMATION AND MAPS

SGS is located at 3001 E. Main Street Road in Marshalltown, Marshall County, Iowa (**Figure 1**). Four closed CCR surface impoundments are present at SGS. Closure and capping of the surface impoundments was completed in 2020. A Notification of Completion of Closure pursuant to 40 CFR 257.102(d) was issued by Alliant Energy on June 12, 2020.

The SGS groundwater monitoring network is a multi-unit system that monitors the closure area for the following inactive CCR units:

- SGS North Primary Pond (inactive surface impoundment – closed June 2020).
- SGS South Primary Pond (inactive surface impoundment – closed June 2020).
- SGS Main Pond (inactive surface impoundment – closed June 2020).
- SGS Polishing Pond (inactive surface impoundment – closed June 2020).

The system is designed to detect monitored constituents at the waste boundary of the SGS CCR units as required by 40 CFR 257.91(d). The groundwater monitoring system consists of two upgradient, four downgradient monitoring wells at the waste boundary, and five additional delineation monitoring wells.

A map showing the limits of the former CCR units, the closure area, background (or upgradient) monitoring wells, downgradient monitoring wells, and delineation wells with identification numbers for the CCR groundwater monitoring program is provided as **Figure 2**.

2.0 SUMMARY OF WORK COMPLETED

Work completed to support remedy selection for the SGS CCR Unit is summarized in Table 1. Activities completed within the 3-month period covered by this semiannual report are discussed in more detail below.

2.1 MONITORING NETWORK CHANGES

There were no additional changes to the SGS monitoring well network between June 2022 and August 2022. The monitoring well locations are shown on Figure 2.

Monitoring wells MW-309, MW-310, and MW-311 were installed in May 2022 with Phase 1 of a two-phased plan for additional well installations. Downgradient groundwater quality and groundwater flow direction data obtained from the Phase 1 well installations were used to design the locations of four additional monitoring wells that will be installed during Phase 2. The installation of the four additional Phase 2 monitoring wells will occur as soon as permitting and tree and shrub clearing for well site access are completed. The installation of Phase 2 monitoring wells is discussed further in Section 3.0.

2.2 GROUNDWATER MONITORING

Since the June 2022 ACM, groundwater samples were collected during one event in August 2022. The event included the following:

- The August monitoring event was a quarterly supplemental monitoring event for lithium and field parameters. The wells sampled included MW-309, MW-310, and MW-311.

A summary of August groundwater samples collected after submittal of the ACM is provided in Table 2. A statistical evaluation of the August results is in progress.

2.3 STATISTICAL EVALUATION

Statistical evaluation of sampling results during the period covered by this update will be discussed in the 2022 Annual Groundwater Monitoring and Corrective Action Report. Based on the April 2022 monitoring results, lithium at MW-306 is present at an SSL above the GPS. The observed results are consistent with previous SSL determinations

2.4 EVALUATION OF CORRECTIVE MEASURE ALTERNATIVES

A qualitative assessment of potential Corrective Measure Alternatives using the selection criteria in 40 CFR 257.97(b) and (c) was provided in the June 2022 ACM. Table 3 summarizes the assessment completed for the ACM Addendum. No updates or changes to the assessment have been made based on additional information obtained since the ACM was issued.

IPL continues to develop and evaluate preliminary remedy designs for the closed and capped multi-unit system at SGS. Groundwater sampling and analysis have been ongoing and continue for the development and evaluation of preliminary remedy designs.

Updates to the quantitative assessment discussed in the ACM will be completed in the future based on updates to the conceptual site model, delineation of the nature and extent of impacts, and collection of additional data relevant to remedy selection.

3.0 PLANNED ACTIVITIES

Planned activities related to the remedy selection process include the following:

- Complete permitting for the installation of four Phase 2 monitoring wells.
- Perform clearing and grubbing to gain access to the four planned Phase 2 monitoring well locations. Due to the potential presence of endangered bat species, this work cannot be initiated until after September 30, 2022.
- Install Phase 2 wells including:
  - Two delineation water table wells.
  - One delineation piezometer.
  - One additional compliance monitoring well.

  The water table wells and piezometers will provide additional understanding of the horizontal and vertical extent of lithium GPS exceedances. The additional compliance well will be located between existing compliance wells MW-305 and MW-306.
- Sample the new compliance well quarterly until four sampling rounds have been completed. Analyze the samples for Appendix III and Appendix IV parameters. Include supplemental parameters to characterize aquifer conditions in at least 2 of the first 4 sampling rounds.
- Continue semiannual assessment monitoring at well network and new monitoring wells.
- Review groundwater flow and groundwater quality results to assist in further evaluation of corrective action alternatives.
- Update the conceptual site model based on findings of nature and extent investigation.
- Continue evaluation of remedial options.

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Tables

Table 1. Timeline for Completed Work - Assessment of Corrective Measures
Sutherland Generating Station / SCS Engineers Project #25222189.00

Date	Activity
December 2021	Completed the installation of the monitoring wells MW-307 and MW-308. Conducted groundwater monitoring event for the new wells.
March 2022	Completed the well documentation report for the monitoring wells MW-307 and MW-308.
April 2022	Completed the statistical evaluation and result letter for the December 2022 groundwater monitoring event.
April 2022	Completed a Demonstration of Need for Deadline Extension for the Assessment of Corrective Measures Report.
April 2022	Completed the semiannual groundwater assessment monitoring event for all wells.
May 2022	Completed the well installation of monitoring wells MW-309, MW-310, and MW-311. Conducted groundwater monitoring event for the new wells.
June 2022	Completed the statistical evaluation and results letter for the April and May groundwater monitoring events.
June 2022	Complete the Assessment of Corrective Measures.
July 2022	Completed the 2021 Annual Groundwater Monitoring and Corrective Action Report.
August 2022	Conduct additional groundwater monitoring for MW-309, MW-310, MW-311.
August 2022	Completed the well documentation report for the monitoring wells MW-309, MW-310, and MW-311.

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Last revision by: NDK Date: 8/22/2022
Checked by: RM Date: 8/22/2022

I:\25222189.00\Deliverables\2022 Semiannual-Selection of Remedy\Tables\[Table 1 - Timeline_ACM_SGS.xlsx]Timeline

Table 2. Groundwater Samples Summary
Sutherland Generating Station / SCS Engineers Project #25222189.00

Sample Dates	Background Wells		Compliance Wells				Delineation Wells				
	MW-301	MW-302	MW-303	MW-304	MW-305	MW-306	MW-307	MW-308	MW-309	MW-310	MW-311
2/3/2020	A	A	A	A	A	A	NI	NI	NI	NI	NI
4/7/2020	A	A	A	A	A	A	NI	NI	NI	NI	NI
5/11/2020	--	--	--	--	Add.	Add.	NI	NI	NI	NI	NI
10/13/2020	A	A	A	A	A	A	NI	NI	NI	NI	NI
2/24/2021	--	--	--	--	--	Add.	NI	NI	NI	NI	NI
4/6/2021	A	A	A	A	A	A	NI	NI	NI	NI	NI
7/14/2021	--	--	--	--	--	Add.	NI	NI	NI	NI	NI
10/26/2021	A	A	A	A	A	A	NI	NI	NI	NI	NI
12/9/2021	--	--	--	--	--	--	Add.	Add.	NI	NI	NI
4/21-22/2022	A	A	A	A	A	A	A	A	NI	NI	NI
5/12/2022	--	--	--	--	--	--	--	--	Add.	Add.	Add.
8/11/2022	--	--	--	--	--	--	--	--	Add.	Add.	Add.
Total Samples	6	6	6	6	7	9	2	2	2	2	2

Abbreviations:
A = Assessment Monitoring Program
Add. = Additional sample
NI = Not Installed
-- = Not Applicable

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Checked by: NDK Date: 8/29/2022

Table 3. Preliminary Evaluation of Corrective Measure Alternatives
Sutherland Generating Station / SCS Engineers Project #25222076.00

	Alternative #1 No Further Action	Alternative #2 Cover Upgrade	Alternative #3 Gradient Control	Alternative #4 In-Situ Treatment with Physical/Chemical Amendment	Alternative #5 Groundwater Management with Barrier Wall	Alternative #6 Excavate and Re-Dispose
CORRECTIVE ACTION ASSESSMENT - 40 CFR 257.97(b)						
257.97(b)(1) Is remedy protective of human health and the environment?	Yes	Yes	Yes	Yes	Yes	Yes
257.97(b)(2) Can the remedy attain the groundwater protection standard?	Yes	Yes	Yes	Yes	Yes	Yes
257.97(b)(3) Can the remedy control the source(s) of releases so as to reduce or eliminate, to the maximum extent feasible, further releases of constituents in appendix IV to this part into the environment?	Yes	Yes	Yes	Yes	Yes	Yes
257.97(b)(4) Can the remedy remove from the environment as much of the contaminated material that was released from the CCR unit as is feasible?	Yes, if groundwater impacts do not extend beyond the CCR unit boundary.	Yes, if groundwater impacts do not extend beyond the CCR unit boundary. Alternative may be coupled with additional restoration activities if further investigation shows downgradient exceedances of GPS.	Yes, if groundwater impacts do not extend beyond the CCR unit boundary. Alternative may be coupled with additional restoration activities if further investigation shows downgradient exceedances of GPS.	Yes, if groundwater impacts do not extend beyond the CCR unit boundary. Alternative may be coupled with additional restoration activities if further investigation shows downgradient exceedances of GPS.	Yes, if groundwater impacts do not extend beyond the CCR unit boundary. Alternative may be coupled with additional restoration activities if further investigation shows downgradient exceedances of GPS.	Yes, if groundwater impacts do not extend beyond the CCR unit boundary. Alternative may be coupled with additional restoration activities if further investigation shows downgradient exceedances of GPS.
257.97(b)(5) Can the remedy comply with standards for management of wastes as specified in §257.98(d)?	Not Applicable	Yes	Yes	Yes	Yes	Yes
LONG- AND SHORT-TERM EFFECTIVENESS - 40 CFR 257.97(c)(1)						
257.97(c)(1)(i) Magnitude of reduction of existing risks	Existing risk reduced by achieving GPS	Existing risk reduced by achieving GPS in a shorter timeframe than Alternative #1.	Same as Alternative #2. Long-term risk may be reduced by treatment of collected groundwater. Groundwater extraction and treatment presents an additional risk and potential exposure pathways via surface release or disruption of treatment processes.	Similar to Alternative #2. Long-term risk may be reduced with additional source control and in-situ stabilization/fixation of CCR that may be in contact with groundwater.	Similar to Alternative #3. Long-term risk may be reduced with additional containment offered by barrier wall.	Material removed from the site eliminating existing risks from new releases at the Site.
257.97(c)(1)(ii) Magnitude of residual risks in terms of likelihood of further releases due to CCR remaining following implementation of a remedy	No reduction of existing risk for additional releases Residual risk is limited for all alternatives because the facility is capped.	Potential reduction in release risk due to the reduced permeability of the final cover. Same as Alternative #1 with respect to CCR in potential contact with groundwater. However, limited as no additional overall risk reduction is provided due to lack of current/anticipated future receptors for groundwater impacts	Potential reduction in release risk by way of the ability to respond to potential future/ongoing releases from CCR that might be in contact with groundwater following closure. However, limited to no overall risk reduction is provided due to lack of current/anticipated future receptors for groundwater impacts.	Potential reduction in release risk by way of chemical / physical alteration of the source of impacts. However, limited to no overall risk reduction is provided due to lack of current/anticipated future receptors for groundwater impacts.	Residual risk of source material in contact with groundwater is reduced by the containment of groundwater impacts provided by barrier walls; However, limited to no overall risk reduction is provided due to lack of current/anticipated future receptors for groundwater impacts.	Same as Alternative #1 with further reduction in release risk due to removal of impounded CCR from site However, limited as no additional overall risk reduction is provided due to lack of current/anticipated future receptors for groundwater impacts
257.97(c)(1)(iii) The type and degree of long-term management required, including monitoring, operation, and maintenance	30-year post-closure groundwater monitoring Groundwater monitoring network maintenance and as-needed repair/replacement Final cover maintenance (e.g., mowing and as-needed repair) Periodic final cover inspections Additional corrective action as required based on post-closure groundwater monitoring	Same as Alternative #1	Same as Alternative #1 with increased monitoring for maintenance of the gradient control system and any discharge-related water treatment. If pump-and-treat additional effort for groundwater pump operation and maintenance (O&M), groundwater treatment system O&M, and treatment system discharge monitoring/reporting.	Same as Alternative #2	Same as Alternative #3 with additional monitoring of wall performance.	No on-site long-term management required Limited on-site post-closure groundwater monitoring until GPSs are achieved Receiving disposal facility will have same/similar long-term monitoring, operation, and maintenance requirements as Alternative #1

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LONG- AND SHORT-TERM EFFECTIVENESS - 40 CFR 257.97(c)(1) (continued)						
257.97(c)(1)(iv) Short-term risks - Implementation						
Excavation	None	Increased risk over Alternative #1 due to general construction activities that are not anticipated to expose CCR	Similar to Alternative #1 with some increased construction risk due to drilling, trenching, and excavation for groundwater pumping and treatment system construction.	Similar to Alternative #1 with some increased potential risk due to exposure during the application of a chemical amendment.	Similar to Alternative #1 with some increased construction risk due to excavation or installation of the barrier wall.	Increased risk to environment over Alternative #2 due to CCR excavation volumes required for removal and off-site re-disposal
Transportation	None	Increased risk over Alternative #1 from construction traffic due to final cover disturbance and import of cover upgrade materials	Similar to Alternative #1 with increased risk from importing groundwater pumping and treatment system materials.	Similar to Alternative #1 with increased risk from importing material for stabilization/treatment.	Similar to Alternative #1, with increased risk from importing barrier wall system materials.	Highest level of community and environmental risk due to CCR volume export
Re-Disposal	None	None	Long-term risk may be reduced by treatment of collected groundwater. Groundwater extraction and treatment presents an additional risk and potential exposure pathways via surface release or disruption of treatment processes.	Similar to Alternative #1 with some increased potential risk due to exposure during the application of the physical/chemical amendment.	Similar to Alternative #3	Increased risk to community and environment due to re-disposal of large CCR volume at another facility Re-disposal risks are managed by the receiving disposal facility or by planning for onsite re-disposal
257.97(c)(1)(v) Time until full protection is achieved	To be evaluated further during remedy selection Closure and capping was completed in 2020 Groundwater protection timeframe to reach GPS potentially 5 to 10 years following closure construction, achievable within 30-year post-closure monitoring period	Similar to Alternative #1 with some potential for decrease in time to reach GPS due to reduced cover permeability.	Similar to Alternative #2 with potential for decrease in time to reach GPS due to groundwater removal	Similar to Alternative #2. Potential for reduction in time to reach GPS due to chemical/physical stability of CCR.	Similar to Alternative #2. Potential decrease in time to reach GPS upon implementation of barrier wall.	Similar to Alternative #1 Potential for increase in time to reach GPS due to significant source disturbance during construction Potential decrease in time to reach GPS due to CCR source removal
257.97(c)(1)(vi) Potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, re-disposal, or containment	No change in potential exposure	Same as Alternative #1	Similar to Alternative #1 with potential for secondary impacts from releases of extracted groundwater or disruption in treatment.	Same as Alternative #1	Same as Alternative #1	No potential for on-site exposure to remaining waste since no waste remains on site if re-disposal is at an offsite facility Risk of potential exposure is transferred to receiving disposal facility and is likely similar to Alternative #1 Little change from Alternative #1 if re-disposal is onsite
257.97(c)(1)(vii) Long-term reliability of the engineering and institutional controls	Long-term reliability of existing cap is good Significant industry experience with methods/controls Capping is common practice/industry standard for closure in place for remediation and solid waste management Deed notation in place for closure with CCR left in place	Long-term reliability of enhanced cap is good Significant industry experience with methods/controls Capping is common practice/industry standard for closure in place for remediation and solid waste management Deed notation in place for closure with CCR left in place	Similar to Alternatives 1 and 2. Depending on the gradient control method selected, the long-term reliability can be good There is significant industry experience with some potential gradient control methods used in remediation of groundwater impacts. Remedy relies upon active equipment that will require additional operations and maintenance.	Same as Alternative #1.	Same as Alternative #1. Remedy relies on continued hydraulic conductivity of the selected barrier. Breaches or short circuiting can develop and must be monitored.	Success of remedy at SGS does not rely on long-term reliability of engineering or institutional controls Overall success relies on reliability of the engineering and institutional controls at the receiving facility
257.97(c)(1)(viii) Potential need for replacement of the remedy	Limited potential need for replacement of original cap placed in 2018 if maintained.	Same as Alternative #1	Similar to Alternative #1, with reduced potential of remedy replacement, but added expectation for pump, conveyance system and treatment system replacement.	Similar to Alternative #1, with further reduction in potential need for remedy enhancement due to stabilized groundwater impacts.	Similar to Alternative #1, with reduced potential of remedy replacement, but added expectation for potential replenishment of consumptive barrier product.	No potential need for remedy replacement
SOURCE CONTROL TO MITIGATE FUTURE RELEASES - 40 CFR 257.97(c)(2)						
257.97(c)(2)(i) The extent to which containment practices will reduce further releases	Cap installed in 2020 will reduce further releases by minimizing infiltration through CCR. CCR remains in contact with Groundwater.	Same as Alternative #1 with possible reduction in further release risk due to lower cap permeability/ reduced infiltration through CCR	Similar to Alternative #1, with reduction in the mobility of a release, or maintain within the site boundary.	Similar to Alternative #1 with further reduction due to lower mobility of contaminants in residual source material as a result of physical/chemical amendment.	Similar to Alternative #1 with the added ability to contain groundwater impacts.	Removal of CCR prevents further releases at SGS Receiving disposal site risk similar to Alternative #2
257.97(c)(2)(ii) The extent to which treatment technologies may be used	Alternative does not rely on treatment technologies	Alternative does not rely on treatment technologies for source control	Alternative does not rely on treatment technologies for source control. With pump-and-treat, this alternative relies on conventional pump and treat remediation.	Alternative relies on the identification and availability of a suitable amendment. Implementation of and contact with physical/chemical stabilizing agent will require specialized field implementation methods and health and safety measures.	Alternative relies on the identification and availability of a suitable barrier wall technology (e.g., permeable reactive barrier material or slurry wall). Implementation of and contact with barrier wall materials will require specialized field implementation methods and health and safety measures.	Alternative does not rely on treatment technologies for source control

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IMPLEMENTATION - 40 CFR 257.97(c)(3)						
257.97(c)(3)(i) Degree of difficulty associated with constructing the technology	No additional construction involved.	Low complexity construction Moderate degree of design and logistical complexity to complete cap upgrade	Moderate complexity construction Moderate degree of logistical complexity due to unimproved off-site property access. Moderate degree of logistical complexity; Moderate to low level of dewatering effort - dewatering required for material excavation/placement and capping. Moderate complexity construction for the installation of extraction wells and conveyance to a site-specific groundwater treatment plant.	Moderate complexity construction due to the equipment required to apply the selected amendment; requirements to ensure consistent contact and dosing of amendment; Medium degree of logistical complexity involving the import of specialty chemicals;	High complexity construction; Barrier walls require specialty installation equipment and knowledge. Highly specialized and experience contractors required to achieve proper installation. Moderate degree of logistical complexity; Moderate to low level of dewatering effort - dewatering required for material excavation/placement.	Low complexity construction High degree of logistical complexity including the excavation and off-site transport of large volume of CCR and permitting/development of re-disposal facility airspace Moderate to high level of dewatering effort if dewatering is required for excavation of full CCR volume
257.97(c)(3)(ii) Expected operational reliability of the technologies	Not Applicable	High reliability based on historic use of capping as corrective measure	Operational reliability depends on method of gradient control required/selected, the level of extracted groundwater treatment required, and the location of groundwater treatment. However, success of this remedy relies on the successful operation of a site-specific groundwater treatment plant. Overall expected reliability is good based on industry experience.	Similar to Alternative #2; however, success at SGS relies on the successful application of specialty amendment.	Similar to Alternative #3; however, success of this remedy relies on continued hydraulic conductivity of the selected barrier. Breaches or short circuiting can develop and must be monitored.	Success at SGS does not rely on operational reliability of technologies Overall success relies on off-site disposal facility, which is likely same/similar to Alternative #2
257.97(c)(3)(iii) Need to coordinate with and obtain necessary approvals and permits from other agencies	No further approvals or permits required	Need is low in comparison to other alternatives; State Closure Permit amendment likely required; State and local erosion control/construction stormwater management permits required	Need is high in comparison to other alternatives State Closure Permit amendment likely required Approval of facility receiving gradient control discharge for treatment required, or agency approval to construct the necessary treatment facility is required. Well permitting for extraction well installation; NPDES Permit for groundwater treatment and discharge; State and local erosion control/construction stormwater management permits required; Federal/State/Local Floodplain permitting likely required for downgradient work in floodplain.	Need is moderate in comparison to other alternatives; Underground Injection Control Permit may be required if chemical materials placed within groundwater. State and local erosion control/construction stormwater management permits required; Federal/State/Local Floodplain permitting likely required.	Need is moderate in comparison to other alternatives State Closure Permit required; Well permitting for barrier wall monitoring; Federal/State/Local Floodplain permitting required; State and local erosion control/construction stormwater management permits required	Need is highest in comparison to other alternatives State Closure Permit amendment likely required Approval of off-site disposal site owner required May require State solid waste comprehensive planning approval Local road use permits likely required
257.97(c)(3)(iv) Availability of necessary equipment and specialists	Not Applicable	Low level of demand for cap construction material	Moderate level of demand expected Level of demand may vary based on method of gradient control selected. A site-specific, trained employee will be required to operate the groundwater treatment system.	Specialized mixing equipment likely required to apply physical/chemical amendment and achieve required dosing.	Similar to Alternative #2; Availability of the necessary specialized equipment and extensive experience required for barrier installation is potentially low or in high demand.	Availability of necessary materials and equipment to develop necessary re-disposal facility airspace and transport large volume of CCR to new disposal facility will be a limiting factor in the schedule for executing this alternative
257.97(c)(3)(v) Available capacity and location of needed treatment, storage, and disposal services	Not Applicable	Not Applicable	There is no on-site capacity to treat gradient control system discharge If required, on-site capacity will need to be developed. Off-site capacity to treat gradient control system discharge may exist, but ability/willingness to accept discharge is currently unknown.	Capacity and location of treatment, storage, and disposal services is unlikely to be a factor for this alternative	Capacity and location of treatment, storage, and disposal services is unlikely to be a factor for this alternative	Re-disposal capacity, facility logistical capacity, or the time required to develop the necessary re-disposal and logistical capacity is a significant limiting factor
COMMUNITY ACCEPTANCE - 40 CFR 257.97(c)(4)						
257.97(c)(4) The degree to which community concerns are addressed by a potential remedy (Anticipated)	To be determined based on input obtained through public meetings/outreach to be completed	To be determined based on input obtained through public meetings/outreach to be completed	To be determined based on input obtained through public meetings/outreach to be completed	To be determined based on input obtained through public meetings/outreach to be completed	To be determined based on input obtained through public meetings/outreach to be completed	To be determined based on input obtained through public meetings/outreach to be completed

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Last revision by: EJN Date: 6/20/2022
Checked by: TK Date: 6/20/2022

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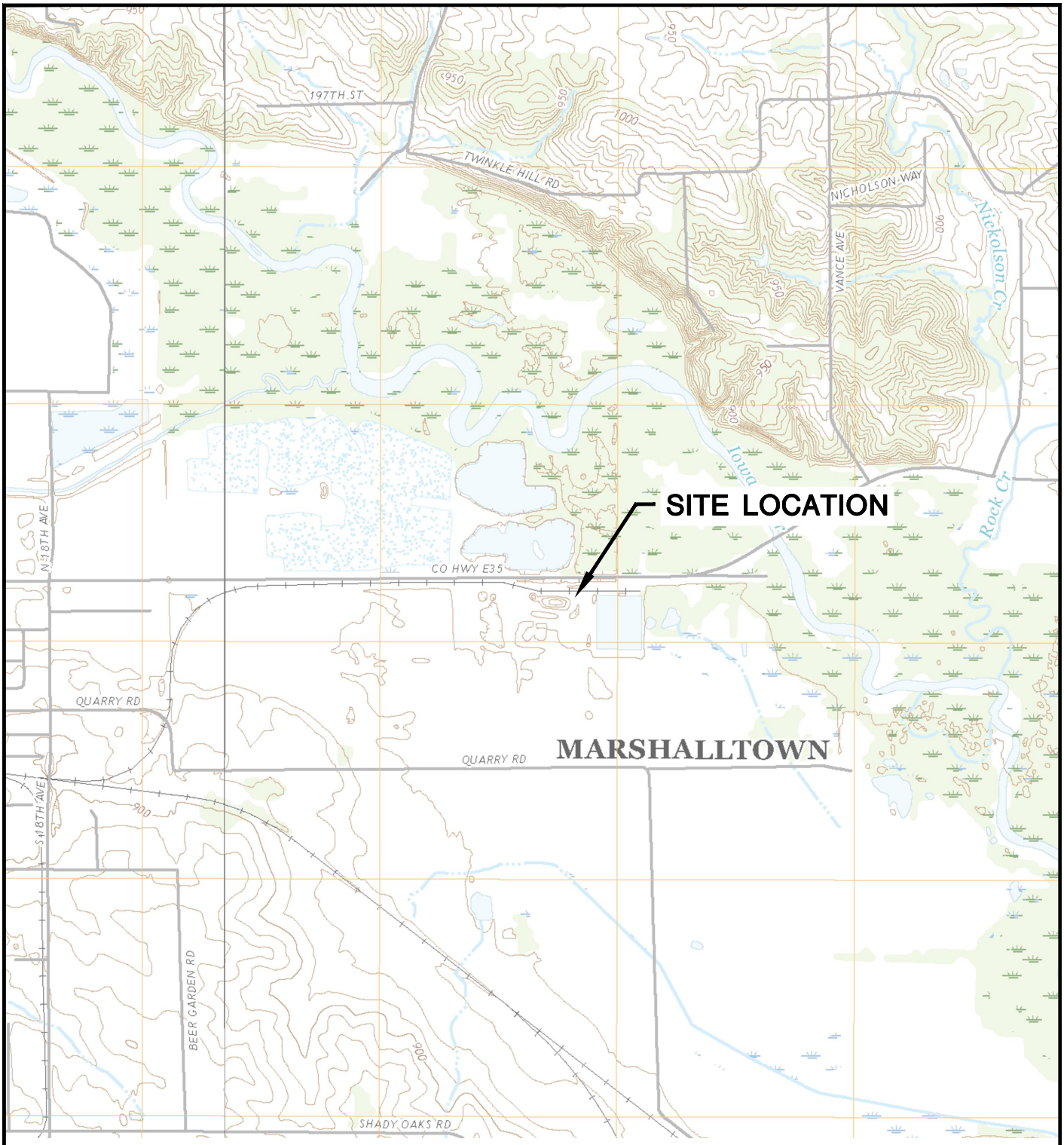
Figures



N

LE GRAND QUADRANGLE
IOWA–MARSHALL COUNTY
7.5 MINUTE SERIES (TOPOGRAPHIC)
2018
SCALE: 1" = 2,000'

CLIENT	ALLIANT ENERGY 4902 N. BILTMORE LANE, #1000 MADISON, WI 53718	SITE	ALLIANT ENERGY SUTHERLAND GENERATING STATION MARSHALLTOWN, IOWA

SITE LOCATION MAP

PROJECT NO.	25222076.00	DRAWN BY:	BSS
DRAWN:	11/15/2019	CHECKED BY:	MDB
REVISED:	01/14/2020	APPROVED BY:	TK 3/20/2022

ENGINEER

SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

FIGURE
1

I:\25222076.00\Drawings\Site Location Map.dwg, 2/17/2022 4:49:10 PM

LEGEND

- CCR MONITORING WELL
- CCR BACKGROUND MONITORING WELL
- FINAL CLOSURE AREA LIMITS

NOTES:

1. 2020 AERIAL PHOTOGRAPH SOURCES: ESRI, DIGITALGLOBE, GEOEYE, I-CUBED, USDA FSA, USGS, AEX, GETMAPPING, AEROGRID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY.
2. MONITORING WELLS MW-301 THROUGH MW-306 WERE INSTALLED BY DIRECT PUSH ANALYTICAL, NOVEMBER 20-21, 2017.
3. MONITORING WELLS MW-307 AND MW-308 WERE INSTALLED BY TERRACON, INC. IN NOVEMBER 30, 2021.
4. MONITORING WELLS MW-309, MW-310, AND MW-311 WERE INSTALLED BY DIRECT PUSH ANALYTICAL ON MAY 4, 2022.
5. THE BACKGROUND MONITORING WELLS FOR THE SUTHERLAND GENERATING STATION ARE MW-301 AND MW-302.

N

300 0 300

SCALE: 1" = 300'

PROJECT NO.	25222189.00	DRAWN BY:	BSS
DRAWN:	11/14/2019	CHECKED BY:	TK/NDK
REVISED:	09/02/2022	APPROVED BY:	TK 9/2/2022

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CLIENT: ALLIANT ENERGY
4902 N. BILTMORE LANE, #1000
MADISON, WI 53718

SITE: ALLIANT ENERGY
SUTHERLAND GENERATING STATION
MASHALLTOWN, IOWA

SITE PLAN AND MONITORING WELL LOCATIONS

FIGURE 2

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